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Final Report: Hanover Environmental Site Investigation, 2009-2010
Volume 1: Main Text

Environmental Science Division

USDA
United States Department of Agriculture
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Final Report: Hanover Environmental Site Investigation, 2009-2010
Volume 1: Main Text

by
Applied Geosciences and Environmental Management Section
Environmental Science Division, Argonne National Laboratory

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United States Department of Agriculture

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Notation

AGEM	Applied Geosciences and Environmental Management
BE	barometric efficiency
BGL	below ground level
CAS	Corrective Action Study
CCC	Commodity Credit Corporation
CD	compact disc
CLP	Contract Laboratory Program
COC	chain of custody
cpm	count(s) per minute
DOE	U.S. Department of Agriculture
EPA	U.S. Environmental Protection Agency
FSA	Farm Service Agency
ft	foot (feet)
gal	gallon(s)
GC-ECD	gas chromatograph-electron capture detection
GC-MS	gas chromatograph-mass spectrometer
gpm	gallon(s) per minute
hr	hour(s)
IAEA	International Atomic Energy Agency
in.	inch(es)
IRIS	Integrated Risk Information System
KDHE	Kansas Department of Health and Environment
K_h	horizontal hydraulic conductivity
μg/kg	microgram(s) per kilogram
μg/L	microgram(s) per liter
$\mu g/m^3$	microgram(s) per cubic meter
MCL	maximum contaminant level
mi	mile(s)
min	minute(s)
ng	nanogram(s)
pCi/L	picocurie(s) per liter
PVC	polyvinyl chloride
QA/QC	quality assurance/quality control
ROI	radius of influence

RPD	relative percent difference
RWD	Rural Water District
SDG	sample delivery group
sec	second(s)
SF_i	inhalation slope factor
SIM	selected ion monitoring
SRE	site reconnaissance and evaluation
T	transmissivity
TOC	top of casing
TU	tritium unit(s)
USDA	U.S. Department of Agriculture
VI	vapor intrusion
VOC	volatile organic compound
yr	year(s)

Final Report: Hanover Environmental Site Investigation, 2009-2010

Executive Summary

The Commodity Credit Corporation (CCC), an agency of the U.S. Department of Agriculture (USDA), operated a grain storage facility at the northeastern edge of the city of Hanover, Kansas, from 1950 until the early 1970s. During this time, commercial grain fumigants containing carbon tetrachloride were in common use by the grain storage industry to preserve grain in their facilities. In February 1998, trace to low levels of carbon tetrachloride were detected in two private lawn and garden wells near the former grain storage facility at Hanover, as part of a statewide USDA private well sampling program that was implemented by the Kansas Department of Health and Environment (KDHE) near former CCC/USDA facilities. In July 2007, the CCC/USDA sampled indoor air at nine residences on or adjacent to its former facility to address the residents' concerns. Low levels of carbon tetrachloride were detected at four of the nine homes.

Consequently, the CCC/USDA has conducted investigations, under the direction of the KDHE, to determine the source and extent of the carbon tetrachloride contamination that might be associated with the former facility.

The Investigation

The CCC/USDA investigation at Hanover began in July 2007 with the preliminary indoor air study outlined above. Extensive studies continued at Hanover from January 2009 until June 2010. The primary technical objectives of the 2009-2010 program were as follows:

- Identify contaminant sources and the extent of soil contamination beneath the former CCC/USDA facility.
- Characterize the groundwater-bearing system.
- Delineate the vertical and lateral extent of the groundwater contamination.
- Determine groundwater flow patterns.

- Evaluate the hydraulic properties of the groundwater-bearing system.

- Determine the potential for vapor intrusion attributable to subsurface contamination.

The 2009-2010 investigations at Hanover were designed to generate specific information required to address these technical objectives. The 2009-2010 investigations were conducted in five phases. as follows:

- *Phase 1.* Identify potential contaminant sources, and determine the vertical and lateral distributions of potential soil contamination beneath the former CCC/USDA facility.

- *Phase 2.* Determine the potential vertical and lateral extents of groundwater contamination beneath the former CCC/USDA facility, and obtain data to accurately characterize the site lithology, hydrostratigraphy, and groundwater flow.

- *Phase 3.* Delineate the off-site vertical and lateral extents of contamination in groundwater emanating from any potential source areas identified on the former CCC/USDA facility, and develop a monitoring system to evaluate groundwater flow patterns.

- *Phase 4.* Install additional monitoring wells to augment data collected during Phases 1-3 and to establish a long-term monitoring network. Conduct hydrogeologic testing to evaluate aquifer properties.

- *Phase 5.* Conduct a vapor intrusion investigation.

The investigations in Phases 1-4 focused on the characterization of soil and groundwater and were guided by a work plan approved by the KDHE. The Phase 5 activities to identify potential vapor intrusion issues were implemented in accord with a separate KDHE-approved work plan.

The key technical findings of the comprehensive geologic, hydrologic, and geochemical site characterization studies; the aquifer hydraulic testing; and the vapor intrusion investigation programs conducted at the former CCC/USDA grain storage facility in Hanover are reported in detail in this document. These findings are summarized below.

Physical, Geologic, and Hydrostratigraphic Setting

- The geologic sequence in the Hanover area generally consists of unconsolidated Pleistocene eolian deposits (on upland areas) and alluvial sediments (in floodplains areas) overlying Permian bedrock. In the study area, a vertical sequence of nine primary lithostratigraphic units was recognized. In order of increasing depth, these units consist of (1) Pleistocene unconsolidated silt and clay with a lower section of sand and sandy silt, (2) Permian weathered shale, (3) interbedded limestone and shale, (4) gray shale, (5) an upper red shale, (6) an interval that varies laterally in facies from evaporitic deposits to soft gray shale with limestone, (7) gray dolostone and shale, (8) a lower red shale, and (9) a lower evaporitic deposit (Figure ES.1).

- A prominent erosional unconformity marks the top of the Permian bedrock section. Together with more recent topographic downcutting, this erosional unconformity has influenced the lateral extent of the shallow units in the lithostratigraphic sequence at this site. The complete sequence of units outlined above is present beneath a local upland area that extends southwestward from the former CCC/USDA property. On the eastern and western flanks of the upland area, erosion has progressively cut into, or locally removed, the shallower lithostratigraphic units. On the western flank of the uplift, Units 1-4 are completely absent, and erosion has partially removed Unit 5 (Figures ES.2 and ES.3).

- Four groundwater-bearing intervals were identified in the bedrock sequence and designated as groundwater Zones 1-4 (Figures ES.1, ES.2, and ES.3). Groundwater Zone 1 — the uppermost water-bearing unit — consists of two to three discrete, thin, saturated horizons (total combined thickness of 1-3 ft) developed along bedding planes and fractures within the interbedded

limestones and shales of Unit 3. The areal extent of groundwater Zone 1 is bounded by the erosional limits of Unit 3. Semi-radial groundwater movement was identified in Zone 1, with flows to the northwest, west, southwest, and south originating from a localized groundwater high (groundwater divide) beneath the upland area at the former CCC/USDA facility. Preferential groundwater flow to the southwest is evident, along a relatively permeable zone underlying the upland. The estimated rate of groundwater flow in this direction is very low but greater by roughly one to two orders of magnitude than the rates of flow to the northwest, west, or south.

- Groundwater Zone 2 (Figure ES.1) consists of relatively thick saturated intervals (up to 5 ft in total) in the shale with limestone facies of Unit 6, or thin moist-wet intervals along bedding planes near the base of the upper red shale (Unit 5) where Unit 5 overlies the evaporitic facies of Unit 6. Zone 2 is laterally more extensive than Zone 1, since it is located deeper in the stratigraphic sequence and hence has been less severely truncated by erosion. Semi-radial groundwater flow was also identified in groundwater-bearing Zone 2, originating from a localized high beneath the former CCC/USDA facility. Groundwater movement to the west, southwest, south, and southeast is indicated; however, the observed contamination is associated with only the westerly flow direction.

- Groundwater Zone 3 (Figure ES.1) is hosted by the gray dolomitic shale near the base of Unit 7. The thin moist-wet intervals in this unit, which are difficult to identify, have a combined thickness of less than 2 ft. Groundwater Zone 4 is developed at the base of the lower red shale (Unit 8). The multiple thin, moist-wet intervals that form Zone 4 also have a total thickness of less than 2 ft. Continuous monitoring indicates that the groundwater levels in monitoring wells installed in Zone 3 and Zone 4 have yet to recover to the levels in the surrounding lithologies; therefore, the patterns of groundwater flow in these units cannot be determined from available data. The existing observations for these wells indicate, however, that the capacity of Zone 3 and Zone 4 to transmit groundwater to wells is very limited.

- Groundwater leakage from Zone 1 to Zone 2 is indicated in the area beneath the upland where groundwater mounding is observed in both Zone 1 and Zone 2. This downward vertical leakage, however, is minimal, as indicated by the much lower concentrations of carbon tetrachloride and nitrate observed in Zone 2 than in Zone 1. The apparent mixing ratio of Zone 1 groundwater flowing into Zone 2 is estimated at 10% or less, on the basis of concentration data for both carbon tetrachloride and nitrate in the upland area.

- Although equilibrium groundwater levels have not been achieved in Zone 3 or Zone 4, recent groundwater level measurements in Zones 1-4 indicate an upward hydraulic gradient from Zone 4 to Zone 3 (and also from Zone 4 to Zone 2). These observations suggest that a natural hydraulic barrier exists to downward migration of Zone 2 groundwater into the deeper parts of the flow system beneath the upland area.

Extent of the Contamination

- The residual concentrations of carbon tetrachloride and chloroform identified in soil were well below the KDHE Tier 2 standards for these contaminants (200 μg/kg and 960 μg/kg, respectively). Sampling of the soils beneath the former CCC/USDA facility was conducted at 38 locations. Carbon tetrachloride was detected at 8 locations only, at a maximum concentration of 35 μg/kg. Low levels of chloroform (≤ 44 μg/kg) were detected at 2 locations only.

- Carbon tetrachloride contamination was identified in the groundwater in Zone 1 at concentrations up to 617 μg/L (Figure ES.4). The highest concentrations of carbon tetrachloride (> 500 μg/L) were detected beneath the north central portion of the former CCC/USDA facility. Concentrations exceeding 100 μg/L generally underlie the topographic upland that extends to the south and southwest of the former facility, along the preferred groundwater flow pathway identified in this direction.

- Lateral variations in the carbon tetrachloride concentrations observed in Zone 1 (as a result of contaminant migration) show a close correlation to variations in the hydraulic conductivity (K_h) of the Zone 1 unit. Specifically, carbon tetrachloride concentrations > 100 μg/L are generally associated with the regions of highest K_h values in the unit (beneath the upland area), while progressively lower concentrations and K_h values are observed toward the margins of the upland.

- The elevated ratios of chloroform to carbon tetrachloride that are observed are evidence of degradation of carbon tetrachloride (by reductive dechlorination under anaerobic conditions) along the leading, downgradient margins of the contaminant distribution in groundwater Zone 1, as well as in groundwater Zone 2. Chloroform was found in groundwater Zone 1 at a maximum concentration of 18 μg/L. In the northern part of the former CCC/USDA facility, the relative abundance of chloroform to carbon tetrachloride was generally less than 2%. However, near the margins of the carbon tetrachloride distribution, the ratios of chloroform to carbon tetrachloride in Zone 1 increase locally to values of 13% to 64% or more. A similar increase (to values of 9% to 22%) is also evident in Zone 2.

- Carbon tetrachloride was identified in Zone 2 along a narrow pathway extending to the west and downgradient from the former CCC/USDA facility (Figure ES.5). The observed carbon tetrachloride concentrations ranged from 35 μg/L at the northern edge of the former facility to 11-28 μg/L near the downgradient toe of the distribution. Lower levels of carbon tetrachloride (1.5-7.8 μg/L) were also found in four private wells near the apparent western edge of this distribution. The private wells penetrate the deeper groundwater zones, with gravel packs extending to Zone 2 providing a conduit for contaminant migration to the deeper zones at these locations.

- No carbon tetrachloride was detected in groundwater Zone 3 or Zone 4 at monitoring wells completed exclusively in one of these zones. This observation is consistent with the interpretation that Zone 3 and Zone 4 receive little or no natural recharge via vertical infiltration from contaminated Zone 2.

Potential for Groundwater Production from Zone 1 and Zone 2

- The results of hydraulic characterization studies (slug tests, step-drawdown pumping tests, and constant-rate pump testing) conducted for groundwater-bearing Zone 1 indicate that the very limited groundwater production capacity of Zone 1 (mostly < 0.3 gpm in the short term) is restricted by the total effective thickness (1-3 ft) of the two-three discrete, thin horizons that form the interval; the heterogeneous hydraulic conductivity of the interval (ranging from 0.001 ft/day to 75 ft/day); and the generally limited availability of groundwater in Zone 1. The results further indicate that groundwater pumping (or injection) through the use of conventional wells does not represent a viable mechanism for hydraulic control or removal of the contaminated groundwater in Zone 1.

- The results of similar hydraulic testing conducted for groundwater-bearing Zone 2 indicate that this unit has a greater capacity than Zone 1 for groundwater production, because of the relatively greater total thickness (up to 5 ft) and generally less discrete nature of the Zone 2 water-bearing intervals, as well as the generally higher estimated K_h values of Zone 2 (ranging from 7.9 ft/day to 43 ft/day). Pumping tests conducted near the western (downgradient) margin of the Zone 2 contaminant distribution demonstrated that groundwater extraction appears feasible as a potential response technology in this portion of the Zone 2 water-bearing unit.

Vapor Intrusion

Carbon Tetrachloride and Chloroform

- In consultation with the KDHE, approximately 60 occupied residences were identified for possible vapor intrusion that might be linked to the carbon tetrachloride contamination identified in groundwater-bearing Zone 1 or in the western, more downgradient portion of Zone 2. Comprehensive indoor air testing was conducted in spring 2009 at all identified, accessible structures,

and confirmation air monitoring was performed in the summer and/or winter 2009-2010 at 17 homes identified as *potentially affected* by carbon tetrachloride contamination in groundwater Zone 1.

- Five homes, all overlying the documented contamination in groundwater-bearing Zone 1, were identified as *impacted* by carbon tetrachloride vapor intrusion at levels greater than the KDHE Tier 2 standard of 4.055 $\mu g/m^3$ for this contaminant in indoor air.

- With the approval of the KDHE, the CCC/USDA installed mitigation systems at each of the five homes determined to be impacted by vapor intrusion above the KDHE Tier 2 standard. Performance testing of the installed systems has demonstrated that they are effectively reducing indoor air contaminant concentrations to acceptable levels.

- At the request of the Hanover community, indoor air sampling was also conducted at the Hanover public school facility and St. John's School, which both lie outside the interpreted limits of the carbon tetrachloride distributions in groundwater Zone 1 and Zone 2. No carbon tetrachloride was detected at either facility.

Radon

- Radon analysis identified unacceptable levels of radon that exceed the EPA standard in 22 of 25 homes tested for this contaminant (Figure ES.6), as well as at selected locations in the Hanover public school facility and St. John's School.

- Radon is a naturally occurring substance that is unrelated to grain fumigation activities.

- Additional information about radon, including options for radon testing and mitigation, is available from the following sources:

- Toll free: 1-866-865-3233 — KDHE Bureau of Environmental Health

- Toll free: 1-800-693-5343 — Kansas Radon Hotline

- URL: http://www.epa.gov/radon/pubs/citguide.html — EPA publication, *A Citizen's Guide to Radon: The Guide to Protecting Yourself and Your Family from Radon*

- URL: http://www.epa.gov/radon/pdfs/hmbuygud.pdf — EPA publication, *Home Buyer's and Seller's Guide to Radon*

- URL: http://www.epa.gov/radon/rnxlines.html — EPA web page of radon hotlines and information

Assessment of Health Risk

The fundamental goal of the CCC/USDA site investigation efforts was the identification of potential contamination in the soils, groundwater, and surface waters, or in vapors intruding into indoor air, that might represent unacceptable health or environmental risks to the community of Hanover. The results of the investigations outlined above demonstrate the following:

- *Near-surface soils* at the former CCC/USDA facility pose no unacceptable health or environmental risks.

- Localized low, residual levels of carbon tetrachloride detected in the *subsurface soils* at the former CCC/USDA facility do not represent a potential continuing source of contamination to groundwater.

- No unacceptable health risks are associated with potential human exposure to the contaminated *groundwater* in Zone 1 or Zone 2, under current conditions at the site. No active private (or public) wells are known to be present within the area of Zone 1 contamination or are completed in this unit. Four existing private wells identified near the downgradient margin of the carbon

tetrachloride migration pathway in Zone 2 are used for lawn and garden purposes only.

- Field reconnaissance along the erosional limits of the Zone 1 and Zone 2 units (in the identified directions of contaminant migration) revealed no springs or seepage to suggest direct drainage from these intervals to the *surface waters* at Hanover.

- Only five homes, overlying the documented contamination in groundwater-bearing Zone 1, were identified as impacted by carbon tetrachloride *vapor intrusion* at levels greater than the KDHE Tier 2 standard for this contaminant in indoor air. Vapor mitigation systems were installed by the CCC/USDA and are operational in these five homes and will be inspected annually. Consequently, all risk associated with exposure to carbon tetrachloride vapor intrusion in the potentially affected areas of the community have been mitigated at this time.

- No carbon tetrachloride *vapor intrusion* was detected at either the Hanover public school facility or St. John's School, which both lie outside the interpreted limits of the carbon tetrachloride distributions in groundwater Zone 1 and Zone 2. No mitigation was required, and there is no associated health risk to the students and staff in the schools from carbon tetrachloride or chloroform vapors.

- *Vapor intrusion* of naturally occurring radon to indoor air at unacceptable health risk levels is a widespread phenomenon in Hanover and in Washington County generally. Radon is present at values exceeding the EPA action level (4.0 pCi/L) in the majority of the homes tested in Hanover (Figures ES.6 and ES.7). The occurrence of radon in the subsurface or indoor air is unrelated to the former CCC/USDA grain storage activities at Hanover.

Summary

- The results of the comprehensive investigation at Hanover indicate that no unacceptable risk to human health currently exists from exposure to surface and subsurface *soils* by either ingestion, inhalation or dermal contact.

- No risk is associated with potential exposure to contaminated *groundwater* at Hanover. No drinking water wells are known to exist in Hanover, and the drinking water supply comes from RWD #1 at Lanham, Kansas, located 6.5 mi north of Hanover.

- Limited potential risk was identified due to exposure to *indoor air* contaminated with carbon tetrachloride, but this risk has been mitigated, thereby removing this threat to human health.

- Radon is prevalent in the community, at concentrations exceeding the level at which the EPA recommends additional measures (testing and/or mitigation). The recommended testing and mitigation (if needed) are the responsibility of the homeowners.

- *In the current condition in which no private wells are used for drinking water in the affected area, no unacceptable human health risk from carbon tetrachloride is associated with the identified impacted media at the Hanover site.*

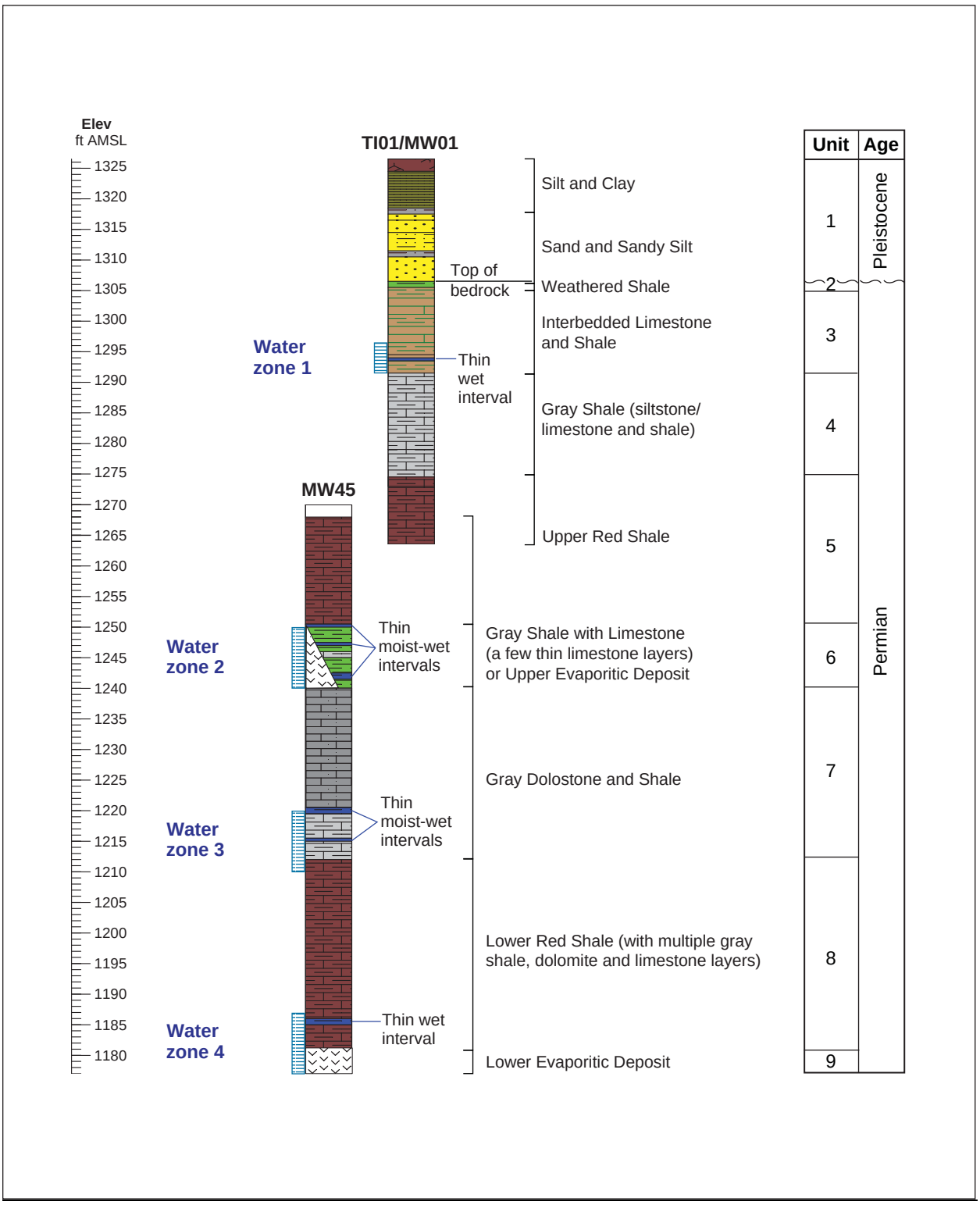

FIGURE ES.1 General stratigraphic section in the investigation area at Hanover

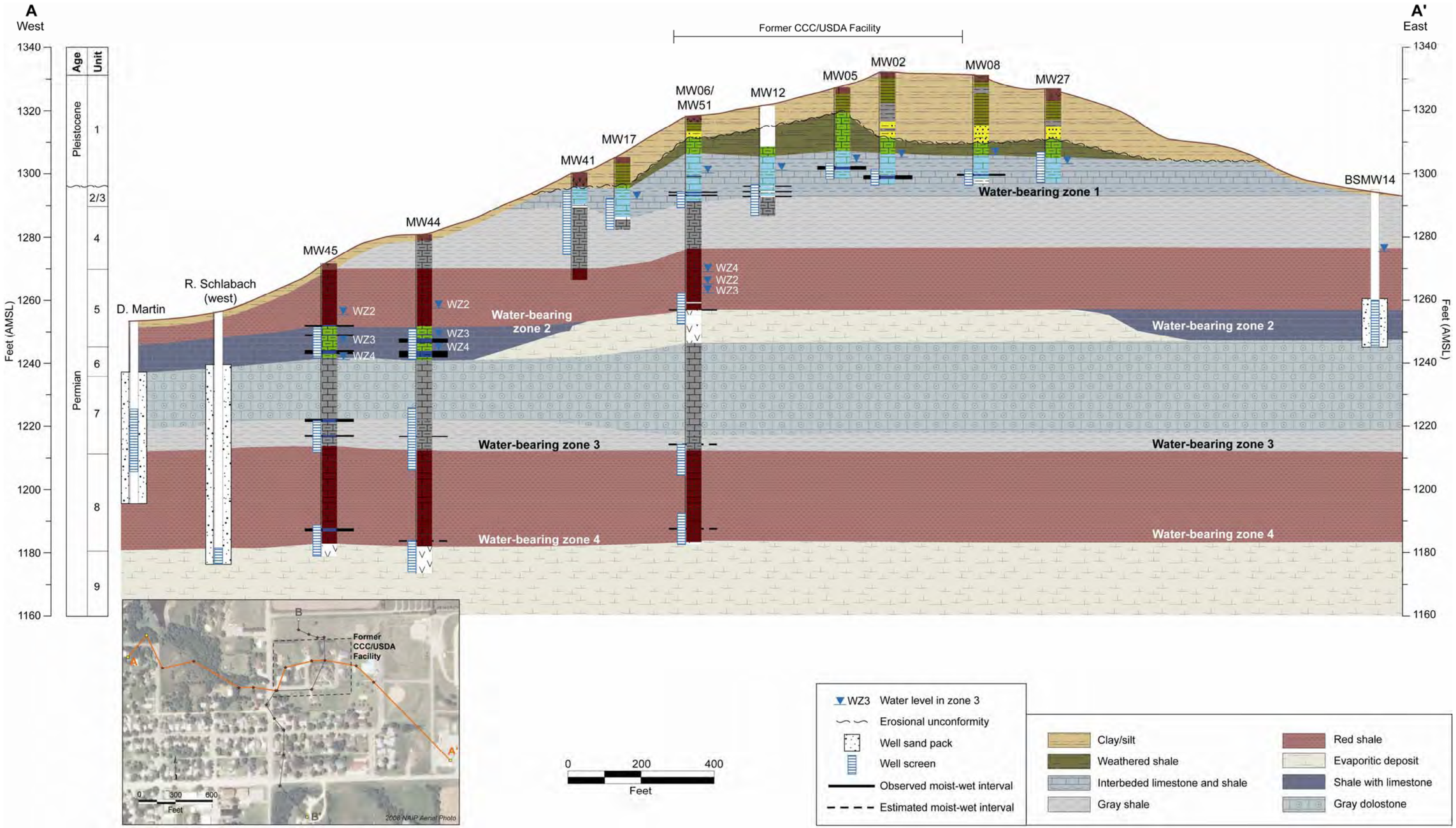

FIGURE ES.2 Interpretive west-to-east hydrogeologic cross section A-A'.

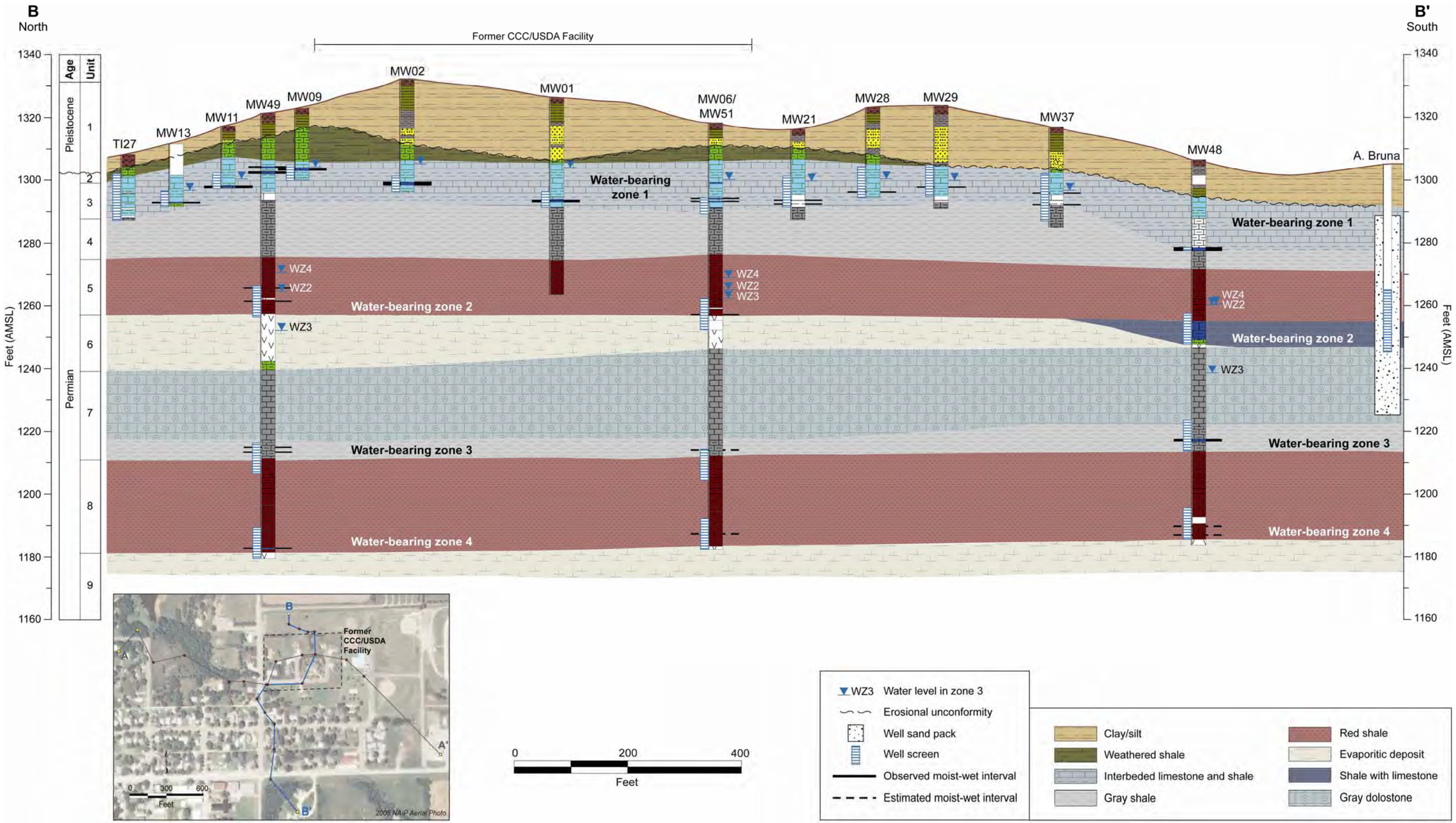

FIGURE ES.3 Interpretive north-to-south hydrogeologic cross section B-B'.

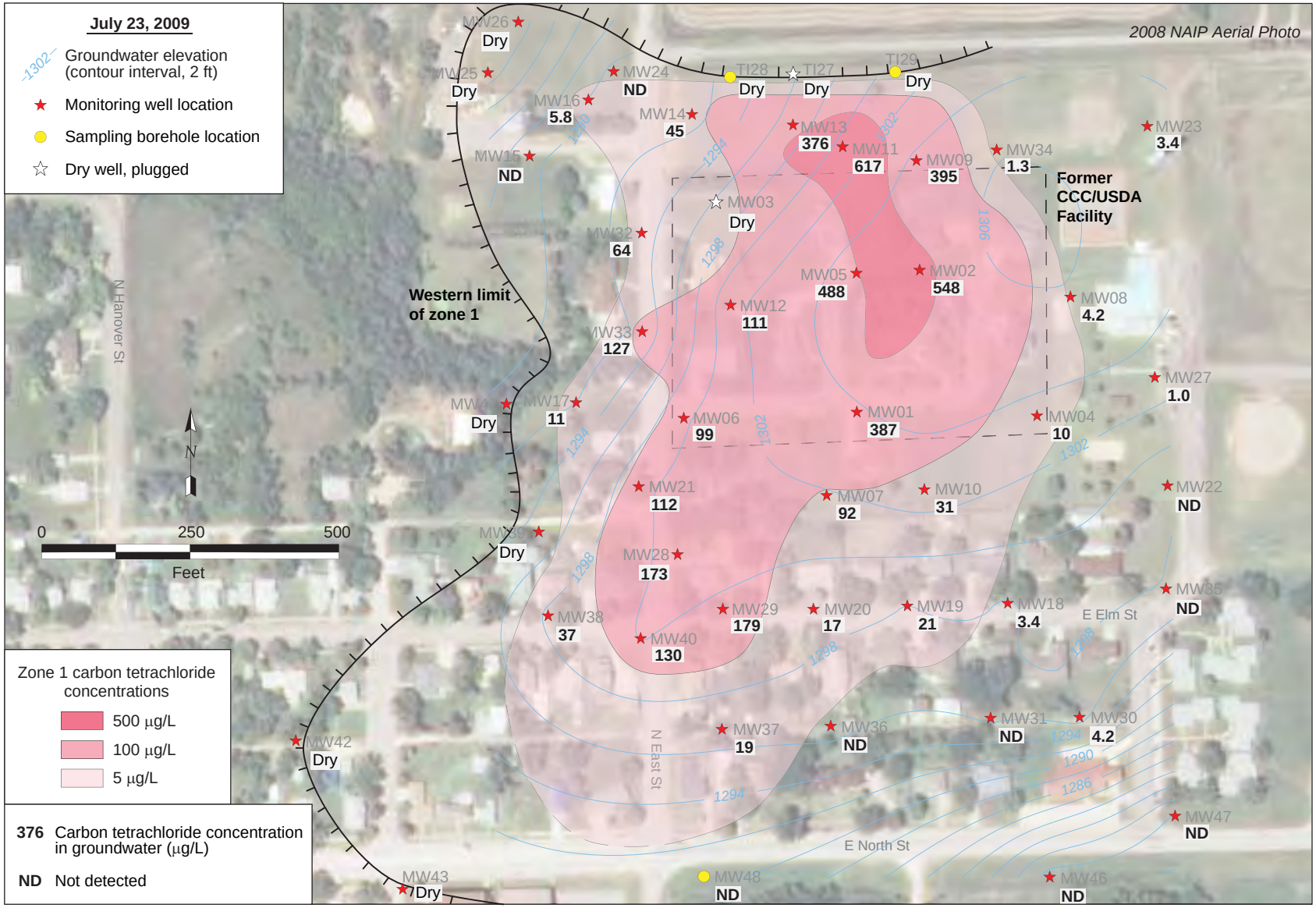

FIGURE ES.4 Carbon tetrachloride concentrations in groundwater Zone 1, with the interpreted lateral extent of the carbon tetrachloride contamination, the potentiometric surface, and the estimated western limits of groundwater Zone 1.

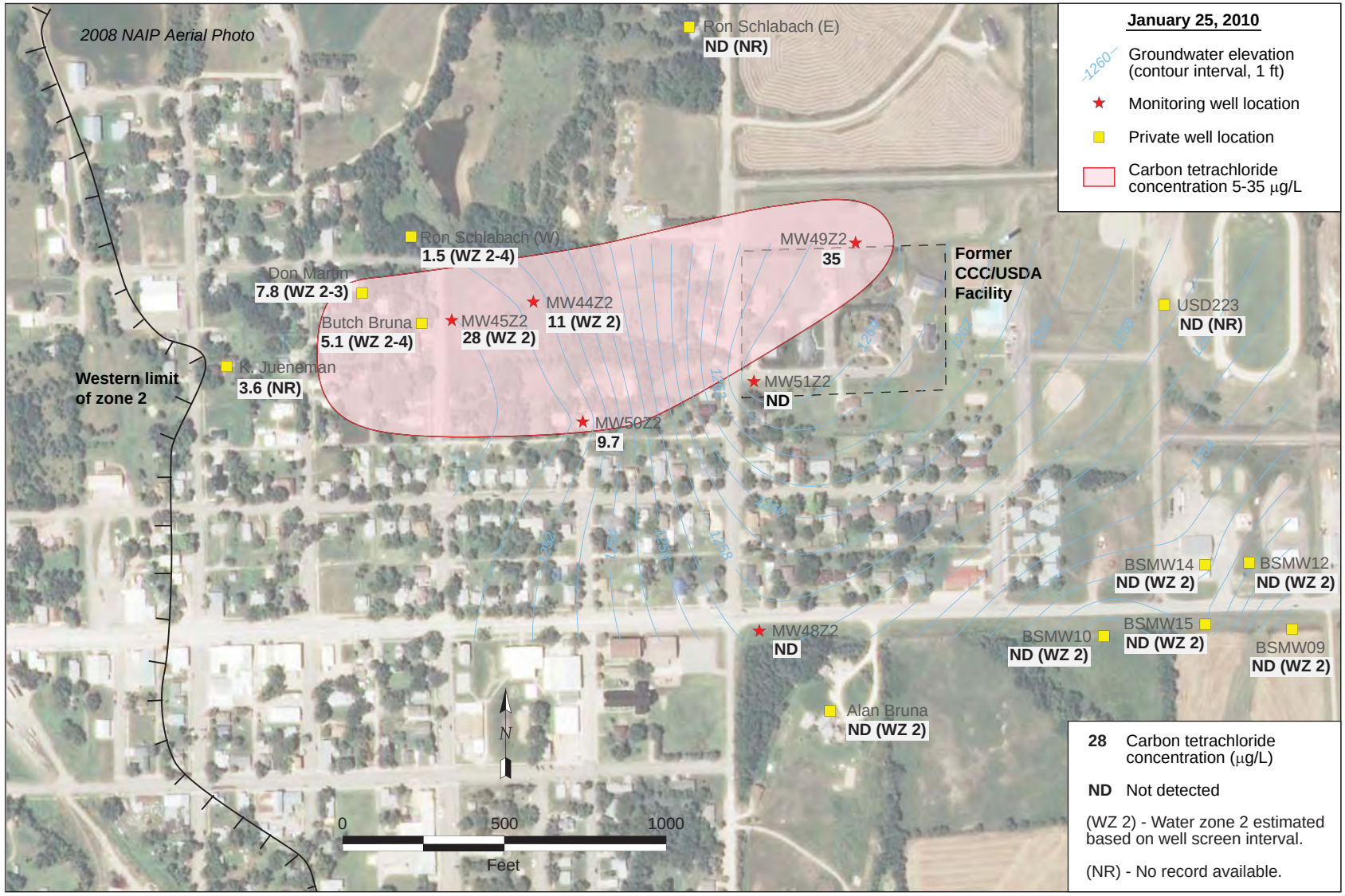

FIGURE ES.5 Carbon tetrachloride concentrations in groundwater Zone 2, with the interpreted lateral extent of the carbon tetrachloride contamination, the potentiometric surface, and the estimated western limits of groundwater Zone 2.

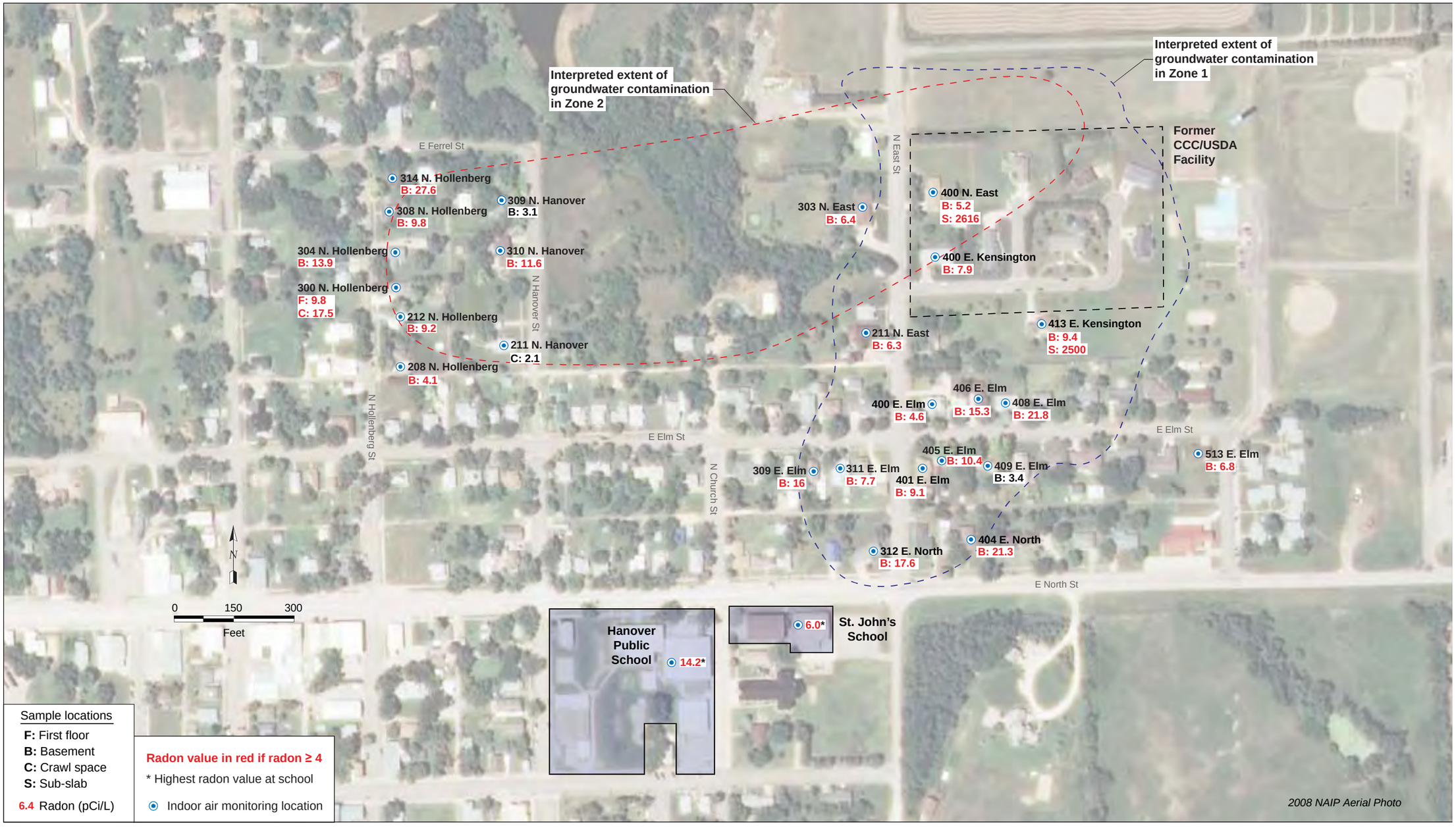

FIGURE ES.6 Radon concentrations detected in indoor air of the schools and the tested homes.

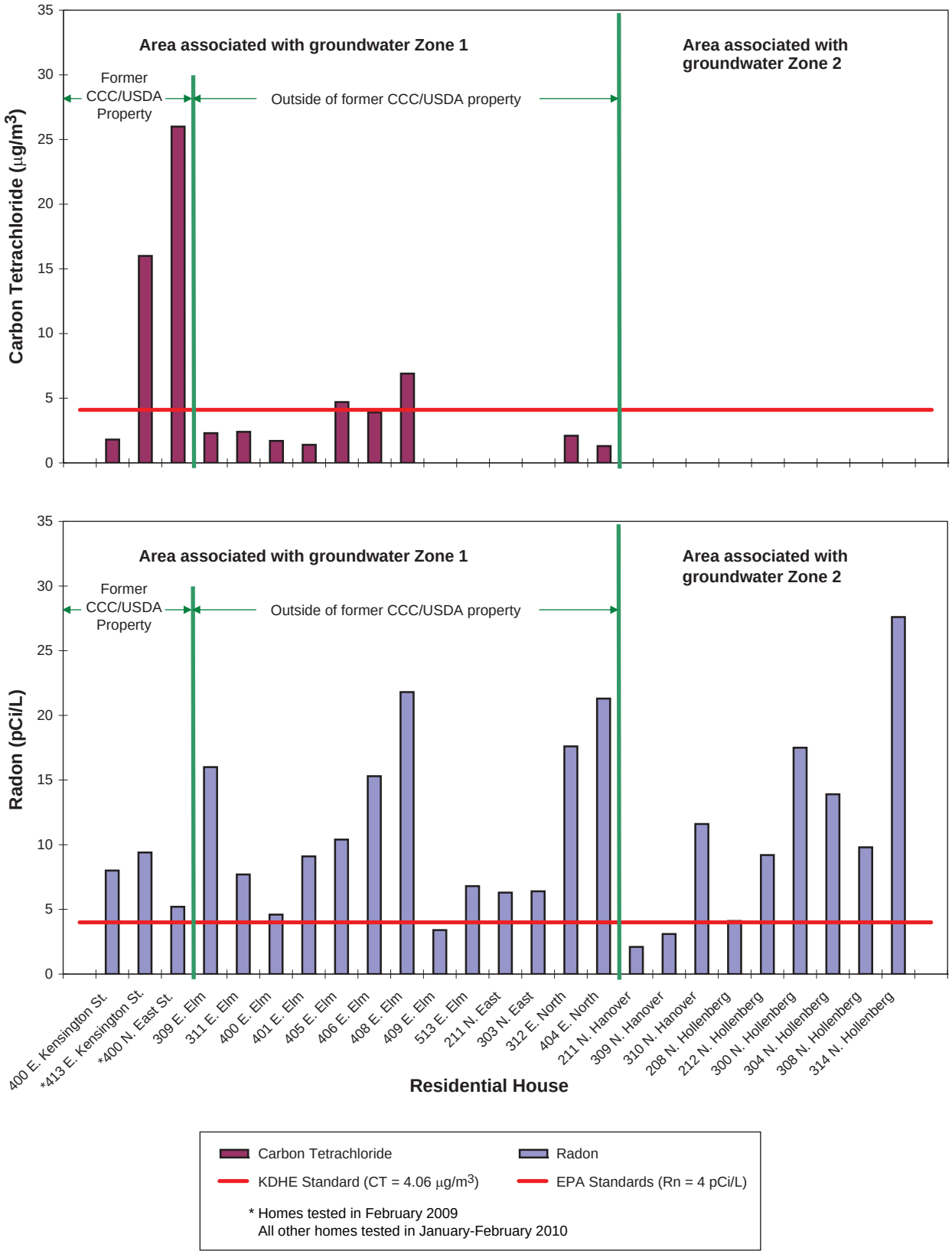

FIGURE ES.7 Qualitative correlation between radon and carbon tetrachloride in basement indoor air of homes tested.

1 Introduction

The Commodity Credit Corporation (CCC), an agency of the U.S. Department of Agriculture (USDA), operated a grain storage facility at the northeastern edge of the city of Hanover, Kansas, from 1950 until the early 1970s. During this time, commercial grain fumigants containing carbon tetrachloride were in common use by the grain storage industry to preserve grain in their facilities. In February 1998, trace to low levels of carbon tetrachloride were detected in two private lawn and garden wells near the former grain storage facility at Hanover, as part of a statewide USDA private well sampling program that was implemented by the Kansas Department of Health and Environment (KDHE) near former CCC/USDA facilities. No public water supply wells were identified within 1 mi of the town by the KDHE in 1998.

In July 2007, the CCC/USDA sampled indoor air at nine residences on or adjacent to its former facility to address the residents' concerns regarding vapor intrusion (VI). Low levels of carbon tetrachloride were detected at four of the nine homes.

Because carbon tetrachloride found in private wells and indoor air at Hanover might be linked to historical use of fumigants containing carbon tetrachloride at its former grain storage facility, the CCC/USDA has conducted investigations to determine the source and extent of the carbon tetrachloride contamination that may be associated with the former facility. The investigations were performed by the Environmental Science Division of Argonne National Laboratory in accordance with the intergovernmental agreement between the KDHE and the Farm Service Agency (FSA) of the USDA. Argonne is a nonprofit, multidisciplinary research center operated by UChicago Argonne, LLC, for the U.S. Department of Energy (DOE).

This report presents the findings of the investigations at Hanover, conducted from January 2009 to June 2010.

1.1 Background and Previous Investigations

Hanover, Kansas, is a rural city located in northeastern Washington County, in Section 9, Township 2 South, Range 5 East, approximately 78 mi northwest of Manhattan, Kansas, and 90 mi southwest of Lincoln, Nebraska (Figure 1.1). Hanover is a state historic site known for the Hollenberg Pony Express Station. The city has numerous small businesses, the Farmers

Cooperative Association, and a hospital. It also has public and private schools, churches, a library, a weekly newspaper, and a recreation facility.

The 2000 Census recorded 653 people in 329 housing units in the city of Hanover. The residents of the city have been served since February of 1974 by a public water supply system that obtains water from the Washington County Rural Water District (RWD) #1, which has a well field located 6.5 mi north of the town, outside the investigation area (Figure 1.1).

Prior to February of 1974, the city had its own wells in the Little Blue River valley, on the southwest side of the city, taping water from the alluvial aquifer. These wells have been abandoned. The water from the old city wells had a hardness of 99 grains per gallon (RWD 2009), which is "very hard" (Water Quality Association 2010). "Very hard" water can cause serious problems, including clogging of the delivery piping system, interference with all cleaning tasks, and inefficient and costly operation of water-using appliances. The Rural Water District #1 water now used has a hardness of 21 grains per gallon. In March 2009, the city of Hanover forfeited its water rights (Water Appropriation Program 2009).

The Washington County RWD #1 currently maintains three well fields consisting of 10 wells: Lanham (4 wells), Washington (2 wells), and Marysville (4 wells). The Hanover community receives its water supply primarily from the Lanham well field. The RWD #1, however, can transfer water from one well field to the other if a capacity problem occurs at any of the three well fields. The recent KDHE annual RWD sampling data indicate that carbon tetrachloride was detected at concentrations of 0.86 μg/L to 1.4 μg/L (below the maximum containment level [MCL] of 5 μg/L) in annual sampling events in 2005, 2007, 2008, and 2009 (KDHE 2009f). All of the groundwater samples were collected from a single point of entry at the Lanham Pump House 1, which connects four wells (2, 3, 11, and 12) in the Lanham well field.

At the request of the KDHE, the CCC/USDA conducted a review of historical aerial photos and interviewed the Washington County FSA. A records search indicated that no former grain storage facilities operated by the CCC/USDA were located at or near the Lanham well field. The historical aerial photos show that other commercial or private grain storage facilities were present in the past at and near the Lanham well field. It is anticipated that the KDHE will determine whether further investigation is warranted for the former commercial/private grain storage facilities at and near the Lanham well field.

In response to the initial detection of trace levels of carbon tetrachloride in private lawn and garden wells at Hanover in early 1998, the KDHE and the CCC/USDA conducted the following investigations and studies:

- Pre-CERCLIS site reconnaissance and evaluation (SRE) in July 1998 (KDHE 1998)

- Private well sampling in April 2006, as a part of statewide USDA private well sampling program (KDHE 2007a)

- Near-surface soil sampling at the former CCC/USDA grain storage facility in April 2007 (Argonne 2008a)

- Indoor air sampling at nine residences on or adjacent to the former CCC/USDA grain storage facility in July 2007 (Argonne 2008a)

- Review of site historical data and the former grain storage facilities (Argonne 2008a)

The main findings of the previous investigations are summarized as follows:

- The CCC/USDA operated a grain storage facility from 1950 to the early 1970s on approximately 6.5 acres in the northeastern part of the city. The facility reached a maximum operational scale in the late 1960s with 223 grain bins and 1 storage building. Another major private grain storage facility is currently operated by the Farmers Cooperative Association (the Co-op), located approximately 2,000 ft west of the former CCC/USDA property (Figure 1.2).

- In 1973, the CCC/USDA grain bins were sold at auction to local farmers. In 1974, the parcel was formally surveyed as the Warren Addition, and in 1974-1975 the first of nine homes now present on or immediately adjacent to the former CCC/USDA property were constructed. The parcel was significantly sloped prior to residential development. Leveling of the entire area displaced much of the original surface soil. Further changes in the area's surface

resulted from excavation to remove bins, installation of roadways, and residential landscaping.

- Two other facilities in the area are associated with petroleum contamination leaking from aboveground storage tanks and underground storage tanks, respectively. Both were operated by Bill's Service Center (Figure 1.2).

- In 1998, five private wells were sampled as part of the USDA private well sampling program and the subsequent KDHE (1998) SRE investigation. Carbon tetrachloride was found in groundwater from one private lawn and garden well (Meyn) at a concentration (5.9 μg/L) near the MCL. The well is located approximately 1,000 ft west of the former CCC/USDA facility. Trace (approximately 1 μg/L) to no contamination was detected in groundwater samples collected from four other private wells surrounding the former CCC/USDA facility (Figure 1.3).

- In July 1998, the KDHE collected 11 soil samples above the bedrock (9 samples at 10.5-11.5 ft BGL [below ground level] and 2 samples at 19.5 ft BGL) in a pre-CERCLIS SRE investigation. All soil samples showed trace or no carbon tetrachloride contamination, except for one collected at the west edge of the former CCC/USDA facility. A low level of carbon tetrachloride (3.9 μg/kg in on-site analysis and 7.1 μg/kg [well below the state's cleanup level of 200 μg/kg] in off-site laboratory analysis) was detected at 11.5 ft BGL at this location (SP-9) (Figure 1.4).

- In April 2006, the KDHE resampled two private wells where low contamination had been detected in the previous sampling event. Low-level carbon tetrachloride (4.3 μg/L, below Kansas standards) was confirmed at the lawn and garden well (Meyn), but no contamination was found at the other well (Bruna) (Figure 1.3).

- In April 2007, Argonne collected near-surface soil samples at 1.8-2 ft BGL at 61 locations across the former CCC/USDA facility. Analysis of soil samples by the heated-headspace method (a screening tool) indicated four areas with trace-level carbon tetrachloride (Figure 1.5), where further investigation of

underlying subsurface soils was warranted. No contamination was found in confirmation analysis of the samples by the rigorous gas chromatograph-mass spectrometer (GC-MS) analytical method (the purge-and-trap method).

- In July 2007, indoor air samples were collected from the basement areas of nine residences on or adjacent to the former CCC/USDA property.[1] Carbon tetrachloride was detected in the air samples from four residences at concentrations ranging from 1.4 to 4.8 $\mu g/m^3$ (Figure 1.6). On the basis of these results, on March 26, 2008, the KDHE (2008a) asked the CCC/USDA to prepare a work plan for a vapor intrusion investigation. The *Supplemental VI Work Plan* (Argonne 2008b) was submitted on July 9, 2008, and approved by the KDHE (2008b) on July 17, 2008.

- In August 2008, discussions between the KDHE and the CCC/USDA led to an agreement to delay implementation of the *Supplemental VI Work Plan* until winter and to conduct site characterization in the interim (KDHE 2008c). A work plan for site characterization (Argonne 2008a) was submitted on August 15, 2008, and approved by the KDHE on November 18, 2008 (KDHE 2008d).

1.2 Objectives of the 2009-2010 Investigations

The 2009-2010 CCC/USDA-Argonne investigations were conducted at the request and with the concurrence of the KDHE (2008a-d). The primary goals of these investigations were to characterize soil and groundwater contamination that may be associated with the past use of carbon tetrachloride-based grain fumigants at the former CCC/USDA facility and to identify potential intrusion of contaminant vapor (to indoor air) due to possible soil and groundwater contamination. Investigation of other potential contaminant sources was outside the scope of the CCC/USDA work.

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[1] The KDHE standard for carbon tetrachloride in residential indoor air at this time was 1.6 $\mu g/m^3$. In April 2010, the KDHE changed the standard to 4.055 $\mu g/m^3$, as a result of the release by the U.S. Environmental Protection Agency of new data related to human health risk associated with inhalation of carbon tetrachloride. A more detailed discussion is in Section 2.6.3.

The results of the CCC/USDA studies are being used to determine whether response actions are warranted and in what form. To meet the goals, the detailed technical objectives of the investigations were as follows:

- Identify contaminant sources and the extent of soil contamination beneath the former CCC/USDA facility.
- Characterize the groundwater-bearing system.
- Delineate the vertical and lateral extent of the groundwater contamination.
- Determine groundwater flow patterns.
- Evaluate the hydraulic properties of the groundwater-bearing system.
- Determine potential VI attributable to subsurface contamination.

The 2009-2010 investigations were designed to generate specific information required to address these technical objectives. The *Final Work Plan* (Argonne 2008a) for the overall investigation and the *Supplemental VI Work Plan* (Argonne 2008b) were approved by the KDHE (2008b,d). Subsequently, smaller work plans to guide specific activities were developed during the investigations and incorporated into the *Final Work Plan* and the *Supplemental VI Work Plan* as addenda, with the approval of the KDHE (2008e, 2009a-d, 2009h, 2010a,c). The investigations were carried out in accordance with KDHE (2005a,b) guidance and with KDHE oversight. The *Final Work Plan* (Argonne 2008a) is reproduced as Supplement 1 on the compact disc (CD) inside the back cover of Volume 1. The *Supplemental VI Work Plan* (Argonne 2008b) is reproduced as Supplement 2 (also on CD).

1.3 Summary and Timeline of Field Investigation Activities

The 2009-2010 investigations were conducted in five phases, as outlined in the *Final Work Plan* (Argonne 2008a) and the *Supplemental VI Work Plan* (Argonne 2008b). The five implementation phases, as planned, were as follows:

- *Phase 1.* Identify potential contaminant sources, and determine the vertical and lateral distributions of potential soil contamination beneath the former CCC/USDA facility.

- *Phase 2.* Determine the potential vertical and lateral extents of groundwater contamination beneath the former CCC/USDA facility, and obtain data to accurately characterize the site lithology, hydrostratigraphy, and groundwater flow.

- *Phase 3.* Delineate the off-site vertical and lateral extents of contamination in groundwater emanating from any potential source areas identified on the former CCC/USDA facility, and develop a monitoring system to evaluate groundwater flow patterns.

- *Phase 4.* Install additional monitoring wells to augment data collected during Phases 1-3 and to establish a long-term monitoring network. Conduct hydrogeologic testing to evaluate aquifer properties.

- *Phase 5.* Conduct a VI investigation.

The investigations in Phases 1-4 focused on the characterization of soil and groundwater, with work guided by the *Final Work Plan* (Argonne 2008a). The Phase 5 activities were implemented to identify potential VI. These activities were in accord with the *Supplemental VI Work Plan* (Argonne 2008b).

Data collected in each phase were evaluated to determine whether further activities in that phase and/or subsequent phases were necessary. During the 2009-2010 investigations, several addenda to the *Final Work Plan* (Argonne 2008a) and the *Supplemental VI Work Plan* (Argonne 2008b) were developed as results accumulated and understanding of the site improved. These addenda provide the scope, approaches, and plans that guided detailed activities that had not been anticipated or specified in the *Final Work Plan* and the *Supplemental VI Work Plan*. All addenda were approved by the KDHE (2008c, 2009a-d, 2009g, 2010a,c) prior to implementation.

The 2009-2010 studies at Hanover were conducted in accord with the *Final Work Plan* (including addenda; Argonne 2008a), the *Supplemental VI Work Plan* (including addenda; Argonne 2008b), and the *Master Work Plan* (Argonne 2002). These investigations included the following major field activities:

- *January 13-February 10, 2009.* Characterization of soil and groundwater systems and associated contamination, at and near the former CCC/USDA facility (Phases 1-2).

- *February 2-4, 2009.* Investigation of upward VI in residences, with collection of vapor/air samples from sub-slab, basement, and first-floor spaces for analyses of volatile organic compounds (VOCs) and a tracer (radon). Three residences were investigated at and near the former CCC/USDA facility, where relatively higher levels of carbon tetrachloride had been detected in the July 2007 sampling (Phase 5).

- *February 23-March 6, 2009.* Characterization of the contamination in groundwater emanating from the former CCC/USDA facility (beyond the limits of the former facility), in the uppermost water-bearing unit of the hydrogeologic sequence (Zone 1). The work in Phases 1-3 resulted in the identification of the four water-bearing zones illustrated schematically in Figure 1.7.

- *March 12-13, 2009.* Wintertime indoor air sampling in six additional residences, on the basis of the results of the February 2-4, 2009, sampling at three residences at and near the former CCC/USDA facility (Phase 5 extension). In previous (July 2007) summertime sampling, these six additional residences had exhibited no carbon tetrachloride or low levels.

- *March 24-April 3, 2009.* Completion of characterization of groundwater-bearing Zone 1, with extension of the groundwater investigation to deeper water-bearing Zones 2-4 (Phases 3-4).

- *March 23-April 9, 2009.* On-site screening for residential VI through collection of vapor/air from soil, sub-slab, basement, and first- or second-floor

spaces of all accessible residences in the area where groundwater contamination had been identified in Zone 1 (Phase 5 extension).

- *June 22, 2009.* Groundwater sampling for four additional private wells identified during the community meeting on May 29, 2009 (Phases 3-4).

- *August 10-14, 2009.* Slug testing to evaluate the hydraulic properties of groundwater-bearing Zone 1 (Phase 4).

- *August 11-13, 2009.* Indoor air sampling for summertime monitoring of 17 selected residences associated with groundwater contamination in Zone 1, as indicated by the results of on-site screening on March 23-April 9, 2009 (Phase 5).

- *September 21-October 16, 2009.* Characterization of the deep groundwater system (water-bearing Zones 2-4) and associated contamination (Phases 3-4).

- *November 23-25, 2009.* Step-drawdown testing of water-bearing Zone 1 at three wells selected on the basis of the results of the slug testing on August 10-14, 2009, to determine the sustainable pumping potential at these locations (Phase 4).

- *January 25-26, 2010.* Indoor air sampling for wintertime monitoring of 17 residences selected on the basis of results of the on-site screening related to water-bearing Zones 1 and 2 on March 23-April 9, 2009 (Phase 5).

- *January 26-27, 2010.* Slug testing to evaluate the hydraulic properties of groundwater-bearing Zone 2 (Phase 4).

- *February 22-23, 2010.* Constant-rate pump testing of Zone 1 well MW05, to determine the long-term sustainable pumping rate at this location. Well MW05 was selected on the basis of the results of the step-drawdown testing on November 23-25, 2009 (Phase 4).

- *February 22-25, 2010.* Investigation of potential VI for two schools at Hanover, at the residents' request, as well as collection of indoor air samples at nine residences associated with contamination in groundwater Zone 2 (Phase 5).

- *March 17-20, 2010.* Constant-rate pump testing (24-hr) of Zone 2 well MW44, to determine the long-term sustainable pumping rate at this location. Well MW44Z2 was selected on the basis of the results of the slug testing on January 26-27, 2010 (Phase 4).

- *April 12, 2010.* Inspection of creek bottoms and ditches to search for seeps, from the former CCC/USDA facility and westward to the creek (east of Denver Avenue).

- *June 17, 2010*. Sampling of selected monitoring wells for nitrate analysis.

More detailed information for all of the activities during the 2009-2010 investigations is listed chronologically in Table 1.1.

1.4 Organization of This Report

This report documents all the data acquired during the 2009-2010 investigations, presents integrated analyses and interpretation of the results to address the objectives stated in Section 1.2, and proposes preliminary response action objectives and potential corrective action technologies for the investigation area. Section 1 provides brief background information, summarizes previous investigations of the site, identifies specific technical objectives of the 2009-2010 investigations, and summarizes the major investigation events in a time sequence. Section 2 describes the investigative methods used during the 2009-2010 studies. Section 3 presents the results of all investigative activities. Section 4 discusses and interprets the results in the context of the specific technical objectives outlined in Section 1.2. Section 5 summarizes the findings of the investigations. Response action objectives and potential corrective action technologies for the site are proposed in Section 6.

The appendixes in Volume 2 contain lithology logs, well construction and registration information, sample descriptions, hand-measured water level data, survey data, and brief summaries of aquifer testing results. The CD inside the back cover of Volume 1 contains complete results of aquifer testing, automatic water level monitoring, waste characterization, vapor intrusion monitoring, and quality control activities, along with reports for specific investigation and vapor mitigation tasks performed during the 2009-2010 investigation and the work plans that guided the investigation.

TABLE 1.1 Summary of investigation activities and response actions at Hanover, 1998-2010.

Date	Activity	Objective	Methodology
Prior investigation by the KDHE to evaluate potential carbon tetrachloride contamination			
February 17, 1998	Private well sampling by the KDHE under the joint KDHE-CCC/USDA private well sampling program.	Determine whether carbon tetrachloride is present in groundwater as a result of former CCC/USDA grain storage operations.	Sample collection from 3 private wells located within 1 mi of the former CCC/USDA grain storage facility.
July 1998	KDHE completion of SRE report for the former CCC/USDA grain storage facility.	Identify site contamination and potentially responsible party.	Subsurface soil sampling with Geoprobe; private well sampling.
April 26, 2006	KDHE private well sampling.	Update the previously identified groundwater contamination.	Sample collection from Bruna and Meyn private wells (also sampled in 1998).
Investigation by the CCC/USDA to address residents' concerns regarding former grain storage operations			
April 18, 2007	Near-surface soil sampling in response to resident concerns regarding potential carbon tetrachloride contamination due to former CCC/USDA grain storage operations.	Evaluate the potential for subsurface soil contamination and for human exposure.	Near-surface soil sampling at 61 locations across the former CCC/USDA property, with preservation on dry ice and analysis for VOCs at the AGEM Laboratory.
July 10-11, 2007	Indoor air sampling in the basements of 9 residences on the former CCC/USDA property, in response to resident concerns.	Conduct an initial evaluation of indoor air contamination.	Air collection over 24 hr in Summa canisters; analysis by TestAmerica, Burlington, Vermont, by EPA Method TO-15.
October 11, 2007	Submittal to the KDHE of results of near-surface soil sampling (April 2007) and indoor air sampling (July 2007).	–	–
October 18, 2007	Submittal to the KDHE of an evaluation of indoor air carbon tetrachloride concentrations measured in July 2007.	Evaluate potential risk.	Although no immediate health risk was evident, investigation was recommended to determine whether the detected concentrations were due to VI from contaminated subsurface soil or groundwater.
December 5, 2007	Issuance of KDHE response regarding evaluation of indoor air results and request for VI work plan.	–	Additional sampling or installation of mitigation systems requested.

TABLE 1.1 (Cont.)

Date	Activity	Objective	Methodology
Investigation by the CCC/USDA to characterize the nature and extent of site contamination and potential response actions			
March 26, 2008	Issuance of KDHE request to develop a VI work plan.	Evaluate the potential for VI.	Investigation under the KDHE-CCC/USDA Inter-Governmental Agreement.
July 9, 2008	Submittal to the KDHE of the draft VI investigation work plan.	Evaluate the potential for VI by comparison of sub-slab and indoor air concentrations.	Phased investigation in conjunction with the site characterization investigation.
July 17, 2008	Issuance of KDHE approval for the VI work plan.	–	–
August 15, 2008	Submittal to the KDHE of the draft site characterization work plan.	Characterize soil and groundwater contamination associated with past use of carbon tetrachloride-based grain fumigants at the former CCC/USDA facility.	Phased investigation of the nature and extent of carbon tetrachloride contamination in soil and groundwater on and adjacent to the former CCC/USDA property.
September 9, 2008	Issuance of KDHE comments on the draft site characterization work plan.	–	–
October 13, 2008	Submittal to the KDHE of the revised site characterization work plan and a response to KDHE comments.	–	–
November 18, 2008	Issuance of KDHE approval for the site characterization work plan.	–	–
December 15, 2008	Submittal to the KDHE of a plan for indoor air and ambient air sampling.	Evaluate the potential for VI in 4 homes on the former CCC/USDA facility.	Sub-slab and indoor air sampling for carbon tetrachloride, chloroform, and radon (as a tracer).
December 23, 2008	Issuance of KDHE comments on the indoor air sampling plan.	–	–
January 13-15, 2009	Implementation of Phase 1 of the site characterization work plan, on the former CCC/USDA property.	Identify potential soil sources and determine the vertical and lateral distribution of carbon tetrachloride contamination in soil.	Subsurface soil sampling to bedrock based on 2007 surface soil results; sampling at 25 locations (TI01-TI25), approximately every 4 ft; preservation on dry ice and analysis for VOCs at the AGEM Laboratory.

TABLE 1.1 (Cont.)

Date	Activity	Objective	Methodology
Investigation by the CCC/USDA to characterize the nature and extent of site contamination and potential response actions (cont.)			
January 28- February 10, 2009	Implementation of Phase 2 of the site characterization work plan, on the former CCC/USDA property.	Determine the vertical and lateral extent of groundwater contamination, and obtain data to characterize the site lithology, hydrostratigraphy, and groundwater flow.	Additional subsurface soil sampling and installation of 12 monitoring wells (MW01, MW02, MW04-MW13) on and adjacent to the former CCC/USDA facility.
February 2-4, 2009	Investigation of upward VI in 3 residences on the former CCC/USDA property where carbon tetrachloride was detected in July 2007.	Evaluate indoor air contamination during optimal winter sampling period when homes are most closed to outside air.	Collection of vapor/air samples from sub-slab, basement, and first-floor spaces for analysis of VOCs and tracer radon.
February 18, 2009	KDHE-CCC/USDA teleconference.	Present results of site investigation to date.	–
February 23- March 6, 2009	Implementation of Phase 3 of the site characterization work plan, outside the former CCC/USDA property.	Characterize water-bearing Zone 1; delineate associated contamination; develop a monitoring system to evaluate groundwater flow patterns.	Installation and sampling of 28 additional monitoring wells (MW14-MW41); sampling of existing private wells.
March 12-13, 2009	Investigation of upward VI in the remaining 6 residences on the former CCC/USDA property, where carbon tetrachloride was not detected in July 2007.	Evaluate indoor air contamination during the optimal winter sampling period when homes are most closed to outside air.	Collection of basement and first-floor indoor air samples for analysis by TestAmerica with EPA Method TO-15.
March 25-27, 2009	VI evaluation at residences outside the former CCC/USDA property (completed April 7-10, 2009).	Screen all residences in the identified groundwater contaminant distribution area for potential vapor intrusion.	Collection of vapor/air samples from sub-slab, basement, and first-floor spaces for on-site analysis, with submittal of selected samples for off-site verification analysis.
March 24- April 3, 2009	Continuation of groundwater investigation; confirmation of multiple-zone model.	Complete characterization of groundwater-bearing Zone 1; extend the investigation to deeper Zones 2-4.	Installation of 10 additional monitoring wells: MW42, MW43, MW44S, MW44M, MW44D, MW45S, MW45M, MW45D, MW46, and MW47.
April 1, 2009	KDHE-CCC teleconference.	Present results for indoor air sampling at 9 homes in February-March.	–
April 7-10, 2009	Continuation of the VI evaluation at residences outside the former CCC/USDA property.	Screen all residences in the identified groundwater contamination area for potential VI.	Collection of vapor/air samples from sub-slab, basement, and first-floor spaces for on-site analysis, with submittal of selected samples for off-site verification analysis.

TABLE 1.1 (Cont.)

Date	Activity	Objective	Methodology
Investigation by the CCC/USDA to characterize the nature and extent of site contamination and potential response actions (cont.)			
May 7, 2009	KDHE-CCC teleconference.	Discuss VI investigation results and proposed mitigation.	–
May 29, 2009	Public availability session in Hanover.	Present the results of site investigation to date to Hanover residents.	Community meeting led by the KDHE.
June 16, 2009	Submittal to the KDHE of a plan for indoor air sampling in 16 homes (subsequently expanded to 17 homes).	Monitor indoor air contamination at homes where the potential for VI had been identified.	Indoor air and ambient air sampling with analysis by TestAmerica.
June 22, 2009	Sampling of 4 additional private wells identified during community meeting.	Determine potential carbon tetrachloride contamination in active private wells; verify use of wells.	Sample collection for analysis by the AGEM Laboratory.
July 7, 2009	Issuance of KDHE approval of the plan for indoor air sampling at 17 homes.	–	–
July 15, 2009	Submittal to the KDHE of two addenda to the site characterization work plan, for hydrogeologic testing under Phase 4 of the site characterization work plan.	Evaluate aquifer properties and determine the pumping capacity of the identified contaminated water-bearing zones.	Addendum 1: Slug testing for groundwater Zone 1; Addendum 2: Further investigation for groundwater Zone 2.
July 15, 2009	Issuance of KDHE approval for vegetation sampling, with request for location map.	–	–
July 17, 2009	Submittal to the KDHE of a plan for vegetation sampling.	Determine the potential for phytoremediation as a response technology.	Collection of branch and leaf samples from existing mature trees across the investigation area, with analysis at the AGEM Laboratory.
July 22, 2009	Issuance of KDHE approval for the plan for groundwater Zone 1 slug testing.	–	–
July 23-24, 2009	Vegetation sampling of mature trees across the investigation area.	Determine whether carbon tetrachloride uptake in vegetation is occurring, to evaluate the potential for phytoremediation of the identified groundwater contamination.	Branch and leaf sampling at 171 locations across the investigation area; preservation on dry ice, with analysis at the AGEM Laboratory for carbon tetrachloride and chloroform by modified EPA Method 3810.

TABLE 1.1 (Cont.)

Date	Activity	Objective	Methodology
Investigation by the CCC/USDA to characterize the nature and extent of site contamination and potential response actions (cont.)			
August 5, 2009	Submittal to the KDHE of a plan for vapor mitigation of 3 homes.	Reduce identified carbon tetrachloride contamination in indoor air.	Installation of sub-slab depressurization systems.
August 10, 2009	Issuance of KDHE approval of plan for vapor mitigation of 3 homes.	–	–
August 12-13, 2009	Monitoring of 17 residences where carbon tetrachloride was identified in prior indoor air sampling.	Conduct summertime monitoring of indoor air.	Collection of basement and first-floor indoor air samples for analysis by TestAmerica with EPA Method TO-15.
August 10-14, 2009	Slug testing of wells in groundwater-bearing Zone 1.	Evaluate hydraulic properties and identify critical factors that govern groundwater flow and contaminant migration in the Zone 1 unit.	Slug testing in 20 Zone 1 monitoring wells: MW01, MW02, MW04-MW07, MW09-MW13, MW16, MW18, MW20, MW21, MW28, MW29, MW34, MW37, and MW38.
August 25-27, 2009	Completion of vapor mitigation of 3 homes.	Reduce identified carbon tetrachloride contamination in indoor air.	–
August 28, 2009	Issuance of KDHE approval for plan for investigation of groundwater Zones 2-4.	–	–
September 15, 2009	Issuance of KDHE electronic mail message outlining expectations for future monitoring and remediation.	–	–
September 28, 2009	Retesting of indoor air in 3 homes after installation of sub-slab vapor intrusion mitigation systems in August.	Verify elimination of identified carbon tetrachloride contamination in indoor air.	Indoor air sampling.
September 21-October 16, 2009	Zone 2-4 groundwater investigation.	Characterize the deep groundwater system in water-bearing Zones 2-4.	Installation and sampling of 12 monitoring wells: MW48Z2, MW48Z3, MW48Z4, MW49Z2, MW49Z3, MW49Z4, MW50Z2, MW50Z3, MW50Z4, MW51Z2, MW51Z3, and MW52Z4.
October 13, 2009	Meeting of CCC/USDA and KDHE in Topeka.	Present results of investigation to date.	–
October 28, 2009	Submittal to the KDHE of results of August 2009 Zone 1 slug testing.	–	–

TABLE 1.1 (Cont.)

Date	Activity	Objective	Methodology
Investigation by the CCC/USDA to characterize the nature and extent of site contamination and potential response actions (cont.)			
November 18, 2009	Submittal to the KDHE of Addendum 3 to the site characterization work plan, for performance testing of selected Zone 1 monitoring wells.	Assess the technical and logistic feasibility of groundwater pumping from groundwater Zone 1 as a potential corrective action technology.	Step-drawdown testing at Zone 1 monitoring wells MW05, MW09, and MW10.
November 23-25, 2009	Single-well step-drawdown testing at 3 wells selected per the August 2009 slug test responses.	Determine the specific capacity and radius of influence of selected Zone 1 wells.	Step pumping testing at water-bearing Zone 1 wells MW05, MW09, and MW10.
January 25-26, 2010	Monitoring of 17 residences where carbon tetrachloride was identified in prior indoor air sampling.	Conduct wintertime monitoring of indoor air contamination.	Collection of basement and first-floor indoor air samples for analysis at TestAmerica with EPA Method TO-15.
January 26-27, 2010	Slug testing of wells in groundwater-bearing Zone 2.	Evaluate the hydraulic properties of Zone 2 and the potential effectiveness of localized groundwater extraction as a corrective action technology.	Slug testing in 6 Zone 2 monitoring wells: MW44Z2, MW45Z2, MW48Z2, MW49Z2, MW50Z2, and MW51Z2.
January 29, 2010	Submittal to the KDHE of results of the November 2009 Zone 1 pumping test.	Evaluate the potential effectiveness of localized groundwater extraction from groundwater Zone 1 as a corrective action technology.	Step pumping testing at water-bearing Zone 1 wells MW05, MW09, and MW10.
February 22-24, 2010	Constant-rate pumping test at Zone 1 well MW05, selected per the November 2009 step-drawdown test results.	Determine the long-term sustainable pumping rate for water-bearing Zone 1 well MW05, to evaluate the potential effectiveness of localized groundwater extraction as a corrective action technology.	Measurement of water level response and recovery during sustained pumping of water-bearing Zone 1 monitoring well MW05.
February 22-25, 2010	Indoor air sampling at Hanover public school and St. John's School, at the request of residents; sampling of 9 residences potentially at risk for VI from groundwater Zone 2.	Determine the potential for upward VI of carbon tetrachloride, chloroform, and radon contamination from the subsurface to indoor air.	Indoor air sampling with on-site analysis in accessible rooms in the schools, with follow-up sampling and quantitative analysis for rooms selected per the screening results; quantitative VOCs analysis by TestAmerica with EPA Method TO-15.

TABLE 1.1 (Cont.)

Date	Activity	Objective	Methodology
Investigation by the CCC/USDA to characterize the nature and extent of site contamination and potential response actions (cont.)			
March 17-20, 2010	Constant-rate pumping test at Zone 2 well MW44, selected per the January 2010 slug test results.	Determine the long-term sustainable pumping rate for water-bearing Zone 2.	Measurement of water level response and recovery during sustained pumping of water-bearing Zone 2 monitoring well MW44.
April 26, 2010	Submittal to the KDHE of results of the January 2010 Zone 2 slug testing.	Evaluate the potential effectiveness of localized groundwater extraction from groundwater Zone 2 as a corrective action technology.	–
April 27, 2010	Submittal to the KDHE of a plan for vapor mitigation of 2 homes.	Reduce identified carbon tetrachloride contamination in indoor air.	Installation of sub-slab depressurization systems.
April 30, 2010	Submittal to the KDHE of results of the February 2010 constant-rate pumping test for Zone 1 monitoring well MW05 submitted to the KDHE.	Evaluate the potential effectiveness of localized groundwater extraction from groundwater Zone 1 as a corrective action technology.	–
May 4, 2010	Issuance of KDHE approval of plan for vapor mitigation of 2 homes.	–	–
May 12-13, 2010	Completion of vapor mitigation of 2 homes.	Reduce identified carbon tetrachloride contamination in indoor air.	–
June 17, 2010	Retesting of indoor air in 2 homes after installation of sub-slab vapor intrusion mitigation systems in May 2010.	Verify elimination of identified carbon tetrachloride contamination in indoor air.	Indoor air sampling.
June 17, 2010	Sampling of selected monitoring wells for nitrate analysis.	Indicate subsurface infiltration to water-bearing zones.	Groundwater sampling.
July 29, 2010	Submittal to the KDHE of results of the March 2010 constant-rate pumping test for Zone 2 monitoring well MW44Z2.	Evaluate the potential effectiveness of localized groundwater extraction from groundwater Zone 2 as a corrective action technology.	–

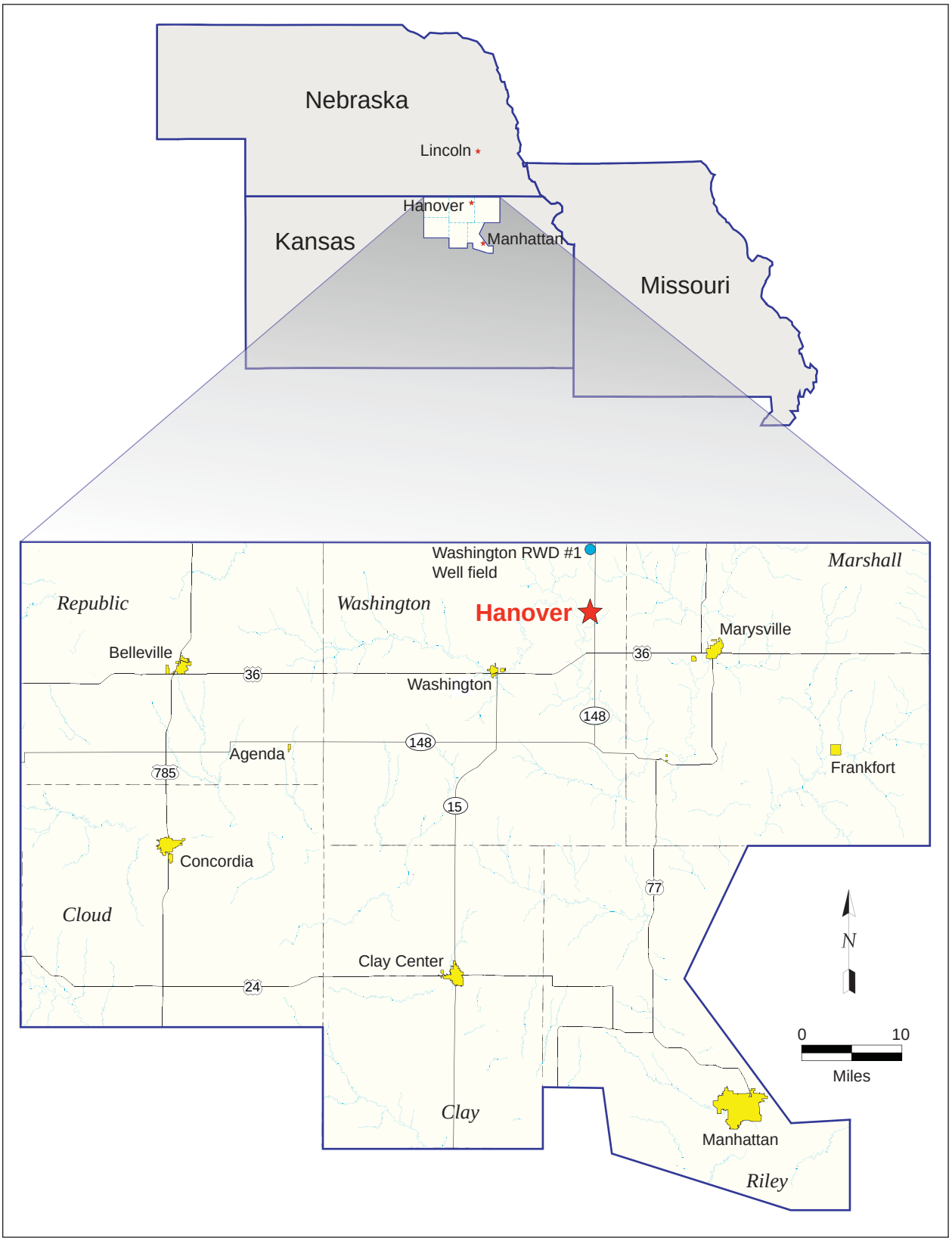

FIGURE 1.1 Location of Hanover, Kansas, and the public water well field of Washington County RWD#1 for the Hanover public water supply.

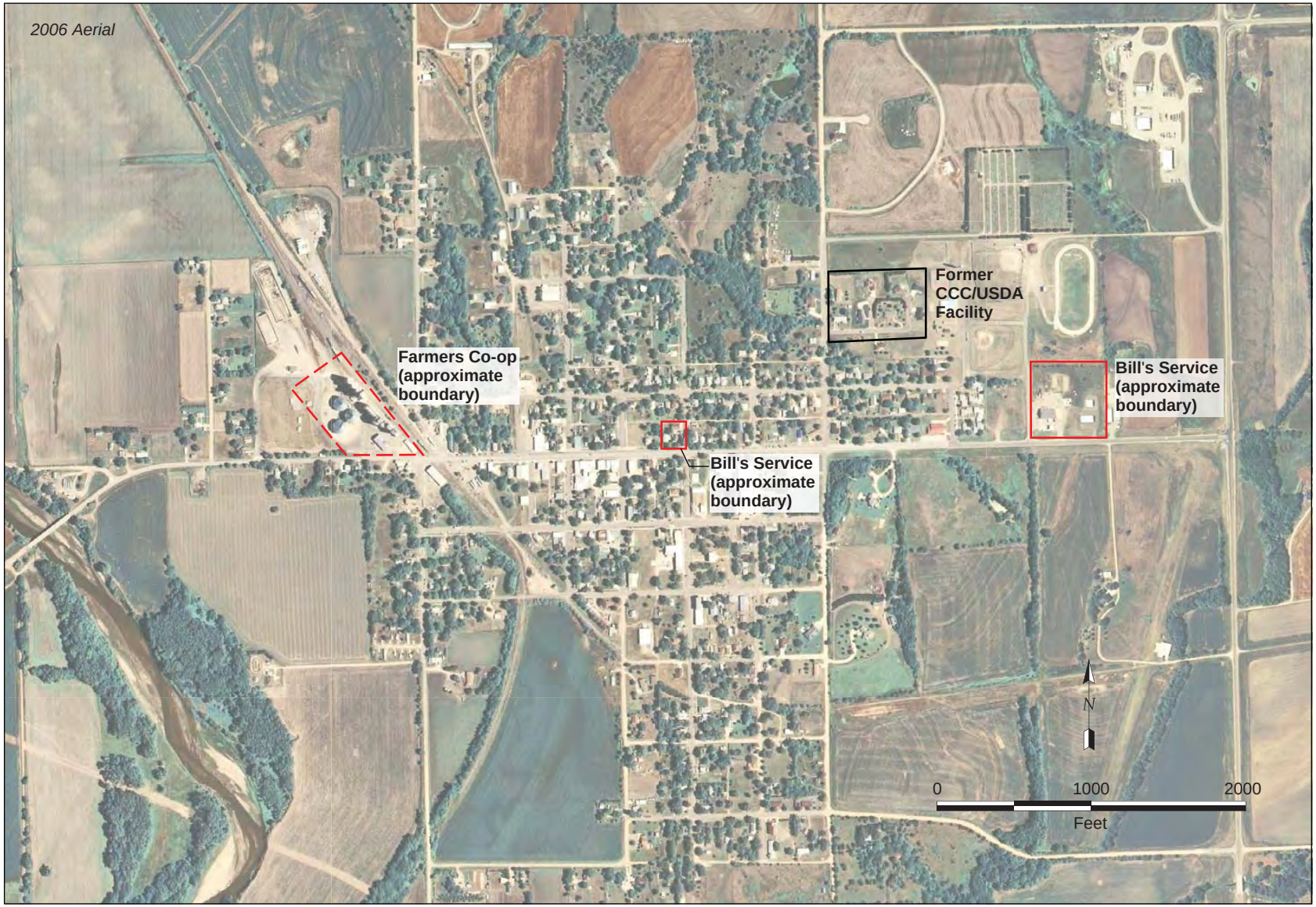

FIGURE 1.2 Location of the former CCC/USDA facility, the Farmers Co-op Association, and petroleum-contaminated sites. Source of photograph: NAIP (2006).

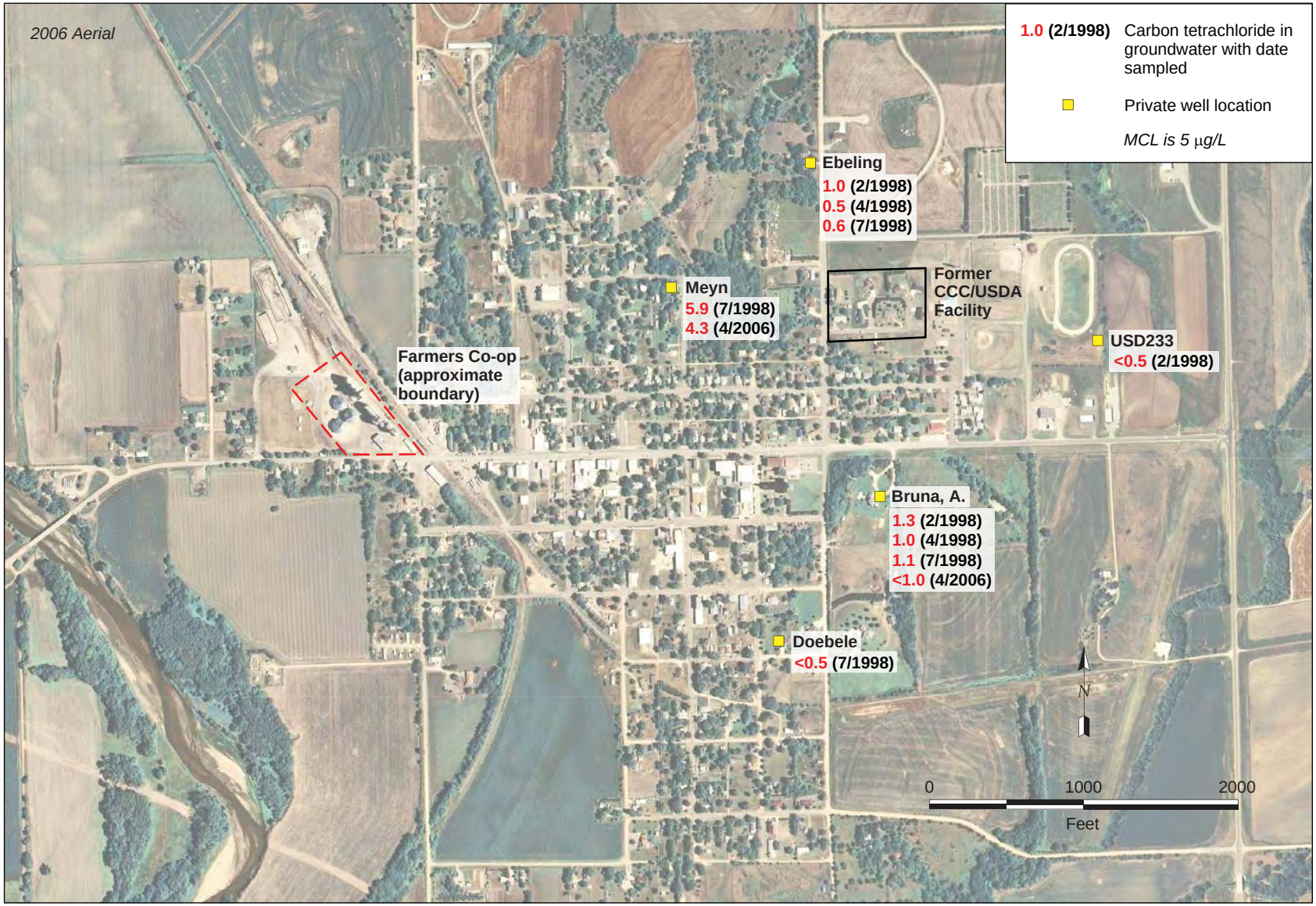

FIGURE 1.3 Historical results of carbon tetrachloride analyses on groundwater samples collected by the KDHE in 1998-2006 from private wells in and near Hanover. Source of photograph: NAIP (2006).

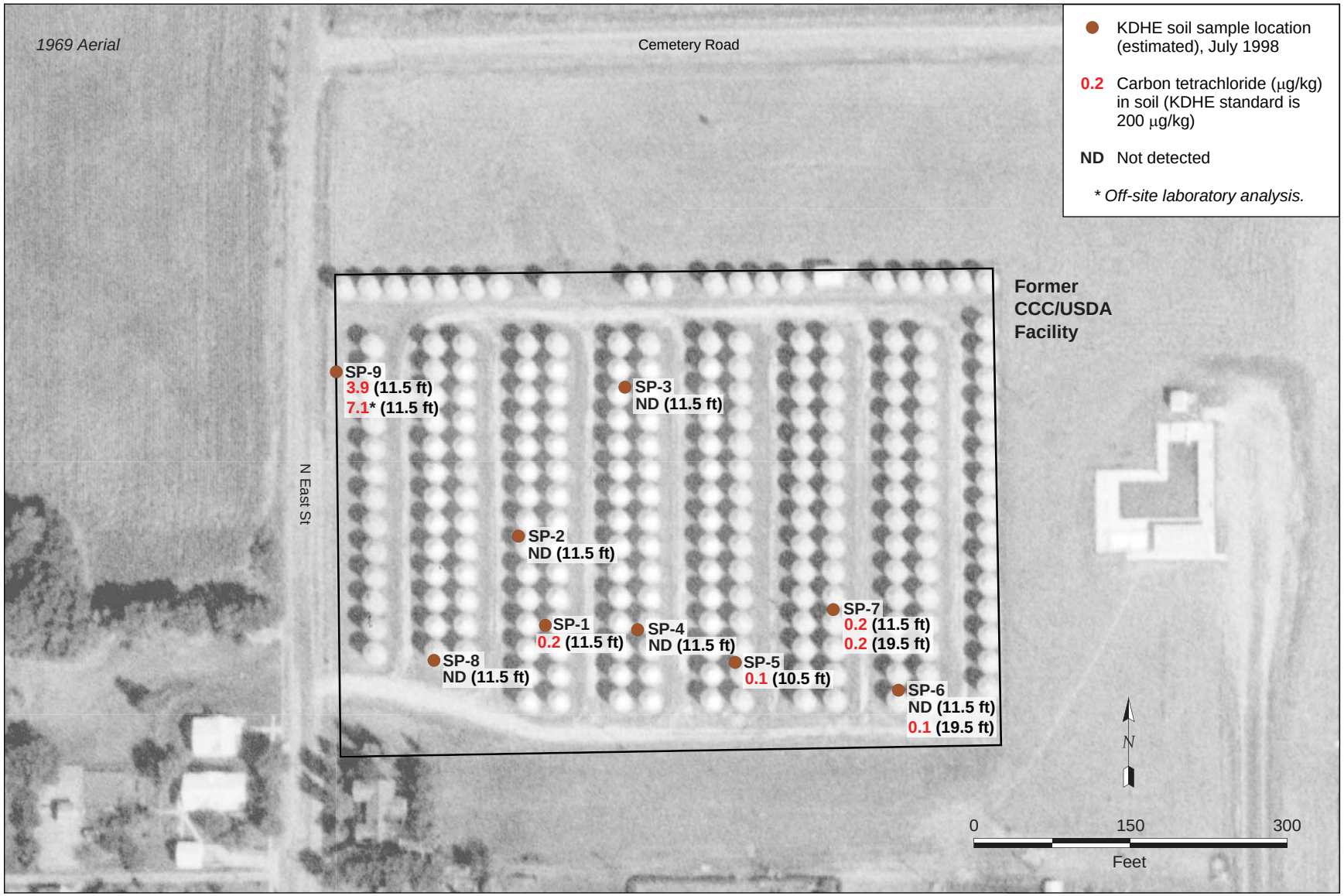

FIGURE 1.4 Field laboratory analytical results for soil samples collected by the KDHE in 1998 at the former CCC/USDA facility. Source of photograph: USDA (1969).

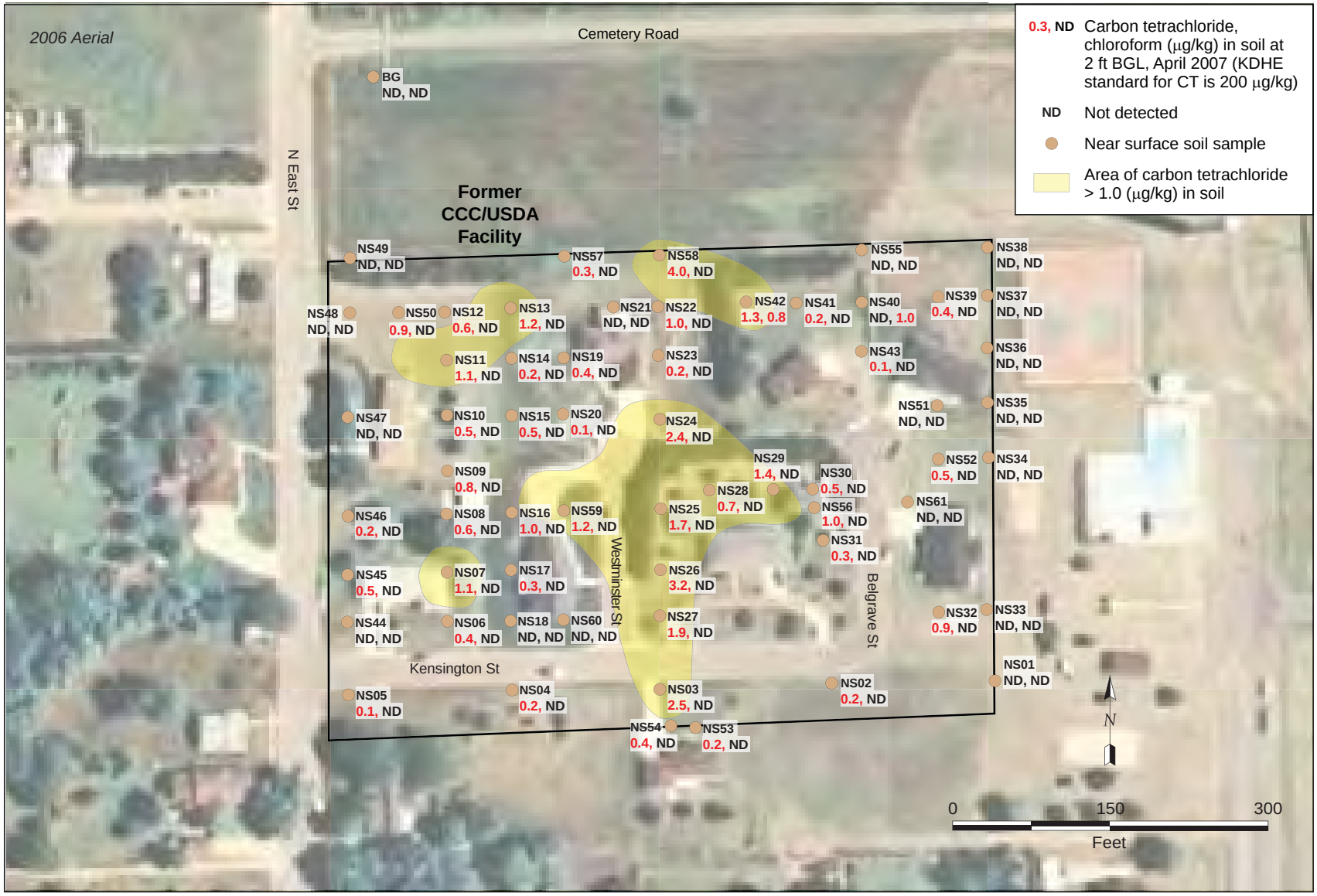

FIGURE 1.5 Results of headspace screening analyses for carbon tetrachloride in near-surface soil samples collected in 2007 at the former CCC/USDA facility. Source of photograph: NAIP (2006).

FIGURE 1.6 Results of analyses for carbon tetrachloride and chloroform in indoor air samples collected in 2007 at and near the former CCC/USDA facility. Source of photograph: NAIP (2006).

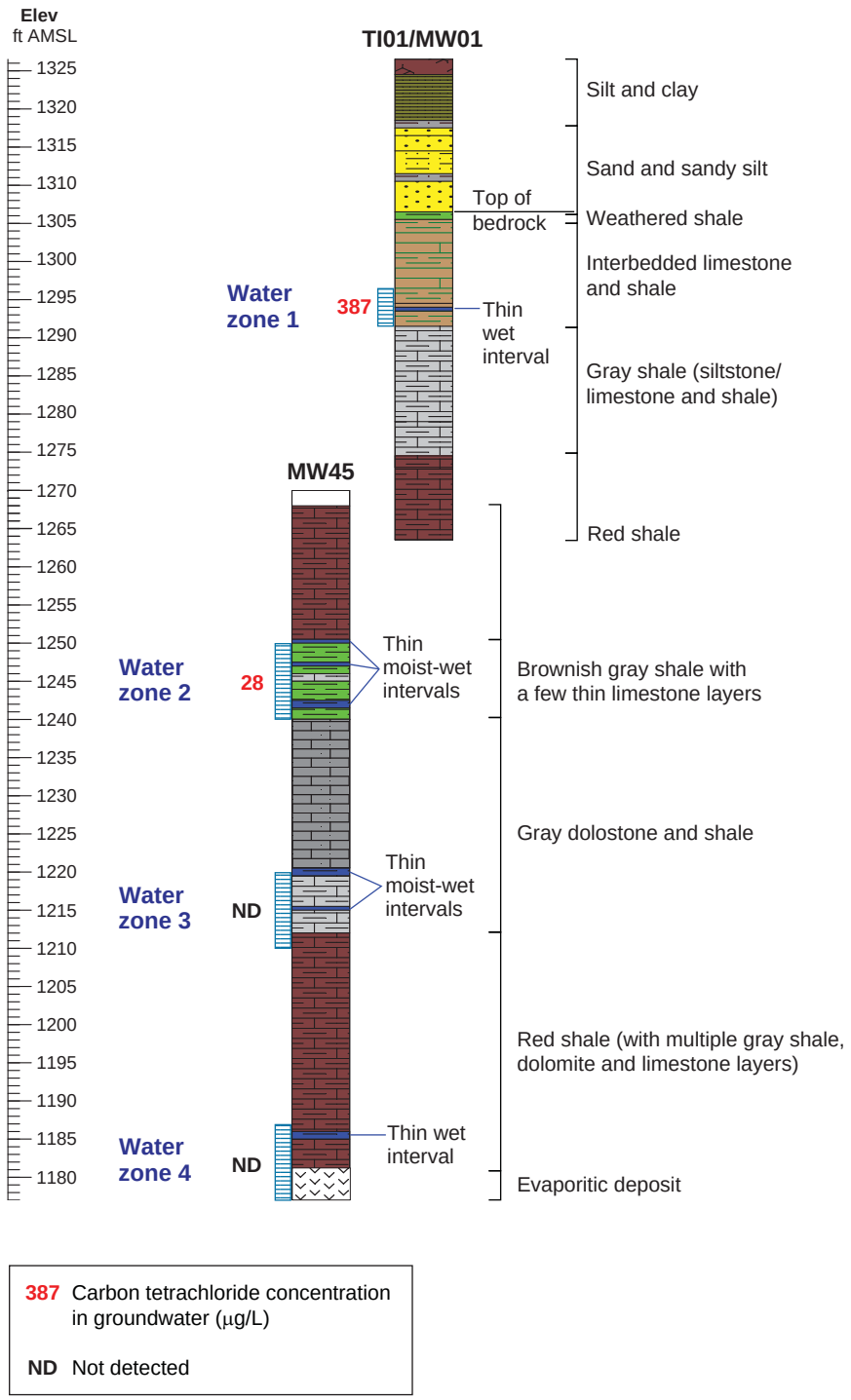

FIGURE 1.7 General stratigraphic section in the investigation area at Hanover.

2 Investigative Methods

This section discusses the methods used to implement the 2009-2010 investigations and to achieve the specific technical objectives stated in Section 1.2. Individual activities were performed as specified in the *Final Work Plan* (including addenda; Argonne 2008a), the *Supplemental VI Work Plan* (including addenda; Argonne 2008b), and the *Master Work Plan* (Argonne 2002). Detailed procedures are not repeated here.

Throughout the field program, a comprehensive quality assurance/quality control (QA/QC) program was implemented to confirm the reliability of all information as it was accumulated. The results of implementation of the QA/QC program are discussed in Section 3.11.

2.1 Methods to Identify Contaminant Sources and the Extent of Soil Contamination

The investigation activities described here focused on identification of soil contamination on and near the former CCC/USDA property, which is currently a residential subdivision. To ensure that all soil sources and soil-to-groundwater pathways were identified with minimum interference to the residents, the following approaches were implemented:

- Continuous vertical soil profiling with sampling for VOCs analyses was conducted through the vadose zone and to the depth of the first water-bearing unit identified beneath the former CCC/USDA facility. The analytical results were evaluated to determine whether carbon tetrachloride was present in soil as a potential contaminant source.

- Vertical soil profiling was performed in two steps:

  - *Step 1.* Use of a portable Geoprobe to collect subsurface soil samples in the unconsolidated interval above bedrock, over most of the residential area.

  - *Step 2.* Use of a minisonic drilling rig to collect bedrock samples to the depth of the first water-bearing zone, at selected locations.

- In the initial step (Geoprobe sampling), access was permitted for a total of 25 subsurface soil sampling locations (TI01-TI25; Figure 2.1). Locations for this sampling were selected to target the following areas:

  - Four potentially contaminated areas identified from the results of headspace analyses of near-surface soil sampling in 2007 (highlighted areas in Figure 2.1).

  - Areas near the homes in which carbon tetrachloride had been detected in indoor air.

- The subsequent bedrock sampling was conducted at locations selected on the basis of results of the initial Geoprobe sampling. Seven locations within the former CCC/USDA facility were chosen to represent areas associated with any contamination identified in the Geoprobe sampling and/or with potential VI as indicated for the sampled homes. Five additional locations were selected for bedrock soil sampling at the edge of the former CCC/USDA facility. Figure 2.2 shows the bedrock soil sampling locations on and near the former CCC/USDA property.

2.2 Methods to Characterize Groundwater Contamination

2.2.1 Methods to Identify the Groundwater-Bearing System

Characterization of the groundwater-bearing system was conducted in two steps addressing groundwater-bearing Zone 1 and Zones 2-4, respectively.

Groundwater-bearing Zone 1 is shallow, and its occurrence is limited to the area of the bedrock high where the former CCC/USDA facility was located. To fully delineate the hydrostratigraphy, contaminant distribution, and potential VI pathways associated with the Zone 1 interval, 48 locations (Figure 2.3) were investigated.

The investigation program for deeper groundwater-bearing Zones 2-4 was developed within the context of the findings from the initial studies (primarily related to water-bearing

Zone 1). Plans for this program are documented in Addendum 2 to the *Final Work Plan* (Argonne 2008a). Factors considered in selecting locations for the Zones 2-4 investigation included the following:

1. The results for water samples from private wells inferred to intersect Zones 2-4 (see below).

2. The extent of the contamination in Zone 1.

3. The apparent pattern of groundwater flow in Zone 1.

Figure 2.4 shows the locations (MW44-MW45, MW48-MW51) investigated in Zones 2-4.

At each boring location, multiple lines of evidence obtained from visual and laboratory analyses of continuous cores, observed relationships to previously identified water-bearing zones in nearby borings, and the elevation ranges of water-bearing zones in existing private wells were used to determine the locations, lithologic characteristics, and lateral continuity of the water-bearing intervals.

To assist in characterizing multiple water-bearing zones, groundwater samples from four identified zones were collected for tritium analysis. Tritium is a short-lived isotope of hydrogen with a half-life of 12.32 yr (Lucas and Unterweger 2000). As a result of radioactive decay, tritium in soil water and groundwater derived from precipitation that fell before 1953 would have contained no more than approximately 0.5 TU in 2000. From 1953 to 1969, a series of atmospheric hydrogen bomb tests resulted in the addition of a large amount of tritium to the atmosphere, for a peak concentration of nearly 10,000 TU in 1963 (Drever 1988). In the post-bomb period, tritium levels in precipitation were monitored at the International Atomic Energy Agency (IAEA) monitoring station in Lincoln, Nebraska (74 mi north of Hanover), until 1986 (IAEA 1992). At that time, the atmospheric tritium level was approximately 14 TU. Therefore, this tritium concentration is commonly used to separate pre-bomb and post-bomb waters (McMahon et al. 2006). The results of tritium analysis may help to qualitatively differentiate the age of waters in various water-bearing zones and to infer possible hydraulic connections and/or water mixing.

2.2.2 Methods to Delineate the Extent of Groundwater Contamination

The initial results of the hydrostratigraphic characterization efforts described in Section 2.2.1 demonstrated that the groundwater flow system in the bedrock sequence at Hanover is poorly developed. Very slow or no initial water accumulation was observed in the borings at most locations. If no immediate water entry was identified during the drilling process, an optimal depth interval spanning the potential water-bearing zone was identified on the basis of the criteria outlined above. At almost all locations, a monitoring well was installed at the selected depth. A water sample was collected for VOCs analysis from every well in which sufficient groundwater accumulation occurred after development.

At each deep-zone investigation point, monitoring wells were installed separately to screen Zones 2, 3, and 4, respectively. Groundwater samples collected from each well for VOCs analyses provided information on contaminant levels for the corresponding zones at that location.

To assist in the delineation of contamination in the deep water-bearing zones, groundwater samples were also collected for VOCs analyses from accessible private wells, most of which penetrate groundwater-bearing Zones 2-4 (as determined on the basis of depths for these wells — ranging from 41 ft to 82 ft BGL). Figure 2.5 shows the locations of the 24 private wells sampled during these investigations. Well BSMW13, also shown in Figure 2.5, was not sampled because of the presence of petroleum free product.

In this study, nitrate concentrations in groundwater were used as an indicator of subsurface infiltration to water-bearing zones. High concentrations of nitrate are commonly associated with agriculture activities on the ground surface. The measurement of nitrate levels in water-bearing Zone 1 and Zone 2 could provide indirect evidence suggesting or confirming the potential presence of contaminant migration pathways in the subsurface. Figure 2.6 shows the locations of groundwater samples collected in Zone 1 and Zone 2 and selected for nitrate analysis.

2.3 Methods to Determine and Monitor Groundwater Flow Patterns

Accurate determination of groundwater flow patterns was accomplished through a systematic process: (1) identification of all possible groundwater-bearing zones in the upper

portion of the bedrock formation potentially used by local residents, (2) installation of monitoring wells to identify complex flow patterns, (3) measurement of water levels for each identified groundwater-bearing zone, and (4) analysis of data to determine flow patterns in each zone.

The methods discussed in Section 2.2 were used to identify all groundwater-bearing zones. Monitoring wells were installed at most of the investigative locations because of slow water accumulation from the bedrock formation in the area. Groundwater levels were periodically determined manually in the entire network of observation wells for each water-bearing zone. Water level fluctuations were also monitored continuously at selected locations through the use of automatic water level sensors and data loggers. Groundwater flow patterns were determined from stabilized water levels in wells that showed minimal, if any, interference from local events. Determination of flow patterns was not attempted for water-bearing Zones 3 and 4, in which apparent stabilization of the water levels did not occur within the time frame of the 2009-2010 studies.

To determine the groundwater flow pattern for water-bearing Zone 1, water level data were generated for 41 monitoring wells (MW01, MW02, MW04-MW40, MW46-MW47; Figure 2.7). The networks for deep groundwater-bearing Zones 2-4 consisted of 18 individual monitoring wells (one well screened in each of these three deeper zones, at six locations [MW44-MW45 and MW48-MW51]; Figure 2.8).

Four additional private monitoring wells were installed with the GeoCore on behalf of Bill's Service Center during a previous investigation of aboveground storage tanks (see Section 2.2.5 of the *Final Work Plan*; Argonne 2008a). These wells are screened exclusively in Zone 2 and were included in the Zone 2 water level monitoring network for the purpose of determining flow direction (Figure 2.8). Sampling of private wells for VOCs analyses is discussed in Section 2.2.2.

2.4 Methods to Evaluate the Hydraulic Properties of the Groundwater-Bearing System

The hydraulic properties of the groundwater-bearing system are important parameters that govern contaminant transport and the effectiveness of potential corrective action technologies. The results of the Phase 1-3 investigations demonstrated that Zone 1 (Figure 1.7) is

a critical water-bearing unit with the potential to provide a contaminant migration pathway for both upward VI and downward leakage to underlying groundwater Zone 2. Results also suggest that Zone 2 is a significant unit in which migration of contaminants leaked from Zone 1 occurs. However, no evidence indicates that deep water-bearing Zones 3 and 4 are providing contaminant migration pathways. This section discusses methods to investigate the hydraulic properties of groundwater-bearing Zones 1 and 2.

During the time period of the investigation, groundwater in Zone 3 and Zone 4 wells continued to recover without reaching equilibrium. No tests of hydraulic properties were attempted in these zones because of the non-static condition of the water-bearing units and the absence of contaminants.

2.4.1 Methods for Groundwater-Bearing Zone 1

To facilitate evaluation of the hydraulic properties in groundwater-bearing Zone 1, the following hydraulic characteristics of this interval were investigated:

- *Hydraulic conductivity*. The ability of a porous medium (formation or soil) to transmit water; a measure of the ease or difficulty with which fluid flows through the formation (soil) matrix system.

- *Specific capacity*. The yield of a water well per unit of drawdown (usually expressed as gallons per minute per foot); the amount of water that a well can produce under a unit drop of water level from the water-bearing formation or soil.

- *Radius of influence*. The radial distance from the center of a pumping well to the point where there is no lowering of the water table or potentiometric surface (the edge of the cone of depression — the area affected by the pumping well, beyond which there is no measurable or observed effect).

Quantitative data on these properties in the Zone 1 unit were acquired through the following activities:

- Single-well response ("slug") testing of 20 monitoring wells to generate data on the range and distribution of the hydraulic conductivity values in water-bearing Zone 1 across the area, including the apparent contaminant migration pathways (Figure 2.9). This activity was guided by Addendum 1 to the *Final Work Plan* (Argonne 2008a).

- Step-drawdown testing to determine the specific capacity and potential radius of influence (ROI) of Zone 1 monitoring wells MW05, MW09, and MW10. These three wells were selected for step testing on the basis of relatively higher hydraulic conductivity values identified at their locations by slug testing. Eleven monitoring wells surrounding the three (individually pumped) wells were used as observation points throughout the testing (Figure 2.10). The testing was implemented as specified in Addendum 3 to the *Final Work Plan* (Argonne 2008a).

- Constant-rate pump testing of water Zone 1 to determine the long-term sustainable pumping rate from this interval at the MW05 well location. Well MW05 was selected for constant-rate testing because it exhibited the highest specific capacity, as estimated from the step-drawdown pumping. Two attempts were made in February 2010 to pump MW05 for an extended period; 11 nearby Zone 1 monitoring wells were used as observation wells for these tests (Figure 2.11).

2.4.2 Methods for Groundwater-Bearing Zone 2

The hydraulic properties of groundwater-bearing Zone 2 were evaluated, because Zone 2 also hosts a saturated unit that provides a pathway for contaminant transport. All monitoring wells installed in Zone 2 (Figure 2.9) were subjected to slug testing in January 2010 to generate data on the range and distribution of hydraulic conductivity values. A long-term, constant-rate pumping test was conducted at Well MW44Z2 in March 2010. Five monitoring wells (MW45Z2, MW48Z2. MW49Z2, MW50Z2, and MW51Z2) installed in Zone 2 were used as observation wells during the testing (Figure 2.12).

2.5 Methods to Determine Potential Vapor Intrusion Attributable to Subsurface Contamination

This section briefly describes the methods and approaches applied at the Hanover site in the 2009-2010 evaluation of potential VI. The procedures guiding specific techniques are outlined in the *Supplemental VI Work Plan* and its four addenda (Argonne 2008b) and are not repeated here.

2.5.1 Vapor Intrusion Pathway

To assess potential VI, the following three components of a complete VI pathway are the key elements that must be considered:

- *Sources* of vapors in the form of residual contamination in subsurface soil and groundwater.
- *Migration routes* for contaminant vapors, by diffusion and advection processes, from sources and through soil and structures.
- *Receptors* occupying residences or commercial/public buildings within a distance reachable by a contaminant vapor migrating upward from soil.

The activities in the VI investigation were designed to generate data needed for quantifying the conditions of some or all of the components in the pathway and for determining whether potential VI may be attributable to subsurface contamination associated with the former CCC/USDA facility.

2.5.2 Characterization Methods for Soil, Groundwater, Soil Gas, Sub-Slab Vapor, and Indoor Air

The methods to identify soil and groundwater contamination as the potential source(s) of vapors in indoor air are discussed in Sections 2.1 and 2.2. The acquired data were used to determine source parameters such as distance to receptors, contaminant concentrations, and the presence of potential barriers or preferential conduits that might affect vapor movement.

Several attempts were made to identify migration routes and to demonstrate the presence of upward VI due to subsurface contamination. The methods applied or attempted were as follows:

- A soil gas survey adjacent to the foundations of homes to determine the presence and distribution of contaminant vapors outside the residential structures.

- Coupled sub-slab soil vapor and indoor air sampling for VOCs analyses to identify potential upward migration routes for VI through a structure's foundation.

- Coupled sub-slab soil vapor and indoor air sampling, with radon as a tracer, to confirm an upward migration route that supports VI into the structure. This method was applied at selected homes for confirmation.

- Indoor air sampling for VOCs analyses to determine contaminant vapor conditions surrounding residents as potential receptors in homes and as a direct indicator of health risks for receptors.

During the 2009-2010 investigation, prior to the KDHE's update of the indoor air standard for carbon tetrachloride (April of 2010), the VI investigation faced a significant challenge because of the similarity of the KDHE standard and background concentrations of carbon tetrachloride. To confirm the presence of upward VI processes, multiple investigation techniques were applied in this investigation. Radon, as a secondary probe in addition to VOCs, was also analyzed in selected sub-slab soil vapor and indoor air samples to determine the ratio of indoor air concentration to sub-slab soil vapor concentration. The radon results could qualitatively determine the presence of upward VI migration and might also provide quantitative information on the attenuation factor, which indicates how the properties of soil and/or a building can limit the intrusion of contaminant vapor as it migrates into the structure.

Radon is a naturally occurring radioactive gas produced from the natural decay of uranium, which commonly exists in minerals of rock and soil. Radon gas can follow the same upward VI process as VOCs migrating into the structure. In most cases, samples for radon analysis were collected over intervals of 3-4 days by using test kits with activated charcoal.

Radon adsorbed onto the charcoal was analyzed by scintillation counting to detect the gamma rays produced by the breakdown products ("daughters") of radon. In a few cases, the radon samples were collected in canisters.

2.5.3 Evaluation Methods and Investigation Processes

The general investigation process applied at Hanover began with the identification of vapor sources (soil and groundwater contamination) and proceeded with a phased approach to ultimately pinpoint VI-affected structures. In the investigation process, three screening criteria were used, as approved by the KDHE project manager. These evaluation criteria are as follows:

- *To determine the investigation area for potential VI.* On the basis of the distance criteria specified in KDHE (2007b) guidance, areas within a lateral distance of 100 ft or a vertical distance of 40 ft from groundwater contamination (above 5.0 µg/L for carbon tetrachloride) were designated for VI investigation.

- *To identify potentially VI-affected homes or buildings.* The KDHE standard of 1.6 µg/m^3 for carbon tetrachloride in indoor air and an attenuation factor of 0.01 for sub-slab vapor were used in these investigations.[2] As noted in Section 2.6.3, the KDHE changed its risk-based standard to 4.055 µg/m^3 in April 2010 (KDHE 2010f). Any tested structure with a carbon tetrachloride concentration higher than 1.6 µg/m^3 in indoor air and/or 160 µg/m^3 in sub-slab vapor (as determined by on-site analysis), was selected for 24-hr indoor air sampling.

- *To select potentially VI-affected homes or buildings for monitoring in summer and/or winter seasons.* If the results of 24-hr indoor air sampling suggested a concentration above the KDHE's indoor air standard, the affected structures were monitored during the summer and/or winter seasons.

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[2] The attenuation factor of 0.01 is based on an assumption (KDHE 2007b) that upward flow of the contaminant through the building materials is impeded enough to decrease the concentration in indoor air to 1% of the concentration in the sub-slab vapor.

The following investigation processes and evaluation methods were employed in four geographic areas:

1. The residential subdivision (including nine homes) within and near the footprint of the former CCC/USDA property (Figure 2.13).

   - *Step 1a.* To confirm the presence of upward VI, three accessible residences were selected with relatively high carbon tetrachloride concentrations in indoor air on the basis of the results of sampling in 2007.

   - *Step 1b.* To generate data on upward VI, coupled sub-slab vapor and indoor air sampling was conducted at the three selected residences for analyses for VOCs and radon (as a tracer). This activity was guided by the *Supplemental VI Work Plan* (Argonne 2008b) and its Addendum 1.

   - *Step 1c.* Monitoring for VI was expanded to six additional residences in the winter season, after the results from Step 1b demonstrated upward VI. This activity was also guided by Addendum 1 to the *Supplemental VI Work Plan* (Argonne 2008b).

   - *Step 1d.* Indoor air sampling (24-hr) was performed at three residences selected according to the criteria above, for summertime and wintertime monitoring. This activity was guided by Addenda 2 and 3 to the *Supplemental VI Work Plan* (Argonne 2008b).

2. Residences overlying the identified groundwater contamination in Zone 1 but outside the former CCC/USDA property.

   - *Step 2a.* The KDHE distance and depth criteria discussed above were used relative to the groundwater contamination in Zone 1 to identify an area outside the former CCC/USDA property for VI investigation.

   - *Step 2b.* A soil gas survey and coupled sub-slab vapor and indoor air sampling were conducted, with on-site analysis. The activities were guided by the *Supplemental VI Work Plan* (Argonne 2008b). Locations for

the soil gas survey are shown in Figure 2.14, and residences tested by sampling of sub-slab vapor and indoor air are shown in Figure 2.15. Some residences received only the sub-slab and indoor air sampling, after soil gas results had shown little correlation with corresponding sub-slab and indoor air values.

- *Step 2c.* The Step 2b results were used to identify homes or buildings potentially affected by VI. The evaluation criteria for sub-slab vapor and indoor air were as discussed above.

- *Step 2d.* Summertime and/or wintertime 24-hr indoor air samples were collected at 14 residences selected in Step 2c. This activity was guided by Addenda 2 and 3 to the *Supplemental VI Work Plan* (Argonne 2008b). The locations of the 14 residences potentially affected by the Zone 1 contamination are included in Figure 2.16.

3. Residences overlying the groundwater contamination in Zone 2 but outside the former CCC/USDA property.

- *Step 3a.* The KDHE distance criteria discussed above were used relative to the groundwater contamination in Zone 2 to identify an area outside the former CCC/USDA property for VI investigation.

- *Step 3b.* A soil gas survey and coupled sub-slab vapor and indoor air sampling were conducted, with on-site analysis. The activities were guided by the *Supplemental VI Work Plan* (Argonne 2008b). Locations for the soil gas survey are shown in Figure 2.14, and residences tested by sampling of sub-slab vapor and indoor air are shown in Figure 2.15. Some residences received only the sub-slab and indoor air sampling, after soil gas results had shown little correlation with corresponding sub-slab and indoor air values.

- *Step 3c.* Conduct 24-hr indoor air sampling at nine residences potentially affected by the Zone 2 contamination. This activity was guided by Addendum 3 to the *Supplemental VI Work Plan* (Argonne 2008b). The

locations of the nine residences potentially affected by Zone 2 contamination are included in Figure 2.16.

4. School buildings beyond the limits of the groundwater contamination in Zones 1 and 2.

   - *Step 4a.* Indoor air sampling with on-site analysis was performed for all accessible rooms within the school buildings. The activities were guided by the *Supplemental VI Work Plan* (Argonne 2008b) and its Addendum 4.

   - *Step 4b.* Overnight and daytime indoor air sampling was conducted in the school buildings at locations selected on the basis of the Step 4a results. The activities were guided by the *Supplemental VI Work Plan* (Argonne 2008b) and its Addendum 4.

The VI investigation for the school buildings was requested by local residents, even though the buildings are outside the identified area of groundwater contamination in Zones 1-2. Activities were designed to generate data to address the residents' concerns. The locations of the school buildings are shown in Figure 2.17.

2.6 Methods to Evaluate Human Health and Environmental Risks

An initial screening evaluation for human health and environmental risks was performed for the chemicals of primary interest, carbon tetrachloride and chloroform, which might be associated with the past use of fumigants at the former CCC/USDA grain storage facility. Contamination in three media were evaluated by using the methods discussed below.

In addition to the two chemicals of primary interest, radon was also evaluated for human health risk because of its prevalence and the high concentrations identified in many indoor air samples in this investigation. Radon is a naturally occurring, radioactive gas. Its assessment focused only on its level in indoor air in comparison with available standards.

2.6.1 Soil

The KDHE (2010f) Tier 2 risk-based standards for contaminated soil were used for screening as specified. In deriving the Tier 2 standards based on risk to human health, the KDHE evaluated two exposure pathways: (1) direct exposure, including ingestion of contaminated soil, inhalation of chemical volatilizing from contaminated soil, inhalation of airborne contaminated particulates, and direct dermal contact, and (2) indirect exposure via the soil-to-groundwater pathway. The risk-based standards for direct exposure to soil are provided for two land use settings: residential and nonresidential. The Tier 2 risk-based standards for soil contaminated with carbon tetrachloride and chloroform are listed in Table 2.1.

2.6.2 Groundwater

The two potential pathways for exposure to contaminated groundwater evaluated in this study are (1) direct exposure of humans and (2) exposure of aquatic life via discharge to the nearest creeks. The KDHE (2010f) Tier 2 risk-based standards for contaminated groundwater were used as screening criteria for human risk, and the KDHE surface water quality standards (KDHE 2004) were used for evaluating environmental risk to aquatic life. The standards for carbon tetrachloride and chloroform are listed in Table 2.1. The MCL values used in the federal Safe Drinking Water Act are adopted in the KDHE (2010f) Tier 2 risk-based standards for carbon tetrachloride and chloroform.

2.6.3 Indoor Air

Contamination in indoor air was evaluated during the investigations reported here by using the KDHE Tier 2 risk-based standard in force at the time. The KDHE uses carcinogenic risk to calculate its Tier 2 standard, rather than the less stringent non-carcinogenic risk. The KDHE calculates the carcinogenic risk-based indoor air concentration for carbon tetrachloride by using Equation 8 in the *RSK Manual* (KDHE 2010f) for human exposure to contaminated air for 24 hr per day, 350 days per year, over a period of 30 yr. The standard for carbon tetrachloride in residential indoor air is intended to prevent human exposure that could result in occurrence of cancer at a rate greater than 1 in 100,000 individuals. It is the threshold for KDHE action.

A key parameter associated with toxicity data and used in Equation 8 is the *inhalation slope factor* (SF_i), which can be derived from the toxicity parameter *inhalation unit risk*. The operative SF_i value for carbon tetrachloride during these investigations, 5.25×10^{-2} (kg-day/mg)$^{-1}$, was derived from a value of inhalation unit risk, 1.5×10^{-5} (µg/m^3)$^{-1}$. This value was posted on the U.S. Environmental Protection Agency (EPA) Integrated Risk Information System (IRIS) database in 1987. Use of this 1987 SF_i value resulted in a calculated KDHE Tier 2 standard of 1.6 µg/m^3 for carbon tetrachloride.

On March 31, 2010, in response to more recent research, the EPA posted an updated value for inhalation unit risk, 6×10^{-2} (µg/m^3)$^{-1}$, in the IRIS database. The corresponding updated SF_i value is 2.10×10^{-2} (kg-day/mg)$^{-1}$. With these values, the KDHE has now used Equation 8 in the *RSK Manual* (KDHE 2010f) to calculate an updated risk-based concentration of 4.055 µg/m^3 for carbon tetrachloride.

The EPA is conducting a similar review of research related to chloroform; an updated value of inhalation unit risk for that compound is expected when the review is complete.

The current KDHE Tier 2 risk-based standards for carbon tetrachloride and chloroform are listed in Table 2.1.

The evaluations for radon were based on the EPA action level (4.0 pCi/L; Table 2.1). At this level, the estimated carcinogenic risk due to exposure (for a non-smoker; Table 2.2) is about 7 in 1,000 individuals (EPA 2009). For comparison, the estimated carcinogenic risk for exposure to carbon tetrachloride at the KDHE screening level of 4.055 µg/m^3 is 1 in 100,000 (KDHE 2010f).

TABLE 2.1 Regulatory standards for initial evaluation of human health and environmental risks.

Scenario	Pathway	Standard[a] (units indicated below for soil, groundwater, and indoor air)		
		Carbon Tetrachloride	Chloroform	Radon
Soil Pathways (μg/kg for carbon tetrachloride and chloroform)				
Residential	Direct exposure	2,500	3,900	–
	Soil to groundwater	200	960	–
Non-residential	Direct exposure	7,000	6,000	–
	Soil to groundwater	200	960	–
Groundwater Pathways (μg/L for carbon tetrachloride and chloroform)				
Residential	Direct exposure	5	80	–
Non-residential	Direct exposure	5	80	–
Aquatic life	Groundwater seepage to surface water			
	Acute exposure	35,200	28,900	–
	Chronic exposure	Not available	1,240	–
Indoor Air (μg/m^3 for carbon tetrachloride and chloroform; pCi/L for radon)				
Residential	Direct exposure	4.055[b]	1.05[c]	4.0 pCi/L[d]

[a] Source of values for carbon tetrachloride and chloroform in soil and groundwater and for chloroform in indoor air: KDHE (2004, 2010f).

[b] The value of 4.055 μg/m^3 for carbon tetrachloride was calculated by using the KDHE (2010f) Equation 8 (for indoor air carcinogens) with the updated inhalation slope factor (SF_i) of 2.10×10^{-2} (kg-day/mg)$^{-1}$ derived from the new EPA IRIS value of inhalation unit risk, 6×10^{-2} (μg/m^3)$^{-1}$. This new value was posted on the IRIS database (http://www.epa.gov/iris/subst/0020.htm#inhalrfc) on March 31, 2010. The previous SF_i value for carbon tetrachloride, 5.25×10^{-2} (kg-day/mg)$^{-1}$, was derived from the IRIS value of inhalation unit risk, 1.5×10^{-5} (μg/m^3)$^{-1}$, posted on the IRIS database in 1987. This previous SF_i value was used in calculation of the KDHE value of 1.6 μg/m^3 that was operative during the investigations reported here.

[c] The KDHE value of 1.05 μg/m^3 for chloroform is based on the carcinogenic scenario and an SF_i value of 8.05×10^{-2} (kg-day/mg)$^{-1}$, (equal to the KDHE [2010f] toxicity factor). The currently posted IRIS summary provides an inhalation unit risk of 2.3×10^{-5} per (μg/m^3), which is converted to the SF_i value used by the KDHE to calculate the risk-based concentration. In IRIS, a note immediately above the posted inhalation risk factor reads, "Note: The following evaluation of cancer risk from chloroform inhalation was developed in 1987 and does not incorporate newer data or the 1996 or 1999 draft cancer assessment guidelines." The EPA is currently working to revise the assessment for inhalation exposure. Regarding the potential for chloroform to cause cancer, the toxicity summary in IRIS states, "Under the Proposed Guidelines for Carcinogen Risk Assessment . . . chloroform is *likely to be carcinogenic to humans by all routes of exposure* under high-dose conditions that lead to cytotoxicity and regenerative hyperplasia in susceptible tissues. . . . Chloroform is *not likely to be carcinogenic to humans by any routes of exposure* at a dose level that does not cause cytotoxicity and cell regeneration." The EPA's current reassessment for chloroform will seek to update values for toxicity via inhalation.

[d] Source: EPA action level (http://www.ksradon.com/files/basic_radon_facts_english.pdf).

TABLE 2.2 Risks of cancer for individuals exposed to radon or carbon tetrachloride in their homes for a lifetime.[a]

Concentration	Expected Lifetime Incidence
Radon: Risks of lung cancer for smokers exposed to radon in their homes for a lifetime[b]	
10 pCi/L	150 out of 1,000
4 pCi/L[c]	62 out of 1,000
Radon: Risks of lung cancer for non-smokers exposed to radon in their homes for a lifetime[b]	
10 pCi/L	18 out of 1,000
4 pCi/L[c]	7 out of 1,000
Carbon tetrachloride: Risk of all cancers for smokers or non-smokers exposed to carbon tetrachloride in their homes for a lifetime	
4.055 $\mu g/m^3$ [d]	1 out of 100,000 (equal to 0.01 out of 1,000)

[a] Sources of information: EPA 2009; KDHE 2010f.

[b] Risks for former smokers might be lower than the risks for smokers but higher than the risks for non-smokers.

[c] EPA action level for radon in residential indoor air.

[d] KDHE screening level for carbon tetrachloride in residential indoor air.

FIGURE 2.1 Locations of subsurface soil sampling with the Geoprobe in the unconsolidated interval at and near the former CCC/USDA facility in the 2009-2010 investigations. Source of photograph: NAIP (2008).

FIGURE 2.2 Locations of bedrock soil sampling with a minisonic drilling rig at and near the former CCC/USDA facility in the 2009-2010 investigations. Source of photograph: NAIP (2008).

FIGURE 2.3 Locations of groundwater sampling for groundwater-bearing Zone 1 (including attempted sampling points) from boreholes and from temporary and long-term monitoring wells installed during the 2009-2010 investigations. Source of photograph: NAIP (2008).

FIGURE 2.4 Locations of groundwater sampling for groundwater-bearing Zones 2-4 from temporary and long-term monitoring wells installed during the 2009-2010 investigations. Source of photograph: NAIP (2008).

FIGURE 2.5 Locations of the 24 private wells sampled during the 2009-2010 investigations and 1 private well (BSMW13) that was not sampled. Source of photograph: NAIP (2008).

FIGURE 2.6 Locations of groundwater samples from Zone 1 and Zone 2 analyzed for nitrate. Source of photograph: NAIP.

FIGURE 2.7 Locations of the network of observation points used for measurement of water levels in groundwater-bearing Zone 1 during the 2009-2010 investigations. Source of photograph: NAIP (2008).

FIGURE 2.8 Locations of the network of observation points used for measurement of water levels in groundwater-bearing Zones 2-4 during the 2009-2010 investigations. Source of photograph: NAIP (2008).

FIGURE 2.9 Locations of monitoring wells used for slug testing during the 2009-2010 investigations. Source of photograph: NAIP (2008).

FIGURE 2.10 Locations of the pumping wells (MW09, MW10, and MW05) and observation wells used for the step-drawdown pumping tests in Zone 1 during the 2009-2010 investigations. Source of photograph: NAIP (2008).

FIGURE 2.11 Locations of the pumping well (MW05) and observation wells (MW01, MW02, MW04-MW13) for constant-rate pumping tests in Zone 1 during the 2009-2010 investigations. Source of photograph: NAIP (2008).

FIGURE 2.12 Locations of the pumping well (MW44Z2) and observation wells (MW45Z2, MW48Z2-MW51Z2) for the constant-rate pumping test in Zone 2 during the 2009-2010 investigations. Source of photograph: NAIP (2008).

FIGURE 2.13 Locations of the homes in the residential subdivision on and near the former CCC/USDA property.

FIGURE 2.14 Locations of soil gas survey (with on-site analysis) in the area potentially affected by groundwater contamination in water-bearing Zone 1. Source of photograph: NAIP (2008).

FIGURE 2.15 Locations of residential structures tested during the on-site screening in the 2009-2010 investigations. Source of photograph: NAIP (2008).

FIGURE 2.16 Locations of selected homes monitored during the winter and/or summer seasons for VI testing in the 2009-2010 investigations. Source of photograph: NAIP (2008).

FIGURE 2.17 Locations of the Hanover schools.

3 Field and Laboratory Data

The data generated by the 2009-2010 investigations are presented in this section by the type of test performed or the medium analyzed. The methodologies for data collection are discussed in Section 2. Detailed procedures for the 2009-2010 investigation were described in the *Final Work Plan* (including addenda; Argonne 2008a), the *Supplemental VI Work Plan* (including addenda; Argonne 2008b), and the *Master Work Plan* (Argonne 2002). The timeline of activities is summarized in Table 1.1.

3.1 Geologic Coring Data

At all drilling locations, continuous cores were collected and evaluated to generate geologic logs. The lithologic descriptions for all logs are in Appendix A (in Volume 2). The lithologic data were analyzed to identify the local stratigraphic and hydrostratigraphic units (Section 4.2).

3.2 Soil Sampling Data

Subsurface soil samples were collected for VOCs analyses to generate soil contamination data. Sampling was conducted primarily in vertical profiles through the vadose zone across two distinct intervals: (1) the unconsolidated soils above bedrock and (2) the underlying bedrock to the depth of the first water-bearing zone.

At borings TI01-TI25 on the former CCC/USDA property (Figure 2.1), the Geoprobe was used to collect subsurface soil samples from unconsolidated material at 4-ft intervals, from 2 ft to approximately 25 ft BGL. Bedrock samples were recovered with the minisonic drilling rig at 4-ft intervals at locations MW01-MW05, MW12, and TI26 on the former facility, as well as at borings MW07, TI28, and MW34 near the former facility (Figure 2.2). In addition, continuous soil sampling was conducted with the minisonic drilling rig at 4-ft intervals in both the unconsolidated soils and bedrock at locations TI30, MW08, and MW45 outside the former facility (Figures 2.2 and 2.4). At two locations (TI30/MW09 and MW01), confirmatory soil samples were collected in the bedrock formation below water-bearing Zone 1.

All soil samples were analyzed for VOCs at the Applied Geosciences and Environmental Management (AGEM) Laboratory at Argonne according to a modification of EPA Method 8260B (purge-and-trap method), as referenced in SW-846 (EPA 1998), to achieve a quantitation limit of 10 µg/kg. This method involves methanol extraction and analysis with a GC-MS system. The results are in Table 3.1. Seven soil samples from selected intervals in the bedrock formation at locations MW44, MW45, and MW47 were analyzed for grain density and porosity by National Petrographic Service, Inc., Houston, Texas. The results are in Appendix B. Descriptions of all soil samples are in Appendix C, Table C.1. Replicate soil samples collected for verification analysis are discussed in Section 3.11. The results for the replicate samples are reported in the supplementary material on CD, as discussed in Section 3.11.

3.3 Groundwater Sampling Data

Groundwater samples were collected for VOCs analyses from all of the water-bearing zones identified in the 2009-2010 investigations. Four groundwater-bearing zones were identified in the bedrock formation (Figure 1.7). These zones have limited thicknesses (< 10 ft) and exhibit very poor production in most of the study area. Because of generally slow rates of groundwater accumulation during drilling, monitoring wells were installed at most of the borehole locations for use in groundwater sampling. Groundwater samples were collected from Zone 1 at 38 wells (MW01-MW02, MW04-MW24, MW27-MW38, MW40, and MW46-MW47) and at one borehole location, MW48, which was completed as a well in Zones 2-4 but not in Zone 1 (Figure 2.3). Unsuccessful attempts were made to collect water samples from Zone 1 in the days after well installation in February-April 2009, at locations MW03 and TI27 (plugged wells) and at wells MW25-MW26, MW39, and MW41-MW43 (permanent wells) (Figure 2.3). Subsequently, wells MW25, MW26, MW39, and MW43 eventually produced small amounts of water, as noted when water levels were measured in all monitoring wells in July 2009. For groundwater-bearing Zones 2-4, water samples were collected at 6 locations (MW44-MW45 and MW48-MW51; Figure 2.4). Descriptions of the groundwater samples are in Appendix C, Table C.1.

Groundwater samples were also collected from all accessible private wells surrounding the former CCC/USDA facility (Figure 2.5). The 24 sampled private wells included 12 for lawn and garden use, 1 for use at the school athletic field (USD 223), 2 for irrigation (D. Bruna), 1 for domestic purposes (J. Kruse) outside Hanover, 3 currently not in use (K. Prell, R. Schlabach [E], and Farmers Co-op), and 5 for monitoring at the Bill's Service Center site (Table 3.2). One of the

6 existing wells at the Bill's Service Center site (BSMW13) was not sampled because of the presence of petroleum hydrocarbons. Descriptions of water samples taken from the private wells are in Appendix C, Table C.1.

All groundwater samples were analyzed for VOCs at the AGEM Laboratory, according to a modification of EPA Method 524.2 (EPA 1995). Replicate groundwater samples collected for verification analysis with the EPA's Contract Laboratory Program (CLP) methodology are discussed in Section 3.11. The analytical results for groundwater samples are in Table 3.2.

In addition to VOCs analysis, groundwater samples were also collected at selected locations to extract isotope and geochemical information that might indicate potential contaminant migration and preferential pathways. Eight groundwater samples were collected for tritium analysis from monitoring wells MW05 and MW46 (Zone 1), MW44Z2 and MW45Z2 (Zone 2), MW45Z3 (Zone 3), and MW44Z4 and MW45Z4 (Zone 4). All eight samples were analyzed by the Tritium Laboratory at the University of Miami in Miami, Florida. The results of these analyses are in Table 3.3. Tritium concentrations ranging from 0.12 TU to 5.70 TU were identified.

A total of 12 groundwater samples were collected for nitrate analysis. Of these, 7 samples were from monitoring wells (MW05, MW09-MW11, MW13, MW28-MW29) in groundwater Zone 1, and 5 were from wells (MW44Z2-MW45Z2, MW48Z2-MW49Z2, MW51Z2) in groundwater Zone 2. All samples collected for nitrate analysis were sent to TestAmerica Laboratory. The analytical results are in Table 3.4.

3.4 Installation of Temporary and Permanent Monitoring Wells

Sixty-two monitoring wells (44 in water-bearing Zone 1 and 6 in each of water-bearing Zones 2-4) were installed to facilitate groundwater sampling and the monitoring of groundwater levels. At each location (Figures 2.3 and 2.4), the targeted groundwater-bearing zone was identified by evaluating continuous cores and analyzing their lithology, water content, and stratigraphic relationships.

All monitoring wells were installed by Boart Longyear through use of a sonic rig. With KDHE approval, all of the wells were completed at the surface as flush mounts. Well

construction data are in Table 3.3; construction diagrams and well registration forms are in Appendix D.

3.5 Groundwater Level Data

Groundwater levels were measured both manually and automatically during the 2009-2010 investigations. The networks of observation points for water level measurements are shown in Figure 2.7 (for water-bearing Zone 1) and Figure 2.8 (for water-bearing Zone 2). Water levels were periodically measured manually in all wells. Continuous water level monitoring was conducted at selected locations in each of the four water-bearing zones, to identify possible water level trends.

Manual measurements were taken by reading the depth to water in each well to the nearest 0.01 ft with an electronic water level sensor, from a surveyed reference mark at the top of the well casing. The hand-measured water level data for groundwater-bearing Zones 1-2 are in Appendix E. Water levels were determined automatically in selected wells by installing self-contained water level sensors and data loggers (Instrumentation Northwest, Inc., Model PT2X^{TM}) programmed to collect measurements once every 4 hr. The complete data logger records are in Supplement 3, on CD.

The gaps in the data for the Zone 1 wells (Table S3.1 in Supplement 3) occurred when the recorders were reprogrammed for slug tests (August 2009) or for step tests (November-December 2009). The gap for Zone 2 well MW51Z2 in Table S3.2 (November 2009) was due to slow recovery after slug testing. In Table S3.3, the data gaps for Zone 3 wells MW44Z3 and MW45Z3 (September-October 2009) occurred during recovery after slug testing. The later gaps for well MW45Z3 (October 2009-June 2010) were caused by an electronic problem that resulted in depletion of the batteries; no spare recorder was available as a replacement. The short periodic gaps for Zone 4 well MW44Z4 (Table S3.4) reflect a fault in the recorder's clock that interrupted data collection periodically at fixed intervals, for a fixed duration, before normal recording resumed. Comparison with hand-measured water levels verified that this problem with the well MW44Z4 recorder did not affect the accuracy of the automatic measurements.

The water levels determined manually were used, for those wells in which the observed levels reached ambient static conditions, to construct estimates of the local potentiometric

surfaces for water-bearing Zones 1 and 2. For Zones 3 and 4, monitoring data indicated that the groundwater levels in most monitoring wells were in recovery mode and did not appear to reach equilibrium during the 2009-2010 investigation period. To avoid generating potentially distorted flow patterns by using non-static water level data, no attempts were made to construct potentiometric surfaces for these two zones. The characteristics of slow recovery in Zones 3 and 4 are evaluated in Section 4.6.

3.6 Slug Testing Data for Zone 1 (August 2009) and Zone 2 (January 2010)

Slug tests were performed to investigate the range and distribution of hydraulic conductivity values for groundwater-bearing Zones 1 and 2. The testing was conducted at 20 monitoring wells lying along the identified contaminant migration pathways in Zone 1 and at the 6 monitoring wells installed in Zone 2 (Figure 2.9). Slug testing was not conducted for Zones 3 and 4, because no contamination was detected and no apparent equilibrium was reached in these zones.

The slug tests in all wells were performed by quickly lowering or withdrawing a physical slug into the casing to perturb the static water column. For this purpose, the physical slugs used consisted of 1.0-in.-diameter, sealed, sand-filled PVC (polyvinyl chloride) pipes, either 5 ft long or 3 ft long. The slugs were used either individually or in pairs to achieve the desired water level offset in each well. The slug configuration used for the testing of each well is indicated in Table 3.6.

The slug test response times for the wells in Zone 1 varied significantly, from a few minutes to several days. In keeping with the recommendations in Addendum 1 to the *Final Work Plan* (Argonne 2008a), the number of slug test data sets collected at each well was determined on the basis of the observed water level response. For wells having a water level recovery period of less than 1 hr, four sets of slug test data were collected, representing two complete insertion-and-withdrawal cycles of the physical slug. For wells having recovery periods longer than 1 hr, the following data collection scheme was employed:

Length of Recovery Period	Number of Data Sets
1 hr to 3 hr	3
3 hr to 1 day	2
> 1 day	1

With one exception, the water level responses for all Zone 1 tests were recorded by using self-contained, downhole pressure sensor and data logging units (Instrumentation Northwest, Inc., Model PT2X™). Data for the tests conducted at well MW34 were recorded by using a downhole pressure transducer connected to an external data logger (In-Situ, Inc., Hermit™ 1000C). The number of data sets collected at each well tested is in Table 3.6.

Groundwater recoveries generally occurred more quickly in the Zone 2 monitoring wells than in the Zone 1 wells. The tests in all Zone 2 monitoring wells were therefore conducted by using a downhole pressure transducer (In-Situ, Inc., Model PTX-161) linked to an aboveground data-logging unit (In-Situ, Inc., Hermit™ 1000C) capable of obtaining water level measurements at an initial rate of five readings per second. Four sets of slug test data were collected for each Zone 2 well, representing two complete insertion-and-withdrawal cycles of the physical slug. The slug configurations used for testing of the Zone 2 wells are summarized in Table 3.6.

Complete slug test data for the Zone 1 tests are in the report presented as Supplement 4 (on CD), and complete data for the Zone 2 tests are in Supplement 5. Interpretive curve fits for each test data set are in Appendix F (Zone 1 tests) and Appendix G (Zone 2 tests). The hydraulic conductivity estimates for water-bearing Zones 1 and 2, derived from interpretation of the slug test data sets, are discussed in Section 4.6.

3.7 Step Pumping Test Data for Zone 1, November 2009

On the basis of the Zone 1 slug testing results, additional hydraulic testing of this interval was requested by the KDHE in October 2009 (KDHE 2009e). Addendum 3 to the *Final Work Plan* (Argonne 2008a) outlines a program of investigation, consisting of step-drawdown and constant-rate pumping tests, to determine the specific capacity, long-term pumping capability, and potential ROI of selected existing wells at the site. With the approval of the KDHE (2009h), step pumping tests were performed on November 23-25, 2009, at monitoring wells MW05, MW09, and MW10. The configuration of pumping (MW09, MW05, or MW10) and observation wells employed for each test is summarized in Table 3.7 and Figure 2.10.

The step tests were performed by using a Geotech Environmental Equipment, Inc., Geosub™ pump with precise control for flow rates from < 0.1 gpm (gallons per minute) to approximately 1.25 gpm. In each well, the pump was installed so that the pump inlet was

approximately 0.3 ft above the measured bottom of the well. The pump is 1.0 ft in length. As proposed in Addendum 3, the specific pumping rates employed for the step testing at each targeted well were selected in the field. The pumping rates were measured by using a stop watch to periodically determine the time required to fill a calibrated 0.5-gal or 1-gal container placed at the discharge outfall. Each test was started at a target initial flow rate of approximately 0.1 gpm. The flow rate for each subsequent step was selected on the basis of the water level responses observed during the preceding step of the test.

The three Zone 1 step tests were performed as follows:

- *Step test at MW09*. The Geosub™ pump and downhole transducer were installed in well MW09 on November 23 at approximately 17:00, and the well was allowed to reequilibrate overnight. The step testing of MW09 began at 9:25 on November 24, and the pumping was terminated at 12:20. The pumping rates for the individual steps in this test ranged from approximately 0.08 gpm to 1.8 gpm. The residual drawdown in MW09 was subsequently monitored until approximately 90% recovery had been achieved. The pump was then removed and decontaminated.

- *Step test at MW05*. After installation of the pump and transducer at MW05, manual measurements indicated that the groundwater level in the well returned to within 0.01 ft of the static water level within 20 min. The test pumping of MW05 began at 14:40 on November 24 and was concluded at 18:11. The test was performed at flow rates that ranged from approximately 0.1 gpm to 1.1 gpm. The residual drawdown in well MW05 was monitored until approximately 80% recovery was observed. The pump was then removed and decontaminated.

- *Step test at MW10*. The pump and downhole transducer were installed in well MW10 at approximately 19:20 on November 24, and the well was allowed to reequilibrate overnight. Test pumping of MW10 began on November 25 at 8:25 and ended at 11:39. The test was conducted at flow rates ranging from 0.1 gpm to 0.3 gpm. The residual drawdown in MW10 was monitored until approximately 98% recovery had been achieved. The pump was then removed and decontaminated.

The groundwater level in each pumped well was monitored (1) manually, by periodically measuring the depth to water from the top of the well casing with the aid of an electronic water level meter, and (2) by using a downhole pressure transducer and data logger (Instrumentation Northwest, Inc., Model PT2X^{TM}). The downhole loggers were programmed to record readings at 10-sec intervals in wells MW09 and MW10 and at 15-sec intervals in well MW05. In each well, the automatic water level readings were recorded as the height of groundwater in the well above the pressure sensor. In well MW09, the pressure sensor was installed approximately 1.4 ft above the pump intake. In wells MW05 and MW10, the pressure sensors were installed approximately 1.2 ft above the pump intakes. The results are summarized in Appendix H, Figures H.1 and H.2 (for pumping of well MW09), Figures H.3 and H.4 (for pumping of well MW05), and Figures H.5 and H.6 (for pumping of well MW10).

Downhole pressure sensors and data loggers (Instrumentation Northwest, Inc., Model PT2X^{TM}) were also employed at all observation wells adjacent to the pumping well to identify potential drawdown responses. Water level readings started approximately 18 hr prior to the beginning of pumping, at 5-min intervals, and were continued throughout the step testing program. The distances of the observation wells from the corresponding pumping well are in Table 3.7.

To facilitate interpretation of the monitoring well data, a barometric pressure sensor-data logger was placed at the site (near well MW09) on November 23. This data logger was programmed to collect measurements of the local atmospheric pressure, at 15-min intervals, throughout the testing program.

The continuously measured water levels at observation wells and the barometric pressure measurements are illustrated in Appendix H, Figures H.7 and H.8. The detailed report of step pumping test results is in Supplement 6 (on CD).

3.8 Constant-Rate Pumping Test Data

Constant-rate pumping tests were conducted to obtain quantitative estimates of (1) aquifer hydraulic parameters (transmissivity and hydraulic conductivity), (2) sustainable groundwater extraction rates, and (3) the potential ROI associated with pumping at selected well

locations in groundwater-bearing Zones 1 and 2. These data were generated to facilitate evaluation of potential corrective action technologies for the restoration of Zone 1 or Zone 2.

3.8.1 Constant-Rate Pumping Test at Zone 1 Well MW05, February 2010

The pumping capacity of Zone 1 well MW05 could not be fully explored during the step pumping test conducted on November 23-25, 2009, because of the physical configuration of the pumping equipment employed at that time. The potential for greater groundwater (and contaminant) capture in Zone 1 in response to longer-term pumping of well MW05 at a higher rate remained uncertain. A constant-rate pumping test was, therefore, recommended for well MW05 by Argonne and approved by the KDHE (2010b).

The Zone 1 constant-rate pumping test was performed on February 22-24, 2010, with well MW02 representing the closest observation point to pumping well MW05 (Table 3.8, Figure 2.11). Testing was carried out in accordance with the procedures in Addendum 3 to the *Final Work Plan* (Argonne 2008a) and in the *Master Work Plan* (Argonne 2002), except that two short-term pumping events (instead of a single 24-hr test) were conducted because of rapid groundwater drawdown at MW05. The revised testing program was discussed with the KDHE project manager (C. Carey) at the Hanover site on February 23, 2010, and was conducted with the KDHE's verbal approval. The testing activities were as follows:

- *Pre-test pumping*. On February 22, 2010, the pump in well MW05 was briefly operated (less than 1 hr) to establish initial settings for the electronic pump controller and flow metering valve being used for the proposed constant-rate testing of this well. The pumping was started at a rate of 1.71-1.75 gpm, as estimated on the basis of the previous step pumping test, but was reduced to 1.57 gpm and then 1.43 gpm in response to the levels of drawdown observed in well MW05 at each rate. The pre-test pumping was completed after 55 min, and the well was allowed to recover overnight. The results suggested a target flow rate of approximately 1.3-1.4 gpm for the constant-rate pumping test. Data collected in this pumping episode are summarized in Appendix I, Table I.1 and Figure I.1.

- *Pumping test 1.* The first pumping test began at 10:01 on February 23 at a target flow rate of 1.3-1.4 gpm. The actual time-weighted average rate achieved during the test was 1.37 gpm. A relatively steady decline in the water level was observed for the first 70 min, from approximately 1 ft to 2.4 ft of drawdown. At that point, rapid drawdown was encountered, and the water level quickly reached the maximum recordable drawdown (3.76 ft) after 86 min (Appendix I, Table I.2 and Figure I.2). The test had to be terminated after 91 min. The maximum drawdown recorded at observation well MW02 was less than 0.1 ft (Appendix I, Figure I.3). Water level recovery after the termination of pumping was monitored continuously in wells MW05 and MW02. By 208 min after termination (at 15:00), the observed water level had recovered to within approximately 0.1 ft of the initial static position in MW05 and had recovered by approximately 0.03 ft in well MW02 (Appendix I, Figures I.4 and I.5).

- *Pumping test 2.* An additional attempt at constant-rate pumping of well MW05 began at 15:03 on February 23, at the lower rate of approximately 1.2 gpm, with the verbal approval of the KDHE. As observed in Test 1, a relatively steady drawdown (1-2 ft) was maintained through 169 min of pumping. Rapid drawdown then occurred again, and the limit was quickly reached (drawdown of 3.76 ft) after 187 min (Appendix I, Table I.3, Figure I.6). The pumping was terminated after 189 min. A maximum corresponding drawdown of approximately 0.13 ft was observed in MW02 (Appendix I, Figure I.7). Recoveries in both MW02 and MW05 were monitored for 14 hr and 20 min after the end of pumping. The results of this pumping episode and the subsequent recovery for wells MW05 and MW02 are in Appendix I (Figures I.8 and I.9).

The detailed report of the MW05 constant-rate pumping experiments is presented in Supplement 7 (on CD). Included are the complete test data sets for wells MW05 and MW02.

Groundwater level variations in the network of existing Zone 1 monitoring wells near MW05 (MW01, MW04, MW06-MW13) were also monitored continuously throughout the MW05 pumping events by using self-contained pressure sensors and data loggers (Instrumentation Northwest, Inc., Model PT2X^{TM}). The distance from each observation well to

the pumping well is listed in Table 3.8. All of the water level data recorded in the pumping events are in Supplement 7 (on CD).

The results of the preceding step pumping tests (Section 3.7) strongly suggested that many of the Zone 1 monitoring wells show groundwater level responses related to fluctuations in the local barometric pressure, commonly termed *barometric efficiency* (BE). To provide a basis for quantitative evaluation of potential BE responses in the Zone 1 monitoring well network, coincident measurements of the local atmospheric pressure and ambient groundwater levels in monitoring wells MW01, MW02, and MW04-MW13 (Figure 2.11) were collected, at 1-hr intervals, during the 6-day period preceding the MW05 pumping (from February 16 to February 22). Barometric pressure readings were obtained by using an absolute-pressure sensor-data logger placed at the site near MW09. The data from this monitoring (in the detailed report in Supplement 7) were used as a basis for correction of the water level variations observed in these wells during the MW05 constant-rate pumping events.

3.8.2 Constant-Rate Pumping Test at Zone 2 Well MW44, March 2010

The results of slug testing at six monitoring wells installed in groundwater-bearing Zone 2 (Section 3.6) suggested that Zone 2 might exhibit higher hydraulic conductivity values than the overlying Zone 1. To evaluate quantitatively the potential groundwater-producing capacity of Zone 2, a 24-hr constant-rate pumping test in this unit was recommended by the CCC/USDA and approved by the KDHE (2010d).

Well MW44Z2 is located at a relatively central position along the water-bearing Zone 2 migration pathway, as the pathway is currently defined. Well MW44Z2 appeared to offer the best opportunity for evaluation of the potential for groundwater extraction from Zone 2 as a means to (1) establish hydraulic control preventing groundwater contaminants from migrating downgradient and (2) possibly capture the existing contamination in Zone 2. In addition, pumping at location of well MW44Z2 could facilitate monitoring for the possible influence of induced drawdown effects in Zone 2, in both the upgradient and downgradient directions.

Well MW44Z2 was therefore selected as the producing well for this constant-rate pumping test. All monitoring wells installed in Zone 2 were used as observation wells

(Figure 2.12). The testing was conducted on March 17-20, 2010. Activities during this period included a brief step-drawdown test, followed by a 24-hr constant-rate pumping test.

3.8.2.1 Pre-Test Pumping

On March 17, 2010, the pump in well MW44Z2 was operated for approximately 3 hr to (1) test the functioning of the pumping equipment and installed sensors, (2) provide initial data on the pumping capacity of the well, and (3) determine target settings for the electronic pump controller and flow metering valve to be used for the planned constant-rate test. This pumping took the form of a step-drawdown test. Pumping began at a rate of 0.53 gpm and then increased progressively to 2.13 gpm in five steps at 30-min intervals. The pre-test pumping was completed after 179 min, and the well was allowed to recover overnight. The maximum drawdown achieved at the rate of 2.13 gpm was approximately 4.0 ft. A target flow rate of 2 gpm was suggested for the constant-rate pumping test, through combined consideration of the pumping capacity and the sizes of the pumping well and the pump. The testing results are summarized in Appendix J, Table J.1 and Figures J.1-J.2.

A detailed report of the MW44Z2 constant-rate pumping test, including the complete test data sets for pumping well MW44Z2 and the nearest observation well (MW45Z2), is presented in Supplement 8 (on CD).

3.8.2.2 24-Hour Pumping Test

The 24-hr pumping test began at 10:15 on March 18, 2010, at a target flow rate of 2 gpm, with a variation of 1.95-2.02 gpm (Appendix J, Table J.2 and Figure J.3). A relatively rapid decline in the water level was observed in the pumping well (MW44Z2) for the first 60 min, reaching approximately 3.5 ft of drawdown. During the last 8 hr of the test, the increase in drawdown at MW44Z2 was minimal (< 0.1 ft), suggesting an approximately steady-state condition (Appendix J, Figure J.3). The 24-hr pumping test was completed at 10:15 on March 19. By that time, the maximum drawdown was approximately 4.0 ft in pumping well MW44Z2.

After termination of pumping, water level recovery was monitored continuously. The water level in MW44Z2 recovered to within approximately 0.1 ft of the initial static position in

6 hr after termination (Appendix J, Figure J.4). In response to the pumping at MW44Z2, the water level in MW45Z2 (the nearest observation well to MW44Z2, at a distance of 263 ft) increased slightly (by 0.13 ft) in the first 8 hr and then declined steadily to 0.05 ft below the initial water level over the remaining 16 hr (Appendix J, Table J.2 and Figure J.5). A small but distinct drawdown response (approximately 0.13 ft) was identified, however, at well MW45Z2 after correction of the field observations for the effects of barometric pressure variations during the pumping period (see below). The complete data logger records for MW44Z2 and MW45Z2 for this pumping event are included in Supplement 8 (on CD).

In addition to the nearest observation well (MW45Z2), the groundwater levels in the other four monitoring wells installed in Zone 2 (MW48Z2-MW51Z2) were also monitored continuously during the MW44Z2 constant-rate pumping and recovery periods, through use of self-contained pressure sensor-data loggers (Instrumentation Northwest, Inc., Model PT2X^{TM}). The distances of these observation wells from the pumping well are listed in Table 3.9. The data loggers in these wells were programmed to take measurements at intervals that varied with elapsed time during the well MW44Z2 pumping period, for efficient documentation of water level variations throughout the testing. The details are in Supplement 8 (on CD).

To facilitate the evaluation of potential BE responses in the Zone 2 monitoring wells, measurements of the local atmospheric pressure were collected, at 10-min intervals, throughout the MW44Z2 constant-rate pumping and recovery periods. The barometric readings were obtained by using an absolute-pressure sensor-data logger placed at the site near well MW09. All readings are in Supplement 8 (on CD).

To identify any potential local background trends in groundwater level, the ambient water levels were monitored at MW44Z2, MW45Z2, and MW48Z2-MW51Z2 from March 1 to March 13 (at 4-hr intervals), and the levels in these wells and the local barometric pressure were recorded from March 13 to March 17 (immediately prior to the pumping test) at 1-hr intervals. The ambient background water levels and barometric pressure measurements are shown in Appendix J, Figures J.6-J.7. The records collected on March 13-17 are in Supplement 8 (on CD).

3.9 Soil Vapor and Indoor Air Sampling Data

A number of sampling events for VI investigation were implemented according to the VI investigation processes and methods presented in Section 2. The analytical results for all soil vapor and indoor air samples are summarized chronologically by location in Appendix K, Table K.1. Complete data are in Supplement 9 (on CD). The sections below provide details for each major sampling event.

3.9.1 Initial Sampling Data for Nine Residences at and near the Former CCC/USDA Property, February and March 2009

The initial upward VI investigation started at the residential area (nine residences) near and on the former CCC/USDA property. On the basis of the 2007 indoor air results for homes in the area, three residences (413 E. Kensington St., 400 E. Kensington St., and 400 N. East St.; Figure 1.6) were selected for sampling in winter 2009. Soil vapor or air samples for VOCs and radon analyses were collected from sub-slab, basement, and first-floor spaces on February 2-4, 2009. After a potential for upward VI was demonstrated, indoor air sampling was conducted in six additional residences on March 12-13, 2009. All sampling activities were conducted in accordance with procedures specified in *Supplemental VI Work Plan* (Argonne 2008b) and its Addendum 1 and in compliance with Kansas guidance (KDHE 2007b). This initial VI evaluation was under the direction of a nationally recognized VI specialist, Dr. Blayne Hartman (Hartman Environmental Geoscience, Solana Beach, California).

The detailed sampling procedure for each residence in this initial sampling (February 2-4, and March 12-13, 2009) was as follows:

- *Residence survey before sampling.* Approximately two days prior to sample collection, each home was surveyed to identify any products known to potentially contain carbon tetrachloride or chloroform. The identified products were then removed if permitted. Records/forms documenting the survey are in Supplement 9 (on CD).

- *Air sampling.* Indoor air samples were collected in Summa canisters, individually certified clean, for a period of 24 hr. Canisters were placed on the first floor and in the basement of each residence, in a location of common

occupancy (as allowed by the residents) but away from heating system registers. To determine ambient air quality at the site, one ambient outdoor air sample was collected for each sampling event in an upwind location, away from obvious sources of VOCs and over the same collection period as the indoor air samples. Meteorological conditions were noted and recorded. These records are also in Supplement 9 (on CD).

- *Sub-slab soil vapor sampling*. Sub-slab vapor sampling was conducted after completion of the indoor air sampling in February and March 2009 to eliminate potential interference from soil vapor. To install a sampling probe, a small-diameter hole (< 1 in.) was drilled through the slab to allow insertion of a small-diameter tube filled with 1 in. of sand to cover the tip. The hole was then sealed to the surface with bentonite, and the tubing was purged to remove residual air. A soil vapor sample was withdrawn through the probe with a syringe. The sample was transferred to a small-volume canister (approximately 400 cm^3). After sampling was complete, the sub-slab sampling probe was covered with a container filled with carbon dioxide, and soil vapor from the tubing was tested to verify that no leakage had occurred through the sampling probe. No leakage was identified for any sub-slab sample. Sampling records are in Supplement 9 (on CD).

Indoor air samples were analyzed for VOCs by Calscience Environmental Laboratories, Inc., Garden Grove, California, according to EPA method TO-15, with a detection limit of 1.5 $\mu g/m^3$. Sub-slab soil vapor samples were shipped to H&P Mobile Geochemistry, Inc., Carlsbad, California, and analyzed for carbon tetrachloride and chloroform by EPA Method TO-15, with a detection level of 5.0 $\mu g/m^3$. This value is below the most stringent risk-based standard for these compounds in sub-slab samples. Analytical results are in Table 3.10.

To generate multiple lines of evidence of VI to indoor air, samples were also collected and analyzed for radon as a potential natural tracer of upward soil gas emissions and a surrogate for determining a foundation-specific attenuation factor for each residence. Separate sub-slab soil vapor and basement air samples, collected according to a procedure similar to that discussed above, were stored in small-volume canisters and used for this purpose. All samples were analyzed for radon by scintillation counting at the University of Southern California, Los Angeles, California. Results are in Table 3.10.

3.9.2 On-Site Screening Data, March-April 2009

On-site screening for soil gas, sub-slab vapor, and indoor air was conducted on March 23-April 9, 2009, in areas where off-site groundwater contamination had been identified in Zone 1 and Zone 2 (Figures 2.14-2.15). The on-site screening began with the soil gas survey. Soil gas samples were collected at the following locations if access was permitted (Figure 2.14):

1. North, west, and south sides of homes on the north side of E. Elm Street.

2. North and west sides of homes on the south side of E. Elm Street.

3. East, north, and south sides of homes near Hanover Street.

4. Additional locations on the south side of the Kloppenberg Senior Center and at the northeastern corner of the intersection of E. North Street and Highland Street.

Sampling probes for the soil gas survey were installed by using a Geoprobe unit to push a 1.25-in.-diameter rod to the targeted sampling depth, typically at an average depth of 8 ft BGL (equivalent to the foundation depths of the structures). Teflon tubing was inserted and attached with an adaptor to the bottom probe rod. After purging of the gas probe, a soil gas sample was collected with a syringe and transferred via a three-way valve to a Tedlar bag for on-site analysis in the field laboratory. A leakage test was also conducted by using carbon dioxide as described for sub-slab sampling (Section 3.9.1). All soil gas samples were analyzed on-site for carbon tetrachloride by modified EPA Method 8021 (on a gas chromatograph with electron capture detection [GC-ECD]), at a reporting limit of 6 $\mu g/m^3$. The analytical results are in Table 3.11.

Only sub-slab soil vapor sampling and indoor air grab sampling were performed after the soil gas survey was terminated, because soil gas results earlier in the sampling event had shown little correlation with corresponding sub-slab and indoor air values. All sub-slab and indoor air samples were collected according to a procedure similar to that discussed in Section 3.9.1, except that these samples were stored in Tedlar bags for direct analysis in the field laboratory. Access was allowed for sampling in 49 residences within or near the edge of identified groundwater contamination in Zone 1 and Zone 2 (Figure 2.15). All sub-slab vapor and indoor air samples were analyzed on-site for carbon tetrachloride by modified EPA method 8021 (GC-ECD). For

confirmation, a few samples were transferred to canisters and analyzed by an off-site laboratory, H&P Mobile Geochemistry, with EPA Method TO-15. All results are in Table 3.12.

3.9.3 Sampling Data for Monitoring during the Summer and Winter Seasons, August 2009 and January 2010

On the basis of the results from (1) on-site screening of 49 homes in the areas of identified Zone 1 and Zone 2 contamination (Section 3.9.2) and (2) vapor/air sampling at 9 residences on and near the former CCC/USDA property (Section 3.9.1), 16 homes were selected for further summertime monitoring. In addition, one residence that had previously been inaccessible was also sampled. Indoor air sampling at these 17 homes was conducted on August 12-13, 2009, in accordance with Addendum 2 to the *Supplemental VI Work Plan* (Argonne 2008b). Air samples were collected for a period of 24 hr in the basement and on the first floor of each home by using certified-clean Summa canisters. All samples were analyzed for carbon tetrachloride and chloroform by TestAmerica Laboratories, Inc., South Burlington, Vermont, with EPA Method TO-15. Results are in Table 3.13.

At the KDHE's request, wintertime indoor air samples were also collected at 15 of the 17 homes in this group on January 25-26, 2010. Two of the homes were inaccessible during the January sampling. The VOCs sampling was performed according to Addendum 3 to the *Supplemental VI Work Plan* (Argonne 2008b) and followed the procedure used for the August 12-13, 2009, sampling at these locations (paragraph above). These samples were analyzed for carbon tetrachloride and chloroform by TestAmerica with EPA Method TO-15. The analytical results are in Table 3.14.

In view of the historically elevated radon values in this portion of Washington County, the CCC/USDA offered radon testing to residents whose homes were being tested for carbon tetrachloride in January 2010. Radon test kits obtained from the Washington County offices were placed in the basements of participating homes. The kits were retrieved after 3-4 days and sent to Air Chek, Inc., Mills River North Carolina (http://www.radon.com/) for analysis through National Radon Program Services at Kansas State University, Manhattan, Kansas. The results of the radon testing were reported to the residents along with the results of the indoor air sampling for carbon tetrachloride, in letters from the KDHE Bureau of Environmental Remediation. The results are included in Table 3.14.

The extent of groundwater contamination in Zone 2, delineated on the basis of results obtained from the Zones 2-4 investigation in October 2009, suggested that nine residences lie within an area that is less than 100 ft laterally and 40 ft vertically from the Zone 2 contamination (Figure 2.16). Indoor air sampling at these nine homes was conducted in accordance with Addendum 3 on February 24-25, 2010. The samples were collected and analyzed for both VOCs and radon, as in the January event. Results are in Table 3.15.

3.9.4 Sampling Data for the Hanover Public School and St. John's School, February 2010

To address residents' concerns, indoor air sampling was performed on February 22-25, 2010, at the Hanover public school and St. John's School facilities in accordance with Addendum 4 to the *Supplemental VI Work Plan* (Argonne 2008b) and as approved by the KDHE (2010c). Screening indoor air samples were collected initially in 49 classrooms, cafeterias, bathrooms, gyms, locker rooms, shops, and offices in the public school facility and in 26 comparable locations in the adjacent St. John's School. On-site screening was conducted by a nationally recognized VI specialist, Dr. Blayne Hartman (Hartman Environmental Geoscience, Solana Beach, California) by modified EPA Method 8021 (a GC-ECD method) at a reporting limit of 1.5 $\mu g/m^3$. The results are in Table 3.16.

The on-site screening process allowed selection of specific locations within the schools for further testing. On the basis of the results of the screening analyses, two sets of certified-clean Summa canisters were deployed in each school. One canister was used to collect an air sample through the evening of February 22 in the kindergarten/day care classroom at each facility. After these evening canisters had been retrieved, another set of canisters was set to collect air samples representative of indoor air conditions through the 8-hr school day. An air sample canister was set outside each school to measure background values of carbon tetrachloride and chloroform that might be present in the ambient outdoor air. All Summa canister samples were analyzed for carbon tetrachloride and chloroform by the independent TestAmerica Laboratories with EPA Method TO-15 at detection limits of 1.3 $\mu g/m^3$ for carbon tetrachloride and 0.98 $\mu g/m^3$ for chloroform. The KDHE project manager (C. Carey) was present during the sampling event; he placed duplicate Summa canisters in each school for independent verification of the sample results. Analytical results are in Table 3.16.

Radon kits acquired from the Washington County offices, Washington, Kansas, were placed in each classroom, office, library, cafeteria, gym, etc. in each school and associated public

school outbuildings housing classrooms and shops. Although radon sampling was not required by the KDHE, the CCC/USDA offered this testing and analysis to the schools because of the previous detections in Hanover, at levels exceeding EPA and KDHE action levels, and because of the sample population (i.e., children). The radon kits were analyzed through National Radon Program Services at Kansas State University, Manhattan, Kansas. Analytical results are in Table 3.16.

3.9.5 Sampling Data for Five Residences with Mitigation Systems

After initial evaluation of the on-site screening and indoor air sampling results generated in early 2009, mitigation was recommended by the CCC/USDA for three residences (Figure 3.1) and was implemented with KDHE (2009g) approval. On behalf of the CCC/USDA, EnviroGroup Limited, Lawrence, Kansas, installed a VI mitigation system for each home on August 25-27, 2009, as described in Supplement 10. The mitigation systems were tested after 30 days to ensure that the systems were performing as designed. To further assess the performance of the mitigation systems, indoor air samples were collected in the basements and first-floor spaces of these homes during the sampling event of January 25-26, 2010, as discussed in Section 3.9.3 and in Addendum 3 to the *Supplemental VI Work Plan* (Argonne 2008b). Samples were analyzed for carbon tetrachloride, chloroform, and radon. Results are in Table 3.17.

Two additional homes were identified for mitigation in April 2010, on the basis of results from a series of sampling events (the most recent being in winter 2010). With the approval of the KDHE (2010e), EnviroGroup, Limited, installed a VI mitigation system for each home on May 12-13, 2010, as described in Supplement 11. The mitigation systems were tested after 30 days to ensure that the systems were performing as designed. In conjunction with a second performance assessment, indoor air samples will be collected in the basements and first-floor spaces of these homes in January-February 2011.

3.10 Land Survey Data

The exact locations of field activities are required to provide horizontal and vertical control for stratigraphic correlation, water level measurement, hydrogeologic mapping, and contaminant delineation in soil and groundwater. All investigative boring locations, all existing

monitoring points, and most of the private wells were surveyed by licensed professional surveyors of Schwab-Eaton, P.A., Manhattan, Kansas. The results are in Appendix L, Table L.1.

3.11 Results of Quality Control Activities

The QA/QC procedures for sample collection, handling, and analysis are described in detail in the *Master Work Plan* (Argonne 2002), the *Final Work Plan* (Argonne 2008a), and the *Supplemental VI Work Plan* (Argonne 2008b). Evaluation of the organic analytical data was consistent with EPA (1994) guidelines.

A detailed report of quality control activities supporting the analytical data generated during the site characterization and vapor intrusion investigations is on CD in Supplement 12. Significant findings are discussed below.

3.11.1 Quality Control for Organic Analyses of Soil and Groundwater Samples

Sample collection and handling activities were monitored by the documentation of samples as they were collected and the use of chain-of-custody forms and custody seals to ensure sample integrity during the handling and shipment of samples for analysis. The QA/QC samples collected included field blanks, equipment rinsates, and trip blanks. Field replicate samples were collected, and samples were selected for duplicate analysis as a measure of analytical precision.

- Field blanks were collected to represent waters from the Hanover public water supply that were used during equipment decontamination. Carbon tetrachloride was not detected in the field blanks. Chloroform, a by-product of water chlorination, was detected at a trace concentration (1.1 µg/L).

- An equipment rinsate collected to monitor decontamination procedures for reusable sampling equipment contained neither carbon tetrachloride or chloroform, indicating that cross-contamination of groundwater samples did not occur during sample collection.

- Trip blanks were prepared and included in shipments of soil or water samples for organic analysis as an indicator of cross-contamination during shipment. The trip blanks did not contain carbon tetrachloride or chloroform.

- As an indicator of the consistency of the sampling methodology followed and to provide a measure of analytical precision, replicate soil and groundwater samples were collected. In addition, samples were selected by the AGEM Laboratory for duplicate organic analysis. Selected samples were submitted for verification organic analysis at a secondary laboratory.

- During the field investigations to characterize the extent of groundwater contamination, numerous groundwater samples were collected as field evaluation samples, including some collected prior to completion of monitoring wells or prior to development of monitoring wells. Such samples are considered non-representative of site conditions. These samples were collected and submitted for overnight analysis to aid in evaluation of site contamination during the field effort. Following well completion and development, each well was later sampled to provide quantitative data for determination of contaminant distribution.

Vertical-profile subsurface soil sampling was conducted at 39 locations, from which 206 soil samples (and 24 additional field replicate samples) were collected. Soil samples were quick-frozen on dry ice as they were collected. The subsurface soils were analyzed at the AGEM Laboratory for VOCs, including carbon tetrachloride and chloroform, by using a modification of EPA Method 8260B (a purge-and-trap method), as referenced in SW-846 (EPA 1998), to achieve a quantitation limit of 10 µg/kg. At the laboratory, the VOCs present in each soil sample were extracted with methanol from the sample matrix. For the purge-and-trap soil analyses, an aliquot of the methanol extract was purged, and the volatile species were transferred to a sorbent tube. After purging, the sorbent tube was heated and backflushed with an inert gas to desorb the components into the GC-MS system.

Groundwater sampling was conducted at 70 locations, including 19 private wells, 5 monitoring wells installed during an investigation of an unrelated contaminated site (Bill's Service Station), and 54 of the monitoring wells established during the current investigation. In total, 110 groundwater samples (and 7 additional field replicate samples) were collected for

organic analysis at the AGEM Laboratory by EPA Method 524.2 (EPA 1995) to achieve a quantitation limit of 1.0 µg/L. Water samples shipped to the AGEM Laboratory were analyzed by the purge-and-trap method with a GC-MS system. For these analyses, VOCs present in the groundwater sample were extracted (purged) from the sample matrix by bubbling an inert gas through the sample. The purged components were trapped in a sorbent tube. After the purging, the sorbent tube was heated and backflushed with an inert gas to desorb the components into the GC-MS system.

Samples submitted to the AGEM Laboratory for organic analysis were analyzed in 59 sample delivery groups. For both the soil and water analyses, the compounds eluting from the GC column were identified by retention time and by comparison with reference library spectra. The concentration of each component was calculated by comparison of the MS response for the quantitation ion to corresponding calibration curves, the responses for internal standards, or both. The QA/QC procedures followed included analysis of instrument calibration check standards, the analysis of laboratory blanks, monitoring of surrogate spike recovery, and duplicate laboratory analyses. Significant results include the following:

- Samples shipped to the AGEM Laboratory were received with custody seals intact and at the appropriate temperature. All samples were analyzed within required holding times.

- Carbon tetrachloride and chloroform, contaminants of concern in the investigation, were not detected in laboratory method blanks analyzed with the samples.

- For each sample delivery group, analytical instrument calibration was monitored by the analysis of calibration check standards. The concentrations of calibration check standards measured in all groups were within the acceptable range of ±20%.

- Surrogate standard determinations were performed on samples and blanks by using surrogate spike compounds fluorobenzene, 1,4-dichlorobenzene-d_4, and bromofluorobenzene. The surrogate recoveries were within the specified range of 80-120% for all samples in either the initial analysis or a successful reanalysis.

- Dual analysis of soil and groundwater samples at the AGEM Laboratory was conducted as a measure of consistency in the sampling and analytical methodologies. This was accomplished through the analysis of replicate samples submitted to the laboratory or duplicate analysis of samples selected by the laboratory.

The soil and groundwater analytical data from the AGEM Laboratory are acceptable for quantitative determination of contaminant distribution.

3.11.2 Quality Control for Organic Analyses of Sub-Slab and Air Samples

During the VI investigation, a total of 333 sub-slab, indoor air, and ambient air samples were collected first to identify the investigation area at risk for vapor intrusion, then to test specific residences in the area identified as being at risk, and subsequently to monitor residences where carbon tetrachloride or chloroform (the fumigant compound of interest and its primary degradation product, respectively) were known to be present. Analyses were conducted as follows:

- For grab samples of indoor air collected in glass syringes and sub-slab grab samples collected in Tedlar bags, on-site analysis for carbon tetrachloride was conducted by using Method 8021, with reporting limits of 1.5 $\mu g/m^3$ for indoor air samples and 6 $\mu g/m^3$ for sub-slab samples. On-site analysis and subsequent data review were performed by Dr. Blayne Hartman.

- For 24-hr indoor air samples, off-site laboratory analysis for carbon tetrachloride and chloroform was conducted by Calscience Environmental Laboratories, Inc., Garden Grove, California, by EPA Method TO-15 on a GC-MS system in the selected ion monitoring (SIM) acquisition mode, with a reporting limit of 1.5 $\mu g/m^3$.

- For indoor air samples, off-site laboratory analysis for carbon tetrachloride and chloroform was conducted by H&P Mobile Geochemistry, Inc., Carlsbad, California, by EPA Method TO-15 on a GC-MS system, with a reporting limit of 1.5 $\mu g/m^3$.

- For sub-slab-samples, off-site laboratory analysis for carbon tetrachloride and chloroform was conducted by H&P by EPA Method TO-15 on a GC-MS system, with a reporting limit of 5 µg/m^3.

- For spilt samples collected by the KDHE, off-site laboratory analysis for carbon tetrachloride and chloroform was conducted by Pace Analytical Services, Inc., Lenexa, Kansas, by Method TO-15, with reporting limits of 1.7 µg/m^3 for carbon tetrachloride and 1.5 µg/m^3 for chloroform.

- Most of the samples were analyzed at TestAmerica Laboratories, Inc., South Burlington, Vermont, by EPA Method TO-15, to provide quantitative measures of contaminant concentrations at method detection limits of 1.3 µg/m^3 for carbon tetrachloride and 0.98 µg/m^3 for chloroform.

For each sample delivery group, the responses for target analytes in initial calibration standards and subsequent calibration checks met the 30% relative standard deviation criterion. Acceptable recoveries of target analytes were met for analyses of laboratory control samples. Method blanks and ambient air samples were free of carbon tetrachloride and chloroform contamination.

3.11.3 Quality Control for Organic Analyses of Vegetation Samples

Vegetation sampling was conducted during the 2009-2010 investigation to provide data supporting an evaluation of phytoremediation as a potential corrective action technology.

A total of 342 vegetation samples (branch and leaf tissues from 171 existing mature trees and bushes across the investigation area) were analyzed for carbon tetrachloride and chloroform at the AGEM Laboratory by a modification of the protocol in EPA Method 5021 (headspace analysis on a GC-ECD system) to achieve the low detection limits required. Typical detection limits achieved were 0.3 µg/kg for carbon tetrachloride and 0.75 µg/kg for chloroform. A limitation for the chloroform analysis is the presence of chloroform (at very low concentrations) in the methanol solvent used in standard preparation. An 11-point calibration of the GC system was established on the basis of the mass of known quantities of carbon tetrachloride and

chloroform in the range 0.125-4.000 ng. The analytical data are acceptable for qualitative determination of contaminant distribution.

3.11.4 Quality Control for Tritium Analyses of Groundwater Samples

Selected groundwater samples were analyzed for tritium at the University of Miami Tritium Laboratory in Miami, Florida. Tritium concentrations reported were based on the U.S. National Institute of Science and Technology tritium water standard #4926, as measured on September 3, 1961, and again on September 3, 1978, with a half-life of 12.43 yr. Concentrations were reported in tritium units (TU), equivalent to 3.193 picocuries per kilogram of water. Because counting efficiency and background concentration are different for each instrument, the reported concentrations were corrected for cosmic intensity and gas pressure. Typical efficiencies are equivalent to 1 count per minute (cpm) per TU. Background is about 0.3 cpm, known to ±0.02 cpm. Relative percent difference values for duplicate analyses are typically < 5%.

3.11.5 Quality Control for Radon Analyses of Indoor Air Samples

Vapor intrusion samples were initially analyzed for radon as a tracer compound for evaluation of an attenuation factor in migration of contaminants from the subsurface to indoor air. Because of the inherent serious health risks associated with radon levels detected above the EPA action level of 4.0 pCi/L, 84 samples collected across the investigation area were subsequently analyzed for radon. Included were 79 indoor air samples, 2 samples collected in crawl spaces, and 3 sub-slab samples.

Of the indoor air samples, 78 were analyzed for radon by Air Chek, Inc., Naples, North Carolina, and 6 were analyzed at the University of Southern California. Radon is measured by scintillation counting of the gamma rays produced by the daughters of radon, through use of sodium iodide detectors. Sodium iodide detectors, which are very efficient for the detection of gamma rays, have a very high background from naturally occurring radiation. The difference between the average background and total sample counts is the net or actual sample count. Since the background is a statistically varying number, the average is only an estimate of the background at any one time. Air Chek uses heavily shielded detectors to minimize the average background and its variation and thereby maximize accuracy.

3.12 Waste Characterization, Handling, and Disposal

In accordance with the procedures defined in the *Master Work Plan* (Argonne 2002) for handling and disposal of potentially contaminated investigation-derived waste, waste soil and water generated during the 2009-2010 investigations were containerized on-site, sampled, and subsequently transported off-site for disposal.

Samples of waste soil generated during drilling of monitoring wells were analyzed for VOCs by the KDHE-certified laboratory Pace Analytical Services, Lenexa, Kansas, by EPA Method 8260. Carbon tetrachloride and chloroform, contaminants of concern in the investigations, were not detected. With KDHE approval, the waste soil was subsequently taken to the Rolling Meadows Landfill, Topeka, Kansas, for disposal.

Samples of wastewater generated during development and sampling of monitoring wells and during subsequent pump tests were analyzed by Pace Analytical Services for VOCs with EPA Method 5030B/8260 and for nitrate/nitrite nitrogen with EPA Method 353.2. The maximum concentrations of carbon tetrachloride and chloroform detected in periodic sampling of accumulated wastewaters during the multiple phases of investigation were 32.7 µg/L and 7.8 µg/L, respectively. The maximum concentration of nitrate/nitrite nitrogen detected was 6.9 mg/L. With KDHE approval, the wastewaters were taken to the Sabetha publicly owned treatment works, Sabetha, Kansas, for disposal.

Documentation for handling and disposal of investigation-derived waste during the 2009-2010 investigations is in Supplement 13.

TABLE 3.1 Analytical results from the AGEM Laboratory for vertical-profile soil samples collected during the 2009-2010 investigation at Hanover.

				Concentration (µg/kg)	
Location	Sample	Sample Date	Depth (ft)	Carbon Tetrachloride	Chloroform
TI01	HATI01-S-27920	1/13/09	2	ND[a]	ND
	HATI01-S-27921	1/13/09	6	ND	ND
	HATI01-S-27922	1/13/09	10	ND	ND
	HATI01-S-27923	1/13/09	14	ND	ND
	HATI01-S-27924	1/13/09	18	3.0 J[b]	ND
	HATI01-S-27925	1/13/09	21	30	ND
TI02	HATI02-S-27926	1/13/09	2	ND	ND
	HATI02-S-27927	1/13/09	6	ND	ND
	HATI02-S-27928	1/13/09	10	ND	ND
	HATI02-S-27929	1/13/09	14	ND	ND
TI03	HATI03-S-27930	1/13/09	2	ND	ND
	HATI03-S-27931	1/13/09	6	ND	ND
	HATI03-S-27932	1/13/09	10	ND	ND
TI04	HATI04-S-27933	1/13/09	2	ND	ND
	HATI04-S-27934	1/13/09	6	ND	ND
	HATI04-S-27935	1/13/09	10	ND	ND
TI05	HATI05-S-27950	1/13/09	2	ND	ND
	HATI05-S-27951	1/13/09	6	ND	ND
	HATI05-S-27952	1/13/09	10	ND	ND
	HATI05-S-27953	1/13/09	14	ND	ND
	HATI05-S-27954	1/13/09	18	ND	ND
	HATI05-S-28059	1/15/09	20.5	6.9 J	ND
TI06	HATI06-S-27936	1/13/09	2	ND	ND
	HATI06-S-27937	1/13/09	6	ND	ND
	HATI06-S-27938	1/13/09	10	ND	ND
	HATI06-S-27939	1/13/09	14	ND	ND
TI07	HATI07-S-27940	1/13/09	2	ND	ND
	HATI07-S-27941	1/13/09	6	ND	ND
	HATI07-S-27942	1/13/09	10	ND	ND
TI08	HATI08-S-27943	1/13/09	2	ND	ND
	HATI08-S-27944	1/13/09	6	ND	ND
	HATI08-S-27945	1/13/09	10	ND	ND
	HATI08-S-27946	1/13/09	14	ND	ND
	HATI08-S-27947	1/13/09	18	ND	ND
	HATI08-S-27948	1/13/09	22	ND	ND
TI09	HATI09-S-27956	1/13/09	2	ND	ND
	HATI09-S-27957	1/13/09	6	ND	ND
	HATI09-S-28058	1/15/09	9	ND	ND
TI10	HATI10-S-27997	1/14/09	2	ND	ND
	HATI10-S-27998	1/14/09	6	ND	ND
	HATI10-S-28000	1/14/09	10	ND	ND

TABLE 3.1 (Cont.)

				Concentration (µg/kg)	
Location	Sample	Sample Date	Depth (ft)	Carbon Tetrachloride	Chloroform
TI11	HATI11-S-27970	1/13/09	2	ND	ND
	HATI11-S-27971	1/13/09	6	ND	ND
	HATI11-S-27973	1/13/09	10	ND	ND
	HATI11-S-27974	1/13/09	14	ND	ND
TI12	HATI12-S-27976	1/14/09	2	ND	ND
	HATI12-S-27977	1/14/09	6	ND	ND
	HATI12-S-27979	1/14/09	10	ND	ND
TI13	HATI13-S-27980	1/14/09	2	ND	ND
	HATI13-S-27982	1/14/09	6	ND	ND
	HATI13-S-27983	1/14/09	10	ND	ND
	HATI13-S-27985	1/14/09	14	ND	ND
TI14	HATI14-S-27958	1/14/09	2	ND	ND
	HATI14-S-27959	1/14/09	6	ND	ND
	HATI14-S-27960	1/14/09	10	ND	ND
TI15	HATI15-S-27986	1/14/09	2	ND	ND
	HATI15-S-27988	1/14/09	6	ND	ND
	HATI15-S-27989	1/14/09	10	ND	ND
	HATI15-S-27990	1/14/09	13	ND	ND
TI16	HATI16-S-27991	1/14/09	2	ND	ND
	HATI16-S-27992	1/14/09	6	ND	ND
	HATI16-S-27994	1/14/09	10	ND	ND
	HATI16-S-27995	1/14/09	14	ND	ND
TI17	HATI17-S-28031	1/14/09	2	ND	ND
	HATI17-S-28032	1/14/09	6	ND	ND
	HATI17-S-28033	1/14/09	10	ND	ND
TI18	HATI18-S-28013	1/14/09	2	ND	ND
	HATI18-S-28014	1/14/09	6	ND	ND
	HATI18-S-28016	1/14/09	10	ND	ND
	HATI18-S-28017	1/14/09	14	ND	ND
TI19	HATI19-S-28001	1/14/09	2	ND	ND
	HATI19-S-28002	1/14/09	6	ND	ND
	HATI19-S-28003	1/14/09	10	ND	ND
	HATI19-S-28005	1/14/09	14	ND	ND
TI20	HATI20-S-28006	1/14/09	2	ND	ND
	HATI20-S-28007	1/14/09	6	ND	ND
	HATI20-S-28009	1/14/09	10	ND	ND
	HATI20-S-28010	1/14/09	14	ND	ND
	HATI20-S-28011	1/14/09	18	ND	ND
	HATI20-S-28012	1/14/09	22	ND	ND
TI21	HATI21-S-28018	1/14/09	2	ND	ND
	HATI21-S-28019	1/14/09	6	ND	ND
	HATI21-S-28020	1/14/09	10	ND	ND
	HATI21-S-28021	1/14/09	14	ND	ND

TABLE 3.1 (Cont.)

Location	Sample	Sample Date	Depth (ft)	Concentration (µg/kg) Carbon Tetrachloride	Chloroform
TI21	HATI21-S-28022	1/14/09	18	ND	ND
	HATI21-S-28024	1/14/09	21	ND	ND
TI22	HATI22-S-27961	1/14/09	2	ND	ND
	HATI22-S-27962	1/14/09	6	ND	ND
	HATI22-S-27963	1/14/09	10	ND	ND
	HATI22-S-27964	1/14/09	14	ND	ND
	HATI22-S-27965	1/14/09	18	ND	ND
	HATI22-S-27966	1/14/09	21	ND	ND
TI23	HATI23-S-28025	1/14/09	2	ND	ND
	HATI23-S-28026	1/14/09	6	ND	ND
	HATI23-S-28027	1/14/09	10	ND	ND
	HATI23-S-28028	1/14/09	14	ND	ND
	HATI23-S-28029	1/14/09	18	ND	ND
TI23	HATI23-S-28030	1/14/09	22	ND	ND
TI24	HATI24-S-27967	1/14/09	2	ND	ND
	HATI24-S-27968	1/14/09	6	ND	ND
	HATI24-S-27969	1/14/09	10	ND	ND
	HATI24-S-28050	1/14/09	14	ND	ND
	HATI24-S-28051	1/14/09	18	ND	ND
	HATI24-S-28052	1/14/09	22	ND	ND
	HATI24-S-28054	1/14/09	25	ND	ND
TI25	HATI25-S-28035	1/14/09	2	ND	ND
	HATI25-S-28036	1/14/09	6	ND	ND
	HATI25-S-28038	1/14/09	10	ND	ND
TI26	HATI26-S-28045	1/31/09	14	ND	ND
	HATI26-S-28046	1/31/09	18	8.3 J	ND
	HATI26-S-28047	1/31/09	22	14	ND
	HATI26-S-28048	1/31/09	26	ND	ND
	HATI26-S-28049	1/31/09	30	ND	ND
	HATI26-S-28130	1/31/09	34	ND	ND
TI28	HATI28-S-28160	2/4/09	12	ND	ND
	HATI28-S-28161	2/4/09	16	ND	ND
	HATI28-S-28162	2/4/09	20	ND	ND
TI30[c]	HATI30-S-28230	2/28/09	2	ND	ND
	HATI30-S-28231	2/28/09	6	ND	ND
	HATI30-S-28232	2/28/09	10	ND	ND
	HATI30-S-28233	2/28/09	14	4.6 J	ND
	HATI30-S-28234	2/28/09	18	15	ND
	HATI30-S-28235	2/28/09	21	17	3.9 J
	HATI30-S-28236	2/28/09	26	ND	ND
	HATI30-S-28238	2/28/09	30	ND	ND
	HATI30-S-28239	2/28/09	34	ND	ND
	HATI30-S-28240	2/28/09	38	ND	ND
	HATI30-S-28241	2/28/09	42	ND	ND
	HATI30-S-28242	2/28/09	46	ND	ND
	HATI30-S-28243	2/28/09	50	ND	ND

TABLE 3.1 (Cont.)

Location	Sample	Sample Date	Depth (ft)	Concentration (µg/kg) Carbon Tetrachloride	Chloroform
TI30	HATI30-S-28244	2/28/09	54	ND	ND
	HATI30-S-28245	2/28/09	58	ND	ND
	HATI30-S-28246	2/28/09	62	ND	ND
	HATI30-S-28248	2/28/09	66	ND	ND
MW01	HAMW01-S-28061	1/28/09	22	2.5 J	ND
	HAMW01-S-28062	1/28/09	27	7.9 J	ND
	HAMW01-S-28063	1/28/09	32	ND	ND
	HAMW01-S-28064	1/28/09	36	ND	ND
	HAMW01-S-28066	1/28/09	40	ND	ND
	HAMW01-S-28067	1/28/09	44	ND	ND
	HAMW01-S-28068	1/28/09	48	ND	ND
	HAMW01-S-28069	1/28/09	53	ND	ND
	HAMW01-S-28070	1/28/09	58	ND	ND
	HAMW01-S-28071	1/28/09	63	ND	ND
MW02	HAMW02-S-28080	1/29/09	25	ND	ND
	HAMW02-S-28081	1/29/09	29	35	ND
	HAMW02-S-28082	1/29/09	33	27	44
MW03	HAMW03-S-28090	1/29/09	18	ND	ND
	HAMW03-S-28091	1/29/09	22	ND	ND
	HAMW03-S-28092	1/29/09	26	19	ND
	HAMW03-S-28093	1/29/09	30	ND	ND
	HAMW03-S-28094	1/30/09	34	ND	ND
	HAMW03-S-28095	1/30/09	38	ND	ND
	HAMW03-S-28096	1/30/09	42	ND	ND
	HAMW03-S-28098	1/30/09	46	ND	ND
	HAMW03-S-28099	1/30/09	50	ND	ND
	HAMW03-S-28100	1/30/09	54	ND	ND
	HAMW03-S-28101	1/30/09	58	ND	ND
	HAMW03-S-28102	1/30/09	62	ND	ND
	HAMW03-S-28103	1/30/09	66	ND	ND
	HAMW03-S-28104	1/30/09	70	ND	ND
	HAMW03-S-28105	1/30/09	74	ND	ND
	HAMW03-S-28106	1/30/09	78	ND	ND
	HAMW03-S-28107	1/30/09	82	ND	ND
	HAMW03-S-28108	1/30/09	86	ND	ND
	HAMW03-S-28109	1/30/09	90	ND	ND
	HAMW03-S-28110	1/30/09	94	ND	ND
	HAMW03-S-28111	1/30/09	98	ND	ND
MW04	HAMW04-S-28126	1/31/09	25	ND	ND
	HAMW04-S-28127	1/31/09	29	ND	ND
	HAMW04-S-28128	1/31/09	33	ND	ND
MW05	HAMW05-S-28073	1/31/09	14	ND	ND
	HAMW05-S-28074	1/31/09	18	ND	ND
	HAMW05-S-28075	1/31/09	22	14	ND
	HAMW05-S-28076	1/31/09	26	17	ND
MW07	HAMW07-S-28135	2/2/09	19	ND	ND
	HAMW07-S-28136	2/2/09	23	ND	ND

TABLE 3.1 (Cont.)

Location	Sample	Sample Date	Depth (ft)	Concentration (µg/kg) Carbon Tetrachloride	Chloroform
MW07	HAMW07-S-28137	2/2/09	27	ND	ND
	HAMW07-S-28138	2/2/09	31	ND	ND
MW08	HAMW08-S-28139	2/2/09	4	ND	ND
	HAMW08-S-28140	2/2/09	8	ND	ND
	HAMW08-S-28141	2/2/09	12	ND	ND
	HAMW08-S-28142	2/2/09	16	3.0 J	ND
	HAMW08-S-28143	2/2/09	20	ND	ND
	HAMW08-S-28144	2/2/09	24	ND	ND
	HAMW08-S-28145	2/2/09	28	ND	ND
	HAMW08-S-28147	2/2/09	32	ND	ND
MW09[c]	HAMW09-S-28155	2/2/09	19.5	18	ND
MW12	HAMW12-S-28163	2/4/09	16	ND	ND
	HAMW12-S-28164	2/4/09	20	4.6 J	ND
	HAMW12-S-28165	2/4/09	24	7.3 J	ND
	HAMW12-S-28166	2/4/09	30	ND	ND
	HAMW12-S-28167	2/4/09	34	ND	ND
MW34	HAMW34-S-28249	3/3/09	14	ND	ND
	HAMW34-S-28220	3/3/09	18	ND	ND
	HAMW34-S-28221	3/3/09	21	ND	ND
	HAMW34-S-28223	3/3/09	26	ND	ND
	HAMW34-S-28224	3/3/09	29	ND	ND
MW45	HAMW45-S-28228	3/27/09	2	ND	ND
	HAMW45-S-28229	3/27/09	6	ND	ND
	HAMW45-S-28291	3/27/09	10	ND	ND
	HAMW45-S-28292	3/27/09	14	ND	ND
	HAMW45-S-28293	3/27/09	18	ND	ND
	HAMW45-S-28294	3/27/09	22	ND	ND
	HAMW45-S-28295	3/27/09	26	ND	ND
	HAMW45-S-28296	3/27/09	30	ND	ND

[a] ND, not detected at an instrument detection limit of 1.0 µg/kg.

[b] Qualifier J indicates an estimated concentration below the purge-and-trap quantitation limit of 10 µg/kg.

[c] Locations T130 and MW09 are adjacent.

TABLE 3.2 Analytical results from the AGEM Laboratory for groundwater samples collected during the 2009-2010 investigations at Hanover.

					Concentration (µg/L)		
Location	Type[a]	Sample	Sample Date	Depth (ft)	Carbon Tetrachloride	Chloroform	Methylene Chloride
Private wells							
A. Bruna	LG	HABRUNA-W-28201	2/24/09	40-60	ND[b]	ND	ND
B. Bruna	LG	HABBRUNA-W-28264	2/28/09	–	5.1	1.1	ND
Ted Bruna	LG	HATEBRUNA-W-28255	2/26/09	65-75	ND	ND	ND
Tony Bruna	LG	HATOBRUNA-W-28256	2/26/09	62-82	ND	ND	ND
Farmers Co-op	NU	HAFACOOP-W-28199	2/24/09	20-40	ND	ND	ND
T. Koss	LG	HATKOSS-W-28212	2/25/09	34-54	ND	ND	ND
J. Kruse	D	HAJKRUSE-W-28211	2/25/09	48-58	ND	ND	ND
D. Martin	LG	HADMARTIN-W-28265	2/28/09	28-48	7.8	1.0	ND
D. Minge[c]	LG	HADMINGE-W-28191	2/23/09	32-52	ND	9.0	ND
K. Prell	NU	HAKPRELL-W-28203	2/24/09	42-52	ND	ND	ND
R. Schlabach (E)[d]	NU	HARSCHLA(E)-W-28208	2/25/09	41	ND	ND	ND
R. Schlabach (W)	LG	HARSCHLA(W)-W-28207	2/25/09	75-80	1.5	ND	ND
J. Schmidt	LG	HAJSCHMIDT-W-28202	2/24/09	42-52	ND	ND	ND
R. Warren[e]	LG	HARWARREN-W-28257	2/26/09	40-60	ND	ND	ND
USD223	SAF	HAUSD223-W-28200	2/24/09	55-75	ND	ND	ND
J. Meier	LG	HAJOEMEIER-W-28841	6/22/09	50[f]	ND	ND	ND
K. Jueneman	LG	HAJUENEMAN-W-28842	6/22/09	–	3.6	ND	ND
D. Bruna (home)	IRR	HADBRUNAHOME-W-28843	6/22/09	45[f]	ND	3.2	ND
D. Bruna (irrigation)	IRR	HADBRUNAIRR-W-28844	6/22/09	45[f]	ND	ND	ND
Bill's Service Center monitoring wells							
BSMW09	MW	HABSMW9-W-28158	2/23/09	35-45	ND	ND	ND
BSMW10	MW	HABSMW10-W-28159	2/23/09	30-50	ND	1.3	ND
BSMW12	MW	HABSMW12-W-28179	2/23/09	35-50	ND	ND	ND
BSMW14	MW	HABSMW14-W-28182	2/23/09	35-50	ND	8.6	ND
BSMW15	MW	HABSMW15-W-28183	2/23/09	30-45	ND	ND	ND

TABLE 3.2 (Cont.)

Location	Type[a]	Sample	Sample Date	Depth (ft)	Concentration (µg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride
CCC/USDA monitoring wells							
MW01	MW	HAMW01-W-28184	2/23/09	30-35	387	7.6	ND
MW02	MW	HAMW02-W-28185	2/23/09	31-36	548	11	ND
MW03	MW	Dry			–	–	–
MW04	MW	HAMW04-W-28186	2/23/09	30-35	10	6.4	ND
MW05	MW	HAMW05-W-28187	2/23/09	24-29	488	6.1	ND
MW06	MW	HAMW06-W-28188	2/24/09	24-29	99	11	ND
MW07	MW	HAMW07-W-28189	2/24/09	30-35	92	6.7	ND
MW08	MW	HAMW08-W-28192	2/24/09	30-35	4.2	ND	ND
MW09	MW	HAMW09-W-28193	2/23/09	18-23	395	2.9	ND
MW10	MW	HAMW10-W-28194	2/23/09	26-31	31	3.9	ND
MW11	MW	HAMW11-W-28195	2/23/09	15-20	617	13	ND
MW12	MW	HAMW12-W-28196	2/24/09	25-35	111	18	ND
MW13	MW	HAMW13-W-28197	2/23/09	15-20	376	8.7	ND
MW14	MW	HAMW14-W-28252	2/26/09	14-19	45	7.1	ND
MW15	MW	HAMW15-W-28209	2/25/09	14-19	ND	ND	ND
MW16	MW	HAMW16-W-28251	2/26/09	15-25	5.8	2.1	ND
MW17	MW	HAMW17-W-28271	3/2/09	13-23	11	3.3	ND
MW18	MW	HAMW18-W-28268	3/2/09	15-25	3.4	4.2	ND
MW19	MW	HAMW19-W-28305	3/12/09	16-26	21	2.9	ND
MW20	MW	HAMW20-W-28275	3/2/09	18-28	17	3.0	ND
MW21	MW	HAMW21-W-28304	3/12/09	15-25	112	8.4	ND
MW22	MW	HAMW22-W-28302	3/12/09	18-28	ND	5.5	ND
MW23	MW	HAMW23-W-28261	2/28/09	19-29	3.4	ND	ND
MW24	MW	HAMW24-W-28274	3/2/09	13-18	ND	9.5	ND
MW25	MW	Dry	–	15-25	–	–	–
MW26	MW	Dry	–	10-25	–	–	–
MW27	MW	HAMW27-W-28269	3/2/09	20-30	1.0	15	ND
MW28	MW	HAMW28-W-28285	3/4/09	19-29	173	8.8	ND
MW29	MW	HAMW29-W-28286	3/4/09	19-29	179	10	ND
MW30	MW	HAMW30-W-28303	3/12/09	9-19	4.2	2.7	ND
MW31	MW	HAMW31-W-28276	3/3/09	10-20	ND	1.0	ND
MW32	MW	HAMW32-W-28847	8/13/09	10-25	64	2.8	ND
MW33	MW	HAMW33-W-28848	8/13/09	11-26	127	5.7	ND
MW34	MW	HAMW34-W-28284	3/4/09	17-27	1.3	ND	ND

TABLE 3.2 (Cont.)

Location	Type[a]	Sample	Sample Date	Depth (ft)	Concentration (µg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride
CCC/USDA monitoring wells (cont.)							
MW35	MW	HAMW35-W-28287	3/4/09	15-25	ND	11	ND
MW36	MW	HAMW36-W-28282	3/4/09	14-24	ND	ND	ND
MW37	MW	HAMW37-W-28307	3/19/09	15-30	19	2.5	ND
MW38	MW	HAMW38-W-28300	3/6/09	18-28	37	6.7	ND
MW39	MW	Dry	–	12-22	–	–	–
MW40	MW	HAMW40-W-28301	3/6/09	20-30	130	14	ND
MW41	MW	Dry	–	6-26	–	–	–
MW42	MW	Dry	–	8-28	–	–	–
MW43	MW	Dry	–	11-26	–	–	–
MW44Z2	MW	HAMW44-W-28821	3/28/09	30-40	11	1.0	ND
MW44Z3	MW	HAMW44Z3-W-28319	10/16/09	55-75	ND	ND	ND
MW44Z4	MW	HAMW44Z4-W-28320	10/16/09	97-107	ND	5.7	ND
MW45Z2	MW	HAMW45S-W-28824	3/29/09	20-30	28	3.0	ND
MW45Z3	MW	HAMW45Z3-W-28321	10/16/09	50-60	ND	ND	ND
MW45Z4	MW	HAMW45Z4-W-28322	10/16/09	83-93	ND	ND	ND
MW46	MW	HAMW46-W-28828	3/30/09	20-30	ND	ND	ND
MW47	MW	HAMW47-W-28829	4/1/09	15-30	ND	2.0	ND
MW48	BH	HAMW48-W-30322	10/5/09	28-29	ND	ND	ND
MW48Z2	MW	HAMW48Z2-W-28311	10/8/09	49-59	ND	ND	ND
MW48Z3	MW	HAMW48Z3-W-28312	10/8/09	83-93	ND	ND	ND
MW48Z4	MW	HAMW48Z4-W-28313	10/8/09	111-121	ND	ND	ND
MW49Z2	MW	HAMW49Z2-W-30324	10/10/09	55-65	35	4.4	ND
MW49Z3	MW	HAMW49Z3-W-30325	10/10/09	105-115	ND	1.1	ND
MW49Z4	MW	HAMW49Z4-W-30326	10/10/09	132-142	ND	1.0	ND
MW50Z2	MW	HAMW50Z2-W-30328	10/13/09	55-65	9.7	1.4	ND
MW50Z3	MW	HAMW50Z3-W-30329	10/13/09	89-99	ND	ND	ND
MW50Z4	MW	HAMW50Z4-W-30330	10/13/09	118-128	ND	ND	ND

TABLE 3.2 (Cont.)

Location	Type[a]	Sample	Sample Date	Depth (ft)	Concentration (µg/L) Carbon Tetrachloride	Chloroform	Methylene Chloride
CCC/USDA monitoring wells (cont.)							
MW51Z2	MW	HAMW51Z2-W-28315	10/16/09	56-66	ND	ND	ND
MW51Z3	MW	HAMW51Z3-W-28316	10/16/09	104-114	ND	ND	ND
MW51Z4	MW	HAMW51Z4-W-28317	10/16/09	126-136	ND	ND	ND

[a] Well types: BH, borehole; D, domestic; IRR, irrigation; LG, lawn and garden; MW, monitoring well; NU, not in use; SAF, school athletic field.

[b] ND, not detected at the purge-and-trap method quantitation limit of 1.0 µg/L.

[c] The two wells located at the Dennis Minge residence were surveyed as "primary" and "secondary." The "primary" well, used as a lawn and garden well, was sampled. The "secondary" well is capped and is not used.

[d] Open cased pit; well out of order.

[e] The two wells located at the Roger Warren residence were surveyed as "Warren" and "Warren South." The well surveyed as "Warren" is not used and was not sampled. The well surveyed as "Warren South" is used and was sampled.

[f] Approximate total depth provided by well owner.

TABLE 3.3 Analytical results for tritium samples collected at Hanover.[a]

Location	Sample	Screen Interval (ft BGL)	Concentration (TU)	Sample Date and Time	
MW05	HAMW45S-W-28837	24-29	5.70 ± 0.19	3/29/09	10:15
MW44Z2	HAMW44S-W-28838	30-40	3.68 ± 0.12	4/1/09	13:16
MW44Z4	HAMW44D-W-28835	97-107	0.12 ± 0.09	4/24/09	10:30
MW45Z2	HAMW45S-W-28826	20-30	4.42 ± 0.15	3/29/09	10:30
MW45Z3	HAMW45M-W-28831	50-60	3.05 ± 0.10	4/3/09	14:08
MW45Z3	HAMW45M-W-28839	50-60	2.72 ± 0.09	4/9/09	16:00
MW45Z4	HAMW45D-W-28827	83-93	3.60± 0.12	3/29/09	11:45
MW46	HAMW46-W-28840	19-29	4.25 ± 0.14	3/29/09	9:35

[a] Analysis at University of Miami Tritium Laboratory. Shipped to the laboratory at 13:43 on July 6, 2009, with chain-of-custody form 3085.

TABLE 3.4 Analytical results from TestAmerica Laboratories for nitrate in groundwater at Hanover.

Location	Sample	Sample Date	Depth (ft)	Nitrate as Nitrogen (mg/L)
MW05	HAMW05-W-30333	6/17/10	24-29	6.3
MW09	HAMW09-W-30334	6/17/10	18-23	3.9
MW10	HAMW10-W-30335	6/17/10	26-31	4.7
MW11	HAMW11-W-30336	6/17/10	15-20	3.7
MW13	HAMW13-W-30337	6/17/10	15-20	2.6
MW28	HAMW28-W-30338	6/17/10	19-29	3.0
MW29	HAMW29-W-30339	6/17/10	19-29	1.8
MW44Z2	HAMW44Z2-W-30340	6/17/10	30-40	2.5
MW45Z2	HAMW45Z2-W-30341	6/17/10	20-30	4.1
MW48Z2	HAMW48Z2-W-30342	6/17/10	49-59	0.5
MW49Z2	HAMW49Z2-W-30343	6/17/10	55-65	< 0.10
MW51Z2	HAMW51Z2-W-30344	6/17/10	56-66	0.3

TABLE 3.5 Construction data for monitoring wells installed during the 2009-2010 investigations at Hanover.

Well	KDHE Registration Number	Depth (ft BGL) Well Depth	Screen Interval	Filter Pack	Casing Diameter (in.)	Completion Date
Groundwater-bearing Zone 1						
MW01	424048	35	30-35	28-37	2	1/28/09
MW02	424049	36	31-36	29-36	2	1/29/09
MW03	–	–	–	–	–	–
MW04	424050	35	30-35	28-35	2	1/31/09
MW05	424051	29	24-29	22-29	2	1/31/09
MW06	424052	29	24-29	23-31	2	1/31/09
MW07	424053	35	30-35	28.5-35	2	2/2/09
MW08	424054	35	30-35	28-35	2	2/2/09
MW09	424055	23	18-23	16.5-23	2	2/2/09
MW10	424056	31	26-31	24.5-31	2	2/3/09
MW11	424057	20	15-20	13-20	2	2/3/09
MW12	424058	35	25-35	23-35	2	2/4/09
MW13	424059	20	15-20	13-20	2	2/4/09
MW14	424060	19	14-19	12.5-19	2	2/25/09
MW15	424061	19	14-19	12.5-21	2	2/25/09
MW16	424062	25	15-25	13-25	2	2/25/09
MW17	424063	23	13-23	11-23	2	2/25/09
MW18	424064	25	15-25	13-26	2	2/26/09
MW19	424065	26	16-26	14-27	2	2/26/09
MW20	424066	28	18-28	16-30	2	2/26/09
MW21	424067	25	15-25	12-26	2	2/26/09
MW22	424068	25	18-28	16-29	2	2/27/09
MW23	424069	29	19-29	17-30	2	2/27/09
MW24	424070	18	13-18	11-19	2	2/27/09
MW25	424071	25	15-25	13-25	2	3/1/09
MW26	424084	25	10-25	8-27	2	3/1/09
MW27	424085	30	20-30	18-30	2	3/1/09
MW28	424086	29	19-29	17-29	2	3/2/09
MW29	424087	29	19-29	17-30	2	3/2/09
MW30	424088	19	9-19	7-20	2	3/2/09
MW31	424089	20	10-20	8-21	2	3/2/09
MW32	424090	25	10-25	8-26	2	3/3/09
MW33	424091	26	11-26	9-27	2	3/3/09
MW34	424092	27	17-27	15-29	2	3/3/09
MW35	424093	25	15-25	13-25	2	3/3/09
MW36	424094	24	14-24	12-24	2	3/4/09
MW37	424095	30	15-30	13-33	2	3/4/09
MW38	424096	28	18-28	16-29	2	3/4/09
MW39	424097	22	12-22	10-24	2	3/4/09
MW40	424098	30	20-30	18-31	2	3/5/09
MW41	424099	26	6-26	4-27	2	3/5/09
MW42	424100	28	8-28	6-29	2	3/24/09
MW43	424101	26	11-26	9-30	2	3/24/09
MW46	424108	29	19-29	17-30	2	3/29/09
MW47	424109	30	15-30	13-30	2	3/29/09

TABLE 3.5 (Cont.)

Well	KDHE Registration Number	Depth (ft BGL) Well Depth	Screen Interval	Filter Pack	Casing Diameter (in.)	Completion Date
Groundwater-bearing Zone 2						
MW44Z2[a]	424104	40	30-40	28-40	2	3/27/09
MW45Z2[a]	424107	30	20-30	18-30	2	3/28/09
MW48Z2	430630	59	49-59	47-59	2.375	9/21/09
MW49Z2	430638	65	55-65	53-65	2.375	10/8/09
MW50Z2	430618	65	55-65	53-65	2.375	10/12/09
MW51Z2	430627	66	56-66	54-66	2.375	10/15/09
Groundwater-bearing Zone 3						
MW44Z3[a]	424103	75	55-75	53-78	1	3/26/09
MW45Z3[a]	424106	60	50-60	48-61	2	3/28/09
MW48Z3	430631	93	83-93	80-93	2.375	9/25/09
MW49Z3	430635	115	105-115	103-115	2.375	10/8/09
MW50Z3	430620	99	89-99	87-99	2.375	10/12/09
MW51Z3	430625	114	104-114	102-114	2.375	10/15/09
Groundwater-bearing Zone 4						
MW44Z4[a]	424102	107	97-107	95-108	1	3/26/09
MW45Z4[a]	424105	93	83-93	81-93	1	3/27/09
MW48Z4	430632	121	111-121	108-121	2.375	9/25/09
MW49Z4	430628	142	132-142	130-142	2.375	10/8/09
MW50Z4	430621	128	118-128	116-128	2.375	10/12/09
MW51Z4	430623	136	126-136	124-136	2.375	10/15/09

[a] Wells at locations MW44 and MW45 were registered with the names MW44S, MW44M, MW44D and MW45S, MW45M, MW45D, respectively. The names in the table are used throughout this report to indicate the water zones in which the individual wells at each location are completed.

TABLE 3.6 Summary of construction data, measured water levels, and testing parameters for monitoring wells in which slug testing was performed in August 2009 (Zone 1) and January 2010 (Zone 2).

Well	Reported Well Depth[a] (ft BGL)	Screened Interval[a] (ft BGL)	Gravel Pack Interval[a] (ft BGL)	Measured Well Depth[b] (ft TOC)	Static Water Level[c] (ft TOC)	Height of Water Column in Casing[c] (ft)	Height of Water above Screen[c] (ft)	Slug Used for Testing[d]	Number of Data Sets Collected
Groundwater-bearing Zone 1									
MW01	35	30–35	28–35	34.53	22.18	12.35	7.36	5 ft	4
MW02	36	31–36	29–36	35.59	26.81	8.78	3.78	2 x 3 ft	4
MW04	35	30–35	28–35	34.48	24.34	10.14	5.20	5 ft	4
MW05	29	24–29	22–29	28.45	23.25	5.20	0.20	3 ft	4
MW06	29	24–29	22–29	28.30	18.07	10.23	5.54	5 ft	1
MW07	35	30–35	30–35	34.60	24.25	10.35	5.53	5 ft	2
MW09	23	18–23	18–23	22.57	18.42	4.15	–0.67	3 ft	4
MW10	31	26–31	26–31	30.30	22.07	8.23	3.63	5 ft	4
MW11	20	15–20	15–20	19.60	16.61	2.99	–1.85	3 ft	4
MW12	35	25–35	25–35	34.59	20.45	14.14	4.32	5 ft	1
MW13	20	15–20	15–20	19.74	14.63	5.11	0.15	3 ft	4
MW16	25	15–25	15–25	24.45	16.96	7.55	–2.45	2 x 3 ft	2
MW18	25	15–25	15–25	24.90	16.92	7.98	–2.57	5 ft	3
MW20	28	18–28	18–28	27.64	21.49	6.15	–3.85	5 ft	1
MW21	25	15–25	15–25	24.41	16.74	7.67	–2.27	5 ft	1
MW28	29	19–29	19–29	28.40	22.91	5.49	–4.42	3 ft	4
MW29	29	19–29	19–29	28.22	24.06	4.16	–4.61	3 ft	4
MW34	27	17–27	17–27	26.66	17.08	9.58	–0.40	5 ft	3
MW37	30	15–30	15–30	29.68	19.90	9.78	–5.20	5 ft	1
MW38	28	18–28	18–28	27.83	23.82	4.01	–6.03	3 ft	1
Groundwater-bearing Zone 2									
MW44Z2	40	30-40	28-40	39.34	28.76	10.58	0.74	5 ft	4
MW45Z2	30	20-30	18-30	29.22	20.84	8.73	–1.27	5 ft	4
MW48Z2	59	49-59	47-59	58.90[e]	48.47	10.21	0.21	5 ft	4
MW49Z2	65	55-65	53-65	65.06[e]	56.65	8.20	–1.80	5 ft	4
MW50Z2	65	55-65	53-65	64.33[e]	54.92	9.08	–0.92	5 ft	4
MW51Z2	66	56-66	54-66	64.25[e]	53.23	12.35	2.35	5 ft	4

[a] Well construction parameters as reported in KDHE WWC-5 Water Well Records.

[b] Well depth from top of casing, measured on August 10-14, 2009, except as indicated otherwise.

[c] Water levels determined from measurements on August 1-14, 2009, for Zone 1 and on January 26-27, 2010, for Zone 2.

[d] Physical slugs were constructed from 1-in.-diameter, sealed, sand-filled PVC tubing. Table shows the length of slug[s] and the number used.

[e] Well depth from top of casing, measured on November 2, 2009.

TABLE 3.7 Configuration of pumping wells and associated observation wells in the step pumping tests for Zone 1, November 2009.

Pumping Well	Observation Well	Distance to Pumping Well (ft)
MW09	MW02	184
	MW05	215
	MW11	126
	MW13	216
	MW34	137
MW05	MW01	234
	MW02	107
	MW09	215
	MW11	215
	MW12	218
	MW13	272
MW10	MW01	173
	MW04	227
	MW07	165
	MW18	237
	MW19	198
	MW20	274

TABLE 3.8 Configuration of pumping well MW05 and associated observation wells in the constant-rate pumping test for Zone 1, February 2010.

Pumping Well	Observation Well	Distance to Pumping Well (ft)
MW05	MW02[a]	107
	MW01	234
	MW04	387
	MW06	379
	MW07	377
	MW08	363
	MW09	215
	MW10	382
	MW11	215
	MW12	218
	MW13	272

[a] Primary observation well.

TABLE 3.9 Configuration of pumping well MW44Z2 and associated observation wells in the constant-rate pumping test for Zone 2, March 2010.

Pumping Well	Observation Well	Distance to Pumping Well (ft)
MW44Z2	MW45Z2[a]	263
	MW48Z2	1,237
	MW49Z2	1,019
	MW50Z2	402
	MW51Z2	726

[a] Primary observation well.

TABLE 3.10 Analytical results for sub-slab and indoor air samples collected at nine residences near and on the former CCC/USDA property, February-March 2009.

Residence Address	Sample Location	Sample Date	Concentration (µg/m^3) Carbon Tetrachloride	Chloroform	Reporting Limit	Laboratory[a]	Radon[b] (pCi/L)
	First floor	2/4/09	17	ND[c]	1.5	CEL	–
400 N. East St.	Basement	2/4/09	26	ND	1.5	CEL	5.2
	Sub-slab	2/4/09	62,000	140	–	H&P	2616
	First floor	2/4/09	11	ND	1.5	CEL	–
413 E. Kensington St.	Basement	2/4/09	16	ND	1.5	CEL	9.4
	Sub-slab	2/4/09	350	ND	5.0	H&P	2500
	First floor	2/4/09	ND	ND	1.5	CEL	–
400 E. Kensington St.	Basement	2/4/09	1.8	ND	1.5	CEL	8
	Sub-slab	2/4/09	130	ND	5.0	H&P	1293
	First floor	3/13/09	ND	ND	1.5	CEL	–
300 Westminster St.	Basement	3/13/09	ND	ND	1.5	CEL	–
	First floor	3/13/09	ND	ND	1.5	CEL	–
297 Westminster St.	Basement	3/13/09	ND	ND	1.5	CEL	–
	First floor	3/13/09	ND	ND	1.5	CEL	–
300 N. Belgrave St.	Basement	3/13/09	ND	ND	1.5	CEL	–
	First floor	3/13/09	2.9	ND	1.5	CEL	–
301 N. Belgrave St.	Basement	3/13/09	4.2	ND	1.5	CEL	–
	First floor	3/13/09	ND	3.6	1.5	CEL	–
298 N. Belgrave St.	Basement	3/13/09	ND	3.4	1.5	CEL	–
	Sub-slab	4/9/09	13	ND	5.0	H&P	
	First floor	3/13/09	2.6	ND	1.5	CEL	–
414 E. Kensington St.	Basement	3/13/09	3.7	ND	1.5	CEL	–
–	Ambient	2/4/09	ND	ND	1.5	CEL	–
–	Ambient	3/13/09	ND	ND	1.5	CEL	–

[a] Laboratory:
CEL indicates analysis for carbon tetrachloride and chloroform at Calscience Environmental Laboratories, Inc., Garden Grove, California, by EPA Method TO-15 on a GC-MS system in the SIM acquisition mode.
H&P indicates analysis for carbon tetrachloride and chloroform by H&P Mobile Geochemistry, Inc., Carlsbad, California, by EPA Method TO-15 on a GC-MS system.

[b] Radon was determined by scintillation counting at the University of Southern California. Samples were collected in small canisters.

[c] ND, not detected at the indicated reporting limit for the respective laboratory.

TABLE 3.11 Results of on-site screening analysis of soil gas samples collected in areas potentially affected by contamination in groundwater Zone 1 and Zone 2, March 2009.

Sample Location	Sample Position	Depth (ft BGL)	Sample Date	Location[a]	Carbon Tetrachloride in Soil Gas (µg/m^3)
North side of East Elm Street					
400 E. Elm	North	14	3/24/09	SV15	ND[b]
	West	14	3/24/09	SV25	16
	South	8	3/24/09	SV24	114
404 E. Elm	North	8	3/25/09	SV29	ND
	West	5	3/24/09	SV16	ND
	South	5	3/24/09	SV14	ND
406 E. Elm	North	8	3/25/09	SV30	ND
	West	8	3/24/09	SV13	ND
	South	8	3/24/09	SV12	ND
408 E. Elm	North	8	3/25/09	SV28	ND
	South	8	3/24/09	SV22	22
412 E. Elm	North	8	3/25/09	SV27	ND
	West	8	3/24/09	SV21	700
	South	8	3/24/09	SV20	ND
500 E. Elm	North	8	3/25/09	SV26	ND
	West	8	3/24/09	SV11	ND
	South	8	3/24/09	SV10	17
504 E. Elm	North	8	3/23/09	SV07	ND
	West	8	3/23/09	SV08	ND
	South	8	3/23/09	SV09	9
508 E. Elm	North	8	3/23/09	SV06	ND
	West	8	3/23/09	SV05	ND
	South	8	3/23/09	SV04	10
512 E. Elm	North	8	3/23/09	SV01	ND
	West	8	3/23/09	SV02	11
	South	8	3/23/09	SV03	ND
South side of East Elm Street					
310 E. Elm	South	8	3/25/09	SV49	ND
315 E. Elm	East	8	3/25/09	SV48	ND
	East	8	3/25/09	SV48 Dup	ND
405 E. Elm	North	8	3/25/09	SV47	ND
409 E. Elm	North	8	3/25/09	SV45	ND
411 E. Elm	North	8	3/25/09	SV44	ND
415 E. Elm	North	8	3/25/09	SV41	ND
	West	8	3/25/09	SV34	ND

TABLE 3.11 (Cont.)

Sample Location	Sample Position	Depth (ft BGL)	Sample Date	Location[a]	Carbon Tetrachloride in Soil Gas (µg/m^3)
South side of East Elm Street (cont.)					
501 E. Elm	North	8	3/25/09	SV43	ND
	North	8	3/25/09	SV43 Dup	ND
	West	8	3/25/09	SV33	ND
505 E. Elm	North	8	3/25/09	SV19	ND
	West	8	3/25/09	SV32	ND
513 E. Elm	North	8	3/25/09	SV46	ND
	West	8	3/25/09	SV31	ND
Along North Street					
Highland and North	NE corner	5	3/25/09	SV17	130
Kloppenberg	South	8	3/25/09	SV18	ND
One residence at former CCC/USDA facility					
400 N. East	East	8	3/25/09	SV60	ND
	North	8	3/25/09	SV61	ND
	West	8	3/25/09	SV62	ND
	South	8	3/25/09	SV63	85
Northwest area					
308 N. Hollenberg	East	8	3/27/09	SV57	ND
	South	8	3/27/09	SV58	ND
309 N. Hanover	East	8	3/26/09	SV55	ND
	North	8	3/26/09	SV54	ND
310 N. Hanover	East	8	3/26/09	SV52	ND
	North	8	3/26/09	SV53	ND

[a] Location designated in the field for the GPS survey of the identified sampling location.

[b] ND, not detected at the method reporting limit of 6 µg/m^3.

TABLE 3.12 Results of on-site screening analyses of sub-slab vapor and indoor air samples collected at homes in areas potentially affected by contamination in groundwater Zone 1 and Zone 2, March-April 2009, with results for confirmation samples analyzed off-site.[a]

				Carbon Tetrachloride in Sub-Slab Vapor and Indoor Air (µg/m^3)		
	Sample	Analysis Date	Analysis Time	On-Site Method 8021[b]	Off-Site Method TO-15[c]	Comments
East Elm Street						
211 E. Elm	First floor	4/9/09	12:32	ND[b]		
	Basement	4/9/09	12:34	ND		
	Garage	4/9/09	12:37	ND		
	Sub-slab (in garage)	4/9/09	12:41	ND[b]		
304 E. Elm	First floor	3/26/09	18:27	ND		
	Basement	3/26/09	18:31	ND		
	Sub-slab	4/7/09	16:42	16		
307 E. Elm	Sub-slab	4/8/09	15:04	ND		
308 E. Elm	First floor	3/26/09	18:15	ND		
	Basement	3/26/09	18:18	ND		
309 E. Elm	First floor	3/26/09	11:16	ND		
	Basement	3/26/09	11:20	1.7		
	Sub-slab	3/27/09	13:10	290		
310 E. Elm	First floor	3/26/09	9:02	ND		
	Basement	3/26/09	9:09	ND		
	Basement	4/7/09	15:51	ND		
	Sub-slab	4/7/09	15:56	ND		
311 E. Elm	First floor	3/26/09	10:04	ND		
	Basement	3/26/09	10:10	1.8		
	Basement	4/8/09	18:06	ND		
	Sub-slab	4/8/09	18:15	2,200		
314 E. Elm	First floor	3/27/09	11:06	ND		
	Basement	3/27/09	11:09	ND		
315 E. Elm	First floor	3/26/09	16:57	ND		
	Basement	3/26/09	17:01	ND		Dirt floor
	Basement	4/7/09	17:09	ND		
	Sub-dirt	4/7/09	17:15	ND		
400 E. Elm	First floor	3/26/09	9:19	ND	1.7	
	Basement	3/26/09	9:23	ND		
	Sub-slab			2,800		
401 E. Elm	First floor	3/26/09	18:48	ND		
	Basement	3/26/09	18:52	ND		
	Sub-slab	4/8/09	11:31	400		
404 E. Elm	First floor	3/26/09	12:09	ND		Crawl space
	Crawl space	4/8/09	15:24	ND		

TABLE 3.12 (Cont.)

	Sample	Analysis Date	Analysis Time	Carbon Tetrachloride in Sub-Slab Vapor and Indoor Air (µg/m^3) On-Site Method 8021[b]	Off-Site Method TO-15[c]	Comments
East Elm Street (cont.)						
405 E. Elm	First floor	3/26/09	19:14	ND	2.6	High ethanol detected
	Basement	3/26/09	19:17	22		
	First floor dup	3/26/09	19:39	ND		
	Basement dup	3/26/09	19:43	19		
	Sub-slab	3/27/09	13:58	2,800		
406 E. Elm	First floor	3/26/09	12:13	ND		
	Basement	3/26/09	12:19	3.0		Partial dirt basement
	Basement	4/7/09	15:27	9.4		
	Sub-slab	4/7/09	15:24	410		
408 E. Elm	First floor	3/26/09	12:37	2.6	7[d]	
	Basement	3/26/09	12:40	2.3		
	Sub-slab	3/27/09	14:07	1,600		
	First floor	4/8/09	16:04	2.7		
	Basement	4/8/09	16:00	6.0		
	Sub-slab	4/7/09	14:49	1,900		
409 E. Elm	First floor	3/26/09	14:47	2.4[e]	1.5	
	Basement	3/26/09	14:52	6.2[e]	ND	
	First floor dup	3/26/09	16:01	ND		
	Basement dup	3/26/09	16:05	2.7		
	Sub-slab	3/27/09	14:29	2,400		
411 E. Elm	First floor	3/25/09	19:00	ND		
	Basement	3/25/09	19:03	ND		
	Basement	4/7/09	14:54	ND		
	Sub-slab	4/7/09	14:57	ND		
412 E. Elm	First floor	4/14/09	–	–	2.1	Collected 4/10/09 in canister
	Sub-slab	4/14/09	–	–	360	Collected 4/10/09 in canister
415 E. Elm	First floor	3/26/09	13:24	ND		
	Basement	3/26/09	13:21	ND		
	Sub-slab	4/7/09	14:27	ND		
500 E. Elm	Basement	4/8/09	17:40	ND		
	Sub-slab	4/8/09	17:44	ND		
501 E. Elm	First floor	3/26/09	13:28	ND		
	Basement	3/26/09	13:32	ND		
	Sub-slab	4/7/09	14:32	ND		
504 E. Elm	First floor	3/26/09	12:24	ND		
	Basement	3/26/09	12:28	ND		
	Basement	4/7/09	15:06	ND		
	Sub-slab	4/7/09	15:01	100	91	
505 E. Elm	First floor	3/26/09	12:51	ND		
	Basement	3/26/09	12:55	ND		

TABLE 3.12 (Cont.)

	Sample	Analysis Date	Analysis Time	Carbon Tetrachloride in Sub-Slab Vapor and Indoor Air (µg/m^3) On-Site Method 8021[b]	Off-Site Method TO-15[c]	Comments
East Elm Street (cont.)						
508 E. Elm	First floor	3/26/09	14:39	ND		
	Basement	3/26/09	14:43	ND		
	Basement	4/7/09	15:11	ND		
	Sub-slab	4/7/09	15:16	51		
509 E. Elm	First floor	3/27/09	11:51	ND		
	Basement	3/27/09	11:55	ND		
513 E. Elm	First floor	3/26/09	12:58	2.1	ND	
	Basement	3/26/09	13:02	ND		
	Sub-slab	3/27/09	14:14	290	260	
North East Street						
210 N. East	Basement #1	3/25/09	18:33	ND		
	Basement #2	3/25/09	18:37	ND		
	Sub-slab	4/8/09	11:36	33		
211 N. East	First floor	4/8/09	12:42	1.6		
	Basement	4/8/09	12:45	2.7		
	Sub-slab	4/7/09	17:52	940		
213 N. East	First floor	3/26/09	10:34	ND		
	Basement	3/26/09	10:38	ND		
	Basement	4/7/09	16:34	ND		
	Sub-slab	4/7/09	16:38	ND		
311 N. East	First floor	3/27/09	9:46	14		Trailer on top of basement
	Basement	3/27/09	9:50	18		
	First floor	4/7/09	16:14	4.3		
	Basement	4/7/09	16:18	9.0		
	Sub-slab	4/7/09	16:28	4500		
East North Street						
204 E. North	First floor	4/9/09	19:12	ND		
	Basement	4/9/09	19:15	ND		
	Sub-slab	4/9/09	19:19	20		
214 E. North	First floor	4/9/09	17:36	ND		
	Basement	4/9/09	17:40	ND		
	Sub-slab	4/9/09	18:32	ND		
312 E. North	First floor	3/26/09	13:55	ND		
	Basement	3/26/09	13:59	ND		
	Basement	4/7/09	18:28	ND		
	Sub-slab	4/7/09	18:32	300		
400 E. North	First floor	3/27/09	12:26	ND		
	Basement	3/27/09	12:19	ND		

TABLE 3.12 (Cont.)

Sample		Analysis Date	Analysis Time	Carbon Tetrachloride in Sub-Slab Vapor and Indoor Air (µg/m^3) On-Site Method 8021[b]	Off-Site Method TO-15[c]	Comments
East North Street (cont.)						
404 E. North	First floor	3/27/09	12:15	ND		
	Basement	3/27/09	12:29	ND		
	Sub-slab	4/8/09	11:46	180	200	
500 E. North	First floor	4/8/09	17:31	ND		
	Basement	4/8/09	17:38	ND		
500 E. North	Sub-slab	4/8/09	18:22	ND		
Kloppenberg parking N		4/8/09	13:57	ND		
Kloppenberg parking S		4/8/09	14:06	ND		
Church parking lot		4/8/09	16:07	ND		
107 Church St	First floor	4/9/09	17:28	ND		
	Basement	4/9/09	17:31	ND		
	Sub-slab	4/9/09	18:29	ND		
Northwestern Area						
309 N. Hanover	Basement	4/7/09	18:06	ND		
	Sub-slab	4/7/09	18:00	7.2		
310 N. Hanover	First floor	4/9/09	16:02	ND		
	Basement	4/9/09	16:06	ND		
	Sub-slab	4/8/09	16:37	64	68	
307 Hollenberg	First floor	4/9/09	14:38	ND		
314 N. Hollenberg	Basement	4/7/09	18:20	ND		
	Sub-slab	4/7/09	18:23	9.1		
Multi-tenant housing east of Highland St.						
Highland Haven #4	Sub-slab	4/9/09	13:55	ND		
Highland Haven #3	Sub-slab	4/9/09	14:05	ND		
Highland Haven #2 north	Sub-slab	4/9/09	14:09	ND		
Highland Haven #2 south	Sub-slab	4/9/09	14:22	ND		
Highland Haven office	Sub-slab	4/9/09	14:19	ND		
Highland Haven #11	Sub-slab	4/9/09	16:42	ND		
Highland Haven #5	Sub-slab	4/9/09	16:49	ND		
Highland Haven #4	Indoor air	4/9/09	14:12	ND		
Highland Haven office	Indoor air	4/9/09	14:15	ND		
Highland Haven #11	Indoor air	4/9/09	16:38	ND		
Highland Haven #5	Indoor air	4/9/09	16:46	ND		

TABLE 3.12 (Cont.)

[a] On-site analyses were performed by Dr. Blayne Hartman, who also reviewed the data. The QA/QC criteria specified in the *Supplemental VI Work Plan* (Argonne 2008b) were met.

[b] Indoor air grab samples from glass syringes and sub-slab samples from Tedlar bags were analyzed on-site by EPA Method 8021. For this method, ND indicates no detection at a limit of 1.5 $\mu g/m^3$ for indoor air samples or 6 $\mu g/m^3$ for sub-slab samples.

[c] Confirmation samples were transferred to canisters and analyzed off-site by Method TO-15 by H&P Mobile Geochemistry. For this method, ND indicates no detection at a limit of 1.5 $\mu g/m^3$.

[d] H&P reported a problem with the sample. Result is questionable.

[e] Possible interferences caused high bias in the results.

TABLE 3.13 Analytical results for indoor air samples collected at 17 selected homes during the summer season, August 2009.

Residence Address	Sample Location	Sample Date	Concentration in Indoor Air ($\mu g/m^3$) Carbon Tetrachloride	Chloroform
400 E. Kensington St.	First floor	8/12/09	1.5	1.2
	Basement	8/12/09	1.8	1.1
301 N. Belgrave St.	First floor	8/12/09	ND[a]	ND
	Basement	8/12/09	ND	ND
414 E. Kensington St.	First floor	8/12/09	1.4	1.7
	Basement	8/12/09	1.5	1.6
309 E. Elm	First floor	8/12/09	3.0	18
	Basement	8/12/09	ND	9.3
311 E. Elm	First floor	8/12/09	1.6	1.4
	Basement	8/12/09	2.3	ND
400 E. Elm	First floor	8/12/09	ND	ND
	Basement	8/12/09	ND	ND
401 E. Elm	First floor	8/12/09	ND	3.5
	Basement	8/12/09	1.6	4.6
405 E. Elm	First floor	8/12/09	2.3	3.3
	Basement	8/12/09	2.9	2.6
406 E. Elm	First floor	8/12/09	1.5	ND
	Basement	8/12/09	4.5	ND
408 E. Elm	First floor	8/12/09	11	ND
	Basement	8/12/09	17	ND
409 E. Elm	First floor	8/12/09	ND	ND
	Basement	8/12/09	1.4	ND
412 E. Elm	First floor	8/12/09	1.9	ND
	Basement	8/12/09	2.8	ND
513 E. Elm	First floor	8/13/09	ND	ND
	Basement	8/13/09	ND	ND
211 N. East	First floor	8/12/09	1.8	ND
	Basement	8/12/09	2.5	ND
312 E. North	First floor	8/12/09	2.0	ND
	Basement	8/12/09	3.2	ND
404 E. North	First floor	8/12/09	1.6	ND
	Basement	8/12/09	1.8	ND
303 N. East	First floor	8/12/09	1.4	3.4
	Basement	8/12/09	1.9	3.3
	Sub-slab	8/12/09	ND	19

[a] ND, not detected at the reporting limit of 1.3 $\mu g/m^3$ for carbon tetrachloride or 0.98 $\mu g/m^3$ for chloroform in analysis at TestAmerica with Method TO-15.

TABLE 3.14 Analytical results for indoor air samples collected at 17 selected homes during the winter season, January 2010.

			Concentration in Indoor Air		
Residence Address	Sample Location	Sample Date	Carbon Tetrachloride (µg/m^3)	Chloroform (µg/m^3)	Radon (pCi/L)
400 E. Kensington St.	First floor	1/26/10	ND[a]	ND	–
	Basement	1/26/10	ND	ND	7.9
301 N. Belgrave St.[b]	First floor	1/26/10	–	–	–
	Basement	1/26/10	–	–	–
					–
414 E. Kensington St.[c]	First floor	1/26/10	–	–	–
	Basement	1/26/10	–	–	–
309 E. Elm	First floor	1/26/10	2.0	1.1	–
	Basement	1/26/10	2.3	ND	16
311 E. Elm	First floor	1/26/10	2.0	1.3	–
	Basement	1/26/10	2.4	ND	7.7
400 E. Elm	First floor	1/26/10	ND	ND	–
	Basement	1/26/10	1.7	ND	4.6
401 E. Elm	First floor	1/26/10	ND	ND	–
	Basement	1/26/10	1.4	ND	9.1
405 E. Elm	First floor	1/26/10	1.9	ND	–
	Basement	1/26/10	4.7	ND	10.4
406 E. Elm	First floor	1/26/10	2.1	ND	–
	Basement	1/26/10	3.9	ND	15.3
	Basement dup	1/26/10	4.0	ND	–
408 E. Elm	First floor	1/26/10	5.9	ND	–
	Basement	1/26/10	6.9	ND	21.8
409 E. Elm	First floor	1/26/10	ND	ND	–
	Basement	1/26/10	ND	ND	3.4
412 E. Elm	First floor	1/26/10	1.6	ND	–
	Basement	1/26/10	1.3	ND	–
513 E. Elm	First floor	1/26/10	ND	ND	–
	Basement	1/26/10	ND	ND	6.8
211 N. East	First floor	1/26/10	ND	ND	–
	Basement	1/26/10	ND	ND	6.3
303 N. East	First floor	1/26/10	ND	ND	–
	Basement	1/26/10	ND	1.0	6.4
312 E. North	First floor	1/26/10	1.5	0.98	–
	Basement	1/26/10	2.1	ND	17.6
404 E. North	First floor	1/26/10	1.3	ND	–
	Basement	1/26/10	1.3	ND	21.3

TABLE 3.14 (Cont.)

[a] ND, not detected at the following analytical reporting limits:

Carbon tetrachloride, analysis by Method TO-15 at TestAmerica:	1.3 µg/m^3
Chloroform, analysis by Method TO-15 at TestAmerica:	0.98 µg/m^3
Radon, analysis through National Radon Program Services at Kansas State University, Manhattan, Kansas:	0.3 pCi/L

[b] Residence not sampled; resident out of town for the winter.

[c] Residence not sampled; illness in family.

[d] Outdoor ambient air sample.

TABLE 3.15 Analytical results for indoor air samples collected at nine homes in the area potentially affected by contamination in groundwater Zone 2, February 2010.

			Concentration in Indoor Air ($\mu g/m^3$)		
Residence Address	Sample Location	Sample Date	Carbon Tetrachloride	Chloroform	Radon (pCi/L)
211 N. Hanover	First floor	2/24/10	ND[a]	ND	–
	Crawl space	2/24/10	ND	ND	2.1
309 N. Hanover	First floor	2/24/10	ND	ND	–
	Basement	2/24/10	ND	ND	3.1
310 N. Hanover	First floor	2/24/10	ND	ND	–
	Basement	2/24/10	ND	ND	11.6
	Basement dup	2/24/10	ND	ND	–
208 N. Hollenberg	First floor	2/24/10	ND	0.98	–
	Basement	2/24/10	ND	ND	4.1
212 N. Hollenberg	First floor	2/24/10	ND	1.7	–
	Basement	2/24/10	ND	ND	9.2
300 N. Hollenberg	First floor	2/24/10	ND	ND	9.8
	Crawl space	2/24/10	ND	ND	17.5
304 N. Hollenberg	First floor	2/24/10	ND	ND	–
	Basement	2/24/10	ND	ND	13.9
308 N. Hollenberg	First floor	2/24/10	ND	ND	–
	Basement	2/24/10	ND	ND	9.8
314 N. Hollenberg	First floor	2/24/10	ND	ND	–
	Basement	2/24/10	ND	ND	27.6
Ambient		2/24/10	ND	ND	–

[a] ND, not detected at the analytical reporting limit of 1.3 $\mu g/m^3$ for carbon tetrachloride, 0.98 $\mu g/m^3$ for chloroform, or 0.3 pCi/L for radon.

TABLE 3.16 Analytical results for indoor air samples collected at the Hanover public school and St. John's School, February 2010.

			Concentration (µg/m^3)			
			On-Site Analysis	Off-Site Analysis		
School	Sample Location	Sample Date	Carbon Tetrachloride	Carbon Tetrachloride	Chloroform	Radon (pCi/L)
Hanover Public School	Kindergarten[a]	2/23/10	ND[b]	ND, ND	2.3, ND	14.2
	Weight room	2/23/10	ND	–	–	1.7
	Math room	2/23/10	ND	–	–	0.6
	Math room	2/23/10	ND	ND	1.7	2.3
	Band room	2/23/10	ND	ND	1.5	4.6
	Grades 3-4	2/23/10	ND	–	–	3.4
	Office	2/23/10	ND	–	–	<0.3
	Office	2/23/10	ND	ND	2.2	1.0
	Grades 1-2	2/23/10	ND	–	–	1.8
	Special ed room	2/23/10	ND	–	–	3.1
	Special ed room	2/23/10	ND	–	–	6.0
	Back counselor room	2/23/10	ND	–	–	5.4
	Front counselor room	2/23/10	ND	–	–	7.0
	Computer room	2/23/10	ND	–	–	2.9
	Computer room	2/23/10	ND	–	–	1.8
	Chemistry	2/23/10	ND	–	–	2.3
	Science	2/23/10	ND	–	–	3.1
	Chem lab	2/23/10	ND	–	–	2.4
	Library	2/23/10	ND	–	–	4.9
	English	2/23/10	ND	–	–	2.5
	History	2/23/10	ND	–	–	1.9
	Grades 5-6	2/23/10	ND	–	–	4.8
	Library	2/23/10	ND	–	–	5.2
	FCCLA classroom	2/23/10	ND	–	–	0.9
	Gym	2/23/10	ND	–	–	3.3
	Art room	2/23/10	ND	–	–	4.8
	Cafeteria	2/23/10	ND	–	–	1.1
	Woodshop 1	2/23/10	ND	–	–	2.1
	Woodshop 2	2/23/10	ND	–	–	2.6
	Woodshop 3	2/23/10	ND	–	–	2.8
	Woodshop 4	2/23/10	ND	–	–	2.7
	Ag shop 1	2/23/10	ND	–	–	2.8
	Ag shop 2	2/23/10	ND	–	–	2.1
	Math	2/23/10	ND	–	–	1.5
	Chemistry	2/23/10	ND	–	–	1.2
	English	2/23/10	ND	–	–	1.3
	Classroom	2/23/10	ND	–	–	0.9
	Ambient air	2/23/10	ND	ND	ND	–
St. John's School	Gym	2/23/10	ND	–	–	2.0
	All purpose room 1	2/23/10	ND	–	–	6.0
	All purpose room 2[a]	2/23/10	ND	ND, ND	ND, ND	3.7
	Kitchen	2/23/10	ND	ND	ND	–
	Northwest room	2/23/10	ND	–	–	1.2
	Northeast room	2/23/10	ND	ND	ND	1.0
	Southwest room	2/23/10	ND	–	–	2.2
	Southeast room	2/23/10	ND	ND	ND	< 0.3
	Northwest room	2/23/10	ND	–	–	0.7
	Northeast room	2/23/10	ND	–	–	1.1
	Office 1	2/23/10	ND	–	–	1.9
	Office 2	2/23/10	ND	–	–	1.1
	Workroom	2/23/10	ND	–	–	1.1
	Library	2/23/10	ND	–	–	1.0
	South room	2/23/10	ND	–	–	0.8
	Ambient air	2/23/10	ND	ND	ND	–

TABLE 3.16 (Cont.)

[a] Two canister samples (8 hr and 24 hr) were collected for VOCs analyses by EPA Method TO-15.

[b] ND, not detected at the following analytical reporting limits:
Carbon tetrachloride, on-site analysis: 1.5 $\mu g/m^3$
Carbon tetrachloride, off-site analysis: 1.3 $\mu g/m^3$
Chloroform, off-site analysis: 0.98 $\mu g/m^3$
Radon: 0.3 pCi/L

TABLE 3.17 Analytical results for indoor air samples collected to evaluate the performance of VI mitigation systems installed at three homes in August 2009 and at two homes in May 2010.

		Before Remediation			With Mitigation		
Residence Address	Sample Location	Carbon Tetrachloride ($\mu g/m^3$)	Chloroform ($\mu g/m^3$)	Radon (pCi/L)	Carbon Tetrachloride ($\mu g/m^3$)	Chloroform ($\mu g/m^3$)	Radon (pCi/L)
311 N. East St.	First floor	14[a]	–	–	ND[b]	ND[b]	–
	Basement	18[a]	–	–	ND[b]	ND[b]	< 0.3[b]
	Sub-slab	4,500[a]	–	–	–	–	–
400 N. East St.	First floor	17[c]	ND[c]	–	ND[b]	ND[b]	–
	Basement	26[c]	ND[c]	5.2[c]	ND[b]	ND[b]	0.7[b]
	Sub-slab	62,000[c]	140[c]	2,616[c]	–	–	–
413 E. Kensington St.	First floor	11[c]	ND[c]	–	ND[b]	ND[b]	–
	Basement	16[c]	ND[c]	9.4[c]	ND[b]	ND[b]	0.7[b]
	Sub-slab	350[c]	ND[c]	2,500[c]	–	–	–
405 East Elm St.	First floor	2.3[d]	3.3[d]	–	ND[e]	ND[e]	–
	Basement	22[a]	2.6[d]	10.4[b]	ND[e]	ND[e]	–
	Sub-slab	2,800[a]	–	–	–	–	–
408 East Elm St.	First floor	11[d]	ND[d]	–	ND[e]	ND[e]	–
	Basement	17[d]	ND[d]	21.8[b]	ND[e]	ND[e]	–
	Sub-slab	1,900[a]	–	–	–	–	–

[a] Sample collected for analysis on March 27 and April 7, 2009. Carbon tetrachloride and chloroform analyses on-site by EPA Method 8021.

[b] Sample collected for analysis on January 26, 2010. Carbon tetrachloride and chloroform analyses by Method TO-15 at TestAmerica. Radon analysis through National Radon Program Services at Kansas State University. ND indicates no detection at the laboratory analytical reporting limit.

[c] Sample collected for analysis on February 4, 2009. Carbon tetrachloride and chloroform analyses by Method TO-15 at Calscience Environmental Laboratories (for indoor air) or H&P Mobile Geochemistry (for sub-slab samples). Radon analysis by scintillation counting at the University of Southern California.

[d] Sample collected for analysis on August 12, 2009. Carbon tetrachloride and chloroform analyses by Method TO-15 at TestAmerica.

[e] Sample collected for analysis on June 17, 2010. Carbon tetrachloride and chloroform analyses by Method TO-15 at TestAmerica.

FIGURE 3.1 Homes in which mitigation systems were installed to treat carbon tetrachloride in indoor air. Source of photograph: NAIP (2008).

4 Interpretation of Results

This section presents the interpretation of data acquired during the 2009-2010 investigations at Hanover. As discussed in the previous sections, all investigation activities were designed and implemented to address the seven specific technical objectives stated in Section 1.2. The results of the investigation are discussed and interpreted below in the context of these specific objectives.

4.1 Identification of Contaminant Sources and the Extent of Soil Contamination

In 2007, Argonne collected near-surface soil samples (1.8-2 ft BGL) at 61 locations and tested indoor air in 9 residences across the former CCC/USDA property. On the basis of these findings, Argonne identified four areas with trace-level carbon tetrachloride contamination and two homes potentially impacted by carbon tetrachloride VI to indoor air (Figure 2.1). For further evaluation of the areas potentially associated with the soil contamination and the impacted homes, vertical-profile soil sampling for VOCs analysis was performed in 2009 in two steps: (1) collection of soil samples from the unconsolidated subsurface intervals in the areas of potential contamination and (2) collection of rock samples from the underlying consolidated bedrock at locations selected on the basis of the results for the unconsolidated sediments. The results of VOCs analyses on all soil samples are in Table 3.1.

4.1.1 Contaminant Distribution in Soils at the Former CCC/USDA Facility

The vadose zone (an unsaturated zone of soils and/or rocks from the land surface to uppermost water-bearing Zone 1) in the study area includes the shallow unconsolidated intervals from the ground surface to depths of 9-25 ft BGL and the underlying bedrock to the depth of water-bearing Zone 1 (typically < 35 ft BGL). The soil sampling was designed to identify potential sources of contamination throughout the vadose zone beneath the former CCC/USDA facility.

Soil samples were collected at 4-ft intervals through the unconsolidated soil profile at 25 boring locations (TI01-TI25) within the footprint of the former CCC/USDA facility (Figure 4.1). The samples were recovered by using a portable Geoprobe unit. With few

exceptions, no carbon tetrachloride was detected in the unconsolidated soils. In boring TI01 (Table 3.1), a trace level of carbon tetrachloride was present at 18 ft BGL, while a concentration of 30 µg/kg occurred at 21 ft BGL. In boring TI05, a trace level of carbon tetrachloride was found in a single sample collected at 20.5 ft BGL (Table 3.1). Both borings TI01 and TI05 were targeted for evaluation of the potentially contaminated central area of the former CCC/USDA facility (Figure 2.1), identified by Argonne in its near-surface soil sampling event in 2007.

On the basis of the results of soil sampling at the 25 boring locations, samples of the underlying bedrock were collected at 7 selected locations (MW01-MW05, MW12, TI26) within the former facility (Figure 2.2). Additional samples from the underlying bedrock were collected at 6 locations adjacent to the former facility (MW07-MW09, MW34, TI28, TI30; Figure 2.2). The bedrock sampling locations were targeted to complete the vadose zone evaluation in the potentially contaminated areas and near the potentially impacted homes. All samples of consolidated soils were recovered by using a minisonic drilling rig.

Trace to low concentrations of carbon tetrachloride (up to 35 µg/kg) were identified in samples from the bedrock formation at 7 locations (MW01-MW03, MW08-MW09, TI26, TI30; Table 3.1). The maximum concentrations at each location ranged from traces at MW08 and MW12 to 35 µg/kg at MW02 (Table 3.1 and Figure 4.1). Chloroform was detected at only 2 locations (MW02 and TI30), with the highest concentration of 44 µg/kg similarly at MW02 (Table 3.1 and Figure 4.2).

Table 3.1 demonstrates that carbon tetrachloride and chloroform contamination were detected only in the lower portion of the vadose zone. Figure 4.3 shows typical vertical distributions of carbon tetrachloride and chloroform at boring locations along a north-south line through the center of the CCC/USDA facility, where the highest soil contamination was observed. The contaminated soils were located primarily near or at the uppermost water-bearing zone (Zone 1). For example, the highest concentrations of carbon tetrachloride were identified in the soils at 29-33 ft BGL (27-35 µg/kg) in boring TI05/MW02 and at 18-21 ft BGL (15-18 µg/kg) in boring TI30/MW09, as shown in Figure 4.3. Soil contamination associated with the water-bearing Zone 1 was also observed in borings MW05 and TI26 (Table 3.1 and Figure 4.1). In one boring only (TI01/MW01), the highest concentration of carbon tetrachloride (30 µg/kg) was found at 21 ft BGL, near the boundary between the unconsolidated soils and the consolidated (bedrock) formation (Figure 4.3). The results of the soil profiling indicate that the distribution and concentrations of carbon tetrachloride within the vadose zone are very limited

and suggest that the remaining carbon tetrachloride in vadose-zone soils would not provide a significant source of contamination to groundwater. The highest concentration of chloroform detected in the soils (44 µg/kg at 33 ft BGL at TI05/MW02; Table 3.1 and Figure 4.3), is low in absolute value but is greater than the carbon tetrachloride concentration (27 µg/kg) in the same soil sample. Chloroform can be formed in the subsurface as a product of biologically mediated degradation of carbon tetrachloride (reductive dechlorination) under anaerobic conditions. The observed higher concentration of chloroform suggests that natural biodegradation might have assisted in reducing the levels of carbon tetrachloride in the vadose zone soils at this location beneath the former CCC/USDA facility.

Soil samples were collected below water-bearing Zone 1 at locations MW01 and TI30 (on and directly adjacent to the former facility; Figure 2.2). The results for these samples are in Table 3.1, and the vertical relationships of the soil samples to water-bearing Zone 1 are illustrated in Appendix A. No contamination was detected.

Vadose zone soils were also sampled at boring location MW45, approximately 900 ft west of the former CCC/USDA facility and near North Hanover Street. No soil contamination was identified at this location (Table 3.1).

4.1.2 Human Health and Environmental Risks Associated with Contaminated Soils

In this section, the human health and environmental risks associated with the identified contamination in soils are examined. This initial screening evaluated two potential exposure pathways: (1) *direct exposure*, including ingestion of contaminated soil, direct inhalation of contaminated vapors or airborne contaminated soil particles, and direct dermal contact, and (2) *indirect exposure* via the soil-to-groundwater pathway. The screening is based on a comparison of the analytical results to the KDHE Tier 2 risk-based standards (for carbon tetrachloride and chloroform) associated with these pathways (Table 2.1).

4.1.2.1 Direct Exposure

The results from soil sampling at 38 locations (Table 3.1, Figures 4.1-4.2) within and adjacent to the footprint of the former CCC/USDA facility indicate that carbon tetrachloride and chloroform (1) are not present in the near-surface soils but (2) appear at trace to low levels in

subsurface soils, at maximum concentrations of 35 µg/kg (carbon tetrachloride) and 44 µg/kg (chloroform). As summarized in Table 2.1, the KDHE Tier 2 standards for direct exposure to carbon tetrachloride in soils are 2,500 µg/kg for the residential setting and 7,000 µg/kg for the non-residential setting. The corresponding risk-based standards for chloroform in soils are 3,900 µg/kg (residential) and 6,000 µg/kg (non-residential). The results of soil analyses at Hanover to date (Table 3.1 and Figures 4.1-4.2) are lower by approximately two orders of magnitude than the risk-based standards, demonstrating that no unacceptable health risks are associated with potential direct human exposure to the near-surface and subsurface soils at the former CCC/USDA facility.

Risk-based standards have not been established by the KDHE for potential environmental risks associated with direct exposure to soils. In general, risk-based standards are much more stringent for potential human exposure than for environmental risks. No environmental risks are therefore expected in conjunction with the low levels of contamination identified in the soils.

4.1.2.2 Indirect Exposure

For the soil-to-groundwater contamination pathway, the KDHE Tier 2 risk-based standards for carbon tetrachloride and chloroform in soils are 200 µg/kg and 960 µg/kg, respectively. Comparison indicates that the maximum contaminant levels identified in soils at the former CCC/USDA facility (35 µg/kg for carbon tetrachloride and 44 µg/kg for chloroform) are well below these standards, and hence these soils pose no unacceptable health risk to groundwater.

4.2 Identification of the Hydrogeologic Setting and the Distribution of Groundwater

This section presents the interpretation of the local geologic stratigraphy and the groundwater-bearing system at Hanover, as constructed on the basis of the investigation data. The following data were collected and integrated for the interpretation: (1) geologic logs generated from shallow borings at 48 locations, (2) geologic logs from deep borings at 6 locations, (3) supporting geologic data including drillers' logs for local private wells, and (4) topographic survey data for all of the borings and private wells. These data were analyzed to provide a detailed interpretation of the stratigraphic sequence and the spatial distribution of the

lithologic units that host the groundwater-bearing system. The lithologic logs (for the investigative borings and monitoring wells) and the survey data are in Appendix A and Appendix L, respectively.

4.2.1 Local Lithostratigraphic Units and Water-Bearing Zones

The city of Hanover and its surroundings are located in an area that includes the upland lying northeast of the Little Blue River and its floodplain and northwest of Cottonwood Creek (Figure 2.9 in the *Final Work Plan* [Argonne 2008a]). The former CCC/USDA facility northeast of Hanover lies on the upland, at land surface elevations of approximately 1,310-1,330 ft AMSL (Figure 4.4). Regional geologic information indicates that the geologic sequence at Hanover includes (1) surficial and near-surface Pleistocene eolian (wind-blown) deposits on upland areas and alluvial sediments in the floodplains along the Little Blue River, overlying (2) Permian bedrock, probably consisting of Sumner Group and underlying Chase Group (Argonne 2008a). The Sumner Group consists principally of gray and red silty shale, limestone, dolomite, anhydrite, and gypsum, as well as salt, while the underlying Chase Group contains seven alternating shale and chert-bearing limestone units (Merriam 1963). The local geologic data obtained in this investigation confirm the presence of Pleistocene eolian deposits or alluvium unconformably overlying the Permian Sumner Group in the upper part of the subsurface sequence at Hanover and provide a detailed picture of the site-specific bedrock stratigraphy.

Figure 4.5 summarizes the general sequence of lithostratigraphic units by combining elements of representative logs from the vicinity of the former CCC/USDA facility. Locally, at the former facility, the uppermost approximately 150 ft of the soil profile consists of 9 primary lithologic units. In order of increasing depth, these units are (1) surficial silt and clay with a lower section of sand and sandy silt; (2) Permian weathered shale; (3) interbedded limestone and shale; (4) gray shale with siltstone and limestone; (5) upper red shale; (6) an upper evaporitic deposit or gray shale with thin limestone; (7) gray dolostone and shale; (8) lower red shale with multiple, thin gray shale, dolomite, and limestone layers; and a (9) lower evaporitic deposit. The main characteristics of each unit are as follows:

- *Unit 1 — Silt and clay*. This uppermost unit consists of Pleistocene fine-grained eolian (wind-blown) silts and clays identified only on the upland, with a varying thickness up to 25 ft. In the eastern and southern parts of the upland, the lower portion of the unit may include a layer of sand and sandy silt

developed on the eroded unconformable surface of the Permian bedrock. The former CCC/USDA facility is situated on the upland in the Hanover area.

- *Unit 2 — Weathered shale*. A thin weathered shale (≤ 12 ft) in various colors locally marks the top of the Permian age bedrock. Erosion or removal of this unit from most locations in the Hanover area left remnants constituting the upland where the former CCC/USDA facility was located (Figure 4.4).

- *Unit 3 — Interbedded limestone and shale*. This unit consists predominately of light brown to brownish gray, highly weathered limestone beds alternating with shale or laminated shale. This lithostratigraphic unit hosts the uppermost water-bearing unit, groundwater Zone 1. The presence of thin moist-to-wet intervals was most frequently identified along the bedding planes between the limestone and shale intervals or within the shale units themselves. The unit is relatively thick (up to 10 ft) along the upland and progressively pinched out toward its flank because of the effects of surface bedrock erosion.

- *Unit 4 — Gray shale*. This lithostratigraphic unit is less weathered, consisting primarily of dark gray silty shale with thin beds of siltstone and limestone. The thickness of the unit ranges from 5 ft to 19 ft along and near the upland. It is evidently not water bearing.

- *Unit 5 — Upper red shale*. The distinctive upper red shale unit is composed mainly of red shale with multiple thin lenses of calcareous gray shale. Thin, soft, moist intervals with iron oxide staining that were often identified along the bedding planes near the base of the upper red shale unit — where the intervals locally overlie the evaporitic facies of Unit 6 (described below) — suggest presence of the water movement through the intervals. The upper red shale unit has a relatively consistent thickness of approximately 20 ft at most locations.

- *Unit 6 — Upper evaporitic deposit or gray shale with limestone*. This locally distinctive unit consists of white anhydrite and gypsum, identified in upland borings MW49, MW03, and MW51. The depositional facies of the unit appears to change gradually to shale with soft limestone away from the

upland, as identified at MW44 and MW45 toward the west and at MW48 toward the south, as well as possibly at several private monitoring wells (BSMW09-BSMW10 and BSMW14-BSMW15) toward the east (Figures 2.3-2.5). The unit's thickness ranges from 9 ft to 18 ft. Saturated intervals are often associated with the soft limestone in the shale with limestone facies of Unit 6, whereas thin moist intervals were restricted to the lower part of the overlying upper red shale (Unit 5) where the latter unit overlies the evaporitic facies of Unit 6. These moist and saturated intervals form a second water-bearing interval, groundwater Zone 2.

- *Unit 7 — Gray dolostone and shale*. This unit consists of dark gray, hard, massive dolomite (15-25 ft thick) overlying dolomitic shale with thin beds of limestone or limy dolomite (4-9 ft thick). Thin moist-to-wet intervals were found in the limy dolomitic shale near the base of the unit. These thin horizons form a water-bearing interval, groundwater Zone 3.

- *Unit 8 — Lower red shale*. The lower red shale consists of distinctive dark red shale interbedded with several thin layers of dark gray or gray to greenish gray limy shales, limy dolomites, and limestones. The thickness of the unit is relatively consistent, ranging from 27 ft to 33 ft. Moist-wet intervals often found in the limy shale along bedding planes near the base of the unit constitute the basal water-bearing interval, groundwater Zone 4.

- *Unit 9 — Lower evaporitic deposit*. The lower evaporitic deposit is another distinctive marker layer, consisting of white anhydrite, gypsum, and occasionally bluish gray dolomite. This unit was recovered in all of the deep wells, unlike the upper evaporitic deposit, which was present only beneath the upland.

Within the Permian bedrock stratigraphic sequence, thin, moist-to-wet horizons can be identified and traced laterally as groundwater-bearing units, even though thick saturated intervals are rarely encountered (except for groundwater-bearing Zone 2 at boring MW48). Most of the thin, moist-wet horizons were located in the cores as follows (Figure 4.5):

1. In the interbedded shale and limestone of Unit 3.

2. At the base of the upper red shale of Unit 5 or in the soft limestone and shale facies of Unit 6.

3. In the limy dolomitic shale near the base of Unit 7.

4. In the limy shale near the base of Unit 8.

For the purposes of this investigation, these intervals have been identified as groundwater-bearing Zones 1-4, respectively (Figure 4.5). The groundwater present in these zones appears to occur primarily in secondary porosity developed along bedding planes and fractures in the bedrock formations.

To obtain a more detailed understanding of the distribution and nature of the water-bearing zones, the sequence of lithologies, moisture content, and water availability identified in geologic logs obtained at 54 unique locations (Appendix A) were qualitatively compared and correlated. The three-dimensional geometry and structure of the main stratigraphic sequences and the significant water-bearing zones are illustrated in two interpretive hydrogeologic cross sections (A-A' and B-B') constructed at the locations shown in Figure 4.6.

Hydrogeologic cross section A-A' (Figure 4.7) extends from west to east and depicts the relationships among the main stratigraphic units and water-bearing zones identified at the former CCC/USDA facility and in the surrounding areas. All nine stratigraphic units are represented by combining seven shallow boring logs that penetrate the upper units and three deep logs that penetrate the lower units, along with information from three local private wells.

Cross section A-A' (Figure 4.7) illustrates several features. Pleistocene eolian deposits are developed and preserved primarily on the upland near the former CCC/USDA facility, at or above an elevation of approximately 1,300 ft AMSL. A significant hiatus represented at the erosional unconformity intersects the weathered shale (Unit 2) and the interbedded limestone and shale (Unit 3) in the upland area. The erosional unconformity cuts progressively deeper into the underlying less-weathered gray shale (Unit 4) and the upper red shale (Unit 5) along the flanks of the topographic high. The erosion surface is expected to extend farther into the deeper units (such as the shale with limestone [Unit 6]) farther to the west, approaching the Little Blue River.

Because of the erosion effect, the presence of Unit 3 and the associated groundwater-bearing Zone 1 (also indicated as WZ1 in the cross section depictions) is spatially limited to the upland in the vicinity of the former CCC/USDA facility. The underlying stratigraphic intervals that host groundwater Zones 2, 3, and 4 become progressively shallower at greater distances from the upland. Unit 6 appears to undergo a facies change from the distinctive dry, white anhydrite and gypsum (evaporitic deposit) beneath the upland to the shale with limestone facies that hosts groundwater-bearing Zone 2 (WZ2) along the upland flanks toward the west and east (Figure 4.7). The gray dolostone and shale (Unit 7) and the lower red shale (Unit 8) are found at relatively consistent elevations (approximately 1,240 ft AMSL and 1,210 ft AMSL at the tops of the respective units) throughout cross section A-A' (Figure 4.7). The basal sections of these two units host groundwater Zone 3 (WZ3) and Zone 4 (WZ4), respectively.

Hydrogeologic cross section B-B' (Figure 4.8) extends from north to south across the former CCC/USDA facility and roughly follows the trend of the upland, with limited erosional effects, to the location of well MW48 and farther southward. The sequence of the 9 identified stratigraphic units was confirmed by recovery and examination of 10 shallow boring logs penetrating the upper units and 3 deep logs penetrating the lower units, along with information from 1 local private well.

Cross section B-B' (Figure 4.8) confirms the primary hydrostratigraphic units and features identified in cross section A-A' (Figure 4.7), as discussed above. The interbedded limestone and shale (Unit 3) extends from north to south across the entire cross section (Figure 4.8) beneath the upland. Groundwater-bearing Zone 1 (within Unit 3), however, is bounded by boring TI27 at the north and continues southward from the former CCC/USDA facility to the location of boring MW48. A relatively thick layer of evaporitic deposits was identified in Unit 6 beneath most of the upland area. This layer gradually pinches out toward the south and is replaced, near the MW48 location, by shale with soft limestone. A thick saturated zone identified in the upper portion of the Unit 6 shale and limestone facies (together with thin horizons in the overlying upper red shale [Unit 5]) hosts groundwater-bearing Zone 2. As shown in cross section A-A' (Figure 4.7), the tops of the deeper units — gray dolostone and shale (Unit 7) and lower red shale (Unit 8) — were penetrated at relatively consistent elevations of approximately 1,240 ft AMSL and 1,210 ft AMSL, respectively. A few discrete moist-wet intervals along bedding planes were recovered near the bases of both of these units, forming groundwater-bearing Zone 3 and groundwater-bearing Zone 4, respectively.

All defined water-bearing zones in the Permian bedrock stratigraphic sequence are very thin and appear to follow erosional or bedding plane surfaces between units or fractures representing secondary porosity.

4.2.2 Four Water-Bearing Zones

4.2.2.1 Groundwater Zone 1

Groundwater Zone 1 is the uppermost water-bearing zone in the bedrock sequence at Hanover. Zone 1 consists primarily of two or three discrete, thin, saturated intervals (each typically less than 1 ft thick) within the interbedded limestone and shale (Unit 3). The saturated intervals were found in the upper to middle portion of Unit 3 in the northern part of the former CCC/USDA facility (at MW09, MW49, MW05, and MW02 [Figures 4.7-4.8]) and in the middle to lower portion of Unit 3 near and to the south of the former facility (MW06, MW21, MW28, MW29, MW37, and MW48 in Figure 4.8). The combined thickness of the saturated horizons at each location is limited (generally to 1-3 ft) and primarily reflects secondary porosity developed along bedding planes and fractures in the limestone and shale.

The lateral extent of groundwater Zone 1 is bounded by the erosional limits of Unit 3. Zone 1 is therefore found primarily beneath the upland (cross section A-A' in Figure 4.7). Groundwater Zone 1, in general, has limited water availability and low, heterogeneous permeability because of its limited areal extent and the nature of the host bedrock formation. Water recovery from Zone 1was extremely slow at many wells. Near the lateral limits of Unit 3, groundwater accumulation sufficient for water sampling required days after installation of many wells. At the end of the groundwater sampling program for the 2009-2010 investigation (months after installation), six monitoring wells along the northwest (MW25-MW26), west (MW39 and MW41), and southwest (MW42-MW43) limits of the unit still remained dry. These locations and others with slow recovery were used to predict estimated boundaries of groundwater Zone 1 to the north, northwest, west, and southwest (Figure 4.9). The hydraulic properties of groundwater Zone 1 are discussed further in Section 4.6.1.

Groundwater Zone 1 is under confined to leaky-confined conditions;[3] water level measurements confirmed that the potentiometric surface (water level) in each well is higher than the vertical position of the saturated intervals that host groundwater at that location (Section 4.6.1). The multiple, thin, saturated bedding planes that form groundwater Zone 1 are confined mainly by the surrounding low-permeability bedrock matrix, with downward vertical leakage possibly occurring along fractures. This relationship is illustrated in cross sections A-A' and B-B' (Figures 4.7-4.8).

The observed groundwater levels in Zone 1 wells are mutually consistent and roughly mimic the local variations in surface topography. These relationships support the interpretation that the multiple discrete moist-wet intervals along the bedding planes in Unit 3 are in hydraulic communication and together represent a single groundwater-bearing unit (Zone 1; Figures 4.7-4.8). The groundwater levels in the Zone 1 monitoring wells are discussed further in Section 4.3.1.

4.2.2.2 Groundwater Zone 2

Groundwater Zone 2 consists of relatively thick saturated intervals in the shale with limestone facies (Unit 6), or of thin, moist-wet intervals along bedding planes near the base of the overlying upper red shale (Unit 5). As illustrated in cross sections A-A' and B-B' (Figures 4.7 and 4.8), Unit 6 changes in facies from evaporitic deposits beneath the upland (MW49 and MW51) to shale with limestone along the upland flanks (MW44-MW45 and MW48). With this change in facies, groundwater Zone 2 crosses the lithostratigraphic units from the base of Unit 5 (upland) and into Unit 6 (flanks of the upland). Where developed near the base of Unit 5, the combined thickness of the moist-wet bedding planes that host groundwater Zone 2 is limited to 1-2 ft. In contrast, where Zone 2 is found within the Unit 6 shale with limestone facies, the total thickness of the saturated intervals ranges from approximately 3 ft at MW44, MW45, and MW50 to 5 ft at MW48 (Figures 4.7-4.8). At most locations, groundwater Zone 2 occurs at or above an elevation of 1,240 ft AMSL.

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[3] In a confined condition, the rock layers above and below the water-bearing zone (the confining layers) are impermeable to water. In a leaky-confined condition, the rock layers are somewhat less impermeable, and consequently some water is lost to or gained from the surrounding confining layers.

The areal extent of groundwater Zone 2 is much broader than that of localized Zone 1. Zone 2 lies approximately 30 ft or more below Zone 1, and hence Zone 2 has been less seriously truncated by the erosional unconformity (Section 4.2.2.1). Figure 4.10 shows locations where Zone 2 has been penetrated by private wells. The presence of the water-bearing zone in these private wells suggests that Zone 2 extends significantly to the southeast (wells BSMW09-BSMW15 and R. Warren well), south (A. Bruna and T. Bruna wells), and west (D. Martin, B. Bruna, and Schlabach-west wells) of the former CCC/USDA facility.

Groundwater Zone 2 is predominantly under leaky-confined conditions at most locations (Section 4.6.2). The relationships among water levels in wells and the vertical positions of the saturated intervals in Zone 2 are depicted in cross sections A-A' and B-B' (Figures 4.7-4.8).

The mutual consistency of the water levels in Zone 2 monitoring wells indicates that the multiple discrete moist-wet intervals along bedding planes at the base of Unit 5 and the thicker saturated intervals developed in Unit 6 are in hydraulic communication, forming a single Zone 2 groundwater-bearing unit. The potentiometric surface in Zone 2 (beneath the upland area) lies approximately 35-40 ft below the corresponding surface in Zone 1. The groundwater levels in the Zone 2 monitoring wells are discussed further in Section 4.3.2.

4.2.2.3 Groundwater Zones 3 and 4

Groundwater Zone 3 is hosted by the gray dolomitic shale near the base of Unit 7. The moist-wet intervals within this unit are difficult to identify. The combined thickness of the saturated horizons in Zone 3 is less than 2 ft.

Zone 3 can be traced laterally in the subsurface at elevations between 1,210 ft and 1,220 ft AMSL. This zone might be penetrated by most of the deep private water wells shown in Figure 4.4. Zone 3 appears to be confined by the massive overlying dolostone. Water recovery in the monitoring wells constructed in Zone 3 is extremely slow. The high variability observed among water levels in the Zone 3 monitoring wells to date (Section 4.3.3) suggests that the discrete, thin, saturated bedding planes that form Zone 3 do not communicate fully with each other hydraulically within the surrounding shale matrix (Figures 4.7-4.8).

Groundwater Zone 4 is developed at the base of the lower red shale (Unit 8), overlying the lower evaporitic deposit (Unit 9). The multiple thin, moist-wet intervals that form Zone 4 have a total thickness of less than 2 ft. These intervals occur at a relatively consistent elevation of 1,180-1,190 ft AMSL (Figures 4.7-4.8). Zone 4 lies approximately 30 ft below Zone 3.

The groundwater present in Zone 4 is also under confined conditions, and the water levels measured to date in Zone 4 have been less variable than those in Zone 3. The characteristics of the Zone 4 groundwater levels are discussed further in Section 4.3.3.

4.3 Determination of Groundwater Flow Patterns

Groundwater levels were monitored for all four of the identified water-bearing zones to determine the pattern of groundwater flow in each zone. Manual measurements of the water levels were obtained periodically at 44 monitoring wells installed in Zone 1; 6 wells in each of Zones 2, 3, and 4 (18 total); and 4 private monitoring wells installed previously in Zone 2. Groundwater levels were also recorded automatically at selected locations in Zones 1-4. To improve understanding of potential groundwater fluctuations in response to local precipitation events, daily rainfall data were obtained for the period of observation from the Washington County weather station (KS-WS-5; www.ksre.ksu.edu/wdl), approximately 7 mi west of Hanover. The results of these measurements are discussed below, and the full data sets for the manually and automatically recorded water levels are in Appendix E and Supplement 3, respectively.

4.3.1 Groundwater Levels and Flow Patterns in Groundwater Zone 1

For groundwater Zone 1, automatic water level recorders were used in 11 wells (MW01-MW02, MW04-MW10, and MW12-MW13) from February 10, 2009, to June 10, 2010 (Figure 2.7). Figure 4.11 illustrates the stability and consistency of groundwater levels in the 11 instrumented Zone 1 wells since June 2009. The recognizable groundwater fluctuations in response to local rainfall events had minor overall effects, with a total variation of less than 2 ft. Figure 4.11 depicts three periods in which groundwater levels were generally rising: late April to mid June 2009, mid October to mid December 2009, and mid March to late April 2010. During these periods, seasonal rainfall (or snow melt) events apparently increased. Over the 14-month period of record, the observed groundwater fluctuations appear to have had relatively little

influence on the relationships among the water levels in the individual wells (except for MW09 and MW07), indicating that the hydraulic gradients across the site in Zone 1 have remained relatively unchanged.

On February 23-24, 2009, significant drawdown occurred in several of the Zone 1 wells as a result of groundwater sampling (e.g., MW13, MW10, MW09, MW06, MW12; Figure 4.11). After sampling, however, extremely slow recovery of the water level was observed at MW12 (20 days) and MW06 (30 days), as well as (to a lesser extent) at several of the other Zone 1 wells. This slow response strongly suggests that the capacity of the Zone 1 unit to transmit groundwater to the wells at these locations is very low. (This interpretation is examined further in Section 4.6.1.)

Water levels measured manually on July 23, 2009, in 44 of the Zone 1 monitoring wells were used to generate a mechanically contoured representation of the potentiometric surface for this unit. As Figure 4.11 shows, the groundwater levels in Zone 1 were quite stable during July and August 2009, showing little short-term variation in response to local rainfall or other potential influences.

The potentiometric surface constructed for Zone 1 from the July 23, 2009, data is illustrated in Figure 4.12. The topology of the potentiometric surface generally mimics the local ground surface topography. A local groundwater "high" is indicated beneath the upland area surrounded by wells MW09, MW34, MW08, and MW02, suggesting a possible source area for local recharge to Zone 1. Figure 4.12 indicates that groundwater in Zone 1 flows toward the northwest, west, southwest, and south from the former CCC/USDA facility (on the upland), subject to the apparent hydraulic gradients and the effective permeability (or hydraulic conductivity, K_h) of the unit in each of these directions. The quantitative analysis of the preferred flow direction(s) is discussed in Section 4.6.1.4.

4.3.2 Groundwater Levels and Flow Patterns in Groundwater Zone 2

Automatic water level recorders were used in 6 wells in Zone 2 from April 1, 2009 (at MW44Z2 and MW45Z2), or November 2, 2009 (at MW48Z2-MW51Z2), to June 10, 2010 (Figure 2.8). The groundwater level trends for water-bearing Zone 2 illustrated in Figure 4.13 differ markedly from those for Zone 1 (Figure 4.11). The recorded water levels in upland wells

MW49Z2 and MW51Z2 have stayed almost constant since monitoring began in November 2009, while those in wells in more flanking positions (MW44Z2-MW45Z2, MW48Z2, MW50Z2) rose by a total of more than 5 ft during late November 2009, late January 2010, and March-April of 2010. Figure 4.13 shows that the water level increases during the last two episodes might reflect snow melting in late January and increasing spring rainfalls, respectively. The more prominent responses to local precipitation in the flanking portions of Zone 2 might be associated with progressively reduced thickness of the overlying bedrock formations away from the upland area, resulting in the complete absence of groundwater-bearing Zone 1 at locations MW44Z2 and MW45Z2.

The "spikes" in groundwater levels observed at MW51Z2 in February 2010, followed by a gradual decline (Figure 4.13), were caused by local flooding in the area surrounding this well (and in the flush-mount well housing). The flooding, observed during several field visits, was most likely associated with snow melting and/or rainfall. The groundwater levels in MW51Z2 have remained unchanged, except for this interference, and have shown no other apparent responses to local rainfall events.

Groundwater levels were measured manually several times in the Zone 2 monitoring wells after their completion in October 2009, as well as in four private monitoring wells located at a local gas station, approximately 1,000 ft southeast of the former CCC/USDA facility (Figure 2.8). Measurements obtained on January 25, 2010, reflecting a relatively stable period as indicated by the Zone 2 hydrographs (Figure 4.13), were used to estimate the potentiometric surface for Zone 2.

Figure 4.14 shows that the Zone 2 potentiometric surface (like the Zone 1 potentiometric surface illustrated in Figure 4.12) exhibits a localized "high" beneath the former CCC/USDA facility, forming a groundwater divide that extends diagonally beneath the former facility. Groundwater west of the divide flows to the west, while groundwater east of the divide flows to the southeast. Flow along the divide itself might also ultimately move to the south. The slope of the potentiometric surface (the apparent horizontal hydraulic gradient) is almost flat across the top of the divide, but it steepens to the west, south, and southeast. The highest estimated gradient (approximately 0.02, in January 2010) is in the westerly direction.

Zone 2 hydrographs (Figure 4.13) indicate that groundwater levels in downgradient wells MW50Z2, MW44Z2, and MW45Z2 increased consistently, by approximately 8 ft, from January

to June 2010, while the levels in wells on the upland (MW49Z2 and MW51Z2) remained constant. This observation suggests that the apparent hydraulic gradient in Zone 2 in the westerly direction has decreased (to about 0.01) from the representation in Figure 4.14, even though the spatial pattern of flow depicted in Figure 4.14 has not changed significantly.

Vertical groundwater flow via leakage from Zone 1 to Zone 2 appears to occur in the area beneath the uplands where groundwater mounding is observed in both Zone 1 and Zone 2. The rate of vertical leakage, however, is apparently limited, because no temporal responses are shown in Zone 2 hydrographs for the upland wells (MW49Z2 and MW51Z2). This limited leakage is supported by geochemical data (Section 4.3.4) and contaminant data (Section 4.4).

4.3.3 Groundwater Levels and Flow Patterns in Groundwater Zones 3-4

Automatic water level recorders were used in 12 deep wells in Zones 3-4 (6 wells for each zone) from April 1, 2009 (at MW44 and MW45, Z3-Z4), or November 2, 2009 (at MW48-MW51, Z3-Z4), to June 10, 2010 (Figure 2.8).

The Zone 3 hydrographs (Figure 4.15) demonstrate completely different patterns from those for Zones 1 and 2. Groundwater levels in all of the Zone 3 wells appear, in general, to be increasing. Over the monitoring period, the cumulative increases in groundwater levels range from approximately 7 ft at well MW50Z3 to 47 ft at well MW51Z3. No clear relationship is evident between the rise in water levels in Zone 3 and variations in local rainfall.

The “spike” followed by a gradual decline (late January 2010) observed in the trace for MW44Z3 reflects local flooding of the well flush mount and the surrounding area, like that observed at MW51Z2 (Section 4.3.2). The data gaps in the trace for MW45Z3 are the result of a recorder malfunction in this well. All other traces depict distinct rising patterns that differ both temporally and with location and that show no clear signs of stabilization. The apparently continuous, slow recoveries indicate that the groundwater levels in all of the Zone 3 monitoring wells had not yet reached ambient conditions 8-14 months after well installation. These observations support the interpretation that both the availability of groundwater within Zone 3 and the ability of this unit to transmit groundwater to wells are extremely limited. Because the groundwater levels in the monitoring wells have not stabilized, the potential flow patterns in Zone 3 could not be determined with certainty.

The Zone 4 hydrographs are distinct in form, as illustrated in Figure 4.16. The gradually decreasing rates of water-level rise observed in wells MW48Z4-MW51Z4 since their installation are typical of an approach to equilibrium between the water levels in these wells and the ambient groundwater levels in the surrounding formation. No correlation is evident between the water level recovery in Zone 4 and variations in the local rainfall. The slow recovery (taking several months) in these wells again suggests that the capacity of Zone 4 to produce groundwater to wells is limited.

Although the groundwater levels in the Zone 4 wells might not be fully recovered, the present levels in MW49Z4 and MW51Z4 on the upland area at the former CCC/USDA facility are higher than those in the corresponding Zone 2 wells at these locations (Figure 4.17). This apparent upward hydraulic gradient strongly suggests that groundwater Zone 4 is not locally recharged via downward leakage through Zones 2 and 3 beneath the upland at Hanover. The data suggest that groundwater Zone 4 is recharged from a source area other than the local upland.

Figure 4.17 compares hydrographs for selected wells in groundwater Zones 2, 3, and 4. The exact relationships of the ambient groundwater levels in Zone 3 to the levels in Zone 2 and Zone 4 cannot be determined with certainty at this time because of the very slow recovery of the Zone 3 monitoring wells and the absence of any evidence that water levels are equilibrating in those wells. In the upland area, the groundwater levels in the Zone 3 wells have increased by approximately 41 ft (MW49Z3) and 46 ft (MW51Z3) since well installation. For the period February-June 2010, Figure 4.17 indicates relatively constant water level increases of approximately 8 ft per month in well MW49Z3 and 4 ft per month in well MW51Z3, suggesting that the Zone 3 water level in these wells is gradually approaching the Zone 2 ambient groundwater level. If these observed rates of water level rise continue, the groundwater levels in the Zone 3 wells at the MW51 and MW49 locations will exceed the Zone 2 ambient water levels in the near future. The observed relationships imply that, *in the upland area*, the ambient groundwater level might be higher in Zone 3 than in Zone 2. In contrast, no present observations for the wells along the flanks of the upland area (MW44, MW45, and MW50) suggest that the Zone 3 water levels at these locations will reach or exceed the ambient water levels in Zone 2.

The Zone 4 groundwater levels at adjacent wells MW44Z4 and MW45Z4 have followed distinctly different trends (Figure 4.16). The groundwater in MW44Z4 was temporarily depleted because of sampling on October 16, 2009, and then recovered slowly. No similar response to sampling occurred at well MW45Z4, however, indicating a potentially greater producing

capacity at the latter location. Multiple distinct downward groundwater "spikes" (approximately 3 ft) are present in the hydrograph for well MW45Z4 from early April to early October 2009 and starting again in early June 2010, in apparent association with slowly declining water level trends during these periods (Figure 4.16). These drawdown events are believed to be associated with pumping of the private (B. Bruna) lawn and garden well approximately 90 ft west of well MW45Z4 (across Hanover Street; Figures 2.4 and 2.5). The hydrograph for well MW45Z4 is different from those of the other Zone 4 wells, but it is qualitatively similar to that in Zone 2 at the same location (MW45Z2; Figure 4.17), suggesting some possible correlation with local rainfall. This apparent relationship might reflect the presence of several nearby private wells (B. Bruna, K. Jueneman, D. Martin, R. Schlabach; Figure 2.5) that are believed to be constructed with continuous gravel packs connecting Zone 2 and the deeper groundwater-bearing zones.

Although the Zone 4 hydrographs (Figure 4.16) suggest that the water levels in Zone 4 wells MW44Z4 and MW45Z4 might be approaching equilibrium, the spatial relationships and hence the hydraulic gradients represented by the groundwater levels in all of the Zone 4 wells are still subject to change. The latest water level data measured in June 2010 suggest that wells MW49Z4 and MW51Z4, and possibly MW48Z4, are located in the upgradient portion of the Zone 4 flow system, while wells MW50Z4, MW44Z4, and MW45Z4 (to the west of the topographic upland) lie in downgradient positions. An accurate representation of the detailed groundwater flow patterns in this unit cannot, however, be predicted at this time. Therefore, no attempt has been made to generate water level contours for Zone 4.

4.3.4 Geochemical Indicators of Possible Groundwater Movement

Groundwater sampling for nitrate and tritium isotopes was conducted to provide additional geochemical lines of evidence that might help to determine the origin and three-dimensional patterns of groundwater movement (and hence possible contaminant migration) within the Hanover flow system.

A total of 12 groundwater samples were collected for nitrate analysis (Figure 2.6). Of these, 7 samples were obtained from upland monitoring wells MW05, MW09-MW11, MW13, MW28, and MW29 in groundwater Zone 1; 3 were from wells MW48Z2, MW49Z2, and MW51Z2 in the eastern portion of Zone 2, along the upland; and 2 were from wells MW44Z2 and MW45Z2 in the western portion of Zone 2 along the flanks of the upland area (Figure 4.7). The results of the nitrate analyses are summarized in Table 3.4.

The identified nitrate concentrations in the Zone 1 and Zone 2 groundwater samples demonstrate a spatial variability that suggests a plausible interpretation of vertical recharge in the upper portions of the groundwater flow system. Nitrate concentrations ranging from 1.8 mg/L to 6.3 mg/L were detected in all of the sampled Zone 1 wells. Similar levels of nitrate (2.5-4.11 mg/L) were also identified in Zone 2 wells MW44Z2 and MW45Z2, located in the downgradient, western portion of Zone 2, in the area where much of the overlying Pleistocene and bedrock cover (lithostratigraphic Units 1-4; Section 4.2.1), including the Zone 1 groundwater-bearing unit, has been removed by erosion (Figures 4.7 and 2.6). In these areas (Zone 1 and the western portion of Zone 2), the geochemical analyses suggest that a significant component of the groundwater flow is derived from the infiltration of (nitrate-bearing) surface water into the water-bearing units.

The nitrate concentrations noted above were consistently greater, by approximately an order of magnitude, than the nitrate levels of < 0.1 mg/L to 0.5 mg/L (within the range of natural background concentrations in groundwater [Panno et al. 2006]) identified in samples from Zone 2 wells MW48Z2-MW51Z2. At the latter, more upland well locations, the Zone 2 groundwater-bearing unit is more deeply buried and is overlain by groundwater Zone 1 (Figure 4.8). At these locations, the results of nitrate analyses suggest that the component of the Zone 2 groundwater flow originating via infiltration of surface (nitrate-bearing) water through Zone 1 is minimal, probably not exceeding 8-10% (if such infiltration is occurring at all).

Tritium is a short-lived isotope of hydrogen with a half-life of 12.32 yr (Lucas and Unterweger 2000). Water derived from precipitation that fell before 1953 (sub-modern water) would be expected to have a tritium concentration of less than 0.5 TU as a result of radioactive decay. From 1953 to 1969, however, aboveground testing of nuclear weapons contributed highly elevated levels of tritium to the atmosphere (up to 10,000 TU in 1963) and resulted in the presence of relatively higher levels of tritium in water derived from more recent (modern or post-testing) precipitation (currently approximately 4 TU). Tritium concentrations in groundwater can therefore be used in the temporal evaluation of groundwater sources as an indicator of relatively older (sub-modern or pre-testing), younger (modern or post-testing), and mixed waters.

Eight groundwater samples were collected for tritium analysis from groundwater Zone 1 (wells MW05 and MW46), Zone 2 (wells MW44Z2 and MW45Z2), Zone 3 (well MW45Z3; 2 samples), and Zone 4 (wells MW44Z4 and MW45Z4). The results of the analyses (Table 3.3)

indicate that tritium concentrations generally decrease from Zone 1 to Zone 4 (except at well MW45Z4), as follows:

- Zone 1: 4.25-5.70 TU (modern water)
- Zone 2: 3.68-4.42 TU (mixed modern and sub-modern water)
- Zone 3: 2.72-3.05 TU (mixed modern and sub-modern water)
- Zone 4: 0.12 TU (MW44Z4; sub-modern water)

The relatively high tritium levels identified in the Zone 2 groundwater samples from wells MW44Z2 and MW45Z2 are consistent with the nitrate concentrations detected at these locations, suggesting that the downgradient portion of the Zone 2 water-bearing unit (and also possibly Zone 3) might receive a significant component of recharge via vertical infiltration. Together, the nitrate and tritium analyses for these wells qualitatively support an interpretation of leaky-confined conditions in the Zone 2 unit at MW44Z2 and MW45Z2. (See also Section 4.6.2.)

A relatively high concentration of tritium (3.6 TU) was detected in the Zone 4 groundwater sample from well MW45Z4. This value suggests that the Zone 4 groundwater near MW45Z4 might contain a greater component of modern water than is indicated in nearby (more upgradient) well MW44Z4. As noted in Section 4.3.3, well MW45Z4 is located near several deep private wells that are believed to be continuously gravel packed through the shallower portions of the stratigraphic sequence. We therefore postulate that the higher tritium concentration observed at well MW45Z4 might reflect localized mixing of shallow and deeper groundwater via the vertical conduits provided by these private wells.

4.4 Delineation of Groundwater Contamination

The lithostratigraphic and hydrologic characteristics of the subsurface environment at Hanover define the hydrogeologic framework controlling the potential distribution and the movement of carbon tetrachloride contamination potentially associated with the former CCC/USDA facility. Groundwater sampling to delineate the groundwater contamination at Hanover was therefore guided by the interpretation of multiple water-bearing zones and

groundwater flow patterns, as presented in Sections 4.2-4.3, in conjunction with the contaminant source characteristics identified in Section 4.1.

Extensive characterization was performed to determine the distribution and concentrations of carbon tetrachloride in groundwater-bearing Zone 1, to support an assessment of the potential health and environmental risks associated with the contamination in this interval. Groundwater samples were collected successfully from 38 wells and 1 borehole in Zone 1. Attempts to obtain groundwater samples were made at 2 additional boreholes, 2 temporary wells, and 6 permanent monitoring wells in Zone 1, but no water could be recovered from these locations during the investigation period (Figures 2.3 and 4.9).

Groundwater samples were also collected for analyses from 6 dedicated monitoring wells in each of the 3 deeper groundwater-bearing units (Zones 2-4; Figure 2.4) and from 24 private wells (with various completion depths) that were accessible for this investigation (Figure 2.5).

The results of the groundwater analyses for VOCs are summarized in Table 3.2 and are discussed below.

4.4.1 Contaminant Distribution in Groundwater Zone 1

The spatial distributions of carbon tetrachloride and chloroform in samples collected from groundwater Zone 1 are shown in Figures 4.18 and 4.19, respectively. The vertical distribution of carbon tetrachloride in Zone 1 is illustrated in hydrogeologic cross sections A-A' and B-B' (Figures 4.20 and 4.21). Figure 4.22 depicts the lateral extent of carbon tetrachloride in the Zone 1 groundwater, as interpreted on the basis of data from the 48 sampling points shown. The lateral margins of the contaminant distribution were inferred from sampling locations with no detectable concentrations or low levels (< 5 µg/L) of carbon tetrachloride, as well as from locations having little or no recoverable groundwater in Zone 1. Figure 4.22 represents a conservative estimate of the area in which carbon tetrachloride might be present at a concentration equal to or greater than the KDHE standard of 5 µg/L for this contaminant.

The identified carbon tetrachloride concentrations in Zone 1 range from maximum values of 617 µg/L (at MW11) and 548 µg/L (at MW02) in the northern part of the former CCC/USDA facility, to 1.0 µg/L (the method quantitation limit for purge-and-trap analysis; at MW27).

Figures 4.18 and 4.22 indicate that the highest concentrations of carbon tetrachloride in Zone 1 are generally located beneath the upland area that extends to the northwest and southwest from the former CCC/USDA facility, suggesting pathways for preferred contaminant migration in these directions. Figures 4.18, 4.20, and 4.22 show that the carbon tetrachloride concentrations in Zone 1 tend to decrease rapidly away from the upland area and toward the erosional limits of lithostratigraphic Unit 3 (Section 4.2.2.1) and the Zone 1 groundwater-bearing interval. The locations of numerous wells and borings that remained dry (or had extremely limited water availability) throughout the investigation at Hanover help to delimit the southwestern, western, northwestern, and northern margins of the carbon tetrachloride (and groundwater) distribution in Zone 1, as shown in Figures 4.18 and 4.22.

Cross sections A-A' and B-B' (Figures 4.20 and 4.21) indicate that the contaminated groundwater in Zone 1 is generally present at depths of less than 40 ft BGL (ranging from 17 ft BGL at well MW14 to 31 ft BGL at well MW02). The interpreted lateral contaminant margins shown in Figure 4.22 therefore provide a basis to guide investigation of possible VI associated with the Zone 1 contamination. The results of the Zone 1 VI studies conducted as part of the present investigation at Hanover are discussed in Section 4.8.

The spatial distribution of chloroform in Zone 1 is illustrated in Figure 4.19. The highest identified concentration of chloroform was 18 µg/L (at MW12). In the northern part of the former CCC/USDA facility (where high carbon tetrachloride concentrations were identified; Figure 4.18), the abundance of chloroform relative to carbon tetrachloride was generally less than 2%. However, near the estimated edges of the carbon tetrachloride distribution, the ratios of chloroform to carbon tetrachloride in the Zone 1 groundwater were much higher. Examples of this increase were observed at wells MW16 and MW24 (> 36%) near the northwest margin of the contaminated area; at wells MW30 and MW47 (> 64%) near the southeast edge; and at wells MW37 and MW38 (13-18%) near the southwestern edge. The elevated ratios of chloroform to carbon tetrachloride observed at these and several other locations (Table 3.2) suggest that some degradation of carbon tetrachloride (by reductive dechlorination) is occurring in the Zone 1 groundwater. The observed concentration relationships empirically suggest that natural biodegradation might assist, to a limited extent, in reducing the carbon tetrachloride concentrations in Zone 1 along the downgradient margins of the contaminant distribution.

4.4.2 Contaminant Distribution in Groundwater Zone 2

Groundwater Zone 2 underlies a much larger area at the Hanover site than does groundwater Zone 1, as shown in cross sections A-A' and B-B' (Figures 4.20, 4.21, and 4.10). Many local private wells were either completed in Zone 2 or constructed to tap groundwater by intercepting Zone 2 *and* deeper water-bearing zones via continuous gravel packs. Of the 24 private wells that were accessible to Argonne in the present investigation, 16 (Figure 4.10) were identified that possibly intercept groundwater from Zone 2.

The distribution of carbon tetrachloride and chloroform in groundwater Zone 2 was determined on the basis of samples collected from 6 monitoring wells installed exclusively in Zone 2 and the 16 private wells identified in Figure 4.10. The results of analyses of these samples for carbon tetrachloride and chloroform (Table 3.2) are summarized in Figures 4.23 and 4.24, respectively. The vertical distribution of carbon tetrachloride in Zone 2 is illustrated in Figures 4.20 and 4.21. Figure 4.25 depicts the lateral distribution of carbon tetrachloride in the groundwater in Zone 2, as interpreted from the 22 sampling points shown. The lateral margins of the contaminant distribution were interpreted on the basis of sampling locations with no detectable concentrations or low levels (< 5 µg/L) of carbon tetrachloride. The interpretation in Figure 4.25 represents an estimate of the area in which carbon tetrachloride might be present in Zone 2 at a concentration greater than the KDHE standard of 5 µg/L for this contaminant.

Carbon tetrachloride concentrations in Zone 2 ranged from a maximum of 35 µg/L (at upgradient well MW49Z2) to 1.5 µg/L (in a private well northwest of monitoring well MW45Z2; Figure 4.23), within a relatively narrow, elongate area extending to the west from the former CCC/USDA facility (Figures 4.23 and 4.25). A carbon tetrachloride concentration of 9.7 µg/L was identified at well MW50Z2, near the interpreted southern margin of the Zone 2 contaminant distribution. Carbon tetrachloride levels of 11-28 µg/L were found at wells MW44Z2 and MW45Z2 in the downgradient portion of groundwater Zone 2. Low levels of carbon tetrachloride were also detected in four private wells west and northwest of MW45Z2, in the apparent direction of groundwater flow. All four private wells were drilled to the deeper groundwater zones but are likely to intercept Zone 2 via continuous gravel packs, as illustrated in cross section A-A' (Figure 4.20). Topographic relationships indicate that Zone 2 is likely absent approximately 1,000 ft west of well MW45Z2, because of progressive downcutting along the flanks of the upland to the east. The approximate location of the western Zone 2 erosional limit is

illustrated in Figure 4.25. No carbon tetrachloride was detected in private wells south, east, and north of the former CCC/USDA facility (Figure 4.23).

In the upland area where vertical groundwater flow could possibly occur from Zone 1 to Zone 2 (as discussed in Section 4.3.2), carbon tetrachloride concentrations are significantly lower in Zone 2 than to Zone 1. Comparison of carbon tetrachloride concentrations of 35 µg/L in Zone 2 well MW49Z2 with concentrations in nearby in Zone 1 wells (395 µg/L in MW09 to 617 µg/L in MW11; Figures 4.18 and 4.23), suggests that 9% or less of the contamination in the Zone 2 groundwater originates from Zone 1 groundwater. This observation is consistent with depletion of nitrate in Zone 2 (Section 4.3.4), indicating that potential leakage from groundwater Zone 1 to Zone 2 is apparently limited in the upland area.

As cross section B-B' (Figure 4.21) shows, groundwater Zone 2 is generally encountered at depths greater than 40 ft BGL beneath the upland areas of the Hanover site. However, primarily because of variations in topography, groundwater Zone 2 becomes shallower than 40 ft BGL in the western, downgradient flank area near MW44Z2 (approximately 30 ft) and MW45Z2 (approximately 20 ft).

The identified distribution of chloroform in Zone 2 is shown in Figure 4.24. The highest concentration of chloroform, 8.6 µg/L, was detected in a private well (BSMW14) at a location where petroleum compounds (not associated with past grain storage operations at the former CCC/USDA facility) were also found in the groundwater. Chloroform concentrations at all of the other Zone 2 monitoring and private wells were very low, ranging from 1 µg/L to 4.4 µg/L. The relative abundance of chloroform to carbon tetrachloride in Zone 2 groundwater, 9-22%, is higher than the abundance of < 2% in the “hot-spot” area in Zone 1 in the northern part of the former CCC/USDA facility and equal to or less than the abundance along the edges of the Zone 1 contamination (13% to > 64%). The observed ratios of chloroform to carbon tetrachloride imply the possibility of a limited amount of carbon tetrachloride degradation in the Zone 2 groundwater via reductive dechlorination.

4.4.3 Potential Contamination in Groundwater Zones 3-4

Groundwater samples were collected from wells installed exclusively in groundwater Zone 3 and Zone 4 at each of 6 locations (MW44-MW45 and MW48-MW51; Figure 2.4). No

carbon tetrachloride was identified in Zone 3 or Zone 4 in these wells. Trace to low amounts of carbon tetrachloride (ranging from 1.5 µg/L to 7.8 µg/L) were identified, however, in four private wells (B. Bruna, D. Martin, R. Schlabach-west, and K. Jueneman) west and northwest of wells MW45Z3 and MW45Z4 (Figure 4.23). The carbon tetrachloride in the private wells is believed to reflect contamination in the Zone 2 groundwater-bearing unit that is being intercepted via the continuous gravel packs in these wells. No contamination was found in the Zone 3 or Zone 4 groundwater at any of the sampled locations lying upgradient of the private wells.

The hydrogeologic, water level monitoring, and geochemical evidence compiled for Zones 3 and 4 further suggests that the potential for contamination of the groundwater in these zones in the upland portion of the Hanover site is limited. The observations supporting this interpretation are as follows:

- The extremely slow equilibration of the groundwater levels observed in the Zone 3 monitoring wells demonstrates that the hydraulic communication within this unit, and with potential adjacent units, is very poor. The relatively constant rate of increase in groundwater levels in Zone 3 wells on the upland area in February-June 2010 implies that the ambient groundwater level in Zone 3 might be higher than that in Zone 2, preventing downward movement.

- Currently measured groundwater levels in the Zone 4 monitoring wells are higher than those in the corresponding Zone 2 (and Zone 3) wells in the upland area, indicating no downward movement of groundwater (and potential contaminants) from Zone 2 into the deeper groundwater-bearing zones.

- The observed groundwater levels in all of the upland Zone 3 and Zone 4 wells show no apparent sensitivity to local rainfall events (as observed in Zone 1 and Zone 2), suggesting no local vertical recharge to these deeper zones.

As noted above, the present investigation data suggest that localized contamination of the Zone 3 and Zone 4 groundwater might be possible in the western portions of these units, however, as a result of the potential vertical migration conduits provided by the continuously gravel-packed private wells in this area.

4.5 Human Health and Environmental Risks Associated with Contaminated Groundwater

As shown in Table 2.1, the standard for carbon tetrachloride adopted by the KDHE (5 µg/L) is identical to the MCL value established by the EPA under the federal Safe Drinking Water Act. Carbon tetrachloride contamination was found in Zone 1 and Zone 2 in this investigation (Figures 4.18 and 4.23) at concentrations exceeding this KDHE standard. Chloroform was also identified in groundwater-bearing Zones 1 and 2; however, the maximum chloroform concentrations detected in these zones (18 µg/L and 8.6 µg/L, respectively; Figures 4.19 and 4.24) are below the KDHE standard of 80 µg/L for this contaminant in groundwater (Table 2.1).

In this section, an initial screening of the potential human health and environmental risks associated with the carbon tetrachloride contamination in groundwater at Hanover is presented. The initial screening evaluates two exposure pathways: (1) direct exposure, including ingestion of contaminated groundwater, direct inhalation of chemicals volatilized from contaminated groundwater, and dermal contact with contaminated groundwater and (2) indirect exposure via the groundwater-to-surface water pathway or the groundwater-to-indoor air pathway.

4.5.1 Direct Exposure

An estimate of the lateral extent of carbon tetrachloride in groundwater in Zone 1 is shown in Figure 4.22. The interpreted margins represent the area in which carbon tetrachloride might be present at concentrations equal to or greater than the KDHE standard of 5 µg/L for this contaminant. The maximum identified concentration is 617 µg/L, at well MW11 along the northern margin of the former CCC/USDA facility. The depth to the contaminated groundwater ranges from 17 ft BGL (at MW14) to 31 ft BGL (at MW02), but it is generally greater than 20 ft BGL. Under these conditions, the most probable mechanism of potential direct exposure to the carbon tetrachloride contamination in Zone 1 would be via groundwater obtained from a well tapping the Zone 1 water-bearing unit.

On the basis of information in all available Kansas well registration records and information obtained in a community meeting led by the KDHE on May 28, 2009, no active private (or public) wells are known to be either present within the area of Zone 1 contamination or completed in this unit. The potential routes of direct exposure to the contaminated

groundwater in Zone 1 (via ingestion, inhalation, or dermal contact) are therefore incomplete under the current conditions at Hanover. No unacceptable health risks are associated with potential human exposure to the contaminated groundwater in Zone 1, if the current conditions remain unchanged.

An estimate of the lateral extent of carbon tetrachloride in groundwater Zone 2 is shown in Figure 4.25. The maximum identified carbon tetrachloride concentration in Zone 2 is 35 µg/L, at well MW49Z2 along the northern margin of the former CCC/USDA facility.

Four private wells were identified that penetrate the downgradient toe of the Zone 2 contaminant distribution (B. Bruna, K. Jueneman, D. Martin, R. Schlabach-west; Figure 4.25). Carbon tetrachloride levels in the groundwater from these wells ranged from 1.5 µg/L to 7.8 µg/L; however, these wells are used only for lawn and garden purposes. Therefore, no unacceptable health risks are presently associated with potential human exposure to the contaminated groundwater in Zone 2 via ingestion, and only minimal health risks might be posed by exposure to the contaminated groundwater via potential outdoor inhalation of vapors or dermal contact.

4.5.2 Indirect Exposure

Potential indirect pathways for exposure to contaminated groundwater include groundwater discharge to surface waters and groundwater (and contaminant) evaporation to soil vapor that could potentially facilitate VI to residential or non-residential structures.

The occurrence of groundwater Zone 1 is spatially limited to the area beneath the upland portion of the Hanover site. The lithostratigraphic unit that hosts groundwater-bearing Zone 1 (Unit 3; Section 4.2.1.1) is completely eroded at elevations below approximately 1,280 ft AMSL and hence is absent along the flanks of the upland area, as illustrated in cross section A-A' (Figure 4.20) and Figure 4.22. Field reconnaissance along the projected limits of the Zone 1 unit (Figure 4.22) revealed no springs or seepage to suggest direct drainage from Zone 1 to the surface. The pathway for potential indirect exposure to contaminated groundwater via surface discharge from Zone 1 is therefore incomplete.

Groundwater Zone 2 is more widely distributed than Zone 1 beneath the Hanover site. The estimated limit of Zone 2 along the identified contaminant migration pathways is shown in Figure 4.25. Detailed field reconnaissance conducted in the projected area of Zone 2 groundwater migration and potential surface discharge west of monitoring wells MW44Z2 and MW45Z2 (Figure 4.25) identified no springs or seepage. The pathway for potential indirect exposure to contaminated groundwater via surface discharge from Zone 2 is therefore also incomplete.

The results indicate that no unacceptable health risks are associated with potential indirect human exposure to the contaminated groundwater in Zone 1 and Zone 2, via possible discharge of the groundwater to surface waters at Hanover.

The depth of contaminated groundwater in Zone 1 ranges from 17 ft BGL to 31 ft BGL, and the depth to the contaminated groundwater in the more downgradient part of Zone 2 (on the western flank of the upland area; Figure 4.25) is also less than 40 ft BGL. On the basis of the health risk criteria recommended by the KDHE (2007b), the presence of contaminated groundwater at depths of less than 40 ft BGL in these units might pose a risk of indirect exposure via VI to indoor air. This potential exposure route was investigated extensively, and the results were analyzed to determine whether this exposure pathway is complete. The details of the VI investigation are discussed separately in Section 4.8.

4.6 Quantitative Evaluation of the Hydraulic Properties of Groundwater Zone 1 and Zone 2

The results of the Hanover investigations presented in Sections 4.2-4.4 demonstrate that carbon tetrachloride is present in groundwater, at levels that exceed the KDHE standard of 5 µg/L for this contaminant, in Zones 1 and 2 of the four groundwater-bearing zones identified at this site. An initial screening of these results, summarized in Section 4.5, indicates that the identified groundwater contamination currently poses no unacceptable risks to human health via potential direct or indirect exposure pathways. (See also Section 4.8.) Because the identified concentrations of carbon tetrachloride are, however, above the acceptable KDHE target levels, the KDHE requires an assessment of possible alternatives for the restoration of groundwater Zones 1 and 2in the context of a Corrective Action Study (CAS) for the Hanover groundwater system. Initial recommendations for the development of a CAS are outlined in Section 6 of this report.

The hydraulic properties of the contaminated water-bearing zones and the potential variations of these properties across the Hanover site are factors that govern groundwater flow and contaminant migration. These factors must be determined to support quantitative evaluation of the expected Zone 1 and Zone 2 responses to several available groundwater restoration technologies. The identification of these parameters is particularly critical to the analysis of potential use of groundwater extraction, fluid injection, or hydraulic containment of the contaminant distribution in these units. Similarly, these parameters provide a basis for quantitative estimation of the rates (and potential directions) of groundwater and contaminant migration under alternate restoration scenarios.

To address these data needs, the following program of hydraulic testing was performed in conjunction with the 2009-2010 site investigations at Hanover, at the request and with the approval of the KDHE (2009b,c,d,h, 2010b,d):

- Single-well response ("slug") testing of 20 monitoring wells to generate data on the range and distribution of hydraulic conductivity values in Zone 1.

- Step-drawdown testing to determine the specific capacity and potential ROI of Zone 1 monitoring wells MW05, MW09, and MW10.

- Constant-rate pump testing at Zone 1 monitoring well MW05, to determine the long-term sustainable pumping rate.

- Slug testing of 6 monitoring wells to generate data on the range and distribution of the K_h values in Zone 2.

- Constant-rate pump testing of well MW45Z2 to determine the long-term sustainable pumping rate in Zone 2.

This section summarizes the results of the hydraulic testing outlined above. The data sets for each element of the testing program (Appendixes F-J) are analyzed and discussed in detail in Supplements 4-8 (on CD).

4.6.1 Estimates of Hydraulic Properties for Groundwater Zone 1

4.6.1.1 Zone 1 Slug Test Results

Slug tests were conducted at 20 monitoring well locations across the area where contamination was identified in Zone 1. The water response data obtained from the tests were interpreted by using the analysis methods of Bouwer and Rice (Bouwer and Rice 1976; Bouwer 1989) and Hvorslev (1951), as implemented in the commercial well test software analysis package AqteSolv for Windows (HydroSolve, Inc.). Numerous alternative slug test analysis methods have been developed, each with advantages and disadvantages. The methods used for this study were selected in light of their relatively wide applicability, their level of documentation and general acceptance by the scientific community, and their ease of implementation to achieve the objective of estimating hydraulic parameters for the Zone 1 water-bearing interval.

Complete data (time versus residual drawdown) for the slug tests and analysis parameters are in Supplement 4 (on CD). Representative interpretive curve fits for the test data sets are in Appendix F. The resulting hydraulic conductivity estimates are summarized in Table 4.1. For each data set, the estimated K_h values calculated with the Bouwer and Rice method are of the same magnitude as, but roughly 25% lower than, the values for the same data set calculated with the Hvorslev method. The estimated K_h values for the Zone 1 water-bearing materials at Hanover range over five orders of magnitude, from approximately 0.001 ft/day at MW06 to approximately 100 ft/day at MW09. The high variation within this localized area reflects the heterogeneity of water-bearing Zone 1.

The areal distribution of the calculated *average* K_h values (averaged for all individual tests and both calculation methods; last column in Table 4.1) is illustrated in Figure 4.26. The areal distribution of the hydraulic conductivities estimated by using *either* analysis method (not shown) yields a similar spatial pattern. The highest *average* K_h values, ranging from approximately 53 ft/day to 75 ft/day, were calculated for wells MW05, MW09, MW11, and MW13, which are located on the topographic upland near the north central margin of the former CCC/USDA facility. At two locations (MW02 and MW10) within and near the eastern portion of the former facility, K_h values of approximately 3 ft/day were observed. Similar values of approximately 4.6 ft/day were estimated for adjacent wells MW28 and MW29, located near the intersection of North East and Elm Streets, in the more downgradient portion of Zone 1

(Figure 4.26). Figure 4.26 further indicates that the estimated K_h values in Zone 1 decrease rapidly in all directions from the upland area beneath the former CCC/USDA facility, to values that are consistently < 1 ft/day (in most cases < 0.1-0.01 ft/day). The estimated K_h values are lower by two to three orders of magnitude in the area west and south of the interpolated contour line representing K_h = 1 ft/day and lower by approximately one order of magnitude in the area east of this contour line.

Although the estimated K_h values observed at several of the monitoring wells noted above are relatively high (approaching or equal to values often associated with clean sand deposits), the combined slug test results suggest that the expected capacity of Zone 1 (consisting of a few discrete, thin, moist-wet intervals) to produce groundwater to wells is limited, even at the identified locations having higher K_h values. In addition to hydraulic conductivity, the factors affecting the capacity to produce groundwater to wells include (1) the restricted thickness of the Zone 1 water-bearing interval, (2) the dramatic variations in K_h values documented over short (< 150 ft) lateral distances within the study area, and (3) the relatively low groundwater head levels observed for wells in the portions of the study area having higher estimated K_h values.

The value of K_h is primarily a function of the intrinsic characteristics of the saturated pore spaces within a water-bearing interval; however, the ability of such a unit to transmit water horizontally (under a given hydraulic gradient) is determined by its transmissivity (T), which represents the product of K_h and the total saturated thickness of the unit. Because the net thickness of the saturated Zone 1 materials at Hanover ranges from only 1 ft to 3 ft, the resulting T value of this unit is limited at even the most permeable of the locations subjected to slug testing (MW05, MW09, MW11, and MW13; Figure 4.26). The significantly lower K_h values observed across much of the investigation area (Figure 4.26) will further restrict the ability of groundwater to move through Zone 1 toward the more permeable regions of the unit, under the localized hydraulic gradients that might be induced by the pumping of one (or more) wells. Finally, the low initial groundwater head levels observed in the areas of higher K_h values physically constrain the drawdown conditions under which groundwater pumping would be logistically viable for wells in these areas.

To further evaluate the hydraulic properties and assess the potential producing capacity of the Zone 1 groundwater-bearing unit, a series of step pumping and constant-rate pumping tests was performed at selected Zone 1 wells. The results of these tests are discussed in Sections 4.6.1.2 and 4.6.1.3.

4.6.1.2 Zone 1 Step Pumping Test Results

Step pumping tests were performed at Zone 1 monitoring wells MW05, MW09, and MW10, selected on the basis of slug testing results discussed in Section 4.6.1.1. The pumping rate-versus-drawdown data generated were analyzed to identify the specific capacity and potential ROI of a pumping well at each of these Zone 1 locations. The complete data sets and detailed discussions are in Supplement 6 (on CD), and the results of the tests are summarized in Appendix H.

Estimates of Specific Capacities for Groundwater Zone 1

The stepped pumping tests were conducted in multiple short-term steps (each approximately 1 hr), at incremental pumping rates, to monitor drawdown responses to pumping rates. The relationship between pumping rates and corresponding drawdowns was used to determine specific capacity.

Specific capacity is defined as the observed flow rate (for a specific pumping condition), divided by the resulting drawdown created in the well by that pumping rate. The specific capacity is not a constant; its value decreases with increasing time as the well is pumped at a constant rate and also as the pumping rate itself increases (Kruseman and deRidder 1991). The measurements obtained during the step testing of wells MW09, MW05, and MW10 were used to estimate values of the specific capacity for each well, on the basis of *nominal 1-hr pumping steps*. Figure 4.27 illustrates the relationships determined for each well.

Figure 4.27 shows that, for both wells MW09 and MW10, the physical limits on pumping rates imposed by the configuration of the pump installation and water levels in these wells were effectively reached. *The specific capacity relationships observed for wells MW09 and MW10 were very similar; they indicate a sustainable flow rate (at maximum drawdown under the conditions during the step tests) of < 0.3 gpm for these wells.*

On the basis of the lateral distribution of the K_h values determined from the slug testing in Zone 1, the specific capacity values for most of the Zone 1 wells would be expected to be similar to (within the contour line of 1 ft/d) or lower by 1-2 orders of magnitude than (outside of the contour line) the low specific capacity values identified at MW09 and MW10 (Figure 4.26). *This finding indicates that groundwater extraction (or injection) does not represent a logistically or*

hydraulically practical mechanism for area-wide mitigation of the carbon tetrachloride contamination in groundwater Zone 1 (Figure 4.18).

During the MW05 step test, the physical limits on drawdown could not be achieved in this well because of measures employed to control the pump flow at low rates. Figure 4.27 therefore shows an *estimated* projection (dashed line) of the specific capacity relationship for MW05, based on the trends of the available step test data. The resulting estimate suggested a potential maximum flow rate from this well, *for a 1-hr period*, on the order of 2.5 gpm. A further pumping test using a higher rate was therefore performed; the results are discussed in Section 4.6.1.3.

Estimates of Radius of Influence for Groundwater Zone 1

Throughout the step tests, groundwater levels were monitored, at 5-min intervals, at neighboring wells (Figure 2.10). The ROI of each pumping well was then estimated from the responses to pumping detected at the neighboring wells.

For the MW09 step test, no evidence of induced drawdown was observed at neighboring wells MW02, MW05, MW11, or MW13 in response to the pumping at well MW09. The results indicate a *maximum potential ROI for the pumping of this well* (under the conditions of this step test) that is *less than the distance from well MW09 to the closest presently available observation point (< 124 ft).*

In the MW05 step test, the data recorded for monitoring wells MW01, MW09, MW11, and MW12 also provide no evidence of drawdown at these locations in response to the pumping of well MW05. The test results suggest, however, that approximately 0.07 ft of drawdown might have occurred at the observation point closest to MW05 (well MW02, located approximately 106 ft east of MW05), in response to the pumping of MW05. The water level response observed at well MW02 appeared unusual, however, as no subsequent recovery was detected at MW02 over a 20-hr period following the pumping event.

Hydrographs recorded at monitoring wells MW01, MW07, and MW19 provide no evidence of drawdown in response to the pumping of well MW10 at these locations. The distances from MW10 to wells MW01, MW07, and MW19 range from 163 ft to 194 ft.

Drawdown of approximately 0.8 ft was observed, however, at more distant well MW04 (229 ft from MW10), while no drawdown was detected at a similar distance (234 ft) at MW18. The recorded observations therefore demonstrate that the hydraulic response of the Zone 1 water-bearing unit to pumping at MW10 (under the conditions of the step test) is highly heterogeneous and unpredictable.

4.6.1.3 Zone 1 Constant-Rate Pumping Test Results, at MW05

A constant-rate pumping test was performed by using well MW05 as the pumping well and well MW02 as the closest observation point (Table 3.8, Figure 2.11). Well MW05 was selected for this test because of the relatively high hydraulic conductivity identified at this location by slug testing, as well as the high specific capacity estimated for MW05 on the basis of the step pumping results. The constant-rate testing at MW05 was performed in two short-term events, test 1 and test 2 (instead of an originally planned 24-hr pumping test), because of unexpectedly rapid groundwater drawdown at MW05. The pumping rate, drawdown, and recovery data for each test event are summarized in Appendix I. The complete data sets are in Supplement 7 (on CD).

The results obtained from the two test events were analyzed by using the aquifer test interpretive methods provided in the commercial well test software analysis package AqteSolv for Windows (HydroSolve, Inc.). Numerous alternative analysis methods have been developed for the interpretation of aquifer tests conducted under confined or unconfined conditions, for both relatively simple and more complex aquifer and well geometries. For the present study, multiple analysis methods were screened on the basis of (1) the theoretical applicability of the method to the identified characteristics of the Zone 1 unit and the construction features of the MW05 and MW02 wells, (2) the ability to achieve a satisfactory “fit” to the experimental data with each method within these site-specific constraints, and (3) the levels of documentation and general acceptance by the scientific community. The methods used for this study are described below in the context of the individual wells’ data sets.

The hydraulic properties calculated for each well location are dependent, in part, on the assumed thickness of the water-producing interval that responded to the groundwater pumping during each test, as well as on the construction features and the position of the groundwater level within the well itself. On the basis of analysis of the MW05 lithologic log, an inferred thickness

of 2 ft was assumed for the Zone 1 producing interval at the MW02 and MW05 locations. At MW05, this interval occurs at a depth of approximately 25-26 ft BGL.

Well MW05 Results

Pumping test 1 was initiated at a flow rate of 1.3-1.4 gpm at MW05. The water level declined steadily in response to pumping and then fell rapidly after approximately 70 min, reaching the maximum recordable drawdown in 86 min. Upon full recovery of the water level at MW05, the second test (test 2) was conducted at a lower target rate of approximately 1.2 gpm. The observed water level response was similar to that of test 1; a steady decline in the first 160 min was followed by a marked increase in drawdown, until the maximum recordable drawdown was reached in 187 min.

The data recovered from well MW05 for pumping test 1 and test 2 were evaluated for the potential impacts of background trends and barometric efficiency and corrected as necessary (Supplement 7). The corrected data were analyzed by using several standard interpretive methods (Appendix I). The results for both tests yielded good fits, with one exception, to the theoretical interpretive curves of the Theis (1935) and Cooper-Jacob (1946) analysis methods for fully confined aquifers. Each of these methods returns an estimate of the aquifer transmissivity (T) for the pumping well. (Although a value of aquifer storativity is also generated by each solution technique, these values are invalid when determined from data obtained at a pumping well.) Dividing the resulting transmissivity values by the aquifer thickness (2 ft for the Zone 1 water-bearing interval) gives the estimated K_h value at the pumping well location.

The estimated K_h values derived from the Theis (1935) and Cooper-Jacob (1946) analyses of the MW05 data are summarized in Table 4.2. The calculated estimates range from 45 ft/day to 64 ft/day, and thus they are similar in magnitude to the range of K_h values previously estimated from the slug testing (Section 4.6.1.1) performed at MW05 and nearby wells MW09, MW11, and MW13 (42 ft/day to 102 ft/day; Table 4.1).

The analyses of the MW05 results indicate that a rapid increase in drawdown relative to the theoretical response curves represented by the Theis (1935) and Cooper-Jacob (1946) solutions apparently occurred at drawdowns exceeding approximately 2.0-2.4 ft and after 70 min

in test 1 or 160 min in test 2 (Appendix I). These unexpectedly rapid drawdowns in response to pumping probably reflect changes in aquifer conditions and/or boundary effects.

The identified drawdowns of 2.0-2.4 ft represent actual water levels within the MW05 well casing of approximately 25-25.4 ft TOC. These identified levels correspond very closely to the subsurface position of the Zone 1 water-bearing interval at this location, suggesting that the water-bearing zone experienced a transition from confined to unconfined aquifer conditions as the water level declined through this position. The exact response of a water-bearing unit during such a transition will depend on several site-specific parameters that are not easily predicted; however, as pumping progresses and the water level within the (now unconfined) unit falls, the effective producing thickness of the unit is no longer fixed but decreases as the interval dewaters, resulting in an increased rate of observed drawdown (Kruseman and deRidder 1991).

The rate of drawdown at MW05 might also have increased when the cone of depression generated by the pumping expanded through possible aquifer "boundaries," such as thinning of the producing thickness or decreased permeability in the heterogeneous aquifer at some distance from the pumping well (Kruseman and deRidder 1991; Fetter 1994). The slug test data (Section 4.6.1.1) indicate that the K_h value for the Zone 1 interval might vary significantly over relatively short distances in the vicinity of MW05, suggesting that the possible influence of aquifer heterogeneity on the observed drawdown in this well cannot be ruled out. An evaluation of possible hypothetical boundary impacts was attempted for the present analysis by using the simulation capabilities included as part of the AqteSolv software package; however, only simple (orthogonal) boundary orientations, types, and K_h distributions can be addressed in this manner, and an improved fit to the observed MW05 data could not be achieved.

Although the detailed heterogeneity of hydraulic characteristics in the Zone 1 water-bearing unit at location MW05 could not be uniquely determined from the present test data, as noted above, the results obtained from the step pumping and constant-rate pumping conducted at MW05 together indicate that the practical limitations on groundwater production at this location have been effectively explored.

Well MW02 Results

Well MW02 is the only nearby monitoring point at which water level responses to the constant-rate pumping at MW05 were observed. The pumping test 1 and test 2 results for well MW02 were evaluated by using the Theis (1935) method to simultaneous analyze the pumping and recovery data for these tests. Analysis of the MW02 results could not be performed with the Cooper-Jacob (1946) method, as test-specific criteria (pertaining to the duration of pumping and the MW05-MW02 separation distance) were not met by these data sets.

The measured water level responses at MW02 were very small (about 0.1 ft or less) and generally yielded a relatively poor fit to the theoretical interpretive curves. The results of the Theis (1935) analyses are in Table 4.2. The resulting estimates of K_h, 34 ft/day and 50 ft/day, are again comparable to the slug test results at nearby wells MW05, MW09, MW11, and MW13 (Table 4.1) but are greater by approximately an order of magnitude than the estimates obtained from the slug testing of MW02 (2.2 ft/day to 4.1 ft/day). This observation is again a likely artifact of the heterogeneity of the Zone 1 unit, in view of the highly restricted spatial influence of the slug test procedure (to the immediate vicinity of the wellbore being tested) in comparison to the range of influence achieved by the constant-rate pumping at MW05.

The specific capacity estimated for well MW05 on the basis of the step-test pumping results, *for 1-hr time steps,* is shown in Figure 4.27. A maximum pumping rate of approximately 1.14 gpm was achieved (for a 1-hr period) during the step test because of the configuration of the pumping equipment used. As a result of this limitation, the estimated production behavior of the MW05 well at higher flow rates was *projected* on the basis of the data existing at that time.

Figure 4.28 illustrates the result of using the drawdown levels observed after 1 hr of pumping during each of the constant-rate pumping tests to extend the original specific capacity diagram. As shown, the constant-rate pumping results are in relatively close agreement and thus consistent with the previous specific capacity estimates *for 1-hr time steps*. The results clearly demonstrate, however, that the production capacity of this well deviates sharply from the apparent relationship in Figure 4.28 as the duration of pumping and resulting levels of drawdown increase, because of the inferred characteristics of the Zone 1 groundwater-bearing unit outlined in Section 4.6.1.1.

4.6.1.4 Zone 1 Groundwater Flow Rates and Preferred Migration Pathways

The results of the Zone 1 slug test and pumping test analyses (Table 4.1 and 4.2), in conjunction with the estimated potentiometric surface for this water-bearing zone (Section 4.3.1 and Figure 4.12), provide a basis for quantitative estimation of the ambient groundwater flow rates governing carbon tetrachloride migration in Zone 1. To estimate the magnitude of groundwater movement within Zone 1, Darcy flow velocities[4] were calculated for several potential flow directions at representative locations. The results (Table 4.3) are illustrated in Figure 4.29.

The estimated Darcy velocities range over two orders of magnitude. Groundwater flow in the southwesterly direction, within the identified area having hydraulic conductivity greater than 1 ft/day (Figure 4.29) has the highest calculated velocity (average 3.8×10^{-2} ft/day or 13.97 ft/yr) in Zone 1. The estimated flows in other directions in Zone 1 appear much slower: 2.1×10^{-3} ft/day (0.76 ft/yr) to the northwest, 5.7×10^{-3} ft/day (2.07 ft/yr) to the south, and 3.1×10^{-4} ft/day (0.11 ft/yr) to the west. The results of these calculations are empirically consistent with the observed distribution of carbon tetrachloride concentrations in Zone 1 (Figure 4.30), strongly suggesting that the preferred contaminant migration pathways discussed in Section 4.4.1 are defined primarily by the hydraulic conductivity variations in this unit. The major preferred migration pathway — along a narrow, relatively permeable zone in the southwest direction — is confirmed and is primarily driven by the highest estimated Darcy flow velocity in the Zone 1 groundwater system.

4.6.1.5 Summary of the Zone 1 Results

The main findings from the hydraulic testing conducted in the Zone 1 water-bearing interval are as follows:

- *The average hydraulic conductivity values* estimated from the Zone 1 slug and pumping tests ranged from 0.001 ft/day to 75 ft/day.

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[4] The Darcy flow velocity is an apparent value calculated from Darcy's law. It represents the flow rate of groundwater per unit area of the entire porous medium, measured perpendicular to the direction of flow.

- *The demonstrated sustainable groundwater extraction rate in the area of highest hydraulic conductivity in Zone 1* (tested by pumping at well MW05; Figure 4.26), *is less than 1 gpm.* Short-term pumping rates of < 0.3 gpm were demonstrated at two additional locations (MW09 and MW10) in the relatively more permeable portion of the Zone 1 unit.

- The results of the Zone 1 tests indicate that the production capacity of this unit is restricted by the effective thickness of the few discrete, thin, moist-wet horizons along bedding planes (≤ 2 ft total thickness) that form the water-bearing interval, the heterogeneous hydraulic conductivity of the interval, and the generally limited availability of groundwater within Zone 1.

- The *radius of influence* of the pumping at MW05 was approximately 106 ft, with an observed drawdown of 0.1 ft or less at neighboring well MW02. The ROI observed in response to the pumping of wells MW09 and MW10 was highly heterogeneous and unpredictable.

- *The results of the hydraulic testing conducted in Zone 1 indicate that groundwater pumping (or injection), using conventional wells, does not represent a viable mechanism for hydraulic control or removal of the area-wide contaminated groundwater in Zone 1.*

4.6.2 Estimates of Hydraulic Properties for Groundwater Zone 2

4.6.2.1 Zone 2 Slug Test Results

Slug tests were performed at all six available Zone 2 groundwater monitoring wells. The water level response data obtained from the slug tests were interpreted by using the analysis methods of Bouwer and Rice (Bouwer and Rice 1976; Bouwer 1989) and Hvorslev (1951), as implemented in the commercial software package AqteSolv. The resulting hydraulic conductivity estimates are summarized in Table 4.4. For each data set, the estimated K_h values calculated with the Bouwer and Rice method are of the same magnitude as the values calculated with the Hvorslev method — but roughly 25% lower. The estimated hydraulic conductivities for the Zone 2 unit at Hanover range over approximately one order of magnitude, from

approximately 7.9 ft/day at MW51Z2 to approximately 43 ft/day at MW50Z2, indicating that the Zone 2 unit is less heterogeneous than water-bearing Zone 1. Complete data (time versus residual drawdown) for the slug tests and analysis parameters are in Supplement 5 (on CD). Representative interpretive curve fits for the test data sets are in Appendix G.

The slug test data recovered from monitoring wells MW48Z2 and MW49Z2 could not be analyzed to yield geologically meaningful estimates of the hydraulic conductivity at these locations (as explained in Supplement 5); however, the results obtained for MW48Z2 qualitatively suggest that the K_h value for Zone 2 at this location might be higher than the values observed at the other tested well locations. This finding is qualitatively consistent with the relatively greater thickness of Zone 2 (approximately 5 ft) developed in the shale with limestone facies of Unit 6 at this location, as well as with the rapid water recovery observed in MW48Z2 during sampling.

The combined results of the Zone 2 slug testing suggested that Zone 2 might have a greater capacity for groundwater production than does Zone 1, because of the relatively greater thickness of the Zone 2 unit, the generally less discrete nature of the Zone 2 water-bearing intervals, and the higher estimated K_h values for Zone 2. To generate data needed to test this hypothesis, a constant-rate pumping test was conducted subsequently at Zone 2 well MW44Z2.

4.6.2.2 Zone 2 Constant-Rate Pumping Test Results, at MW44Z2

A constant-rate pumping test of Zone 2 was conducted by using MW44Z2 as the pumping well. Well MW44Z2 is located at a relatively central position along the Zone 2 groundwater flow (and contaminant migration) pathway, as discussed in Section 4.4.2 (Figure 4.25). Neighboring well MW45Z2 and more distant wells MW48Z2-MW51Z2 were used as water level observation points for the test (Figure 2.12). The testing program included an initial, brief step pumping test to estimate the specific capacity at MW44Z2 and to determine appropriate flow rates for a subsequent 24-hr constant-rate test. The complete data sets are in Supplement 8 (on CD), and the results are summarized in Appendix J.

The initial step pumping test was implemented at flow rates that progressively increased from 0.53 gpm to 2.3 gpm at intervals of approximately 30 min and achieved approximately 4 ft of drawdown (35% of the maximum available head in the well). The resulting estimated specific

capacity for the well, for *nominal 30-min pumping steps*, is illustrated in Figure 4.31. On the basis of these results, a maximum potential pumping rate on the order of 4-5 gpm was projected for MW44Z2.

The 24-hr pumping test was performed at a lower rate (approximately 2 gpm) than the projected maximum, in part because of the physical limitations on pump size imposed by the 2-in.-diameter casing of the existing MW44Z2 well. The pumping rates and water level responses at MW44Z2 and the corresponding response data for neighboring observation point MW45Z2 are in Appendix J. No response to the pumping of MW44Z2 was detected any of the other Zone 2 observations points (MW48Z2-MW51Z2; Figure 2.12).

The pumping test data recovered from wells MW44Z2 and MW45Z2 were evaluated for the potential impacts of background water level trends and barometric efficiency, and appropriate corrections to the analytical data were applied (Supplement 8). The corrected data were analyzed by using several aquifer test interpretive methods in the software package AqteSolv, as discussed in Section 4.6.1.3. On the basis of analysis of the MW44Z2 lithologic log, an inferred effective thickness of 3.5 ft was assumed for the Zone 2 interval at the MW44Z2 and MW45Z2 locations. At MW44Z2, multiple thin producing intervals recognized within Zone 2 occur at depths of approximately 31.5-39 ft BGL.

Well MW44Z2 Results

The constant-rate pumping results for well MW44Z2 were evaluated by using several standard interpretive methods. Although the MW44Z2 data, in general, yield a good fit to the theoretical interpretive curve of the Theis (1935) analysis method for fully confined aquifers, the observed drawdown and recovery responses appear to deviate from the Theis curve at the later times. This observed later-time deviation suggests that “leaky-confined” aquifer conditions occur for the Zone 2 unit at the MW44Z2 location. To test this hypothesis, the MW44Z2 test data were evaluated by using the interpretive methods developed for leaky-confined aquifers by Hantush and Jacob (1955) and Hantush (1960). The results of these analyses show that the best empirical fit to the drawdown and recovery data was achieved by using the Hantush methods (Appendix J).

Each of the analysis methods returns an estimate of the aquifer transmissivity (T) for the pumping well. The resulting transmissivity value, divided by the net aquifer thickness (3.5 ft for

the Zone 2 water-bearing interval), gives the estimated K_h value at the pumping well location. The estimated K_h values derived from the Theis (1935), Hantush-Jacob (1955), and Hantush (1960) analyses of the MW44Z2 data are summarized in Table 4.5. The calculated estimates range from 11 ft/day to 14 ft/day.

Well MW45Z2 Results

The corrected pumping test responses for MW45Z2 were also evaluated by using the Theis (1935), Hantush-Jacob (1955), and Hantush (1960) methods to simultaneously analyze the pumping and recovery data for this well.

The identified drawdown response at MW45Z2 was small (about 0.14 ft); however, the analyses demonstrate that the MW45Z2 data yielded a reasonable fit to the theoretical interpretive curves for each method (Appendix J). The results of the analyses are in Table 4.5. The estimates of K_h obtained from the MW45Z2 data ranged from 16 ft/day to 42 ft/day, with the best interpretive fits (16 ft/day to 25 ft/day) again achieved by using the Hantush-Jacob (1955) and Hantush (1960) analysis methods for leaky-confined aquifers.

4.6.2.3 Zone 2 Groundwater Flow Rate and Preferred Migration Pathways

The results of the Zone 2 slug test and pumping test analyses (Tables 4.4 and 4.5), in conjunction with the estimated potentiometric surface for this water-bearing zone (Section 4.3.2 and Figure 4.14), provide a basis for quantitative estimation of the ambient groundwater flow rates governing carbon tetrachloride migration in Zone 2. As discussed in Section 4.4.2, the lateral extent of carbon tetrachloride in Zone 2 represents a relatively narrow, elongated area associated only with the westerly flow component of the Zone 2 groundwater flow system (Figure 4.25), indicating a preferred contaminant migration pathway. Along the westerly flow direction, the hydraulic gradient varied from 0.02 in January 2010 to 0.01 June 2010 (Section 4.3.2). The hydraulic conductivity estimated at well MW44, located near the center of the westerly contaminant migration pathway, ranged from 11-14 ft/day (as determined by constant-rate pumping) to 24 ft/day (as determined by slug testing). The estimated Darcy flow velocity at well MW44 is within the range 0.11-0.48 ft/day (40.15-175.2 ft/yr). These values are greater by approximately one order of magnitude than the maximum flow velocity derived in groundwater Zone 1.

4.6.2.4 Summary of the Zone 2 Results

The main findings from the analyses of the Zone 2 aquifer test data are as follows:

- *The average hydraulic conductivity* values estimated from the Zone 2 slug test and pumping test results ranged from 7.9 ft/day to 43 ft/day, under the assumption of leaky-confined aquifer conditions.

- *The results of the Zone 2 testing suggest this unit has a greater capacity for groundwater production than Zone 1*, because of the relatively greater thickness and generally less discrete nature of the Zone 2 water-bearing intervals, as well as the higher estimated K_h values for Zone 2.

- *The projected production capacity for Zone 2 at well MW44Z2 is on the order of 4-5 gpm, for a 30-min time step*.

- *A sustainable groundwater extraction rate from Zone 2 of > 2 gpm is indicated at the location of well MW44Z2*.

- *The demonstrated ROI for pumping at the MW44Z2 well location (under the conditions employed for the constant-rate testing) is at least 263 ft.*

- *Groundwater extraction as a potential treatment technology therefore appears feasible for this portion of the Zone 2 water-bearing unit.*

4.7 Conceptual Model of the Groundwater Flow and Contaminant Migration System at Hanover

4.7.1 Conceptual Model

The geologic, hydrogeologic, groundwater monitoring, geochemical, and contaminant distribution data presented in Sections 4.1-4.6 provide the technical basis for development of an integrated conceptual model of groundwater flow and contaminant migration within the Hanover

hydrogeologic system. The key elements of this working conceptual model are summarized as follows:

- *Vertical infiltration in the identified contaminant source area (migration pathway 1).* Vertical infiltration of carbon tetrachloride through the vadose zone (including the unconsolidated and bedrock lithostratigraphic Units 1, 2, and 3 [upper portion]) has occurred primarily along the north-south central axis of the former CCC/USDA facility (near locations MW09, MW02, MW05, and MW01), as shown in Figures 4.1 and 4.32. Little residual carbon tetrachloride contamination (≤ 35 µg/kg) currently remains in the vadose zone soils (Figure 4.3), providing an insignificant current and future source to groundwater. A relatively greater mass of contaminants might have been released into the underlying water-bearing Zone 1 in the northern part of the former facility, in the area of locations MW09, MW02, MW05, and MW11 (Figures 4.18 and 4.32).

- *Lateral migration in Zone 1 (migration pathway 2).* Contaminants emanating from the source area outlined above would have entered the Zone 1 groundwater-bearing unit primarily on the western to southwestern side of the prominent groundwater divide beneath the upland area at the former CCC/USDA facility (Figure 4.22), preventing contaminant migration in the groundwater to the east of this area. Groundwater flow and contaminant migration within Zone 1 occurred preferentially to the southwest and northwest, along trends of relatively more permeable materials identified within the Zone 1 unit (Figure 4.33). Migration in other directions within Zone 1 is predicted to occur more slowly, because of the very low K_h values identified in the areas away from these preferred pathways.

- *Vertical migration from Zone 1 to Zone 2 (migration pathway 3).* Vertical migration of contaminants from Zone 1 to Zone 2 is inferred primarily beneath the original vadose zone source area, where the highest Zone 1 hydraulic conductivities were identified (Figures 4.30 and 4.32) and where groundwater mounding is observed in Zone 2 (Figure 4.14). The concentrations of carbon tetrachloride presently identified in Zone 2 are lower than those in Zone 1 by at least one order of magnitude, suggesting that

approximately 10% or less of the groundwater flow within Zone 2 might have originated as vertical recharge from Zone 1. This apparent mixing ratio is empirically consistent with the variations in nitrate concentrations that were also observed in the upland area between Zone 1 and Zone 2.

- *Lateral migration in Zone 2 (migration pathway 4).* Groundwater monitoring indicates that migration of carbon tetrachloride contamination within Zone 2 from the inferred source area has primarily been toward the west, in keeping with the identified patterns of groundwater flow (Figure 4.34) in this unit.

- *Vertical migration to Zone 3 or Zone 4.* No evidence is available to suggest that further vertical migration of contaminants from Zone 2 to Zone 3 or Zone 4 has occurred in the upland source area at the former CCC/USDA facility. An upward hydraulic gradient from Zone 4 to Zone 2 (and Zone 3) is presently indicated in this area, representing an apparent hydraulic barrier to further vertical downward migration.

  As noted in Section 4.4.3, however, the present data suggest that localized contamination of the Zone 3 and Zone 4 groundwater might be possible in the western portions of these units, as a result of potential migration from overlying Zone 2 via artificial conduits provided by several continuously gravel-packed private wells to the west (and downgradient) of the MW44 and MW45 monitoring well locations.

4.7.2 Characteristics of the Contaminant System and Potential Restoration

The spatial distribution of carbon tetrachloride and the variable character of the contaminant system are analyzed and presented in detail in Sections 4.2-4.6. With the aim of achieving a better understanding of the fate of the contaminant system under potential restoration conditions, the investigation results are integrated and summarized below.

The contaminant system can be divided, on the basis of hydraulic conductivity values, into the following subsystems (Figures 4.35 and 4.25):

- Subsystem 1 of Zone 1, a relatively permeable area (K_h = 34-75 ft/day).

- Subsystem 2 of Zone 1, a low-permeability area (K_h = 1-10 ft/day).

- Subsystem 3 of Zone 1, an extremely low-permeability area (K_h = 0.001-1 ft/day).

- The Zone 2 contaminated area (K_h = 7.9-43 ft/day).

The key characteristics of the subsystems are summarized as follows:

- The relatively permeable *Subsystem 1 of Zone 1* (K_h = 34-75 ft/day) is approximately 6% of the total area of the Zone 1 contaminant system. The lateral extent of Subsystem 1 generally coincides with the distribution of high carbon tetrachloride concentrations in groundwater (> 500 µg/L). The results of pumping tests conducted in Subsystem 1 indicate a sustainable pumping rate of less than 1 gpm and an ROI value of approximately 106 ft. These findings are consistent with the extremely limited effective thickness and water availability and the high heterogeneity of the Zone 1 unit in Subsystem 1. The implication of these characteristics (Table 4.6) is that application of conventional treatment technologies in Subsystem 1 will not be a viable mechanism for removal or containment of contaminants via extraction or injection.

- The low-permeability *Subsystem 2 of Zone 1* (K_h = 1-10 ft/day) covers 31% of the total area of the Zone 1 contaminant system. Concentrations of carbon tetrachloride in this area are typically in the range 100-500 µg/L. A very low sustainable pumping rate (< 0.3 gpm) and variable ROI values were identified for this contaminant subsystem (Table 4.6). Consequently, currently available response technologies (conventional and non-conventional) will not provide a viable mechanism for removal or treatment of the contaminants in Subsystem 2 via extraction or injection.

- The extremely low-permeability *Subsystem 3 of Zone 1* (K_h = 0.001-1 ft/day) represents 63% of the total area of the Zone 1 contaminant system. In 30% of

Subsystem 3, the concentrations of carbon tetrachloride are in the range 100-500 µg/L, while in 70% of Subsystem 3, the concentrations are 5-100 µg/L. Most of Subsystem 3 has extremely low hydraulic conductivity ($K_h = 10^{-2}$ to 10^{-3} ft/day), and water level recovery in wells has been observed to be slow (requiring 20-30 days). The result is an extremely low anticipated sustainable pumping rate of 10^{-2} to 10^{-3} gpm, a value lower than that in Subsystem 2 of Zone 1 by one to two orders of magnitude (Table 4.6). Consequently, currently available response technologies (conventional and non-conventional) will not provide a viable mechanism for removal or treatment of the contaminants in Subsystem 3 via extraction or injection.

- The lateral extent of contamination in Zone 1 is effectively constrained by the erosional limits of Zone 1.

- The Zone 2 contaminated area (7.9-43 ft/day) is limited to a relatively narrow pathway extending westerly from the former CCC/USDA facility. The concentration of carbon tetrachloride in this area is low, in the range of 5-35 µg/L. The results of the pumping test conducted in this area of Zone 2 indicate an anticipated sustainable pumping rate of > 2 gpm and an ROI value of at least 263 ft. Groundwater extraction as a potential response technology appears to be feasible for at least the tested portion of the Zone 2 contaminant system.

On the basis of overall characteristics of the contaminant system in groundwater Zone 1, 94% of the total area of the Zone 1 contaminant system (including Subsystem 2 and Subsystem 3) are not amenable to extraction or injection technologies that could restore groundwater to carbon tetrachloride concentrations below the MCL and the KDHE Tier 2 standard value of 5 µg/L. Further discussions related to a CAS for the Hanover site are in Section 6.

4.8 Evaluation of Potential Vapor Intrusion Attributable to Subsurface Contamination

The migration of vapors into enclosed structures represents a potentially significant pathway for the indirect exposure of occupants to VOCs present in subsurface soils, in

groundwater, or in both. The occurrence and impacts of VI at any specific location or structure at a site can be difficult to identify and are often impossible to predict, however, because of the very complex interplay of geologic, hydrologic, geochemical, meteorologic, and building-specific factors that together affect the potential efficiency of this pathway. Positive recognition of VI to indoor air requires, at minimum, documentation of the following three critical components of a complete exposure pathway:

- A source of vapors, in the form of contamination in subsurface soils, groundwater, or both.
- Demonstrated migration of vapors from the source(s), through the vadose zone, and into structures.
- Potential receptors (occupants in residences or other private or public buildings) within the range of lateral and vertical vapor migration from the source(s).

In July 2007, in response to residents' concerns regarding possible VI, indoor air samples were collected in basement areas of nine residences on and immediately adjacent to the former CCC/USDA grain storage facility. Carbon tetrachloride was detected at low levels in four of the nine homes, at concentrations ranging from 1.4 $\mu g/m^3$ to 4.8 $\mu g/m^3$ (Figure 1.6), suggesting the possibility of VI at these locations. The results of this preliminary sampling were inconclusive, however, because VOCs (including carbon tetrachloride) can originate from numerous potential sources within a home that are not related to upward VI. On the basis of these preliminary results (Argonne 2008b), the KDHE requested further sampling to investigate for possible VI to indoor air at the Hanover site (KDHE 2007c).

4.8.1 Overview of the Vapor Intrusion Investigation Program

During 2009-2010, a series of VI-related investigations and actions (Argonne 2008b) was conducted, with the approval of the KDHE (2008b,c,e, 2009a, 2010a,c), as an integral part of the comprehensive site characterization at Hanover. The technical elements of the VI program were developed to address three primary technical objectives, as follows:

- Identify the specific areas of the site, and hence possible receptors, that might be susceptible to VI linked to carbon tetrachloride contamination (in soils or groundwater) associated with the former CCC/USDA facility.

- Investigate for the presence of a complete VI pathway at each potential receptor location, and quantitatively evaluate the impacts to indoor air arising via this pathway.

- On the basis of these findings, take actions necessary to mitigate any unacceptable risks to human health identified as a result of VI to indoor air.

In this section, the results of the soil-, groundwater-, and VI-specific investigation activities at Hanover are presented and discussed in the context of the above objectives.

4.8.2 Identification of Potential Source Areas for Vapor Intrusion

To identify areas potentially susceptible to VI, the distributions and concentrations of carbon tetrachloride in the vadose zone soils and groundwater were screened on the basis of KDHE (2007b) guidance regarding VI. Specifically, areas within a lateral distance of 100 ft and a vertical distance of 40 ft from identified soil contamination (at carbon tetrachloride concentrations above 200 μg/kg) or groundwater contamination (above 5.0 μg/L for carbon tetrachloride) were determined to be potential areas of concern for VI.

4.8.2.1 Evaluation of the Carbon Tetrachloride Distribution in Soils

The vadose zone soils at Hanover were sampled extensively to evaluate the former CCC/USDA facility as a potential source of the carbon tetrachloride contamination (Section 4.1). The 2009-2010 studies included vertical soil profiling for VOCs analyses at 38 locations in and near the former CCC/USDA facility (Figures 2.1 and 2.2). Trace to low levels of carbon tetrachloride were detected at only 8 locations, at maximum concentrations ranging from an estimated 3.0 μg/kg (at MW08) to 35 μg/kg (at MW02; Table 3.1, Figures 4.1 and 4.3).

The depths to the residual contamination in the vadose zone soils ranged from 14 ft to 33 ft BGL; however, the identified concentrations of carbon tetrachloride were well below the

KDHE target value for soils (200 μg/kg) noted above. Therefore, no areas were identified as being at risk of potential VI in association with the identified soil contamination at the former CCC/USDA facility.

4.8.2.2 Evaluation of the Carbon Tetrachloride Distribution in Groundwater

Carbon tetrachloride representing a potential concern for VI was identified in groundwater-bearing Zones 1 and 2. No carbon tetrachloride contamination was detected in the deeper groundwater-bearing Zones 3 and 4 (Section 4.4).

In groundwater Zone 1, carbon tetrachloride concentrations ranging from 1 μg/L to 617 μg/L were detected at depths ranging from 17 ft to 31 ft BGL (Figure 4.18). Figure 4.22 depicts the interpreted lateral extent (in groundwater Zone 1) of carbon tetrachloride concentrations equal to or greater than the KDHE target level for the consideration of VI (5 μg/L) for this contaminant.

In groundwater Zone 2, carbon tetrachloride was detected at concentrations (ranging from 5.1 μg/L to 35 μg/L) exceeding the target value of 5 μg/L at 6 of 22 locations sampled, and at trace levels (< 5 μg/L) at 2 additional locations (Figure 4.23). In this water-bearing unit, the identified contamination is interpreted to lie within a relatively narrow area that extends westward from the former CCC/USDA facility, toward the erosional margin of the Zone 2 interval (Figure 4.25).

Figure 4.36 summarizes the areas overlying the interpreted contaminant distributions in groundwater Zones 1 and 2 that were targeted for the 2009-2010 VI investigation, in accord with the KDHE (2007b) guidance. These areas are defined as follows:

- *VI Investigation Area 1*. The carbon tetrachloride contamination detected throughout Zone 1 lies within 40 ft of the ground surface in this area, and therefore it falls within the target depth range (≤ 40 ft BGL) recommended by the KDHE (2007b) for the consideration of VI. Figures 4.18 and 4.22 illustrate that the highest concentrations of carbon tetrachloride (> 300 μg/L) in the Zone 1 groundwater are found within, or just beyond, the limits of the former CCC/USDA grain storage facility. As noted above, the preliminary

sampling in 2007 identified carbon tetrachloride contamination in indoor air at four of nine homes that are presently associated with the former CCC/USDA property. In light of these observations, the area encompassing these homes (and the highest contaminant concentrations in the Zone 1 groundwater) was prioritized for further examination during the 2009-2010 VI investigation. This area is identified in Figure 4.36.

- *VI Investigation Area 2*. This is the remainder of the area overlying the identified carbon tetrachloride contamination in groundwater-bearing Zone 1 (Figures 4.18 and 4.22). It is associated with the southwestern, western, and northwestern portions of the Zone 1 contaminant distribution identified in Figure 4.36. Carbon tetrachloride levels ranging from 1 μg/L to 179 μg/L were detected in these more downgradient and marginal portions of the Zone 1 groundwater plume.

- *VI Investigation Area 3*. Beneath the upland area formerly occupied by the CCC/USDA facility, the depth of contaminated groundwater-bearing Zone 2 (approximately 55 ft BGL at MW49Z2) is greater than the 40-ft target depth recommended by the KDHE (2007b) for the consideration of VI. In the more downgradient portions of the Zone 2 carbon tetrachloride distribution, however, the identified contamination becomes progressively shallower as a result of topographic downcutting on the western flank of the upland area (Figure 4.20), resulting in depths to Zone 2 of approximately 20 ft BGL or less near the interpreted margin of this interval. On the basis of these relationships, VI Investigation Area 3 is delineated in Figure 4.36 as the portion of the carbon tetrachloride distribution in groundwater-bearing Zone 2 that might pose a threat of VI to nearby surface structures.

On the basis of the lateral offset criterion of 100 ft recommended by the KDHE (2007b), approximately 57 occupied residences were identified at Hanover for consideration of possible VI: 9 homes in Area 1, 38 residences in or adjacent to Area 2 (associated with the groundwater contamination in Zone 1), and 10 homes in or adjacent to Area 3 (associated with the contamination in Zone 2 at depths of ≤ 40 ft BGL).

4.8.3 Investigation of Vapor Migration Pathways and the Impacts of Vapor Intrusion to Indoor Air

A complete VI pathway requires the movement of contaminant vapors (originating from a subsurface soil or groundwater source) (1) via soil gas within the unsaturated pore space of the vadose zone soil column and (2) from the soils through the foundation and into the interior air space of a residence or other inhabited structure. To demonstrate the presence of a complete VI migration pathway, the coincident occurrence of contaminant vapors both immediately outside (in soil gas surrounding the building footprint, in "sub-slab" vapor directly beneath the building foundation, or in both) and inside a target building must ideally be demonstrated. If the results of these efforts indicate that VI is occurring, additional sampling might be required to obtain a representative indication of the longer-term impacts of the VI on indoor air quality.

The 2009-2010 VI sampling program to address these issues at Hanover was implemented in sequential steps of multiple sampling events. This approach was employed so that information gathered during each stage could be evaluated and used in the planning of subsequent stages of the investigation. An overview of the investigative tasks completed during the VI study is in Sections 1.3 and 2.5, and a detailed chronology of the individual sampling events is in Table 4.7. The analytical results for the individual sampling events are in Appendix K and Tables 3.10-3.16. For the purposes of this discussion, however, the results of these events are presented in Sections 4.8.3.1-4.8.3.3 in the context of three main initiatives that were addressed during the investigation of vapor migration pathways and VI impacts to indoor air.

4.8.3.1 Investigation for Complete Migration Pathways in Spring 2009

To investigate for evidence of migration of contaminated soil vapor into indoor air, the following methods were applied or attempted at the potentially affected residences identified in association with VI Investigation Area 1, Area 2, and Area 3 (Figure 4.36):

- Collection of soil gas samples adjacent to the foundations of selected residences, with on-site screening analysis for carbon tetrachloride (Figure 2.13; Section 3.9.2).

- Coupled sampling of sub-slab vapor and indoor air in Area 1 residences for laboratory VOCs analysis, as well as sampling at selected locations for

analysis of radon as a supplemental tracer of soil gas movement (Section 3.9.1).

- Coupled sub-slab vapor and indoor air sampling in Areas 2 and 3 for on-site screening for carbon tetrachloride (Section 3.9.2).

The KDHE standard for carbon tetrachloride in indoor air (Table 2.1) was used as the primary standard value for consideration of the soil gas, sub-slab vapor, and indoor air samples collected throughout the 2009-2010 VI investigations. As discussed in detail in Section 2.6.3, however, the value of this standard was revised by the KDHE on March 31, 2010, from an initial concentration of 1.6 $\mu g/m^3$ to an adjusted concentration of 4.055 $\mu g/m^3$. The quantitative evaluations of carbon tetrachloride levels detected in samples during the February-April 2009 field activities described in this section, which served as the basis for decision making during the course of the field program, are therefore presented in reference to the standard of 1.6 $\mu g/m^3$ that was in force at that time. An attenuation factor of 0.01 (KDHE 2007b) was used for the consideration of both soil gas and sub-slab vapor values, yielding a target maximum concentration for carbon tetrachloride of 160 $\mu g/m^3$ in these sample types at the time of the February-April 2009 sampling events.

Results of the Soil Gas Survey

A systematic soil gas survey was initiated at Hanover in late March 2009 in an attempt to locate contaminated subsurface soil gas in the immediate vicinity of more than 50 residences, located primarily in Area 2 and Area 3 (Figure 4.36), that might be affected by VI (Section 4.8.2). The use of this approach permitted the VI sampling program to proceed with minimal disruption at the relatively large number of locations targeted for investigation. The soil gas samples were collected at an average depth of 8 ft BGL, equivalent to the foundation depth of the residential structures. The samples were screened on-site for carbon tetrachloride by using a GC-ECD analysis technique to permit rapid evaluation of the resulting analytical data as the survey progressed (Section 3.9.2). The results for the soil gas analyses for carbon tetrachloride (Table 3.11) are illustrated in Figure 4.37.

In Areas 2 and 3, soil gas samples were collected initially at 47 locations, primarily surrounding residential structures. Carbon tetrachloride was identified at 9 locations, at

concentrations ranging from 9 μg/m^3 to 700 μg/m^3. The highest concentration of carbon tetrachloride in soil gas (700 μg/m^3) was detected at a location between the two homes at 408 E. Elm Street and 412 E. Elm Street; however, this value was not corroborated by the concentrations (ranging from no detection to 22 μg/m^3) identified at any of the adjacent sampling locations (Figure 4.37). The concentration identified at this location represented the only sample result that exceeded the calculated target screening value of 160 μg/m^3 for carbon tetrachloride in soil gas.

To assist in the evaluation of the soil gas data, four soil gas samples were collected from points surrounding a residence in Area 1 (Figure 4.37) that is known, on the basis of sub-slab vapor and indoor air analyses, to have been affected by VI (see below). Carbon tetrachloride was detected (at a concentration of 85 μg/m^3) in only one of the four soil gas samples, while a concentration of 62,000 μg/m^3 was detected in the corresponding sub-slab sample. A similar lack of correlation between analytical results for soil gas samples and adjacent sub-slab samples was also noted at other locations within the study area, bringing into question the reliability of the soil gas analysis method for identification of residences susceptible to VI at this site. On the basis of these observations, further implementation of the soil gas sampling technique was discontinued, with the approval of the KDHE project manager, in favor of the more direct approach of coupled sub-slab vapor and indoor air sampling and analysis.

Results of Coupled Sub-Slab Vapor and Indoor Air Sampling

Coupled sampling of sub-slab vapor and indoor air was initially conducted (in February and early March 2009) at the nine residences identified in VI Area 1 (Figure 4.36). Indoor air samples were collected, over a 24-hr period, in the lowest level (basement) and on the first floor of each home. Grab samples of sub-slab vapor were collected at four of the nine residences. In light of the previous (2007) detections of carbon tetrachloride in indoor air in several of these homes, the sub-slab vapor and indoor air samples collected in Area 1 were submitted for laboratory analysis of VOCs by EPA method TO-15 (Section 3.9.1). To provide a secondary line of evidence for potential VI in Area 1, sub-slab vapor and indoor air samples were also collected in three selected homes for radon analyses. The radon analyses were conducted at the University of Southern California, Los Angeles, California.

The results of the sampling in the Area 1 residences (Table 3.10) in February-March 2009 are summarized in Figure 4.38. Carbon tetrachloride was detected in indoor air at five of

the nine Area 1 homes, at concentrations ranging from 1.8 μg/m^3 to 26 μg/m^3. At each of these locations, an increased level of carbon tetrachloride was identified in the basement air relative to first-floor air. This apparent trend of increasing carbon tetrachloride concentration with depth was confirmed by analysis of sub-slab vapor samples collected at four of the Area 1 residences (400 N. East Street, 400 E. Kensington Street, 413 E. Kensington Street, and 298 N. Belgrave Street), as well as by the results of radon analyses for samples collected at the 400 N. East Street, 400 E. Kensington Street, and 413 E. Kensington Street locations (Figure 4.38). The demonstrated presence of an upward gradient in concentrations from the sub-slab vapor to indoor air at these locations confirms an influence of upward vapor migration and intrusion to certain structures in VI Investigation Area 1, in association with the contamination in groundwater Zone 1.

Carbon tetrachloride levels ranging from 11 μg/m^3 to 26 μg/m^3 were detected in the indoor air at two of the Area 1 residences: 400 N. East Street and 413 E. Kensington Street (Figure 4.38). These concentrations are greater by roughly one order of magnitude than the KDHE standard of 1.6 μg/m^3 (in force at the time of these analyses) for this contaminant in indoor air. Radon levels ranging from 5.2 pCi/L to 9.4 pCi/L (above the EPA action level of 4.0 pCi/L for this contaminant in air; Section 2.6.3) were also detected in these homes (Figure 4.38). On the basis of these analyses, in spring 2009 the homes at 400 N. East Street and 413 E. Kensington Street were mutually identified by the CCC/USDA and the KDHE as candidates for response action. The efforts of the CCC/USDA to provide mitigation of the indoor air contamination at these homes, with the approval of the KDHE, are discussed in Section 4.8.4.

Carbon tetrachloride concentrations ranging from no detection to 2.9 μg/m^3 were identified in the first-floor air of the three remaining Area 1 homes (400 E. Kensington Street, 414 E. Kensington Street, and 301 N. Belgrave Street) that showed evidence of upward VI (Figure 4.38). Radon was also identified in the residence at 400 E. Kensington Street, at a concentration of 8.0 pCi/L (twice the EPA action level for this contaminant). At the request of the KDHE, additional monitoring of the indoor air was conducted to verify the impact of VI at these three locations (Section 4.8.3.2).

Low levels of chloroform (3.4-3.6 μg/m^3) were detected in the indoor air samples from one of the residences in Area 1 (298 N. Belgrave Street). No evidence of carbon tetrachloride VI was found in association with this contaminant, however, and no chloroform was identified in

the associated sub-slab soil vapor sample collected at this location. These observations indicate that the chloroform contamination at this home does not reflect upward VI by this contaminant.

Coupled sampling of sub-slab vapor and indoor air was performed in late March and early April 2009 at approximately 51 locations associated with investigation Areas 2 and 3 (Figure 4.36) upon termination of the soil gas sampling effort described above. At each of these locations, grab samples of sub-slab vapor, basement air, and/or first-floor air were collected, subject to access approval and the specific characteristics of the structure under investigation. The sampling locations in Areas 2 and 3 included private residences, several parking areas adjacent to public buildings, and a multi-tenant housing facility. The samples were screened on-site for carbon tetrachloride (by using a GC-ECD analysis technique) to permit evaluation of the resulting analytical data as the study progressed. At selected locations, samples were also collected for laboratory verification analyses by EPA Method TO-15 (Section 3.9.2). The results of the analyses for carbon tetrachloride (Table 3.12) are summarized in Figure 4.39.

Carbon tetrachloride was detected in sub-slab vapor samples collected at 22 locations associated with the contamination identified in groundwater Zone 1 and Zone 2, at concentrations ranging from 7.2 $\mu g/m^3$ to 4,500 $\mu g/m^3$. Sub-slab carbon tetrachloride concentrations exceeding the calculated target screening value of 160 $\mu g/m^3$ for this contaminant (in soil gas) were detected at only 14 of these locations, however, in each case in close association with the contamination identified in groundwater Area 2 of Zone 1 (Figures 4.39 and 4.36). Figure 4.39 illustrates that no indoor air contamination was identified at any location associated with groundwater Zone 1 or Zone 2 and having a sub-slab carbon tetrachloride concentration below the target screening value of 160 $\mu g/m^3$.

Carbon tetrachloride was detected in indoor air at 12 of the 14 locations (noted above) having elevated (> 160 $\mu g/m^3$) contaminant levels in sub-slab vapor. At each of these 12 homes, a pattern of decreasing contaminant levels was identified, with vertical progression from the sub-slab to the basement and first-floor indoor air samples. At the remaining 2 homes (401 E. Elm Street and 404 E. North Street; Figure 4.39), carbon tetrachloride was detected in the sub-slab vapor (at 400 $\mu g/m^3$ and 180 $\mu g/m^3$, respectively), but no indoor air contamination was detected. The demonstrated presence of an upward gradient in concentrations from the sub-slab vapor to indoor air at these locations confirms an influence of upward vapor migration and intrusion (to certain structures) in VI Investigation Area 2, in association with the contamination in groundwater Zone 1 (Figure 4.39).

Carbon tetrachloride levels of 18 μg/m^3 and 14 μg/m^3 were detected, respectively, in the basement and first-floor air samples from the home at 311 N. East Street, directly west of the former CCC/USDA facility (Figure 4.39). These concentrations are greater by roughly one order of magnitude than the KDHE standard of 1.6 μg/m^3 (in force at the time of these analyses) for this contaminant in indoor air. On the basis of these results, in spring 2009 the CCC/USDA and the KDHE identified this residence as a third candidate for response action. With the KDHE's approval, the CCC/USDA took action to provide mitigation of the indoor air contamination at this home, as described in Section 4.8.4.

Relatively low levels of carbon tetrachloride, ranging from no detection to 2.7 μg/m^3, were identified in the first-floor air of the 11 remaining homes that showed evidence of indoor air contamination by VI (Figure 4.39). Carbon tetrachloride concentrations ranging from 1.7 μg/m^3 to 22 μg/m^3 were identified in the basements at these locations.

On the basis of these findings, 13 residences associated with the carbon tetrachloride contamination in groundwater-bearing Zone 1 (in addition to the 3 homes previously identified in Area 1 and Area 2) were identified in VI Investigation Area 2 for further indoor air monitoring to confirm the impact of VI at these locations (Section 4.8.3.2). The 13 homes selected include all of those identified as having carbon tetrachloride concentrations in sub-slab vapor greater than the calculated target screening value of 160 μg/m^3 for this contaminant (Figure 4.39). The street addresses of these 13 homes are as follows:

- On N. East Street: 211
- On E. Elm Street: 309, 311, 400, 401, 405, 406, 408, 409, 412, 513
- On E. North Street: 312, 404

The results of the coupled sub-slab vapor and indoor air analyses for carbon tetrachloride and radon can be used to estimate the apparent attenuation factors affecting the concentrations of these contaminants as they pass from the sub-slab vapor through each building foundation and into the basement of the structure. The calculated attenuation factors range from 0.0004 to 0.0457 for carbon tetrachloride and from 0.0020 to 0.0062 for radon. Although the resulting attenuation factors vary relatively widely, a majority of the calculated values (with only two exceptions) fall below the empirical factor of 0.01 employed in this study for the consideration of

soil gas and sub-slab concentrations, indicating that the latter value represents a reasonable conservative estimate for this parameter.

4.8.3.2 Confirmation of Vapor Intrusion Impacts to Indoor Air Quality in Summer 2009 and Winter 2010

On the basis of the sub-slab vapor and indoor air analyses reviewed in Section 4.8.3.1, 16 residences (3 homes in Area 1 and 13 in Area 2) were identified for additional monitoring and further evaluation of the impacts of VI to indoor air. Two subsequent residential indoor air sampling studies were conducted. The first occurred during the summer (August) of 2009, and the second (at the request of the KDHE) was in the winter (January-February) of 2010. In keeping with the KDHE (2007b) guidance, these time periods were selected for the sampling under the assumption that the potential effects of external (outdoor) air circulation and exchange would be minimized in most homes during these seasons.

Summer 2009 Confirmation Sampling

In summer 2009, indoor air samples were collected, over a 24-hr period, in the basement and on the first floor of each home tested. The samples were submitted for laboratory analysis of VOCs by EPA method TO-15. In addition to the 16 locations identified in Section 4.8.3.1, samples of sub-slab vapor and of basement and first-floor indoor air were also collected in August 2009 at 1 home (303 N. East Street) adjacent to the former CCC/USDA facility that had been inaccessible during the previous (spring 2009) sampling events (Section 3.9.3). The results of these analyses (Table 3.13) are summarized in Figure 4.40.

Carbon tetrachloride was detected in indoor air at 14 of the 17 residences sampled in summer 2009, at concentrations ranging from 1.4 $\mu g/m^3$ to 17 $\mu g/m^3$. Figures 4.38, 4.39, and 4.40 indicate that the carbon tetrachloride levels at all but two of the locations tested in summer 2009 (on the basis of 24-hr composite samples) were comparable to the corresponding values identified during the spring 2009 sampling events, showing only small increases or decreases relative to the earlier results. The maximum carbon tetrachloride concentrations in both basement and first-floor air (17 $\mu g/m^3$ and 11 $\mu g/m^3$, respectively) during the summer 2009 sampling event occurred at 408 E. Elm Street, reflecting an approximate threefold increase in the levels at this location. In contrast, an approximate sevenfold decrease in the concentration of carbon

tetrachloride (from 22 μg/m^3 to 2.9 μg/m^3) was observed in the basement air sampled at 405 E. Elm Street, while little change was noted in the corresponding first-floor air samples.

Low levels of chloroform, generally ranging (with one exception) from 1.1 μg/m^3 to 4.6 μg/m^3, were detected in seven of the homes sampled in August 2009. At 309 E. Elm Street, more elevated levels (9.3 μg/m^3 and 18 μg/m^3, respectively) were found in the basement and first-floor air (Figure 4.40). At each of these locations, no clear pattern is evident of decreasing contaminant concentrations from basement to first-floor air (as observed for the associated carbon tetrachloride levels). In light of this observation and the relatively common occurrence of low levels of chloroform in many household materials and chemicals (including in public water supplies as a by-product of chlorination), the identified presence of chloroform in these homes does not suggest an origin via upward contaminant vapor migration to indoor air. This interpretation is further supported by the winter 2010 sampling results (outlined below), which showed a decrease in chloroform concentrations at all of the August 2009 sampling locations; no chloroform was detected in basement air at any of these homes, and only low levels (0.98 μg/m^3 to 1.3 μg/m^3) were identified in first-floor air, at three locations.

Winter 2010 Confirmation Sampling

In January 2010, at the KDHE's request, indoor air samples were collected at 15 of the 17 homes sampled in August 2009. The other 2 of the 17 homes (301 N. Belgrave Street and 414 E. Kensington Street, at the former CCC/USDA facility in Area 1; Figures 4.36 and 4.38) were not accessible for this January 2010 sampling event.

In February 2010, indoor air samples were collected at three of the homes (309 and 310 N. Hanover Street, and 314 N. Hollenberg Street; Figure 4.39) previously investigated in spring 2009, as well as at six additional homes along North Hanover Street (address 211) and North Hollenberg Street (addresses 208, 212, 300, 304, and 308), in light of further information on the distribution of carbon tetrachloride contamination in groundwater Zone 2 that had been obtained during Zone 2-Zone 4 characterization studies conducted in October 2009.

In view of the historically elevated radon levels identified in the Hanover region of Washington County, the CCC/USDA offered radon testing to residents whose homes were being sampled for VOCs in January and February 2010, to serve as a possible supplemental indicator

of upward VI to the indoor air at these locations. Radon test kits obtained from the Washington County offices were placed in the basements of the participating homes and were retrieved for analysis after three or four days (Section 3.9.3).

In both the January and February 2010 sampling events, indoor air samples for VOCs analyses were collected over a 24-hr period in the basement and on the first floor of each home and analyzed by EPA Method TO-15. Samples for radon analysis were submitted through the National Radon Program Services at Kansas State University, Manhattan, Kansas. The results of the winter 2010 analyses for VOCs and radon are in Tables 3.14 and 3.15. The results of the analyses for VOCs are illustrated in Figure 4.41.

The results of the winter 2010 VOCs analyses (Figure 4.41) were again generally comparable to the spring 2009 screening results (Figure 4.39; Section 4.8.3.1) and the summer 2009 results (Figure 4.40) for the homes sampled in each of these events, suggesting that the carbon tetrachloride VI to indoor air at these locations has been consistent over time. Carbon tetrachloride was detected in indoor air at 10 of the 15 homes sampled in association with the Zone 1 groundwater contamination, at levels ranging from 1.3 $\mu g/m^3$ to 6.9 $\mu g/m^3$. No carbon tetrachloride was detected in any of the homes associated with the contamination in groundwater Zone 2 (Figure 4.41). The highest concentrations of carbon tetrachloride were again detected in both basement and first-floor air (6.9 $\mu g/m^3$ and 5.9 $\mu g/m^3$, respectively) at 408 E. Elm Street (Zone 1). Carbon tetrachloride was also detected at 4.7 $\mu g/m^3$ in the basement air sample collected at 405 E. Elm Street (also Zone 1). In August 2009, a carbon tetrachloride concentration of only 2.9 $\mu g/m^3$ had been detected in the basement air at this home (Figure 4.40); however, a concentration of 22 $\mu g/m^3$ was identified at this location during the spring 2009 screening event in association with a sub-slab carbon tetrachloride level of 2,800 $\mu g/m^3$ (Figure 4.39).

No chloroform was detected in basement air at any of the homes sampled in winter 2010. Low levels (0.98 $\mu g/m^3$ to 1.7 $\mu g/m^3$) of chloroform were identified in the first-floor air at five locations. These isolated, first-floor detections show no evidence of an origin from upward contaminant VI.

The results of the radon analyses conducted as part of the winter sampling events are summarized in Tables 3.14 and 3.15. The radon levels detected ranged from 2.1 pCi/L to 27.6 pCi/L, with values of approximately 8 pCi/L or more (equal to or greater than twice the

EPA action level of 4.0 pCi/L for this contaminant in air) occurring in 15 of the 23 homes tested in these events (Figure 4.42). The relatively elevated levels of radon identified in these homes indicate that each structure has some susceptibility to the intrusion of vapors from the subsurface soils; however, only a qualitative correlation could be established, among the tested locations, between the occurrence of radon and the occurrence of carbon tetrachloride in the indoor air (Figure 4.43). A similar relationship was noted for the radon and carbon tetrachloride analyses of sub-slab vapor and indoor air samples from selected homes at the former CCC/USDA facility, as discussed in Section 4.8.3.1. The results of these analyses demonstrated that radon data could not be readily used as a surrogate tracer of probable carbon tetrachloride VI to indoor air.

Comparison of Results over Time

Comparison of the results of the spring 2009, summer 2009, and winter 2010 VI sampling events indicates that the levels of carbon tetrachloride contamination attributable to VI in the homes selected for additional monitoring (Section 4.8.3.1) have been relatively stable over time and hence provide reasonable estimates of the present indoor air exposure levels for these locations. Only three homes (in addition to the three homes previously designated for response action on the basis of the spring 2009 data alone; Section 4.8.3.1) demonstrated indoor air carbon tetrachloride levels that exceed the present KDHE standard of 4.055 $\mu g/m^3$ for this contaminant. These three additional homes are as follows:

- *408 E. Elm Street.* Carbon tetrachloride levels detected ranged from 6.0 $\mu g/m^3$ to 17 $\mu g/m^3$ in basement air and from 2.7 $\mu g/m^3$ to 11 $\mu g/m^3$ in first-floor air during all three of the sampling and monitoring episodes at this home, in association with a sub-slab vapor concentration of 1,900 $\mu g/m^3$.

- *405 E. Elm Street.* A carbon tetrachloride concentration of 22 $\mu g/m^3$ was detected in basement air during the spring 2009 screening at this location, in association with a sub-slab level of 2,800 $\mu g/m^3$. The contaminant level in basement air decreased (to 2.9 $\mu g/m^3$) in summer 2009, but then it returned to a concentration (4.7 $\mu g/m^3$) exceeding the KDHE standard of 4.055 $\mu g/m^3$ in winter 2010. The first-floor contaminant levels at this home ($\leq$ 2.3 $\mu g/m^3$) remained below this standard throughout the 2009-2010 investigations.

- *406 E. Elm Street.* Carbon tetrachloride was detected at a concentration of 9.4 μg/m^3 in basement air during the spring 2009 screening, in association with a sub-slab vapor level of 410 μg/m^3. The basement air contaminant levels at this home progressively decreased, however, to a value (3.9 μg/m^3) below the KDHE standard of 4.055 μg/m^3 in winter 2010. The first-floor contaminant levels at this home (≤ 2.1 μg/m^3) remained below this standard throughout the 2009-2010 investigations.

On the basis of these findings, the CCC/USDA and the KDHE determined, in early spring 2010, that response action was also warranted at the 408 and 405 E. Elm Street residences, bringing the total number of homes designated for treatment of the indoor air to five (Figure 4.44). The mitigation efforts implemented by the CCC/USDA at these homes are discussed in Section 4.8.4.

4.8.3.3 Investigation for Possible VI to Indoor Air at the Hanover Public School Facility and St. John's School in Winter 2010

The areas targeted for the 2009-2010 VI investigation were selected through critical evaluation of the subsurface carbon tetrachloride distribution documented at the Hanover site (Sections 4.1-4.4) and KDHE (2007b) guidance for the consideration of possible VI to occupied structures. As discussed in Section 4.8.2, Figure 4.36 illustrates the interpreted areas of concern that were identified in association with the carbon tetrachloride contamination in groundwater-bearing Zone 1 (VI Investigation Areas 1 and 2) and in the shallower (< 40 ft BGL; VI Investigation Area 3) portion of Zone 2. The results of the subsequent VI studies (Sections 4.8.3.1 and 4.8.3.2) indicate that only five homes, all lying within the footprint of the Zone 1 groundwater contamination, were recognized as having clear evidence of carbon tetrachloride VI at levels that exceed the current KDHE standard for this contaminant (4.055 μg/m^3) in indoor air (Figure 4.44). The actions taken by the CCC/USDA to mitigate the contamination at these homes are discussed in Section 4.8.4.

To address health concerns expressed by the Hanover community, however, the CCC/USDA VI investigation was expanded in February 2010, with the approval of the KDHE (2010c), to include an assessment of potential VI to indoor air at the Hanover public school facilities and at St. John's School. The schools are located southwest of the former CCC/USDA facility, beyond the limits of the carbon tetrachloride contamination identified in groundwater-

bearing Zone 1 and Zone 2 but along an apparent direction of groundwater flow in Zone 1 (Figure 4.36).

The studies performed included an initial screening of indoor air grab samples (with on-site analysis by a GC-ECD method) collected at 38 locations in classrooms, cafeterias, bathrooms, gyms, locker rooms, shops, and offices in the Hanover public school facility, and at 16 comparable locations in the adjacent St. John's School. On the basis of the results of the screening analyses, composite air samples were collected at selected locations in each school, both overnight (12 hr) and during the school day (8 hr), for confirmation of the screening data by laboratory VOCs analyses by EPA Method TO-15.

Sampling for radon was also performed at each location in conjunction with the VOCs sampling, by using kits obtained from the Washington County offices. Although not required by the KDHE, the testing for radon was conducted by the CCC/USDA in light of the recognized occurrence of radon at levels exceeding the EPA action level for this contaminant in other local structures (Section 4.8.3.2). These samples were submitted for radon analysis through the National Radon Program Services at Kansas State University, Manhattan, Kansas.

The results of the VOC and radon analyses are in Table 3.16. No carbon tetrachloride was detected in any of the screening or confirmation air samples collected at the Hanover public school facility or at St. John's School. Low levels of chloroform were identified in the screening air samples from four rooms in the public school facility; however, as discussed in Section 4.8.3.2, these isolated occurrences provide no evidence of upward VOCs VI in the context of the associated carbon tetrachloride results.

With only two exceptions (one room at the Hanover public school facility and one room at St. John's School), radon was detected at various levels in all of the indoor air samples from both schools. Concentrations detected ranged from 0.7 pCi/L to 6.0 pCi/L at the St. John's School and from 0.6 pCi/L to 14.2 pCi/L in the public school facility. The presence of radon at various levels suggests some degree of influence of subsurface VI to the indoor air at these structures. In contrast, no VOCs were detected in any of school structures, indicating an absence of VOCs sources that would support the VI migration of VOCs beneath the school structures. This result is consistent with the interpretation that all school structures lie outside the identified limits of the carbon tetrachloride and chloroform distributions.

4.8.4 Mitigation of the Identified Indoor Air Contamination at Hanover in August 2009 and May 2010

The investigations summarized in Section 4.8.3 demonstrated that only five homes, all overlying the documented VOCs contamination in groundwater-bearing Zone 1, were recognized as having clear evidence of carbon tetrachloride VI to indoor air at levels that exceed the current KDHE standard for this contaminant (4.055 $\mu g/m^3$) in indoor air (Figure 4.44). No carbon tetrachloride was detected at either the Hanover public school facility or St. John's School, which lie outside the identified limits of the carbon tetrachloride distributions in both groundwater-bearing Zone 1 and Zone 2 (Figure 4.36).

Three homes with unacceptable levels of carbon tetrachloride in indoor air were identified during the initial studies of potential VI migration pathways conducted in February-April 2009. These three homes (311 N. East Street, 400 N. East Street, and 413 E. Kensington Street) all lie within or immediately adjacent to the limits of the former CCC/USDA facility (Figure 4.44). The concentrations of carbon tetrachloride detected in these homes ranged from 11 $\mu g/m^3$ to 28 $\mu g/m^3$, with the highest levels occurring at the 311 and 400 N. East Street locations, at the western edge of the former facility. Elevated levels of radon (5.2 pCi/L and 9.4 pCi/L, respectively) were also present at the 400 N. East Street and 413 E. Kensington Street locations. (No radon analysis was obtained for the home at 311 N. East Street.)

Two additional homes were determined to have unacceptable levels of carbon tetrachloride VI as a result of the confirmation sampling performed at selected homes in summer 2009 and winter 2010. At 408 E. Elm Street, carbon tetrachloride levels ranging (with one exception, for the first floor in spring 2009) from roughly 6 $\mu g/m^3$ to 17 $\mu g/m^3$ were detected in both basement and first-floor air during each of the 2009 and 2010 sampling events. Relatively low ($\leq$ 2.3 $\mu g/m^3$) levels of carbon tetrachloride were consistently observed in the first-floor air at 405 E. Elm Street; however, variable but recurring carbon tetrachloride concentrations exceeding the current KDHE standard (4.055 $\mu g/m^3$) were documented for the basement air at this location, in association with a sub-slab vapor level of 2,800 $\mu g/m^3$. High levels of radon (10.4 pCi/L at 405 E. Elm Street and 21.8 pCi/L at 408 E. Elm Street) were again discovered in association with the occurrence of VI to indoor air at these homes.

Upon discovery of the contaminant concentrations at these five locations, mitigation was recommended by the CCC/USDA and was implemented with KDHE (2009g, 2010e) approval. At the request of the CCC/USDA, a VI mitigation (sub-slab depressurization) system was

designed for each home by EnviroGroup Limited, Lawrence, Kansas, as described in Supplement 10 and Supplement 11. The systems were installed on August 25-27, 2009 (at 311 N. East Street, 400 N. East Street, and 413 E. Kensington Street), and on May 12-13, 2010 (at 405 and 408 E. Elm Street; Figure 4.44). At each location, sub-slab vacuum/pressure levels and soil gas flow rates were monitored after the initial 30 days of operation, to verify system performance.

To further assess the performance of these systems, indoor air samples were collected for VOCs and radon analyses at the 311 N. East Street, 400 N. East Street, and 413 E. Kensington Street locations (after approximately five months of operation), in conjunction with the January 2010 monitoring event discussed in Section 4.8.3.2. Indoor air samples were also collected for VOCs analysis (after approximately one month of operation) in the residences at 405 E. Elm Street and 408 E. Elm Street. The results of these analyses are in Table 3.17. No carbon tetrachloride or chloroform was detected in indoor air samples from the five mitigated homes. (Trace levels of radon were identified at two of the homes: 400 N. East Street and 413 E. Kensington Street.) These observations confirm the effectiveness of the installed systems.

4.8.5 Summary

The primary findings from the 2009-2010 VI studies at Hanover are as follows:

- On the basis of KDHE (2007b) guidance, approximately 60 occupied residences at Hanover were identified for the consideration of possible VI that might be linked to the carbon tetrachloride contamination identified in groundwater-bearing Zone 1 or to the contamination present in the western, more downgradient portion of Zone 2 at depths of ≤ 40 ft BGL. No risk of upward VI was recognized in association with the localized, low residual levels of carbon tetrachloride detected in subsurface soils at the former CCC/USDA facility.

- The results of comprehensive indoor air testing and subsequent periodic monitoring demonstrated that only five homes, all overlying the documented VOCs contamination in groundwater-bearing Zone 1, were impacted by

carbon tetrachloride VI at levels greater than the KDHE standard of 4.055 $\mu g/m^3$ for this contaminant in indoor air (Figure 4.44).

- With the approval of the KDHE, mitigation systems were installed by the CCC/USDA at each of the five homes impacted by VI. Performance testing of these systems has demonstrated that they are effectively reducing VOCs concentrations in indoor air to acceptable levels.

- No carbon tetrachloride was detected in indoor air at either the Hanover public school facility or the St. John's School, which lie outside the identified limits of the carbon tetrachloride distributions in both groundwater-bearing Zone 1 and Zone 2.

Radon analyses performed as a possible supplemental indicator of subsurface VI to indoor air identified elevated levels of radon (up to 7 times the EPA action level of 4.0 pCi/L) in 22 of 25 homes tested for this contaminant (Figure 4.42), as well as at selected locations in the Hanover public school facility and the St. John's School. These observations demonstrate that upward VI by radon, at unacceptable health risk levels, is a widespread phenomenon at the Hanover investigation site.

TABLE 4.1 Summary of interpreted results for slug tests in Zone 1 monitoring wells in August 2009.

	Calculated Hydraulic Conductivity[a] (ft/day)								
Well	Bouwer and Rice Method Result for Each Test				Hvorslev Method Result for Each Test				Average[b]
MW01	0.71	0.48	0.60	0.46	0.98	0.66	0.83	0.63	0.67
MW02	2.9	2.2	3.0	2.4	4.0	3.0	4.1	3.3	3.1
MW04	0.67	0.49	0.64	0.43	0.92	0.67	0.89	0.59	0.66
MW05	45	47	42	42	62	65	59	59	53
MW06	0.001	–	–	–	0.001	–	–	–	0.001
MW07	0.017	0.012	–	–	0.024	0.017	–	–	0.018
MW09	69	73	40	67	97	102	55	93	75
MW10	2.8	2.7	3.0	2.8	3.9	3.7	4.1	3.9	3.4
MW11	56	39	55	56	78	53	78	77	62
MW12	0.005	–	–	–	0.007	–	–	–	0.006
MW13	55	48	51	46	75	66	70	63	59
MW16	0.043	0.025	–	–	0.059	0.034	–	–	0.040
MW18	0.25	0.22	0.28	–	0.34	0.30	0.40	–	0.30
MW20	0.011	–	–	–	0.015	–	–	–	0.013
MW21	0.002	–	–	–	0.003	–	–	–	0.003
MW28	2.6	5.9	2.8	4.1	3.6	8.3	3.9	5.7	4.6
MW29	3.0	4.5	3.4	4.8	4.1	6.3	4.8	6.6	4.7
MW34	0.24	0.07	0.21	–	0.33	0.09	0.29	–	0.20
MW37	0.003	–	–	–	0.004	–	–	–	0.004
MW38	0.017	–	–	–	0.024	–	–	–	0.021

[a] Calculated with the assumption of a thickness of 2 ft for the water-bearing interval.

[b] Averaged for all tests and both calculation methods.

TABLE 4.2 Summary of hydraulic conductivity estimates generated by the Theis (1935) and Cooper-Jacob (1946) methods from the results of the MW05 constant-rate pumping tests.

	Hydraulic Conductivity (ft/day) in Well Indicated		
	MW05		MW02
Test	Theis	Cooper-Jacob	Theis
First	45	48	50
Second	61	64	34

TABLE 4.3 Darcy flow velocities in groundwater Zone 1 at selected locations.

Location	Hydraulic Gradient (dh/dl)	Average Hydraulic Conductivity (K_h, ft/day)	Darcy Flow Velocity $V_D = K_h \times dh/dl$ (ft/day)	Darcy Flow Velocity (V_D, ft/yr)	Flow Direction
MW16	0.0520	0.04	2.1×10^{-3}	0.76	Northwest
MW12	0.0520	0.006	3.1×10^{-4}	0.11	West
MW28/MW29	0.0083	4.6	3.8×10^{-2}	13.97	Southwest
MW18	0.0189	0.3	5.7×10^{-3}	2.07	South

TABLE 4.4 Summary of interpreted results for slug tests in Zone 2 monitoring wells in January 2010.

	Calculated Hydraulic Conductivity[a] (ft/day)								
Well	Bouwer and Rice Method Result for Each Test				Hvorslev Method Result for Each Test				Average[b]
MW44Z2	23	18	20	20	31	25	27	27	24
MW45Z2	16	26	15	26	22	36	20	35	25
MW48Z2	NA[c]	NA	NA	NA	NA	NA	NA	NA	NA
MW49Z2	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW50Z2	29	41	30	43	40	56	42	59	43
MW51Z2	4.4	7.3	4.9	10	6.1	10	6.7	14	7.9

[a] Calculated with the assumption of a thickness of 3.5 ft for the water-bearing interval.

[b] Averaged for all tests and both calculation methods.

[c] Results could not be analyzed; see Section 4.6.2.1.

TABLE 4.5 Summary of hydraulic conductivity values estimated from the MW44Z2 constant-rate pumping test.

	Hydraulic Conductivity (ft/day) Calculated by Method Indicated		
		Hantush Method (leaky-confined aquifer)	
Well	Theis Method (confined aquifer)	Without Storage[a]	With Storage[b]
MW44Z2	14	13	11
MW45Z2	42	25	16

[a] Method assumes that no water is released from storage in the confining aquitard.

[b] Method assumes that water is released from storage in the confining aquitard.

TABLE 4.6 Three subsystems of carbon tetrachloride contamination in groundwater Zone 1, with hydrogeologic characteristics and the feasibility of treatment technologies.

Subsystem	Area (ft^2)	Percent of Total Contaminated Area	Typical Carbon Tetrachloride Concentrations (µg/L)	Average K_h from Slug Tests (ft/day)	K from Pumping Test (ft/day)	Sustainable Pumping Rate (gpm)	ROI (ft)	Extraction or Injection Technology
1	52,970	6	> 500	53-75	34-64	< 1	~ 106	Conventional technology is not feasible. Horizontal well technology needs to be evaluated. Potential logistic barriers need to be identified and addressed for horizontal technology.
2	273,200	31	100-500	> 1	–	< 0.3	< 124 to 229	Technically and logistically impractical to implement any available technology.
3	557,570	63	100-500 (30%) 5-100 (70%)	10^{-2} to 10^{-3}	–	10^{-2} to 10^{-3} or less	–	Technically and logistically impractical to implement any available technology.

TABLE 4.7 Summary of vapor intrusion investigation activities and response actions at Hanover, 2007-2010.

Date	Activity	Objective	Methodology
July 10-11, 2007	Indoor air sampling in the basements of 9 residences on the former CCC/USDA property, in response to resident concerns.	Conduct an initial evaluation of indoor air contamination.	Air collection over 24 hr in Summa canisters; analysis by TestAmerica, Burlington, Vermont, by EPA Method TO-15.
February 2-4, 2009	Investigation of upward VI in 3 residences on the former CCC/USDA property where carbon tetrachloride was detected in July 2007.	Evaluate indoor air contamination during optimal winter sampling period when homes are most closed to outside air.	Collection of vapor/air samples from sub-slab, basement, and first-floor spaces for analysis of VOCs and tracer radon.
March 12-13, 2009	Investigation of upward VI in the remaining 6 residences on the former CCC/USDA property, where carbon tetrachloride was not detected in July 2007.	Evaluate indoor air contamination during the optimal winter sampling period when homes are most closed to outside air.	Collection of basement and first-floor indoor air samples for analysis by TestAmerica with EPA Method TO-15.
March 25-27, 2009	VI evaluation at residences outside the former CCC/USDA property (completed April 7-10, 2009).	Screen all residences in the identified groundwater contaminant distribution area for potential VI.	Collection of vapor/air samples from sub-slab, basement, and first-floor spaces for on-site analysis, with submittal of selected samples for off-site verification analysis.
April 7-10, 2009	Continuation of the VI evaluation at residences outside the former CCC/USDA property.	Screen all residences in the identified groundwater contamination area for potential VI.	Collection of vapor/air samples from sub-slab, basement, and first-floor spaces for on-site analysis, with submittal of selected samples for off-site verification analysis.
August 12-13, 2009	Monitoring of 17 residences where carbon tetrachloride was identified in prior indoor air sampling.	Conduct summertime monitoring of indoor air.	Collection of basement and first-floor indoor air samples for analysis by TestAmerica with EPA Method TO-15.
August 25-27, 2009	Completion of vapor mitigation of 3 homes.	Reduce identified carbon tetrachloride contamination in indoor air.	–
September 28, 2009	Retesting of indoor air in 3 homes after installation of sub-slab VI mitigation systems in August.	Verify elimination of identified carbon tetrachloride contamination in indoor air.	Indoor air sampling.

TABLE 4.7 (Cont.)

Date	Activity	Objective	Methodology
January 25-26, 2010	Monitoring of 17 residences where carbon tetrachloride was identified in prior indoor air sampling.	Conduct wintertime monitoring of indoor air contamination.	Collection of basement and first-floor indoor air samples for analysis at TestAmerica with EPA Method TO-15.
February 22-25, 2010	Indoor air sampling at Hanover public school and St. John's School, at the request of residents; sampling of 9 residences potentially at risk for VI from groundwater Zone 2.	Determine the potential for upward VI of carbon tetrachloride, chloroform, and radon contamination from the subsurface to indoor air.	Indoor air sampling with on-site analysis in accessible rooms in the schools, with follow-up sampling and quantitative analysis for rooms selected per the screening results; quantitative VOCs analysis by TestAmerica with EPA Method TO-15.
May 12-13, 2010	Completion of vapor mitigation of 2 homes.	Reduce identified carbon tetrachloride contamination in indoor air.	–
June 17, 2010	Retesting of indoor air in 2 homes after installation of sub-slab VI mitigation systems in May 2010.	Verify elimination of identified carbon tetrachloride contamination in indoor air.	Indoor air sampling.

FIGURE 4.1 Maximum concentrations of carbon tetrachloride in soil samples collected at and near the former CCC/USDA facility during the 2009-2010 investigation. Source of photograph: NAIP (2008).

FIGURE 4.2 Maximum concentrations of chloroform in soil samples collected at and near the former CCC/USDA facility during the 2009-2010 investigation. Source of photograph: NAIP (2008).

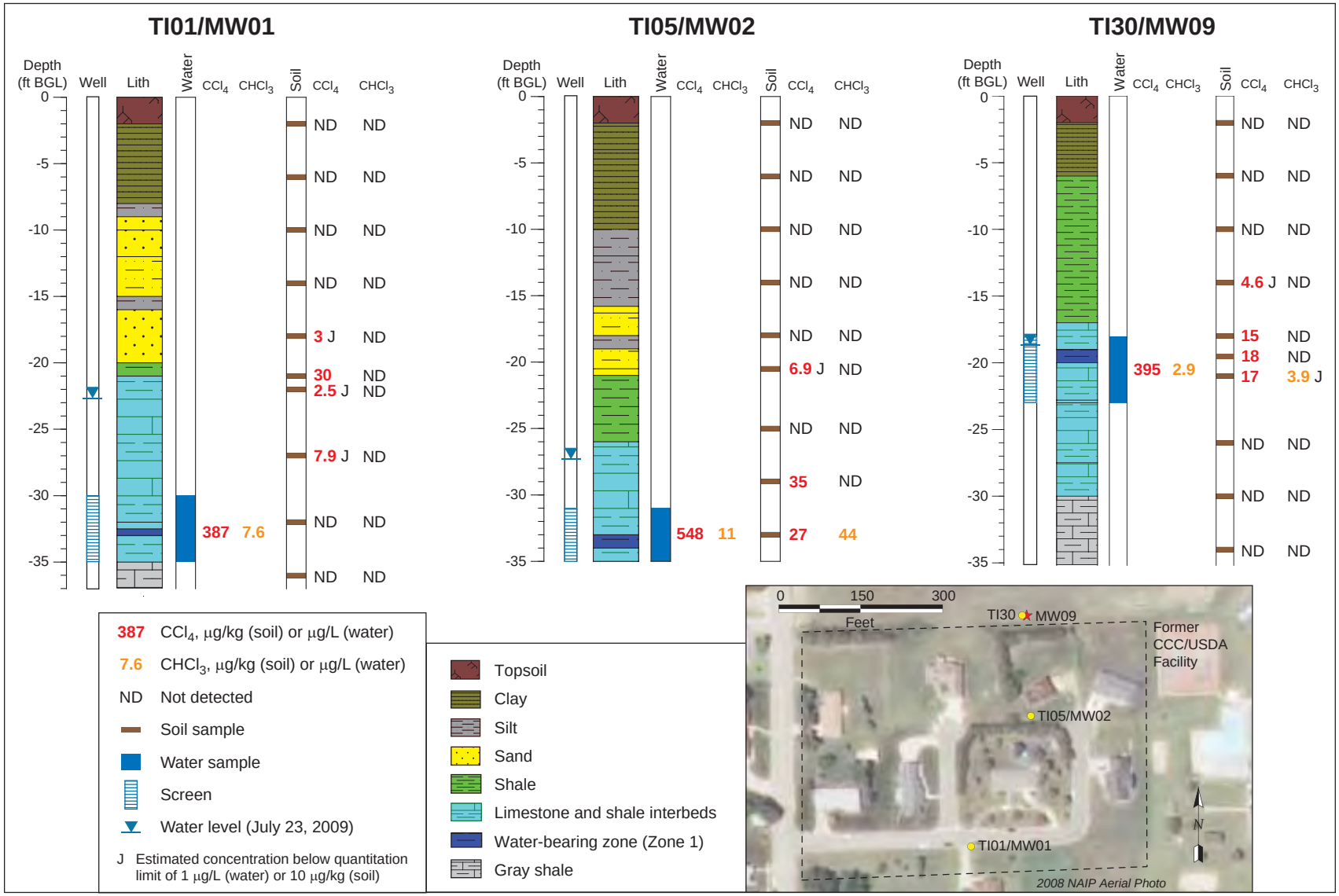

FIGURE 4.3 Vertical distribution of carbon tetrachloride (CCl_4) and chloroform ($CHCl_3$) in subsurface soil and shallow groundwater (Zone 1) samples collected at locations TI01/MW01, TI05/MW02, and TI30/MW09, at and near the former CCC/USDA facility. Source of photograph: NAIP (2008).

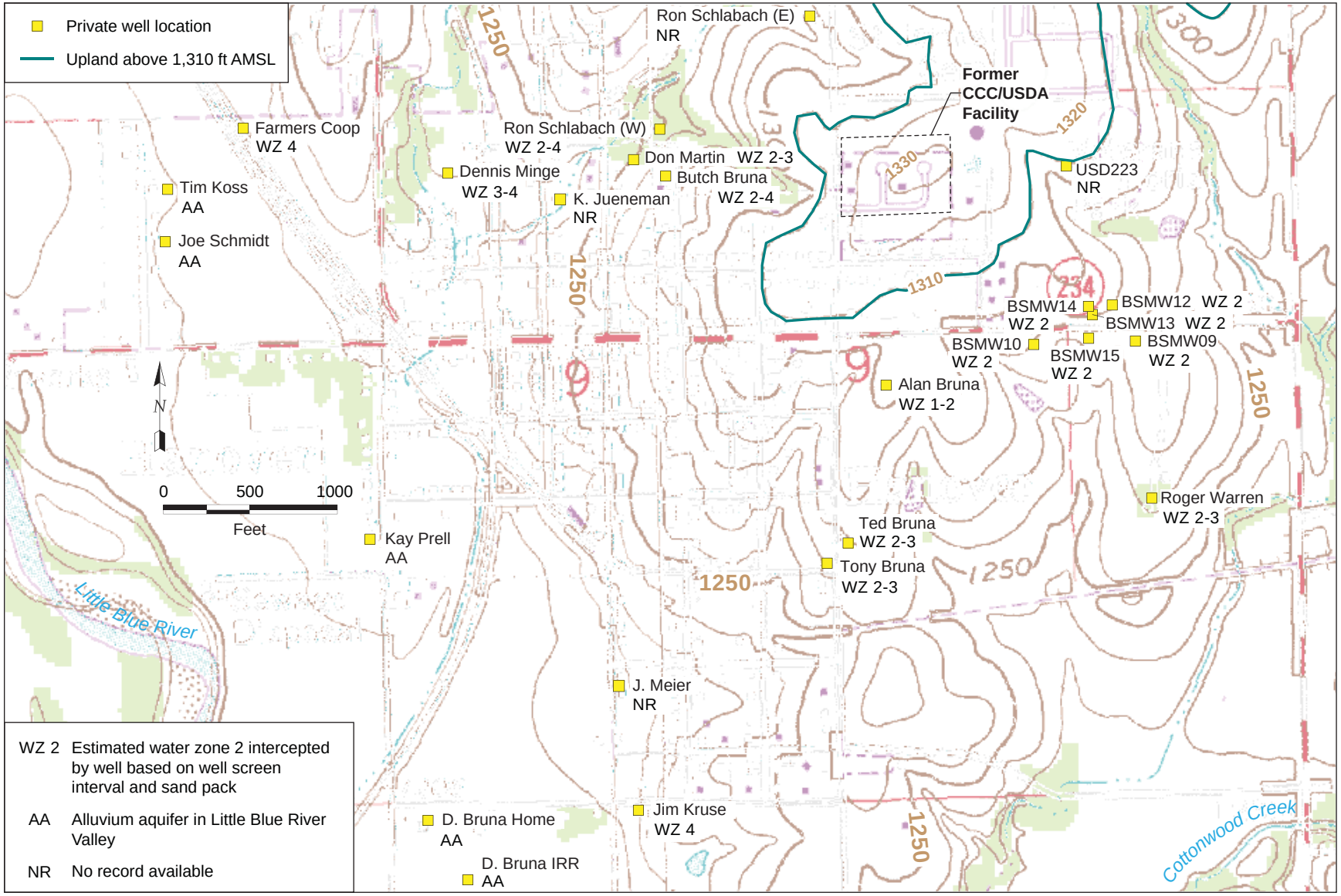

FIGURE 4.4 Surface topography in the Hanover area, the location of the former CCC/USDA facility, and water-bearing zones intercepted by private wells. Source of map: USGS (1997).

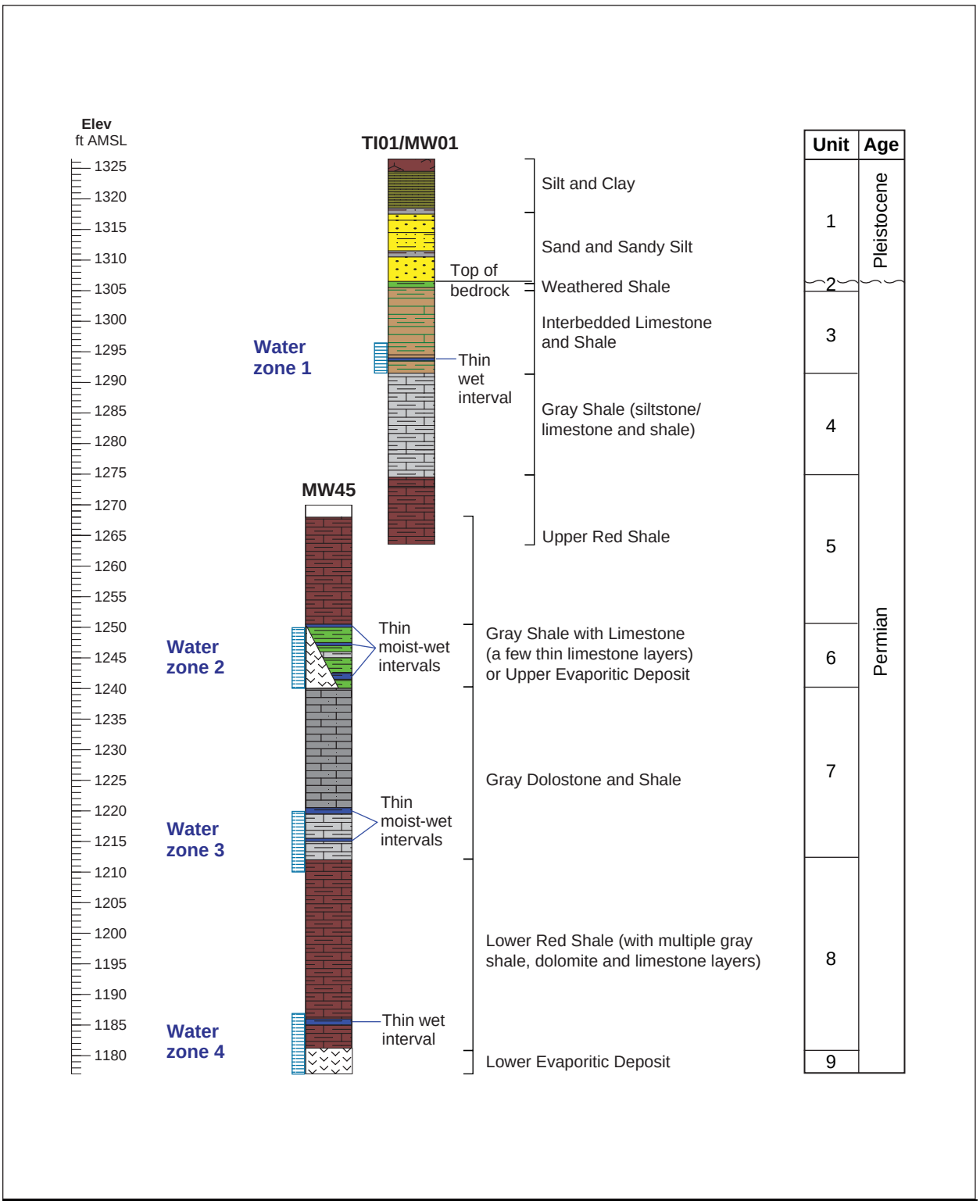

FIGURE 4.5 Combined lithology logs for borings TI01/MW01 and MW45, showing the local stratigraphic units at Hanover.

FIGURE 4.6 Locations of wells and hydrogeologic cross sections. Source of photograph: NAIP (2008).

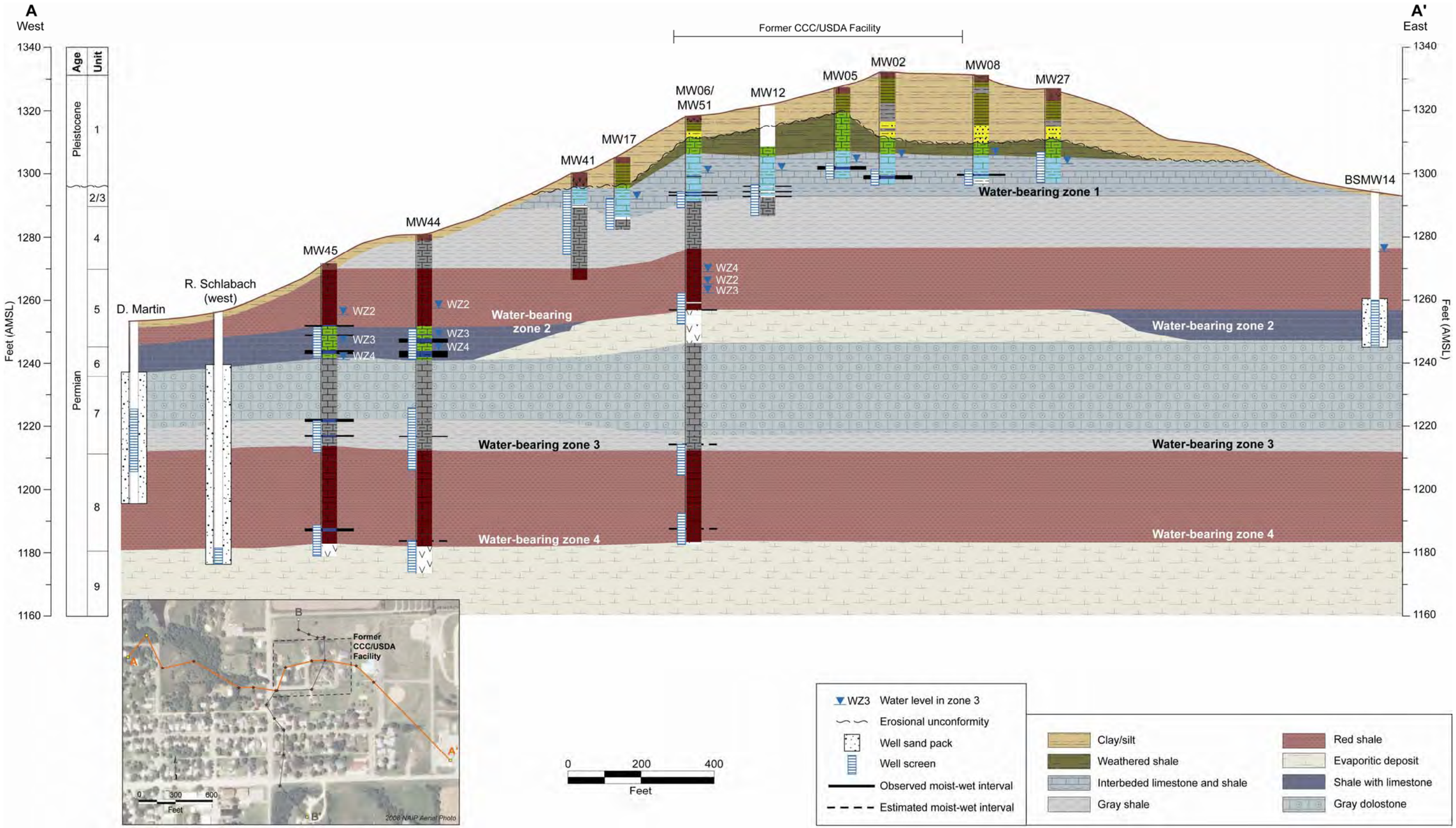

FIGURE 4.7 Interpretive west-to-east hydrogeologic cross section A-A'. Source of photograph: NAIP (2008).

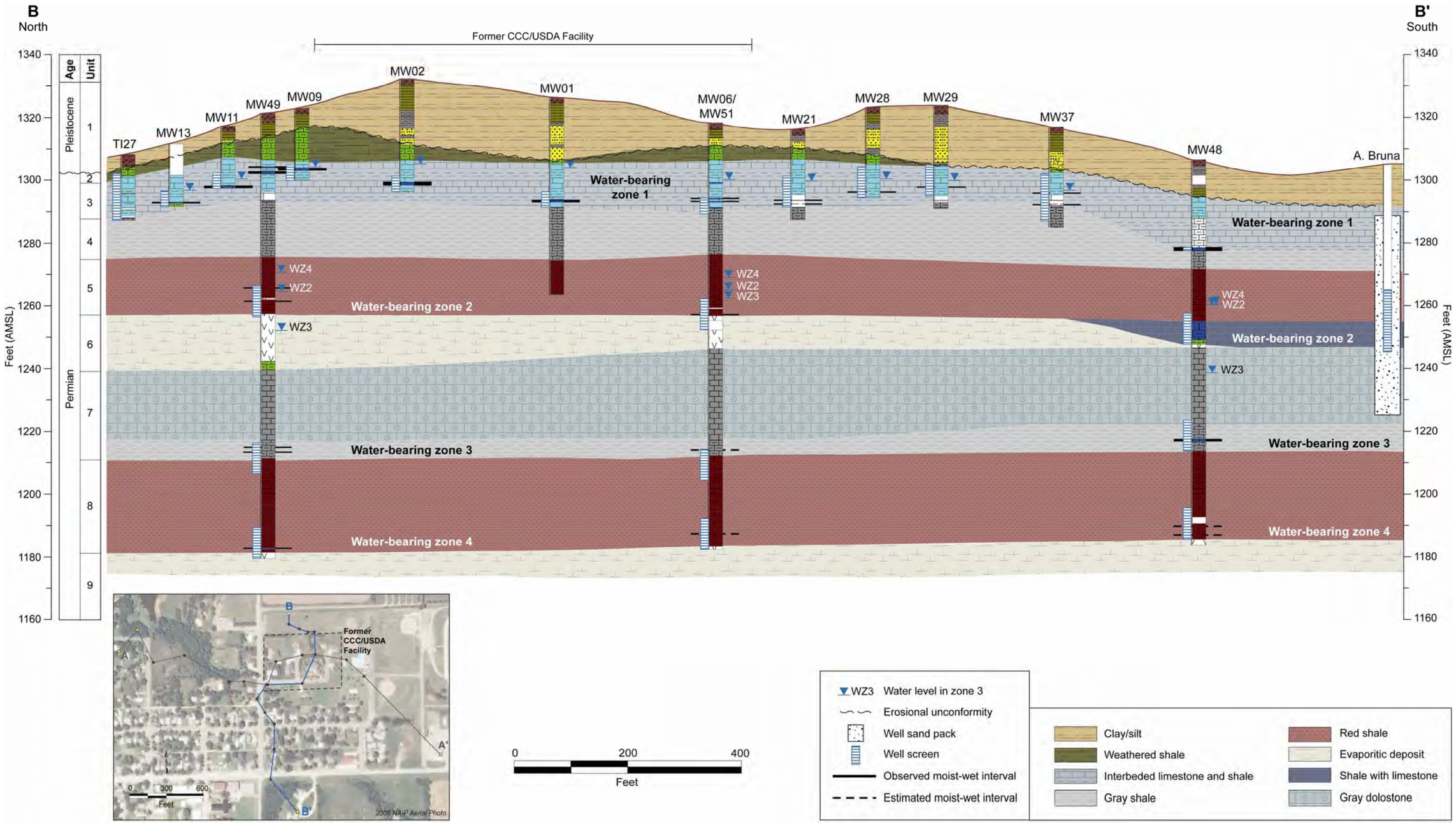

FIGURE 4.8 Interpretive north-to-south hydrogeologic cross section B-B'. Source of photograph: NAIP (2008).

FIGURE 4.9 Interpreted north, northwest, west, and southwest limits of groundwater Zone 1, as determined by the availability and recovery of groundwater in Zone 1. Source of photograph: NAIP (2008).

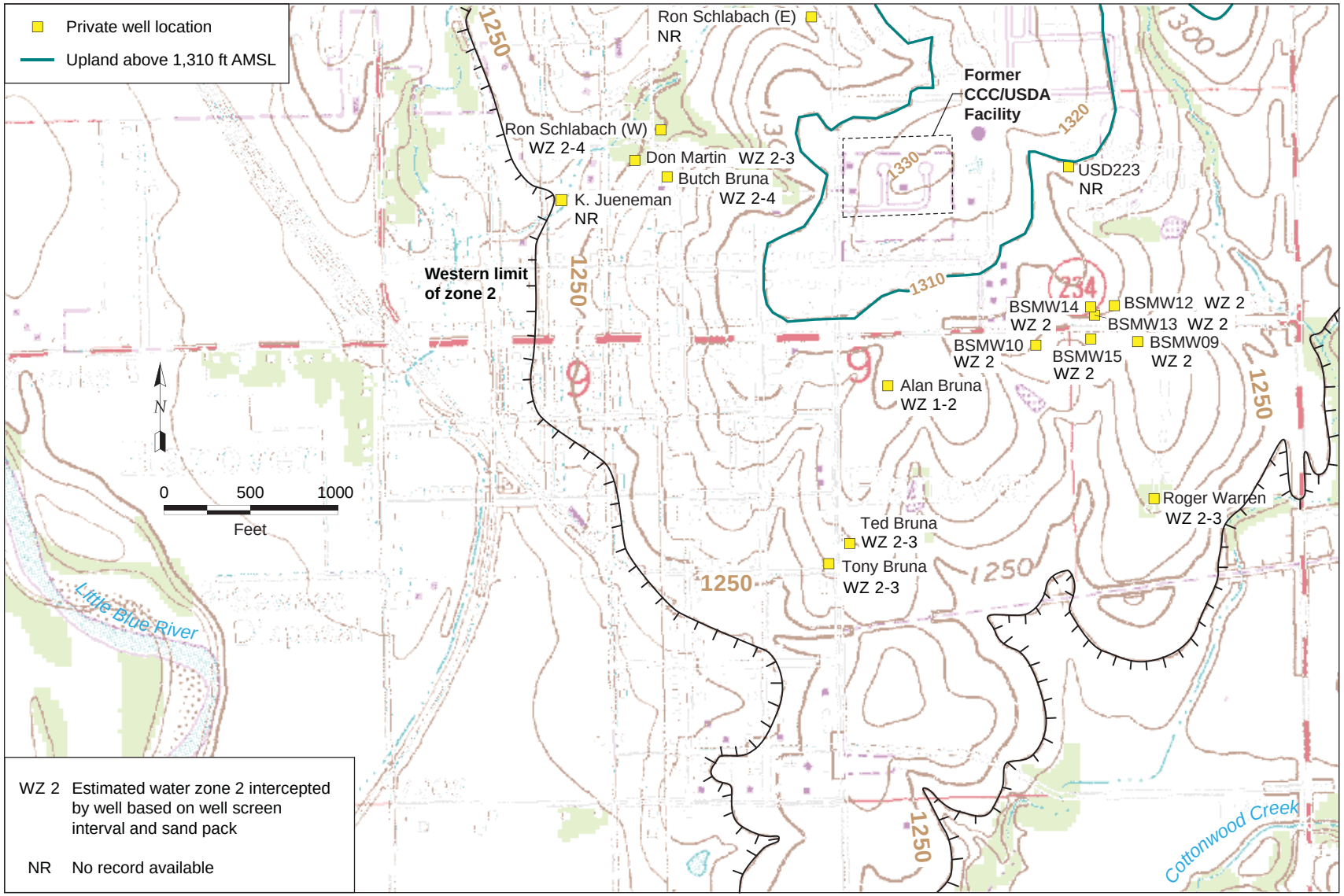

FIGURE 4.10 Estimated lateral limits of groundwater Zone 2 and locations of private wells that apparently intercept groundwater Zone 2. Source of map: USGS (1997).

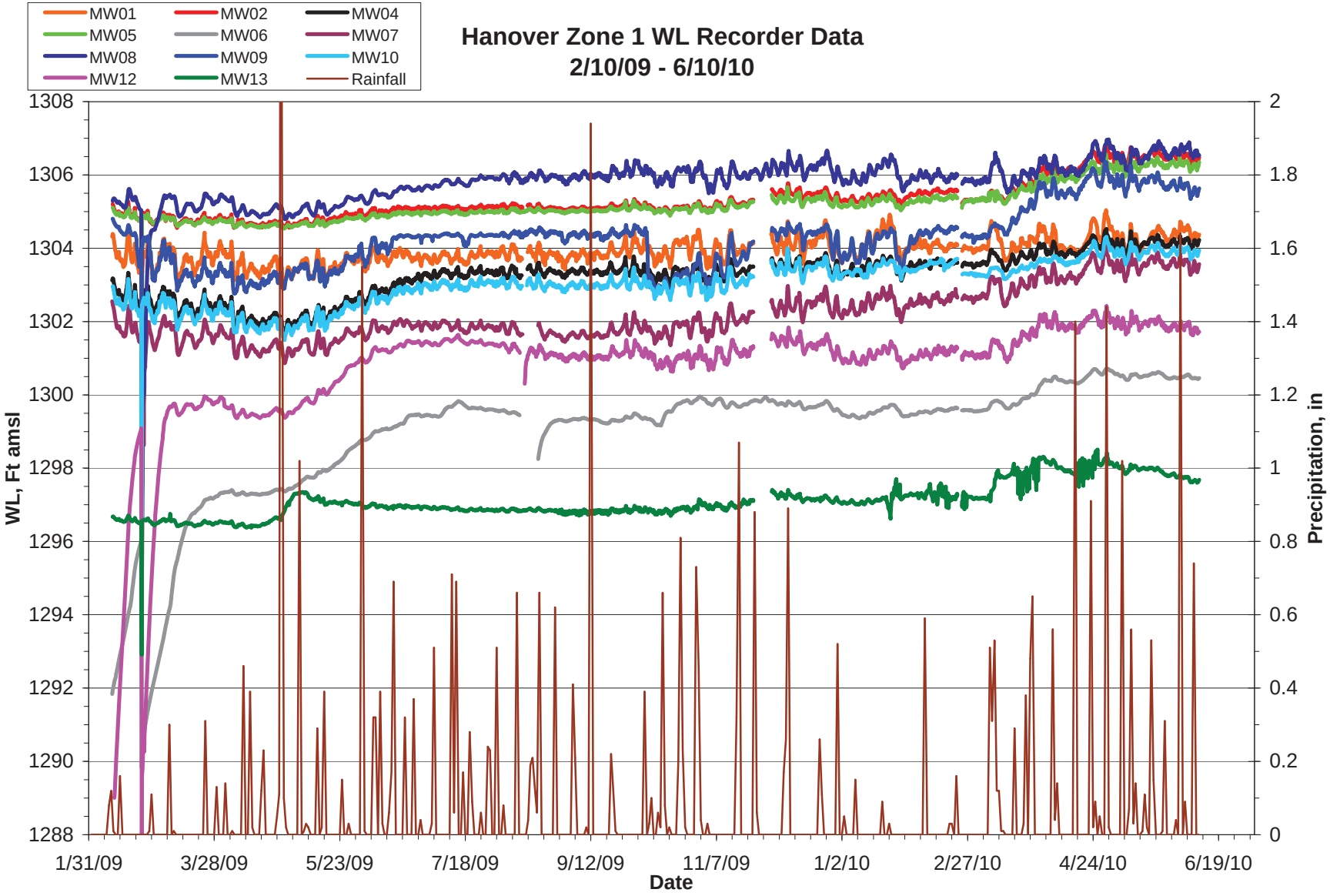

FIGURE 4.11 Water level records for selected groundwater Zone 1 monitoring wells during the 2009-2010 investigation.

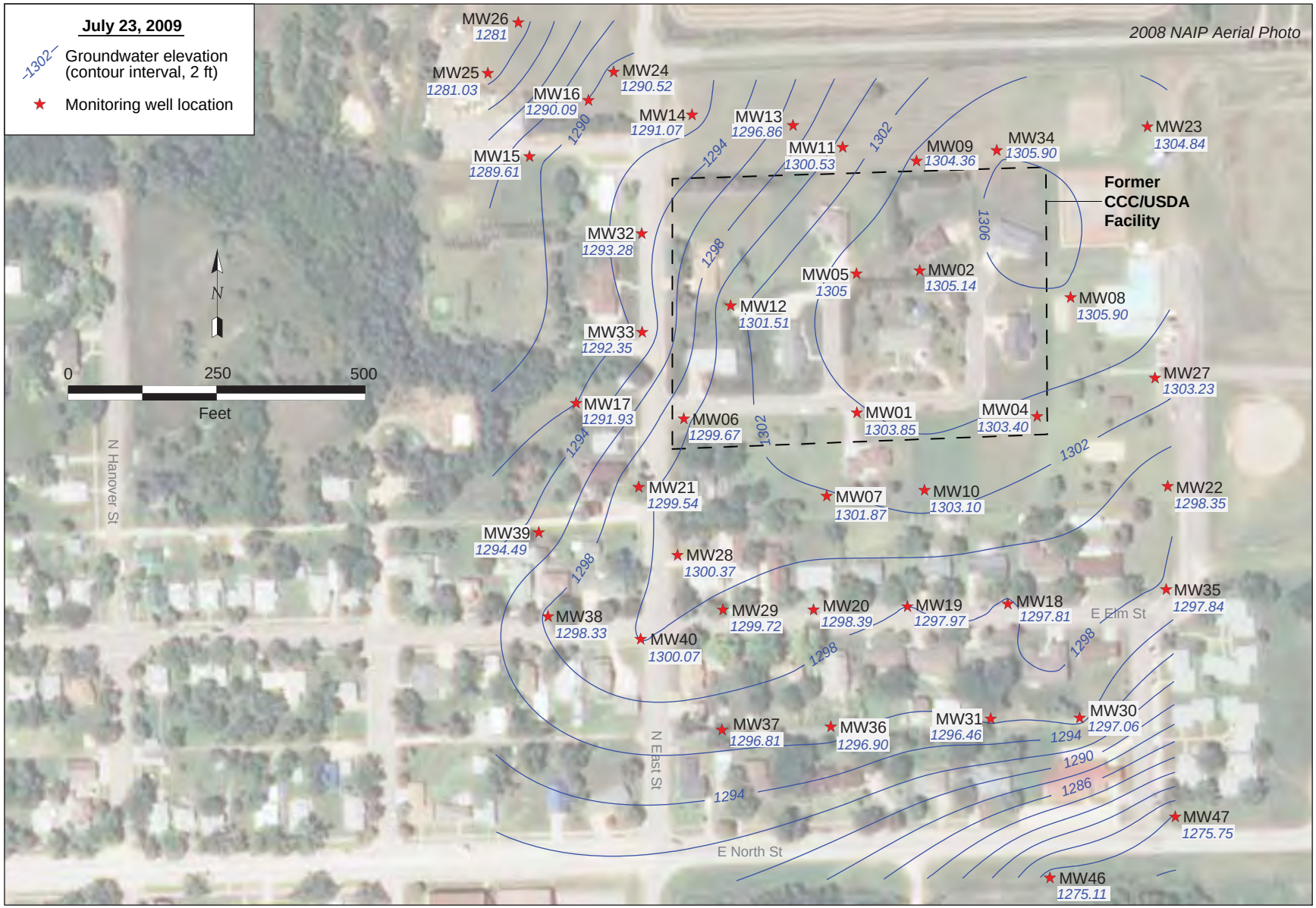

FIGURE 4.12 Potentiometric surface for groundwater Zone 1 on July 23, 2009. Source of photograph: NAIP (2008).

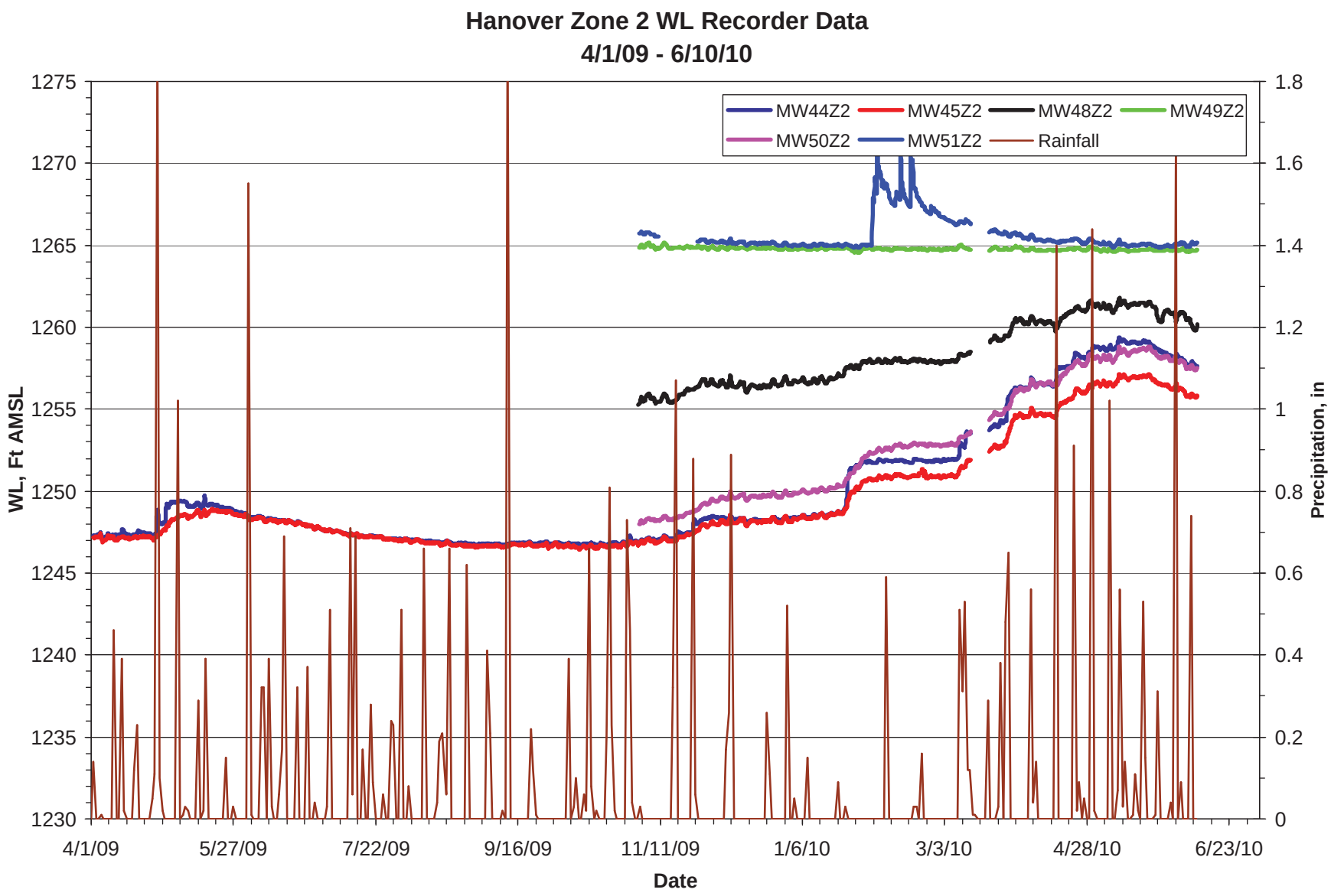

FIGURE 4.13 Water level records for groundwater Zone 2 wells during the 2009-2010 investigation.

FIGURE 4.14 Potentiometric surface for groundwater Zone 2 on January 25, 2010. Source of photograph: NAIP (2008).

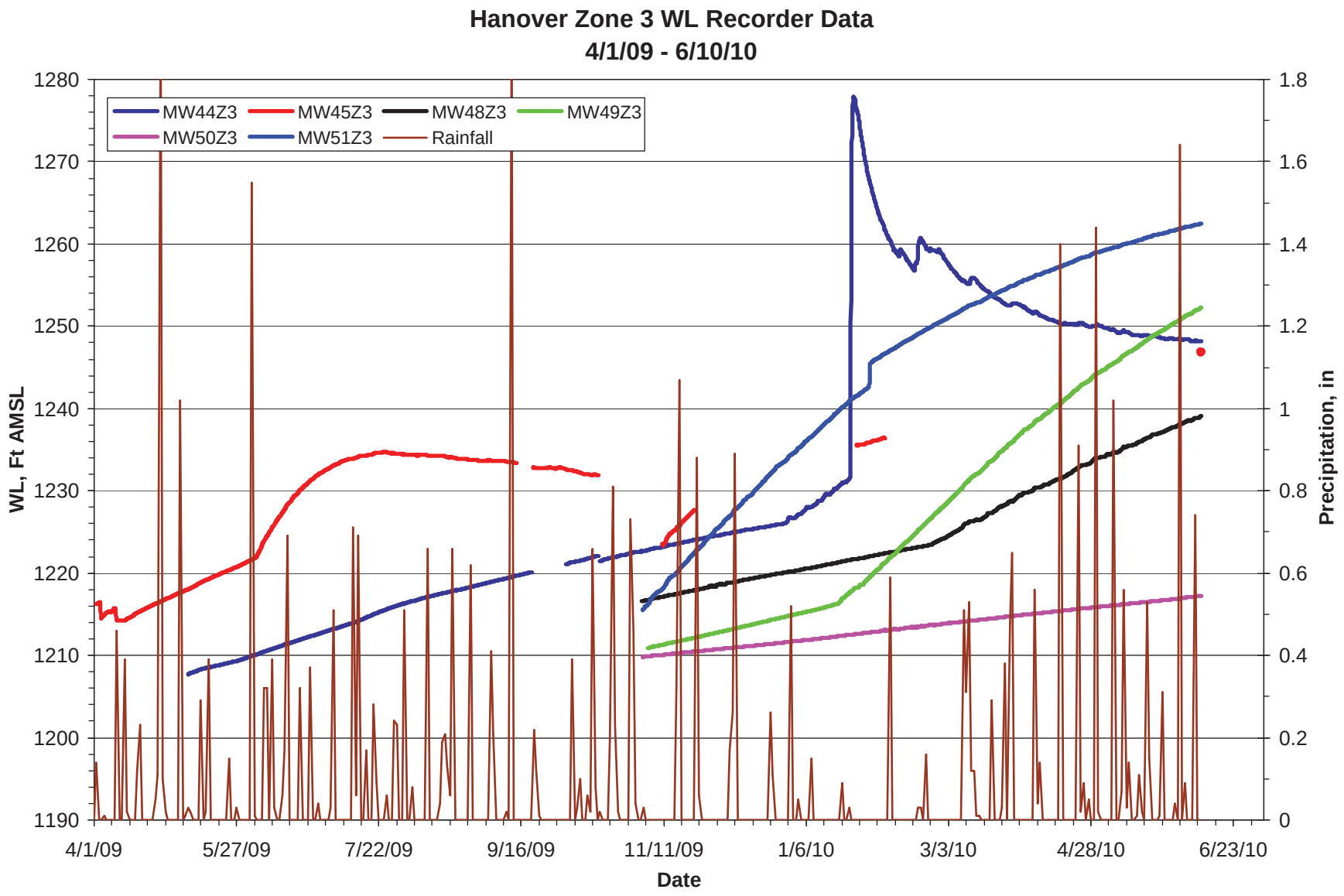

FIGURE 4.15 Water level records for groundwater Zone 3 wells during the 2009-2010 investigation.

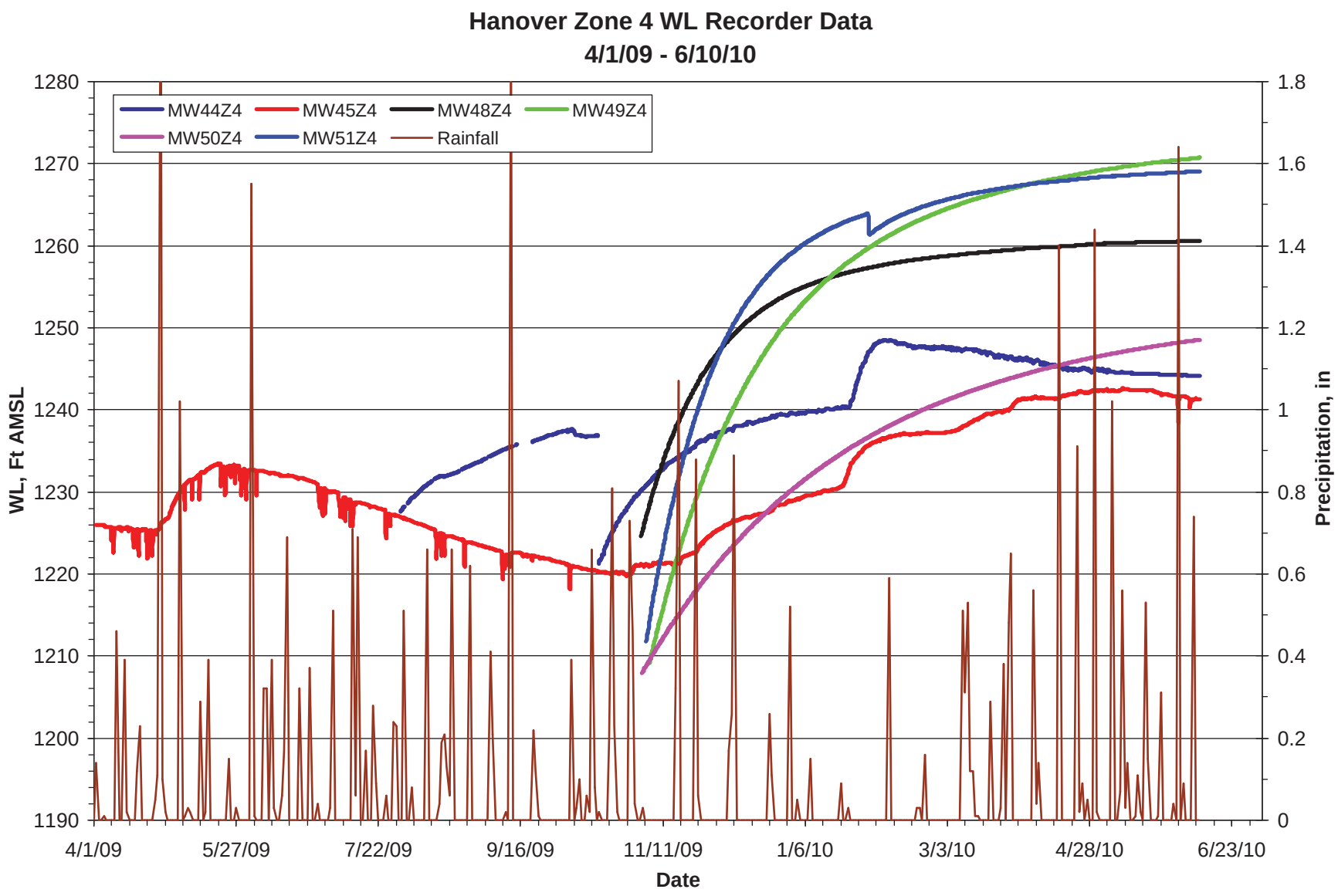

FIGURE 4.16 Water level records for groundwater Zone 4 wells during the 2009-2010 investigation.

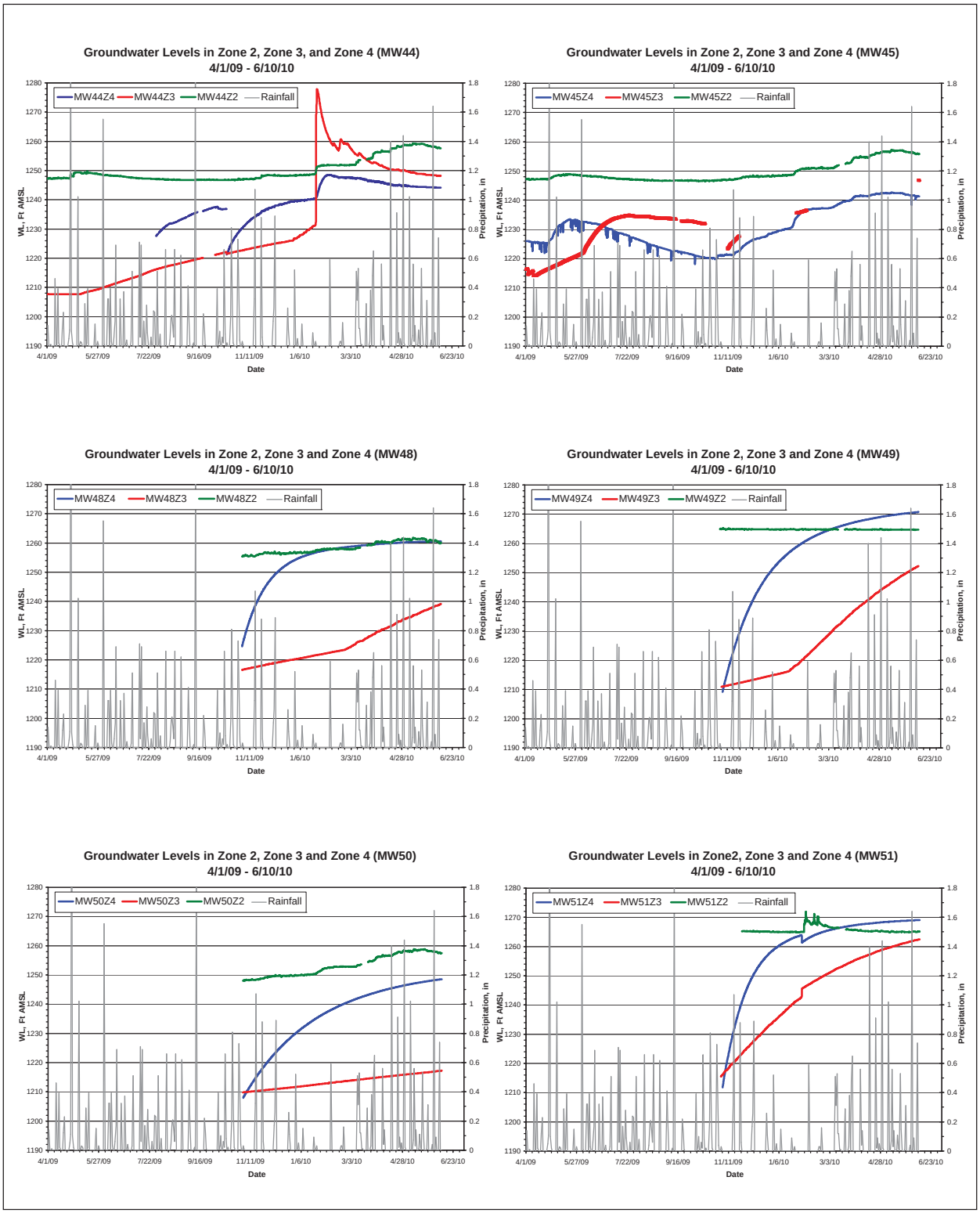

FIGURE 4.17 Water level records for wells completed in groundwater Zone 2, Zone 3, and Zone 4 at locations MW44, MW45, and MW48-MW51, during the 2009-2010 investigation.

FIGURE 4.18 Lateral distribution of carbon tetrachloride in groundwater Zone 1 during the 2009-2010 investigation. Source of photograph: NAIP (2008).

FIGURE 4.19 Lateral distribution of chloroform in groundwater Zone 1 during the 2009-2010 investigation. Source of photograph: NAIP (2008).

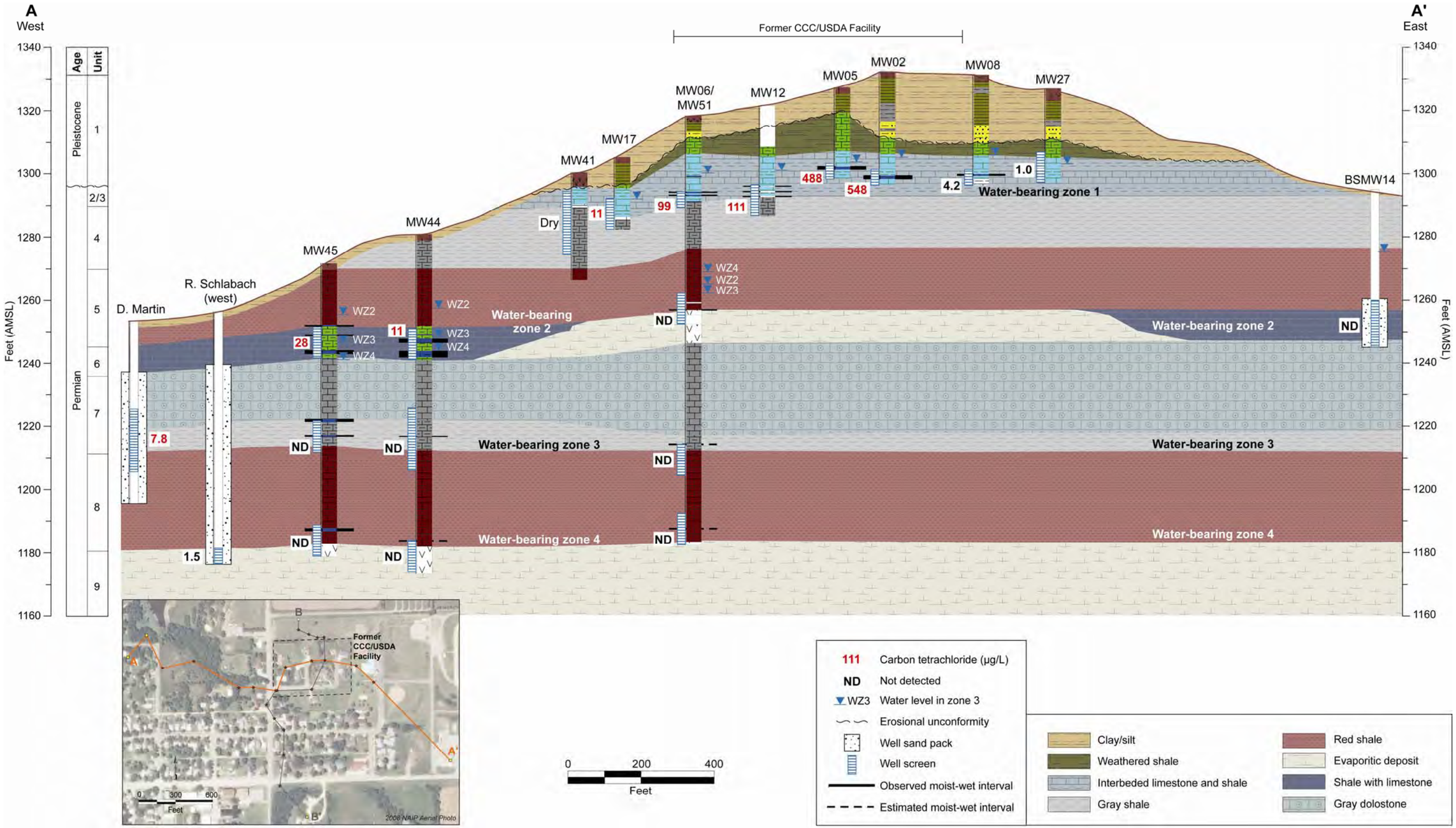

FIGURE 4.20 Vertical distribution of carbon tetrachloride in groundwater along west-to-east hydrogeologic cross section A-A' during the 2009-2010 investigation. Source of photograph: NAIP (2008).

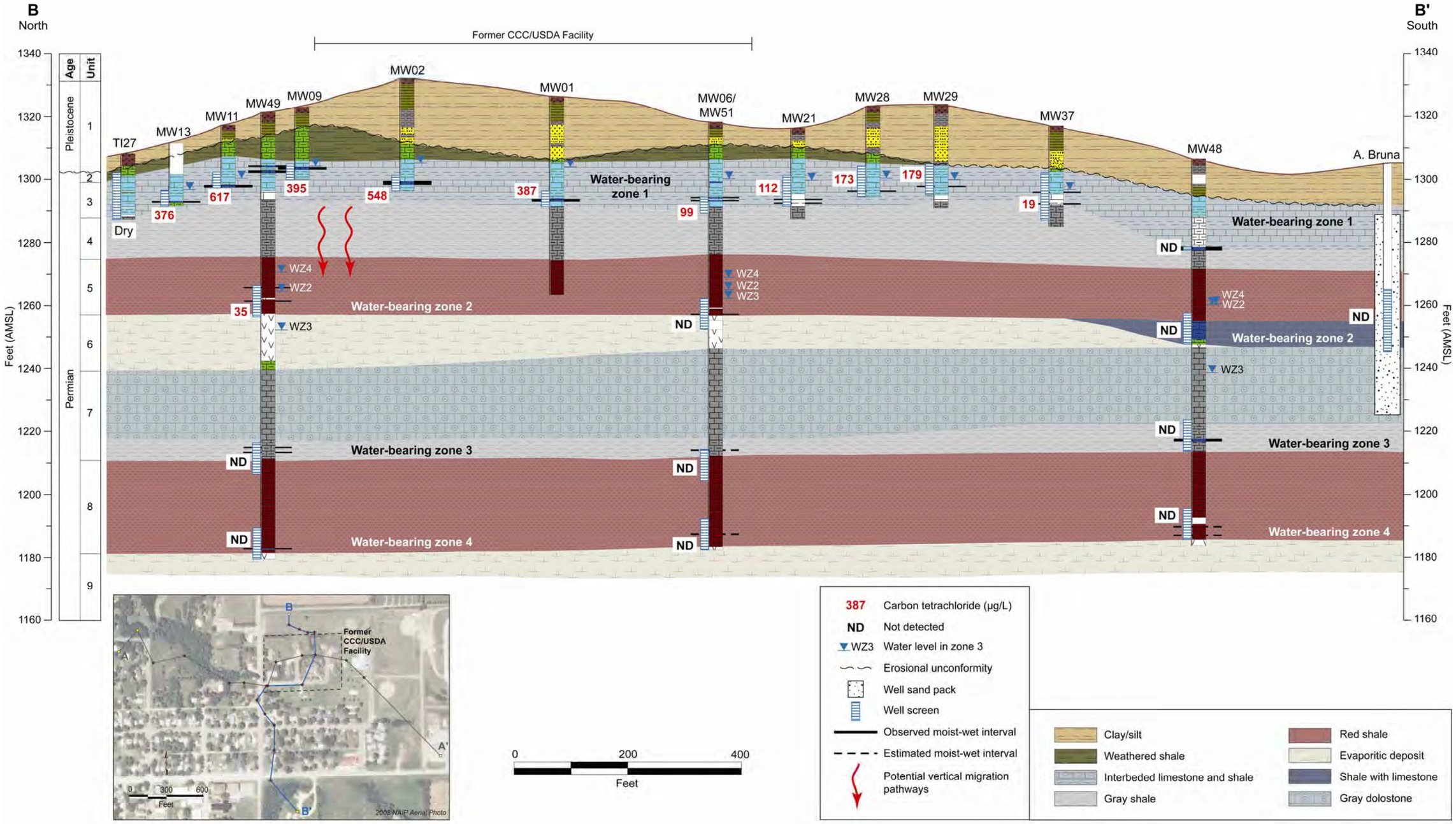

FIGURE 4.21 Vertical distribution of carbon tetrachloride in groundwater along west-to-east hydrogeologic cross section B-B' during the 2009-2010 investigation. Source of photograph: NAIP (2008).

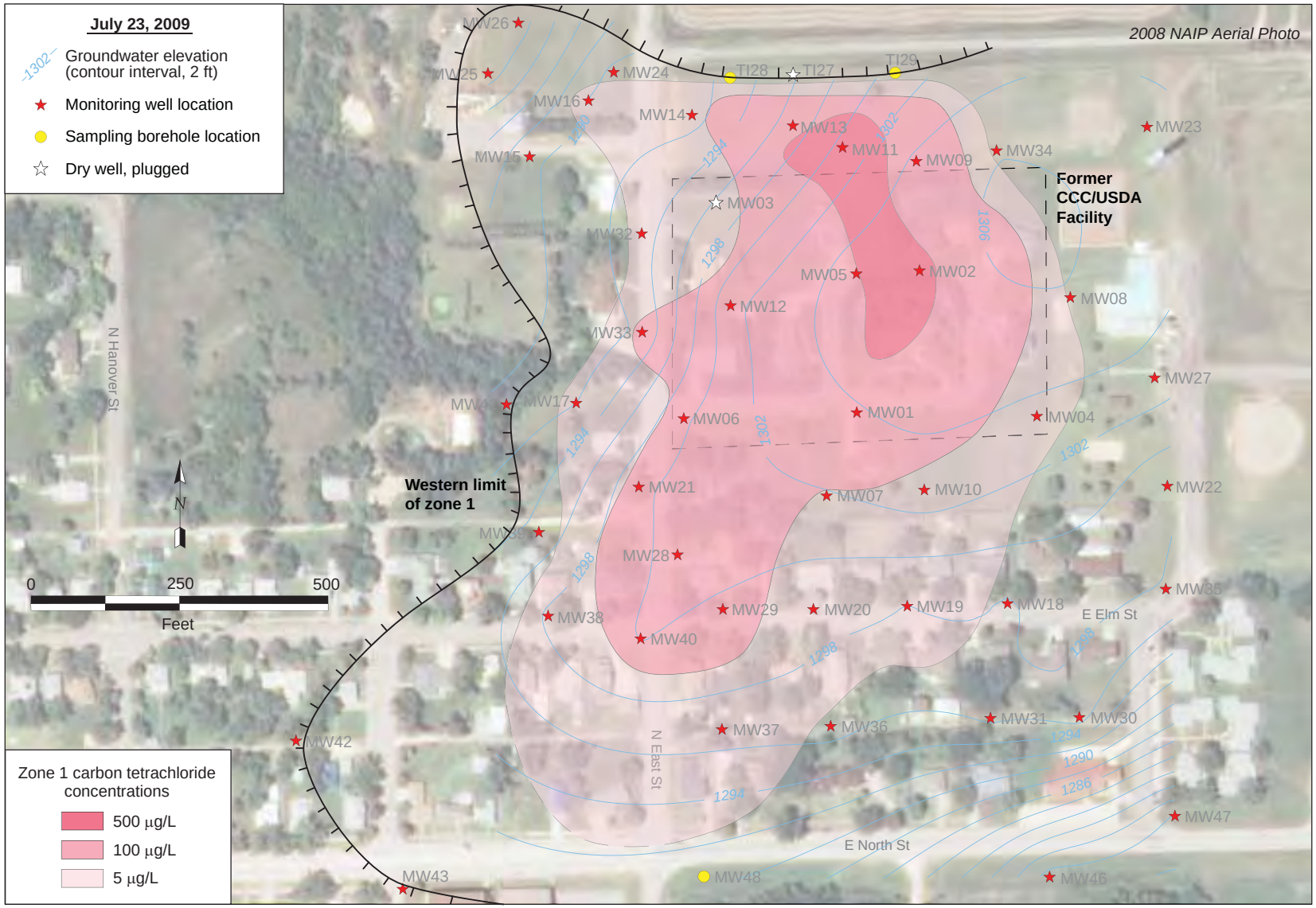

FIGURE 4.22 Interpreted lateral extent of carbon tetrachloride contamination and potentiometric surface in groundwater Zone 1, with estimated western limits of groundwater Zone 1. Source of photograph: NAIP (2008).

FIGURE 4.23 Lateral distribution of carbon tetrachloride in groundwater Zone 2 during the 2009-2010 investigation. Source of photograph: NAIP (2008).

FIGURE 4.24 Lateral distribution of chloroform in groundwater Zone 2 during the 2009-2010 investigation. Source of photograph: NAIP (2008).

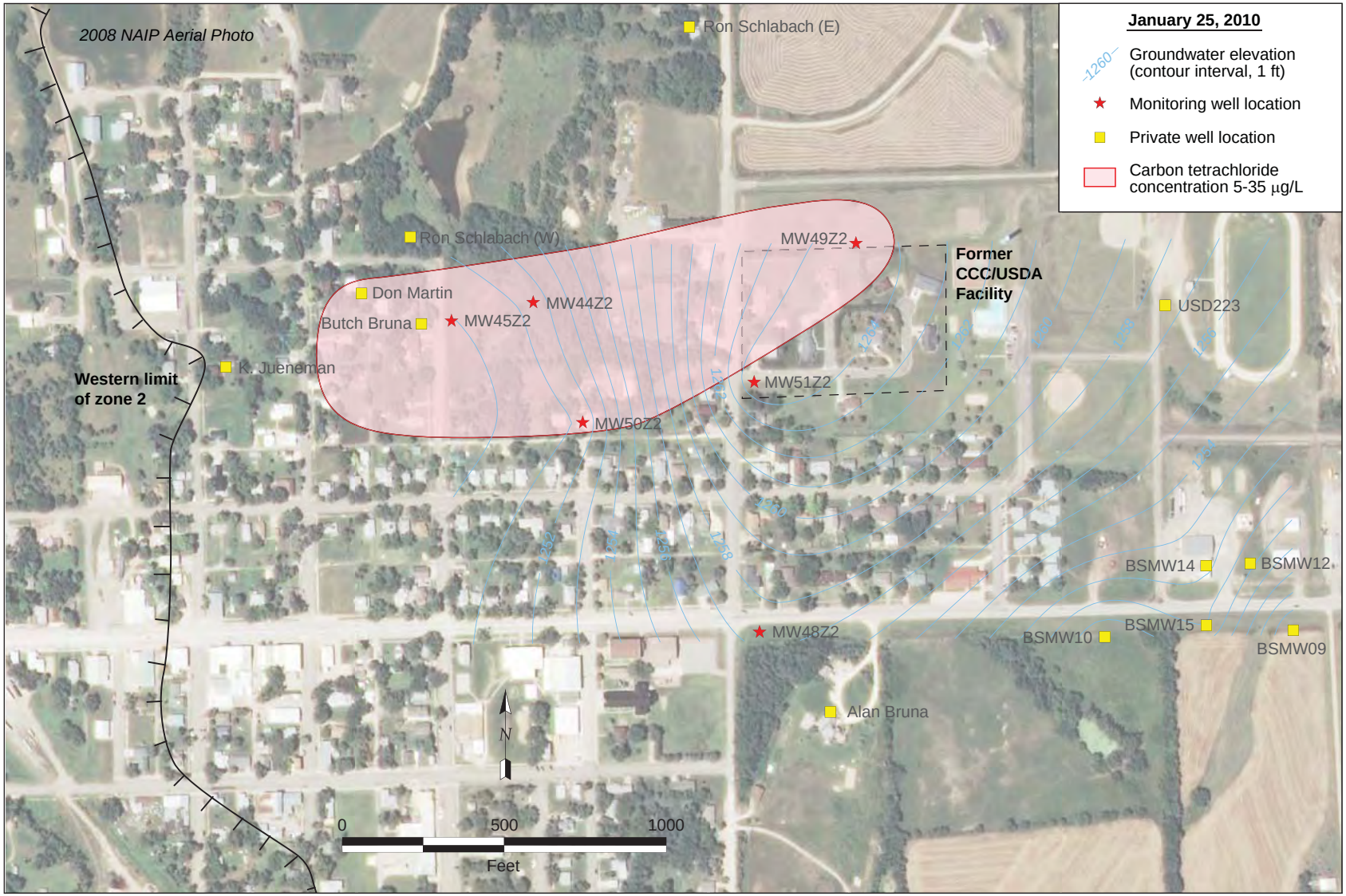

FIGURE 4.25 Interpreted lateral extent of carbon tetrachloride contamination and potentiometric surface in groundwater Zone 2, with estimated western limits of groundwater Zone 2. Source of photograph: NAIP (2008).

FIGURE 4.26 Lateral distribution of average estimated hydraulic conductivity values for groundwater Zone 1, as determined by analysis of the data generated by the August 2009 slug testing. Source of photograph: NAIP (2008).

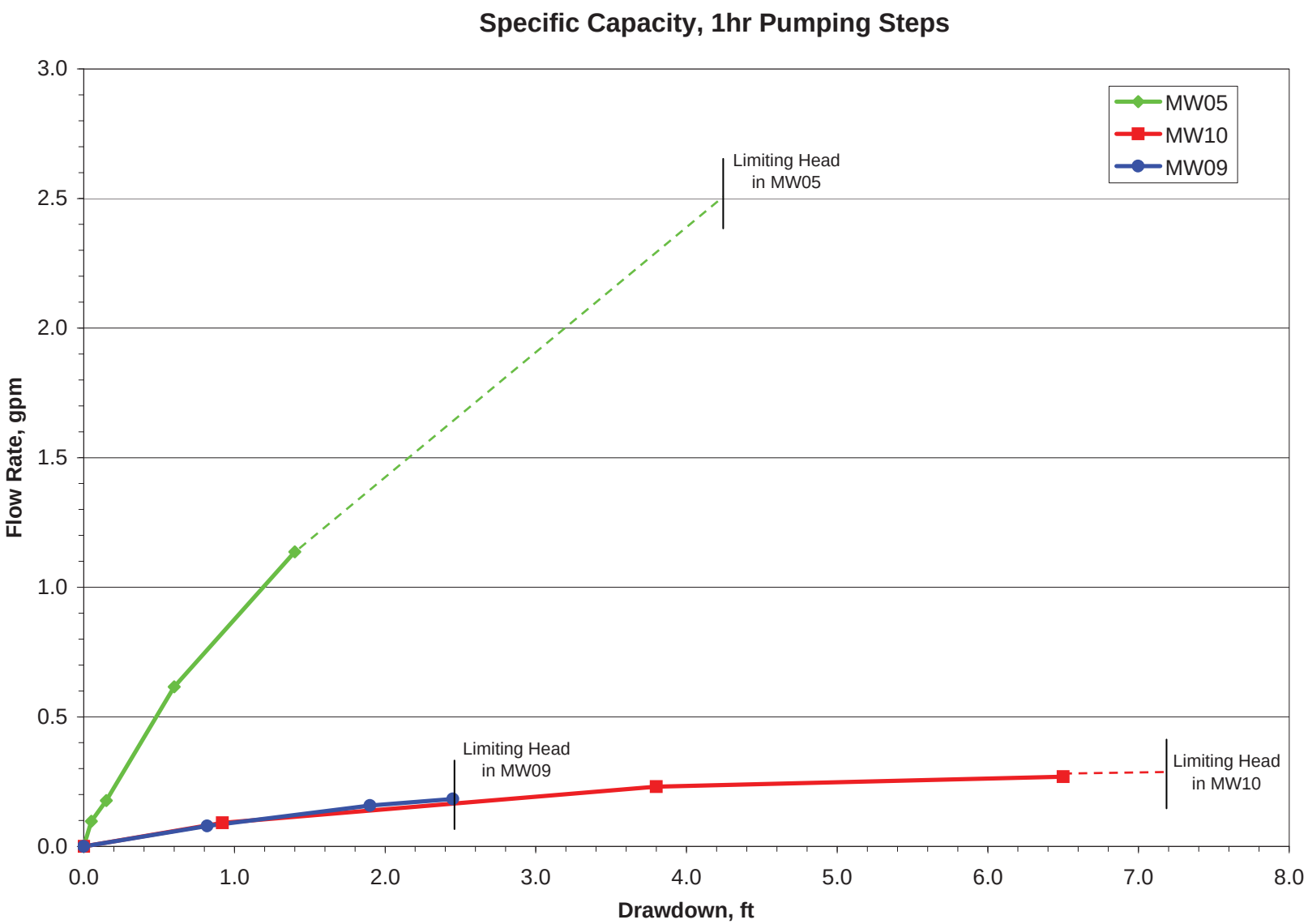

FIGURE 4.27 Specific capacity estimates for Zone 1 wells MW09, MW05, and MW10, calculated on the basis of 1-hr pumping steps.

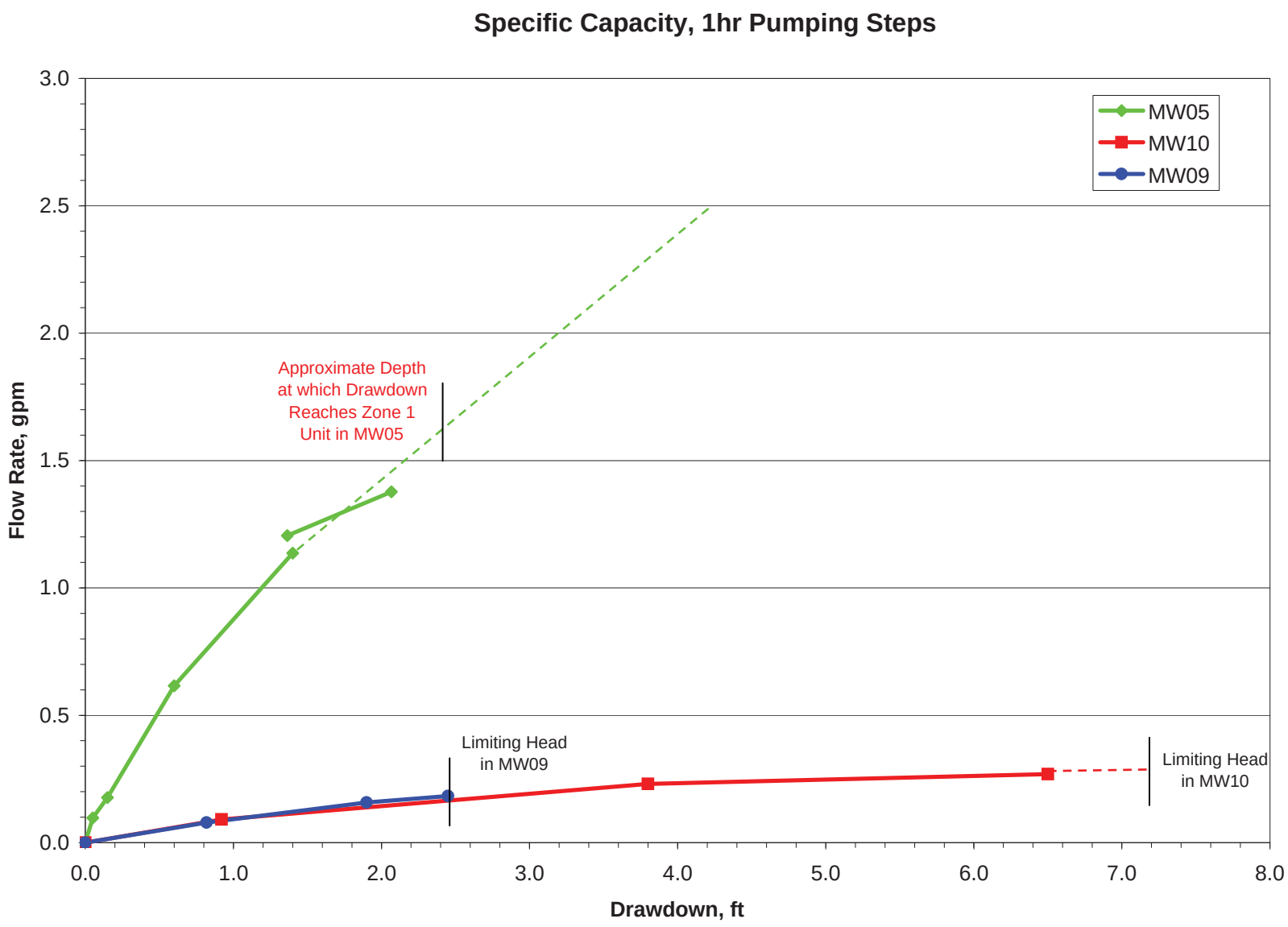

FIGURE 4.28 Drawdown and flow rate for well MW05 after 1 hr of pumping during pumping test 1 and pumping test 2, with the specific capacity estimates previously obtained for well MW05.

FIGURE 4.29 Groundwater flow pattern and estimated average groundwater velocities in Zone 1. Source of photograph: NAIP (2008).

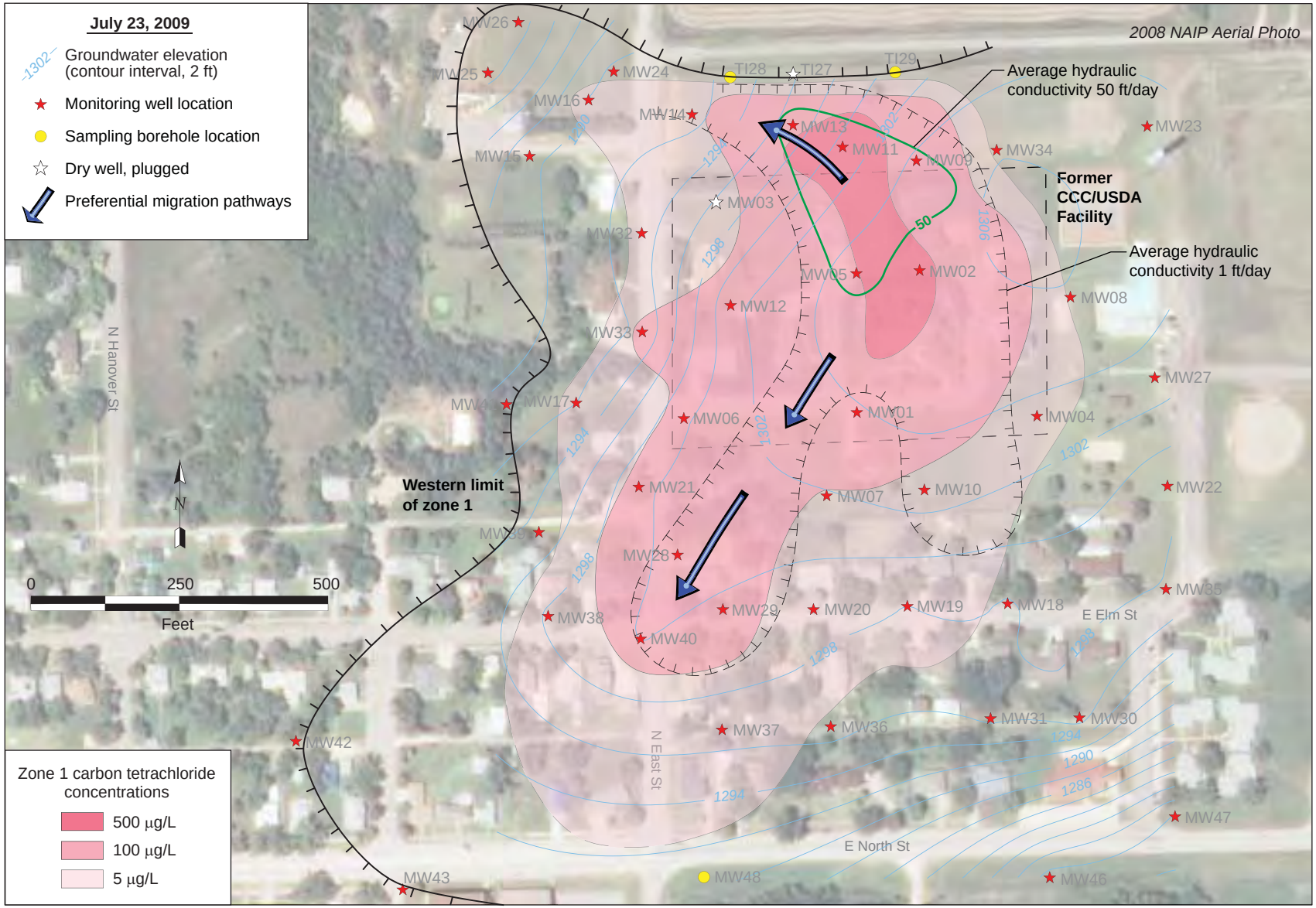

FIGURE 4.30 Interpreted lateral extent of carbon tetrachloride contamination, potentiometric surface, hydraulic conductivity, and preferred migration pathways in groundwater Zone 1. Source of photograph: NAIP (2008).

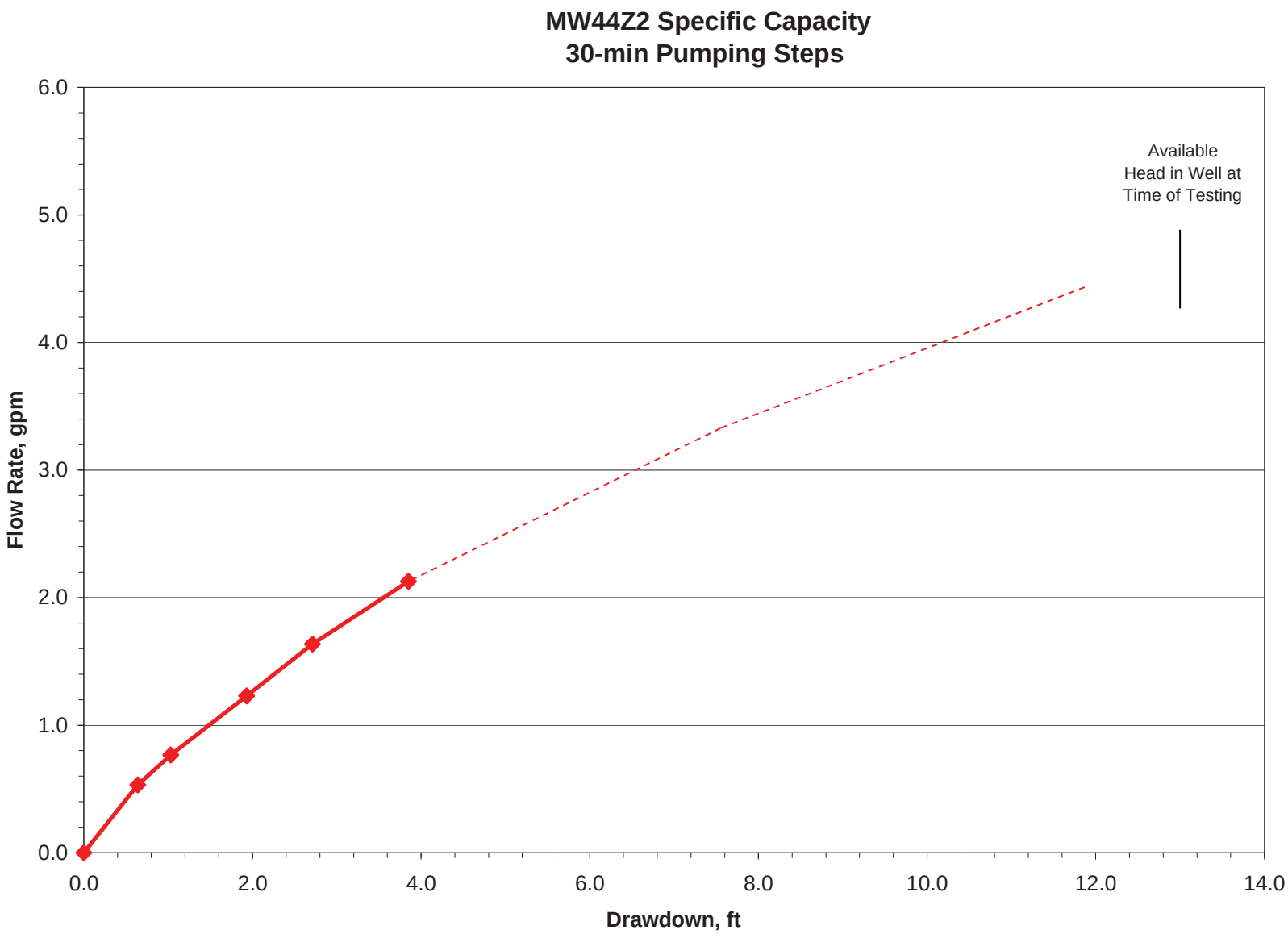

FIGURE 4.31 Specific capacity estimates for Zone 2 well MW44Z2, calculated on the basis of 30-min pumping steps.

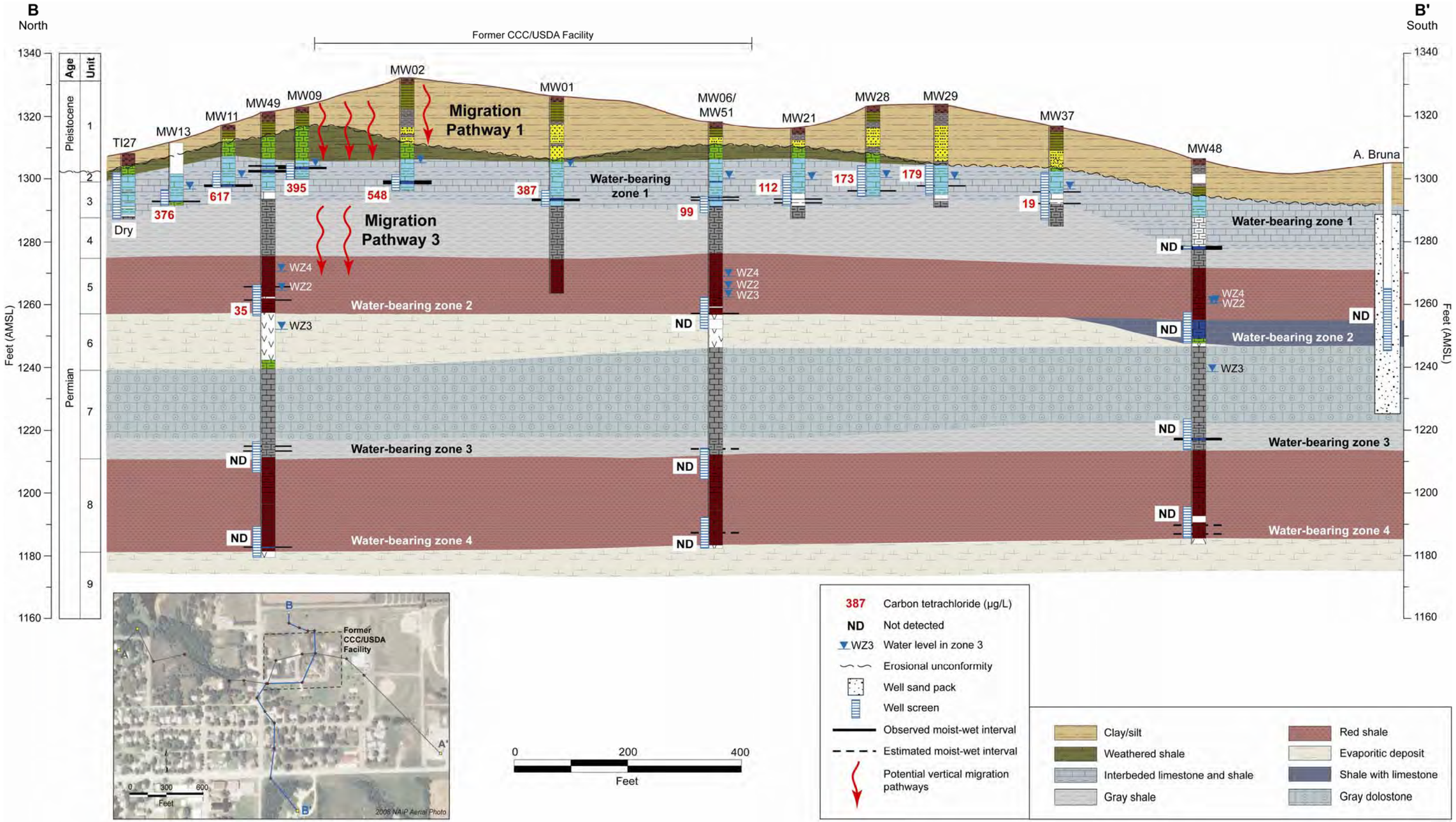

FIGURE 4.32 Interpreted vertical migration pathways 1 and 3 along hydrogeologic cross section B-B'. Source of photograph: NAIP (2008).

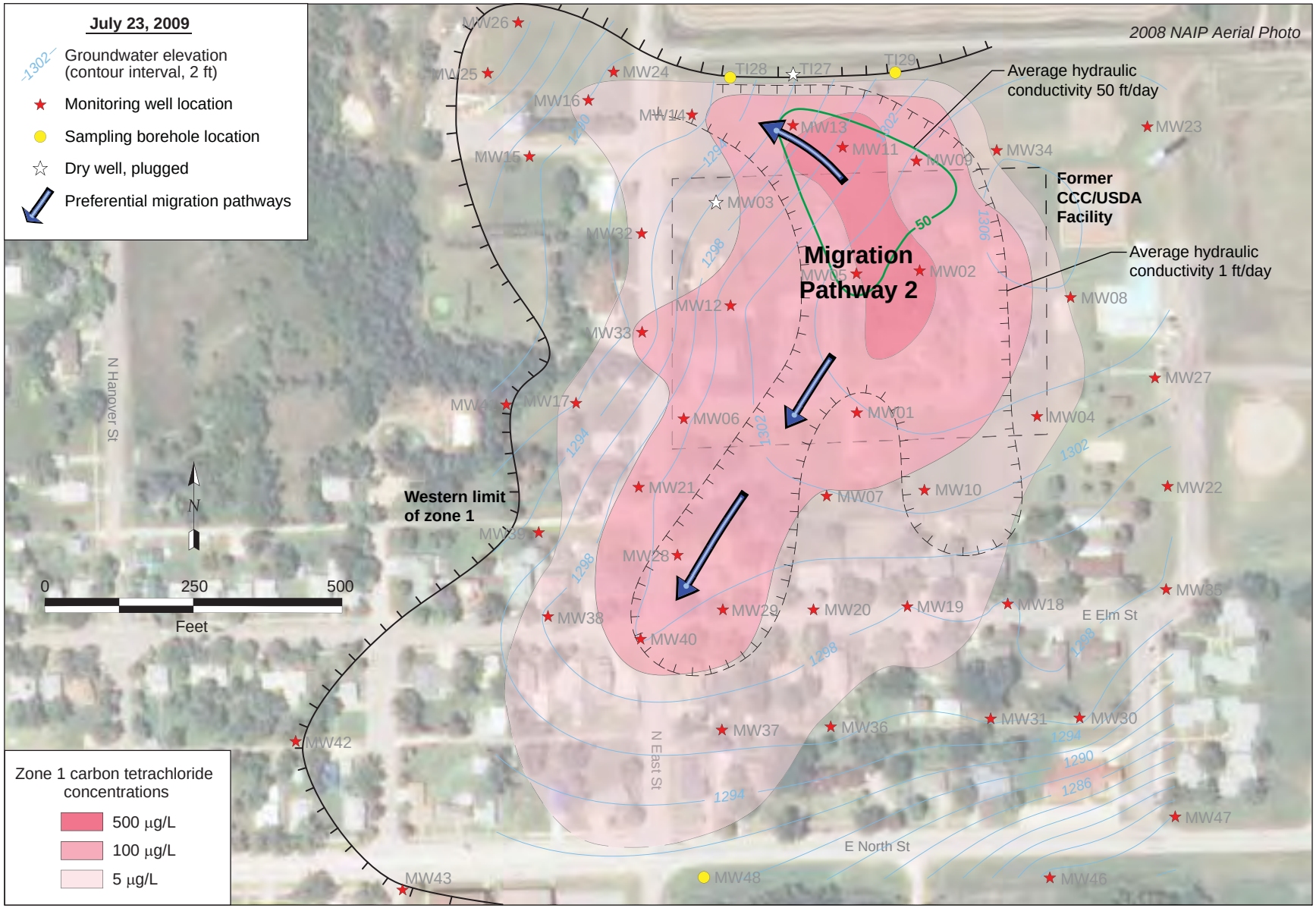

FIGURE 4.33 Interpreted lateral migration pathway 2 in groundwater Zone 1. Source of photograph: NAIP (2008).

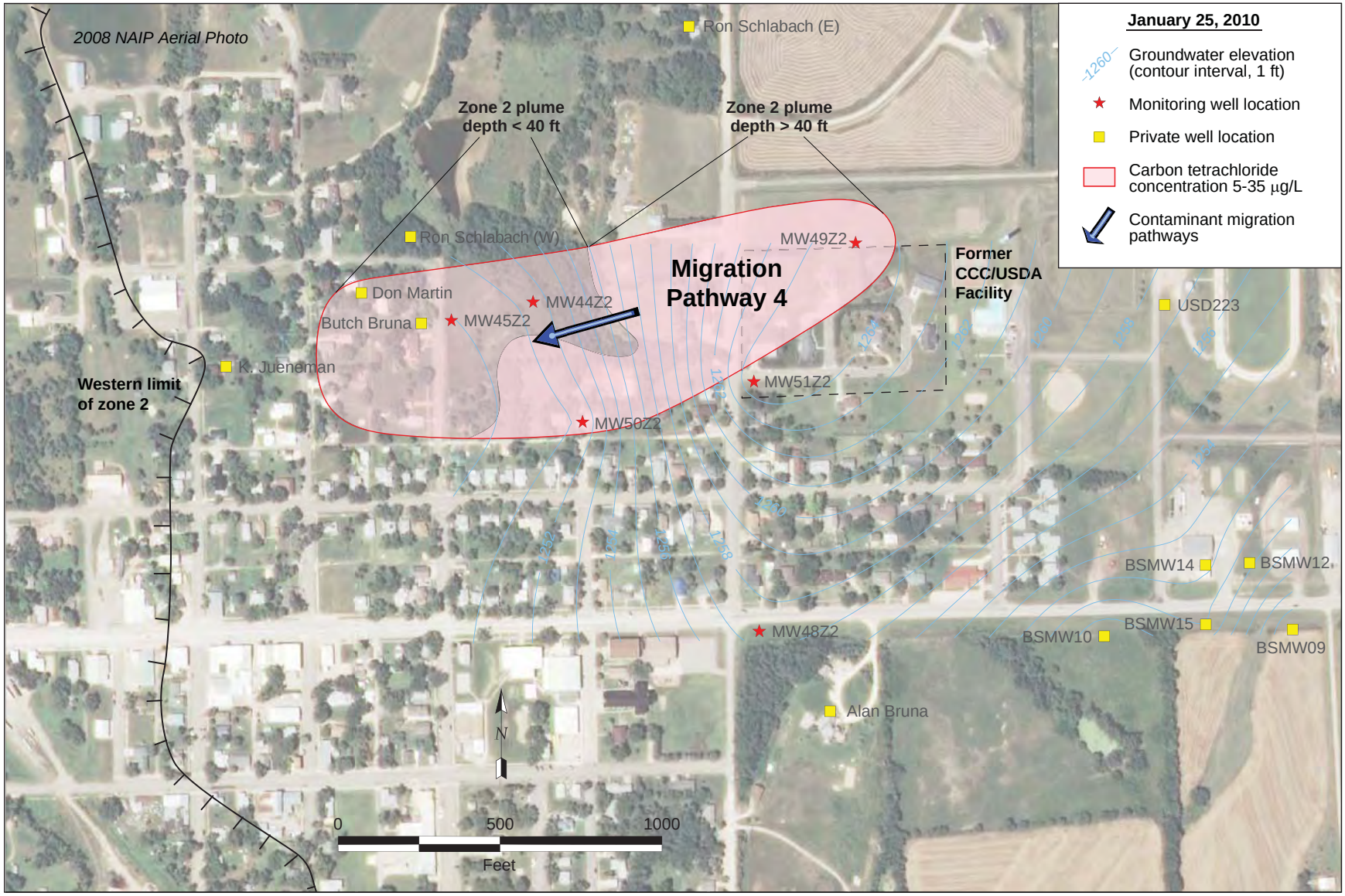

FIGURE 4.34 Interpreted lateral migration pathway 4 in groundwater Zone 2. Source of photograph: NAIP (2008).

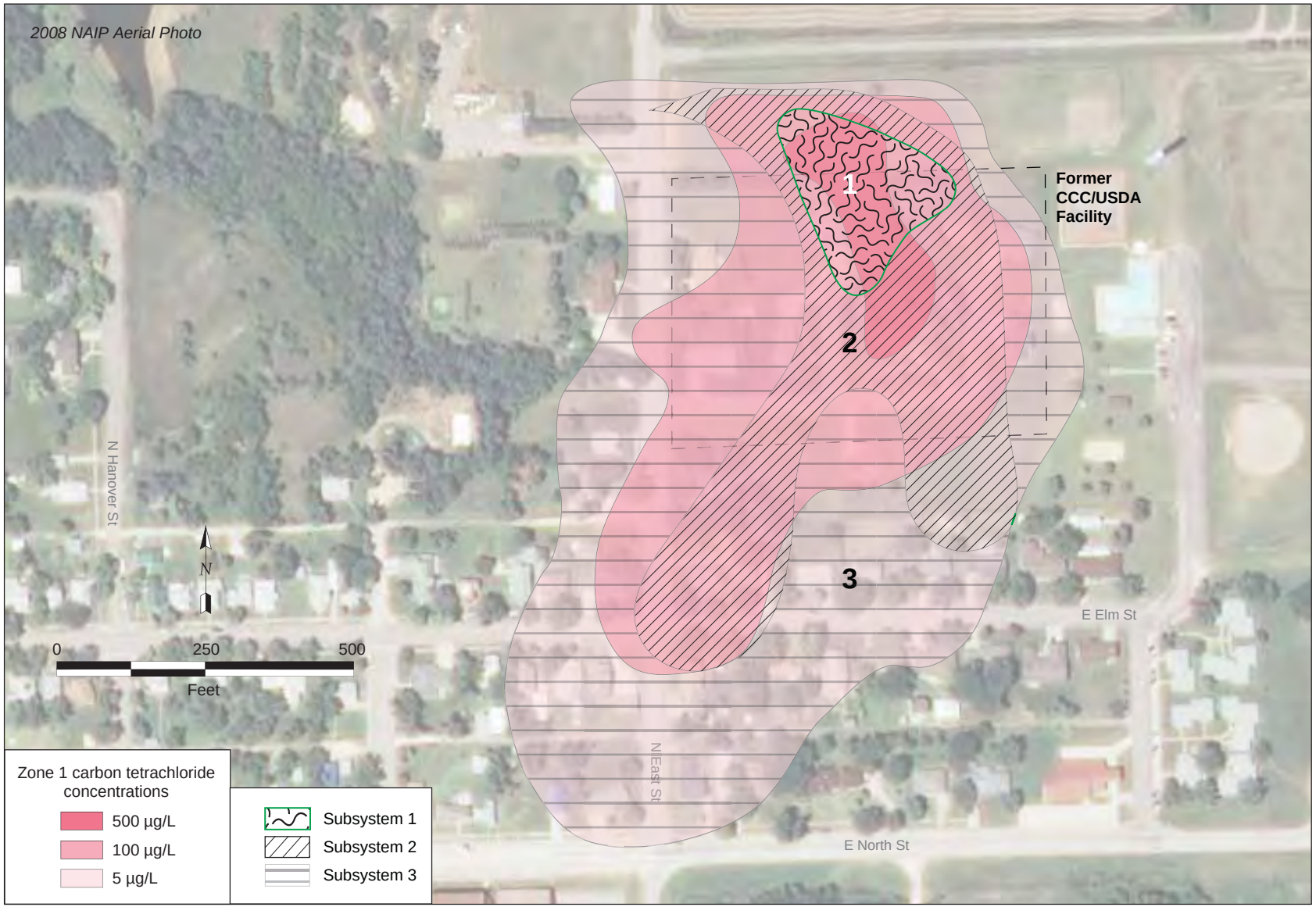

FIGURE 4.35 Interpreted spatial configurations of Subsystems 1, 2, and 3 within the carbon tetrachloride distribution in groundwater Zone 1. The characteristics of the subsystems are summarized in Table 4.6. Source of photograph: NAIP (2008).

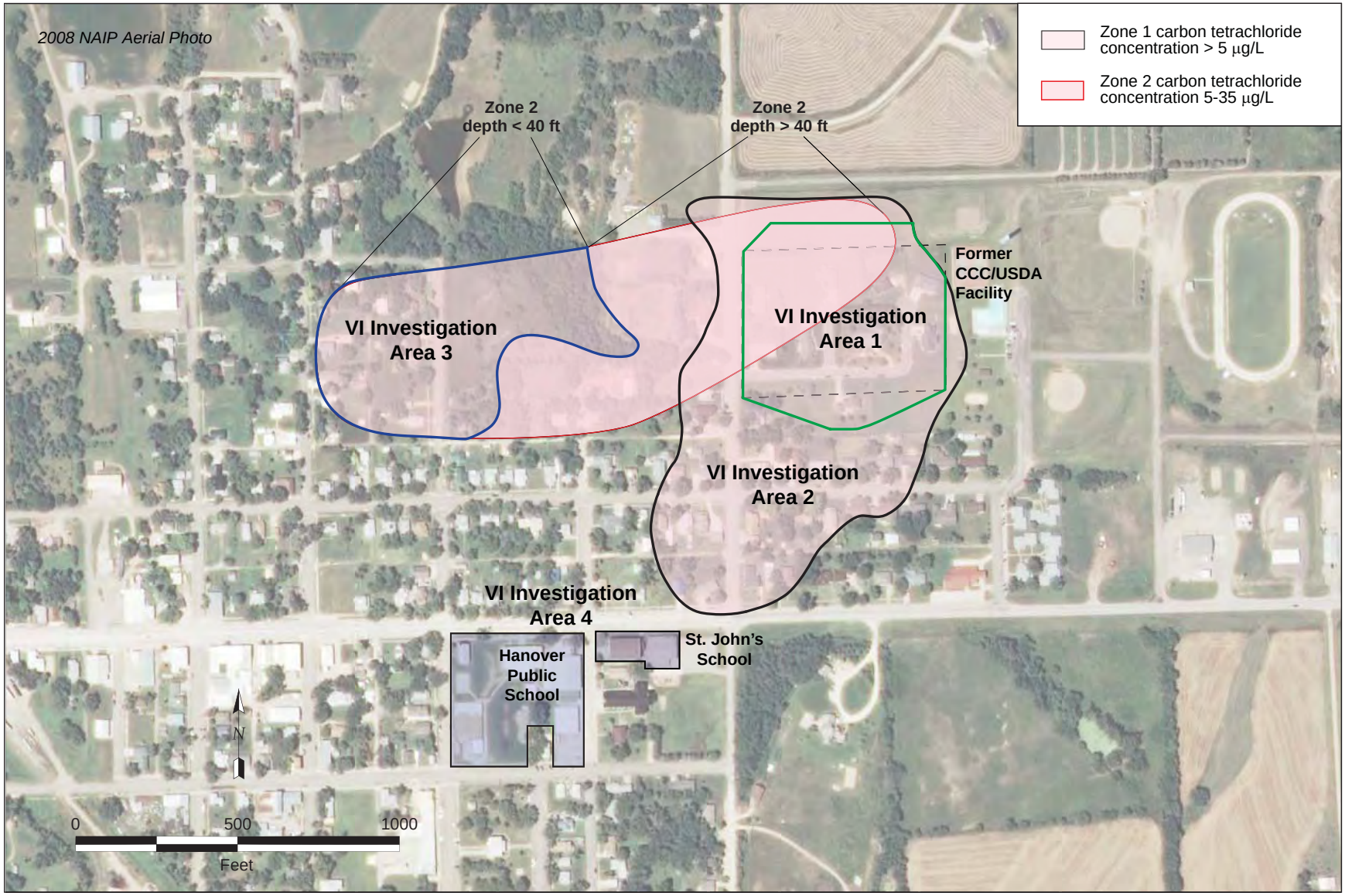

FIGURE 4.36 Vapor intrusion investigation Areas 1 and 2 (groundwater Zone 1), Area 3 (groundwater Zone 2), and Area 4 (schools). Source of photogaph: NAIP (2008).

FIGURE 4.37 Results of on-site screening analysis for carbon tetrachloride in soil gas samples collected in March 2009 within the potentially contaminated areas of groundwater Zone 1 and Zone 2. Source of photograph: NAIP (2008).

FIGURE 4.38 Results of laboratory analysis for carbon tetrachloride, chloroform, and radon in sub-slab vapor and indoor air samples collected in February-March 2009 at nine residences on and near the former CCC/USDA facility. Source of photograph: NAIP (2008).

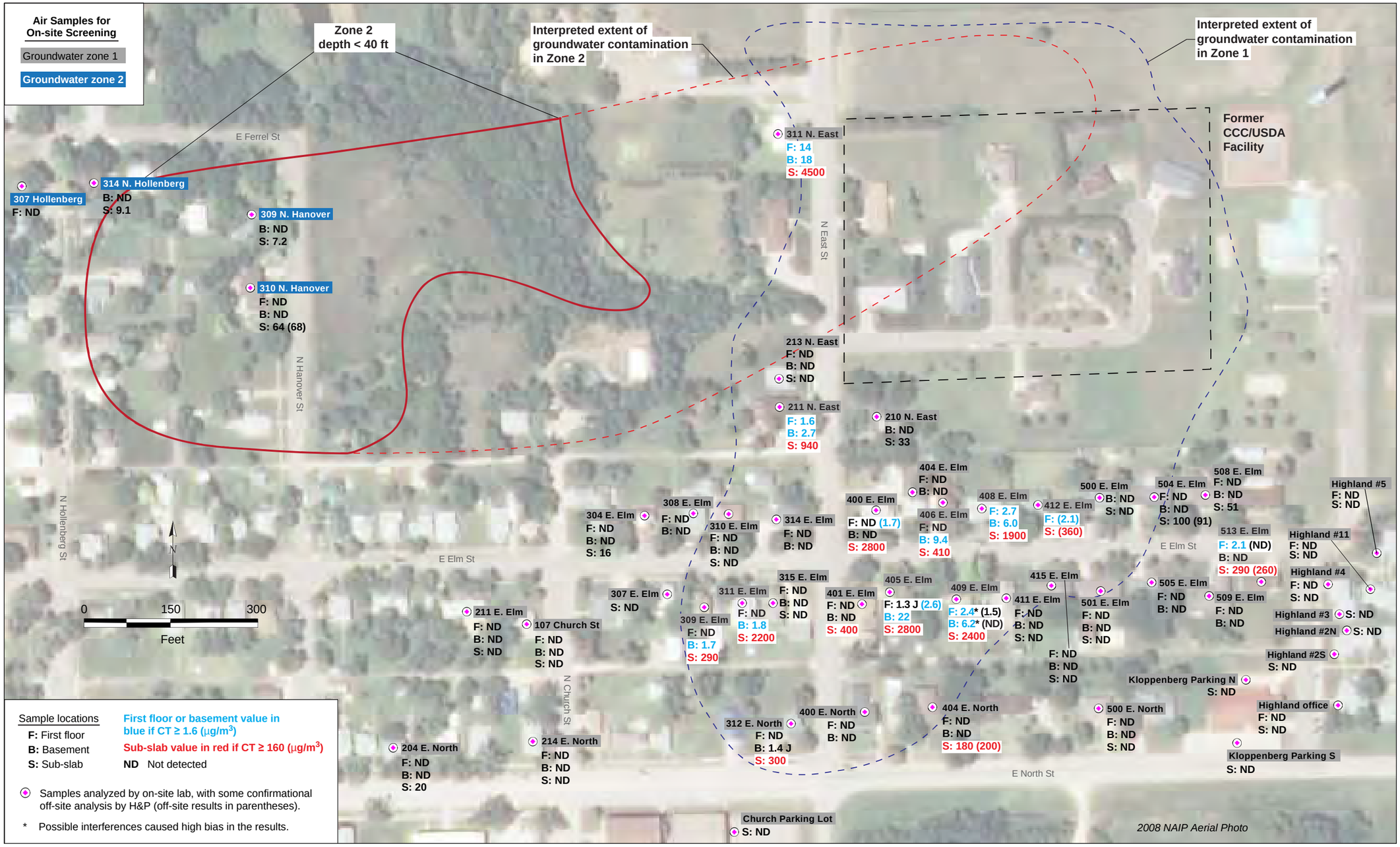

FIGURE 4.39 Results of on-site screening analysis for carbon tetrachloride for indoor air and sub-slab vapor samples collected in March-April 2009 at residences within and near the contaminated areas of groundwater Zone 1 and Zone 2. Source of photograph: NAIP (2008).

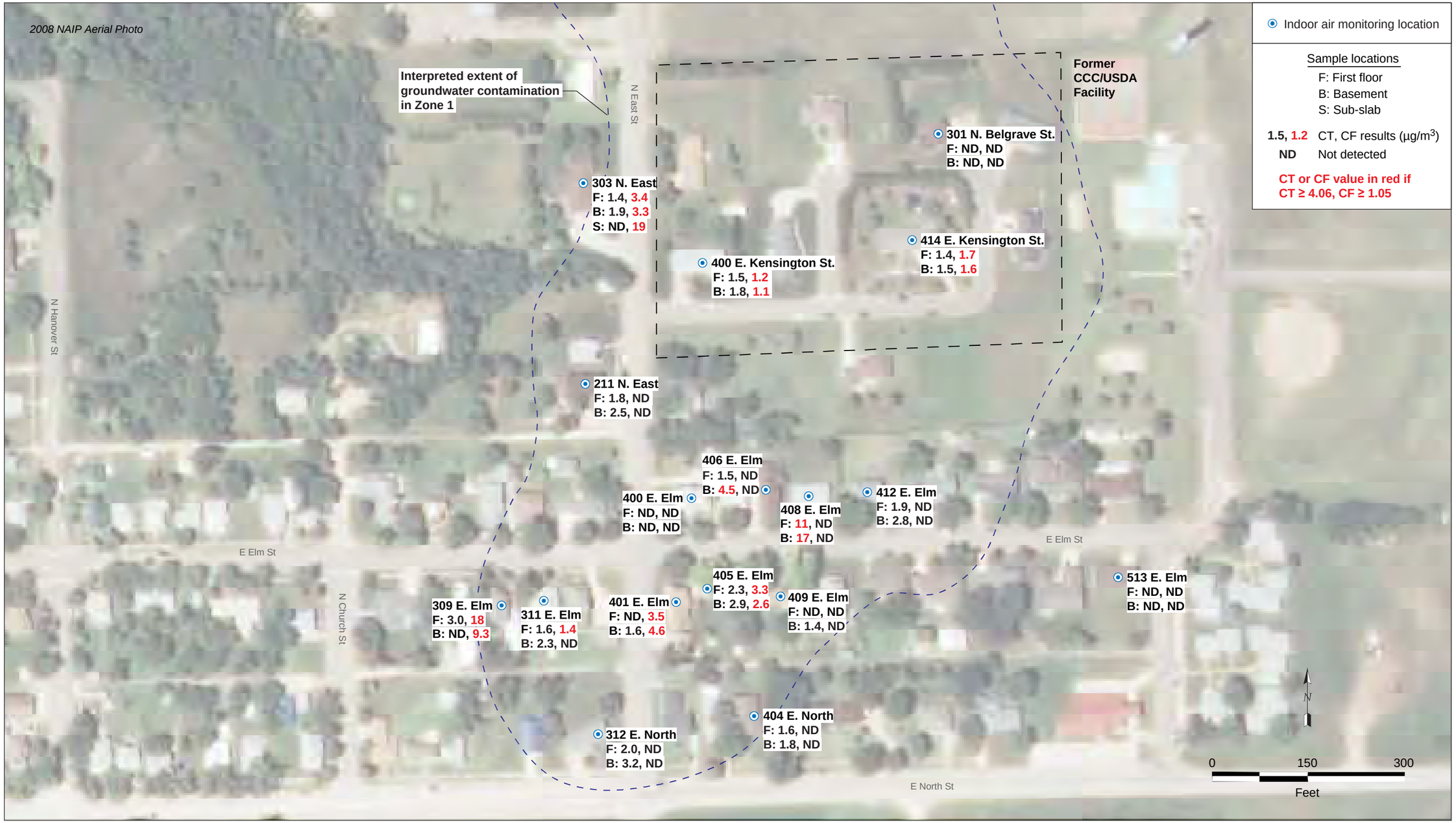

FIGURE 4.40 Results of laboratory analysis for carbon tetrachloride and chloroform in indoor air and sub-slab vapor samples collected in August 2009 at selected homes potentially affected by contamination in groundwater Zone 1. Source of photograph: NAIP (2008).

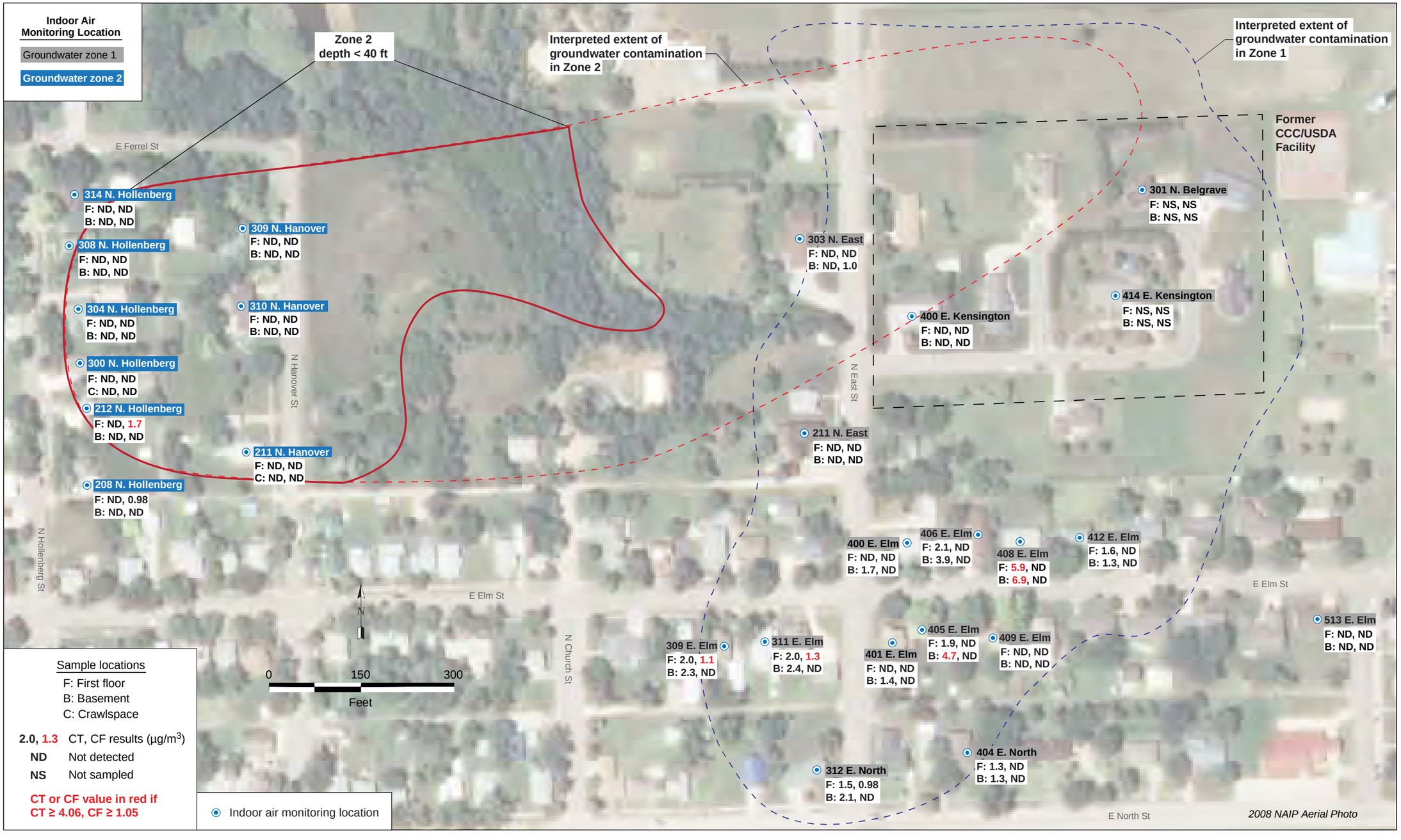

FIGURE 4.41 Results of laboratory analysis for carbon tetrachloride and chloroform in indoor air samples collected at homes potentially affected by contamination in groundwater Zone 1 in January 2010 and at homes potentially affected by contamination in groundwater Zone 2 in February 2010. Source of photograph: NAIP (2008).

FIGURE 4.42 Radon concentrations detected in indoor air of the schools and the tested homes. Source of photograph: NAIP (2008).

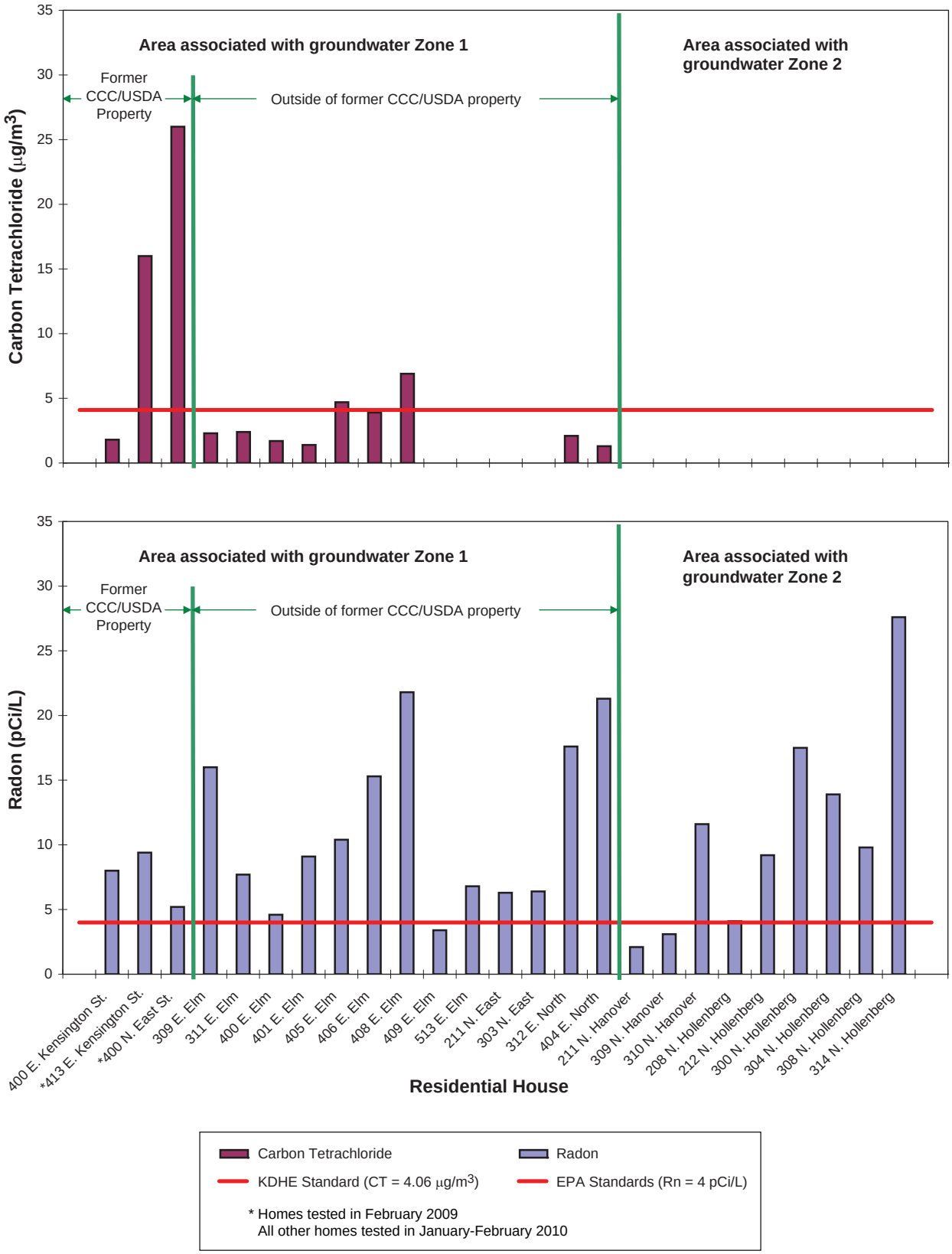

FIGURE 4.43 Qualitative correlation between radon and carbon tetrachloride in basement indoor air of homes tested.

FIGURE 4.44 Sampling locations in the vapor intrusion investigation, with concentrations of carbon tetrachloride and chloroform found in laboratory analysis of indoor air and sub-slab vapor samples collected at the five residences selected for mitigation. Source of photograph: NAIP (2008).

5 Summary of Key Findings

The key technical findings of the comprehensive geologic, hydrologic, and geochemical site characterization studies; the aquifer hydraulic testing; and the VI investigation programs conducted at the former CCC/USDA grain storage facility in Hanover are summarized below with regard to the physical setting, the extent of the contamination, and vapor intrusion.

5.1 Physical Setting

- The geologic sequence in the Hanover area generally consists of unconsolidated Pleistocene eolian deposits (on upland areas) and alluvial sediments (in floodplains areas) overlying Permian bedrock. In the study area, a vertical sequence of nine primary lithostratigraphic units was recognized. In order of increasing depth, these units consist of (1) silt and clay with a lower section of sand and sandy silt, (2) weathered shale, (3) interbedded limestone and shale, (4) gray shale, (5) an upper red shale, (6) an interval that varies laterally in facies from evaporitic deposits to soft gray shale with limestone, (7) gray dolostone and shale, (8) a lower red shale, and (9) a lower evaporitic deposit.

- A prominent erosional unconformity marks the top of the bedrock section. Together with more recent topographic downcutting, this erosional unconformity has influenced the lateral extent of the lithostratigraphic units at this site. The complete sequence of units outlined above is present beneath a local upland area that extends southwestward from the former CCC/USDA property. On the eastern and western flanks of the upland area, erosion has progressively cut into, or locally removed, the shallower lithostratigraphic units. On the western flank of the uplift, Units 1-4 are completely absent, and erosion has partially removed Unit 5.

- Four groundwater-bearing intervals were identified in the bedrock sequence. Groundwater Zone 1 — the uppermost water-bearing unit — consists of a few discrete, thin, saturated horizons (total combined thickness of 1-3 ft) developed along bedding planes and fractures within the interbedded

limestones and shales of Unit 3. The areal extent of groundwater Zone 1 is bounded by the erosional limits of Unit 3. Semi-radial groundwater movement was identified in Zone 1, with flows to the northwest, west, southwest, and south originating from a localized groundwater high (groundwater divide) beneath the upland area at the former CCC/USDA facility. Preferentially southwestward groundwater flow is evident along a narrow, relatively permeable zone, moving at an average velocity of approximately 14 ft/yr (greater by roughly one or two orders of magnitude than the rates of flow to the northwest, west, or south).

- Groundwater Zone 2 consists of relatively thick saturated intervals in the shale with limestone facies of Unit 6, or thin moist-wet intervals along bedding planes near the base of the upper red shale (Unit 5) where this interval overlies the evaporitic facies of Unit 6. Zone 2 is laterally more extensive than Zone 1, since it is located deeper in the stratigraphic sequence and hence has been less severely truncated by erosion. Semi-radial groundwater flow was also identified in groundwater-bearing Zone 2, originating from a localized high beneath the former CCC/USDA facility. Groundwater movement to the west, southwest, south, and southeast is indicated; however, the highest hydraulic gradients are observed in the westerly flow direction.

- Groundwater Zone 3 is hosted by the gray dolomitic shale near the base of Unit 7. The thin moist-wet intervals in this unit, which are difficult to identify, have a combined thickness of less than 2 ft. Groundwater Zone 4 is developed at the base of the lower red shale (Unit 8). The multiple thin, moist-wet intervals that form Zone 4 also have a total thickness of less than 2 ft. Continuous monitoring indicates that the groundwater levels in monitoring wells installed in Zone 3 and Zone 4 have yet to equilibrate with the ambient levels in the surrounding lithologies; therefore, the detailed patterns of groundwater flow in these units cannot be determined from available data. The existing observations for these wells suggest, however, that the capacity of Zone 3 and Zone 4 to transmit groundwater to wells is very limited.

- Groundwater leakage from Zone 1 to Zone 2 is indicated in the area beneath the upland where groundwater mounding is observed in both Zone 1 and

Zone 2. This vertical leakage, however, is minimal, as indicated by the much lower concentrations of carbon tetrachloride and nitrate in Zone 2. The apparent mixing ratio of Zone 1 groundwater flowing into Zone 2 is estimated at 10% or less, on the basis of concentration data for both carbon tetrachloride and nitrate in the upland area.

- Although equilibrium groundwater levels have not been achieved in Zone 3 or Zone 4, recent groundwater level measurements in Zones 1-4 indicate an upward hydraulic gradient from Zone 4 to Zone 3 (and also from Zone 4 to Zone 2). These observations suggest that a natural hydraulic barrier exists to downward migration of Zone 2 groundwater into the deeper parts of the flow system beneath the upland area.

5.2 Extent of the Contamination

- The residual concentrations of carbon tetrachloride and chloroform identified in soil were well below the KDHE Tier 2 standards for these contaminants (200 μg/kg and 960 μg/kg, respectively), indicating that the soils pose no unacceptable health or environmental risks and do not represent a potential continuing source of contamination to groundwater. Vertical-profile sampling (for VOCs analyses) of the vadose zone soils beneath the former CCC/USDA facility was conducted at 38 locations. Carbon tetrachloride was detected at 8 locations only, at a maximum concentration of 35 μg/kg. Low levels of chloroform (≤ 44 μg/kg) were also detected at 2 locations.

- Carbon tetrachloride contamination was identified in the groundwater in Zone 1 at concentrations up to 617 μg/L. The highest concentrations of carbon tetrachloride (> 500 μg/L) were detected beneath the north central portion of the former CCC/USDA facility. Concentrations exceeding 100 μg/L generally underlie the topographic upland that extends to the south and southwest of the former facility, along the preferred groundwater flow pathway identified in this direction.

- The lateral variations in carbon tetrachloride concentrations observed in Zone 1 (as a result of contaminant migration) show relatively close correlation to the spatial variations in the hydraulic conductivity of the Zone 1 unit that were identified through extensive hydraulic testing. Specifically, carbon tetrachloride concentrations > 100 μg/L are generally associated with the regions of highest K_h values in the unit (beneath the upland area), while progressively lower concentrations and K_h values are generally observed toward the margins of the upland.

- The elevated ratios of chloroform to carbon tetrachloride observed suggest that some degradation of carbon tetrachloride (by reductive dechlorination under anaerobic conditions) is occurring in the Zone 1 groundwater along the leading, downgradient margins of the contaminant distribution, as well as in groundwater Zone 2. Chloroform was found in groundwater Zone 1 at a maximum concentration of 18 μg/L. In the northern part of the former CCC/USDA facility, the relative abundance of chloroform to carbon tetrachloride was generally less than 2%. However, near the margins of the carbon tetrachloride distribution, the ratios of chloroform to carbon tetrachloride in Zone 1 increased locally to values of 13% to 64% or more. A similar increase (to values of 9% to 22%) is also evident in Zone 2.

- Carbon tetrachloride was identified in Zone 2 along a relatively narrow pathway extending to the west and downgradient from the former CCC/USDA facility. The observed carbon tetrachloride concentrations ranged from 35 μg/L at the northern edge of the former facility to 11-28 μg/L near the downgradient toe of the distribution. Lower levels of carbon tetrachloride (1.5-7.8 μg/L) were also found in four private wells near the apparent western edge of this distribution. The private wells extend into the deeper groundwater zones but are believed to be continuously gravel packed across Zone 2.

- No carbon tetrachloride was detected in groundwater Zone 3 or Zone 4 at monitoring wells completed exclusively in one of these zones. This observation is consistent with the interpretation that Zone 3 and Zone 4 receive little or no natural recharge via vertical infiltration from contaminated Zone 2. Carbon tetrachloride was, however, identified in the four private wells

noted above, suggesting that the well gravel packs might provide a conduit for contaminant migration to the deeper zones near the western, downgradient toe of the Zone 2 contaminant distribution.

- No unacceptable health risks are associated with potential human exposure to the contaminated groundwater in Zone 1 or Zone 2, if current conditions continue. No active private (or public) wells are known to be present within the area of Zone 1 contamination or to be completed in this unit. The four identified private wells that penetrate the contaminated portion of Zone 2 are used only for lawn and garden purposes. Field reconnaissance along the projected erosional limits of the Zone 1 and Zone 2 units (in the identified directions of contaminant migration) revealed no springs or seepage to suggest direct drainage from these intervals to the surface.

- The results of extensive hydraulic characterization studies (slug tests, step-drawdown pumping tests, and constant-rate pump testing) conducted for groundwater-bearing Zone 1 strongly suggest that the production capacity of this unit is restricted by the total effective thickness (1-3 ft) of the few discrete, thin horizons that form the interval; the heterogeneous hydraulic conductivity of the interval (ranging from 0.001 ft/day to 75 ft/day); and the generally limited availability of groundwater in Zone 1. The results further indicate that groundwater pumping (or injection) through use of conventional wells does not represent a viable mechanism for hydraulic control or removal of the contaminated groundwater in Zone 1.

- The results of extensive hydraulic testing conducted for groundwater-bearing Zone 2 suggest that this unit has a greater capacity than Zone 1 for groundwater production, because of the relatively greater total thickness (up to 5 ft) and generally less discrete nature of the Zone 2 water-bearing intervals, as well as the generally higher estimated K_h values of Zone 2 (ranging from 7.9 ft/day to 43 ft/day). Pumping tests conducted near the western (downgradient) margin of the Zone 2 contaminant distribution demonstrated that groundwater extraction appears feasible as a potential response technology in this portion of the Zone 2 water-bearing unit.

5.3 Vapor Intrusion

- On the basis of KDHE (2007b) guidance, approximately 60 occupied residences were identified for the consideration of possible VI that might be linked to the carbon tetrachloride contamination identified in groundwater-bearing Zone 1 or in the western, more downgradient portion of Zone 2 (at depths ≤ 40 ft BGL). Comprehensive indoor air testing and periodic air monitoring were conducted in the summer and/or winter at all identified, accessible structures.

- No risk of upward VI could be demonstrated in association with the localized low residual levels of carbon tetrachloride detected in subsurface soils at the former CCC/USDA facility.

- Five homes overlying the documented contamination in groundwater-bearing Zone 1 were identified as impacted by carbon tetrachloride VI at levels greater than the KDHE Tier 2 standard of 4.055 $\mu g/m^3$ for this contaminant in indoor air. No carbon tetrachloride was detected at either the Hanover public school facility or St. John's School, which both lie outside the interpreted limits of the carbon tetrachloride distribution in groundwater Zone 1 and Zone 2.

- With the approval of the KDHE (2009f, 2010e), the CCC/USDA installed mitigation systems at each of the five homes determined to be impacted by VI. Performance testing of the installed systems has demonstrated that they are effectively reducing indoor air contaminant concentrations to acceptable levels. Therefore, no unacceptable health risks are currently associated with potential human exposure to indoor air contaminated with carbon tetrachloride and chloroform as a result of VI from contaminated groundwater in Zone 1 or Zone 2.

- Radon analysis, performed to use radon as a possible supplemental indicator of subsurface VI to indoor air, identified unacceptable levels of radon that exceed the EPA standard (up to 7 times the EPA action level of 4.0 pCi/L) in 22 of 25 homes tested for this contaminant, as well as at selected locations in the Hanover public school facility and St. John's School. These observations

demonstrate that the upward intrusion of radon to unacceptable health risk levels is a widespread phenomenon for the Hanover community. Radon is a naturally occurring substance that is unrelated to grain fumigation activities.

- Additional information about radon, including options for radon testing and mitigation, is available from the following sources:

  - Toll free: 1-866-865-3233 — KDHE Bureau of Environmental Health

  - Toll free: 1-800-693-5343 — Kansas Radon Hotline

  - URL: http://www.epa.gov/radon/pubs/citguide.html — EPA publication, *A Citizen's Guide to Radon: The Guide to Protecting Yourself and Your Family from Radon*

  - URL: http://www.epa.gov/radon/pdfs/hmbuygud.pdf — EPA publication, *Home Buyer's and Seller's Guide to Radon*

  - URL: http://www.epa.gov/radon/rnxlines.html — EPA web page of radon hotlines and information

6 Recommendations

This section contains preliminary recommendations for corrective action objectives and corresponding potential corrective action alternatives and technologies, as required by the KDHE (2005a). In the development of these preliminary objectives and recommendations, the following key findings of the 2009-2010 Hanover site investigation were considered:

- Since 1974, drinking water has been supplied to the city of Hanover by the Washington County RWD #1 from a well field 6.5 mi north of Hanover. The city elected to abandon its existing public wells in favor of the RWD supply because of the hardness of the local groundwater.

- No unacceptable health risks are associated with potential human exposure to the contaminated groundwater in Zone 1 or Zone 2 under the current conditions. No active private (or public) wells are known to be present within the area of Zone 1 contamination or to be completed in this unit. The four identified private wells that penetrate the contaminated portion of Zone 2 are used only for lawn and garden purposes.

- Carbon tetrachloride contamination was identified in groundwater Zone 1 at concentrations up to 617 µg/L. This contamination is constrained laterally within a local, limited area by the erosion limit of Zone 1. The current investigation confirmed that most of the Zone 1 contaminant system (94% of the total area) is not amenable to extraction or injection technologies that could restore groundwater to carbon tetrachloride concentrations below the MCL and the KDHE Tier 2 standard value of 5 µg/L.

- Low levels of carbon tetrachloride (≤ 35 µg/L) were found in groundwater Zone 2 along a relatively narrow pathway extending from the former CCC/USDA facility to the west, where groundwater extraction as a potential response technology appears to be feasible. Private wells located in Zone 2 might provide conduits for contaminant migration to deeper Zones 3 and 4 via unrestricted gravel packs.

- No carbon tetrachloride was detected in groundwater Zone 3 or Zone 4 at monitoring wells completed exclusively in either of these discrete water-bearing zones.

- Five homes overlying the documented contamination in groundwater Zone 1 were identified as impacted by carbon tetrachloride VI at levels greater than the KDHE Tier 2 standard of 4.055 $\mu g/m^3$ in indoor air. Mitigation systems have been installed and tested.

- No unacceptable human health risks are currently associated with potential exposure to indoor air contaminated with carbon tetrachloride and chloroform from groundwater in Zone 1 or Zone 2 at Hanover.

Although no unacceptable health risks are associated with current human exposure to the contaminated groundwater and indoor air, the potential for future exposure cannot be ruled out. In order to reduce and/or manage any potential risks, preliminary potential corrective action objectives and alternatives are presented and discussed below.

6.1 Preliminary Corrective Action Objectives

Corrective actions for the carbon tetrachloride contamination at Hanover will encompass the following preliminary general objectives:

- Eliminate or otherwise manage the risk due to potential exposure to a domestic water supply containing carbon tetrachloride at a concentration above the KDHE Tier 2 standard.

- Eliminate or otherwise manage the risk due to potential exposure to indoor air containing carbon tetrachloride at a concentration above the KDHE Tier 2 standard.

- Reduce the mass and/or volume of carbon tetrachloride in groundwater in the isolated highly contaminated area where available corrective action technologies could possibly be implemented as a viable mechanism for removal or treatment of the contaminants of concern.

With regard to risks due to exposure to contaminated indoor air, a comprehensive VI investigation was performed in 2009-2010, according to the methodologies discussed in Section 2. After evaluation of the VI results presented and discussed in Sections 3 and 4, five homes were identified for mitigation by the CCC/USDA and the KDHE. The KDHE (2009g, 2010e) approved installation of a VI mitigation system at each home. The monitoring results for the mitigation systems (Sections 3.9 and 4.8) demonstrate the elimination of risk due to exposure to carbon tetrachloride in indoor air in the affected homes at concentrations above the KDHE Tier 2 standard.

This section focuses on objectives for corrective actions associated with groundwater contamination. In accordance with KDHE (2005b) guidance, the CCC/USDA will proceed to a CAS. To meet the general objectives above, the corrective action alternatives and individual components described below — and combinations of the individual components — are being considered for evaluation in the CAS for the site.

6.2 Potential Corrective Action Alternatives and Components

Three corrective action alternatives and three component technologies are proposed for evaluation in the CAS for the Hanover site. The component technologies could be implemented individually or in combination. Briefly, the alternatives and component technologies are as follows:

1. *No action alternative.* A no action alternative is required by the KDHE. Under this alternative, no active treatment of groundwater would be performed. However, operation of the existing VI mitigation systems would continue.

2. *Groundwater monitoring alternative.* Under this alternative, no active treatment of groundwater would be performed; however, selected existing wells would be monitored for carbon tetrachloride and chloroform concentrations to track the status of the contamination in groundwater Zone 1 and Zone 2. In addition, operation of the VI mitigation systems would continue. Five-year reviews would be performed to summarize the results of the groundwater monitoring effort. Elements of this alternative are common to

all of the alternatives described below and are referred to hereafter as the *common elements*.

3. *Environmental use controls alternative.* In addition to the common elements, this alternative would implement environmental use controls to protect human health and the environment, though no active treatment of groundwater would be performed. Environmental use controls might include the creation and implementation of a city ordinance that would prohibit drilling of a domestic drinking water well within the inferred areal extent of the contamination and/or establishment of vapor barrier requirements for all habitable new construction located within 100 ft laterally of the identified contamination. This alternative will help to eliminate the risks of potential exposure to carbon tetrachloride in groundwater.

4. *Groundwater extraction by a trenched horizontal well in groundwater Zone 1, with surface treatment.* This component technology would involve active treatment to reduce the volume and/or mass of carbon tetrachloride in groundwater Zone 1 at an area of high contamination identified as a location of less restricted permeability in the generally low-permeability formation that hosts Zone 1. (See subsystem 1 in Figure 4.35 and Section 4.7.2.) Trenched horizontal well technology could be implemented in Zone 1 in combination with the common elements. As discussed in Section 4, multiple hydraulic tests have demonstrated that groundwater extraction from Zone 1 by a conventional vertical well is not feasible. Even where maximum hydraulic conductivity and specific capacity values have been identified within the Zone 1 unit, a conventional vertical well could be dewatered at the lowest feasible pumping rate. To overcome this difficulty, trenched horizontal well technology could be implemented as follows:

   - A trenched horizontal well system (resembling a French drain system) would be emplaced at a shallow depth (~ 25 ft BGL) along groundwater Zone 1 within the area of high contamination to maximize extraction of contaminated groundwater from Zone 1 and to attenuate existing contamination in Zone 1.

- Extracted groundwater would be treated to remove carbon tetrachloride and chloroform by using a technology similar to a low-energy cascade aerator. Treated groundwater would be discharged to surface water.

5. *Groundwater extraction by a vertical interception well in groundwater Zone 2, with surface treatment.* This technology could be implemented in combination with the common elements. Conventional groundwater extraction technology would be used to intercept the contaminant in the more permeable groundwater Zone 2. The desired effects would include the removal of contaminated groundwater, prevention of further downgradient contaminant migration, and elimination of the source of contaminants entering private lawn and garden wells through unrestricted gravel packs. The groundwater extraction would be implemented as follows:

   - A single vertical well would be installed in Zone 2 near well MW44Z2 to extract groundwater, creating a hydraulic barrier that intercepts the contamination and prevents its further migration.

   - Extracted groundwater would be treated to remove carbon tetrachloride and chloroform by using a technology similar to a low-energy cascade aerator. Treated groundwater would be discharged to surface water. If a groundwater extraction system was installed in both Zone 1 and Zone 2, extracted groundwater could be co-mingled for treatment and discharge via a single aerator system.

6. *Groundwater treatment by a deep-rooted phytoremediation system.* In combination with the common elements and perhaps other component technologies, a system of deep-rooted green plants could be installed to assist in preventing contaminated groundwater from infiltrating the low-permeability Zone 1 by means of evapotranspiration and root microbial activities. The system would be installed across the preferential migration pathways for carbon tetrachloride in groundwater Zone 1, as identified in Section 4.7. The goal of this alternative would be containment and limited extraction of the contaminated groundwater identified in water-bearing Zone 1.

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Appendix A:

Lithology Logs

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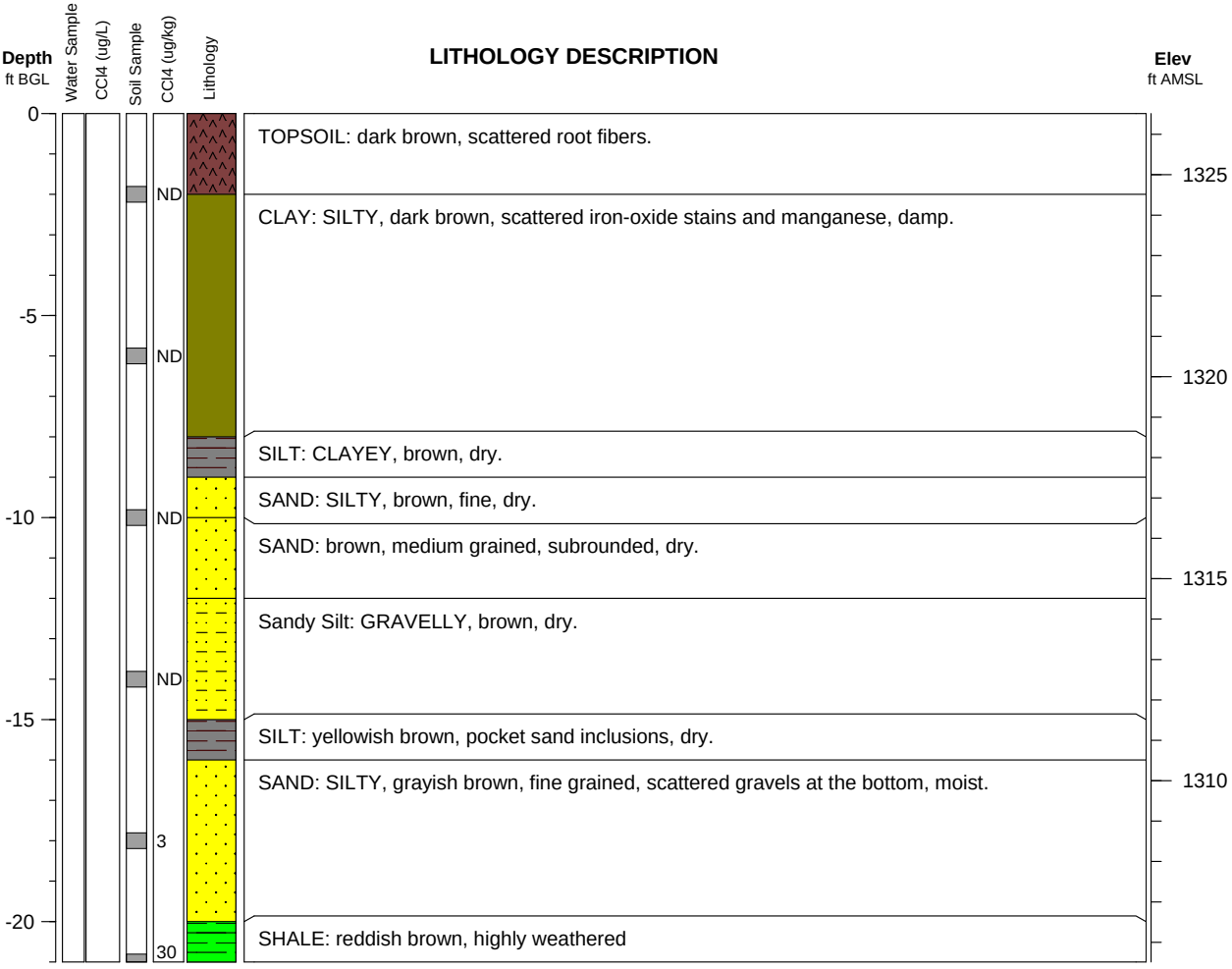
MW24 Lithology Log A-55
MW25 Lithology Log A-56
MW26 Lithology Log A-57
MW27 Lithology Log A-58
MW28 Lithology Log A-59
MW29 Lithology Log A-60
MW30 Lithology Log A-61
MW31 Lithology Log A-62
MW32 Lithology Log A-63
MW33 Lithology Log A-64
MW34 Lithology Log A-65
MW35 Lithology Log A-66
MW36 Lithology Log A-67
MW37 Lithology Log A-68
MW38 Lithology Log A-69
MW39 Lithology Log A-70
MW40 Lithology Log A-71
MW41 Lithology Log A-72
MW42 Lithology Log A-73
MW43 Lithology Log A-74
MW44 Lithology Log A-75
MW45 Lithology Log A-76
MW46 Lithology Log A-77
MW47 Lithology Log A-78
MW48 Lithology Log A-79
MW49 Lithology Log A-80
MW50 Lithology Log A-81
MW51 Lithology Log A-82

Argonne National Laboratory

Well ID: TI01

Project: Hanover **Elevation:** 1326.51 ft **Log Date:** January 13, 2009

Geologist: Eugene Yan **Depth:** 21 ft **Rig:** Geoprobe

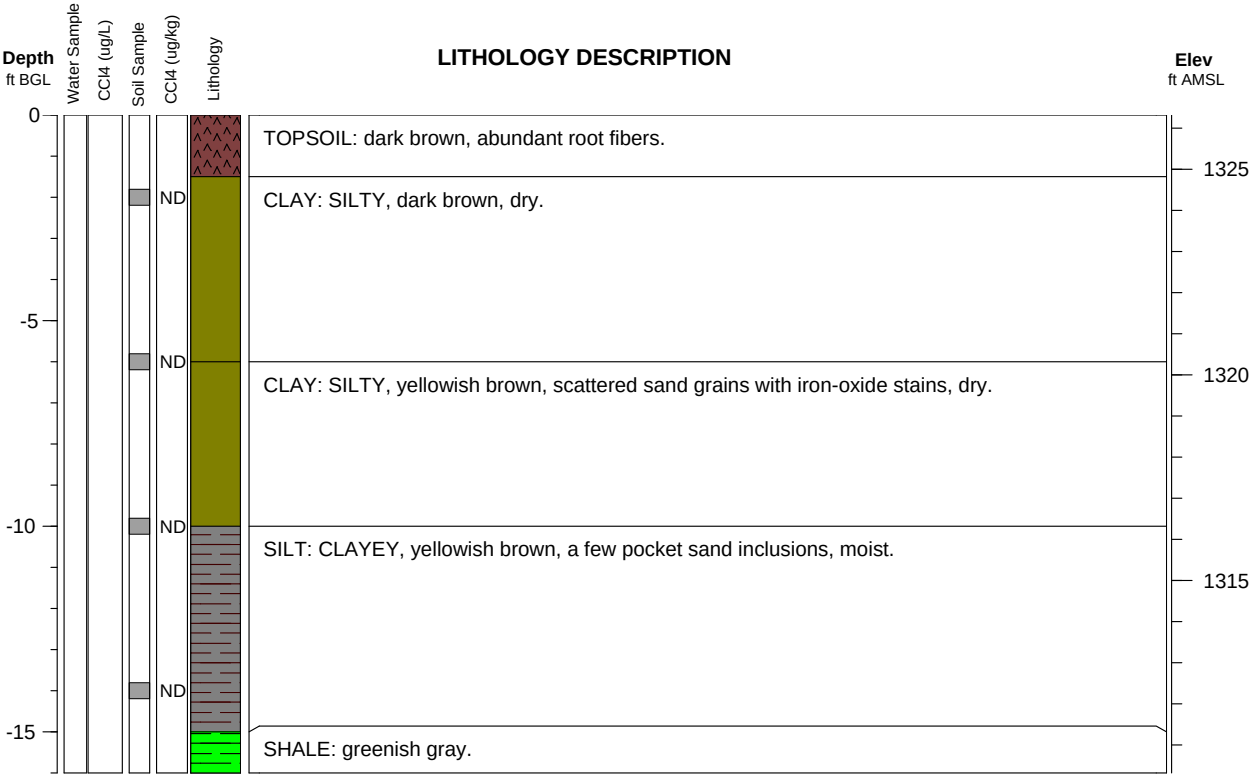


Argonne National Laboratory

Well ID: TI02

Project: Hanover **Elevation:** 1326.32 ft **Log Date:** January 13, 2009

Geologist: Eugene Yan **Depth:** 16 ft **Rig:** Geoprobe

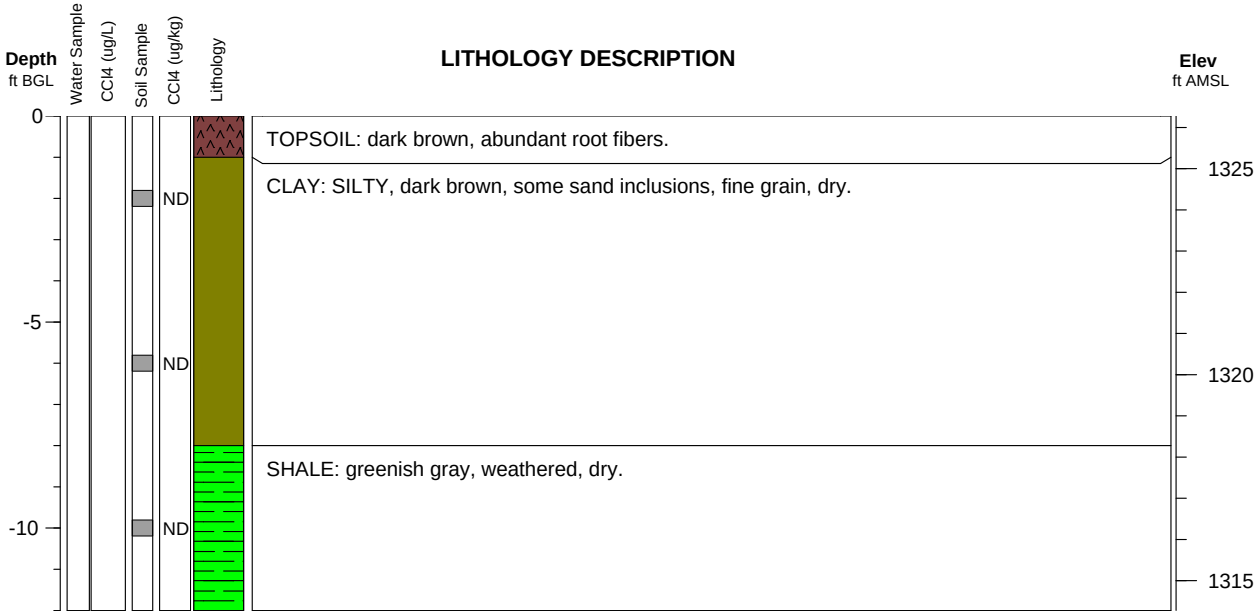


Argonne National Laboratory

Well ID: TI03

Project: Hanover **Elevation:** 1326.27 ft **Log Date:** January 13, 2009

Geologist: Eugene Yan **Depth:** 12 ft **Rig:** Geoprobe

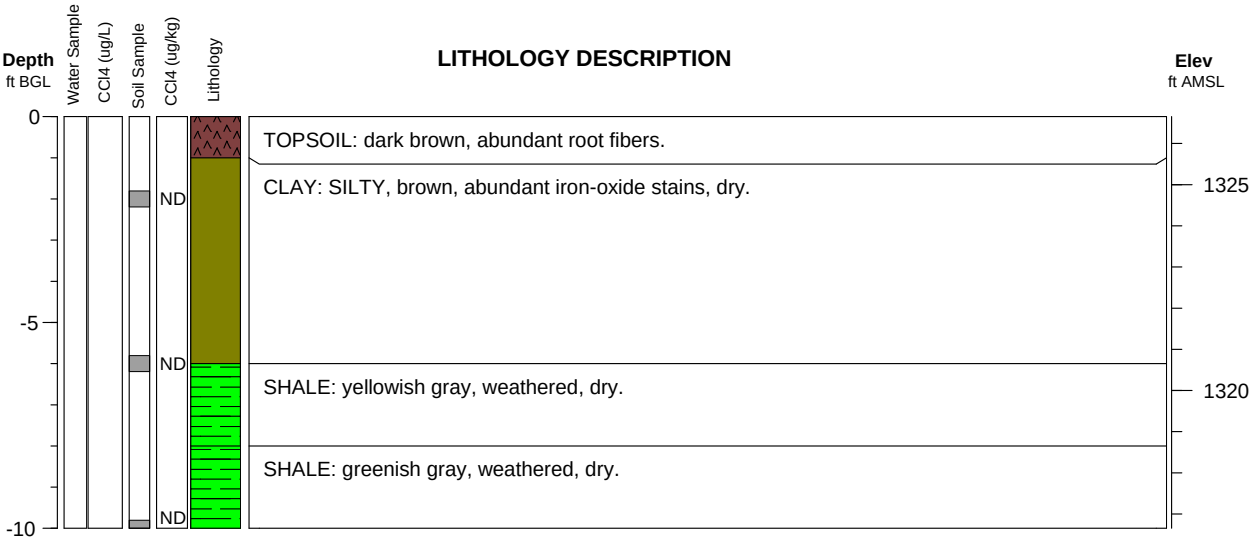


Argonne National Laboratory

Well ID: TI04

Project: Hanover **Elevation:** 1326.65 ft **Log Date:** January 13, 2009

Geologist: Eugene Yan **Depth:** 10 ft **Rig:** Geoprobe

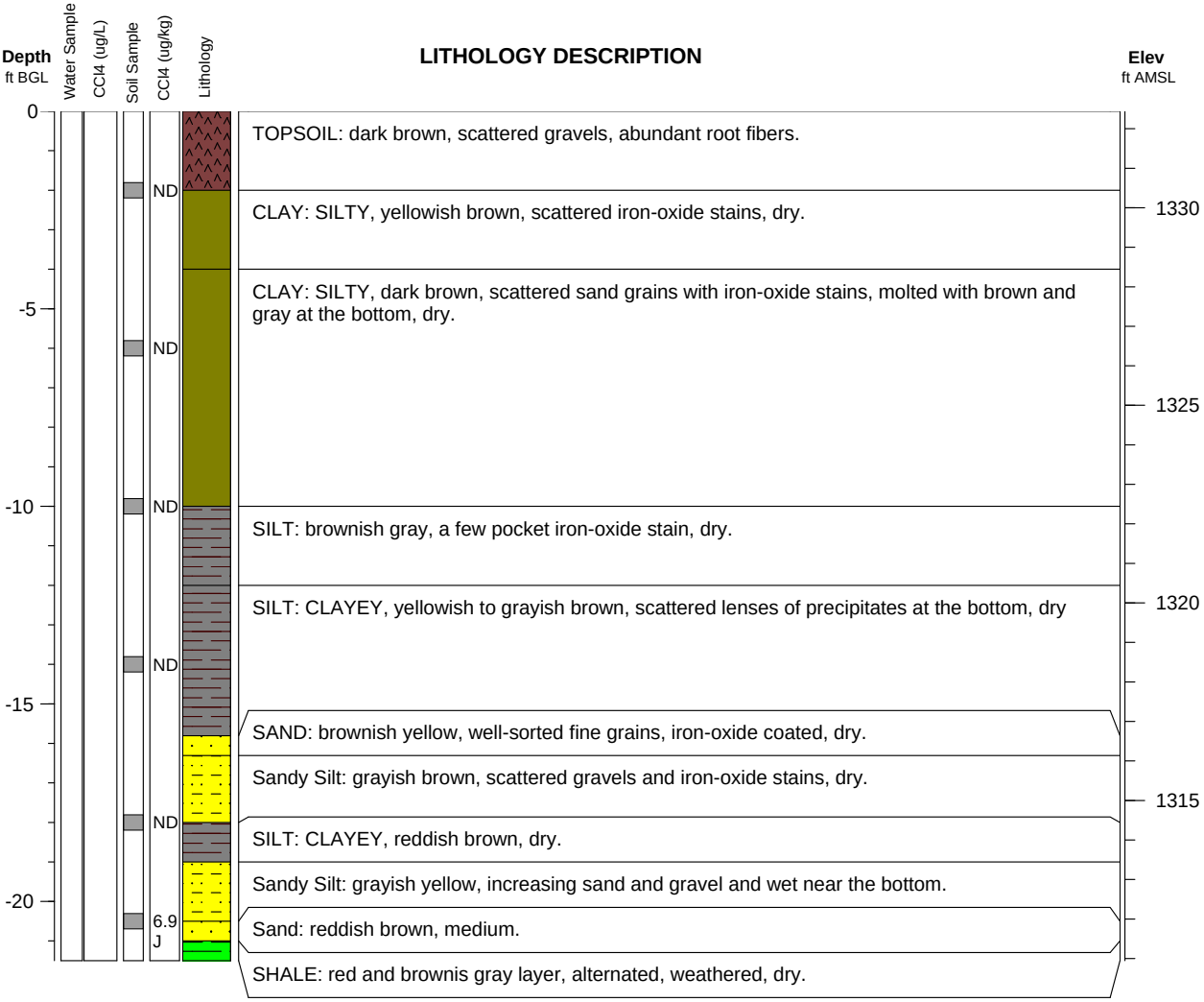


Argonne National Laboratory

Well ID: TI05

Project: Hanover **Elevation:** 1332.44 ft **Log Date:** January 13-15, 2009

Geologist: Eugene Yan **Depth:** 21.5 ft **Rig:** Geoprobe

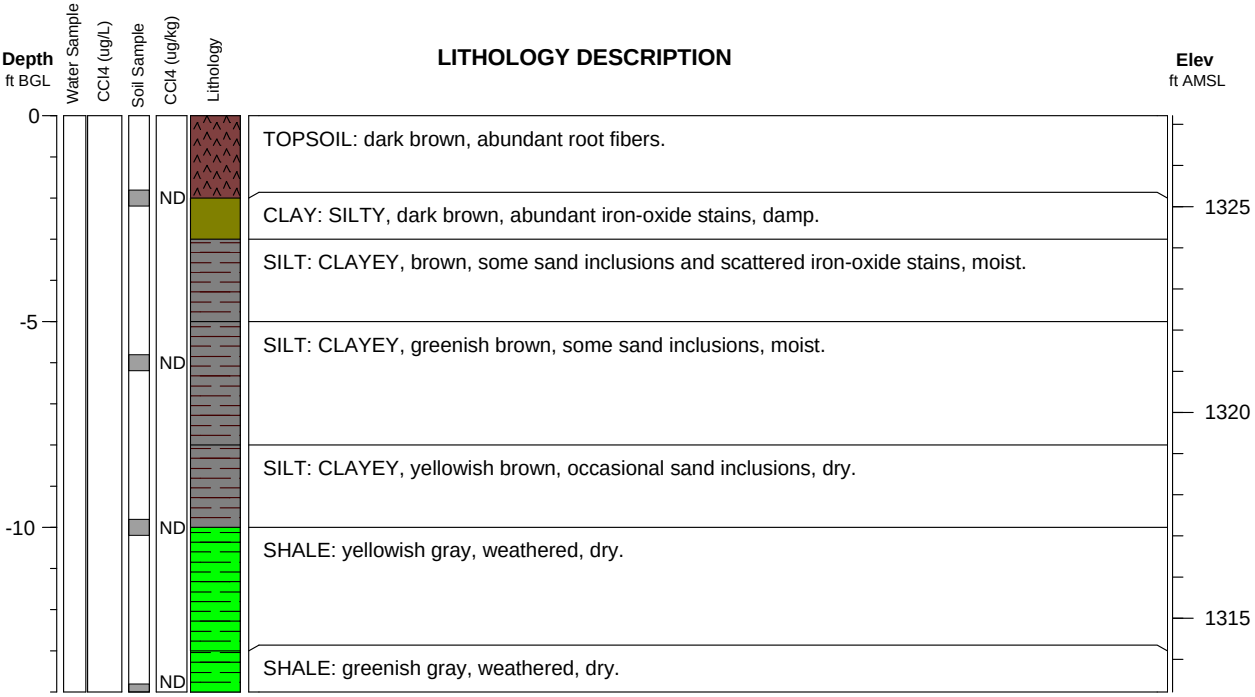


Argonne National Laboratory

Well ID: TI06

Project: Hanover **Elevation:** 1327.198 ft **Log Date:** January 13, 2009

Geologist: Eugene Yan **Depth:** 14 ft **Rig:** Geoprobe

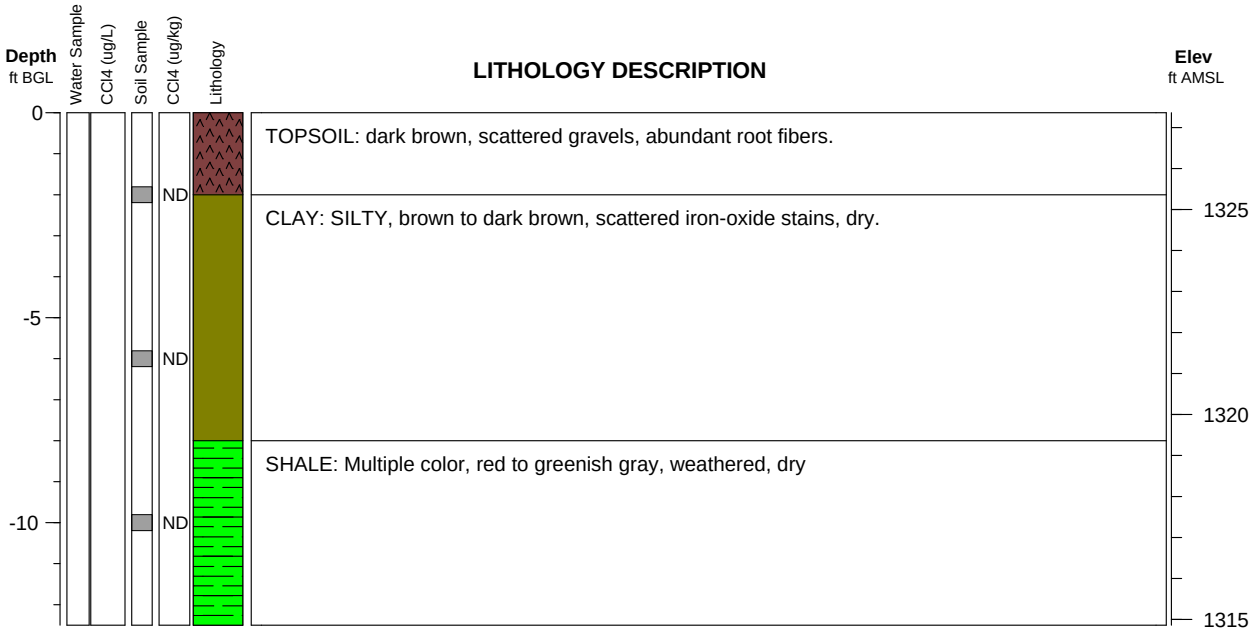


Argonne National Laboratory

Well ID: TI07

Project: Hanover **Elevation:** 1327.36 ft **Log Date:** January 31, 2009

Geologist: Eugene Yan **Depth:** 12.5 ft **Rig:** Geoprobe/mini-sonic drilling rig

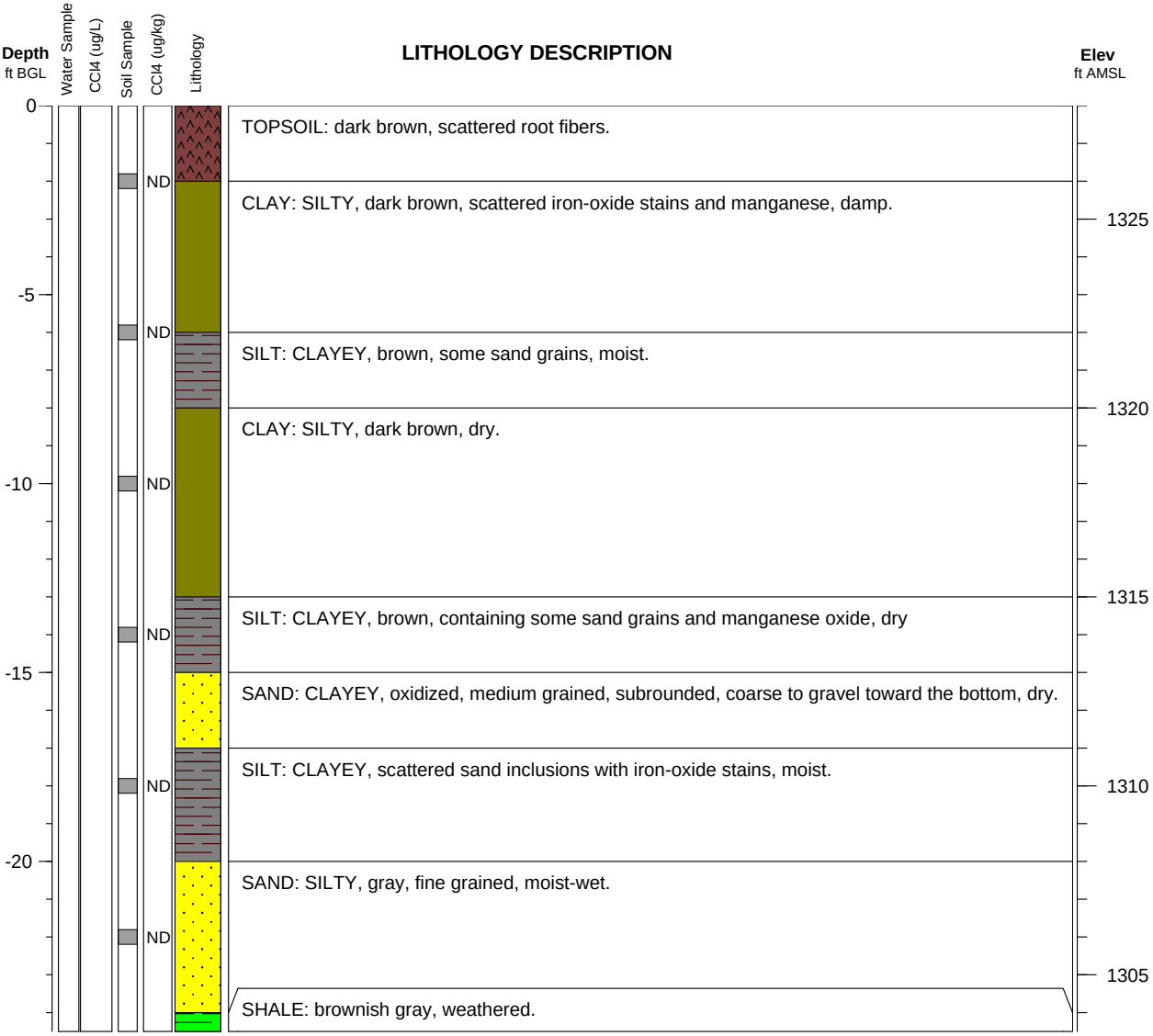


Argonne National Laboratory

Well ID: TI08

Project: Hanover **Elevation:** 1328.00 ft **Log Date:** January 13, 2009

Geologist: Eugene Yan **Depth:** 24.5 ft **Rig:** Geoprobe

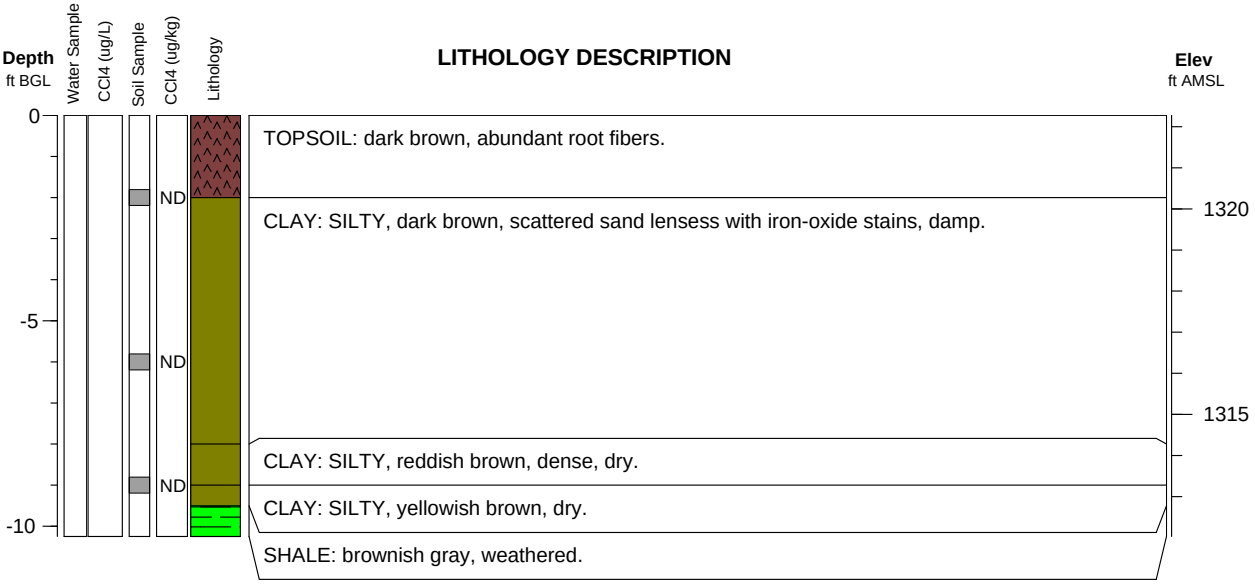


Argonne National Laboratory

Well ID: TI09

Project: Hanover **Elevation:** 22.27 **Log Date:** January 13-15, 2009

Geologist: Eugene Yan **Depth:** 10.25 ft **Rig:** Geoprobe

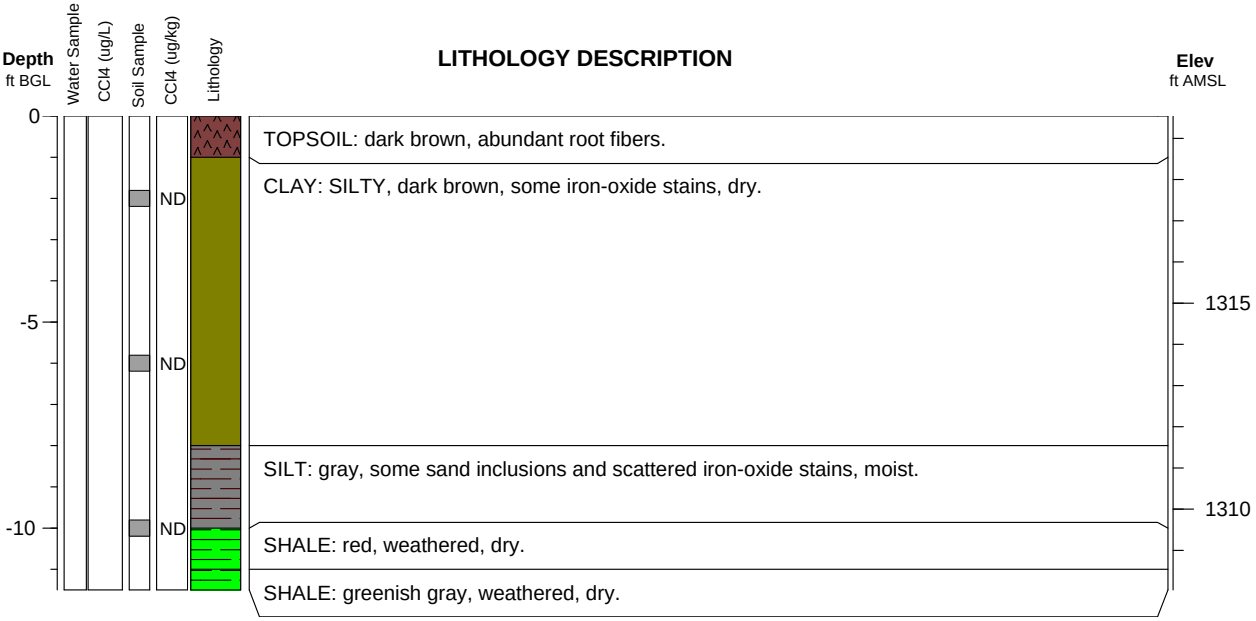


Argonne National Laboratory

Well ID: TI10

Project: Hanover **Elevation:** 1319.54 ft **Log Date:** January 14, 2009

Geologist: Eugene Yan **Depth:** 11.5 ft **Rig:** Geoprobe

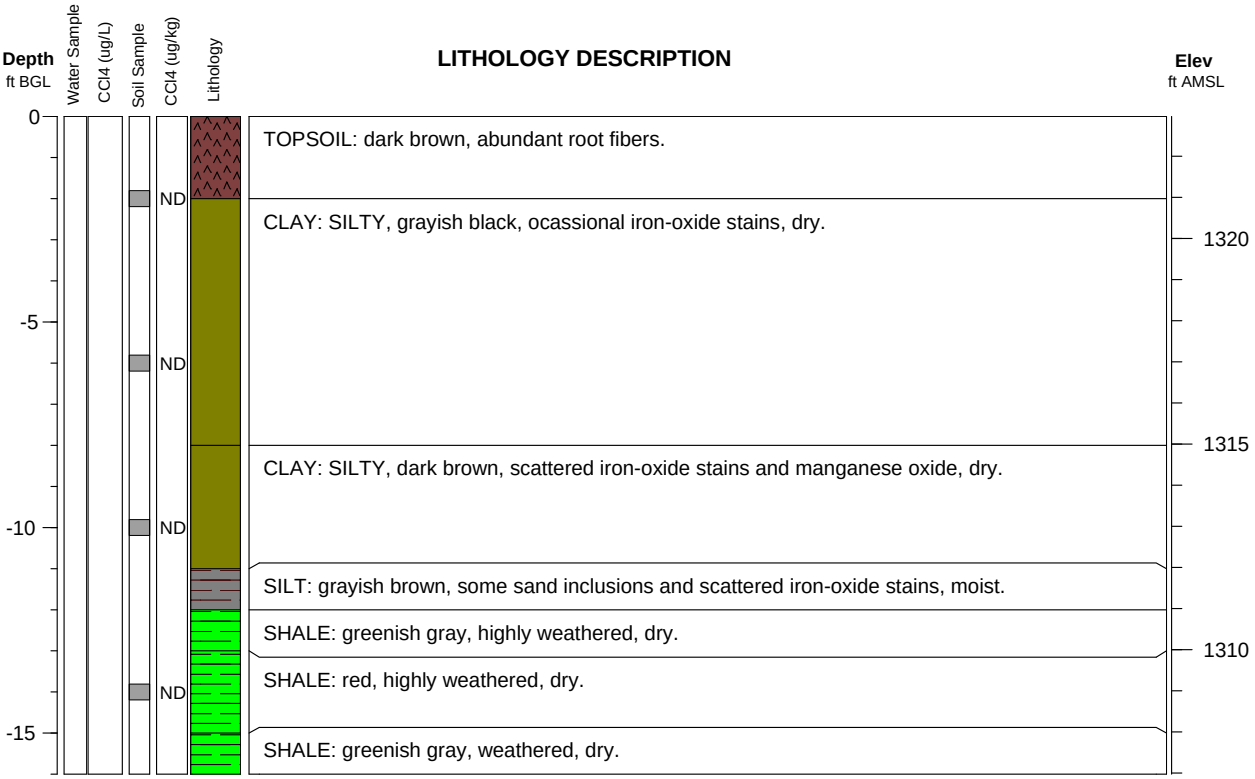


Argonne National Laboratory

Well ID: TI11

Project: Hanover **Elevation:** 1322.97 ft **Log Date:** January 13, 2009

Geologist: Eugene Yan **Depth:** 16ft **Rig:** Geoprobe

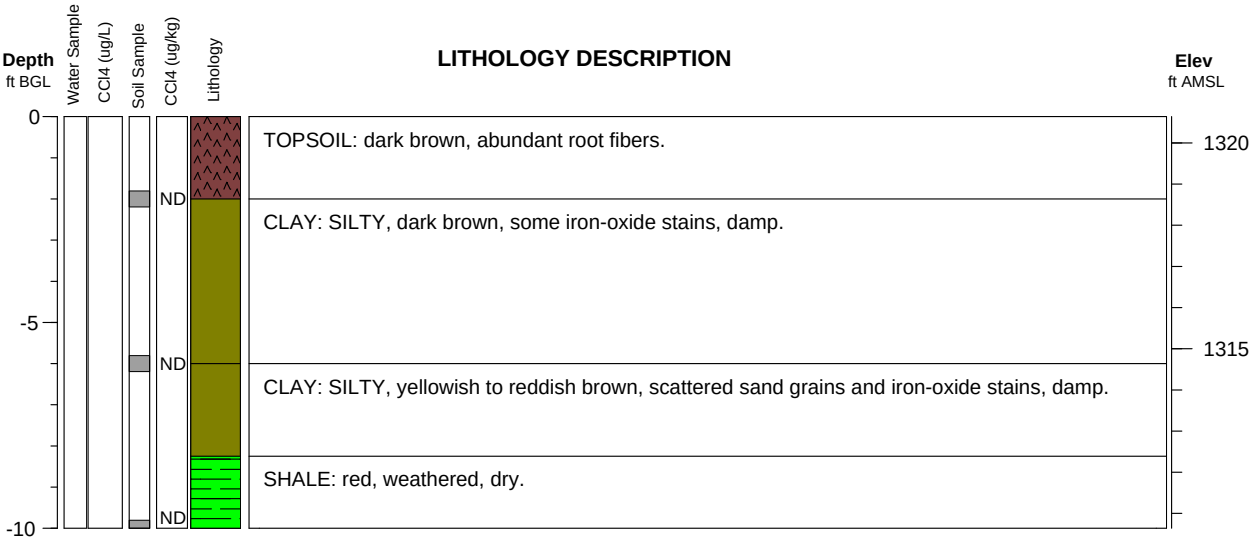


Argonne National Laboratory

Well ID: TI12

Project: Hanover **Elevation:** 1320.64 ft **Log Date:** January 14, 2009

Geologist: Eugene Yan **Depth:** 10 ft **Rig:** Geoprobe

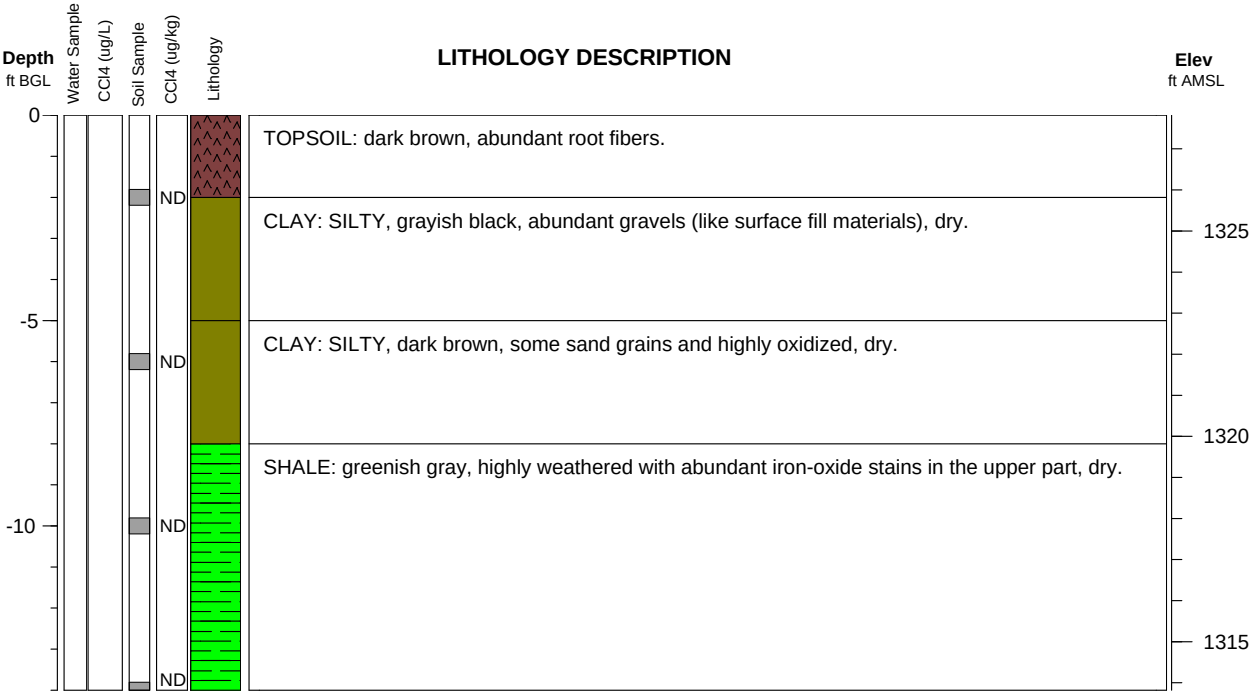


Argonne National Laboratory

Well ID: TI13

Project: Hanover **Elevation:** 1327.81 ft **Log Date:** January 14, 2009

Geologist: Eugene Yan **Depth:** 14 ft **Rig:** Geoprobe

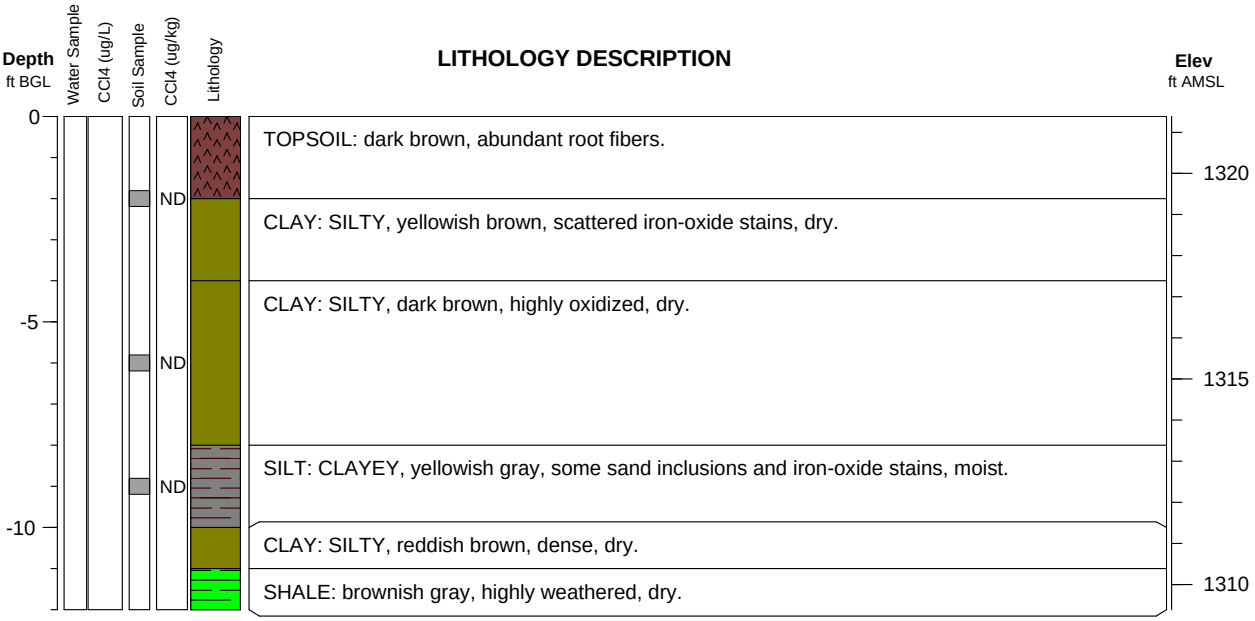


Argonne National Laboratory

Well ID: TI14

Project: Hanover **Elevation:** 1321.38 ft **Log Date:** January 14, 2009

Geologist: Eugene Yan **Depth:** 12 ft **Rig:** Geoprobe

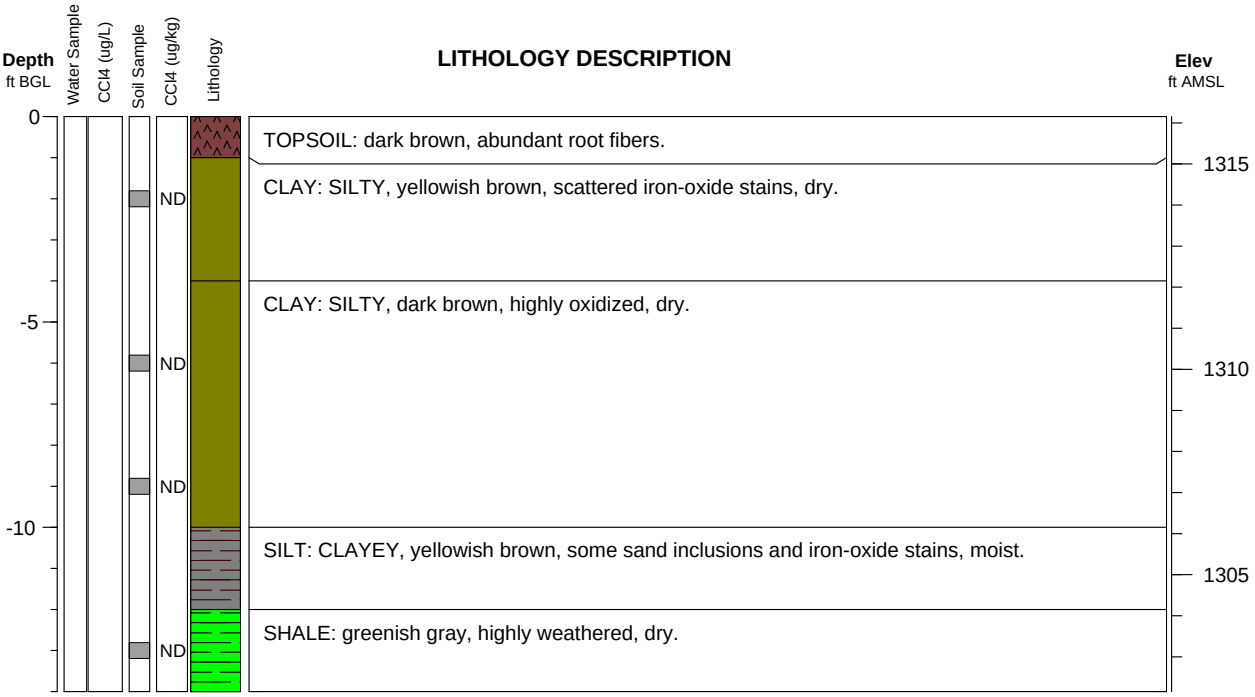


Argonne National Laboratory

Well ID: TI15

Project: Hanover **Elevation:** 1316.15 ft **Log Date:** January 14, 2009

Geologist: Eugene Yan **Depth:** 14 ft **Rig:** Geoprobe

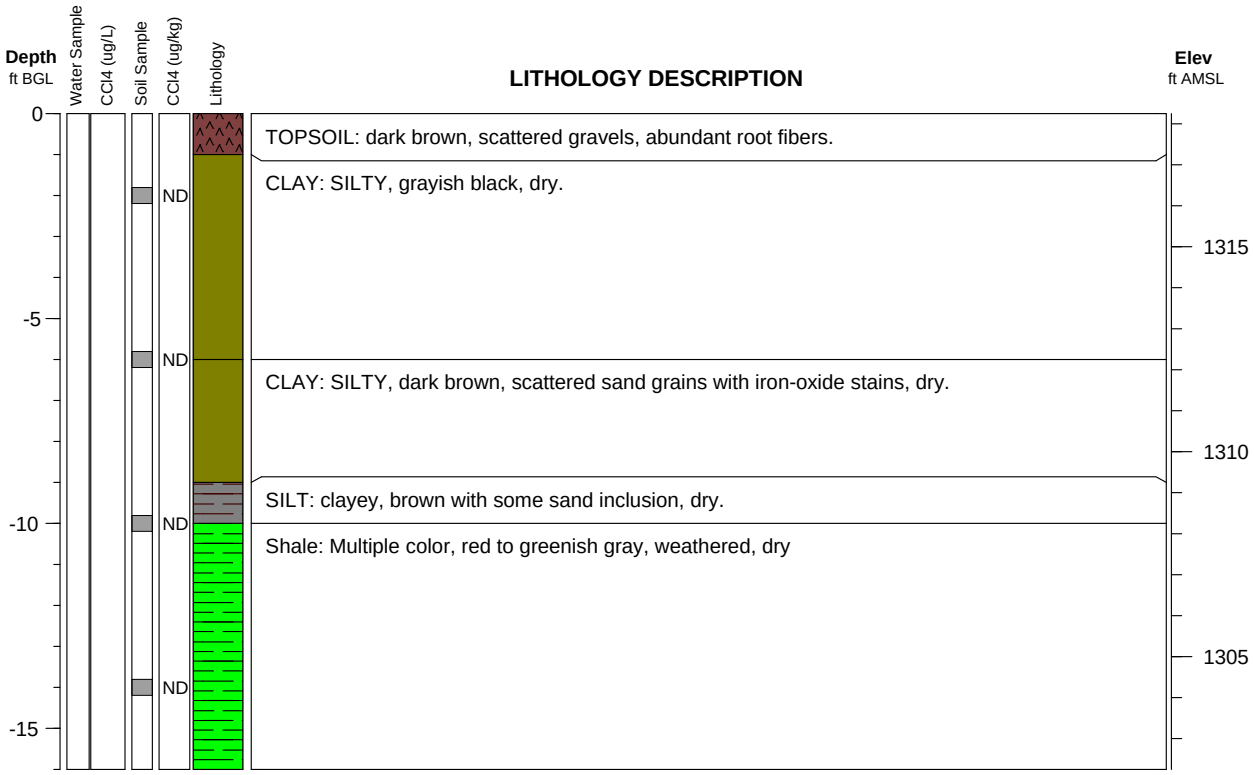


Argonne National Laboratory

Well ID: TI16

Project: Hanover **Elevation:** 1318.24 ft **Log Date:** January 14, 29, 2009

Geologist: Eugene Yan **Depth:** 16 ft **Rig:** Geoprobe/Minisonic dring rig

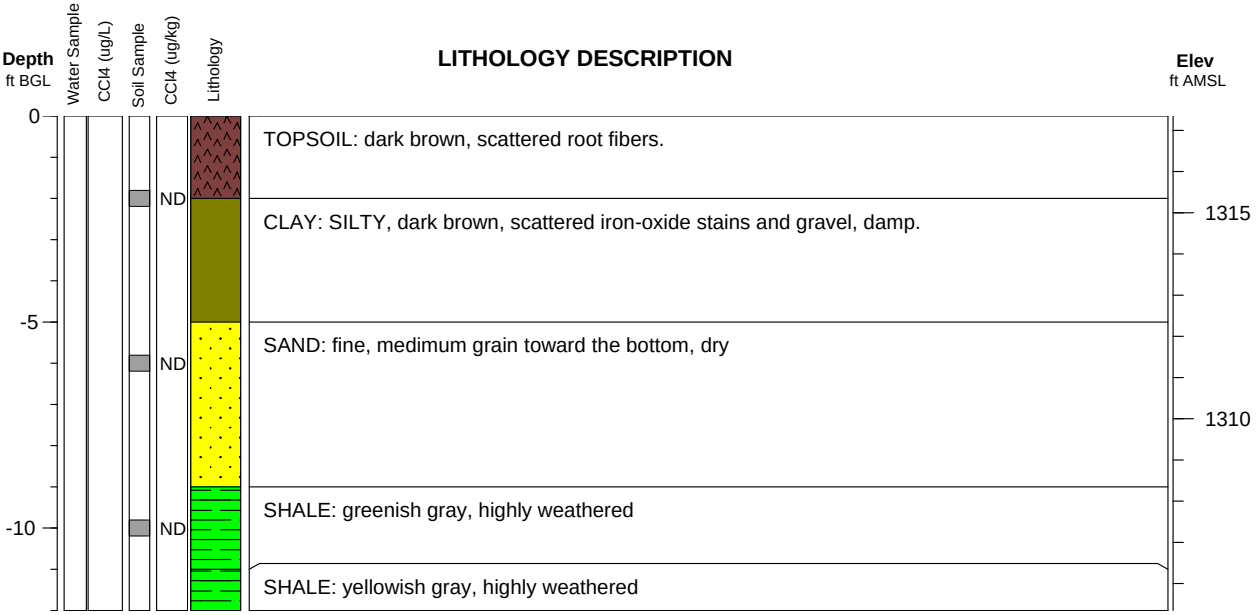


Argonne National Laboratory

Well ID: TI17

Project: Hanover **Elevation:** 1317.35 ft **Log Date:** January 15, 2009

Geologist: Eugene Yan **Depth:** 12 ft **Rig:** Geoprobe

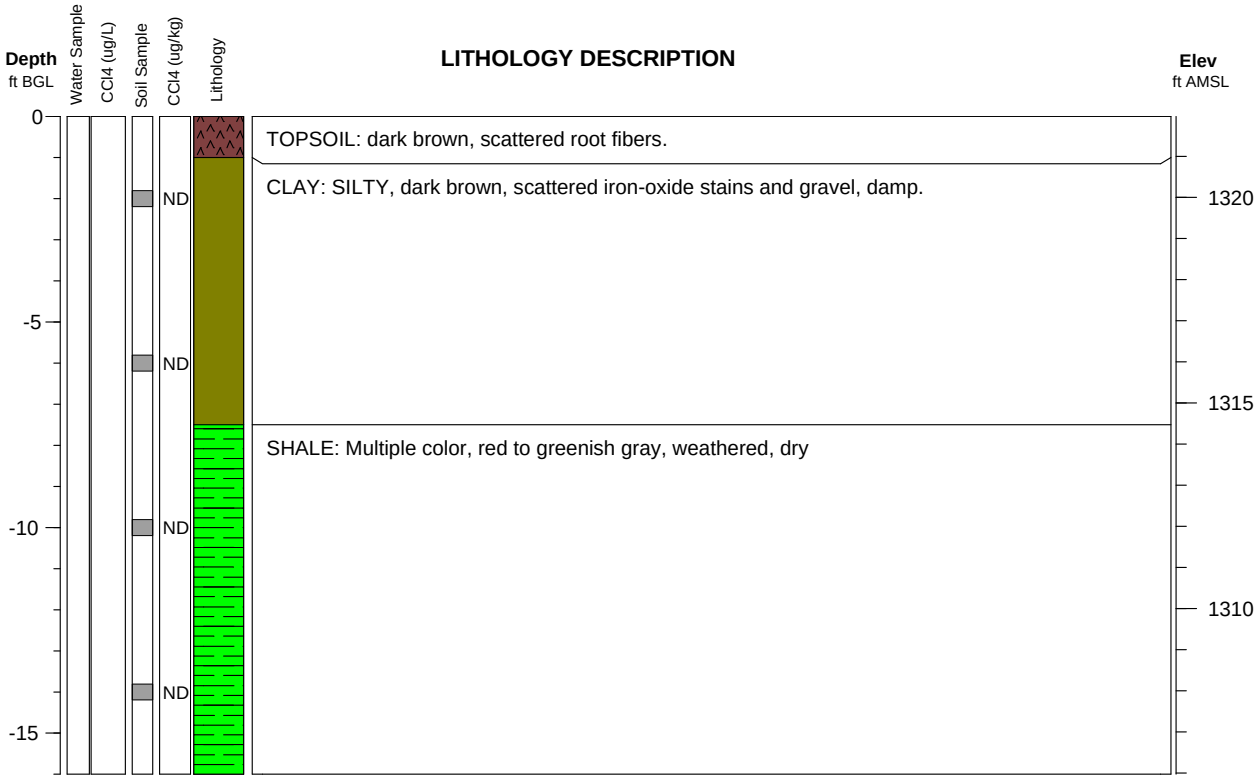


Argonne National Laboratory

Well ID: TI18

Project: Hanover **Elevation:** 1321.97 ft **Log Date:** January 15, 2009

Geologist: Eugene Yan **Depth:** 16 ft **Rig:** Geoprobe

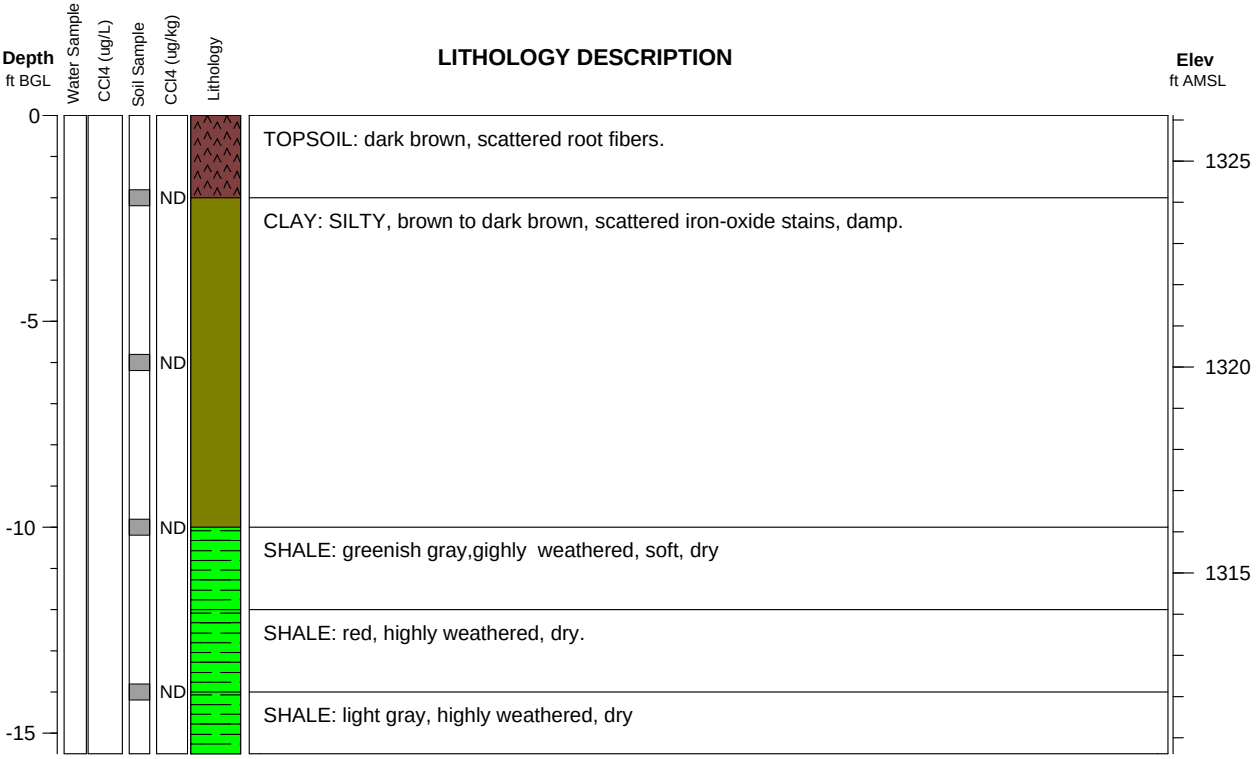


Argonne National Laboratory

Well ID: TI19

Project: Hanover **Elevation:** 1326.11 ft **Log Date:** January 14, 2009

Geologist: Eugene Yan **Depth:** 15.5 ft **Rig:** Geoprobe

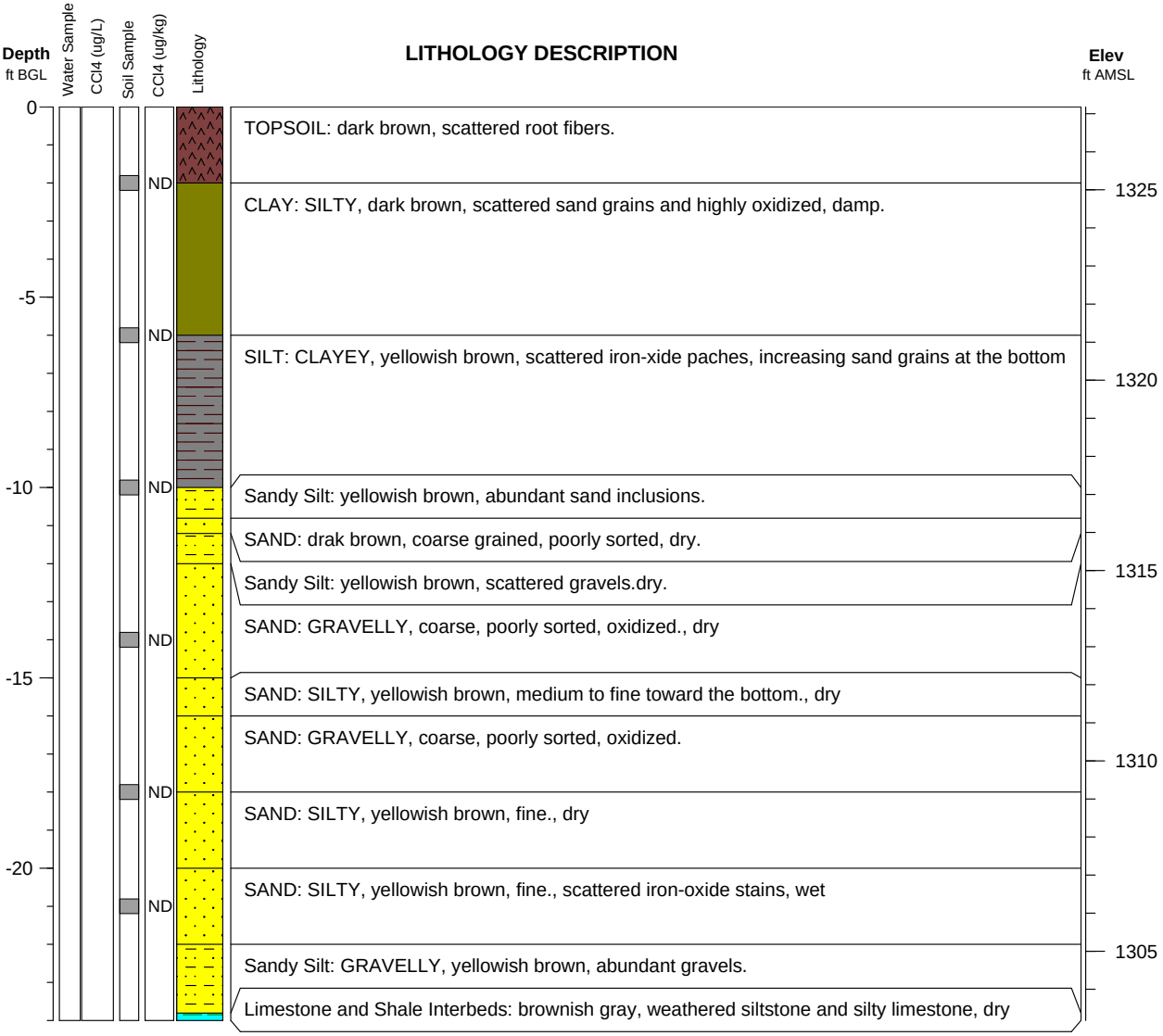


Argonne National Laboratory

Well ID: TI20

Project: Hanover **Elevation:** 1327.18 ft **Log Date:** January 31, 2009

Geologist: Eugene Yan **Depth:** 24 ft **Rig:** Geoprobe

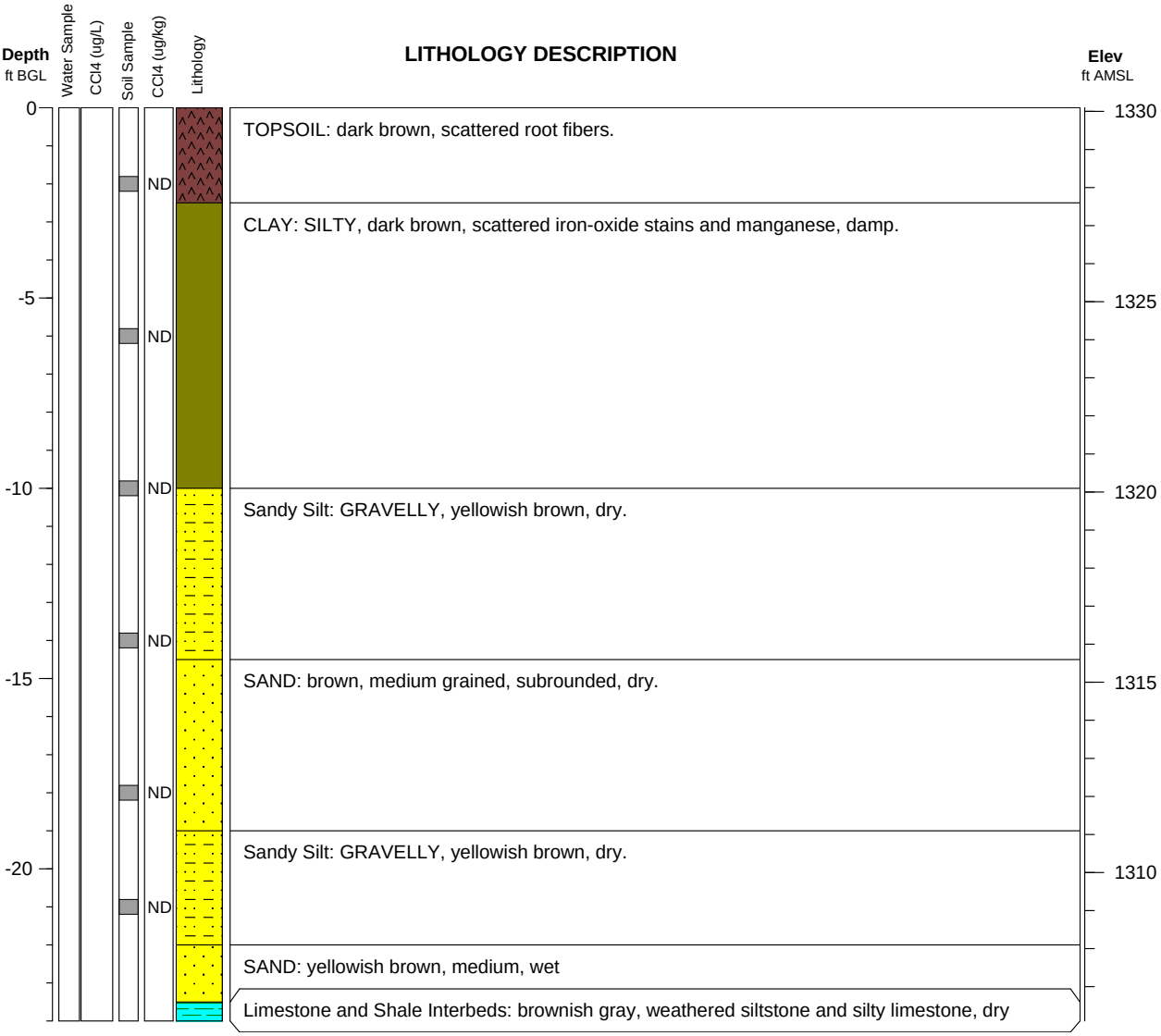


Argonne National Laboratory

Well ID: TI21

Project: Hanover **Elevation:** 1330.09 ft **Log Date:** January 31, 2009

Geologist: Eugene Yan **Depth:** 25 ft **Rig:** Geoprobe

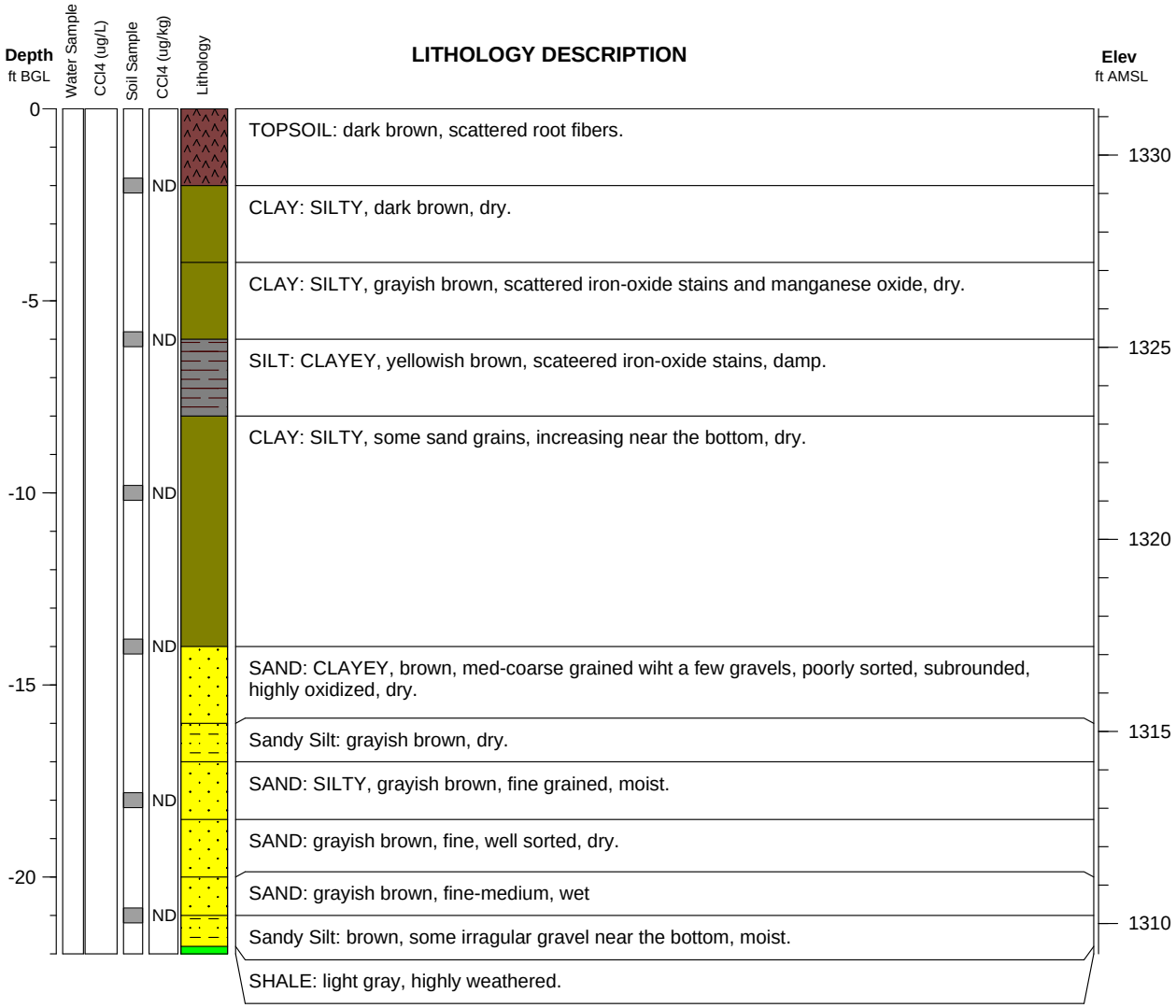


Argonne National Laboratory

Well ID: TI22

Project: Hanover **Elevation:** 1331.20 ft **Log Date:** January 14, 2009

Geologist: Eugene Yan **Depth:** 22 ft **Rig:** Sonic drilling rig

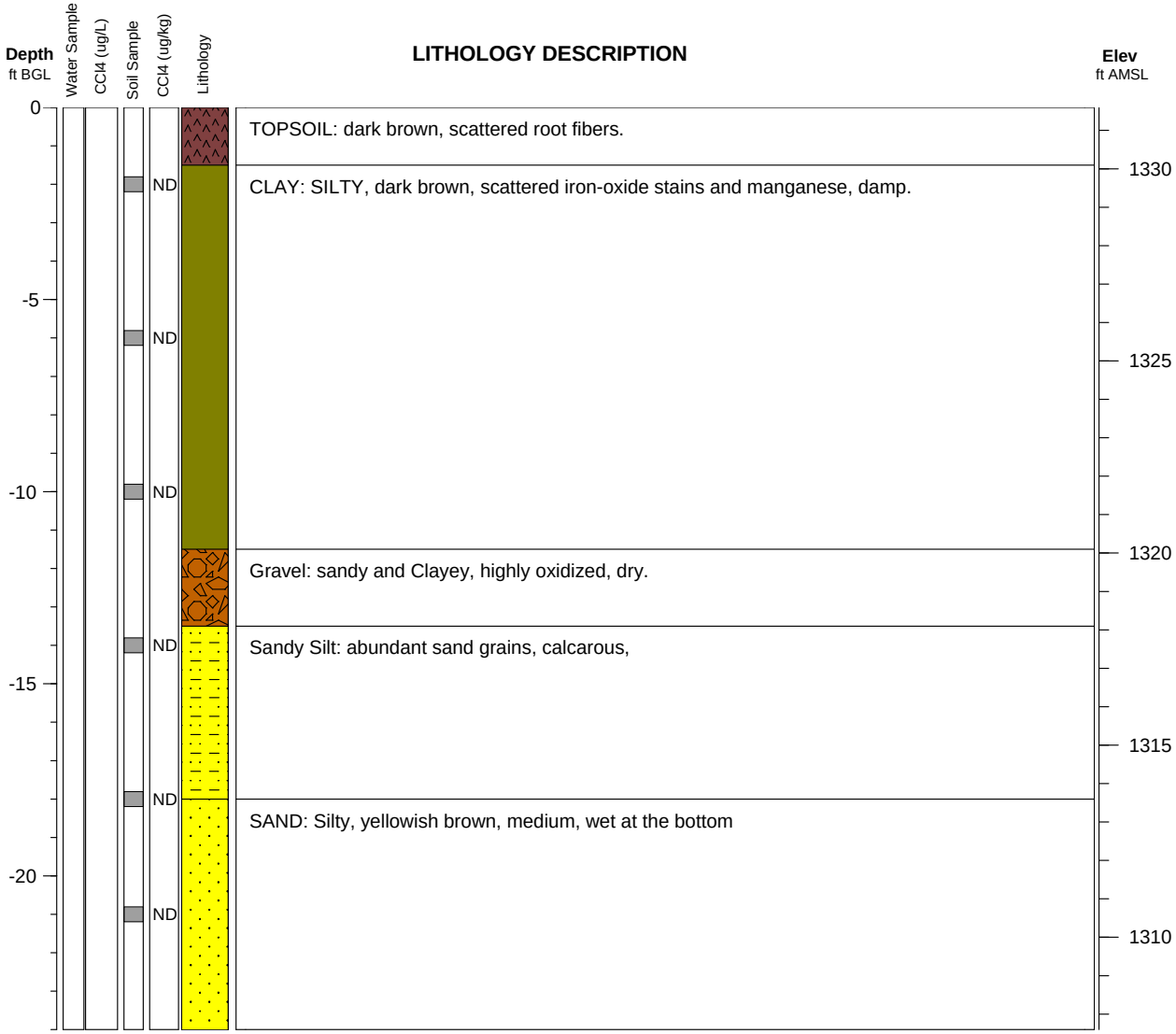


Argonne National Laboratory

Well ID: TI23

Project: Hanover **Elevation:** 1331.59 ft **Log Date:** January 31, 2009

Geologist: Eugene Yan **Depth:** 24 ft **Rig:** Sonic drilling rig

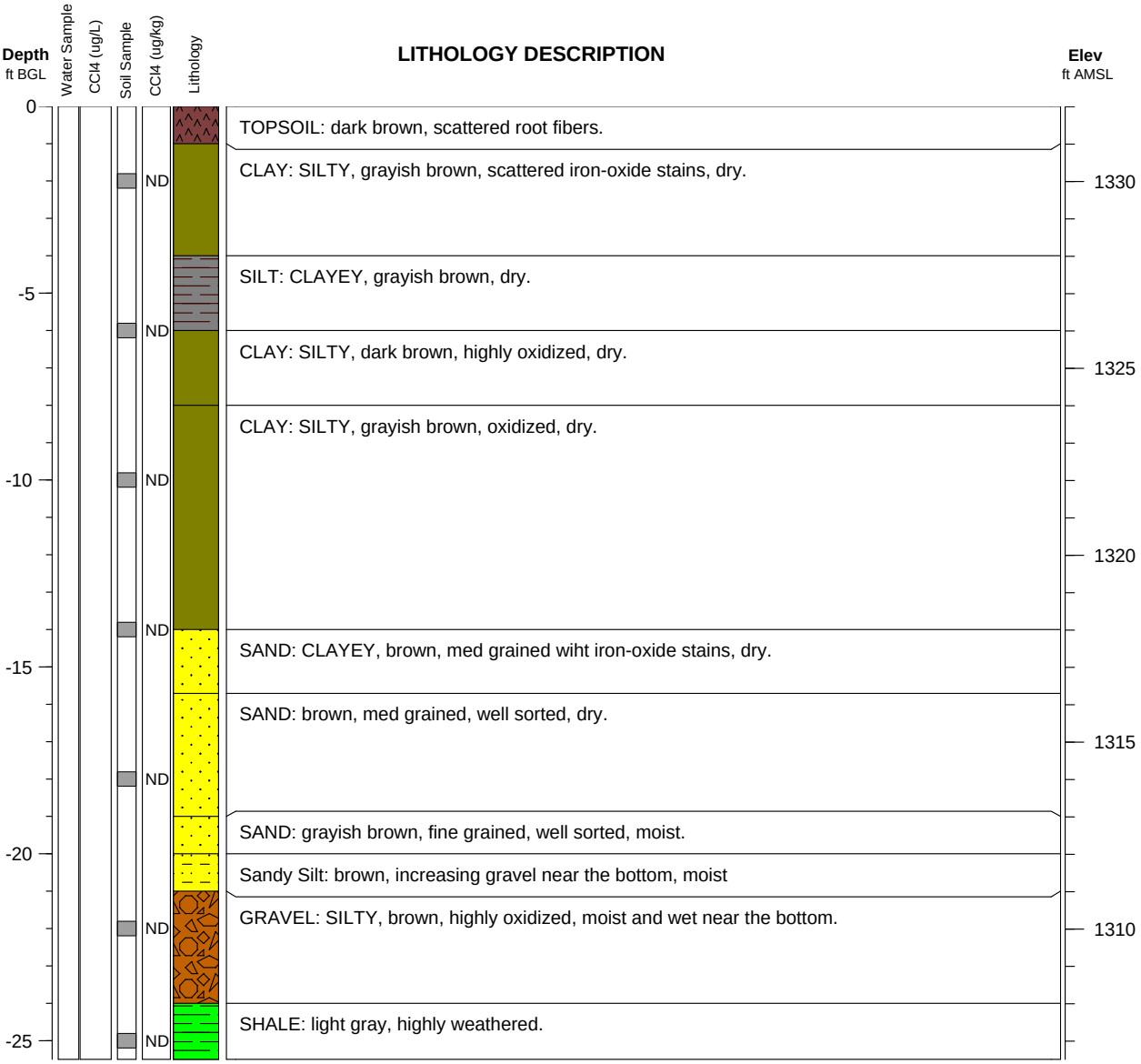


Argonne National Laboratory

Well ID: TI24

Project: Hanover **Elevation:** 1332.01 ft **Log Date:** January 14, 2009

Geologist: Eugene Yan **Depth:** 25.5 ft **Rig:** Geoprobe

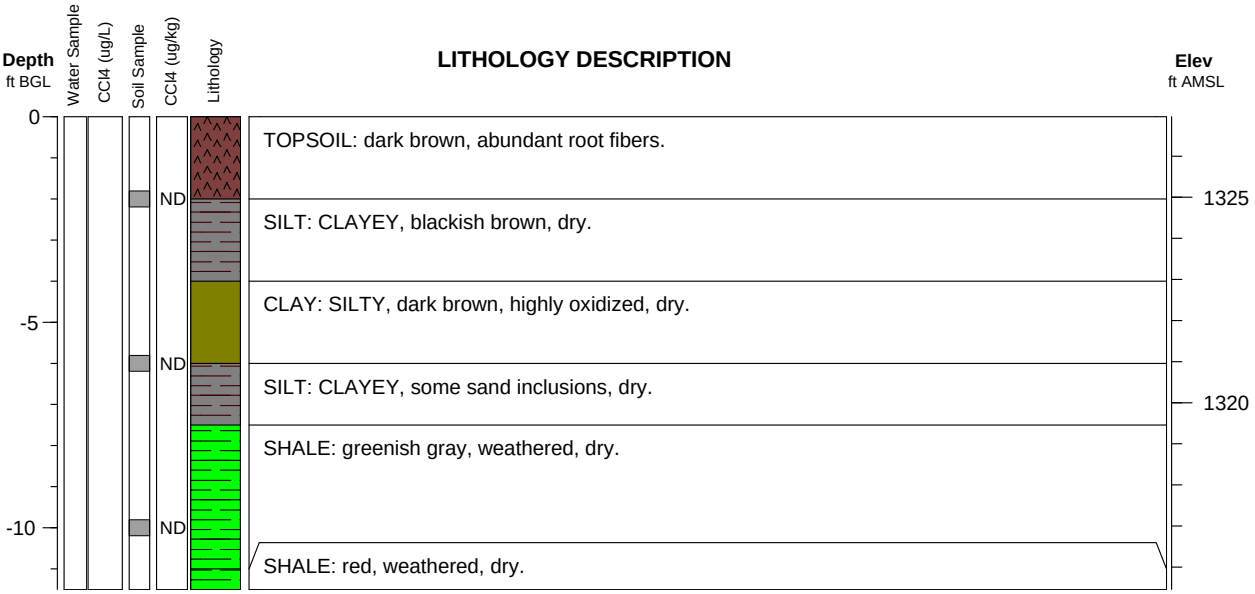


Argonne National Laboratory

Well ID: TI25

Project: Hanover **Elevation:** 1326.96 ft **Log Date:** January 14, 2009

Geologist: Eugene Yan **Depth:** 11.5 ft **Rig:** Geoprobe

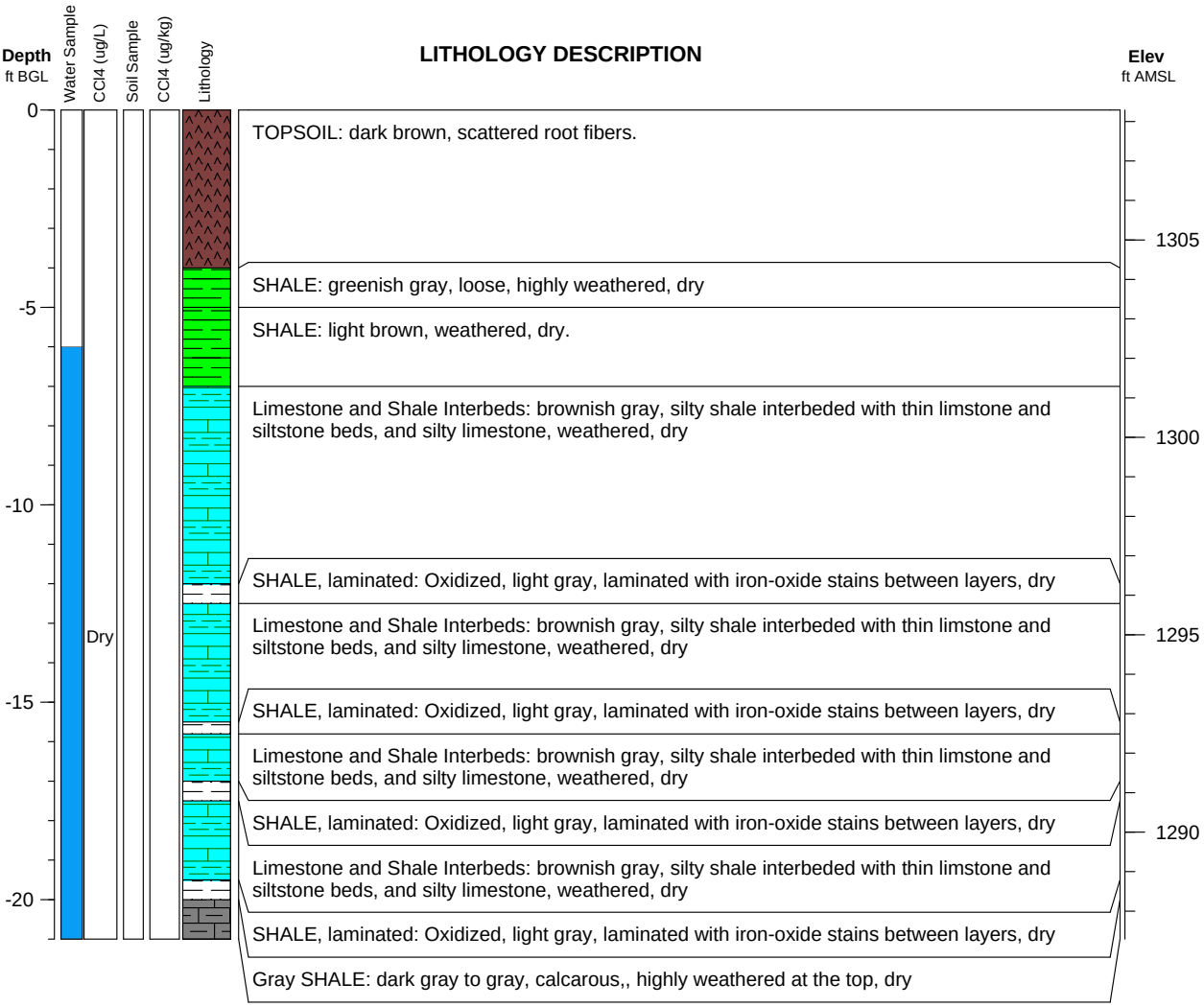


Argonne National Laboratory

Well ID: TI27

Project: Hanover **Elevation:** 1308.29 ft **Log Date:** February 3, 2009

Geologist: Eugene Yan **Depth:** 21 ft **Rig:** Minisonic drilling rig

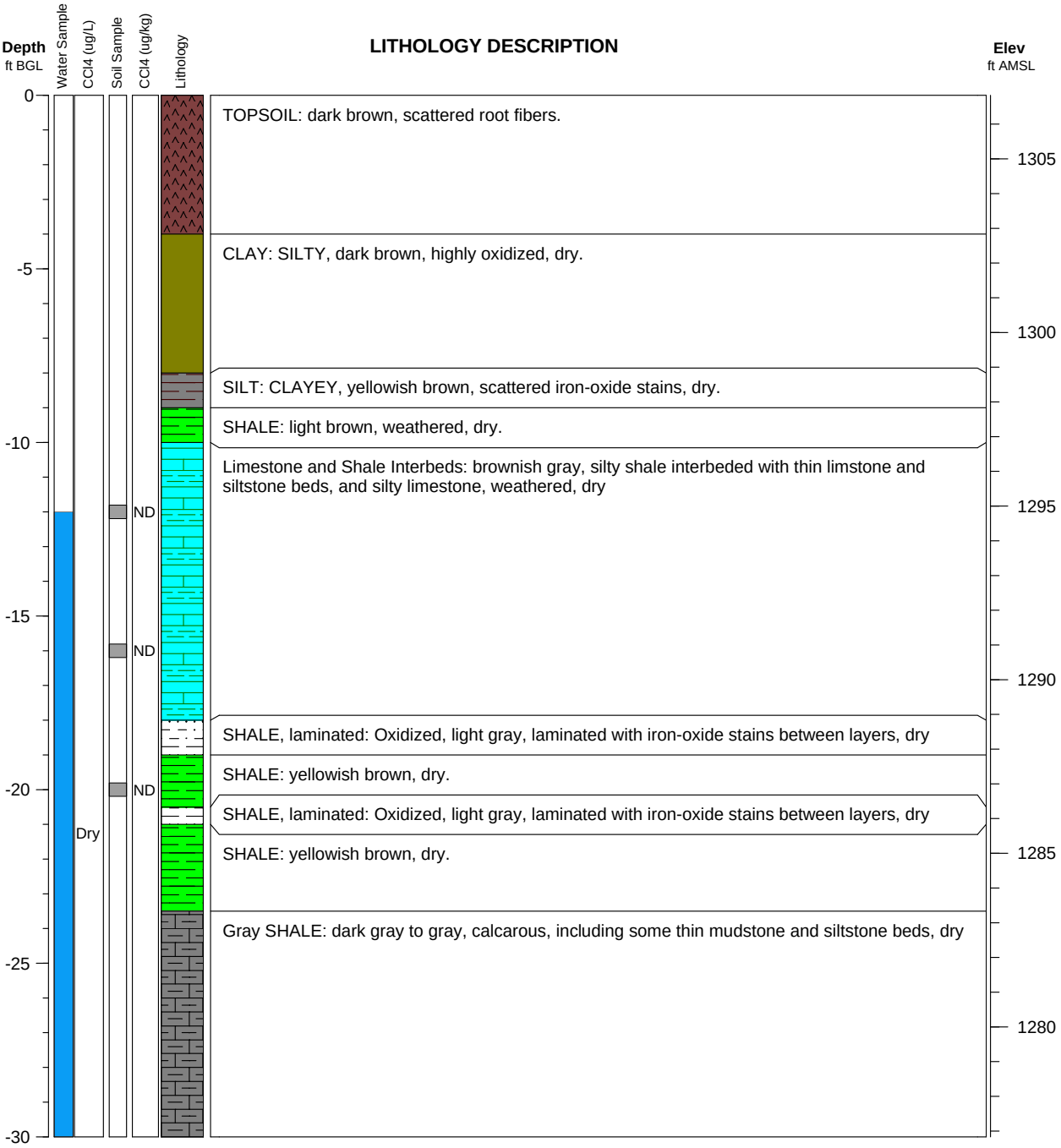


Argonne National Laboratory

Well ID: TI28

Project: Hanover **Elevation:** 1306.83 ft **Log Date:** February 4, 2009

Geologist: Eugene Yan **Depth:** 30 ft **Rig:** Minisonic drilling rig

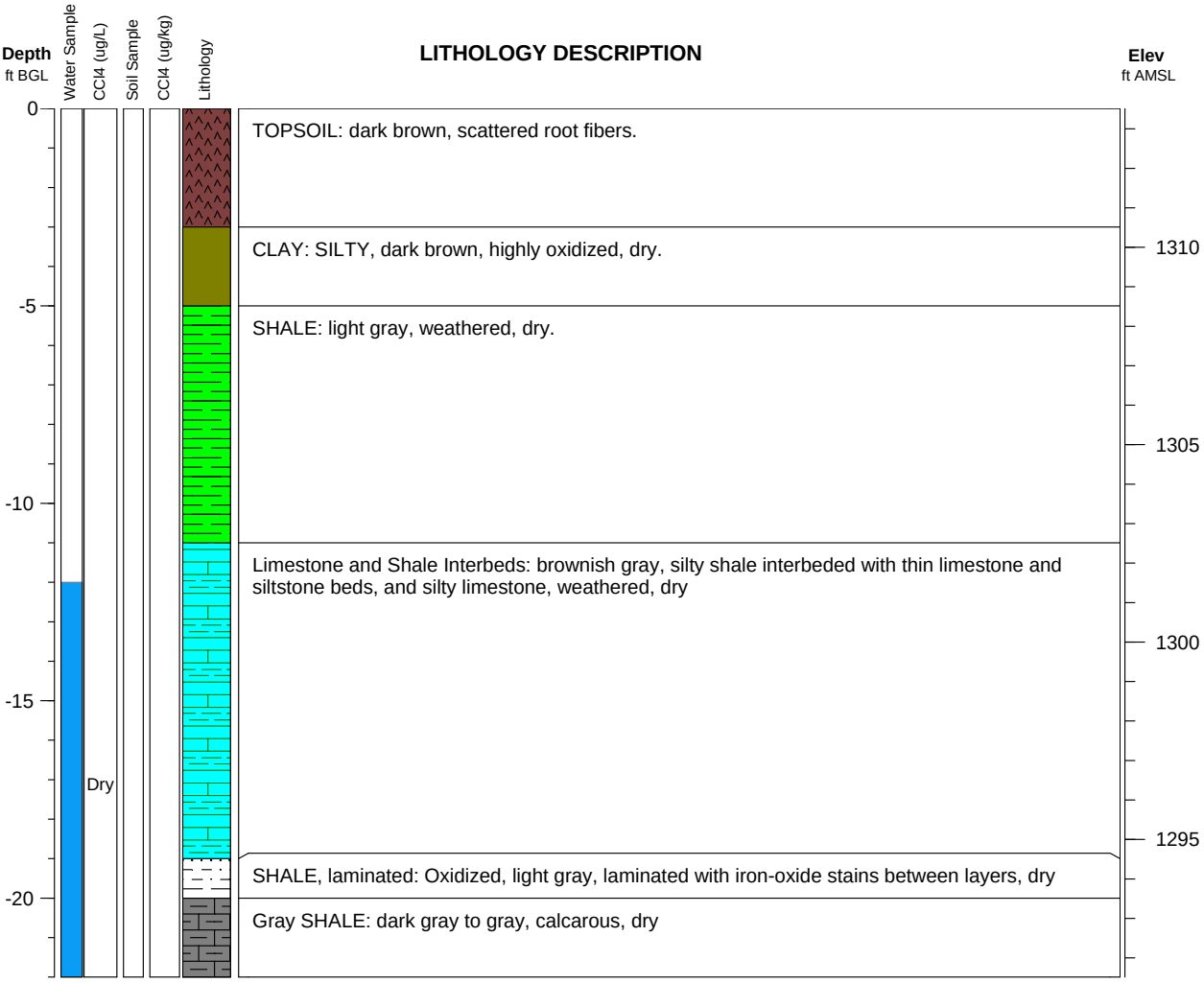


Argonne National Laboratory

Well ID: TI29

Project: Hanover **Elevation:** 1313.51 ft **Log Date:** February 4, 2009

Geologist: Eugene Yan **Depth:** 22 ft **Rig:** Minisonic drilling rig

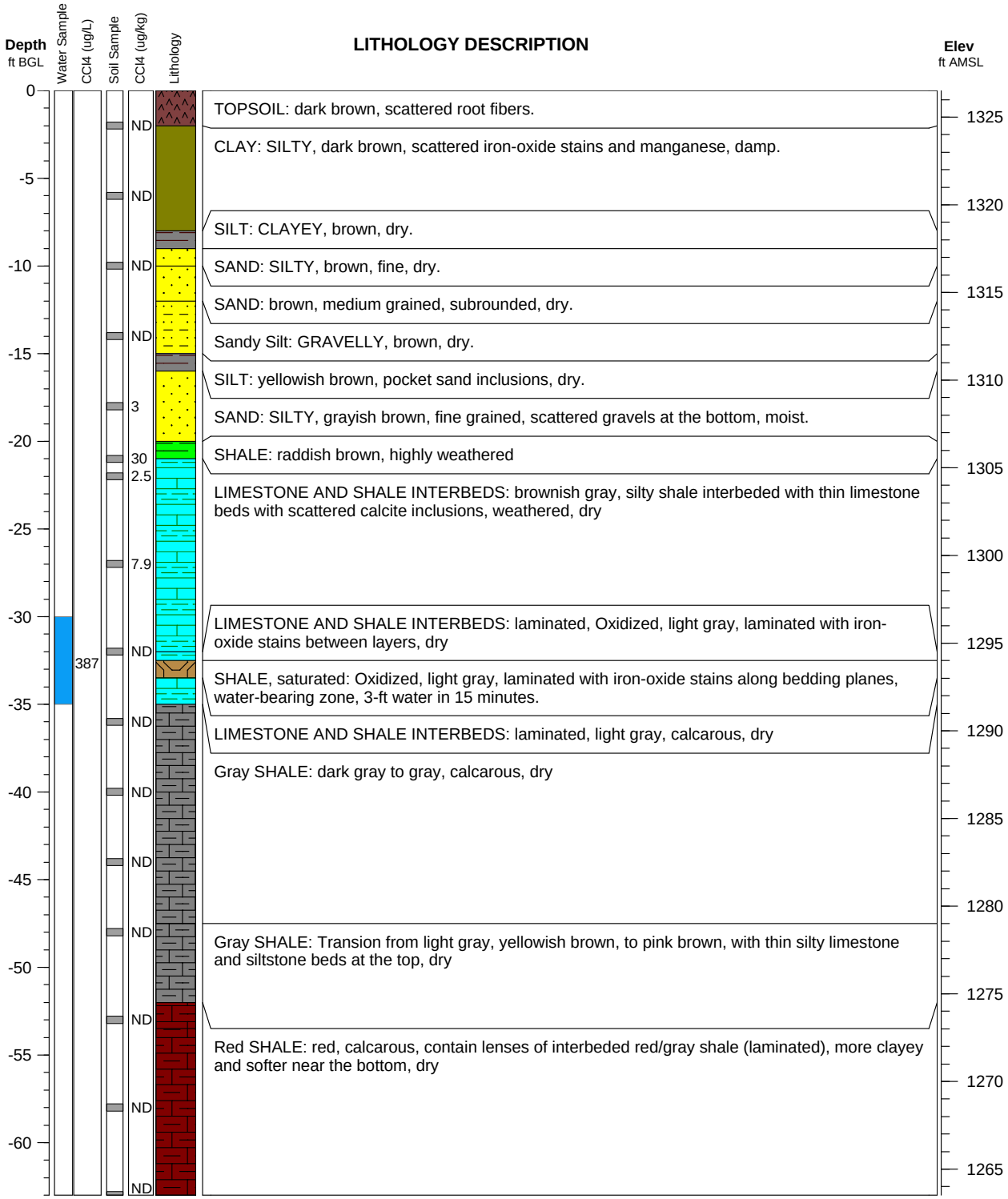


Argonne National Laboratory

Well ID: TI01/MW01

Project: Hanover **Elevation:** 1326.51 ft **Log Date:** January 13, 2009

Geologist: Eugene Yan **Depth:** 63 ft **Rig:** Geoprobe

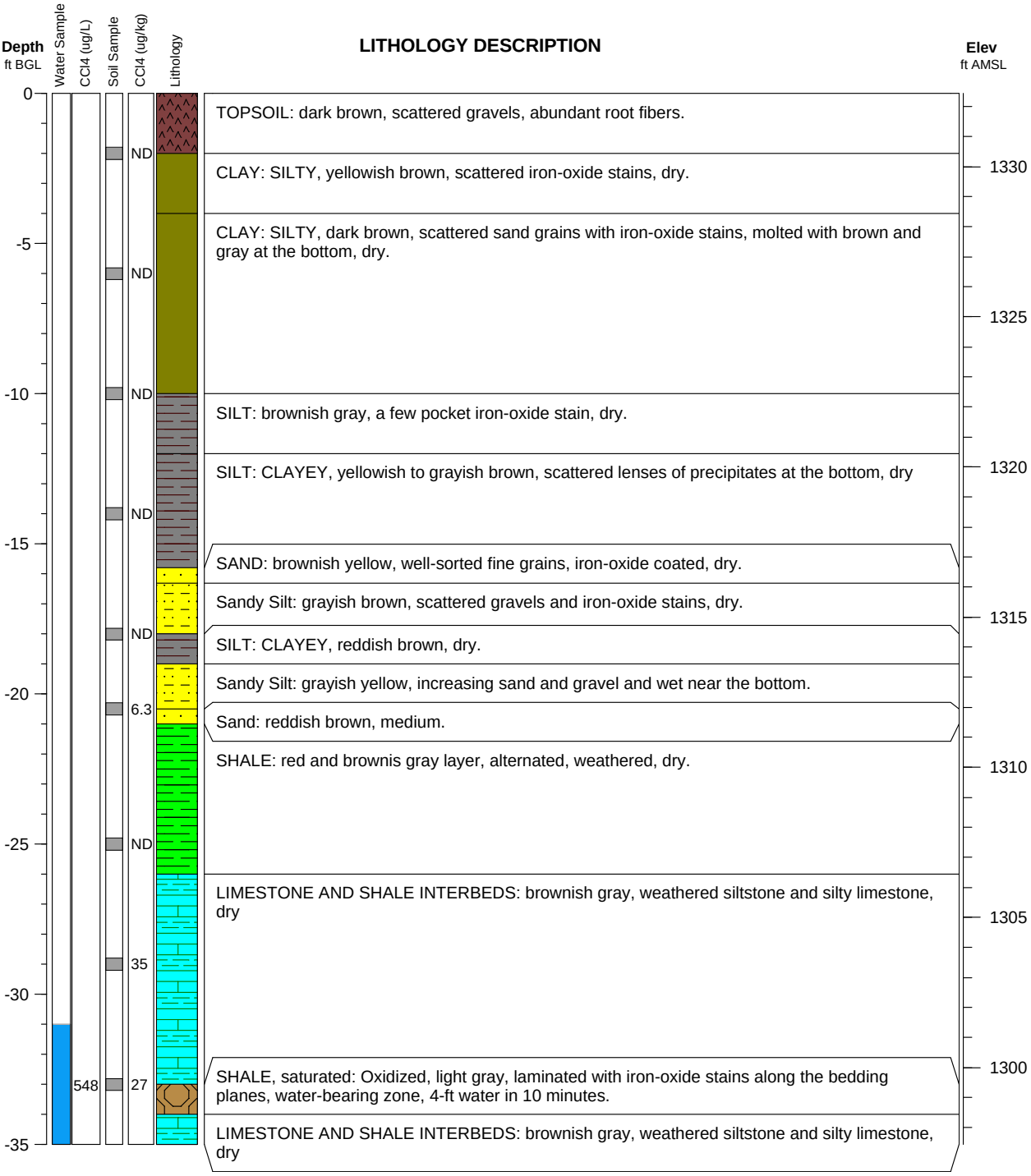


Argonne National Laboratory

Well ID: TI05/MW02

Project: Hanover **Elevation:** 1332.44 ft **Log Date:** January 13-15, 29, 2009

Geologist: Eugene Yan **Depth:** 35 ft **Rig:** Geoprobe/sonic drilling rig

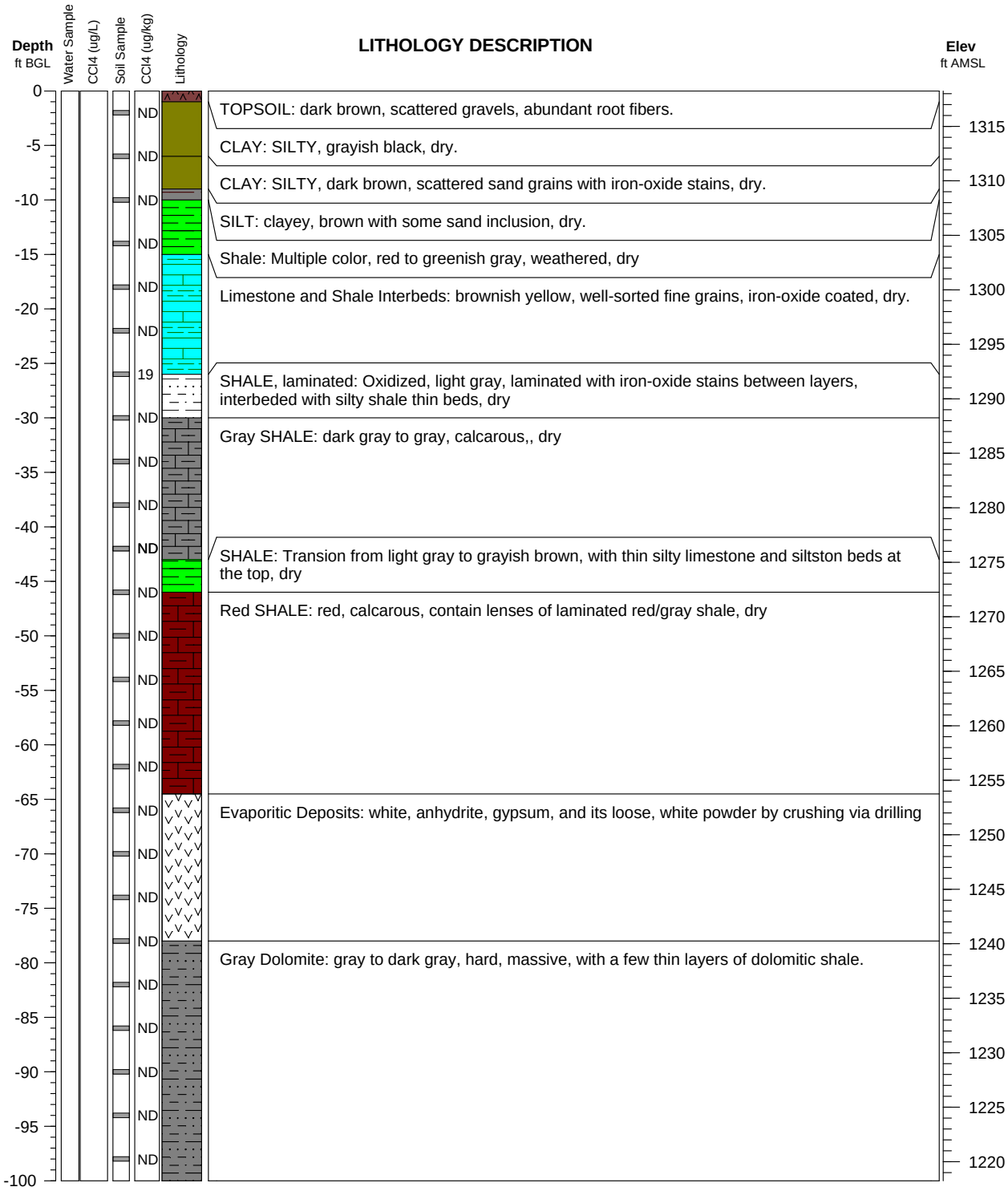


Argonne National Laboratory

Well ID: TI16/MW03 plugged

Project: Hanover **Elevation:** 1318.24 ft **Log Date:** January 14, 30, 2009

Geologist: Eugene Yan **Depth:** 100 ft **Rig:** Geoprobe/Minisonic drilling rig

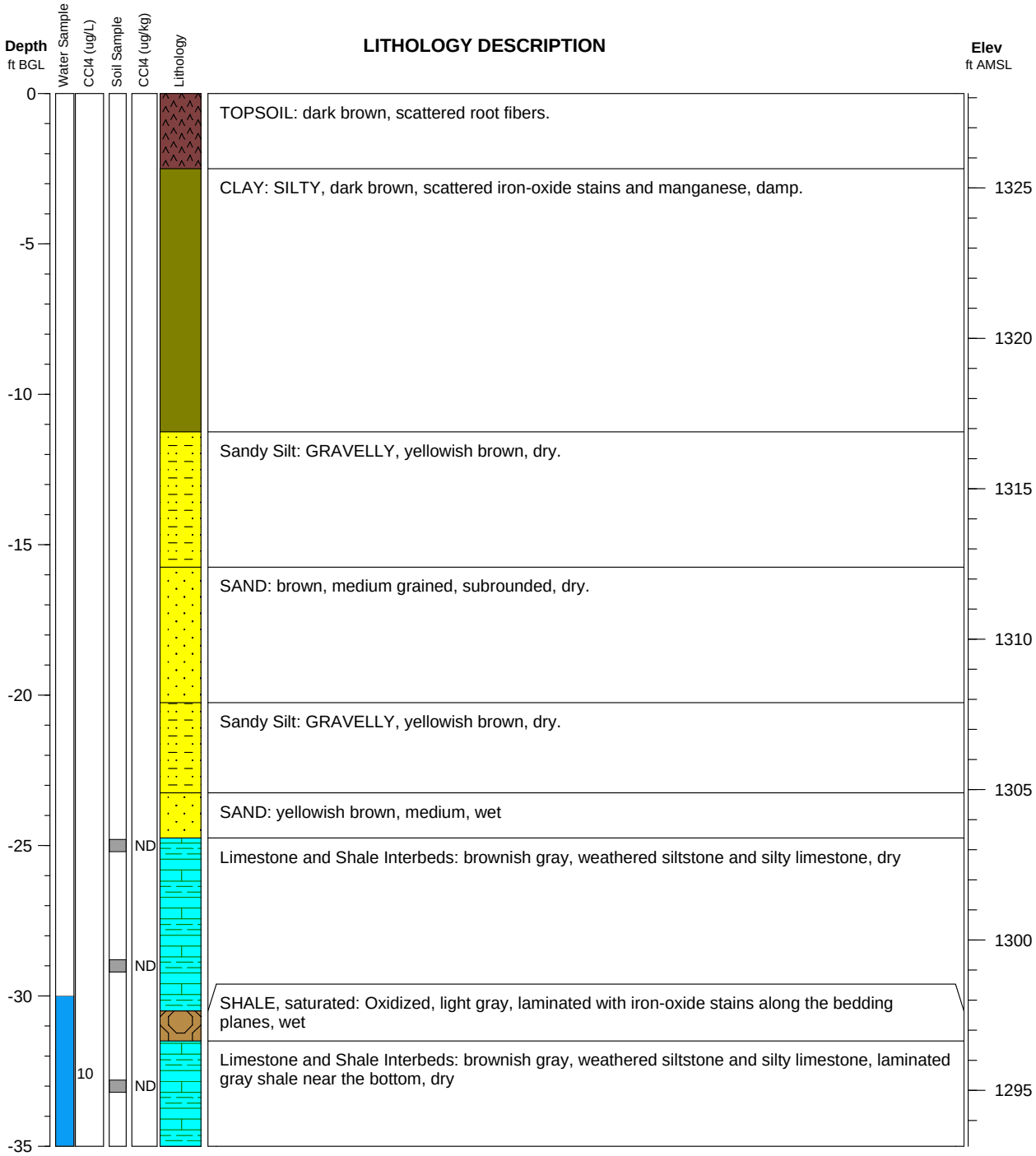


Argonne National Laboratory

Well ID: MW04

Project: Hanover **Elevation:** 1328.14 ft **Log Date:** January 31, 2009

Geologist: Eugene Yan **Depth:** 35 ft **Rig:** Mini-sonic drilling rig

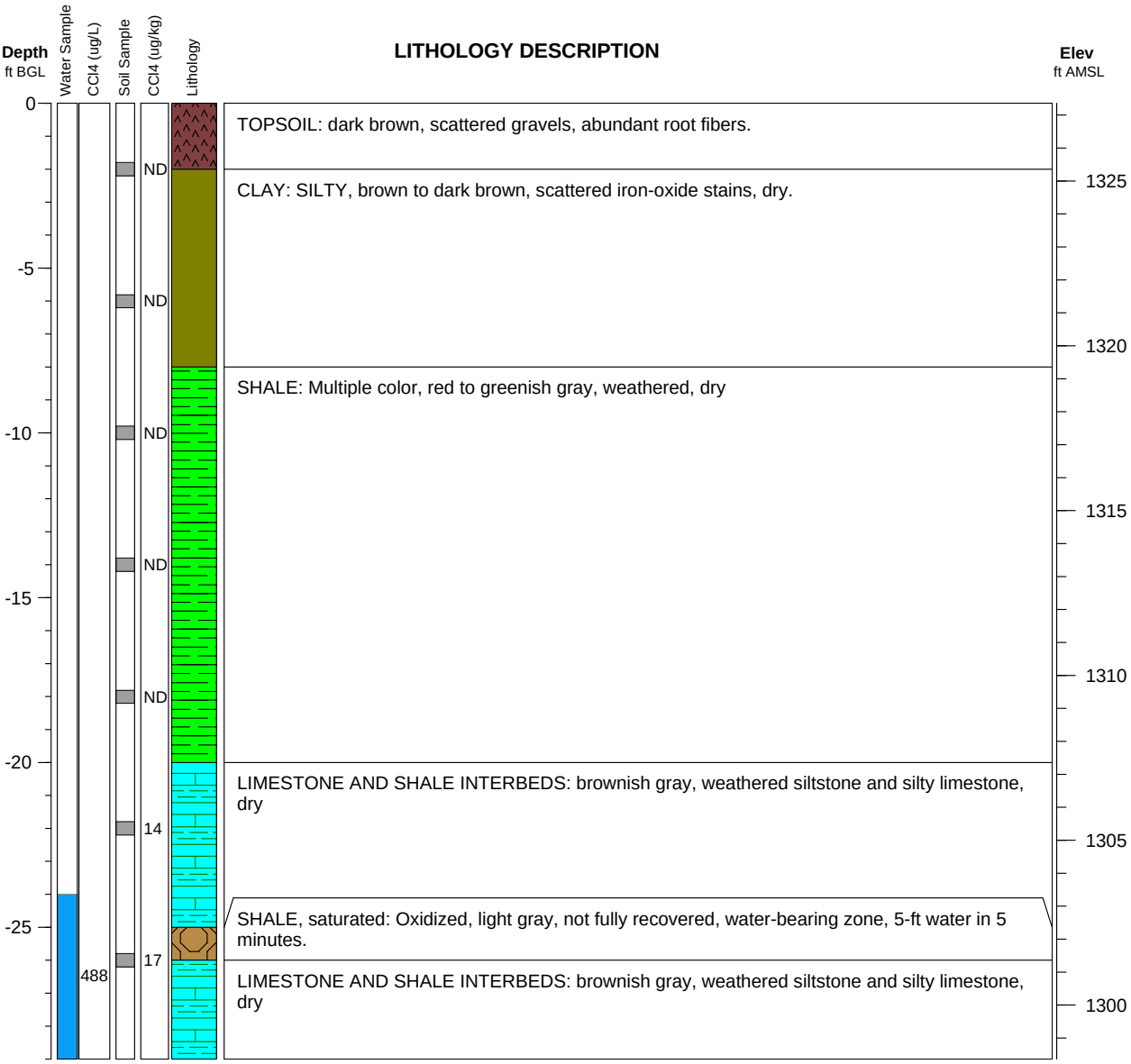


Argonne National Laboratory

Well ID: TI07/MW05

Project: Hanover **Elevation:** 1327.36 ft **Log Date:** January 31, 2009

Geologist: Eugene Yan **Depth:** 29 ft **Rig:** Geoprobe/mini-sonic drilling rig

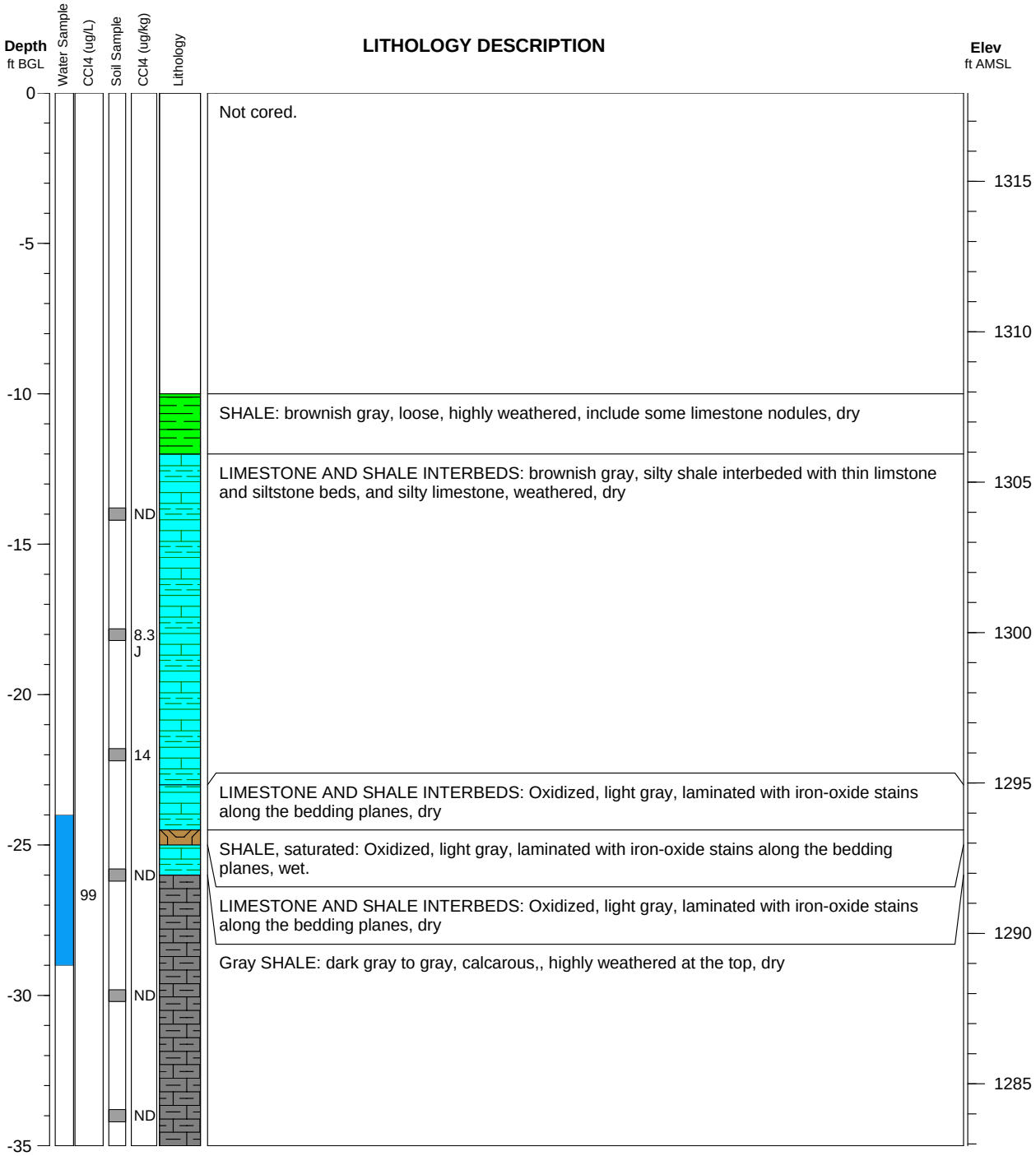


Argonne National Laboratory

Well ID: TI26/MW06

Project: Hanover **Elevation:** 1317.93 ft **Log Date:** January 31, 2009

Geologist: Eugene Yan **Depth:** 35 ft **Rig:** Mini-sonic drilling rig

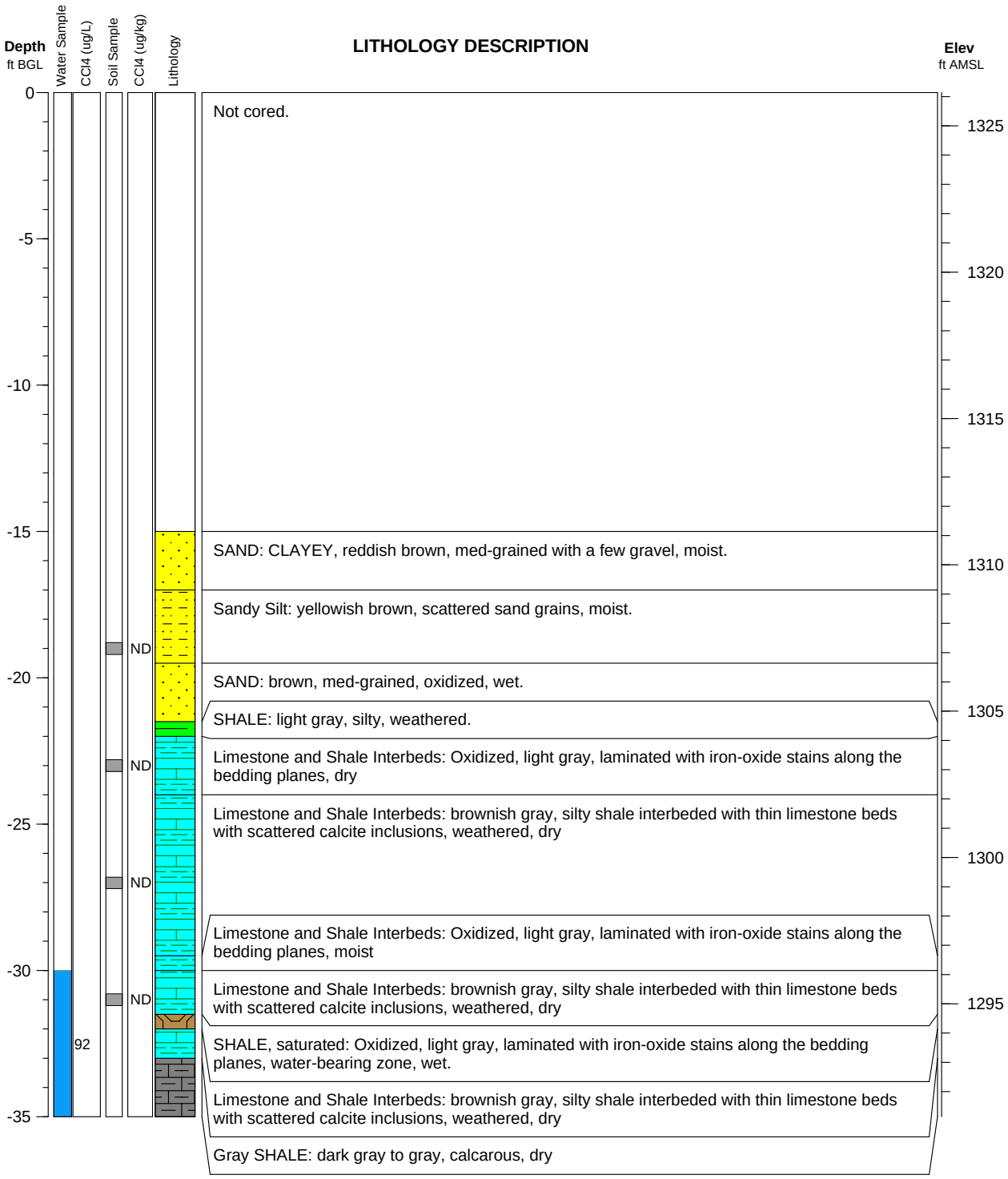


Argonne National Laboratory

Well ID: MW07

Project: Hanover **Elevation:** 1326.14 ft **Log Date:** February 2, 2009

Geologist: Eugene Yan **Depth:** 35 ft **Rig:** Mini-sonic drilling rig

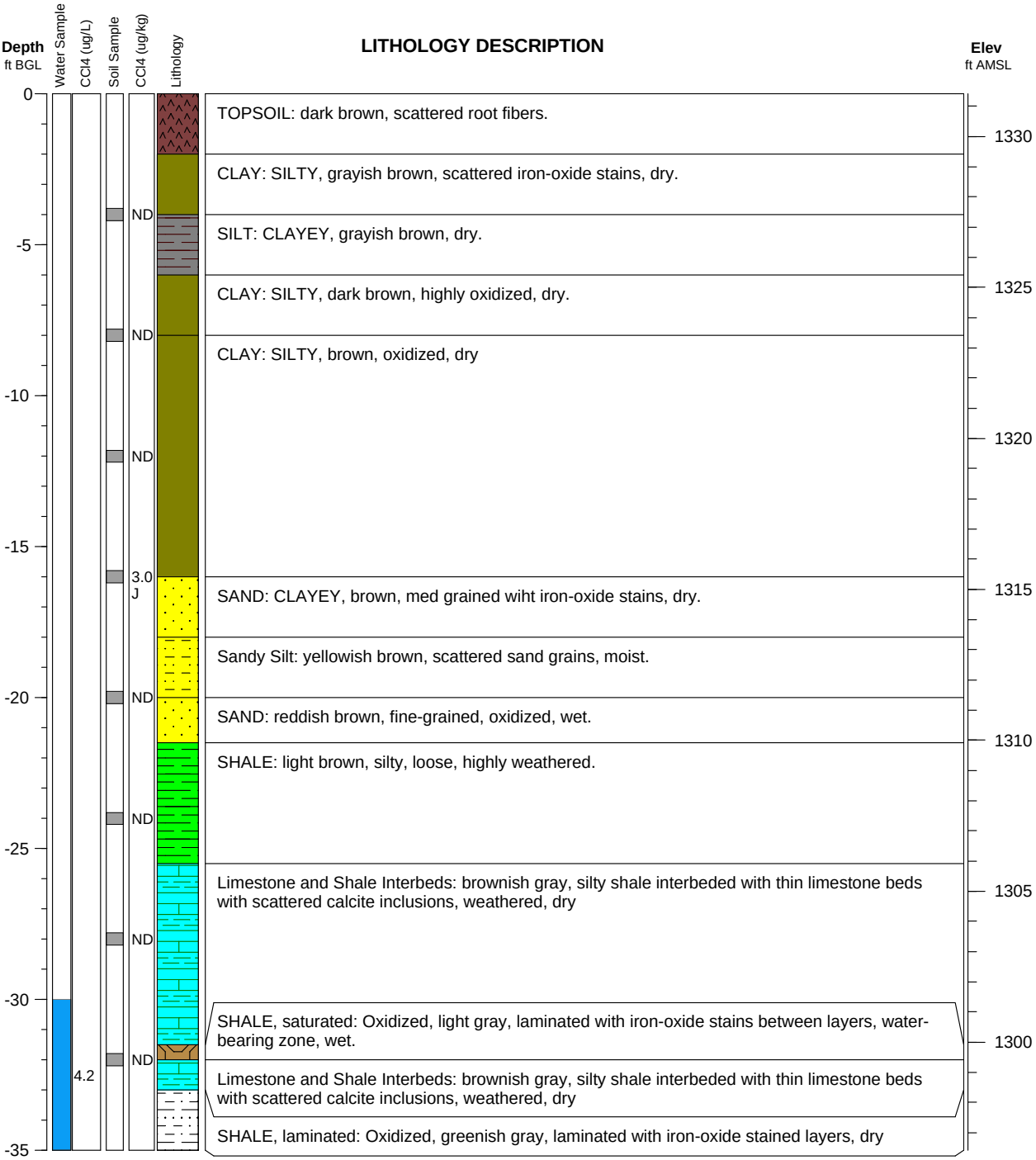


Argonne National Laboratory

Well ID: MW08

Project: Hanover **Elevation:** 1331.41 ft **Log Date:** February 2, 2009

Geologist: Eugene Yan **Depth:** 35 ft **Rig:** Minisonic

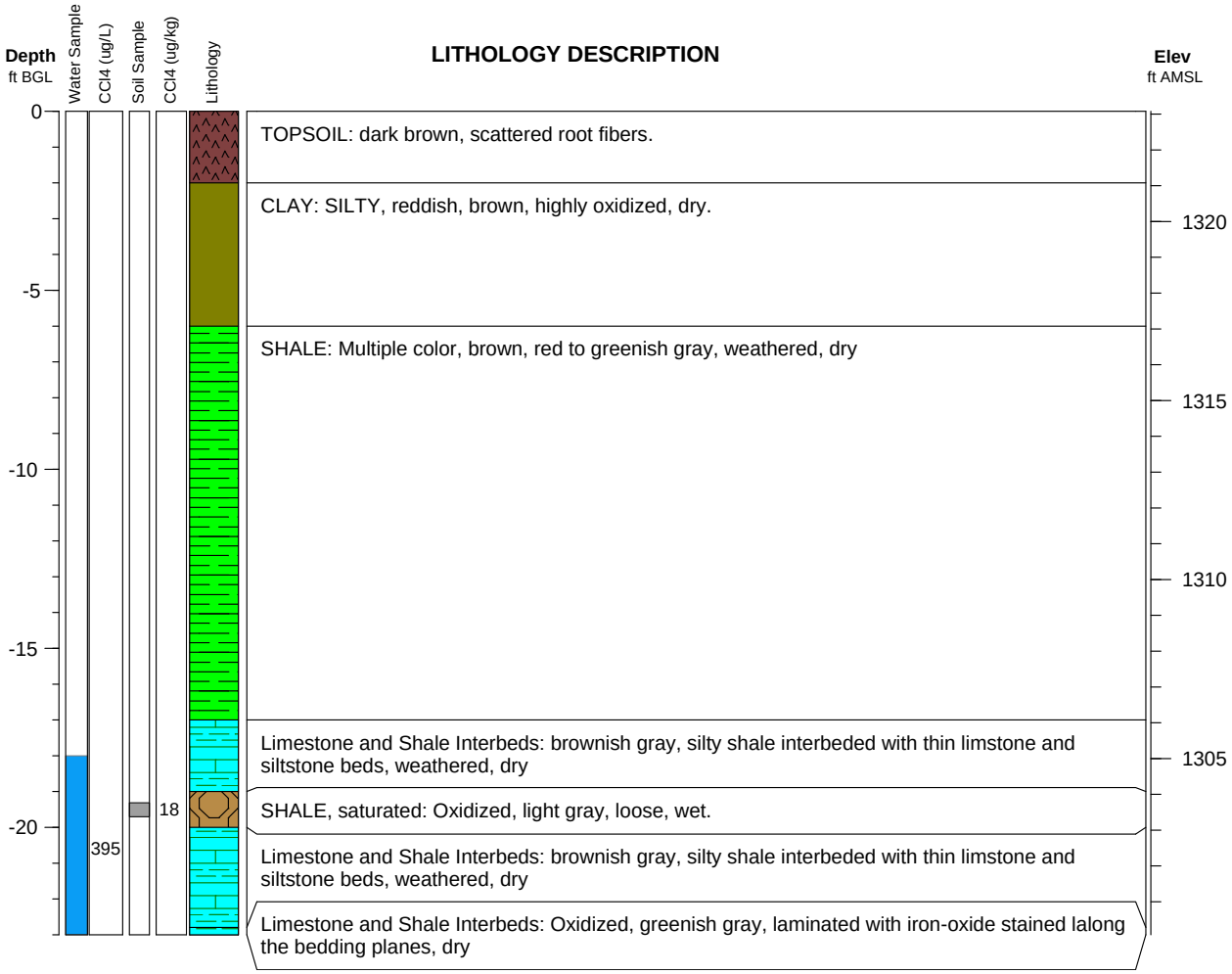


Argonne National Laboratory

Well ID: MW09

Project: Hanover **Elevation:** 1323.08 ft **Log Date:** February 4, 2009

Geologist: Eugene Yan **Depth:** 23 ft **Rig:** Minisonic drilling rig

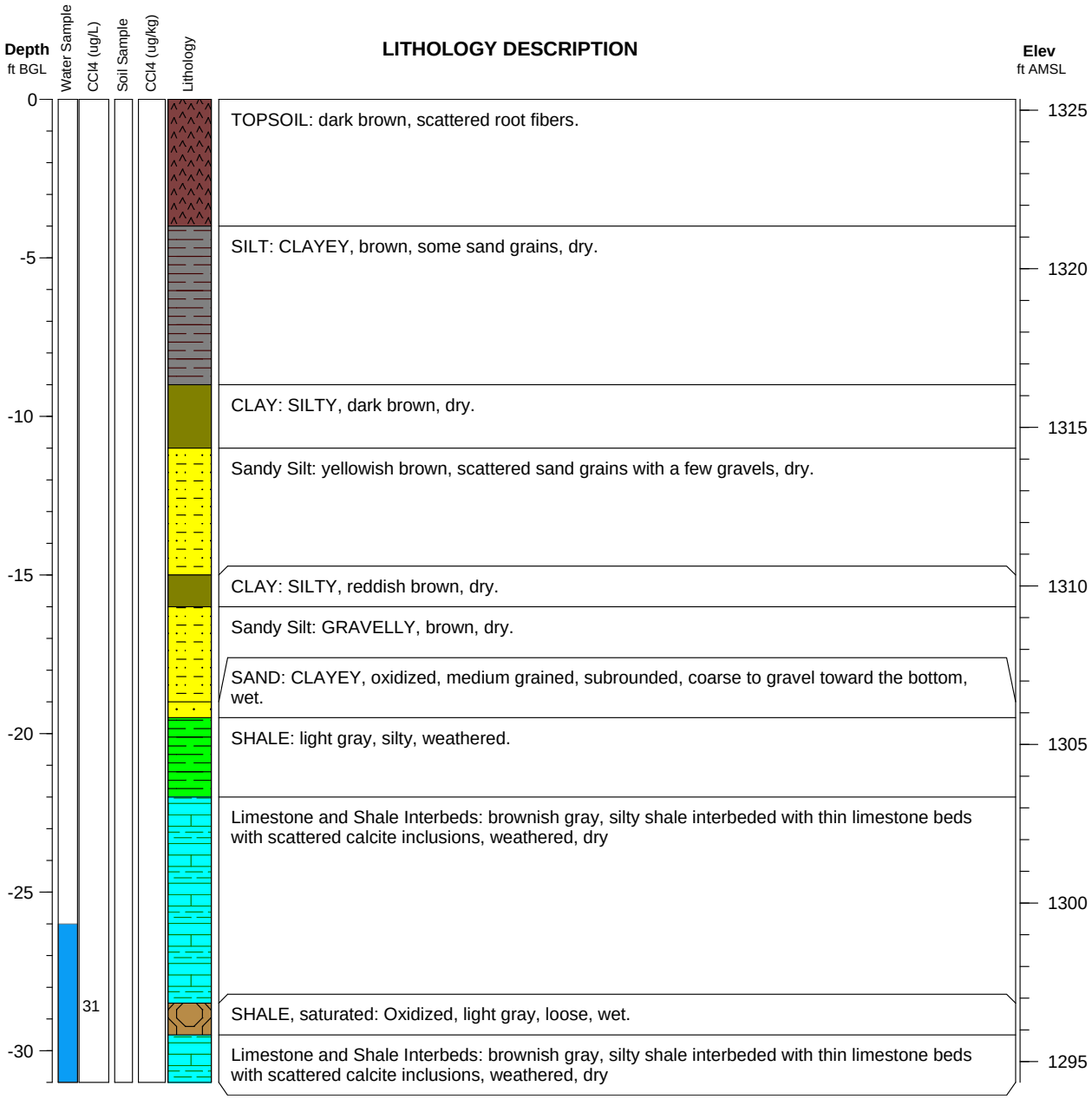


Argonne National Laboratory

Well ID: MW10

Project: Hanover **Elevation:** 1325.34 ft **Log Date:** February 3, 2009

Geologist: Eugene Yan **Depth:** 31 ft **Rig:** Minisonic drilling rig

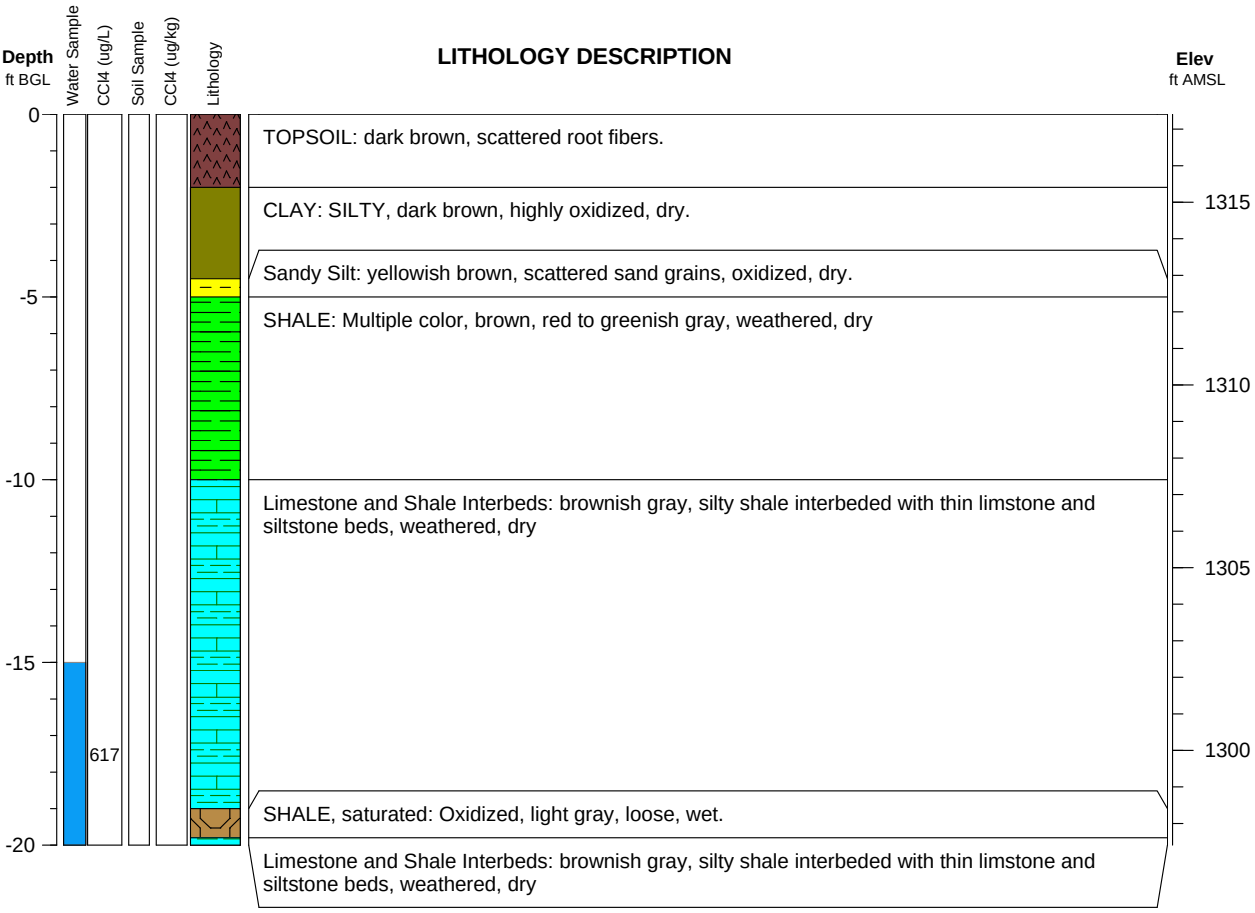


Argonne National Laboratory

Well ID: MW11

Project: Hanover **Elevation:** 1317.40 ft **Log Date:** February 4, 2009

Geologist: Eugene Yan **Depth:** 23 ft **Rig:** Minisonic drilling rig

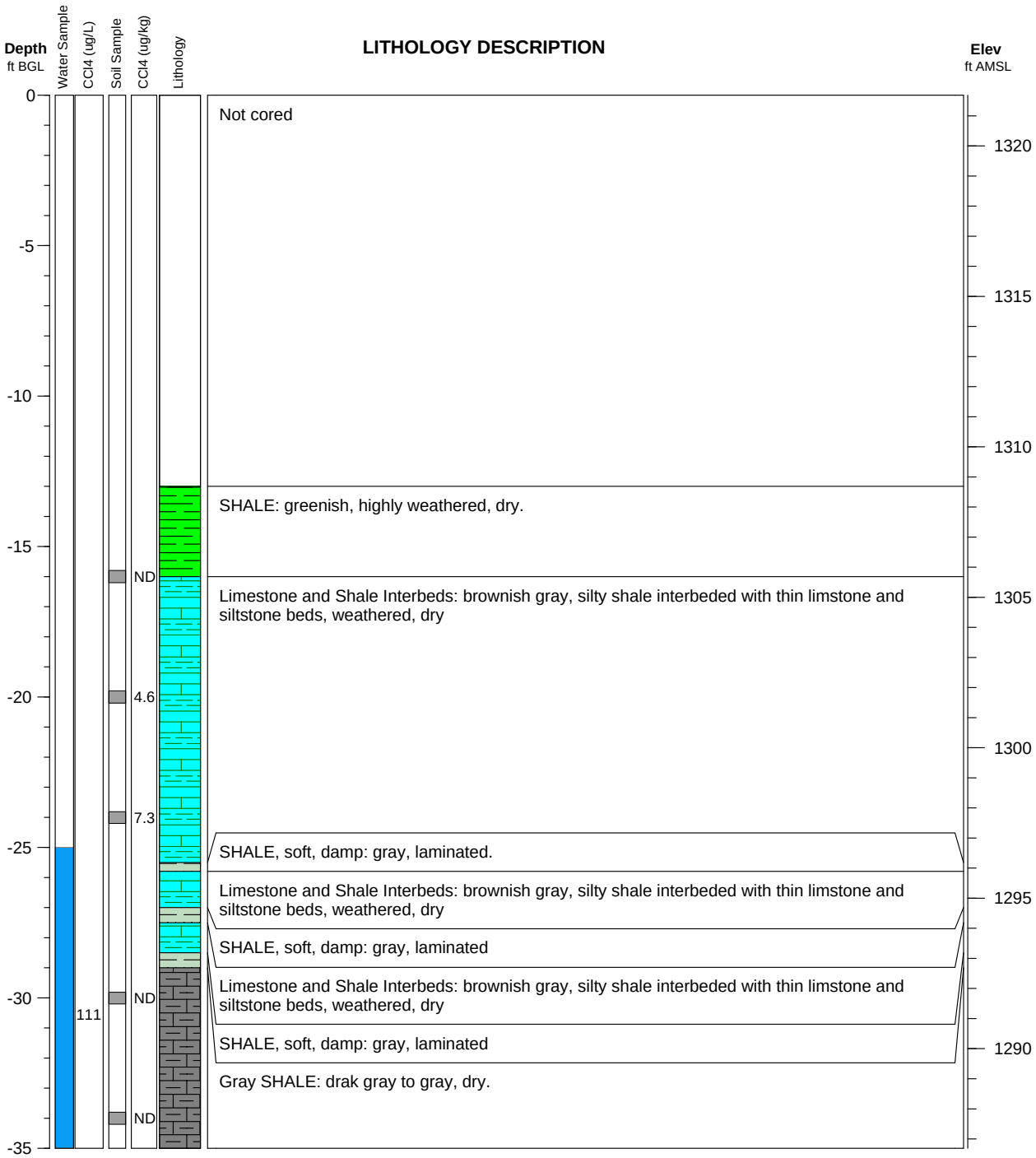


Argonne National Laboratory

Well ID: MW12

Project: Hanover **Elevation:** 1321.68 ft **Log Date:** February 4, 2009

Geologist: Eugene Yan **Depth:** 35 ft **Rig:** Minisonic drilling rig

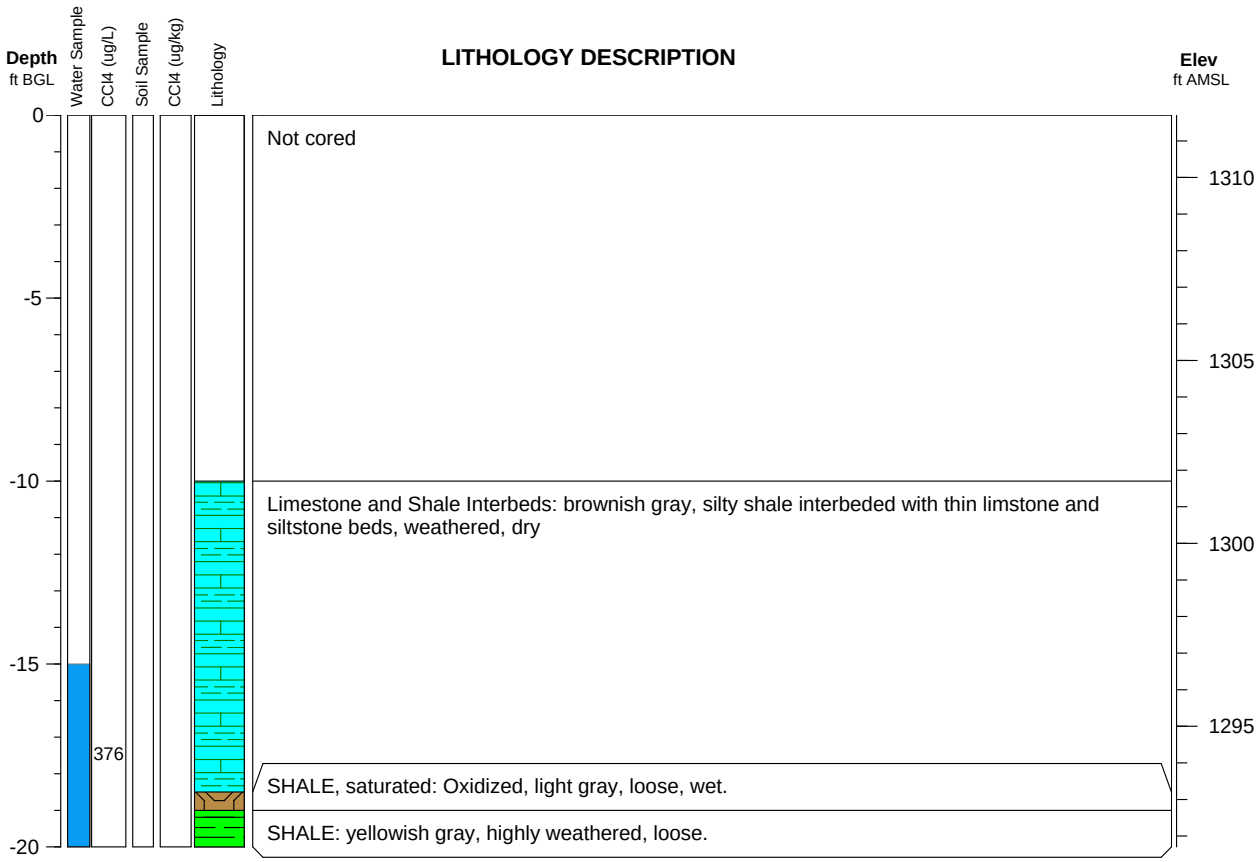


Argonne National Laboratory

Well ID: MW13

Project: Hanover **Elevation:** 1311.70 ft **Log Date:** February 4, 2009

Geologist: Eugene Yan **Depth:** 20 ft **Rig:** Minisonic drilling rig

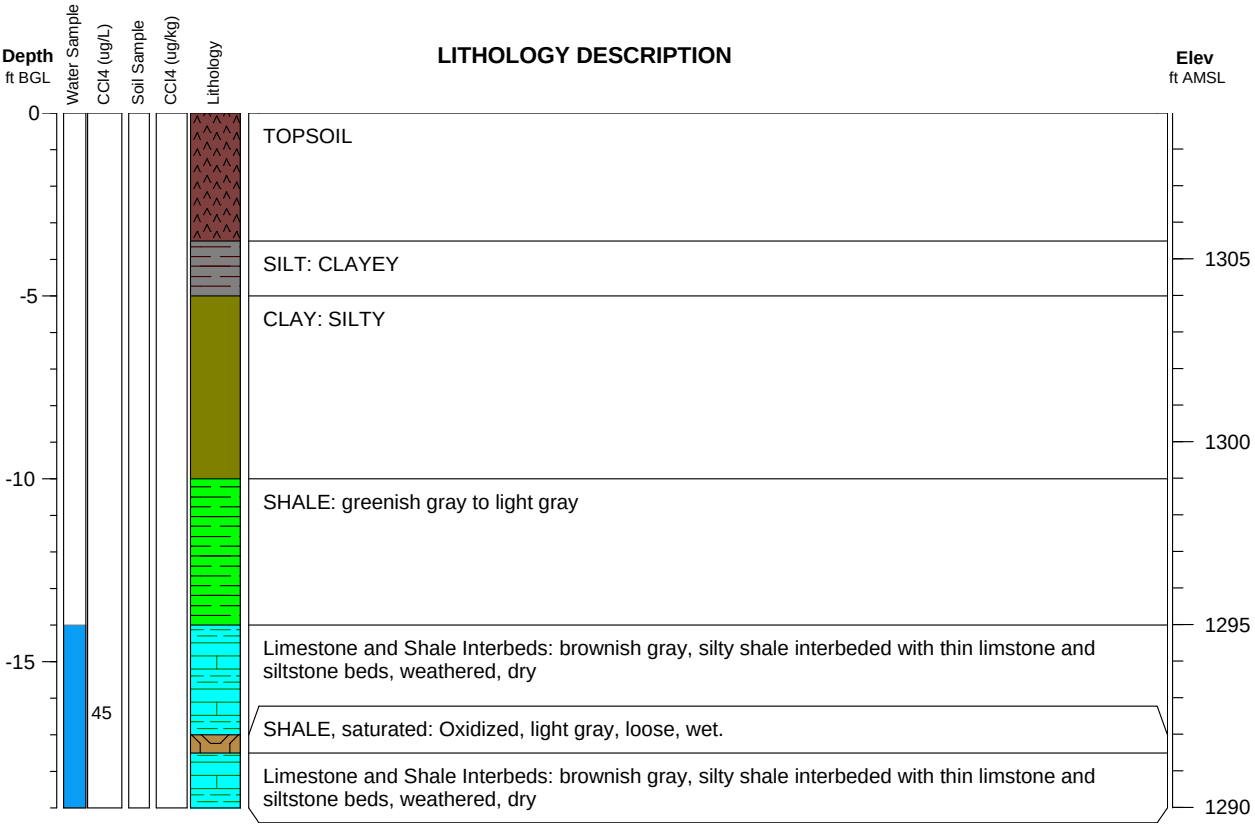


Argonne National Laboratory

Well ID: MW14

Project: Hanover **Elevation:** 1308.98 ft **Log Date:** February 26, 2009

Geologist: Eugene Yan **Depth:** 19 ft **Rig:** Minisonic drilling rig

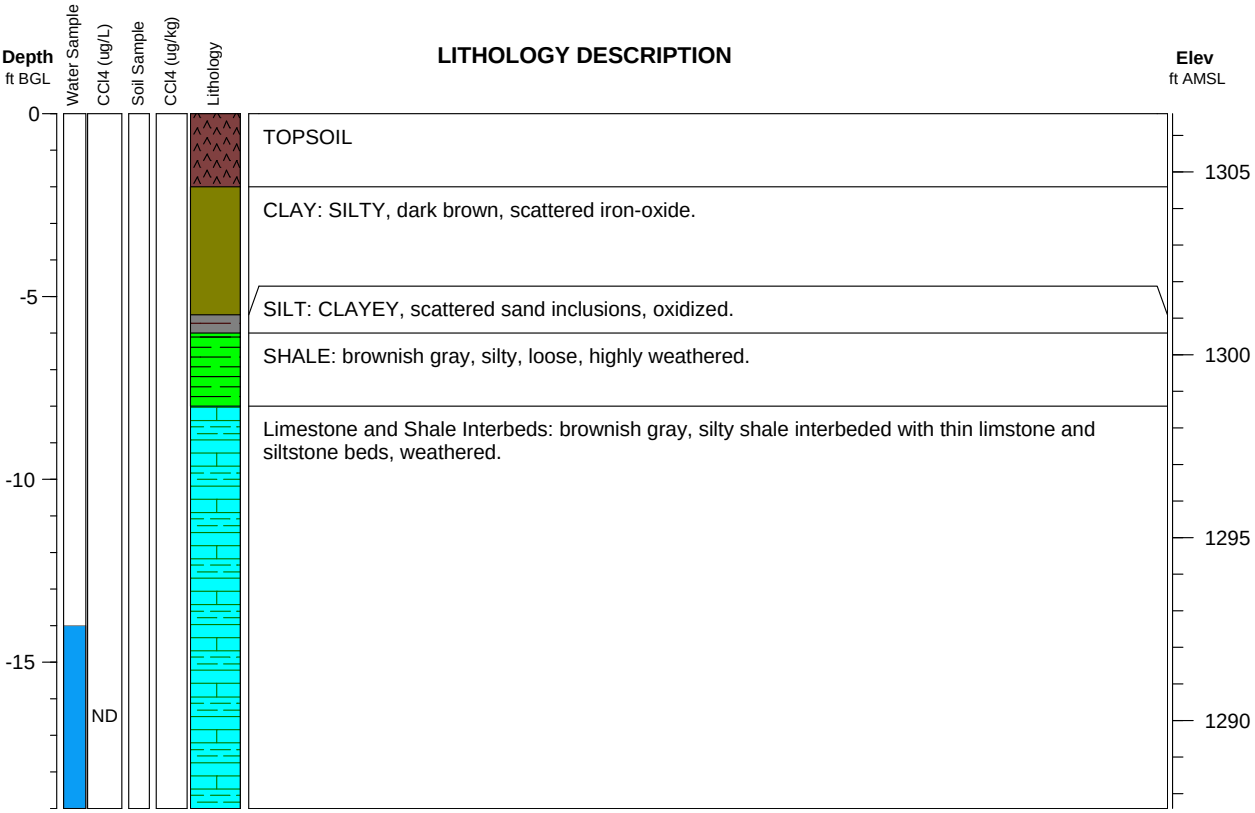


Argonne National Laboratory

Well ID: MW15

Project: Hanover **Elevation:** 1306.59 ft **Log Date:** February 26, 2009

Geologist: Eugene Yan **Depth:** 19 ft **Rig:** Minisonic drilling rig

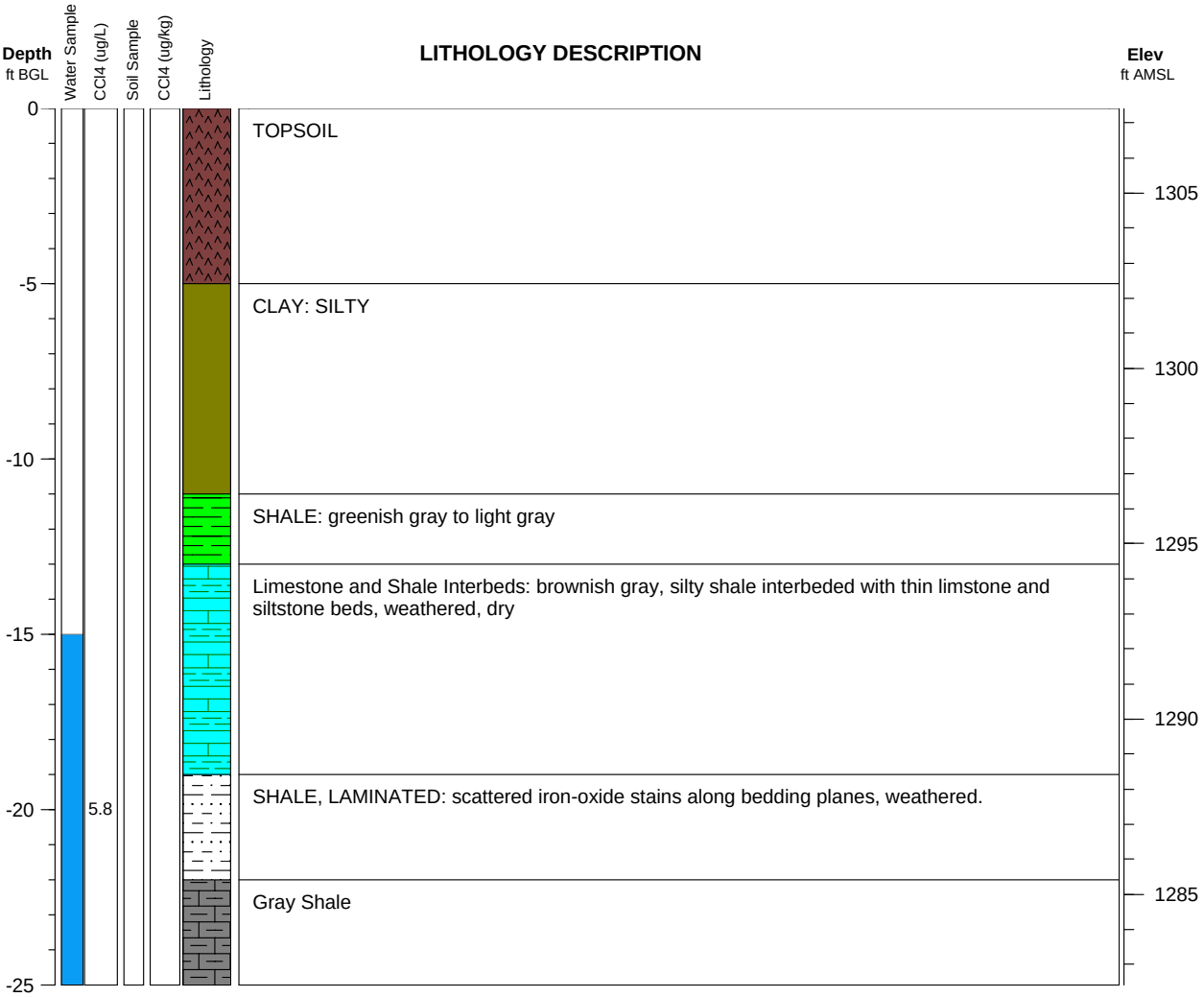


Argonne National Laboratory

Well ID: MW16

Project: Hanover **Elevation:** 1307.41 ft **Log Date:** February 26, 2009

Geologist: Eugene Yan **Depth:** 25 ft **Rig:** Mini-sonic drilling rig

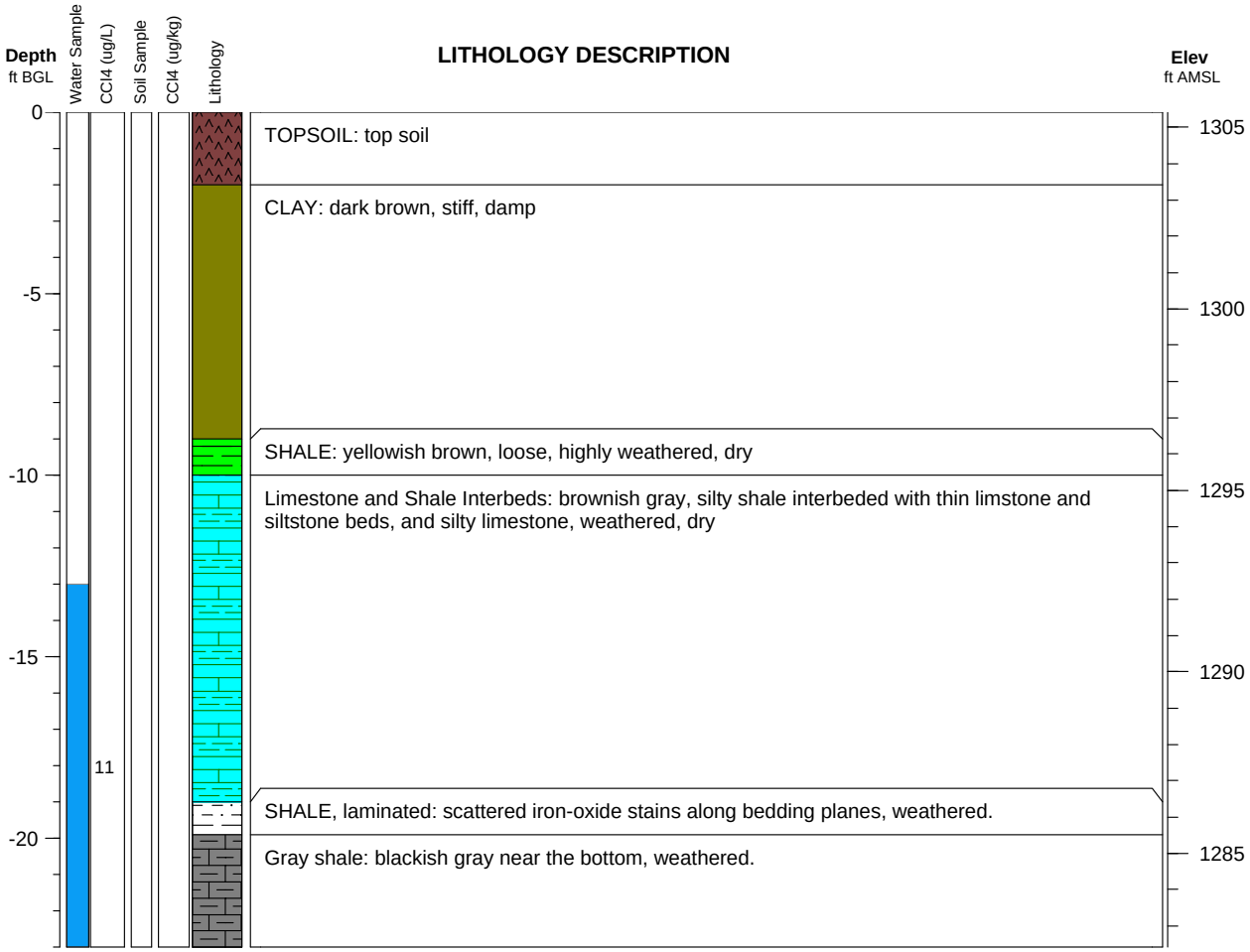


Argonne National Laboratory

Well ID: MW17

Project: Hanover **Elevation:** 1305.41 ft **Log Date:** Februray 26, 2009

Geologist: Eugene Yan **Depth:** 23 ft **Rig:** Minisonic drilling rig

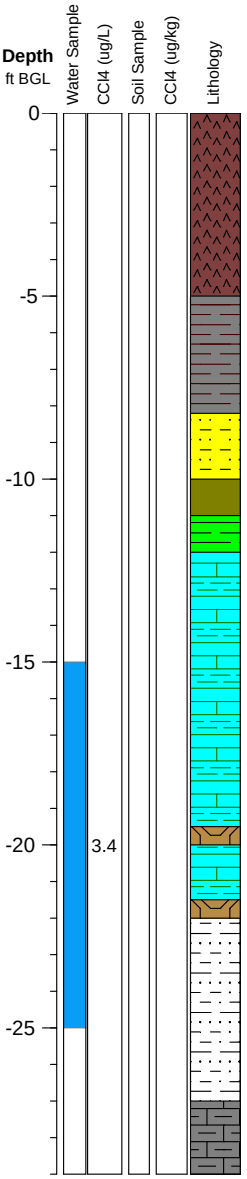


Argonne National Laboratory

Well ID: MW18

Project: Hanover **Elevation:** 1315.11 ft **Log Date:** Februray 26, 2009

Geologist: Eugene Yan **Depth:** 29 ft **Rig:** Mini-sonic drilling rig



LITHOLOGY DESCRIPTION

Elev ft AMSL

1315

TOPSOIL: dark brown, scattered root fibers.

1310

SILT: CLAYEY, brown, some sand grains, dry.

Sandy Silt: yellowish brown, scattered sand grains with a few gravels, dry.

1305

CLAY: SILTY, greenish gray, dry.

SHALE: drown gray, silty, weathered.

Limestone and Shale Interbeds: brownish gray, silty shale interbeded with thin limestone beds with scattered calcite inclusions, weathered, dry

1300

SHALE, saturated: Oxidized, light gray, iron-oxide stains along bedding planes, loose, wet

1295

Limestone and Shale Interbeds: brownish gray, silty shale interbeded with thin limestone beds with scattered calcite inclusions, weathered, dry

SHALE, saturated: Oxidized, light gray, iron-oxide stains along bedding planes, loose, wet

SHALE, laminated: blackish gray and yllowish brown alternated, dry

1290

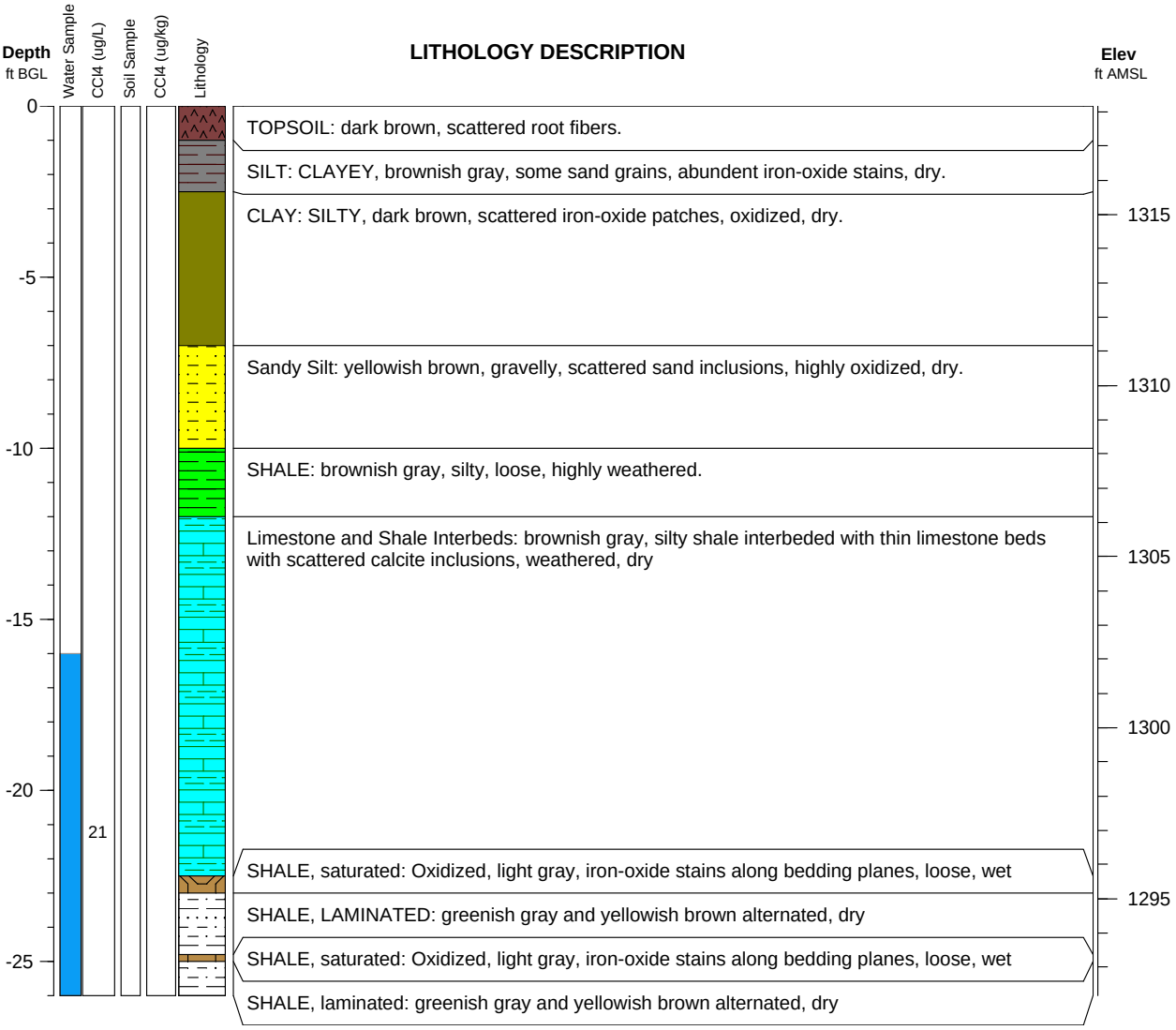
Gray Shale: brownish gray, silty shale interbeded with thin limestone beds with scattered calcite inclusions, weathered, dry

Argonne National Laboratory

Well ID: MW19

Project: Hanover **Elevation:** 1318.16 ft **Log Date:** February 26, 2009

Geologist: Eugene Yan **Depth:** 26 ft **Rig:** Mini-sonic drilling rig

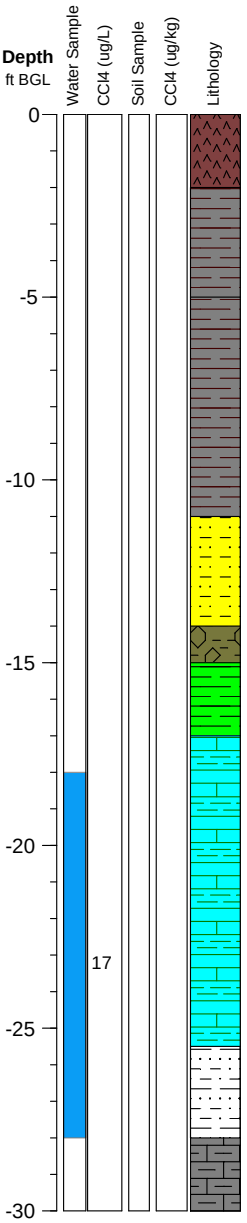


Argonne National Laboratory

Well ID: MW20

Project: Hanover **Elevation:** 1319.96 ft **Log Date:** February 26, 2009

Geologist: Eugene Yan **Depth:** 30 ft **Rig:** Mini-sonic drilling rig



LITHOLOGY DESCRIPTION

TOPSOIL: dark brown, scattered root fibers.

SILT: CLAYEY, greenish brown, dry.

SILT: dark brown, scattered sand inclusions, highly oxidized

Sandy Silt: reddish brown, scattered sand grains, fine to medimum, highly oxidized, dry.

Gravelly Silt: greenish gray, dry.

SHALE: drown gray, silty, weathered.

Limestone and Shale Interbeds: brownish gray, silty shale interbeded with thin limestone beds with scattered calcite inclusions, weathered, dry. some moist soft shale intervals at 18.4-18.6 ft, 21.4-21.8 ft, and 23.3-23.5 ft

SHALE, laminated: blackish gray and yllowish brown alternated, moist interval at 27.5-27.8

Gray Shale

Elev
ft AMSL

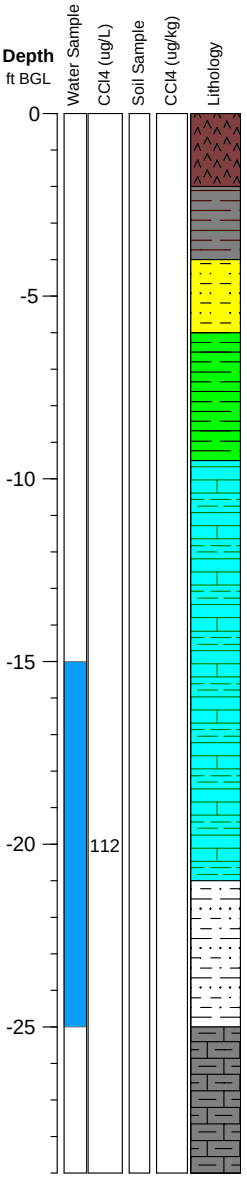
1315
1310
1305
1300
1295
1290

Argonne National Laboratory

Well ID: MW21

Project: Hanover **Elevation:** 1316.46 ft **Log Date:** February 26, 2009

Geologist: Eugene Yan **Depth:** 30 ft **Rig:** Mini-sonic drilling rig



LITHOLOGY DESCRIPTION

TOPSOIL: dark brown, scattered root fibers.

SILT: CLAYEY, dark brown

Sandy Silt: reddish brown, scattered sand grains and inclusions, highly oxidized, dry.

SHALE: weathered, multicolors (red to greenish gray)

Limestone and Shale Interbeds: brownish gray, silty shale interbeded with thin limestone beds with scattered calcite inclusions, weathered, moist near 20 ft

SHALE, laminated: greenish gray and yellowish brown alternated, moist interval at 22.5-23 ft and 23.5-24.5 ft

Gray Shale

Elev
ft AMSL

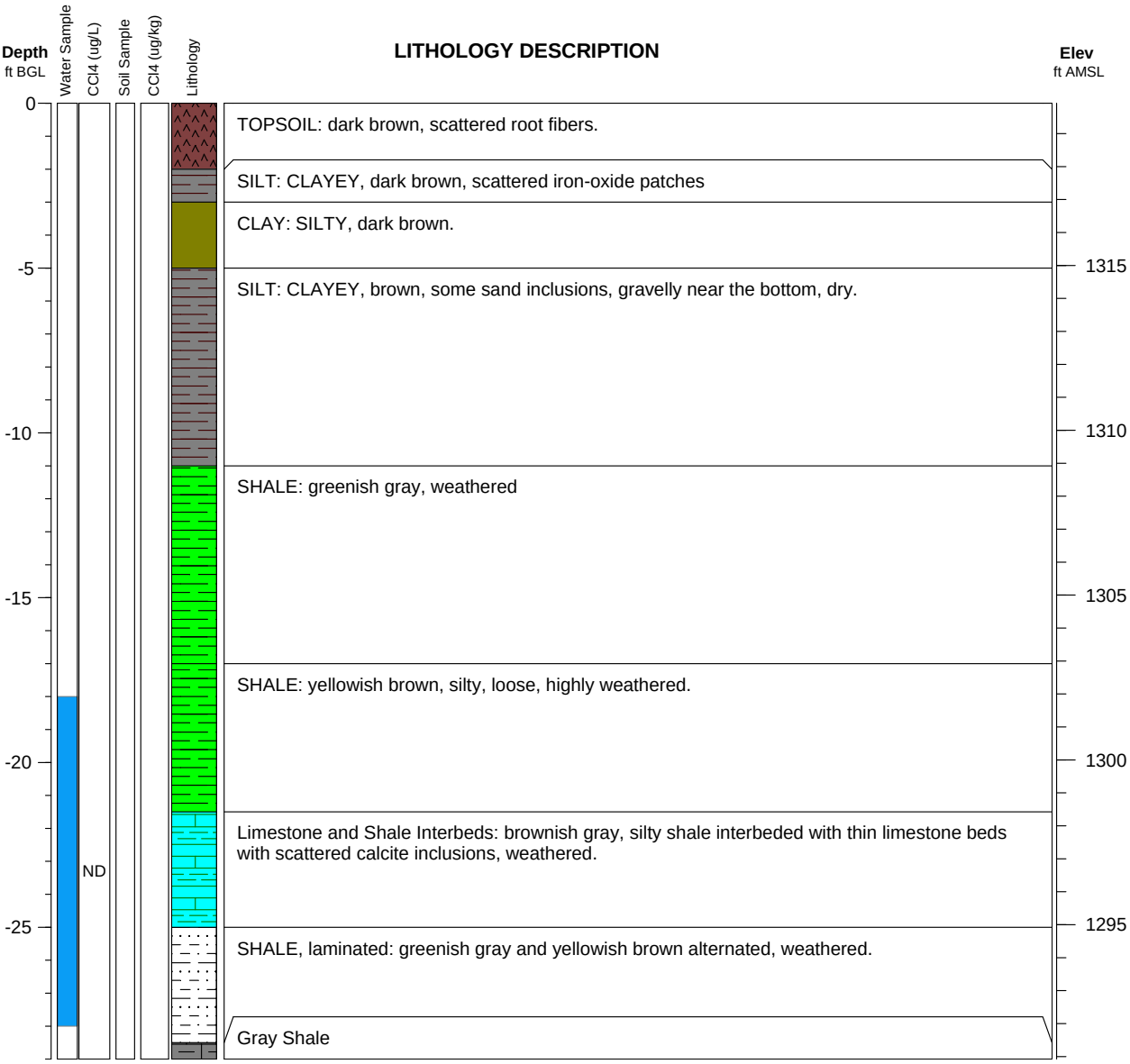
1315
1310
1305
1300
1295
1290

Argonne National Laboratory

Well ID: MW22

Project: Hanover **Elevation:** 1319.92 ft **Log Date:** February 27, 2009

Geologist: Eugene Yan **Depth:** 29 ft **Rig:** Minisonic drilling rig

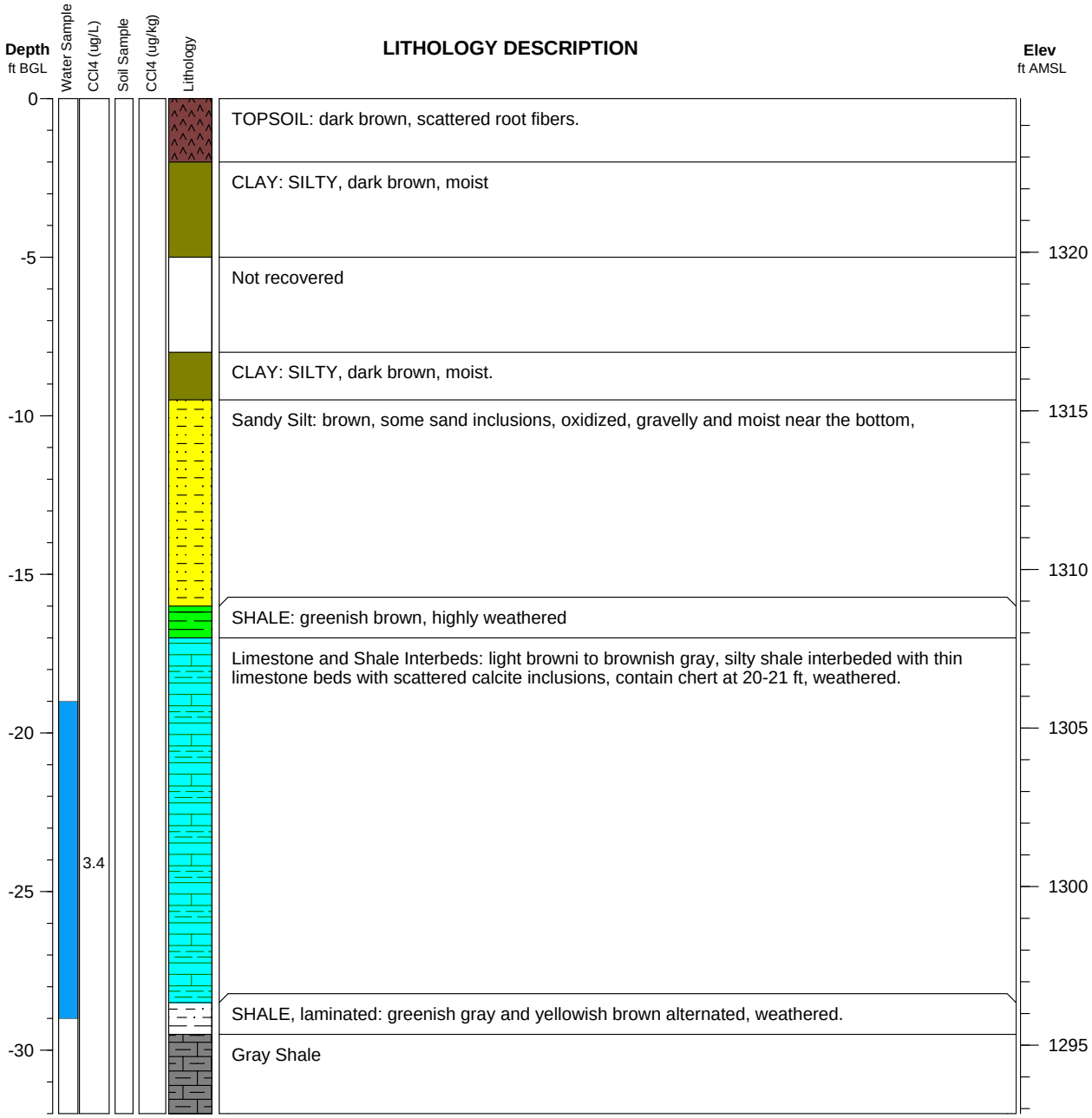


Argonne National Laboratory

Well ID: MW23

Project: Hanover **Elevation:** 1324.84 ft **Log Date:** February 27, 2009

Geologist: Eugene Yan **Depth:** 32 ft **Rig:** Minisonic drilling rig

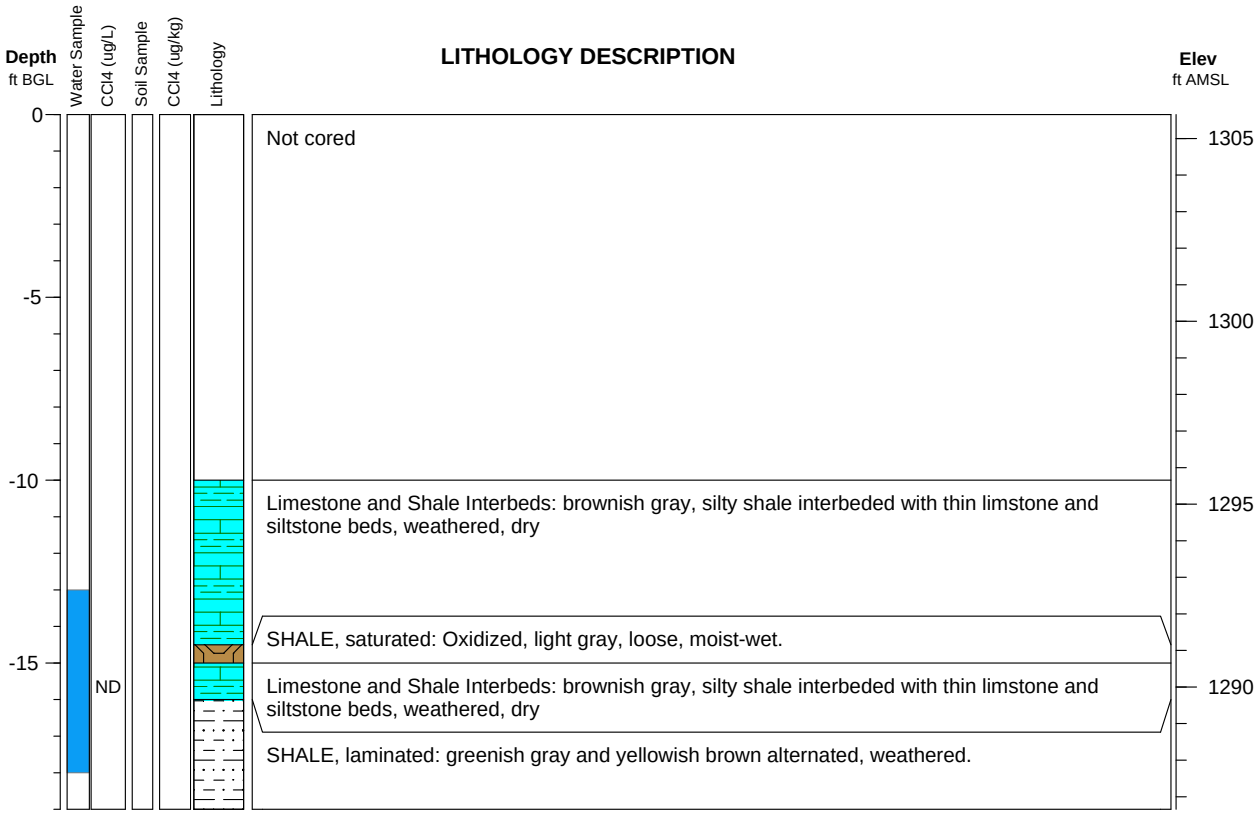


Argonne National Laboratory

Well ID: MW24

Project: Hanover **Elevation:** 1305.65 ft **Log Date:** February 27, 2009

Geologist: Eugene Yan **Depth:** 19 ft **Rig:** Mini-sonic drilling rig

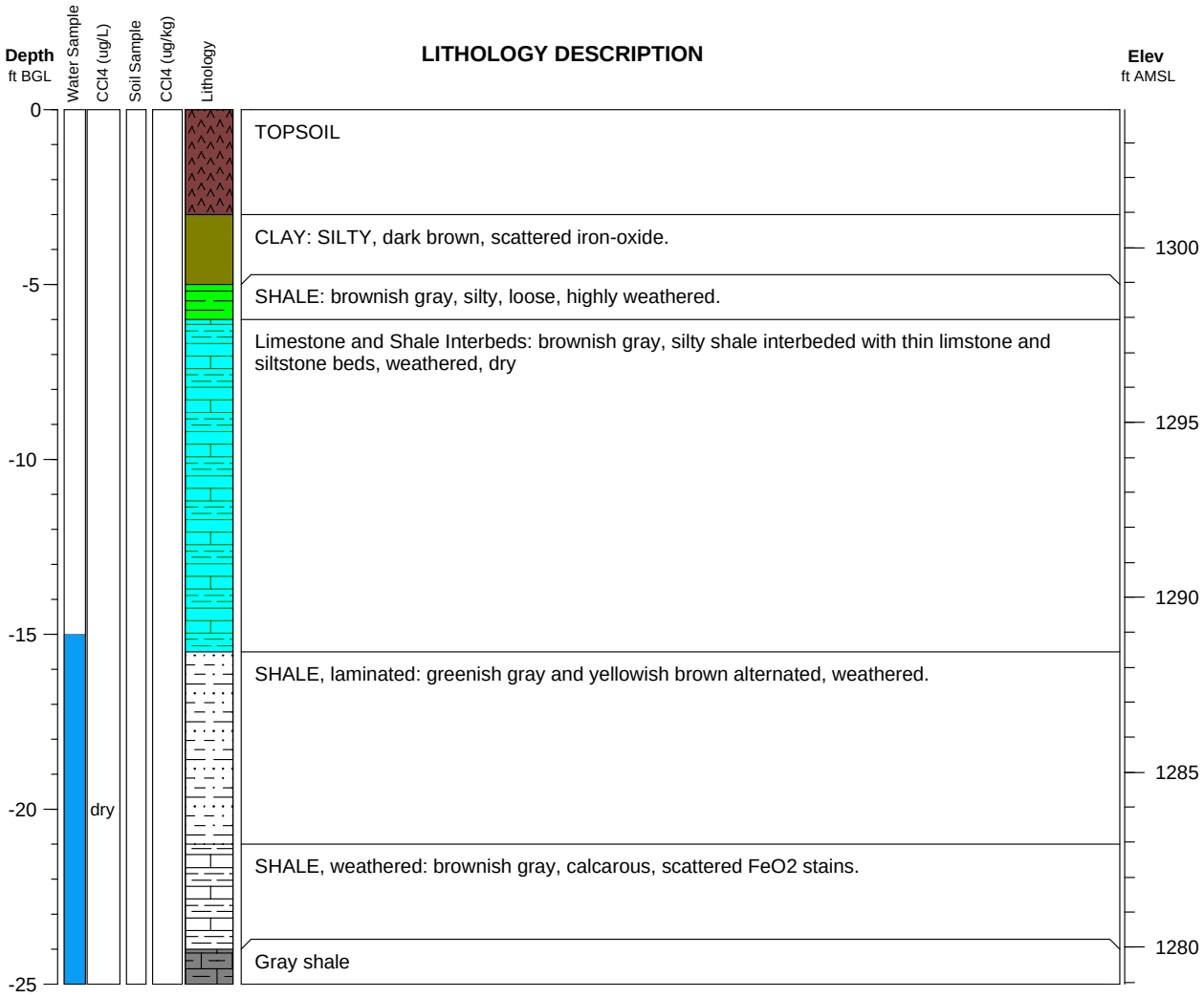


Argonne National Laboratory

Well ID: MW25

Project: Hanover **Elevation:** 1303.94 ft **Log Date:** March 1, 2009

Geologist: Eugene Yan **Depth:** 25 ft **Rig:** Mini-sonic drilling rig

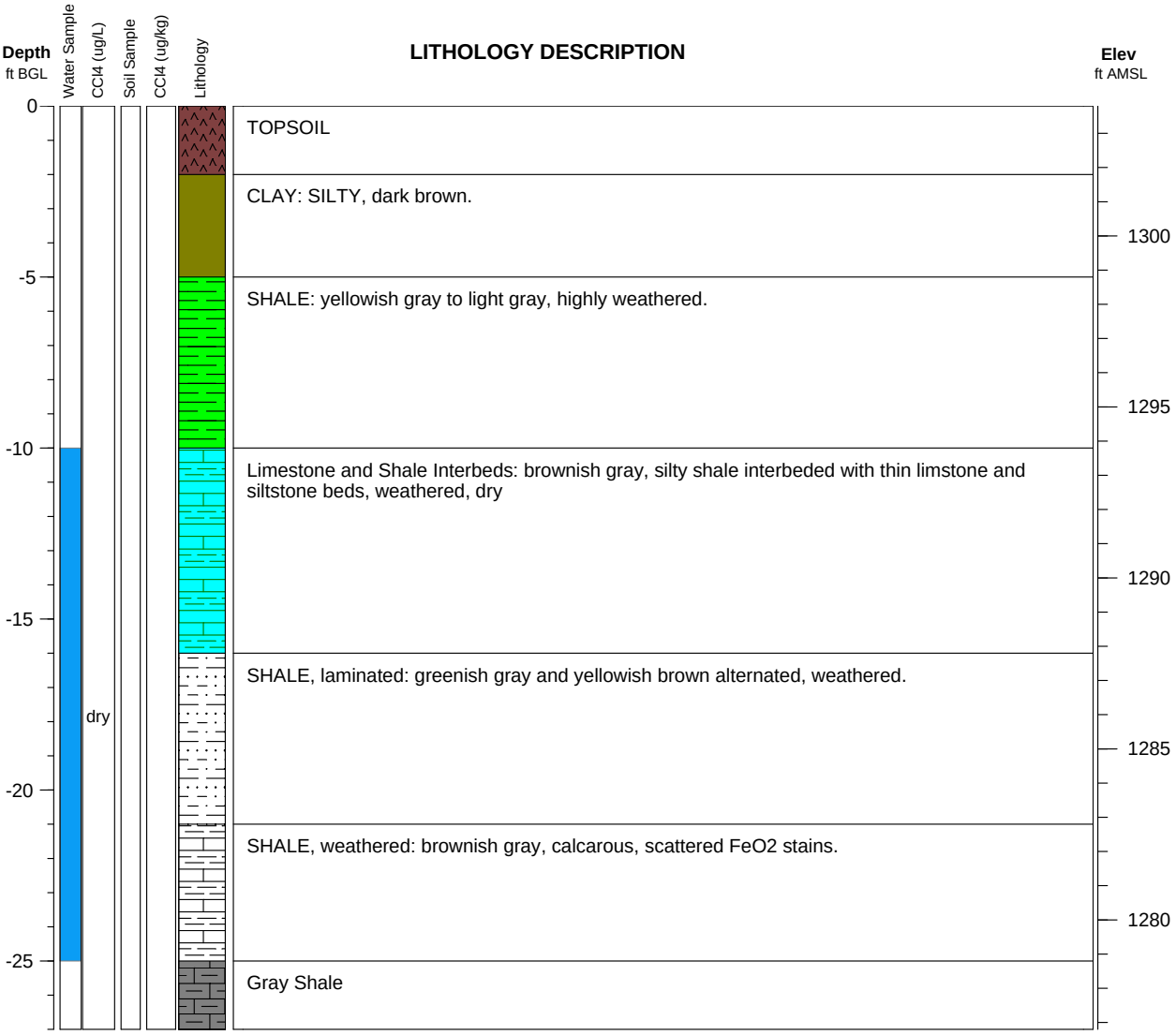


Argonne National Laboratory

Well ID: MW26

Project: Hanover **Elevation:** 1303.79 ft **Log Date:** March 01, 2009

Geologist: Eugene Yan **Depth:** 27 ft **Rig:** Minisonic drilling rig

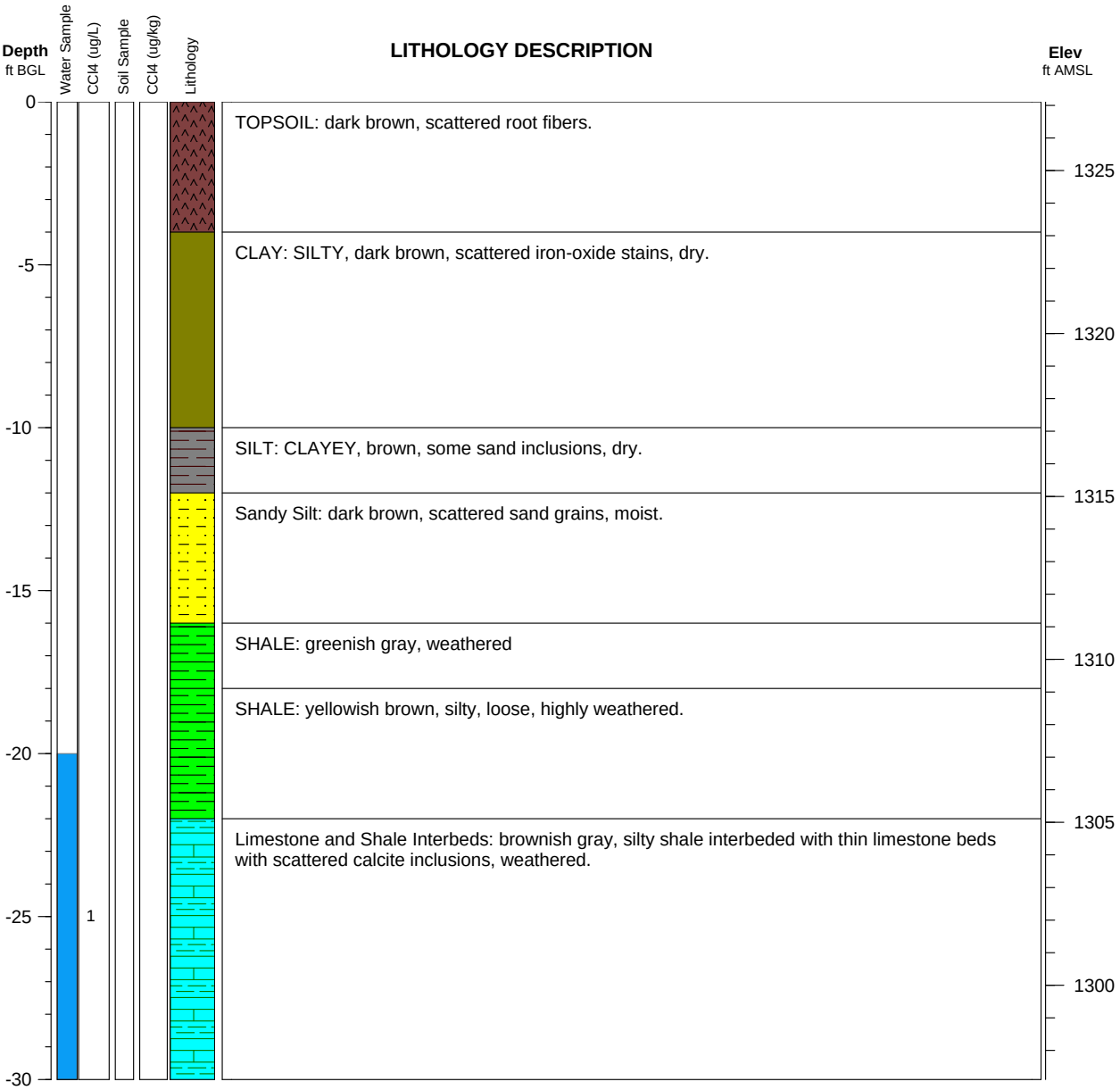


Argonne National Laboratory

Well ID: MW27

Project: Hanover **Elevation:** 1327.11 ft **Log Date:** March 1, 2009

Geologist: Eugene Yan **Depth:** 30 ft **Rig:** Minisonic drilling rig

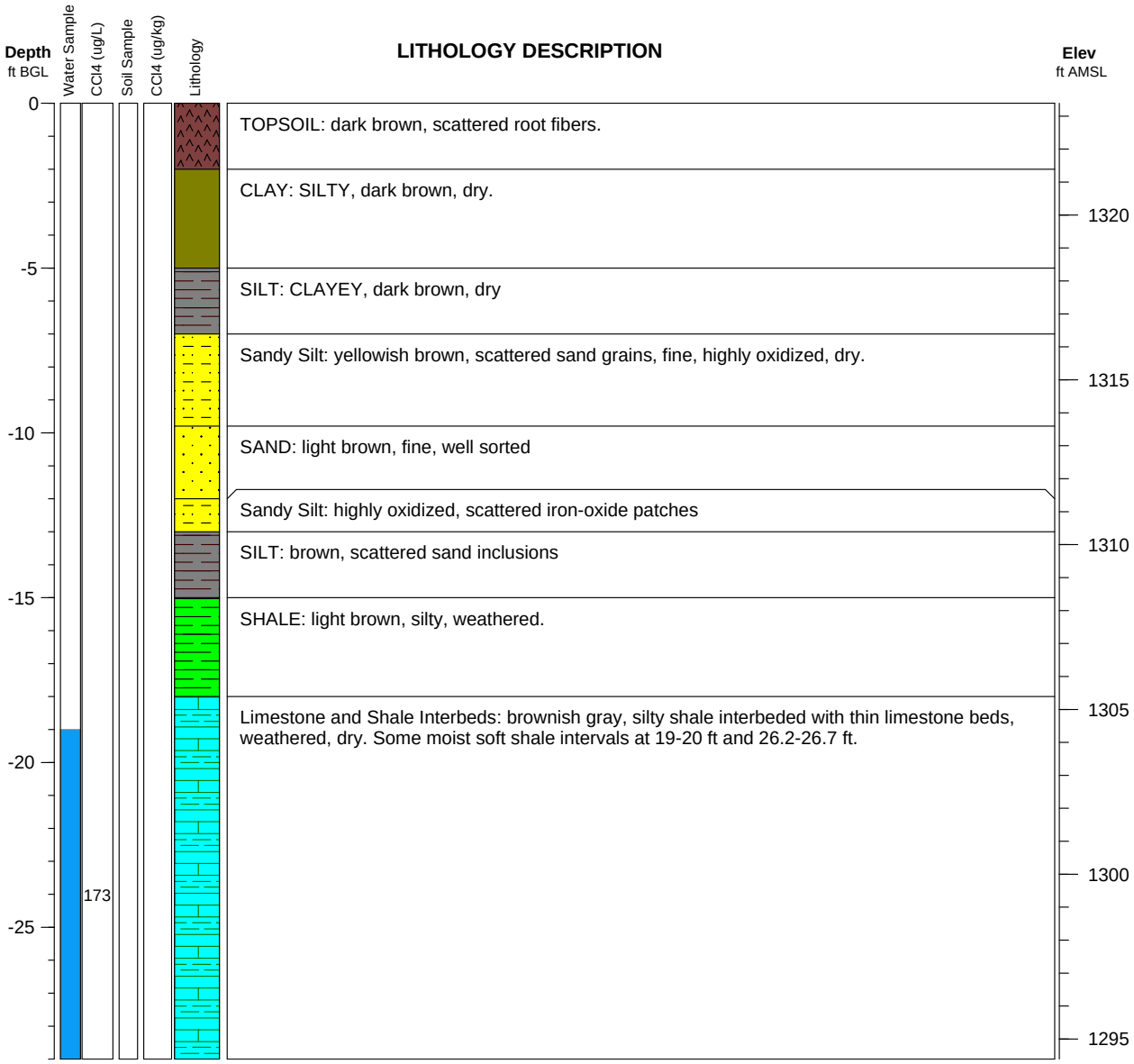


Argonne National Laboratory

Well ID: MW28

Project: Hanover **Elevation:** 1323.39 ft **Log Date:** March 2, 2009

Geologist: Eugene Yan **Depth:** 29 ft **Rig:** Mini-sonic drilling rig

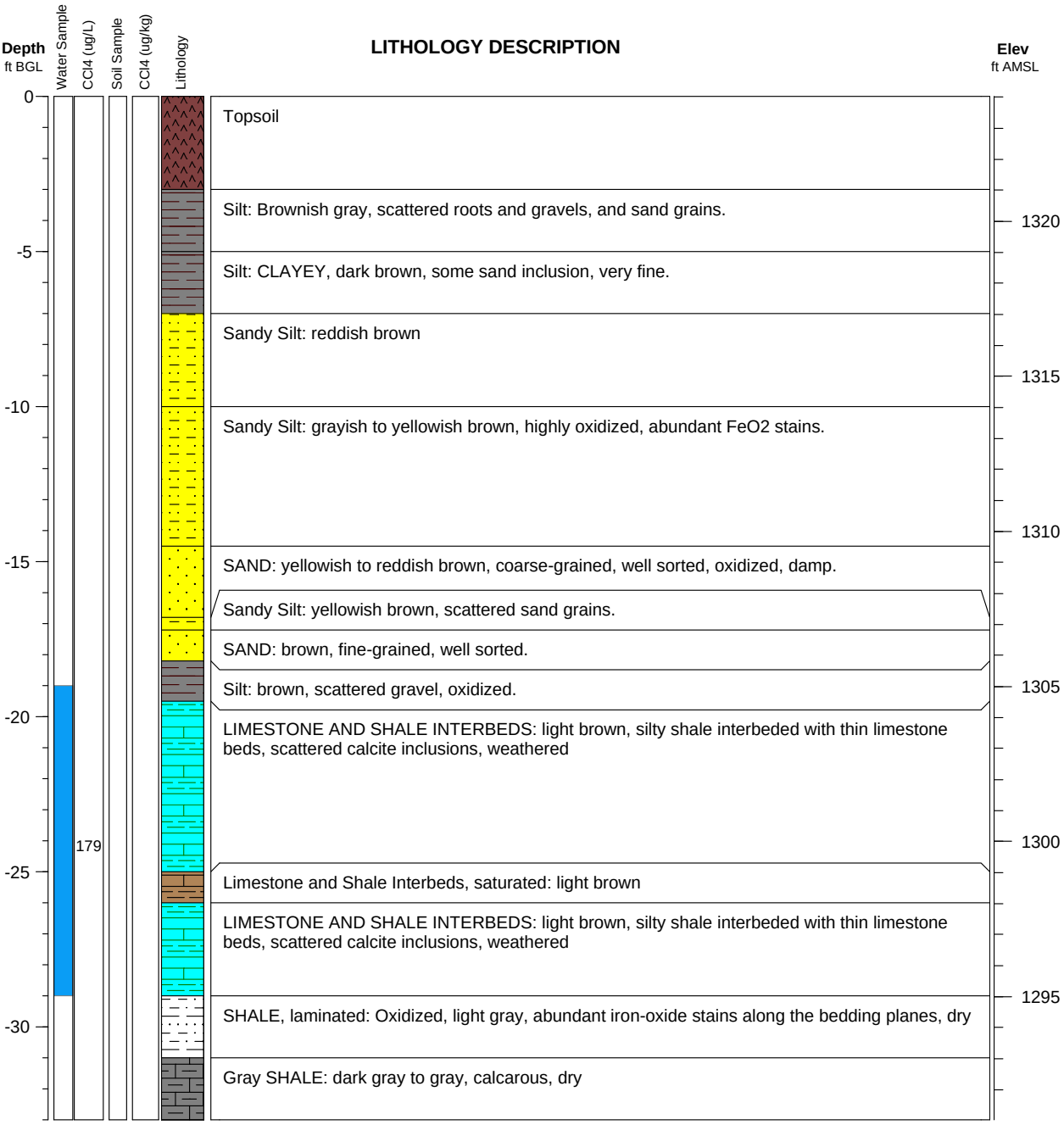


Argonne National Laboratory

Well ID: MW29

Project: Hanover **Elevation:** 1324.02 ft **Log Date:** March 2, 2009

Geologist: Eugene Yan **Depth:** 33 ft **Rig:** Minisonic

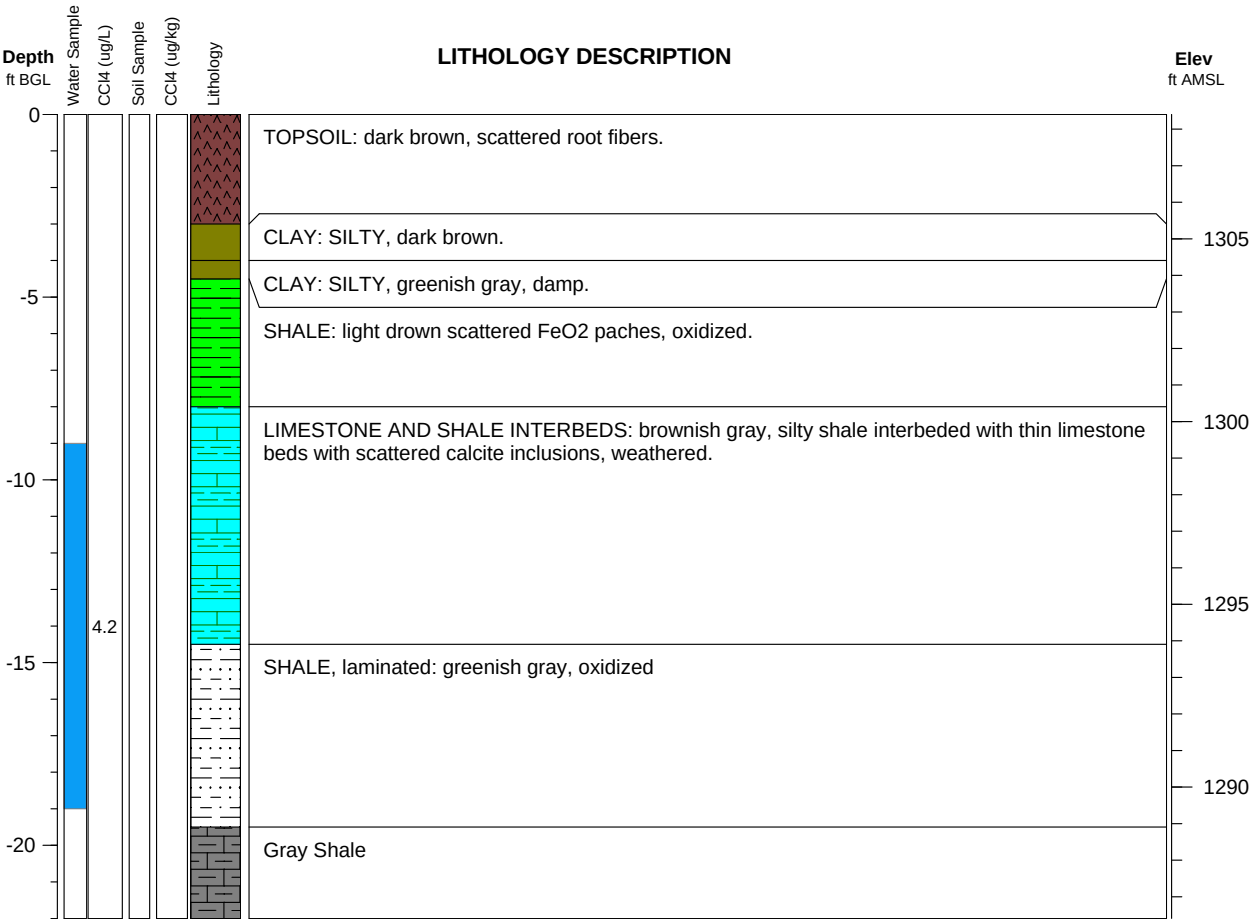


Argonne National Laboratory

Well ID: MW30

Project: Hanover **Elevation:** 1308.4 ft **Log Date:** March 2, 2009

Geologist: Eugene Yan **Depth:** 22 ft **Rig:** Mini-sonic drilling rig

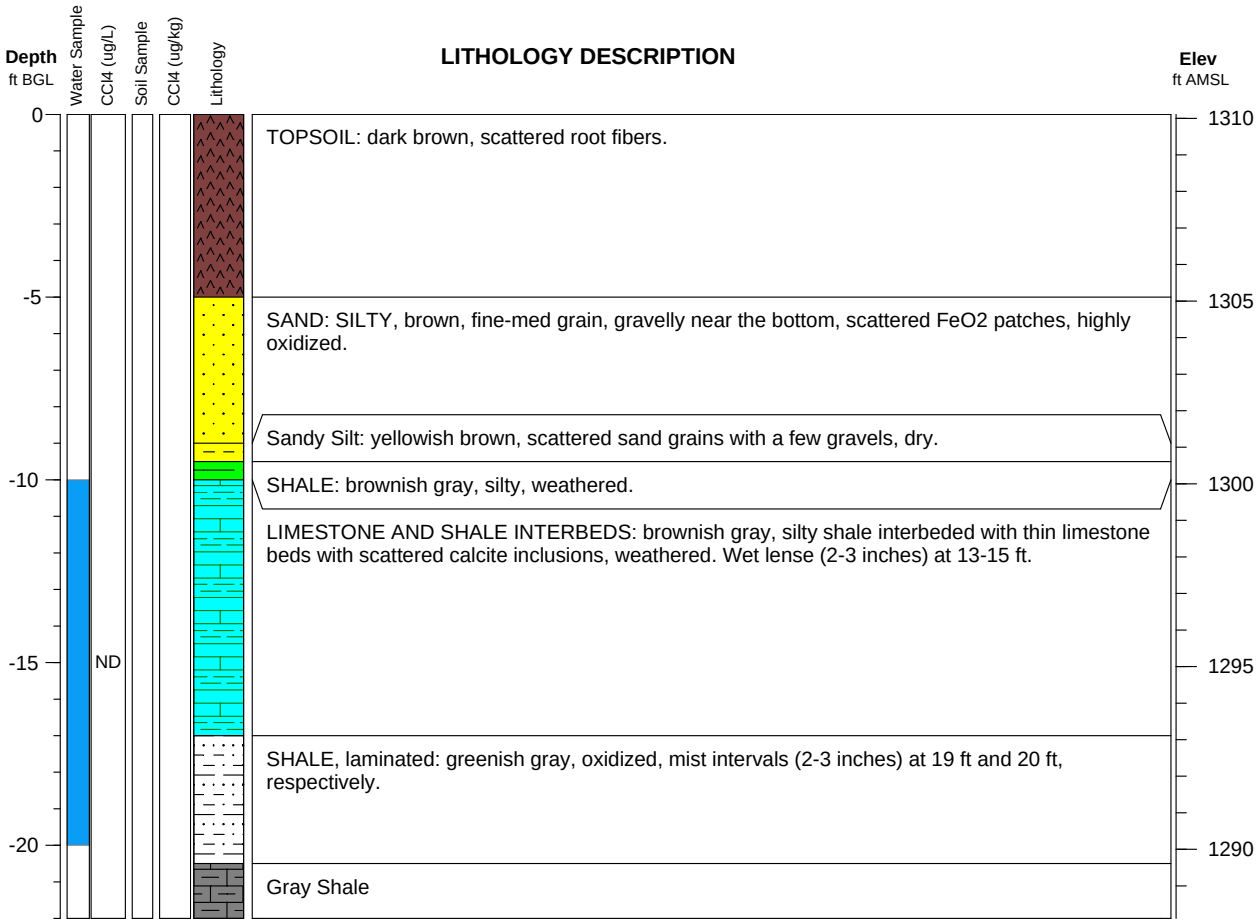


Argonne National Laboratory

Well ID: MW31

Project: Hanover **Elevation:** 1310.10 ft **Log Date:** March 2, 2009

Geologist: Eugene Yan **Depth:** 22 ft **Rig:** Minisonic drilling rig

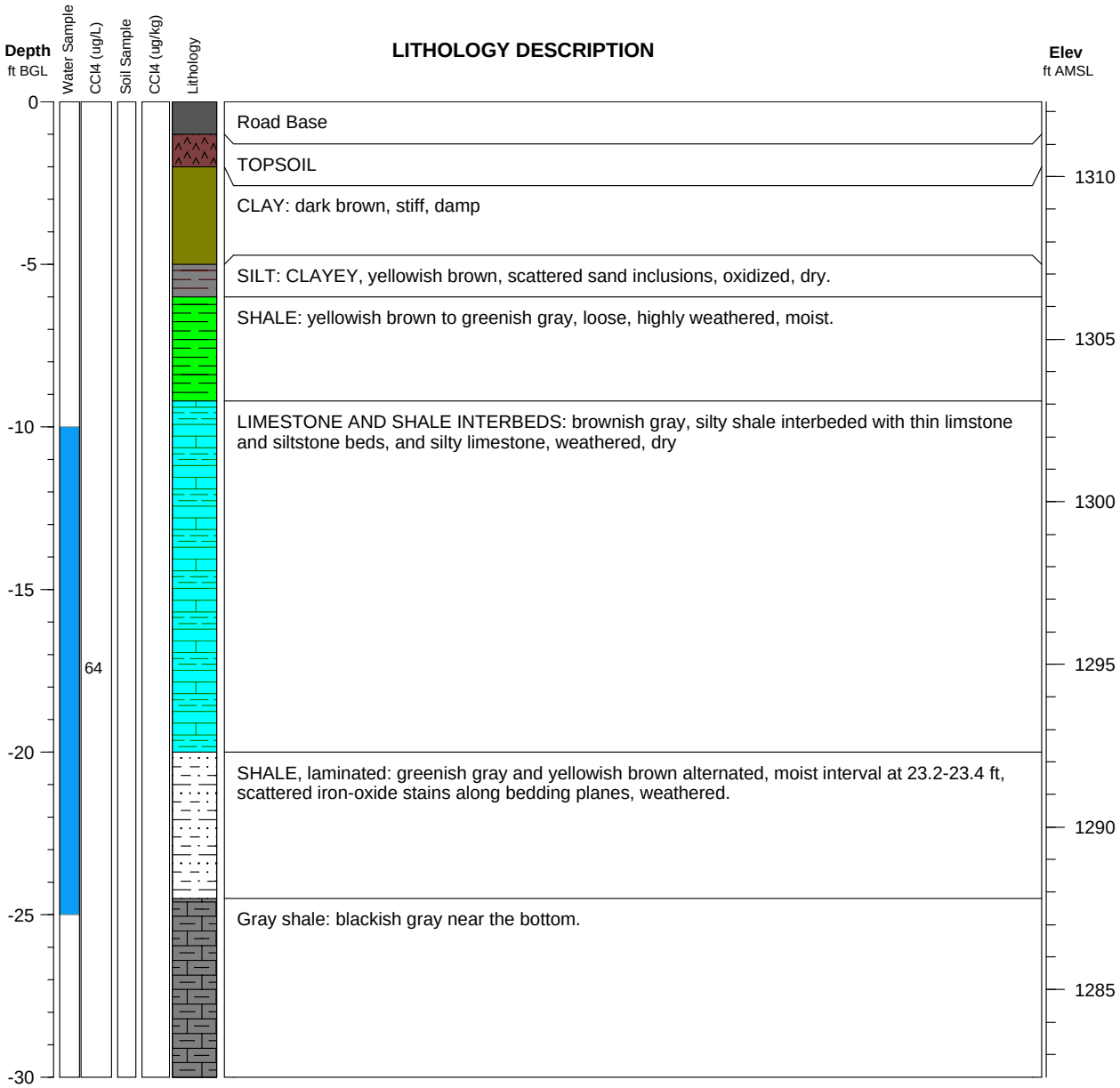


Argonne National Laboratory

Well ID: MW32

Project: Hanover **Elevation:** 1312.30 ft **Log Date:** March 3, 2009

Geologist: Eugene Yan **Depth:** 30 ft **Rig:** Minisonic drilling rig

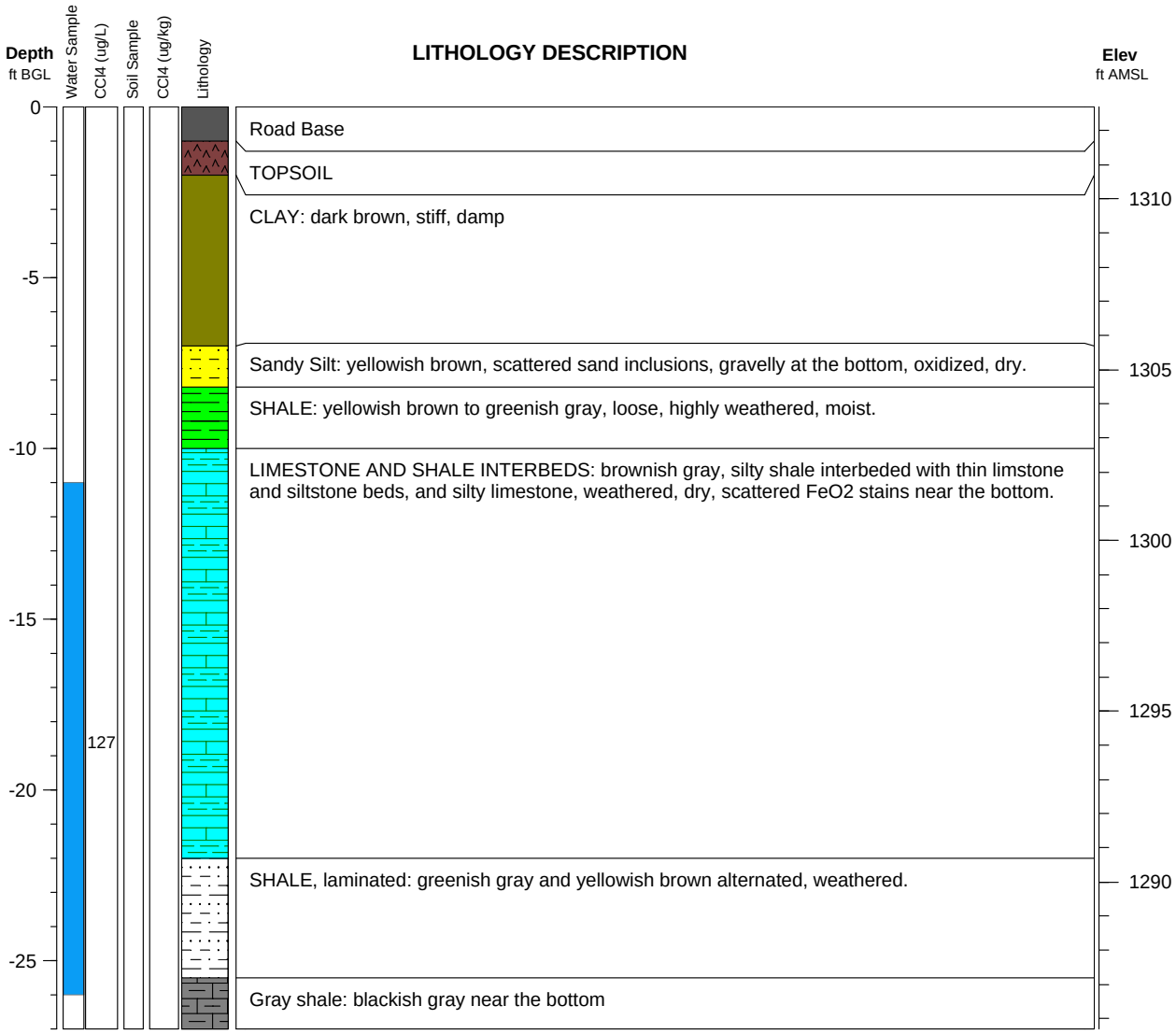


Argonne National Laboratory

Well ID: MW33

Project: Hanover **Elevation:** 1312.69 ft **Log Date:** March 3, 2009

Geologist: Eugene Yan **Depth:** 27 ft **Rig:** Minisonic drilling rig

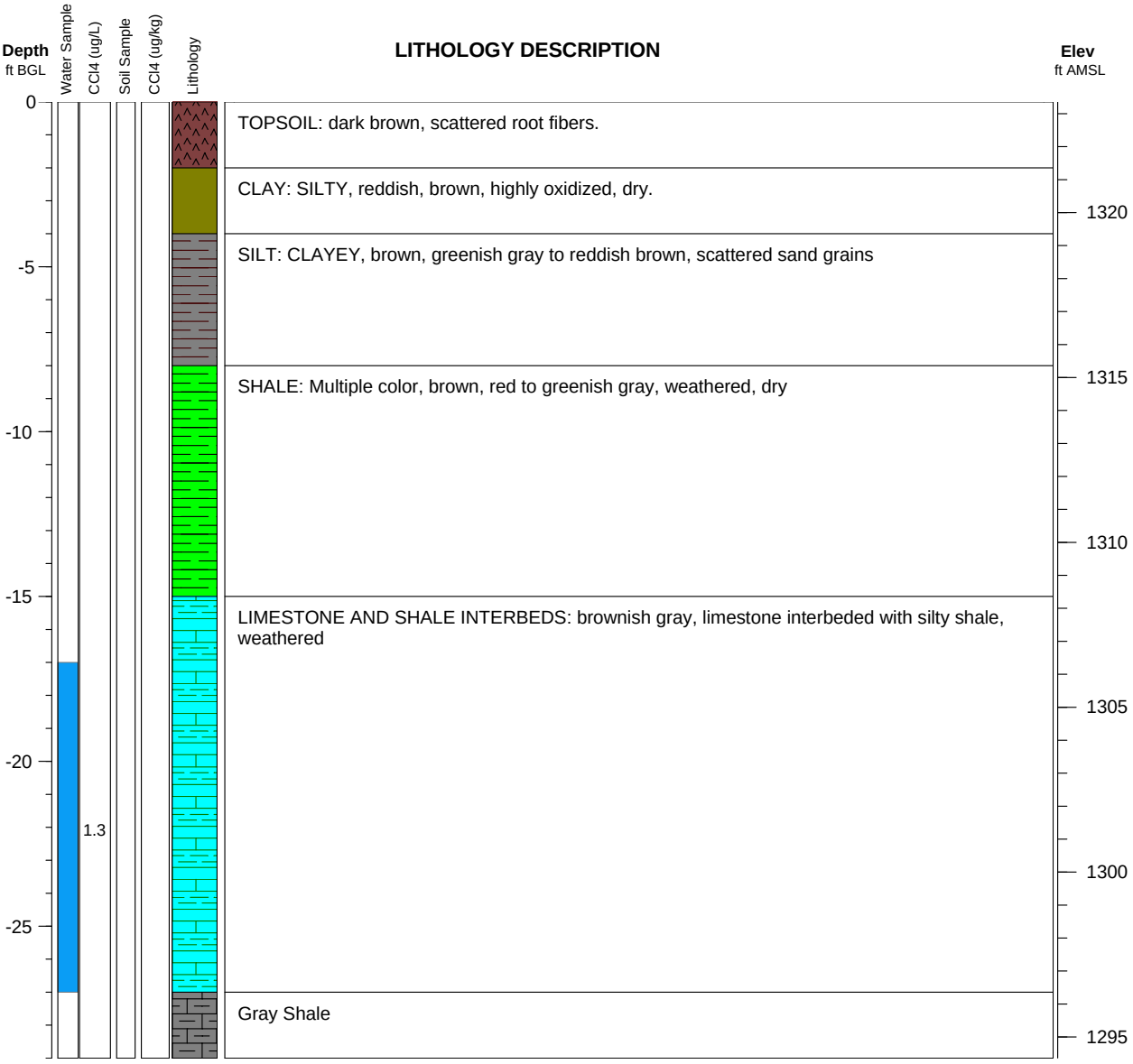


Argonne National Laboratory

Well ID: MW34

Project: Hanover **Elevation:** 1323.35 ft **Log Date:** March 3, 2009

Geologist: Eugene Yan **Depth:** 29 ft **Rig:** Mini-sonic drilling rig

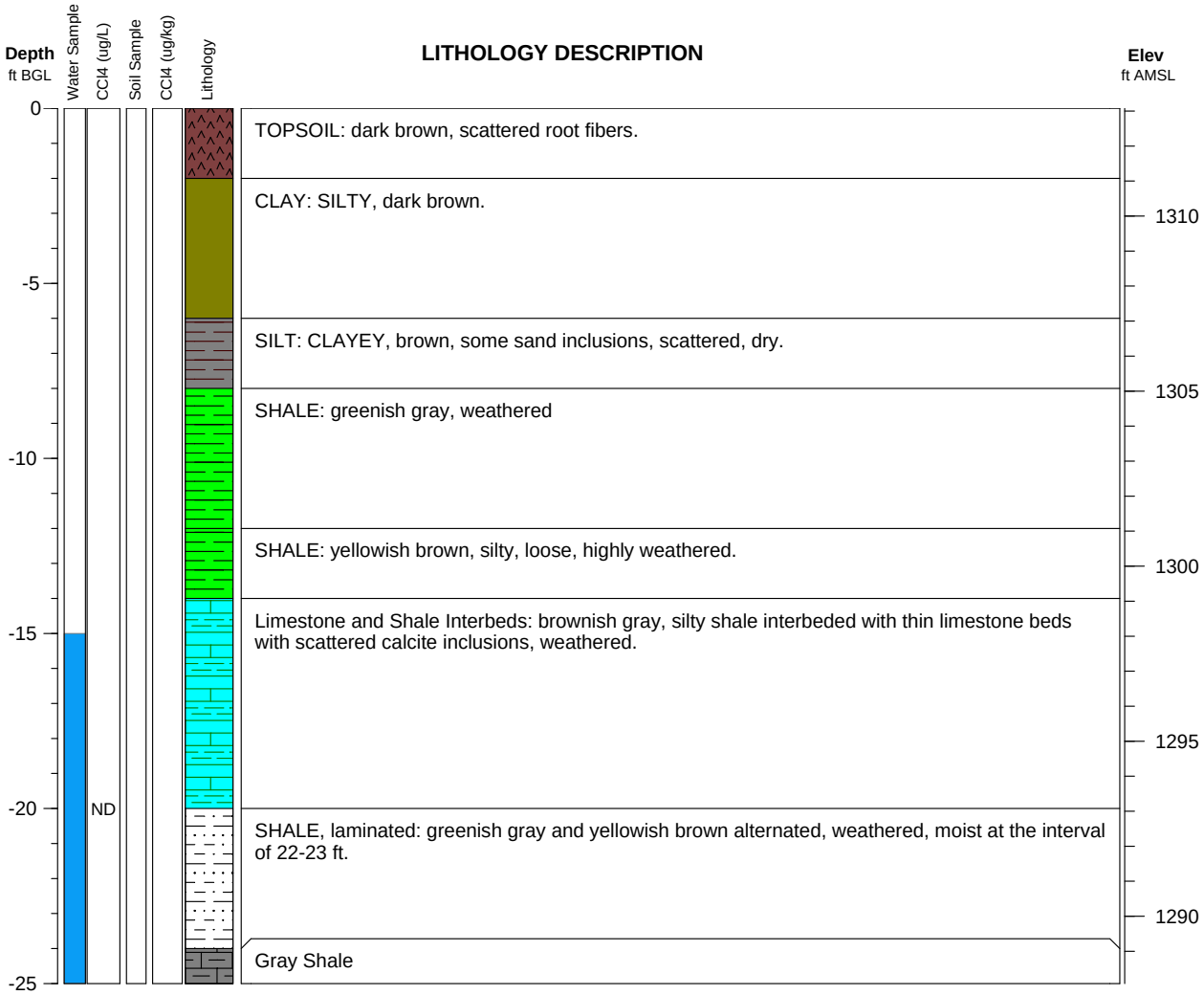


Argonne National Laboratory

Well ID: MW35

Project: Hanover **Elevation:** 1313.08 ft **Log Date:** March 3, 2009

Geologist: Eugene Yan **Depth:** 25 ft **Rig:** Minisonic drilling rig

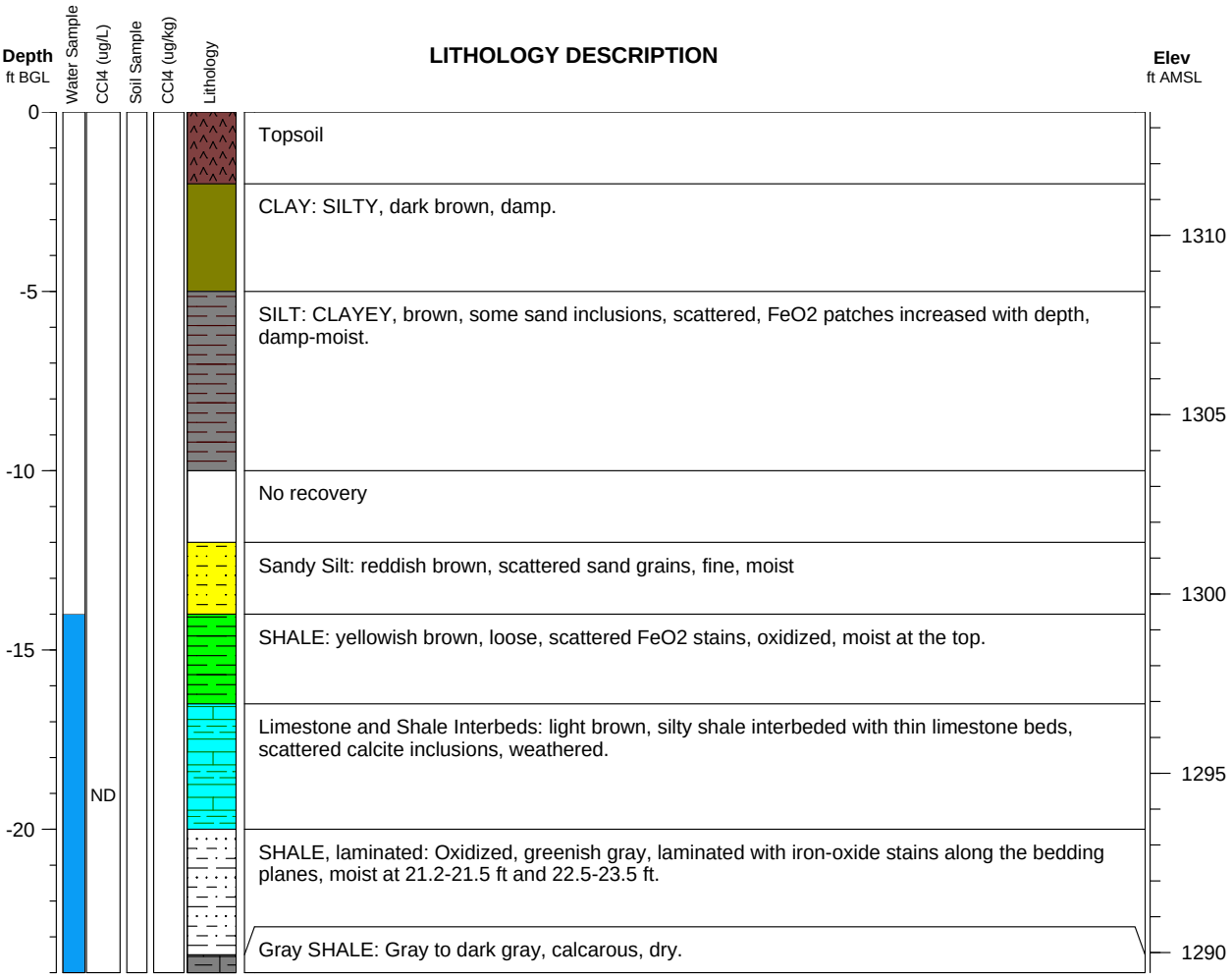


Argonne National Laboratory

Well ID: MW36

Project: Hanover **Elevation:** 1313.43 ft **Log Date:** March 4, 2009

Geologist: Eugene Yan **Depth:** 24 ft **Rig:** Minisonic

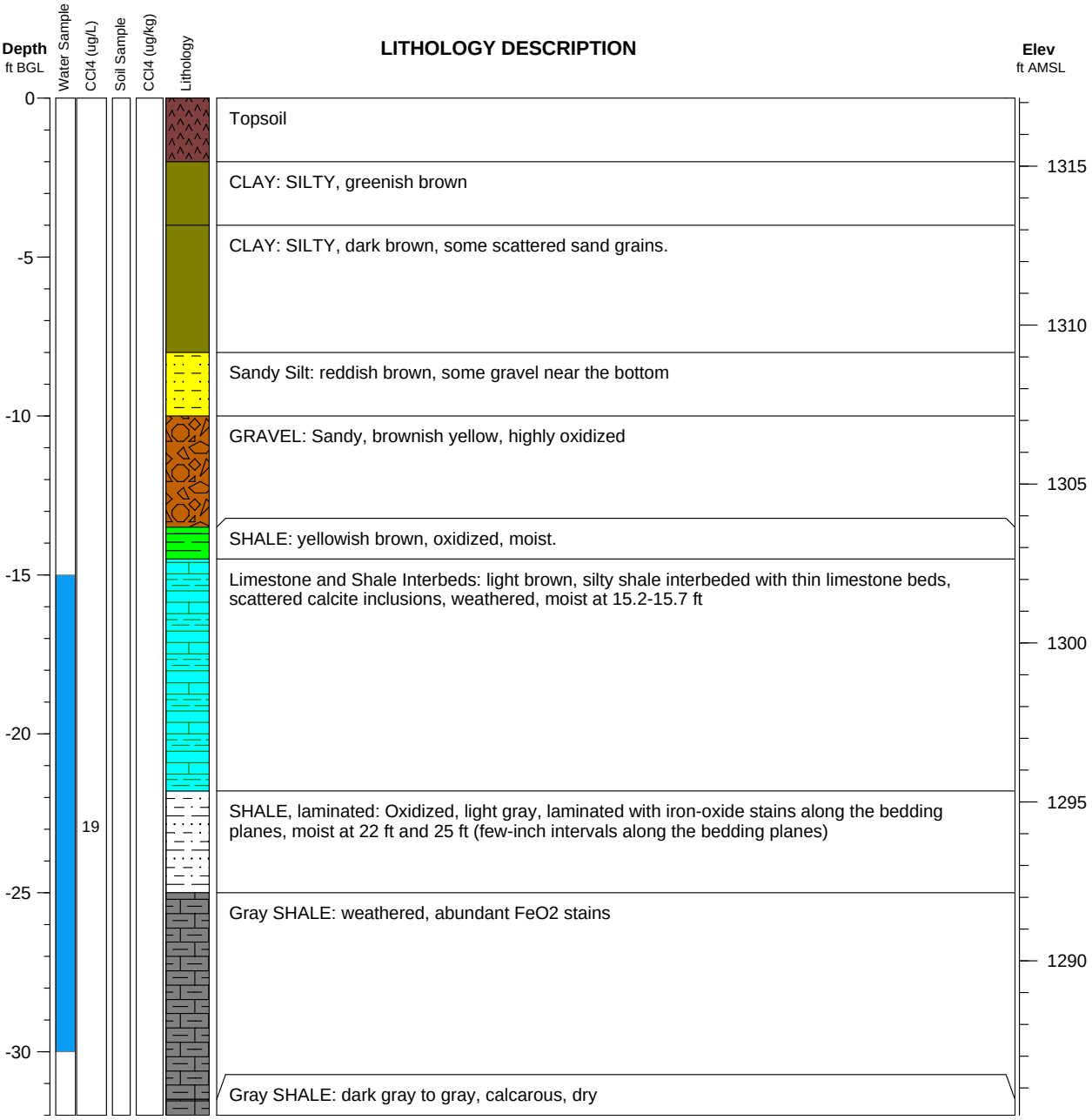


Argonne National Laboratory

Well ID: MW37

Project: Hanover **Elevation:** 1317.14 ft **Log Date:** March 4, 2009

Geologist: Eugene Yan **Depth:** 32 ft **Rig:** Minisonic

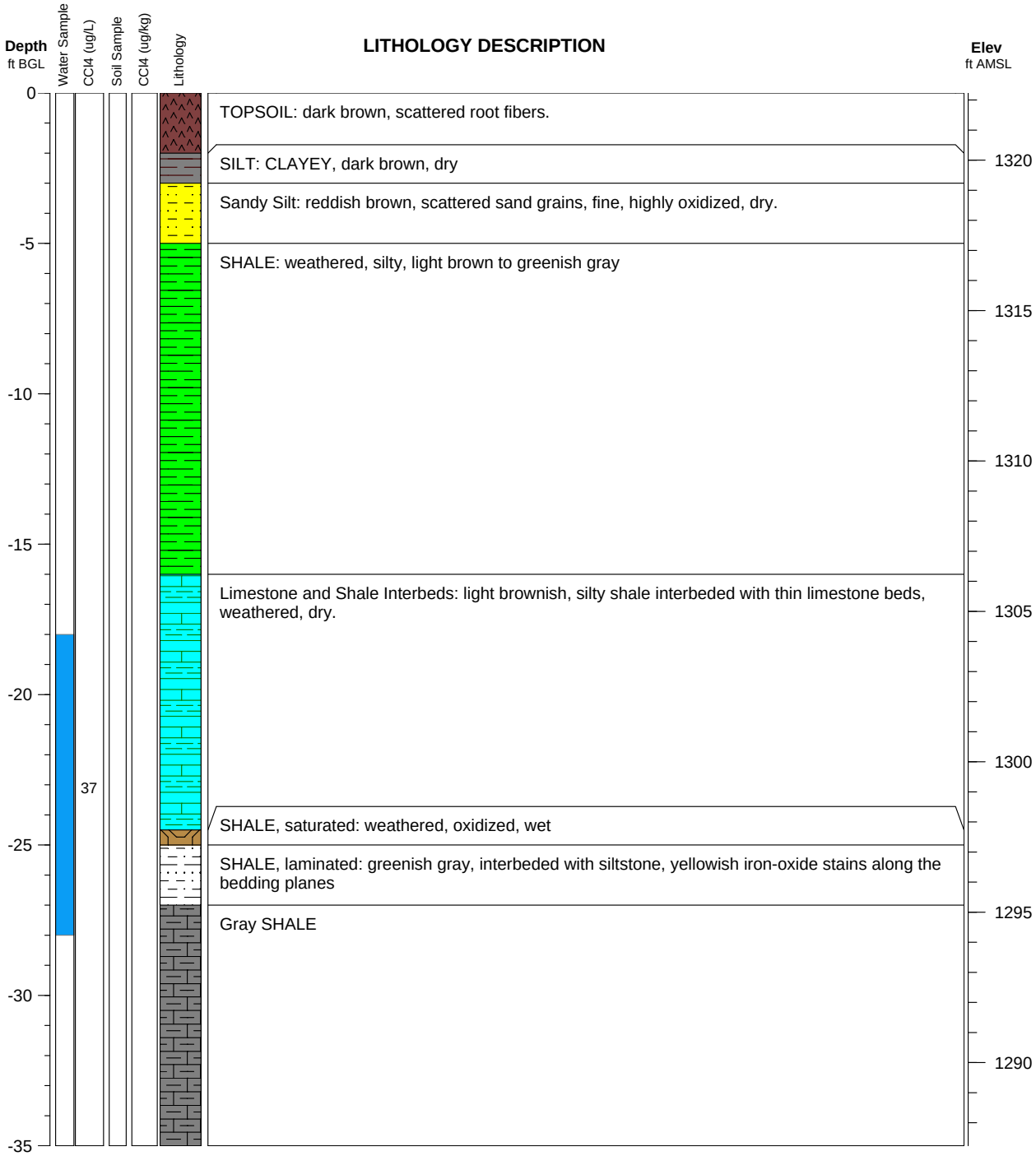


Argonne National Laboratory

Well ID: MW38

Project: Hanover **Elevation:** 1322.23 ft **Log Date:** March 4, 2009

Geologist: Eugene Yan **Depth:** 35 ft **Rig:** Mini-sonic drilling rig

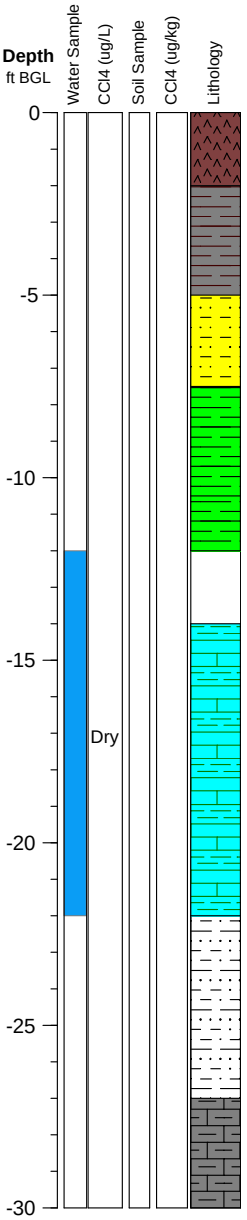


Argonne National Laboratory

Well ID: MW39

Project: Hanover **Elevation:** 1315.02 ft **Log Date:** March 4, 2009

Geologist: Eugene Yan **Depth:** 30 ft **Rig:** Mini-sonic drilling rig



LITHOLOGY DESCRIPTION

Elev ft AMSL

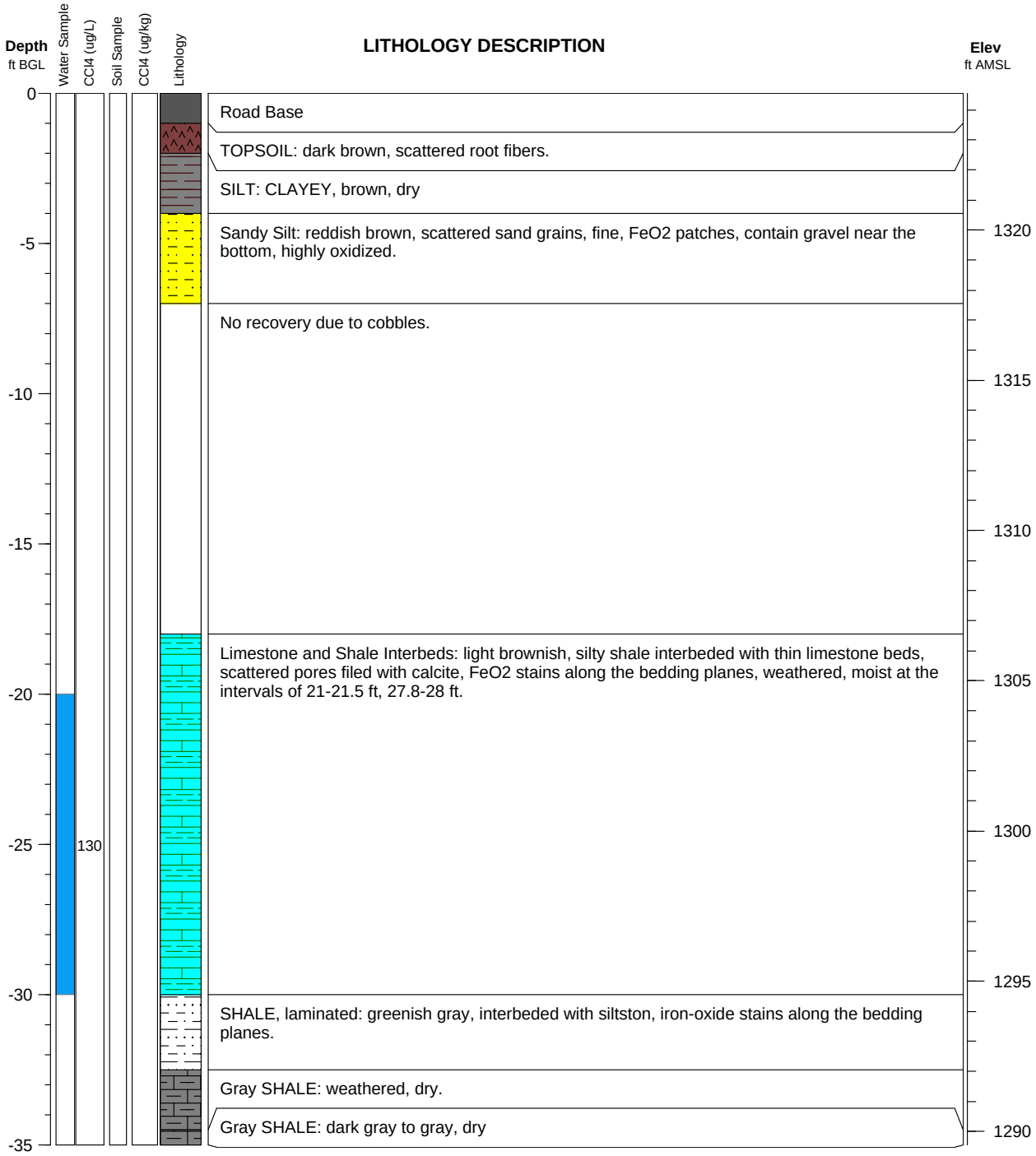
TOPSOIL: dark brown, scattered root fibers.	1315
SILT: CLAYEY, dark brown, dry	
Sandy Silt: reddish brown, scattered sand grains, fine, FeO2 patches, highly oxidized.	1310
SHALE: greenish gray, weathered, FeO2 stains along the bedding planes, moist near the top.	1305
SHALE: silty, light brown, loose, weathered.	
LIMESTONE AND SHALE INTERBEDS: light brownish, silty shale interbeded with thin limestone beds, FeO2 stains along the bedding planes, weathered, moist at the intervals of 13.2-14 ft, 18 ft.	1300
	1295
SHALE, laminated: greenish gray, interbeded with siltston.	
	1290
Gray SHALE: dark gray to gray, dry	

Argonne National Laboratory

Well ID: MW40

Project: Hanover **Elevation:** 1324.55 ft **Log Date:** March 5, 2009

Geologist: Eugene Yan **Depth:** 35 ft **Rig:** Mini-sonic drilling rig

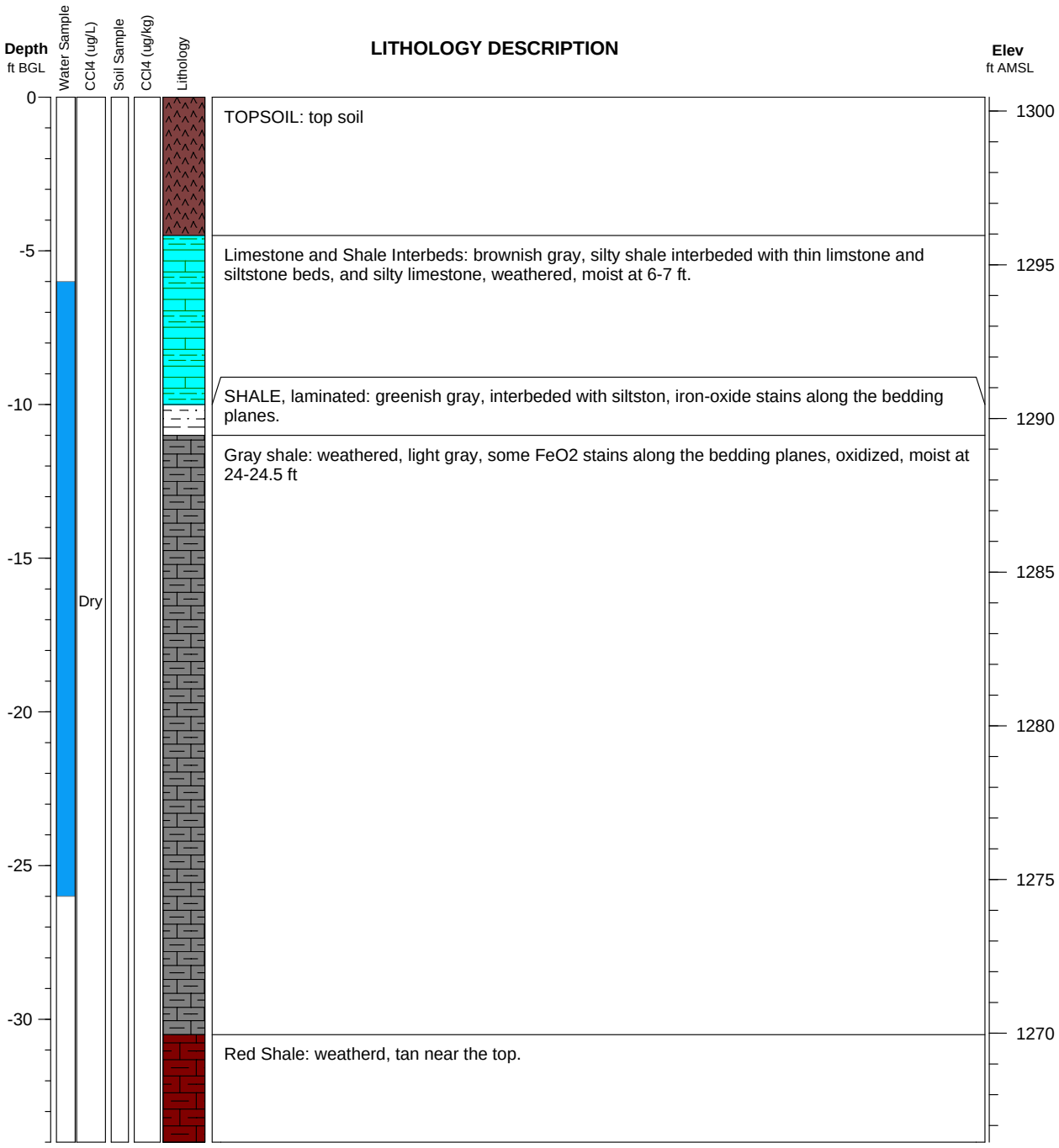


Argonne National Laboratory

Well ID: MW41

Project: Hanover **Elevation:** 1300.45 ft **Log Date:** March 5, 2009

Geologist: Eugene Yan **Depth:** 34 ft **Rig:** Minisonic drilling rig

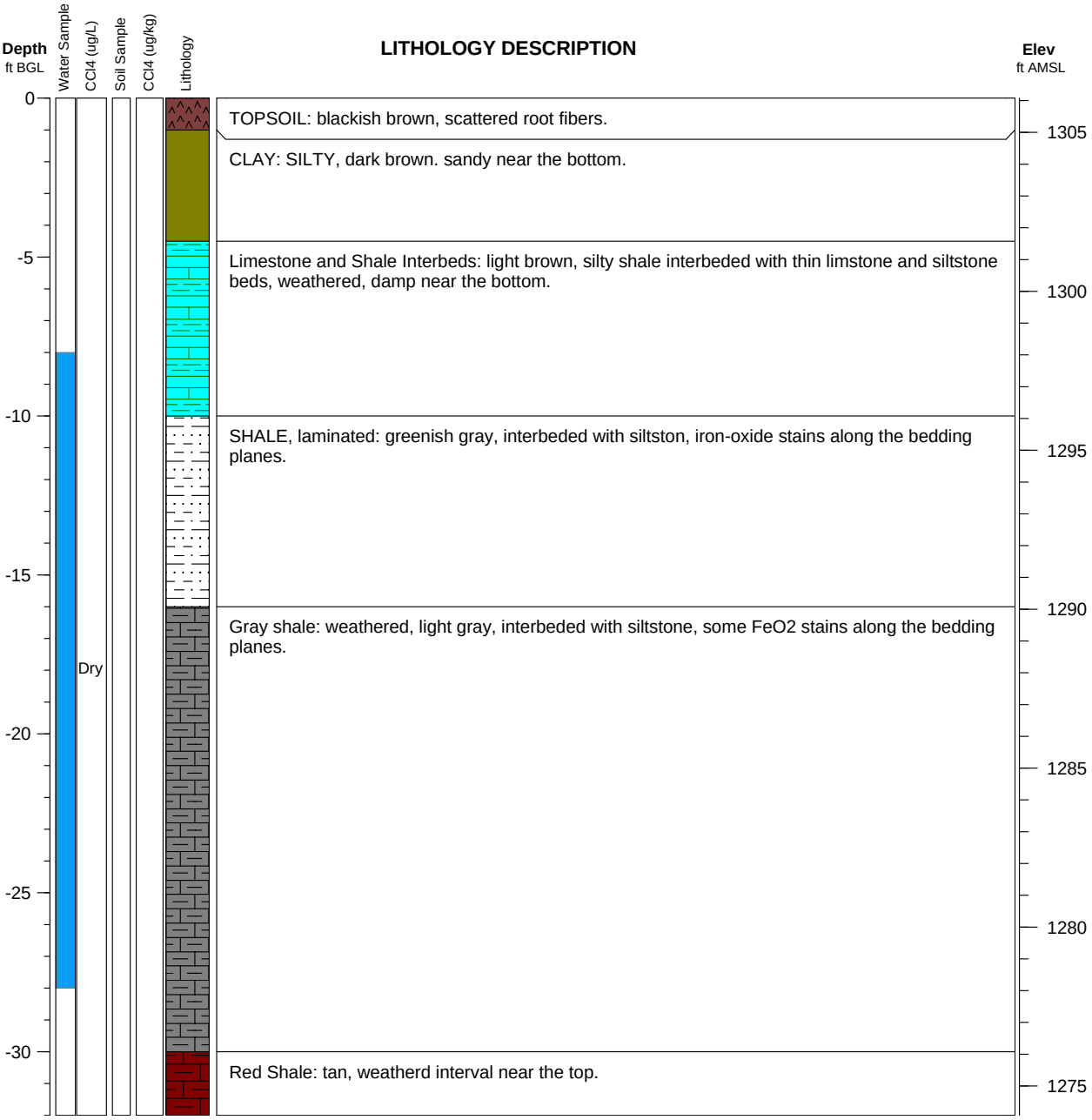


Argonne National Laboratory

Well ID: MW42

Project: Hanover **Elevation:** 1306.08 ft **Log Date:** March 24, 2009

Geologist: Eugene Yan **Depth:** 32 ft **Rig:** Minisonic drilling rig

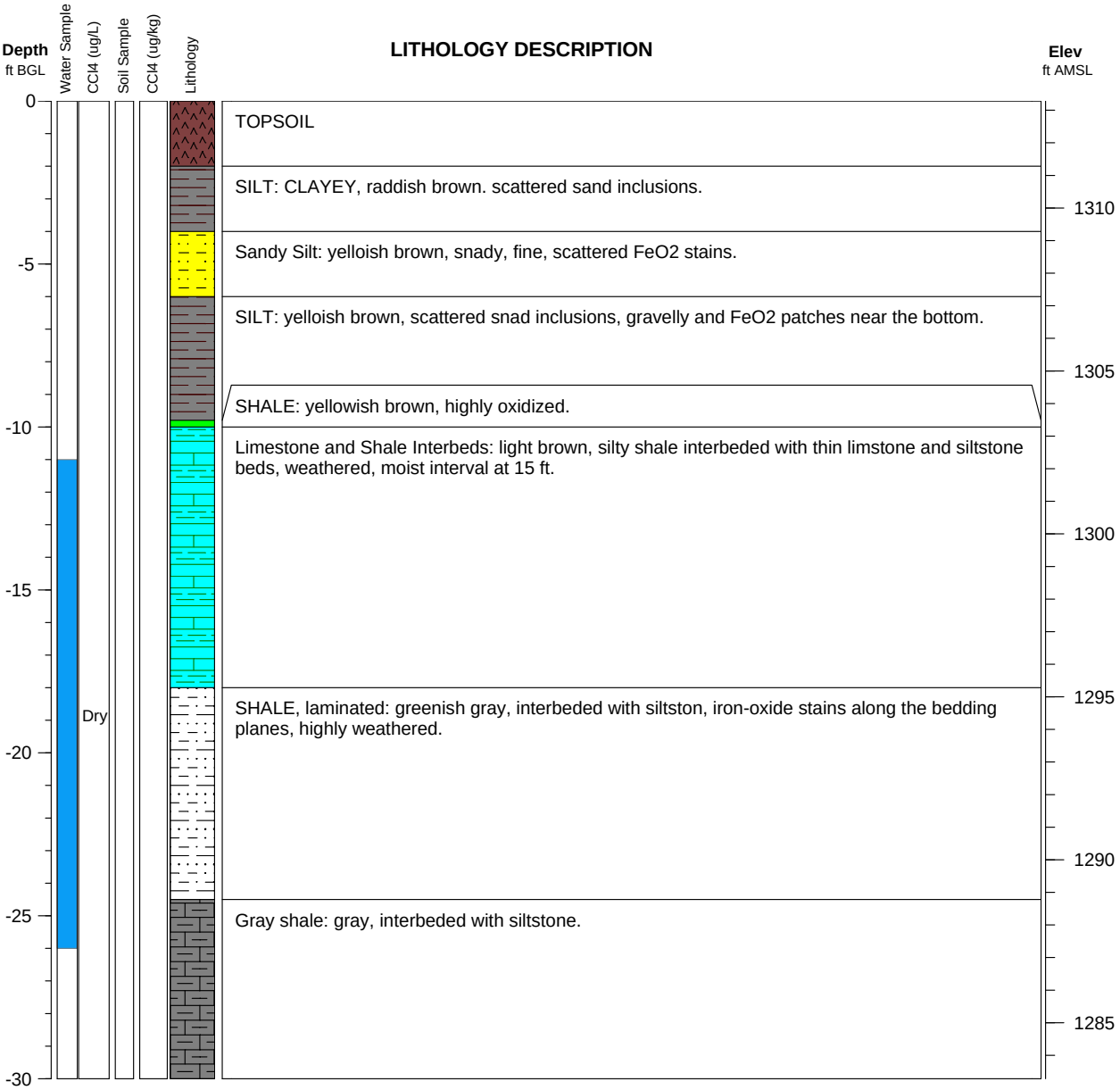


Argonne National Laboratory

Well ID: MW43

Project: Hanover **Elevation:** 1313.28 ft **Log Date:** March 24, 2009

Geologist: Eugene Yan **Depth:** 30 ft **Rig:** Minisonic drilling rig

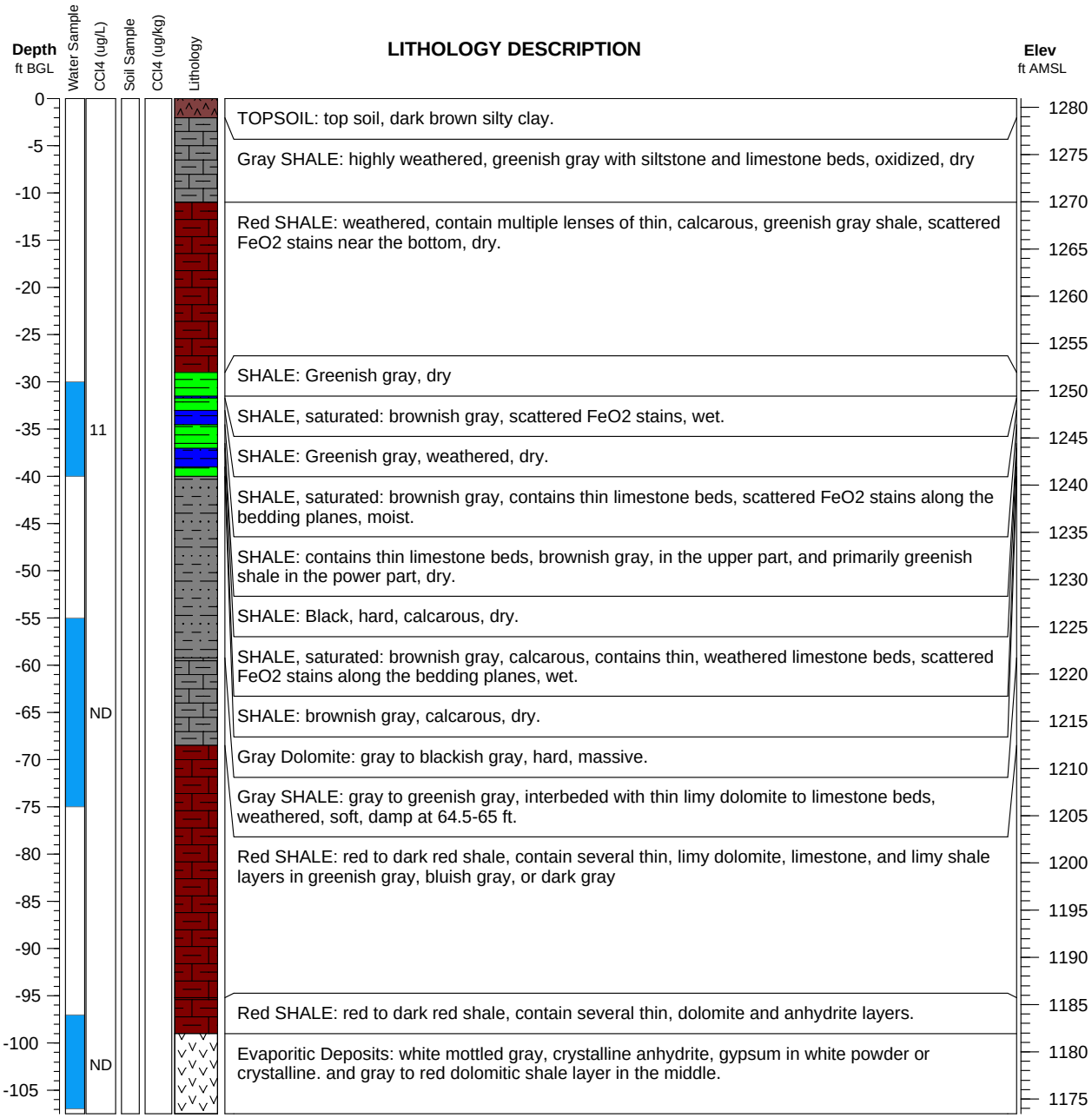


Argonne National Laboratory

Well ID: MW44

Project: Hanover **Elevation:** 1280.92 ft **Log Date:** March 26, 2009

Geologist: Eugene Yan **Depth:** 107.5 ft **Rig:** Mini-sonic drilling rig

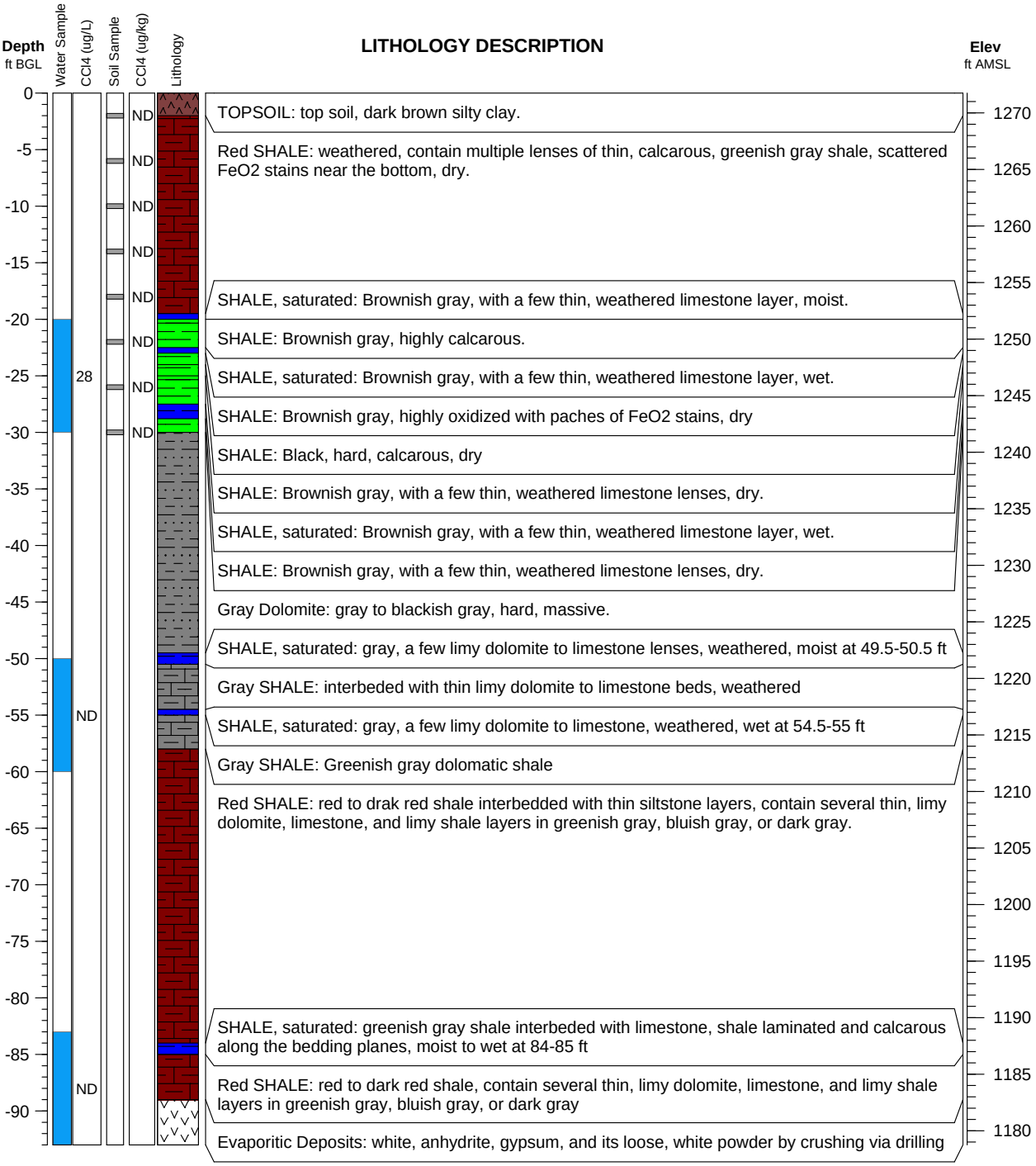


Argonne National Laboratory

Well ID: MW45

Project: Hanover **Elevation:** 1271.74 ft **Log Date:** March 27, 2009

Geologist: Eugene Yan **Depth:** 93 ft **Rig:** Minisonic drilling rig

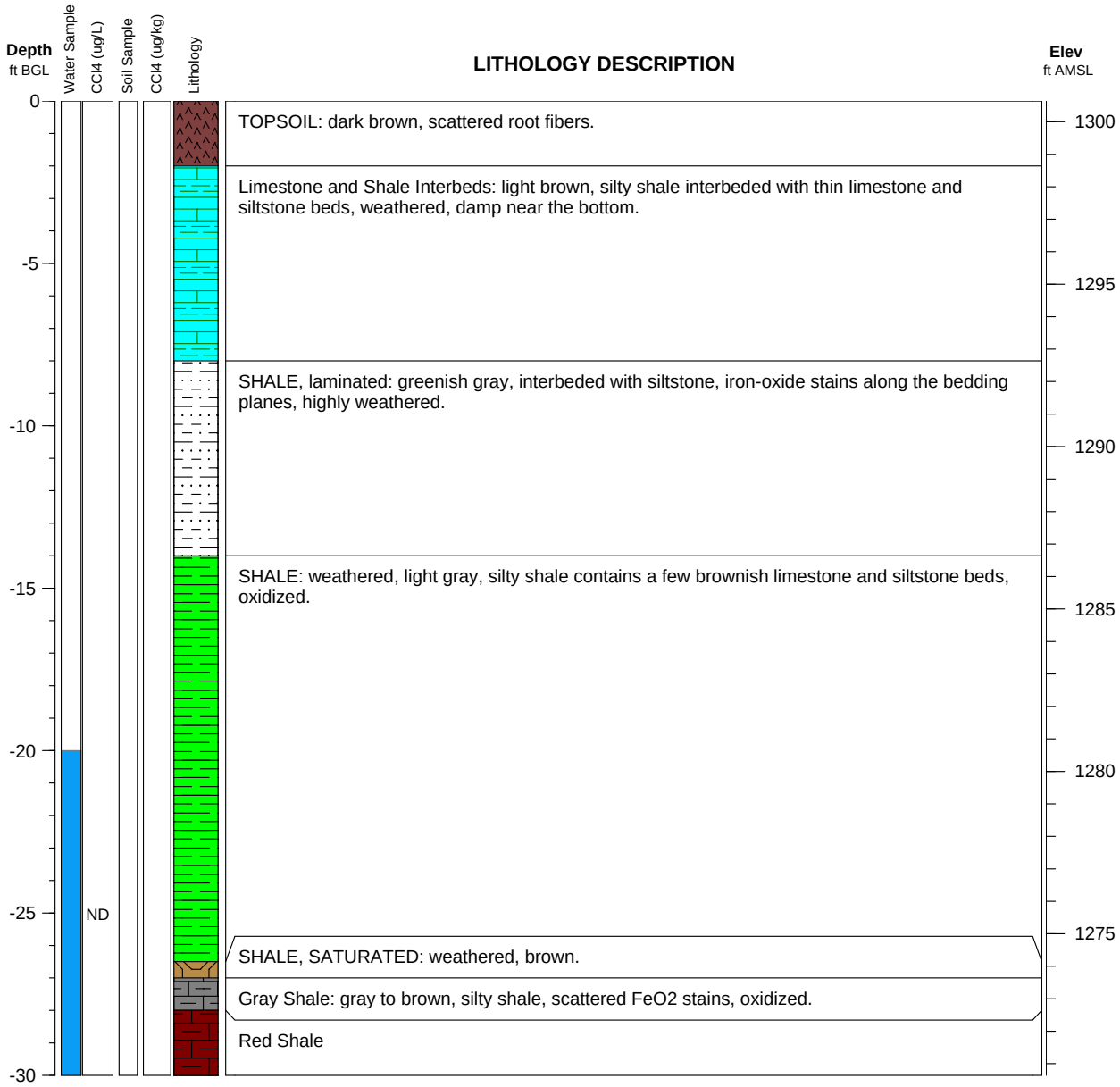


Argonne National Laboratory

Well ID: MW46

Project: Hanover **Elevation:** 1300.63 ft **Log Date:** March 29, 2009

Geologist: Eugene Yan **Depth:** 30 ft **Rig:** Minisonic drilling rig

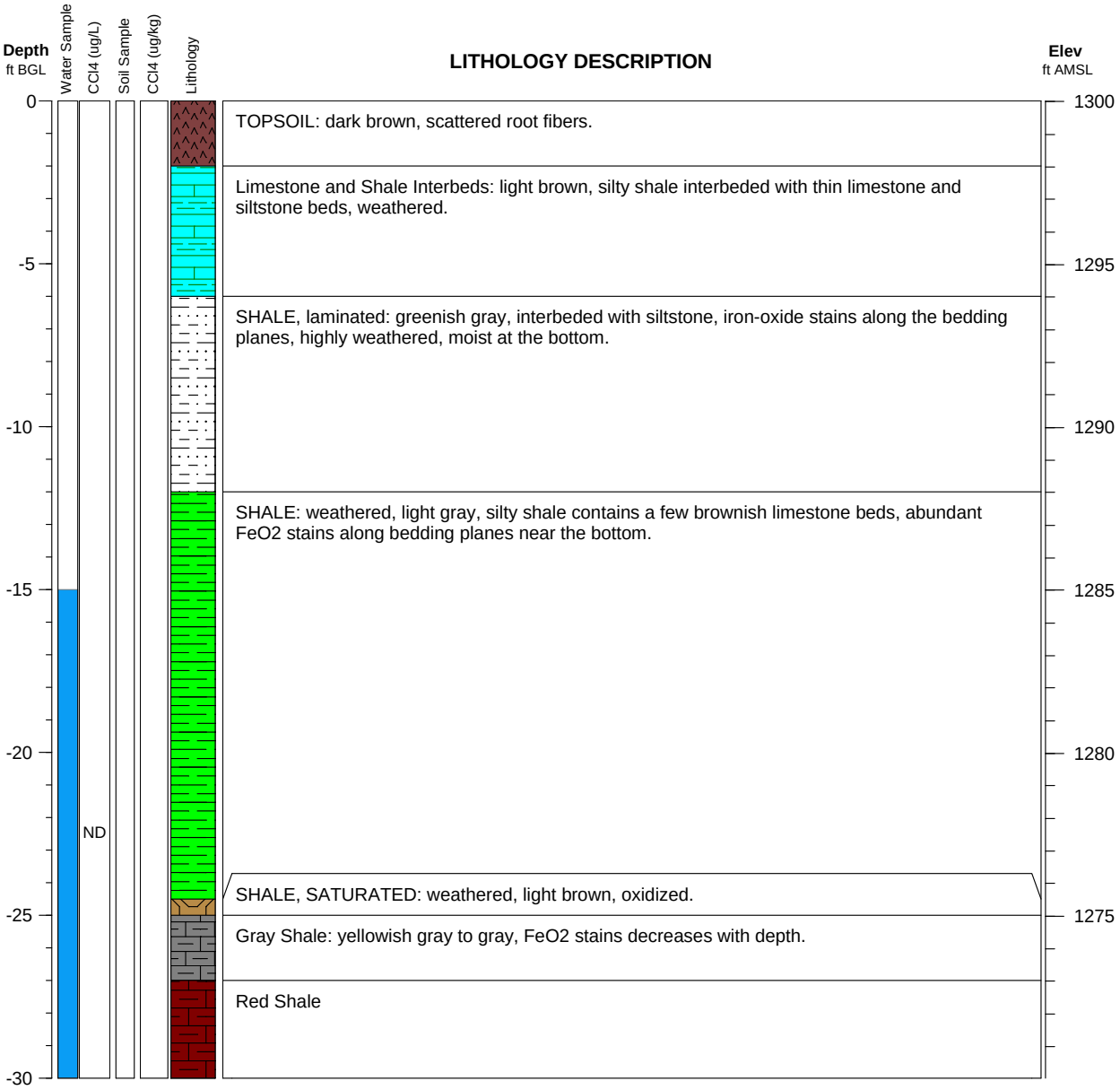


Argonne National Laboratory

Well ID: MW47

Project: Hanover **Elevation:** 1300.02 ft **Log Date:** March 29, 2009

Geologist: Eugene Yan **Depth:** 30 ft **Rig:** Minisonic drilling rig

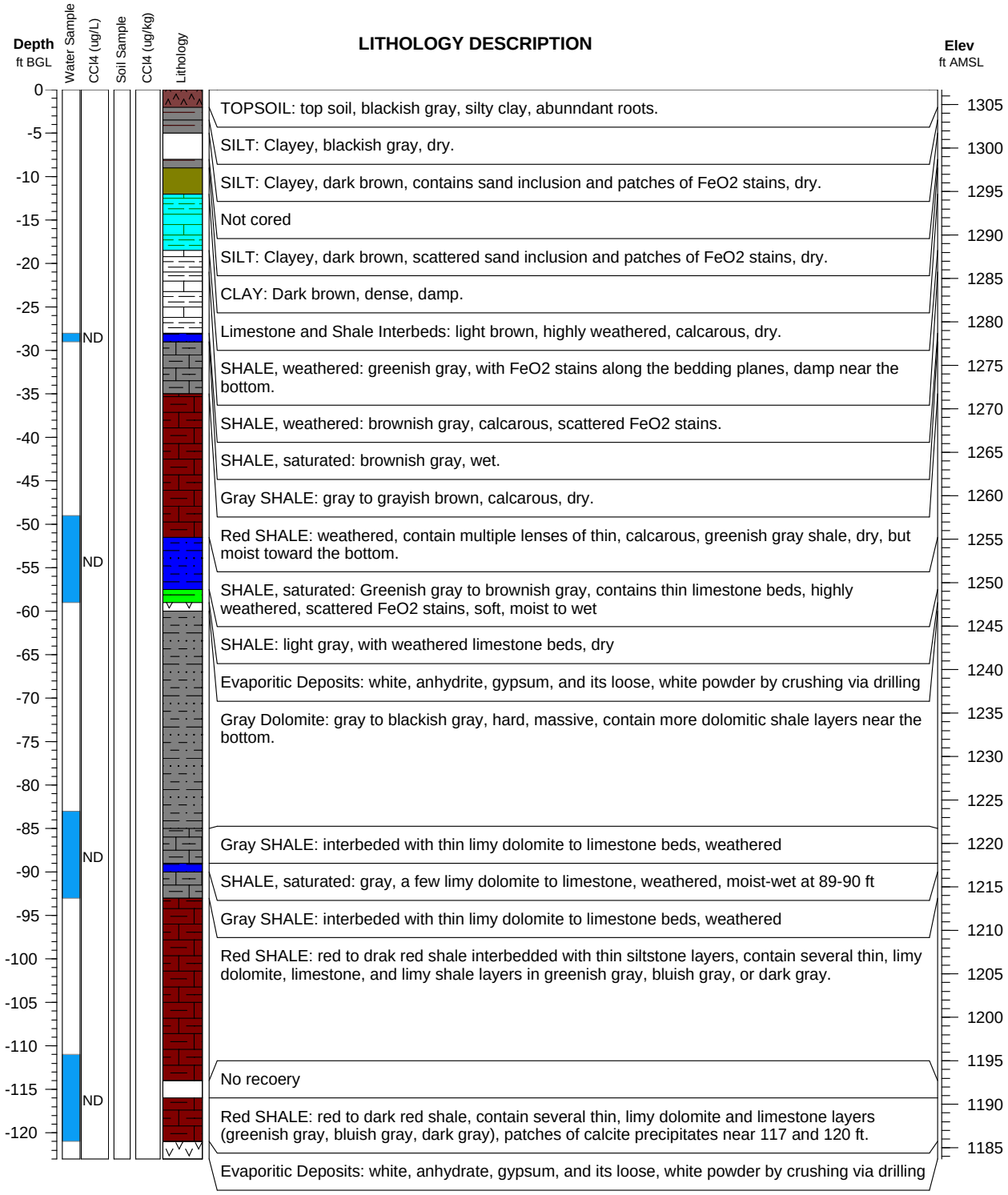


Argonne National Laboratory

Well ID: MW48

Project: Hanover **Elevation:** 1306.71 ft **Log Date:** October 5, 2009

Geologist: Eugene Yan **Depth:** 123 ft **Rig:** Sonic drilling rig

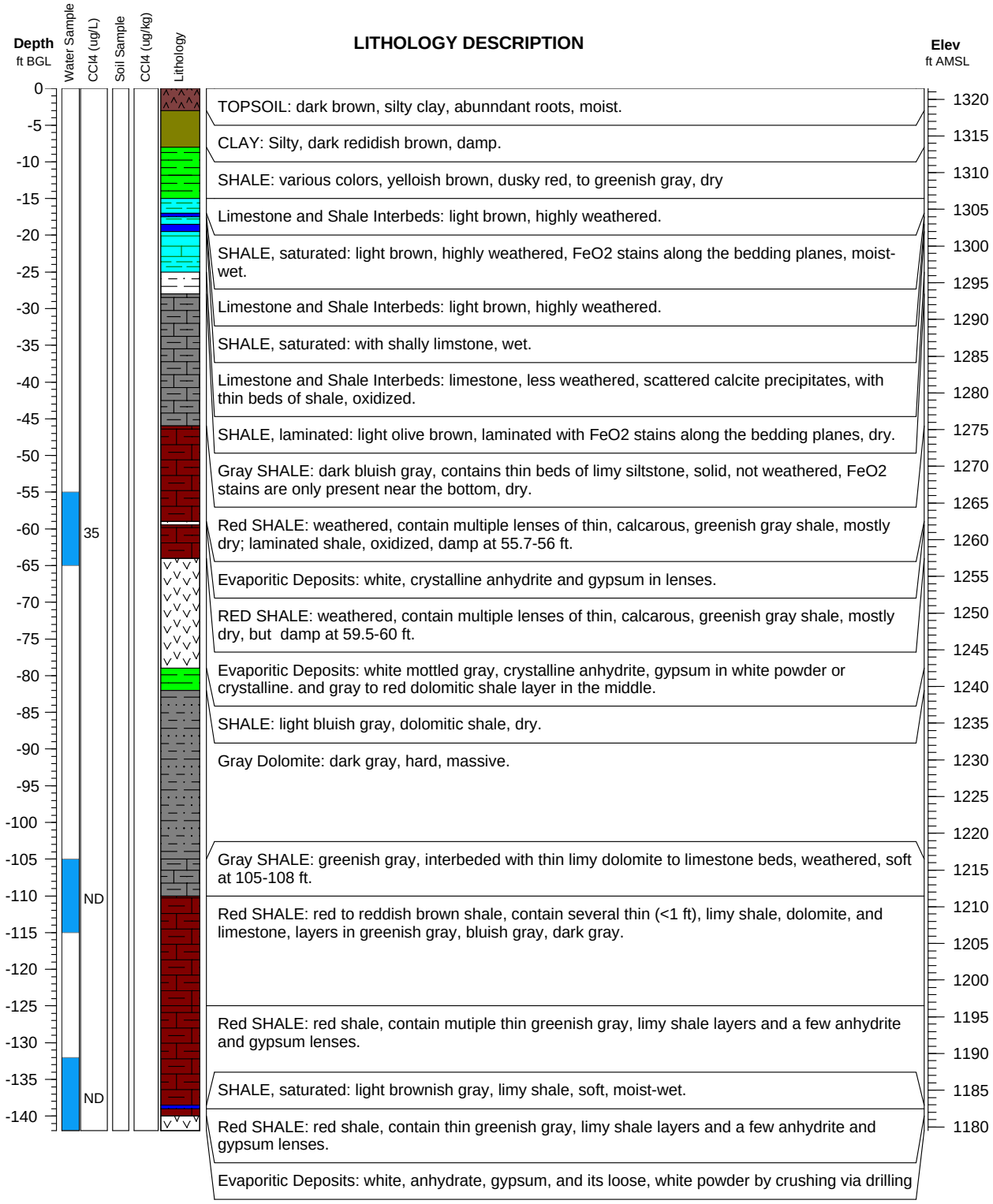


Argonne National Laboratory

Well ID: MW49

Project: Hanover **Elevation:** 1321.48 ft **Log Date:** October 8, 2009

Geologist: Eugene Yan **Depth:** 142 ft **Rig:** Sonic drilling rig

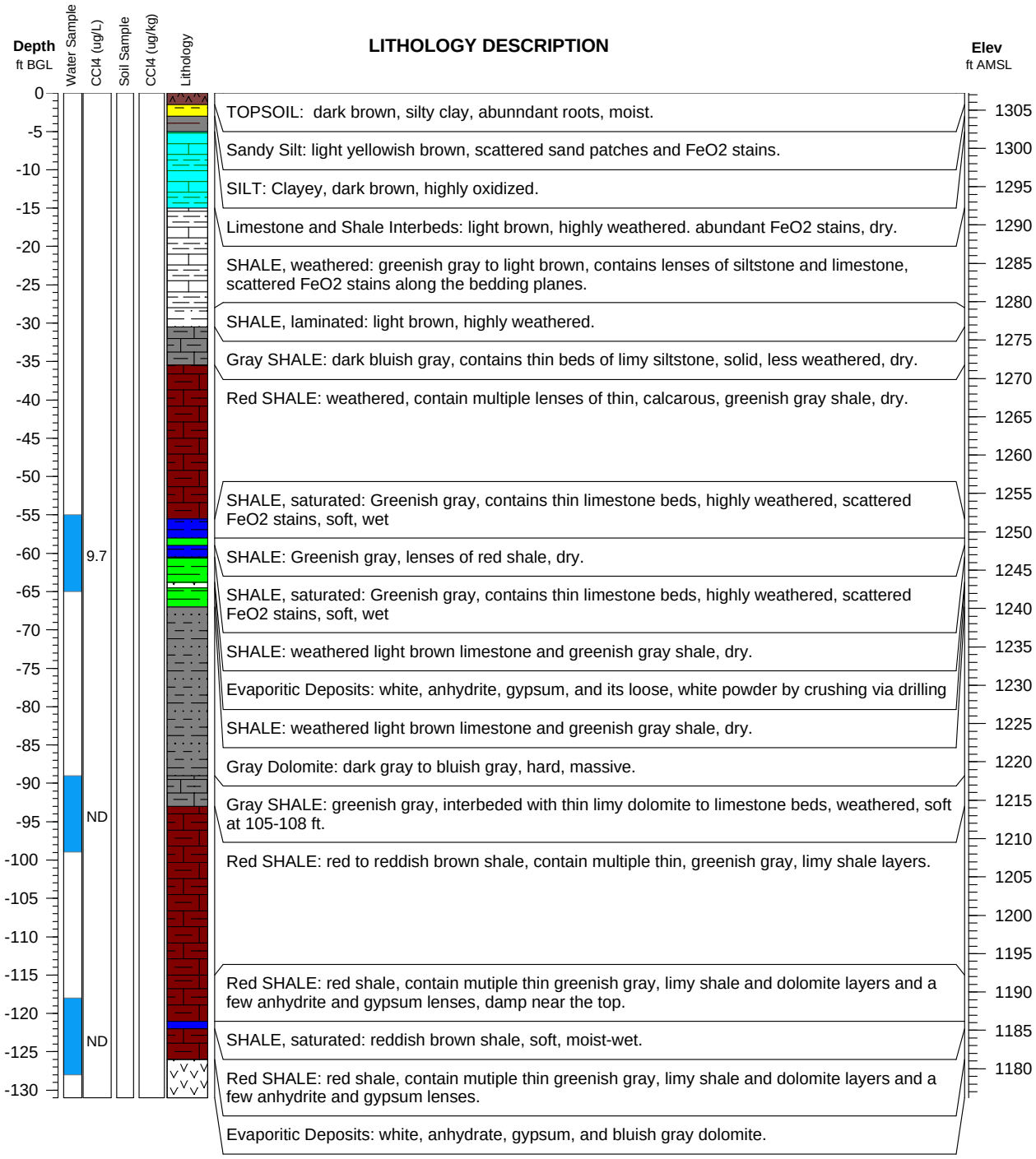


Argonne National Laboratory

Well ID: MW50

Project: Hanover **Elevation:** 1307.21 ft **Log Date:** October 11, 2009

Geologist: Eugene Yan **Depth:** 131 ft **Rig:** Sonic drilling rig

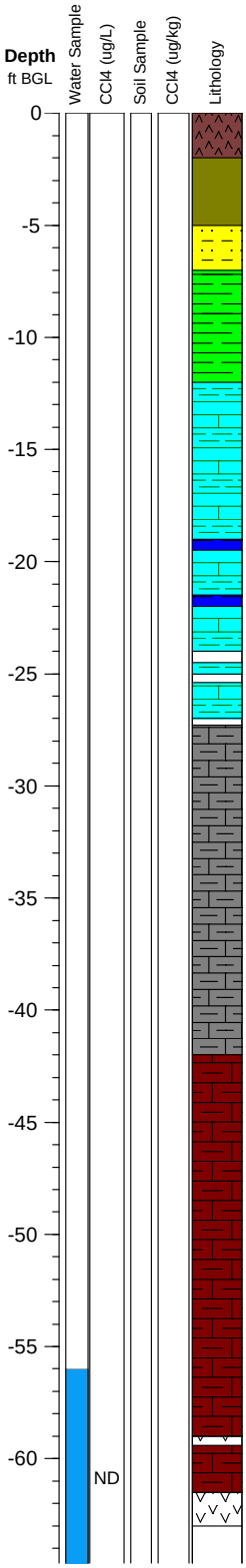


Argonne National Laboratory

Well ID: MW51

Project: Hanover **Elevation:** 1318.42 ft **Log Date:** October 15, 2009

Geologist: Eugene Yan **Depth:** 136 ft **Rig:** Sonic drilling rig



LITHOLOGY DESCRIPTION

TOPSOIL: top soil, dark brown, silty clay, abunndant roots, moist.

CLAY: Silty, dark brown, damp.

Sandy Silt: light reddiish brown, scattered sand patches and FeO2 stains, moist.

SHALE: various colors, yelloish brown to greenish gray, highly weathered, dry

Limestone and Shale Interbeds: light brown, highly weathered, scattered FeO2 stains along the bedding planes near the bottom, dry.

SHALE, saturated: light brown, highly weathered, FeO2 stains along the bedding planes, moist-wet.

Limestone and Shale Interbeds: light brown, highly weathered, with thin beds of limestone.

SHALE, saturated: laminated, scattered FeO2 stains along the bedding planes, moist-wet.

Limestone and Shale Interbeds: light brown, highly weathered, with thin beds of limestone.

SHALE, moist: grayish brown, scattered FeO2 stains along the bedding planes.

Limestone and Shale Interbeds: grayish brown, highly weathered, with thin beds of limestone.

SHALE, moist: grayish brown, scattered FeO2 stains along the bedding planes.

Limestone and Shale Interbeds: grayish brown, highly weathered, with thin beds of limestone.

SHALE, moist: grayish brown, scattered FeO2 stains along the bedding planes.

Gray SHALE: dark bluish gray, contains thin beds of limy siltstone, solid, less weathered, dry.

Red SHALE: Red to reddiish brown, contain multiple lenses of thin, calcarous, greenish gray shale, dry.

Evaporitic Deposits: white, in lenses.

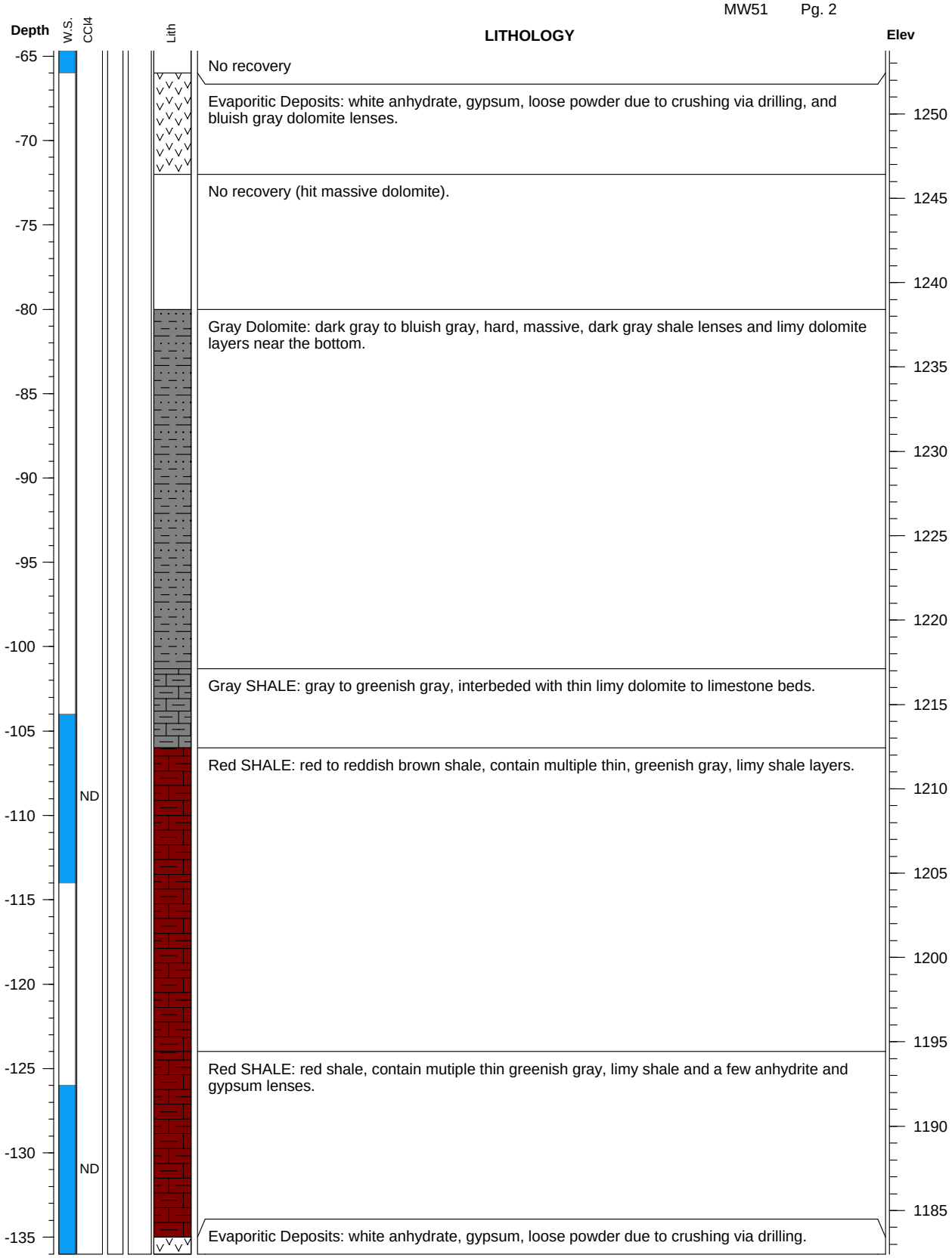
Red SHALE: weathered, alternated with greenish gray shale, moist at 61.2-61.5 ft.

Evaporitic Deposits: white anhydrate, gypsum, loose powder due to crushing via drilling, and bluish gray dolomite lenses.

Elev
ft AMSL

1315
1310
1305
1300
1295
1290
1285
1280
1275
1270
1265
1260
1255

MW51 Pg. 2


Depth
W.S.
CCl4
Lith
LITHOLOGY
Elev
-65
-70
-75
-80
-85
-90
-95
-100
-105
-110
-115
-120
-125
-130
-135
ND
ND
1250
1245
1240
1235
1230
1225
1220
1215
1210
1205
1200
1195
1190
1185
No recovery
Evaporitic Deposits: white anhydrate, gypsum, loose powder due to crushing via drilling, and bluish gray dolomite lenses.
No recovery (hit massive dolomite).
Gray Dolomite: dark gray to bluish gray, hard, massive, dark gray shale lenses and limy dolomite layers near the bottom.
Gray SHALE: gray to greenish gray, interbeded with thin limy dolomite to limestone beds.
Red SHALE: red to reddish brown shale, contain multiple thin, greenish gray, limy shale layers.
Red SHALE: red shale, contain mutiple thin greenish gray, limy shale and a few anhydrite and gypsum lenses.
Evaporitic Deposits: white anhydrate, gypsum, loose powder due to crushing via drilling.

Appendix B:

Core Analysis Report from National Petrographic Service, Inc.

CORE ANALYSIS

LOCATION: HANOVER, KS

F I N A L R E P O R T

Prepared for

NATIONAL PETROGRAPHIC SERVICE INC

By

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October 1, 2009

CORE ANALYSIS - HANOVER, KS

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RESULTS AND DISCUSSION

Permeability and porosity testing was conducted on 7 samples from Hanover, KS for National Petrographic Service Inc.

The porosity of the sample were obtained through basic core analyses specified in the API RP40 method, Recommended Practices for Core Analysis (1998).

Bulk volume was obtained using Archimedes mercury immersion method.

The sample was then crushed and grain volume and density were measured using helium expansion based on Boyle's Law.

Pore volume was calculated from bulk and grain volume.

The sample collection and inventory are provided in Table 1. The porosity results are summarized in Table 2.

TABLE 1. SAMPLE COLLECTION AND INVENTORY

Project No.:	WTC-09-001415
Company:	NATIONAL PETROGRAPHIC SERVICE INC
Pool or Zone:	
Field or Area:	HANOVER, KS

Sample ID	Well ID	Depth (ft)	Routine Core Properties		
			Bulk Volume	Grain Volume/ Density	Pore Volume/ Porosity
S-1	MW44	55	X	X	X
S-2	MW44	35	X	X	X
S-3	MW44	102-105	X	X	X
S-4	MW47	18-19	X	X	X
S-5	MW47	25-25.5	X	X	X
S-6	MW45	68	X	X	X
S-7	MW45	78-78.5	X	X	X

TABLE 2. POROSITY AND PERMEABILITY SUMMARY

Sample ID	Well ID	Depth (ft)	Grain Density (g/cc)	Sample Porosity (%)
S-1	MW44	55	2.76	17.9
S-2	MW44	35	2.79	24.2
S-3	MW44	102-105	2.45	2.6
S-4	MW47	18-19	2.78	12.5
S-5	MW47	25-25.5	2.83	21.7
S-6	MW45	68	2.70	20.0
S-7	MW45	78-78.5	3.32	35.3

Appendix C:

Sequence of Sampling Events at Hanover in 2009-2010

TABLE C.1 Sequence of sampling activities during site characterization investigation of soil and groundwater contamination at Hanover in 2009-2010.

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
1/13/09	8:55	HATI01-S-27920	Soil	SB	TI01	2	4326	1/13/09	16:30	East corner of Goeckel driveway. MW01 drilled at the TI01 location. Groundwater encountered at 32 ft BGL. Continued to drill to determine if a separate (deeper) aquifer was present.
1/13/09	9:00	HATI01-S-27921	Soil	SB	TI01	6	4326	1/13/09	16:30	
1/13/09	9:04	HATI01-S-27922	Soil	SB	TI01	10	4325	1/13/09	16:30	
1/13/09	9:07	HATI01-S-27923	Soil	SB	TI01	14	4326	1/13/09	16:30	
1/13/09	9:12	HATI01-S-27924	Soil	SB	TI01	18	4325	1/13/09	16:30	
1/13/09	9:15	HATI01-S-27925	Soil	SB	TI01	21	4326	1/13/09	16:30	
1/13/09	9:41	HATI02-S-27926	Soil	SB	TI02	2	4325	1/13/09	16:30	Northeast corner of Kensington and Westminster.
1/13/09	9:44	HATI02-S-27927	Soil	SB	TI02	6	4325	1/13/09	16:30	
1/13/09	9:47	HATI02-S-27928	Soil	SB	TI02	10	4326	1/13/09	16:30	
1/13/09	9:54	HATI02-S-27929	Soil	SB	TI02	14	4325	1/13/09	16:30	
1/13/09	10:17	HATI03-S-27930	Soil	SB	TI03	2	4325	1/13/09	16:30	West curb of L. Jueneman property on Westminster St.
1/13/09	10:20	HATI03-S-27931	Soil	SB	TI03	6	4325	1/13/09	16:30	
1/13/09	10:30	HATI05-S-27950	Soil	GEO	TI05	2	4326	1/13/09	16:30	Former CCC/USDA area. Location TI05. Soil sampling every 4 ft with Geoprobe (GH-40 unit).
1/13/09	10:30	HATI03-S-27932	Soil	SB	TI03	10	4325	1/13/09	16:30	
1/13/09	10:55	HATI04-S-27933	Soil	SB	TI04	2	4325	1/13/09	16:30	West curb of L. Jueneman property on Westminster St.
1/13/09	11:00	HATI05-S-27951	Soil	GEO	TI05	6	4326	1/13/09	16:30	
1/13/09	11:02	HATI04-S-27934	Soil	SB	TI04	6	4325	1/13/09	16:30	
1/13/09	11:06	HATI04-S-27935	Soil	SB	TI04	10	4326	1/13/09	16:30	
1/13/09	11:10	HATI05-S-27952	Soil	GEO	TI05	10	4326	1/13/09	16:30	
1/13/09	11:26	HATI06-S-27936	Soil	SB	TI06	2	4326	1/13/09	16:30	
1/13/09	11:30	HATI06-S-27937	Soil	SB	TI06	6	4325	1/13/09	16:30	
1/13/09	11:35	HATI06-S-27938	Soil	SB	TI06	10	4325	1/13/09	16:30	
1/13/09	11:38	HATI06-S-27939	Soil	SB	TI06	14	4326	1/13/09	16:30	
1/13/09	11:45	HATI05-S-27954	Soil	GEO	TI05	18	4326	1/13/09	16:30	
1/13/09	14:20	HATI05-S-27953	Soil	GEO	TI05	14	4326	1/13/09	16:30	

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
1/13/09	14:50	HATI07-S-27940	Soil	SB	TI07	2	4325	1/13/09	16:30	Along curb, Hynek property on Westminster. MW05 drilled at location TI07.
1/13/09	14:56	HATI07-S-27941	Soil	SB	TI07	6	4325	1/13/09	16:30	
1/13/09	15:07	HATI07-S-27942	Soil	SB	TI07	10	4325	1/13/09	16:30	Shale at 8 ft. Refusal at 12.25 ft.
1/13/09	15:44	HATI08-S-27943	Soil	SB	TI08	2	4327	1/13/09	16:30	Northwest corner of Goeckel house. South edge of former CCC/USDA property.
1/13/09	15:46	HATI08-S-27944	Soil	SB	TI08	6	4326	1/13/09	16:30	
1/13/09	15:49	HATI08-S-27945	Soil	SB	TI08	10	4327	1/13/09	16:30	
1/13/09	15:52	HATI08-S-27946	Soil	SB	TI08	14	4327	1/13/09	16:30	
1/13/09	15:59	HATI08-S-27947	Soil	SB	TI08	18	4327	1/13/09	16:30	
1/13/09	16:00	HATI05-S-27955	Soil	TB	QC	-	4326	1/13/09	16:30	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on chain-or-custody forms (COCs) 4325, 4326, and 4327.
1/13/09	16:03	HATI08-S-27948	Soil	SB	TI08	22	4327	1/13/09	16:30	
1/13/09	16:04	HATI08-S-27949	Soil	SB	TI08	22	4327	1/13/09	16:30	Replicate of sample HATI08-S-27948.
1/13/09	16:10	HATI09-S-27956	Soil	GEO	TI09	2	4321	1/14/09	16:30	Former CCC/USDA area, location TI09. Soil sampling every 4 ft with Geoprobe (GH-40 unit).
1/13/09	16:30	HATI09-S-27957	Soil	GEO	TI09	6	4321	1/14/09	16:30	
1/13/09	16:40	HATI11-S-27970	Soil	SB	TI11	2	4319	1/14/09	16:30	Northwest part of former CCC/USDA property.
1/13/09	16:47	HATI11-S-27971	Soil	SB	TI11	6	4319	1/14/09	16:30	
1/13/09	16:48	HATI11-S-27972	Soil	SB	TI11	6	4319	1/14/09	16:30	Replicate of sample HATI11-S-27971.
1/13/09	16:51	HATI11-S-27973	Soil	SB	TI11	10	4319	1/14/09	16:30	
1/13/09	17:03	HATI11-S-27974	Soil	SB	TI11	14	4319	1/14/09	16:30	
1/13/09	17:04	HATI11-S-27975	Soil	SB	TI11	14	4319	1/14/09	16:30	Replicate of sample HATI11-S-27974.
1/14/09	7:50	HATI12-S-27976	Soil	SB	TI12	2	4329	1/14/09	16:15	North central boundary of former CCC/USDA property.
1/14/09	7:55	HATI12-S-27977	Soil	SB	TI12	6	4329	1/14/09	16:15	
1/14/09	7:56	HATI12-S-27978	Soil	SB	TI12	6	4329	1/14/09	16:15	Replicate of sample HATI12-S-27977.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
1/14/09	8:00	HATI14-S-27958	Soil	GEO	TI14	2	4319	1/14/09	16:30	Former CCC/USDA area, location TI14. Soil sampling every 4 ft with Geoprobe (GH-40 unit).
1/14/09	8:05	HATI12-S-27979	Soil	SB	TI12	10	4329	1/14/09	16:15	Shale at 8.25 ft. Refusal at 12 ft.
1/14/09	8:10	HATI14-S-27959	Soil	GEO	TI14	6	4321	1/14/09	16:30	
1/14/09	8:23	HATI13-S-27980	Soil	SB	TI13	2	4329	1/14/09	16:15	Northwest corner of Poell backyard.
1/14/09	8:24	HATI13-S-27981	Soil	SB	TI13	2	4329	1/14/09	16:15	Replicate of sample HATI13-S-27980.
1/14/09	8:27	HATI13-S-27982	Soil	SB	TI13	6	4329	1/14/09	16:15	
1/14/09	8:30	HATI14-S-27960	Soil	GEO	TI14	10	4321	1/14/09	16:30	
1/14/09	8:32	HATI13-S-27983	Soil	SB	TI13	10	4329	1/14/09	16:15	Shale at 8 ft.
1/14/09	8:33	HATI13-S-27984	Soil	SB	TI13	10	4329	1/14/09	16:15	Replicate of sample HATI13-S-27983.
1/14/09	8:36	HATI13-S-27985	Soil	SB	TI13	14	4329	1/14/09	16:15	Refusal at 14 ft.
1/14/09	8:52	HATI15-S-27986	Soil	SB	TI15	2	4329	1/14/09	16:15	Northwest corner of former CCC/USDA property (Meier property).
1/14/09	8:53	HATI15-S-27987	Soil	SB	TI15	2	4329	1/14/09	16:15	Replicate of sample HATI15-S-27986.
1/14/09	9:01	HATI15-S-27988	Soil	SB	TI15	6	4329	1/14/09	16:15	
1/14/09	9:06	HATI15-S-27989	Soil	SB	TI15	10	4329	1/14/09	16:15	
1/14/09	9:12	HATI15-S-27990	Soil	SB	TI15	13	4329	1/14/09	16:15	Shale at 11.75 ft. Refusal at 13 ft.
1/14/09	9:25	HATI16-S-27991	Soil	SB	TI16	2	4330	1/14/09	16:15	Northwest part of former CCC/USDA property (Meier property). TI16 is the same location as MW03. MW03 drilled on January 29-30. No water encountered while drilling MW03 to 100 ft total depth. Hole plugged with bentonite per KDHE regulations.
1/14/09	9:29	HATI16-S-27992	Soil	SB	TI16	6	4330	1/14/09	16:15	
1/14/09	9:30	HATI16-S-27993	Soil	SB	TI16	6	4330	1/14/09	16:15	Replicate of sample HATI16-S-27992.
1/14/09	9:33	HATI16-S-27994	Soil	SB	TI16	10	4330	1/14/09	16:15	Shale at 9.5 ft.
1/14/09	9:37	HATI16-S-27995	Soil	SB	TI16	14	4330	1/14/09	16:15	Refusal at 15.5 ft.
1/14/09	9:38	HATI16-S-27996	Soil	SB	TI16	14	4330	1/14/09	16:15	Replicate of sample HATI16-S-27995.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
1/14/09	9:56	HATI10-S-27997	Soil	SB	TI10	2	4330	1/14/09	16:15	Northwest part of former CCC/USDA property; northeast corner of Meier house.
1/14/09	10:04	HATI10-S-27998	Soil	SB	TI10	6	4330	1/14/09	16:15	
1/14/09	10:05	HATI10-S-27999	Soil	SB	TI10	6	4330	1/14/09	16:15	Replicate of sample HATI10-S-27998.
1/14/09	10:09	HATI10-S-28000	Soil	SB	TI10	10	4330	1/14/09	16:15	
1/14/09	10:20	HATI22-S-27961	Soil	GEO	TI22	2	4319	1/14/09	16:30	Former CCC/USDA area. Location TI22. Soil sampling every 4 ft with Geoprobe (GH-40 unit).
1/14/09	10:20	HATI19-S-28001	Soil	SB	TI19	2	4330	1/14/09	16:15	Southwest area of former CCC/USDA property; Schroller property.
1/14/09	10:30	HATI22-S-27962	Soil	GEO	TI22	6	4321	1/14/09	16:30	
1/14/09	10:40	HATI22-S-27963	Soil	GEO	TI22	10	4319	1/14/09	16:30	
1/14/09	10:40	HATI19-S-28002	Soil	SB	TI19	6	4330	1/14/09	16:15	
1/14/09	10:44	HATI19-S-28003	Soil	SB	TI19	10	4330	1/14/09	16:15	
1/14/09	10:45	HATI19-S-28004	Soil	SB	TI19	10	4330	1/14/09	16:15	Replicate of sample HATI19-S-28003.
1/14/09	10:48	HATI19-S-28005	Soil	SB	TI19	14	4330	1/14/09	16:15	Refusal at 15.5 ft.
1/14/09	10:50	HATI22-S-27964	Soil	GEO	TI22	14	4319	1/14/09	16:30	
1/14/09	10:55	HATI22-S-27965	Soil	GEO	TI22	18	4321	1/14/09	16:30	
1/14/09	11:16	HATI20-S-28006	Soil	SB	TI20	2	4331	1/14/09	16:15	South edge of L. Jueneman property; central part of former CCC/USDA property.
1/14/09	11:20	HATI22-S-27966	Soil	GEO	TI22	21	4321	1/14/09	16:30	
1/14/09	11:20	HATI20-S-28007	Soil	SB	TI20	6	4331	1/14/09	16:15	
1/14/09	11:21	HATI20-S-28008	Soil	SB	TI20	6	4331	1/14/09	16:15	Replicate of sample HATI20-S-28007.
1/14/09	11:25	HATI20-S-28009	Soil	SB	TI20	10	4331	1/14/09	16:15	
1/14/09	11:30	HATI20-S-28010	Soil	SB	TI20	14	4331	1/14/09	16:15	
1/14/09	11:36	HATI20-S-28011	Soil	SB	TI20	18	4331	1/14/09	16:15	
1/14/09	11:39	HATI20-S-28012	Soil	SB	TI20	22	4331	1/14/09	16:15	Shale at 24 ft. Refusal at 24 ft.
1/14/09	13:12	HATI18-S-28013	Soil	SB	TI18	2	4332	1/14/09	16:20	Southwest area of former CCC/USDA property; southeast edge of S. Jueneman property.
1/14/09	13:19	HATI18-S-28014	Soil	SB	TI18	6	4332	1/14/09	16:20	
1/14/09	13:20	HATI18-S-28015	Soil	SB	TI18	6	4332	1/14/09	16:20	Replicate of sample HATI18-S-28014.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
1/14/09	13:22	HATI18-S-28016	Soil	SB	TI18	10	4332	1/14/09	16:20	Possible shale at 8.5 ft.
1/14/09	13:28	HATI18-S-28017	Soil	SB	TI18	14	4332	1/14/09	16:20	Refusal at 16 ft.
1/14/09	13:40	HATI21-S-28018	Soil	SB	TI21	2	4319	1/14/09	16:30	Northwest corner of R. Holle property; southeast area of former CCC/USDA property.
1/14/09	13:45	HATI21-S-28019	Soil	SB	TI21	6	4332	1/14/09	16:20	
1/14/09	13:51	HATI21-S-28020	Soil	SB	TI21	10	4319	1/14/09	16:30	
1/14/09	13:54	HATI21-S-28021	Soil	SB	TI21	14	4332	1/14/09	16:20	
1/14/09	13:55	HATI21-S-28022	Soil	SB	TI21	18	4332	1/14/09	16:20	
1/14/09	13:59	HATI21-S-28023	Soil	SB	TI21	18	4332	1/14/09	16:20	Replicate of sample HATI21-S-28022.
1/14/09	14:00	HATI24-S-27967	Soil	GEO	TI24	2	4321	1/14/09	16:30	Former CCC/USDA area, location TI24. Soil sampling every 4 ft with Geoprobe (GH-40 unit).
1/14/09	14:03	HATI21-S-28024	Soil	SB	TI21	21	4332	1/14/09	16:20	Shale at 21.75 ft. Refusal at 22 ft.
1/14/09	14:10	HATI24-S-27968	Soil	GEO	TI24	6	4321	1/14/09	16:30	
1/14/09	14:15	HATI24-S-27969	Soil	GEO	TI24	10	4321	1/14/09	16:30	
1/14/09	14:15	HATB-S-28057	Soil	TB	QC	-	4332	1/14/09	16:20	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COCs 4332 and 4320.
1/14/09	14:20	HATI24-S-28050	Soil	GEO	TI24	14	4321	1/14/09	16:30	
1/14/09	14:26	HATI23-S-28025	Soil	SB	TI23	2	4332	1/14/09	16:20	East central area of former CCC/USDA property; east edge of L. Jueneman property.
1/14/09	14:29	HATI23-S-28026	Soil	SB	TI23	6	4332	1/14/09	16:20	
1/14/09	14:30	HATI24-S-28051	Soil	GEO	TI24	18	4321	1/14/09	16:30	
1/14/09	14:32	HATI23-S-28027	Soil	SB	TI23	10	4319	1/14/09	16:30	
1/14/09	14:38	HATI23-S-28028	Soil	SB	TI23	14	4319	1/14/09	16:30	
1/14/09	14:45	HATI24-S-28052	Soil	GEO	TI24	22	4321	1/14/09	16:30	
1/14/09	14:45	HATI23-S-28029	Soil	SB	TI23	18	4332	1/14/09	16:20	
1/14/09	14:46	HATI24-S-28053	Soil	GEO	TI24	22	4321	1/14/09	16:30	Replicate of sample HATI24-S-28052.
1/14/09	14:53	HATI23-S-28030	Soil	SB	TI23	22	4332	1/14/09	16:20	Shale at 23.5 ft. Refusal at 24 ft.
1/14/09	15:30	HATI24-S-28054	Soil	GEO	TI24	25	4321	1/14/09	16:30	
1/14/09	15:40	HATI17-S-28031	Soil	SB	TI17	2	4320	1/14/09	17:00	Southwest area of former CCC/USDA property; southwest corner of S. Jueneman property.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
1/14/09	15:45	HATI17-S-28032	Soil	SB	TI17	6	4320	1/14/09	17:00	
1/14/09	15:50	HATI17-S-28033	Soil	SB	TI17	10	4320	1/14/09	17:00	Shale at 9.5 ft. Refusal at 12 ft.
1/14/09	15:51	HATI17-S-28034	Soil	SB	TI17	10	4320	1/14/09	17:00	Replicate of sample HATI17-S-28033.
1/14/09	16:00	HATB-S-28055	Soil	TB	QC	-	4319	1/14/09	16:30	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COCs 4319 and 4321.
1/14/09	16:00	HATB-S-28056	Soil	TB	QC	-	4331	1/14/09	16:15	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples on COCs 4329, 4330, and 4331.
1/14/09	16:10	HATI25-S-28035	Soil	SB	TI25	2	4320	1/14/09	17:00	Northeast area of former CCC/USDA property; northeast corner of Poell property.
1/14/09	16:20	HATI25-S-28036	Soil	SB	TI25	6	4320	1/14/09	17:00	
1/14/09	16:21	HATI25-S-28037	Soil	SB	TI25	6	4320	1/14/09	17:00	Replicate of sample HATI25-S-28036.
1/14/09	16:26	HATI25-S-28038	Soil	SB	TI25	10	4320	1/14/09	17:00	Shale at 7.5 ft. Refusal at 11.5 ft.
1/15/09	9:30	HATI09-S-28058	Soil	GEO	TI09	9	4328	1/15/09	14:00	Continued soil sampling at greater depth with larger Geoprobe (Larsen unit).
1/15/09	10:00	HATI05-S-28059	Soil	GEO	TI05	20.5	4328	1/15/09	14:00	Continued soil sampling to refusal with larger Geoprobe (Larsen unit).
1/15/09	13:45	HATB-S-28060	Soil	TB	QC	-	4328	1/15/09	14:00	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COC 4328.
1/28/09	0:00	HAQCTB-S-28121	Soil	TB	QC	-	2223	1/28/09	16:20	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COC 2223.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
1/28/09	9:56	HAMW01-S-28061	Soil	SB	MW01	22	2223	1/28/09	16:20	East corner of Goeckel driveway. MW01 drilled at the TI01 location to 63 ft. Groundwater encountered at 32 ft BGL. Continued to drill to determine whether a separate (deeper) aquifer was present. Did not encounter water below 32 ft.
1/28/09	10:11	HAMW01-S-28062	Soil	SB	MW01	27	2223	1/28/09	16:20	
1/28/09	10:44	HAMW01-S-28063	Soil	SB	MW01	32	2223	1/28/09	16:20	
1/28/09	11:20	HAMW01-W-28065	Water	SB	MW01	32.5-33	2222	1/28/09	13:12	Grab sample collected from open borehole.
1/28/09	13:04	HAQCTB-W-28120	Water	TB	QC	-	2222	1/28/09	13:12	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2222.
1/28/09	14:46	HAMW01-S-28064	Soil	SB	MW01	36	2223	1/28/09	16:20	
1/28/09	14:58	HAMW01-S-28066	Soil	SB	MW01	40	2223	1/28/09	16:20	
1/28/09	15:34	HAMW01-S-28067	Soil	SB	MW01	44	2223	1/28/09	16:20	
1/28/09	16:15	HAMW01-S-28068	Soil	SB	MW01	48	3599	1/29/09	14:05	
1/28/09	16:51	HAMW01-S-28069	Soil	SB	MW01	53	3599	1/29/09	14:05	
1/28/09	17:12	HAMW01-S-28070	Soil	SB	MW01	58	3599	1/29/09	14:05	
1/28/09	17:45	HAMW01-S-28071	Soil	SB	MW01	63	3599	1/29/09	14:05	
1/29/09	12:10	HAMW02-S-28080	Soil	SB	MW02	25	3599	1/29/09	14:05	Poell property. MW02 installed at TI05 location. Drilled to shallow water zone. Completed as well.
1/29/09	13:10	HAMW02-W-28083	Water	SB	MW02	33-34	3597	1/29/09	14:05	Grab sample collected from open borehole.
1/29/09	13:12	HAMW02-S-28081	Soil	SB	MW02	29	3599	1/29/09	14:05	
1/29/09	13:32	HAMW02-S-28082	Soil	SB	MW02	33	3599	1/29/09	14:05	
1/29/09	14:05	HAQCTB-S-28084	Soil	TB	QC	-	3599	1/29/09	14:05	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COC 3599.
1/29/09	14:30	HAQCTB-W-28122	Water	TB	QC	-	3597	1/29/09	14:05	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 3597.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
1/29/09	16:30	HAMW03-S-28090	Soil	SB	MW03	18	2224	1/30/09	17:00	Former CCC/USDA area. MW03 adjacent to TI16. Soil sampling with minisonic drill rig.
1/29/09	17:00	HAMW03-S-28091	Soil	SB	MW03	22	2224	1/30/09	17:00	
1/29/09	17:16	HAMW03-S-28092	Soil	SB	MW03	26	2224	1/30/09	17:00	
1/29/09	17:33	HAMW03-S-28093	Soil	SB	MW03	30	2224	1/30/09	17:00	
1/30/09	8:12	HAMW03-S-28094	Soil	SB	MW03	34	2224	1/30/09	17:00	
1/30/09	8:35	HAMW03-S-28095	Soil	SB	MW03	38	2224	1/30/09	17:00	
1/30/09	8:55	HAMW03-S-28096	Soil	SB	MW03	42	2224	1/30/09	17:00	
1/30/09	8:56	HAMW03-S-28097	Soil	SB	MW03	42	2224	1/30/09	17:00	Replicate of sample HAMW03-S-28096.
1/30/09	9:24	HAMW03-S-28098	Soil	SB	MW03	46	2224	1/30/09	17:00	
1/30/09	10:02	HAMW03-S-28099	Soil	SB	MW03	50	2224	1/30/09	17:00	
1/30/09	10:21	HAMW03-S-28100	Soil	SB	MW03	54	2224	1/30/09	17:00	
1/30/09	10:35	HAMW03-S-28101	Soil	SB	MW03	58	2224	1/30/09	17:00	
1/30/09	10:49	HAMW03-S-28102	Soil	SB	MW03	62	2224	1/30/09	17:00	
1/30/09	11:16	HAMW03-S-28103	Soil	SB	MW03	66	2224	1/30/09	17:00	
1/30/09	11:50	HAMW03-S-28104	Soil	SB	MW03	70	2224	1/30/09	17:00	
1/30/09	13:25	HAMW03-S-28105	Soil	SB	MW03	74	2225	1/30/09	17:00	
1/30/09	13:47	HAMW03-S-28106	Soil	SB	MW03	78	2225	1/30/09	17:00	
1/30/09	14:08	HAMW01-W-28123	Water	MW	MW01	30-35	2227	1/30/09	17:00	South border of former CCC/USDA property; east side of Goeckel driveway. Depth to water from top of casing (TOC) = 23 ft. Depth of well = 35 ft. Sample collected with bailer after purging of 15 gal from new well with Waterra pump.
1/30/09	14:10	HAMW03-S-28107	Soil	SB	MW03	82	2225	1/30/09	17:00	
1/30/09	14:33	HAMW03-S-28108	Soil	SB	MW03	86	2225	1/30/09	17:00	
1/30/09	14:55	HAMW03-S-28109	Soil	SB	MW03	90	2225	1/30/09	17:00	
1/30/09	15:13	HAMW03-S-28110	Soil	SB	MW03	94	2225	1/30/09	17:00	
1/30/09	15:34	HAMW03-S-28111	Soil	SB	MW03	98	2225	1/30/09	17:00	
1/30/09	15:40	HAQCTB-S-28112	Soil	TB	QC	-	2225	1/30/09	17:00	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COCs 2224 and 2225.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
1/30/09	16:00	HAQCTB-W-28124	Water	TB	QC	-	2227	1/30/09	17:00	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2227.
1/30/09	16:45	HAMW02-W-28125	Water	MW	MW02	31-36	2227	1/30/09	17:00	North central boundary of former CCC/USDA property; south boundary of Poell property. Depth to water = 27.7 ft from TOC. Depth of well = 36 ft. Sample collected with bailer after purging of 9 gal from new well with Waterra pump.
1/31/09	8:52	HAMW04-S-28126	Soil	SB	MW04	25	2226	1/31/09	13:15	Southeast corner of former CCC/USDA property; northeast corner of Robert Holle property.
1/31/09	9:13	HAMW04-S-28127	Soil	SB	MW04	29	2226	1/31/09	13:15	
1/31/09	9:26	HAMW04-S-28128	Soil	SB	MW04	33	2226	1/31/09	13:15	
1/31/09	9:27	HAMW04-S-28129	Soil	SB	MW04	33	2226	1/31/09	13:15	Replicate of sample HAMW04-S-28128.
1/31/09	9:54	HAMW04-W-28072	Water	SB	MW04	30.5-31.5	4378	1/31/09	13:15	Southeast corner of former CCC/USDA property; northeast corner of Robert Holle property. Sample collected from open borehole.
1/31/09	11:43	HAMW05-S-28073	Soil	SB	MW05	14	2226	1/31/09	13:15	Northeast area of former CCC/USDA property; south edge of K. Hynek property.
1/31/09	11:59	HAMW05-S-28074	Soil	SB	MW05	18	2226	1/31/09	13:15	
1/31/09	12:08	HAMW05-S-28075	Soil	SB	MW05	22	2226	1/31/09	13:15	
1/31/09	12:27	HAMW05-S-28076	Soil	SB	MW05	26	2226	1/31/09	13:15	
1/31/09	12:40	HAMW05-W-28077	Water	SB	MW05	25-25.5	4378	1/31/09	13:15	Sample collected from open borehole.
1/31/09	12:50	HAQCTB-W-28078	Water	TB	QC	-	4378	1/31/09	13:15	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 4378.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
1/31/09	13:00	HAQCTB-S-28079	Soil	TB	QC	-	2226	1/31/09	13:15	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COCs 2226 and 4387.
1/31/09	15:25	HATI26-S-28045	Soil	SB	TI26	14	4380	2/2/09	17:00	Southwest corner of former CCC/USDA property; northwest corner of Schroller property. Location converted to MW06 and completed as monitoring well.
1/31/09	15:36	HATI26-S-28046	Soil	SB	TI26	18	4380	2/2/09	17:00	
1/31/09	15:47	HATI26-S-28047	Soil	SB	TI26	22	4380	2/2/09	17:00	
1/31/09	16:08	HATI26-S-28048	Soil	SB	TI26	26	4380	2/2/09	17:00	
1/31/09	16:15	HATI26-S-28049	Soil	SB	TI26	30	4380	2/2/09	17:00	
1/31/09	16:26	HATI26-S-28130	Soil	SB	TI26	34	4380	2/2/09	17:00	
2/1/09	11:20	HAMW06-W-28133	Water	SB	MW06	24.5-25	4382	2/2/09	18:00	Sample collected from open borehole.
2/1/09	11:21	HAMW06-W-28134	Water	SB	MW06	24.5-25	4382	2/2/09	18:00	Replicate of sample HAMW06-W-28133.
2/2/09	10:14	HAMW07-S-28135	Soil	SB	MW07	19	4380	2/2/09	17:00	South of former CCC/USDA property; southeast corner of Schroller property.
2/2/09	10:24	HAMW07-S-28136	Soil	SB	MW07	23	4380	2/2/09	17:00	
2/2/09	10:56	HAMW07-S-28137	Soil	SB	MW07	27	4380	2/2/09	17:00	
2/2/09	11:22	HAMW07-S-28138	Soil	SB	MW07	31	4380	2/2/09	17:00	
2/2/09	13:16	HAMW08-S-28139	Soil	SB	MW08	4	4380	2/2/09	17:00	East side of former CCC/USDA property.
2/2/09	13:25	HAMW08-S-28140	Soil	SB	MW08	8	4380	2/2/09	17:00	
2/2/09	13:30	HAMW08-S-28141	Soil	SB	MW08	12	4380	2/2/09	17:00	
2/2/09	13:30	HAMW07-W-28149	Water	MW	MW07	30-35	4382	2/2/09	18:00	Sample from completed well prior to development.
2/2/09	13:40	HAMW08-S-28142	Soil	SB	MW08	16	4380	2/2/09	17:00	
2/2/09	13:45	HAMW08-S-28143	Soil	SB	MW08	20	4380	2/2/09	17:00	
2/2/09	13:55	HAMW08-S-28144	Soil	SB	MW08	24	4380	2/2/09	17:00	
2/2/09	14:05	HAMW08-S-28145	Soil	SB	MW08	28	4381	2/2/09	17:00	
2/2/09	14:06	HAMW08-S-28146	Soil	SB	MW08	28	4381	2/2/09	17:00	Replicate of sample HAMW08-S-28145.
2/2/09	14:18	HAMW08-S-28147	Soil	SB	MW08	32	4381	2/2/09	17:00	

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
2/2/09	14:30	HAQCTB-S-28148	Soil	TB	QC	-	4381	2/2/09	17:00	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COCs 4380 and 4381 and to TestAmerica for verification organic analysis with soil samples listed on COCs 4380 and 4381.
2/2/09	14:30	HAMW04-W-28150	Water	MW	MW04	30-35	4382	2/2/09	18:00	Sample from completed well prior to development.
2/2/09	14:40	HAQCTB-W-28151	Water	TB	QC	-	4382	2/2/09	18:00	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 4382.
2/2/09	15:40	HAMW05-W-28152	Water	MW	MW05	24-29	4382	2/2/09	18:00	South edge of K. Hynek property. Sample from well. Whether collected prior to development not recorded.
2/2/09	16:00	HAMW08-W-28153	Water	MW	MW08	30-35	4382	2/2/09	18:00	East side of former CCC/USDA property. Sample collected prior to purging and development.
2/2/09	16:30	HAMW06-W-28154	Water	MW	MW06	24-29	4382	2/2/09	18:00	Northwest corner of Schroller property. No description of sample recorded. Sample not listed on any COC and not received at the AGEM Laboratory.
2/2/09	17:12	HAMW09-S-28155	Soil	SB	MW09	19.5	4388	2/5/09	14:45	North central edge of former CCC/USDA property; north of Poell property.
2/2/09	17:30	HAMW09-W-28156	Water	SB	MW09	19-20	4382	2/2/09	18:00	North central edge of former CCC/USDA property; north of Poell property. Sample collected from open borehole.
2/3/09	10:35	HAMW10-W-28157	Water	SB	MW10	27-31	2228	2/3/09	16:30	South of former CCC/USDA property; southwest corner of Minge property. Sample collected from open borehole.
2/3/09	12:10	HADECON-W-28087	Water	BT	QC	-	2228	2/3/09	16:30	Decontamination water collected from drummed wastewater.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
2/3/09	12:15	HACITY-W-28088	Water	FB	QC	-	2228	2/3/09	16:30	City water collected at city maintenance shop and used during 2009 investigation.
2/3/09	14:30	HAMW11-W-28085	Water	MW	MW11	15-20	2228	2/3/09	16:30	North of former CCC/USDA property. Static water level = 18.61 ft. Bottom of hole = 20 ft. Collected prior to well development.
2/3/09	15:00	HAQCTB-W-28086	Water	TB	QC	-	2228	2/3/09	16:30	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2228.
2/4/09	8:30	HATI28-S-28160	Soil	SB	TI28	12	4388	2/5/09	14:45	Location TI28. Soil sampling with minisonic drill rig.
2/4/09	8:47	HATI28-S-28161	Soil	SB	TI28	16	4388	2/5/09	14:45	
2/4/09	9:13	HATI28-S-28162	Soil	SB	TI28	20	4388	2/5/09	14:45	
2/4/09	13:15	HAMW12-S-28163	Soil	SB	MW12	16	4388	2/5/09	14:45	Location MW12. Soil sampling with minisonic drill rig.
2/4/09	13:30	HAMW12-S-28164	Soil	SB	MW12	20	4388	2/5/09	14:45	
2/4/09	13:45	HAMW12-S-28165	Soil	SB	MW12	24	4388	2/5/09	14:45	
2/4/09	14:00	HAMW12-S-28166	Soil	SB	MW12	30	4388	2/5/09	14:45	
2/4/09	14:15	HAMW12-S-28167	Soil	SB	MW12	34	4388	2/5/09	14:45	
2/4/09	16:25	HAMW13-W-28180	Water	MW	MW13	15-20	4383	2/4/09	16:50	Sampled immediately after well installation and prior to development.
2/4/09	16:30	HAQCTB-W-28181	Water	TB	QC	-	4383	2/4/09	16:50	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 4383.
2/5/09	0:00	HAQCTB-S-28113	Soil	TB	QC	-	4388	2/5/09	14:45	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COC 4388.
2/5/09	0:00	HAMW08-W-28117	Water	MW	MW08	30-35	6140	2/5/09	15:40	Depth to water = 25.2 ft. Depth of well = 34.6 ft. Purged dry with bailer after 2.3 gal. Sampled with bailer after recovery.
2/5/09	10:15	HAMW12-W-28114	Water	SB	MW12	25-35	6140	2/5/09	15:40	Grab sample from drill pipe. No purge.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
2/5/09	16:00	HAQCTB-W-28118	Water	TB	QC	-	6140	2/5/09	15:40	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 6140.
2/5/09	16:30	HAMW06-W-28115	Water	MW	MW06	24-29	6140	2/5/09	15:40	Depth to water = 16.4 ft. Depth of well = 28.7 ft. Purged dry with Waterra after 2.5 gal. Sampled with bailer after recovery.
2/5/09	16:40	HAMW07-W-28116	Water	MW	MW07	30-35	6140	2/5/09	15:40	Depth to water = 24 ft. Depth of well = 34.6 ft. Purged dry with bailer after 1.6 gal. Sampled with bailer after recovery.
2/10/09	10:30	HAMW12-W-28173	Water	MW	MW12	25-35	6392	2/10/09	17:00	Depth to water = 24.6 ft. Depth of well = 34.6 ft. Purged dry with bailer after 3.3 gal. Sampled with bailer after recovery.
2/10/09	10:52	HAMW13-W-28172	Water	MW	MW13	15-20	6392	2/10/09	17:00	Depth to water = 14.8 ft. Depth of well = 19.6 ft. Sampled with bailer after purging of 4.8 gal.
2/10/09	11:18	HAMW11-W-28171	Water	MW	MW11	15-20	6392	2/10/09	17:00	Depth to water = 17 ft. Depth of well = 19.6 ft. Sampled with bailer after purging of 2.6 gal. Resampled after well stabilization.
2/10/09	11:37	HAMW09-W-28170	Water	MW	MW09	18-23	6392	2/10/09	17:00	Depth to water = 18.1 ft. Depth of well = 22.6 ft. Sampled with bailer after purging of 4.5 gal.
2/10/09	13:33	HAMW10-W-28119	Water	MW	MW10	26-31	6392	2/10/09	17:00	Depth to water = 22.1 ft. Depth of well = 30.2 ft. Purged dry with bailer after 2.8 gal. Sampled with bailer after recovery.
2/10/09	15:00	HABARREL1-W-28175	Water	BT	QC	-	6392	2/10/09	17:00	Waste purge water in barrel #1.
2/10/09	15:05	HABARREL2-W-28176	Water	BT	QC	-	6392	2/10/09	17:00	Waste purge water in barrel #2.
2/10/09	15:10	HABARREL3-W-28177	Water	BT	QC	-	6392	2/10/09	17:00	Waste purge water in barrel #3.
2/10/09	16:00	HAQCTB-W-28174	Water	TB	QC	-	6392	2/10/09	17:00	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 6392.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
2/23/09	12:45	HABSMW10-W-28159	Water	MW	BSMW10	30-50	4390	2/23/09	16:30	Bill's Service Station at Memorial Drive and North Street. Depth to water = 42.84 ft. Depth of well = 50.40 ft. Sample collected with bailer after purging of 4.0 gal with bailer. Sample clear.
2/23/09	12:52	HABSMW15-W-28183	Water	MW	BSMW15	30-45	4390	2/23/09	16:30	Bill's Service Station at Memorial Drive and North Street. Depth to water = 33.68 ft. Depth of well = 43.80 ft. Sample collected with bailer after purging of 5.0 gal with bailer.
2/23/09	13:01	HABSMW9-W-28158	Water	MW	BSMW09	35-45	4390	2/23/09	16:30	Bill's Service Station at Memorial Drive and North Street. Depth to water = 42.72 ft. Depth of well = 47.70 ft. Sample collected with bailer after purging of 2.75 gal with bailer. Sample clear.
2/23/09	13:17	HABSMW12-W-28179	Water	MW	BSMW12	35-50	4390	2/23/09	16:30	Bill's Service Station at Memorial Drive and North Street. Depth to water = 44.80 ft. Depth of well = 53.00 ft. Sample collected with bailer after purging of 4.5 gal with bailer. Sample clear.
2/23/09	13:35	HABSMW14-W-28182	Water	MW	BSMW14	35-50	4390	2/23/09	16:30	Bill's Service Station at Memorial Drive and North Street. Depth to water = 42.45 ft. Depth of well = 45.70 ft. Sample collected with bailer after purging of 1.75 gal with bailer. Sample clear.
2/23/09	15:15	HAQCTB-W-28190	Water	TB	QC	-	4390	2/23/09	16:30	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 4390.
2/23/09	16:20	HAMW04-W-28186	Water	MW	MW04	30-35	2230	2/24/09	14:30	Holle property, northeast corner. Sample collected after 5-min purge with bailer. Sample clear.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
2/23/09	16:27	HAMW10-W-28194	Water	MW	MW10	26-31	2230	2/24/09	14:30	Minge property, southeast of Goeckel residence. Sample collected after 5-min purge with bailer. Sample clear.
2/23/09	16:53	HAMW05-W-28187	Water	MW	MW05	24-29	2230	2/24/09	14:30	Kevin Hynek property, southeast corner of driveway. Sample collected after 5-min purge with bailer. Sample clear.
2/23/09	16:58	HAMW02-W-28185	Water	MW	MW02	31-36	2230	2/24/09	14:30	Poell property, south of house. Sample collected after 5-min purge with bailer.
2/23/09	17:07	HAMW09-W-28193	Water	MW	MW09	18-23	2230	2/24/09	14:30	North of Poell property on city property. Sample collected after 5-min purge with bailer. Sample clear.
2/23/09	17:15	HADMINGE-W-28191	Water	DW	Dennis Minge	32-52	2230	2/24/09	14:30	Dennis Minge. Hand-dug well located at 309 N. Bern Street. Lawn and garden well. Sample clear with sulfur odor. Owner says well goes dry with extended pumping.
2/23/09	17:17	HAMW11-W-28195	Water	MW	MW11	15-20	2230	2/24/09	14:30	North of K. Hynek property on city property. Sample collected after 7-min purge with bailer. Sample clear.
2/23/09	17:25	HAMW13-W-28197	Water	MW	MW13	15-20	2230	2/24/09	14:30	North of K. Hynek property on city-owned property. Sample collected after 5-min purge with bailer. Sample clear.
2/23/09	17:33	HAMW01-W-28184	Water	MW	MW01	30-35	2230	2/24/09	14:30	Goeckel property, east of driveway. Sample collected after 7-min purge with bailer.
2/24/09	9:05	HAQCTB-W-28198	Water	TB	QC	-	2230	2/24/09	14:30	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COCs 2230 and 2229.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
2/24/09	10:45	HAFACOOP-W-28199	Water	DW	Farmers Coop	20-40	2230	2/24/09	14:30	Farmers Co-op, 500 West North Street. Depth to water = 32.5 ft. Depth of well = 51.5 ft. Sample collected with bailer after purging of 8 gal with bailer. Sample clear.
2/24/09	11:15	HABRUNA-W-28201	Water	DW	Alan Bruna	40-60	2230	2/24/09	14:30	Alan Bruna well, 6110 East North Street. Ran tap at dog pen for 10 min prior to sampling. Heard pump kick on. Sample clear.
2/24/09	11:20	HAUSD223-W-28200	Water	DW	USD223	55-75	2230	2/24/09	14:30	USD 223 school well; irrigation well for football field. Ran dedicated pump 5 min prior to sampling. Sample clear.
2/24/09	11:30	HAMW08-W-28192	Water	MW	MW08	30-35	2229	2/24/09	14:30	West of swimming pool on city property. Depth to water = 26.15 ft. Depth of well = 34.30 ft. Sample collected with bailer after purging of 4 gal with bailer. Sample clear.
2/24/09	12:00	HAMW07-W-28189	Water	MW	MW07	30-35	2230	2/24/09	14:30	Schroller property, southeast corner. Depth to water = 24.63 ft. Depth of well = 34.40 ft. Sample collected with bailer after purging of 5 gal with bailer. Sample clear.
2/24/09	12:11	HAMW12-W-28196	Water	MW	MW12	25-35	2229	2/24/09	14:30	Scott Jueneman property, behind house, west of shed. Depth to water = 22.80 ft. Depth of well = 34.35 ft. Sample collected with bailer after purging of 6 gal with bailer. Sample clear.
2/24/09	12:30	HAMW06-W-28188	Water	MW	MW06	24-29	2230	2/24/09	14:30	Schroller property, northwest corner. Depth to water = 21.65 ft. Depth of well = 28.10 ft. Sample collected with bailer after purging of 3.5 gal with bailer. Sample clear.
2/24/09	15:15	HAJSCHMIDT-W-28202	Water	DW	Joe Schmidt	42-52	4391	2/25/09	16:30	Joe Schmidt private well. 212 Wulff Street. Ran well for 5 min prior to sampling at faucet. Sample clear.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
2/24/09	16:32	HAKPRELL-W-28203	Water	DW	Kay Prell	42-52	4391	2/25/09	16:30	Kay Prell private well at 305 South Denver. Ran well for 5 min prior to sampling at faucet. Sample clear.
2/25/09	8:23	HAMW14-W-28204	Water	SB	MW14	16-19	4391	2/25/09	16:30	Sample collected from borehole prior to well installation. Sample silty/cloudy.
2/25/09	9:00	HAQCTB-W-28205	Water	TB	QC	-	4391	2/25/09	16:30	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 4391.
2/25/09	14:20	HAMW16-W-28210	Water	MW	MW16	15-25	4391	2/25/09	16:30	Darrel Schlaback property, northwest of former CCC/USDA property. Approximately 1.5 ft of water in well. Sample collected with bailer without purging.
2/25/09	14:27	HARSCHLA(W)-W-28207	Water	DW	Ron Schlabach (W)	75-80	4391	2/25/09	16:30	Ron Schlabach private well (west well), at 501 North Hollenberg. In grove of trees approximately 100 ft north of road.
2/25/09	15:10	HARSCHLA(E)-W-28208	Water	DW	Ron Schlabach (E)	41	4391	2/25/09	16:30	Ron Schlabach private well (east well), at 501 North Hollenberg (former Ebeling property). Depth to water = 36.00 ft. Depth of well = 41.41 ft. Open cased pit. Well not working.
2/25/09	15:55	HAMW15-W-28209	Water	MW	MW15	14-19	4391	2/25/09	16:30	Darrel Schlaback property at 311 N. East St. Approx 1 ft of water in well. Sample collected with bailer without purge.
2/25/09	16:53	HAJKRUSE-W-28211	Water	DW	Jim Kruse	48-58	4392	2/26/09	16:30	Jim Kruse private well at 107 East South Street. Used for potable water. Ran well for 5 min prior to sampling at outside faucet.
2/25/09	17:10	HATKOSS-W-28212	Water	DW	Tim Koss	34-54	4392	2/26/09	16:30	Tim Koss private well at 404 North Wulff Street. Lawn and garden use only. Ran well for 5 min prior to sampling at faucet. Owner says well never goes dry.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
2/26/09	13:20	HAMW17-W-28213	Water	MW	MW17	13-23	4392	2/26/09	16:30	D. Wanamaker property. Depth to water = 21.9 ft. Depth of well = 22.7 ft. Sample collected without purge with bailer because of limited water.
2/26/09	14:00	HAQCTB-W-28214	Water	TB	QC	-	4392	2/26/09	16:30	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 4392.
2/26/09	14:36	HAMW18-W-28215	Water	MW	MW18	15-25	4392	2/26/09	16:30	W. Johnson property, south of former CCC/USDA property. Depth to water = 20.0 ft. Depth of well = 25 ft. Sample collected without purge with bailer because of limited water.
2/26/09	15:00	HAMW14-W-28252	Water	MW	MW14	14-19	4392	2/26/09	16:30	City property north of former CCC/USDA property. Depth to water = 16.7 ft. Depth of well = 18.9 ft. Sample collected with bailer after purging well dry with bailer. Sample clear.
2/26/09	15:22	HAMW16-W-28251	Water	MW	MW16	15-25	4392	2/26/09	16:30	D. Schlabach property north of tree line. Depth to water = 22.7 ft. Depth of well = 24.5 ft. Sample collected with bailer after purging well dry with bailer.
2/26/09	15:30	HAWWO1-W-28216	Water	BT	QC	-	Pace	2/26/09	16:30	Waste purge water from CCC/USDA monitoring wells.
2/26/09	15:31	HAWWO2-W-28217	Water	BT	QC	-	Pace	2/26/09	16:30	Waste purge water from Bill's Service Center monitoring wells.
2/26/09	15:45	HAWS01-W-28253	Soil	BT	QC	-	Pace	2/26/09	16:30	Waste soil cuttings during monitoring well drilling.
2/26/09	16:00	HAQCTB-W-28254	Water	TB	QC	-	Pace	2/26/09	16:30	Trip blank sent to Pace Analytical Services with waste samples on February 26.
2/26/09	17:10	HATEBRUNA-W-28255	Water	DW	Ted Bruna	65-75	2231	2/27/09	16:30	Ted Bruna private well.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
2/26/09	17:24	HATOBRUNA-W-28256	Water	DW	Tony Bruna	62-82	2231	2/27/09	16:30	Tony Bruna private well, 315 S. East Street. Lawn and garden use only. Sample collected from faucet after running for 5 min.
2/26/09	17:50	HARWARREN-W-28257	Water	DW	Roger Warren	40-60	2231	2/27/09	16:30	Roger Warren residence, east-southeast of Hanover. Sample collected from outside faucet after running for 5 min.
2/27/09	15:50	HAMW24-W-28260	Water	MW	MW24	13-18	2231	2/27/09	16:30	D. Schlabach property, northwest of former CCC/USDA property. Sample collected without purge. (Whether prior to development not recorded.) Sample clear.
2/27/09	16:00	HAQCTB-W-28258	Water	TB	QC	-	2231	2/27/09	16:30	Trip blank sent to the AGEM Laboratory for organic analysis with water samples on COC 2231.
2/27/09	16:15	HAQCRIN-W-28259	Water	RI	QC	-	2231	2/27/09	16:30	Rinsate of decontaminated sampling bailer after collection of sample HAMW24-W-28260.
2/28/09	8:20	HATI30-S-28230	Soil	SB	TI30	2	2232	2/28/09	13:33	Near northern boundary of former CCC/USDA facility. Vertical profile every 4 ft by minisonic drill rig.
2/28/09	8:25	HATI30-S-28231	Soil	SB	TI30	6	2232	2/28/09	13:33	
2/28/09	8:30	HATI30-S-28232	Soil	SB	TI30	10	2232	2/28/09	13:33	
2/28/09	8:40	HATI30-S-28233	Soil	SB	TI30	14	2232	2/28/09	13:33	
2/28/09	9:00	HATI30-S-28234	Soil	SB	TI30	18	2232	2/28/09	13:33	
2/28/09	9:10	HATI30-S-28235	Soil	SB	TI30	21	2232	2/28/09	13:33	
2/28/09	9:40	HATI30-S-28236	Soil	SB	TI30	26	2232	2/28/09	13:33	
2/28/09	9:41	HATI30-S-28237	Soil	SB	TI30	26	2232	2/28/09	13:33	Replicate of sample HATI30-S-28236.
2/28/09	10:20	HATI30-S-28238	Soil	SB	TI30	30	2232	2/28/09	13:33	
2/28/09	10:50	HATI30-S-28239	Soil	SB	TI30	34	2232	2/28/09	13:33	
2/28/09	11:20	HATI30-S-28240	Soil	SB	TI30	38	2232	2/28/09	13:33	
2/28/09	11:40	HATI30-S-28241	Soil	SB	TI30	42	2232	2/28/09	13:33	

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
2/28/09	13:05	HAMW23-W-28261	Water	MW	MW23	19-29	2236	2/28/09	14:00	City property north of water tower. Depth to water = 20.40 ft. Depth of well = 28.40 ft. Sample collected with bailer after purging of 1 gal with bailer. Well purged dry. Sample slightly silty.
2/28/09	13:10	HATI30-S-28242	Soil	SB	TI30	46	2232	2/28/09	13:33	
2/28/09	13:30	HAQCTB-W-28262	Water	TB	QC	-	2236	2/28/09	14:00	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 2236.
2/28/09	13:45	HATI30-S-28243	Soil	SB	TI30	50	2234	3/2/09	13:29	
2/28/09	14:00	HAQCTB-S-28263	Soil	TB	QC	-	2232	2/28/09	13:33	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COC 2232.
2/28/09	14:10	HATI30-S-28244	Soil	SB	TI30	54	2234	3/2/09	13:29	
2/28/09	14:30	HATI30-S-28245	Soil	SB	TI30	58	2234	3/2/09	13:29	
2/28/09	15:02	HABBRUNA-W-28264	Water	DW	Butch Bruna	-	2233	3/2/09	16:30	Butch Bruna private well at 310 Hanover St. Sample collected from outside faucet after running for 5 min. Owner indicated well is approximately 80 ft deep and was drilled approximately 30 years ago.
2/28/09	15:10	HATI30-S-28246	Soil	SB	TI30	62	2234	3/2/09	13:29	
2/28/09	15:11	HATI30-S-28247	Soil	SB	TI30	62	2234	3/2/09	13:29	Replicate of sample HATI30-S-28246.
2/28/09	15:30	HADMARTIN-W-28265	Water	DW	Don Martin	28-48	2233	3/2/09	16:30	Don Martin private well at 314 North Hollenberg. Sample collected from faucet after running for 5 min. Sample clear.
2/28/09	15:48	HAQCTB-W-28266	Water	TB	QC	-	2233	3/2/09	16:30	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2233.
2/28/09	16:00	HATI30-S-28248	Soil	SB	TI30	66	2234	3/2/09	13:29	

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
3/2/09	8:50	HAMW20-W-28275	Water	MW	MW20	18-28	2233	3/2/09	16:30	Frank Jandera property at 408 East Elm St. Depth to water = 26.7 ft. Depth of well = 27.7 ft. Sample collected without purge. Silty.
3/2/09	9:20	HAMW17-W-28271	Water	MW	MW17	13-23	2233	3/2/09	16:30	D. Wanamaker property, west of former CCC/USDA property. Depth to water = 20.2 ft. Depth of well = 22.7 ft. Sample collected without purge with bailer because of limited water.
3/2/09	9:30	HAMW28-W-28270	Water	MW	MW28	19-29	2233	3/2/09	16:30	R. Hoover property, south of former CCC/USDA property. 400 E. Elm St. Sample collected without purge.
3/2/09	10:58	HAMW24-W-28274	Water	MW	MW24	13-18	2233	3/2/09	16:30	D. Schlabach property in vacant field north of house. Sample collected with bailer after purging of 3.66 gal. Silty.
3/2/09	11:35	HAMW27-W-28269	Water	MW	MW27	20-30	2233	3/2/09	16:30	City park, south of swimming pool. Depth to water = 28 ft. Depth of well = 30 ft. Sample collected with bailer. Sample silty.
3/2/09	11:40	HAMW29-W-28273	Water	MW	MW29	19-29	2233	3/2/09	16:30	R. Hoover property, south of former CCC/USDA property, at 400 E. Elm. Sample collected without purge. Silty.
3/2/09	12:00	HAQCTB-S-28272	Soil	TB	QC	-	2234	3/2/09	13:29	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COC 2234.
3/2/09	12:55	HAMW18-W-28268	Water	MW	MW18	15-25	2233	3/2/09	16:30	W. Johnson property, south of former CCC/USDA property. Depth to water = 17.4 ft. Depth of well = 25 ft. Sample collected with bailer after purging of 7.6 gal with bailer. Sample silty.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
3/3/09	8:30	HAMW31-W-28276	Water	MW	MW31	10-20	2235	3/3/09	16:00	Alice Gerleve property at 505 East Elm St., in alley. Depth to water = 16 ft. Depth of well = 18.9 ft. Sample collected without purge. Silty.
3/3/09	8:40	HAMW28-W-28277	Water	MW	MW28	19-29	2235	3/3/09	16:00	Robert Hoover property at 400 East Elm St., in backyard. Depth to water = 22.2 ft. Depth of well = 28.4 ft. Sample collected without purge. Silty.
3/3/09	8:52	HAMW29-W-28278	Water	MW	MW29	19-29	2235	3/3/09	16:00	Robert Hoover property at 400 East Elm St., in front yard. Depth to water = 23.4 ft. Depth of well = 28.2 ft. Sample collected without purge. Silty.
3/3/09	13:10	HAMW34-S-28249	Soil	SB	MW34	14	2237	3/3/09	15:00	
3/3/09	13:20	HAMW34-S-28220	Soil	SB	MW34	18	2237	3/3/09	15:00	About 50 ft north of northeast corner of former CCC/USDA facility.
3/3/09	13:30	HAMW34-S-28221	Soil	SB	MW34	21	2237	3/3/09	15:00	
3/3/09	13:31	HAMW34-S-28222	Soil	SB	MW34	21	2237	3/3/09	15:00	Replicate of sample HAMW34-S-28221.
3/3/09	13:45	HAMW34-S-28223	Soil	SB	MW34	26	2237	3/3/09	15:00	
3/3/09	14:00	HAMW34-S-28224	Soil	SB	MW34	29	2237	3/3/09	15:00	
3/3/09	15:15	HAQCTB-S-28280	Soil	TB	QC	-	2237	3/3/09	15:00	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COC 2237.
3/3/09	15:15	HAQCTB-W-28279	Water	TB	QC	-	2235	3/3/09	16:00	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2235.
3/3/09	16:30	HAMW35-W-28281	Water	MW	MW35	15-25	2235	3/3/09	16:00	City property, northeast of Elm and Highland. Sample collected without purge. Silty.
3/4/09	14:05	HAMW36-W-28282	Water	MW	MW36	14-24	2239	3/4/09	16:30	Timothy Gastman property at 411 East Elm St., in alley behind house. Sample collected prior to purge. Silty.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
3/4/09	15:00	HAQCTB-W-28283	Water	TB	QC	-	2239	3/4/09	16:30	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2239.
3/4/09	15:30	HAMW34-W-28284	Water	MW	MW34	17-27	2239	3/4/09	16:30	Northeast corner of former CCC/USDA property, just north of property line. Depth to water = 22 ft. Depth of well = 27 ft. Sample collected prior to purge. Silty.
3/4/09	16:05	HAMW28-W-28285	Water	MW	MW28	19-29	2239	3/4/09	16:30	R. Hoover property at 400 East Elm St., in backyard. Sample collected after purge. Volume not recorded.
3/4/09	16:16	HAMW29-W-28286	Water	MW	MW29	19-29	2239	3/4/09	16:30	R. Hoover property at 400 East Elm St., in front yard. Sample collected after purge. Volume not recorded.
3/4/09	16:30	HAMW35-W-28287	Water	MW	MW35	15-25	2239	3/4/09	16:30	Northeast corner of Highland and Elm. Depth to water = 16.5 ft. Depth of well = 25 ft. Sample collected with bailer after purging of 5 gal with bailer. Silty.
3/5/09	11:50	HAWATTRU-W-28289	Water	FB	QC	-	2238	3/6/09	14:00	Blank of water used during February-March field effort. Public water stored in water truck.
3/5/09	11:55	HADECON-W-28288	Water	BT	QC	-	2238	3/6/09	14:00	Waste equipment decontamination water.
3/5/09	14:44	HAQCTB-W-28290	Water	TB	QC	-	2238	3/6/09	14:00	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2238.
3/6/09	10:00	HAMW38-W-28300	Water	SB	MW38	18-28	2238	3/6/09	14:00	Grab sample from drill pipe. No purge.
3/6/09	10:30	HAMW40-W-28301	Water	SB	MW40	20-30	2238	3/6/09	14:00	Grab sample from drill pipe. No purge.
3/12/09	15:55	HAMW22-W-28302	Water	MW	MW22	18-28	6159	3/12/09	16:50	Depth to water = 27.6 ft. Depth of well = 28.1 ft. Purged dry with bailer after 0.5 gal. Grab sample.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
3/12/09	16:08	HAMW30-W-28303	Water	MW	MW30	9-19	6159	3/12/09	16:50	Depth to water = 16.6 ft. Depth of well = 18.9 ft. Grab sample, then purged dry.
3/12/09	16:20	HAMW21-W-28304	Water	MW	MW21	15-25	6159	3/12/09	16:50	Depth to water = 23.9 ft. Depth of well = 25 ft. Grab sample, then purged dry.
3/12/09	16:30	HAMW19-W-28305	Water	MW	MW19	16-26	6159	3/12/09	16:50	Depth to water = 24.1 ft. Depth of well = 25.8 ft. Grab sample, then purged dry.
3/12/09	16:45	HAQCTB-W-28306	Water	TB	QC	-	6159	3/12/09	16:50	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 6159.
3/19/09	0:00	HAMW37-W-28307	Water	MW	MW37	15-30	6398	3/19/09	11:46	
3/19/09	0:00	HAQCTB-W-28308	Water	TB	QC	-	6398	3/19/09	11:46	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 6398.
3/25/09	11:40	HAMW44-W-28225	Water	SB	MW44	37-39.5	4395	3/25/09	16:00	Saturated interval identified during drilling at MW44 location. Sample collected from open borehole.
3/25/09	11:45	HAMW44-W-28226	Water	SB	MW44	37-39.5	4395	3/25/09	16:00	Replicate of sample HAMW44-W-28225.
3/25/09	14:30	HATB-W-28227	Water	TB	QC	-	4395	3/25/09	16:00	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 4395.
3/27/09	13:00	HAMW45-S-28228	Soil	SB	MW45	2	109	3/27/09	16:00	Sampled core every 4 ft.
3/27/09	13:10	HAMW45-S-28229	Soil	SB	MW45	6	109	3/27/09	16:00	
3/27/09	13:15	HAMW45-S-28291	Soil	SB	MW45	10	109	3/27/09	16:00	
3/27/09	13:25	HAMW45-S-28292	Soil	SB	MW45	14	109	3/27/09	16:00	
3/27/09	13:30	HAMW45-S-28293	Soil	SB	MW45	18	109	3/27/09	16:00	
3/27/09	13:40	HAMW45-S-28294	Soil	SB	MW45	22	109	3/27/09	16:00	
3/27/09	13:50	HAMW45-S-28295	Soil	SB	MW45	26	109	3/27/09	16:00	
3/27/09	13:55	HAMW45-S-28296	Soil	SB	MW45	30	109	3/27/09	16:00	
3/27/09	14:00	HAMW45-W-28297	Water	SB	MW45	25-29	108	3/27/09	15:53	Saturated interval identified during drilling at MW45 location. Sample collected from open borehole.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
3/27/09	14:15	HAQCTB-S-28820	Soil	SB	QC	-	109	3/27/09	16:00	Trip blank sent to the AGEM Laboratory for organic analysis with soil sample listed on COC 109.
3/27/09	14:30	HATB-W-28298	Water	TB	QC	-	108	3/27/09	15:53	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 108.
3/28/09	15:40	HAMW44-W-28821	Water	MW	MW44Z2	30-40	4394	3/30/09	15:58	Depth to water = 32.7 ft. Developed-well sample.
3/29/09	9:10	HAQCTB-W-28822	Water	TB	QC	-	4394	3/30/09	15:58	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 4394.
3/29/09	11:15	HAMW46-W-28299	Water	SB	MW46	26-27	4394	3/30/09	15:58	Saturated interval identified during drilling at MW46 location. Sample collected from open borehole.
3/29/09	11:43	HAMW45D-W-28825	Water	MW	MW45Z4	83-93	4394	3/30/09	15:58	Depth to water = 45.3 ft. Zone 4 well sampled after installation prior to development.
3/29/09	11:45	HAMW45D-W-28827	Water	MW	MW45Z4	83-93	UM			Aliquot for tritium analysis.
3/29/09	15:00	HAMW45S-W-28824	Water	MW	MW45Z2	20-30	4394	3/30/09	15:58	Depth to water = 23.6 ft.
3/29/09	15:54	HAMW45S-W-28826	Water	MW	MW45Z2	20-30	UM			Aliquot for tritium analysis.
3/30/09	0:00	HAMW46-W-28828	Water	MW	MW46	19-29	4394	3/30/09	15:58	
4/1/09	0:00	HAMW47-W-28829	Water	MW	MW47	15-30	113	4/1/09	17:05	Grab sample from open borehole during drilling of monitoring well MW47.
4/1/09	0:00	HAQCTB-W-28830	Water	TB	QC	-	113	4/1/09	17:05	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 113.
4/3/09	0:00	HAMW45M-W-28831	Water	MW	MW45Z3	50-60	114	4/3/09	0:00	Zone 3 well.
4/3/09	0:00	HAQCTB-W-28832	Water	TB	QC	-	114	4/3/09	0:00	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 114.
4/9/09	0:00	HAMW45M-W-28833	Water	MW	MW45Z3	50-60	2824	4/13/09	18:17	Confirmation sample.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
4/13/09	0:00	HAQCTB-W-28834	Water	TB	QC	-	2824	4/13/09	18:17	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 2824.
4/22/09	0:00	HAMW44D-W-28835	Water	MW	MW44Z4	97-107	2820	4/22/09	17:20	
4/22/09	0:00	HAQCTB-W-28836	Water	TB	QC	-	2820	4/22/09	17:20	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 2820.
4/24/09	17:00	HAMW44D-W-28835a	Water	MW	MW44Z4	97-107	2823	4/24/09	17:44	Confirmation sample.
4/24/09	17:40	HAQCTB-W-28836a	Water	TB	QC	-	2823	4/24/09	17:44	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 2823.
6/19/09	0:00	HAJoeMeier-W-28841	Water	DW	Joe Meier	50	3076	6/20/09	15:08	
6/19/09	0:00	HAKJueneman-W-28842	Water	DW	Kenny Jueneman	-	3076	6/20/09	15:08	
6/19/09	0:00	HADBrunaHome-W-28843	Water	DW	Duane Bruna home	45	3076	6/20/09	15:08	
6/19/09	0:00	HADBrunaIrr-W-28844	Water	DW	Duane Bruna irr	45	3076	6/20/09	15:08	
6/19/09	15:00	HAQCTB-W-28845	Water	TB	QC	-	3076	6/20/09	15:08	Trip blank sent to the AGEM Laboratory for organic analysis with private well water samples listed on COC 3076.
8/13/09	0:00	HAMW32-W-28847	Water	MW	MW32	10-25	3095	8/13/09	16:16	
8/13/09	0:00	HAMW33-W-28848	Water	MW	MW33	11-26	3095	8/13/09	16:16	
8/13/09	0:00	HAQCTB-W-28849	Water	TB	QC	-	3095	8/13/09	16:16	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 3095.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
9/21/09	14:25	HAMW48-W-30320	Water	SB	MW48	28-29	2641	9/23/09	13:00	Southeast corner of N. East and E. North. Sample from open borehole drilled to 33 ft. Water column 3 ft inside borehole. Observed interval producing water at 28-29 ft. Sample received frozen; location resampled.
9/23/09	8:53	HATB-W-30321	Water	TB	QC	-	2641	9/23/09	13:00	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 2641.
10/5/09	15:05	HAMW48-W-30322	Water	SB	MW48	28-29	3096	10/16/09	16:30	Resampled; initial sample received frozen.
10/6/09	16:30	HAQCTB-W-28310	Water	TB	QC	-	3096	10/16/09	16:30	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 3096.
10/8/09	9:56	HAMW48Z2-W-28311	Water	MW	MW48Z2	49-59	3097	10/8/09	13:05	Southeast corner of N. East and E. North. Sample from groundwater Zone 2.
10/8/09	10:02	HAMW48Z3-W-28312	Water	MW	MW48Z3	83-93	3097	10/8/09	13:05	Zone 3.
10/8/09	11:00	HAMW48Z4-W-28313	Water	MW	MW48Z4	111-121	3097	10/8/09	13:05	Zone 4.
10/8/09	11:10	HAQCTB-W-28314	Water	TB	QC	-	3097	10/8/09	13:05	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 3097.
10/9/09	14:30	HAMW50-W-30323	Water	SB	MW50	55-60	3098	10/10/09	13:56	Northern end of Church St. Sample collected from borehole with open portion at 45-67 ft. Observed interval potentially producing water at 55-60 ft.
10/10/09	12:20	HAMW49Z2-W-30324	Water	MW	MW49Z2	55-65	3098	10/10/09	13:56	Northern edge of former CCC/USDA property. Zone 2. Sample collected after purging of 1 well volume.
10/10/09	13:30	HAMW49Z3-W-30325	Water	MW	MW49Z3	105-115	3098	10/10/09	13:56	Zone 3. Sample collected after purging of 1 well volume.
10/10/09	13:40	HAMW49Z4-W-30326	Water	MW	MW49Z4	132-142	3098	10/10/09	13:56	Zone 4. Sample collected after purging of 1 well volume.

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
10/10/09	13:50	HAQCTB-W-30327	Water	TB	QC	-	3098	10/10/09	13:56	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 3098.
10/13/09	13:20	HAMW50Z2-W-30328	Water	MW	MW50Z2	55-65	3173	10/13/09	16:08	Northern end of Church St. Zone 2. Sample collected after purging of 1 well volume.
10/13/09	13:45	HAMW50Z4-W-30330	Water	MW	MW50Z4	118-128	3173	10/13/09	16:08	Zone 4. Sample collected after purging of 1 well volume.
10/13/09	14:45	HAMW50Z3-W-30329	Water	MW	MW50Z3	89-99	3173	10/13/09	16:08	Zone 3. Sample collected after purging of 1 well volume.
10/13/09	15:40	HAMW50DUP-W-30331	Water	MW	MW50Z4	118-128	3173	10/13/09	16:08	Replicate of sample HAMW50Z4-W-30330 from Zone 4.
10/13/09	16:00	HAQCTB-W-30332	Water	TB	QC	-	3173	10/13/09	16:08	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 3173.
10/16/09	11:15	HAMW51Z2-W-28315	Water	MW	MW51Z2	56-66	2598	10/17/09	12:35	Intersection of N. East and Kensington, Zone 2.
10/16/09	11:20	HAMW51Z2DUP-W-28318	Water	MW	MW51Z2	56-66	2598	10/17/09	12:35	Replicate of sample HAMW51Z2-W-28315, Zone 2.
10/16/09	13:06	HAMW51Z4-W-28317	Water	MW	MW51Z4	126-136	2598	10/17/09	12:35	Zone 4.
10/16/09	13:45	HAMW51Z3-W-28316	Water	MW	MW51Z3	104-114	2598	10/17/09	12:35	Zone 3.
10/16/09	15:00	HAMW45Z4-W-28322	Water	MW	MW45Z4	83-93	2598	10/17/09	12:35	Zone 4.
10/16/09	15:05	HAMW45Z4DUP-W-28323	Water	MW	MW45Z4	83-93	2598	10/17/09	12:35	Replicate of sample HAMW45Z4-W-28322, Zone 4.
10/16/09	15:35	HAMW45Z3-W-28321	Water	MW	MW45Z3	50-60	2598	10/17/09	12:35	Zone 3.
10/16/09	16:16	HAMW44Z3-W-28319	Water	MW	MW44Z3	55-75	2598	10/17/09	12:35	Zone 3.
10/16/09	16:45	HAMW44Z4-W-28320	Water	MW	MW44Z4	97-107	2598	10/17/09	12:35	Zone 4.
10/16/09	17:30	HAQCTB-W-28324	Water	TB	QC	-	2598	10/17/09	12:35	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2598.
2/23/10	0:00	HAMW5PTST1-W-30333	Water	MW	MW05	24-29	2727	2/25/10	12:00	
2/23/10	0:00	HAMW5PTST2-W-30334	Water	MW	MW05	24-29	2727	2/25/10	12:00	

TABLE C.1 (Cont.)

Sample Date	Sample Time	Sample	Medium	Type[a]	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Shipping Time	Sample Description
2/24/10	0:00	HAQCTB-W-30335	Water	TB	QC	-	2727	2/25/10	12:00	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2727.
3/18/10	0:00	HAMW44Z2S-W-30336	Water	MW	MW44Z2	30-40	2728	3/22/10	11:00	
3/18/10	0:00	HAMW44Z2M-W-30337	Water	MW	MW44Z2	30-40	2728	3/22/10	11:00	
3/19/10	0:00	HAMW44Z2F-W-30338	Water	MW	MW44Z2	30-40	2728	3/22/10	11:00	
3/22/10	11:00	HAQCTB-W-30339	Water	TB	QC	-	2728	3/22/10	11:00	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2728.

[a] Sample types: BT, wastewater; DW, domestic well; FB, field blank; GEO, Geoprobe; MW, monitoring well; RI, rinsate; SB, soil boring; TB, trip blank.

Appendix D:

Well Registration and Construction Documentation

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#424048

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW 01

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼ | Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89487
Longitude: -96.87037
Elevation: 1326.46
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Mr Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave. SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | -- NE -- X | E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL .....35..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ...X...; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ...X...

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ....2..... in. to ....30..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. ....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....35..... ft. to .....30..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....37..... ft. to .....28..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement (2) Cement grout (3) Bentonite (4) Other ....Concrete.....
Grout Intervals: From ...27..... ft. to .....1.5..... ft., From ....1.5..... ft. to .....Ø..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	22	Grey + Red Silty CLAY w/Sand+gravel			
22	51	Highly Weathered SHALE			
51	63	Red BEDROCK			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 01/28/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ....658..... This Water Well Record was completed on (mo/day/year) 02/20/2009 under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW01: Hanover, KS

N 39.89487 W 96.87037
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1326.46'

Date: 2/20/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

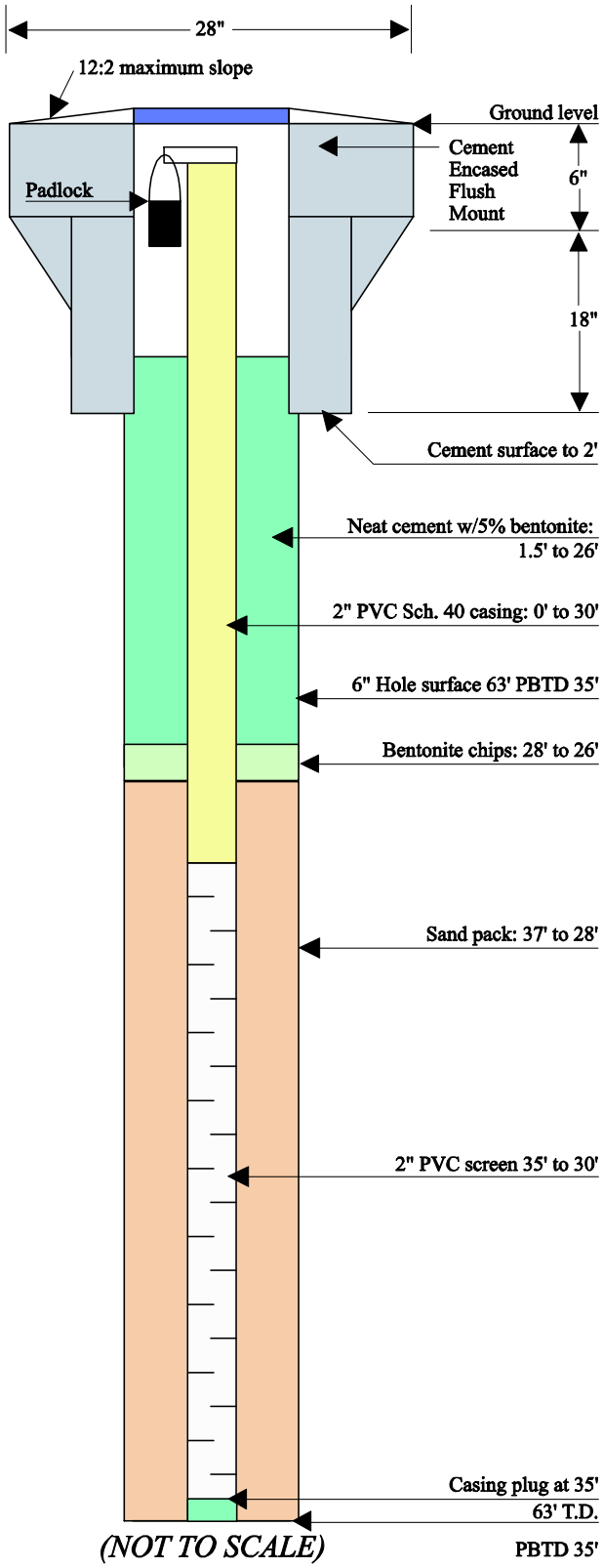
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



424049

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW 02

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 Township Number: T 2 S Range Number: R 5 (E)/W
Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89552
Longitude: −96.86997
Elevation: 1332.42
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept. of Agriculture
RR#, St. Address, Box # : Attn: Mr. Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
NW | NE (X)
W E
SW | SE
S

4 DEPTH OF COMPLETED WELL 36 ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X..

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded... Flush
Blank casing diameter .....2..... in. to .....31..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. ...280
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....36..... ft. to .....31..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....36..... ft. to .....29..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ....Concrete.....
Grout Intervals: From ..29.5.... ft. to ....1.5..... ft., From ...1.5..... ft. to .....Ø..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	21	Red CLAY w/ gravel + silt			
21	36	Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) .02/20/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ...658... This Water Well Record was completed on (mo/day/year) ..02/20/2009.. under the business name of Bart Longyear by (signature) Michael Mg

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW02: Hanover, KS

N 39.89552 W 96.86997
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1332.42'

Date: 2/20/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

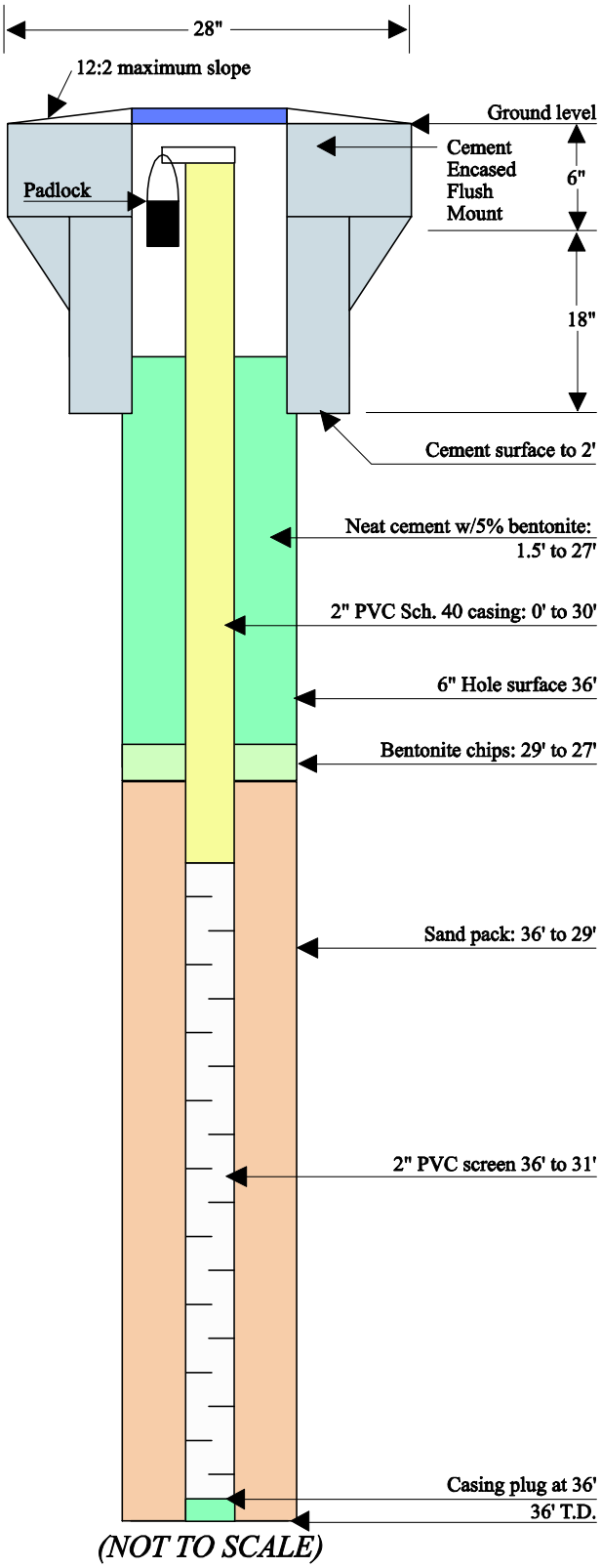
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

424050

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW 04

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 Township Number: T 2 S Range Number: R 5 (E)W
Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89484
Longitude: -96.86929
Elevation: 1328.14
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept. of Agriculture
RR#, St. Address, Box #: Attn: Mr Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | -- NE -- X | E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL 35 ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ....2..... in. to .....30..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....+.5..... in., Weight .....+.93.....lbs./ft. Wall thickness or guage No. ....+.280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....35..... ft. to .....30..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....35..... ft. to .....28..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ...Concrete.....
Grout Intervals: From ...27..... ft. to .....2..... ft., From ...2..... ft. to ....+.5..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	21	Red + Brown Silty CLAY w/gravel			
21	35	Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 01/31/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ..658..... This Water Well Record was completed on (mo/day/year) 02/20/2009 under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW04: Hanover, KS

N 39.89484 W 96.86929
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1328.14'

Date: 2/20/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

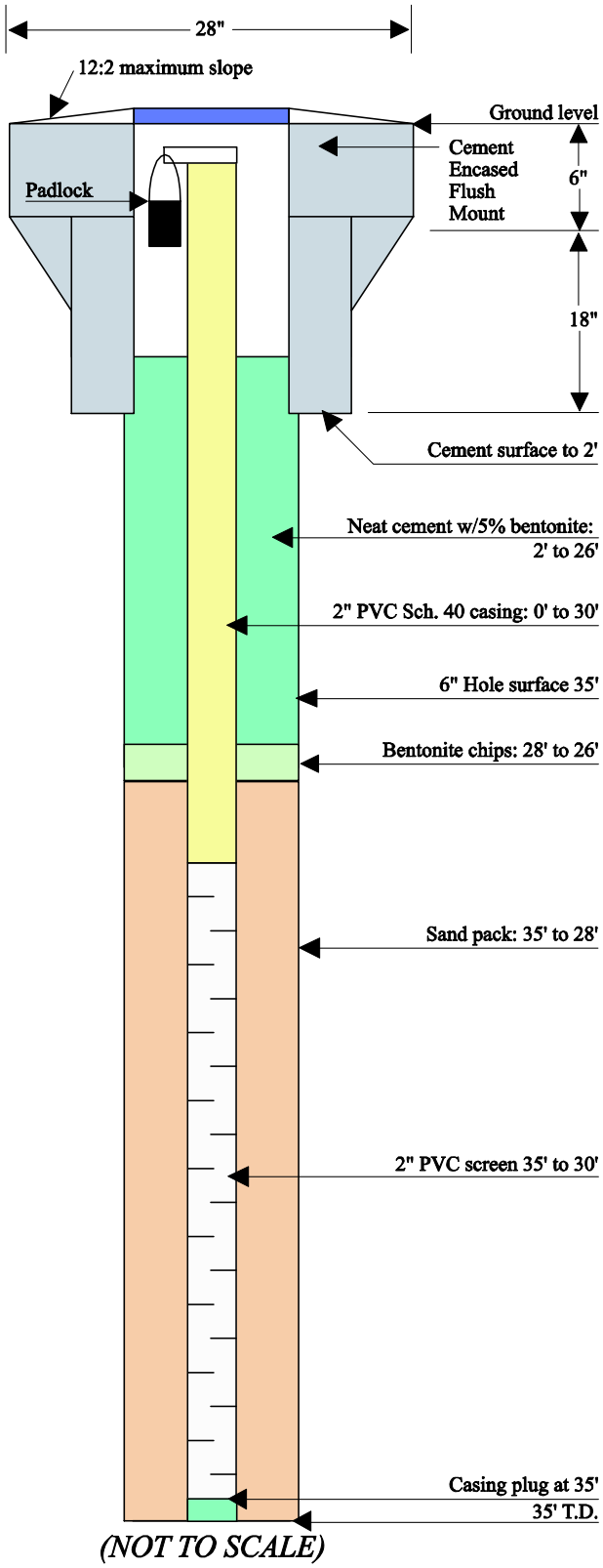
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

424051

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW 05

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 Township Number: T 2 S Range Number: R 5 (E)/W
Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89551
Longitude: -96.87035
Elevation: 1328.77
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept. of Agriculture
RR#, St. Address, Box # : Attn: Mr Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW
Washington, DC 20250-0573

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W -- NW -- X NE -- E
-- SW -- -- SE --
S

4 DEPTH OF COMPLETED WELL .....29..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No .X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ....2..... in. to ....24..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. .....1.280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....29..... ft. to ....24..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....29..... ft. to ....22..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite (4) Other ...Concrete.....
Grout Intervals: From ....21..... ft. to .....2.... ft., From .....2..... ft. to ....Ø..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	9	Red + Brown CLAY			
9	29	Weathered BEDROCK Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 01/31/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ....658.... This Water Well Record was completed on (mo/day/year) ...02/20/2009 under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW05: Hanover, KS

N 39.89551 W 96.87035
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1328.77'

Date: 2/20/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

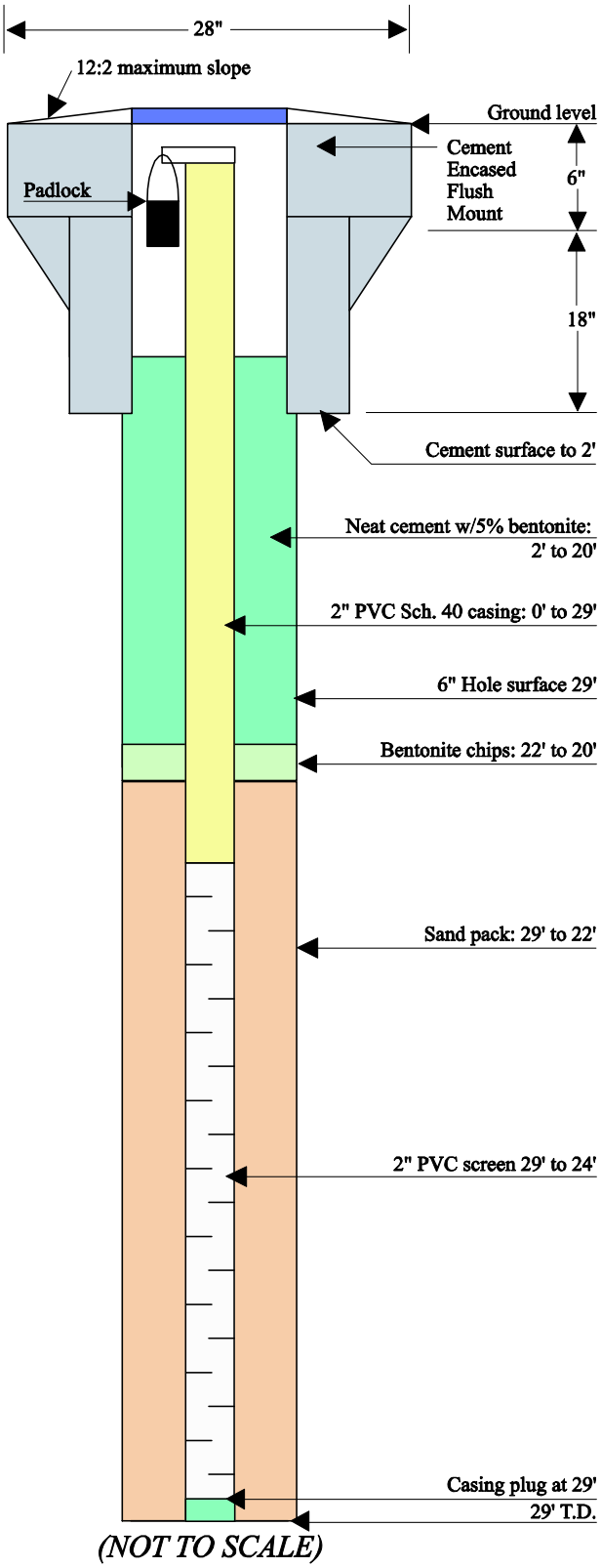
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424052

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW06

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 Township Number: T 2 S Range Number: R 5 E/W
Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89486
Longitude: -96.87141
Elevation: 1317.93
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept. of Agriculture
RR#, St. Address, Box # : Attn: Mr Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | X NE -- | E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL ....29.... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X.....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded....Flush.....
Blank casing diameter ...2..... in. to ....24..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. .....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From....29..... ft. to ....24..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....31..... ft. to ....23..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ..Concrete.....
Grout Intervals: From ....22.... ft. to .....2..... ft., From ...2..... ft. to ....Ø..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	9	Red Silty CLAY			
9	36	Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) ..01/31/2009.. and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ....658.. This Water Well Record was completed on (mo/day/year) ..02/20/2009.. under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW06: Hanover, KS

N 39.89486 W 96.87141
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1317.93'

Date: 2/20/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

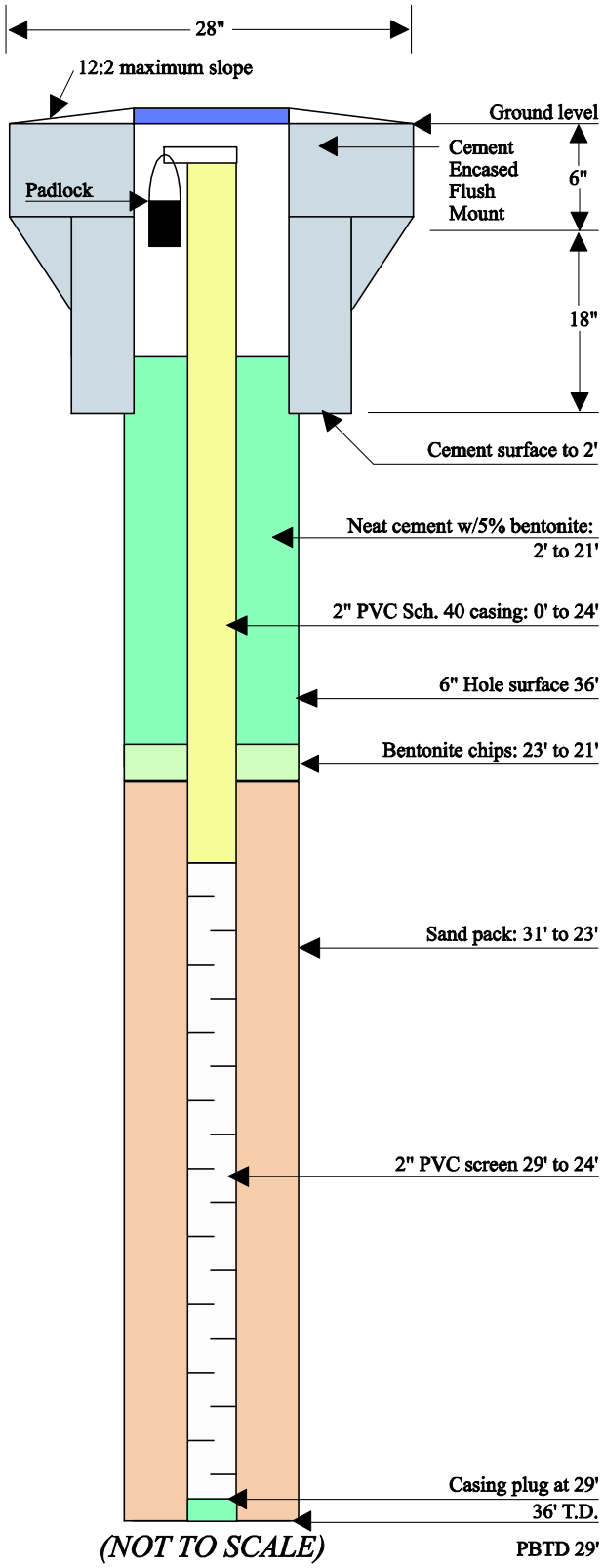
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

424053

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW 07

1 LOCATION OF WATER WELL: County: Washington	Fraction: ¼ ~~SW~~ ¼ NE ¼ (NW)	Section Number: 9	Township Number: T 2 S	Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89449
Longitude: -96.87056
Elevation: 1326.14
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Mr Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | -- NE -- X | E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL ..... 35 ..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X.....; If yes, mo/day/yrs
Sample was submitted..... Water well disinfected? Yes ..... No ...X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ....2..... in. to ....30..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....0..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....35..... ft. to .....30..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....35..... ft. to ...28.5..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ...Concrete.....
Grout Intervals: From ...28..... ft. to .....2..... ft., From ....2..... ft. to ....0..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	23	Red CLAY w/ silt			
23	34	Tan Weathered SHALE			
34	35	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 02/27/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ...1658..... This Water Well Record was completed on (mo/day/year) ...02/30/2009... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW07: Hanover, KS

N 39.89449 W 96.87056
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1326.14'

Date: 2/20/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

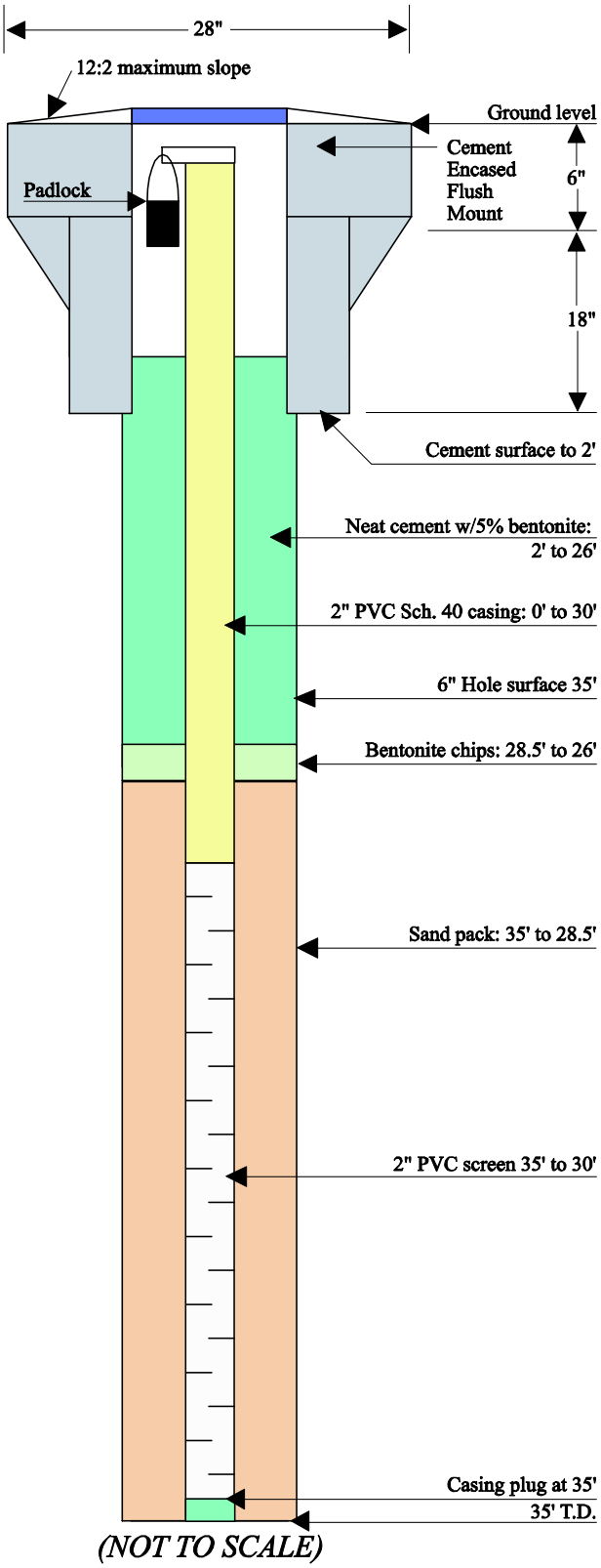
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424054

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW08

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 Township Number: T 2 S Range Number: R 5 (E)W
Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89538
Longitude: -96.86907
Elevation: 1331.41
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Mr Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W -- NW -- X NE -- E
-- SW -- -- SE --
S

4 DEPTH OF COMPLETED WELL 35 ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X....; If yes, mo/day/yrs
Sample was submitted..... Water well disinfected? Yes ..... No ...X...

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded..Flush
Blank casing diameter .....2..... in. to .....30..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....0..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....35..... ft. to .....30..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....35..... ft. to .....28..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ..Concrete.....
Grout Intervals: From ...28..... ft. to .....2..... ft., From ....2..... ft. to .....0..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	24	Red CLAY w/ Silty Sand			
24	34	Tan Weathered SHALE			
34	35	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 09/07/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ..1638..... This Water Well Record was completed on (mo/day/year) ...07/20/2009 under the business name of Bart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW08: Hanover, KS

N 39.89538 W 96.86907
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1331.41'

Date: 2/20/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

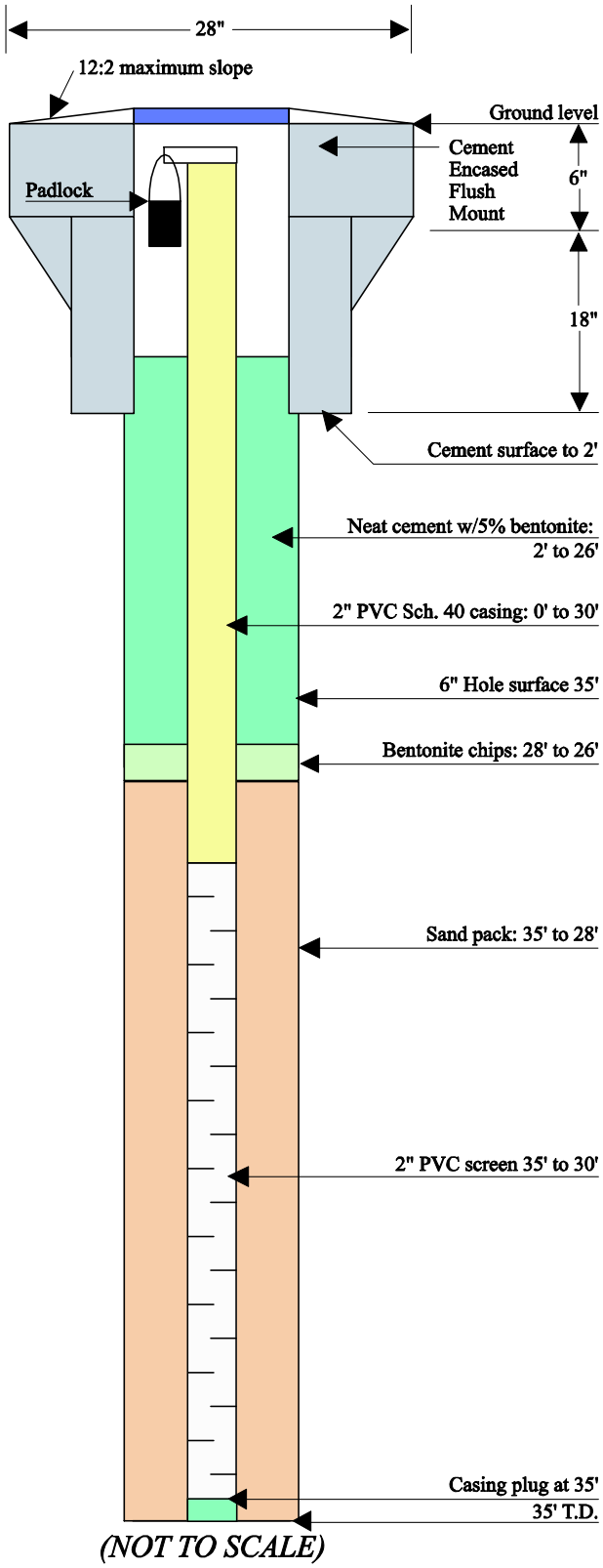
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424055

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW 09

1 LOCATION OF WATER WELL: County: Washington	Fraction NW ¼ ¼ DE ¼	Section Number 9	Township Number T 2 S	Range Number R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89603
Longitude: -96.86998
Elevation: 1323.08
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept. of Agriculture
RR#, St. Address, Box # : Attn: Mr Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W — NW / NE (X) — E
SW / SE
S

4 DEPTH OF COMPLETED WELL .....23..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter .....2..... in. to .....18..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....0..... in., Weight .....lbs./ft. Wall thickness or guage No. ....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From....23..... ft. to .....18..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....23..... ft. to .....16.5..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ...Concrete.....
Grout Intervals: From .....16..... ft. to .....2..... ft., From .....2..... ft. to .....0..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	9	Red CLAY			
9	23	Tan Weathered BEDROCK			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 09/03/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ..658..... This Water Well Record was completed on (mo/day/year) ...09/20/2009.. under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW09: Hanover, KS

N 39.89603 W 96.86998
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1323.08'

Date: 2/20/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

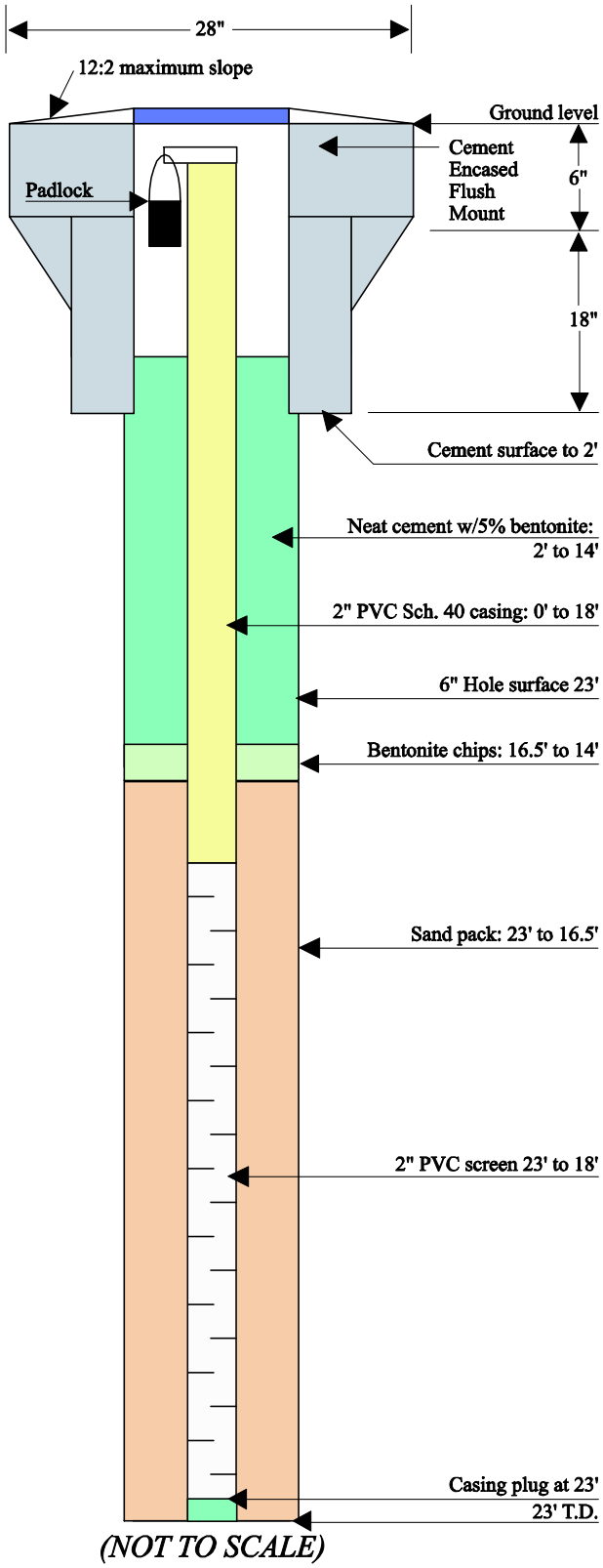
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424056

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW1D

1 LOCATION OF WATER WELL: County: Washington	Fraction: NW ¼ ~~SW~~ ¼ NE ¼	Section Number: 9	Township Number: T 2 S	Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89451
Longitude: -96.86998
Elevation: 1325.34
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept. of Agriculture
RR#, St. Address, Box # : Attn: Mr Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | NW | NE (X) | E
| SW | SE |
S

4 DEPTH OF COMPLETED WELL 31 ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ...Y....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded....Flush.....
Blank casing diameter ...2..... in. to ....26..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....0..... in., Weight .....lbs./ft. Wall thickness or guage No. ...1.280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....31..... ft. to .....26..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....31..... ft. to .....24.5..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ....Concrete.....
Grout Intervals: From ...24..... ft. to ....2..... ft., From ...2..... ft. to .....0..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	15	Red CLAY w/ silt			
15	31	tan Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 02/03/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 658..... This Water Well Record was completed on (mo/day/year) 02/20/2009 under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW10: Hanover, KS

N 39.89451 W 96.86998
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1325.34'

Date: 2/20/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

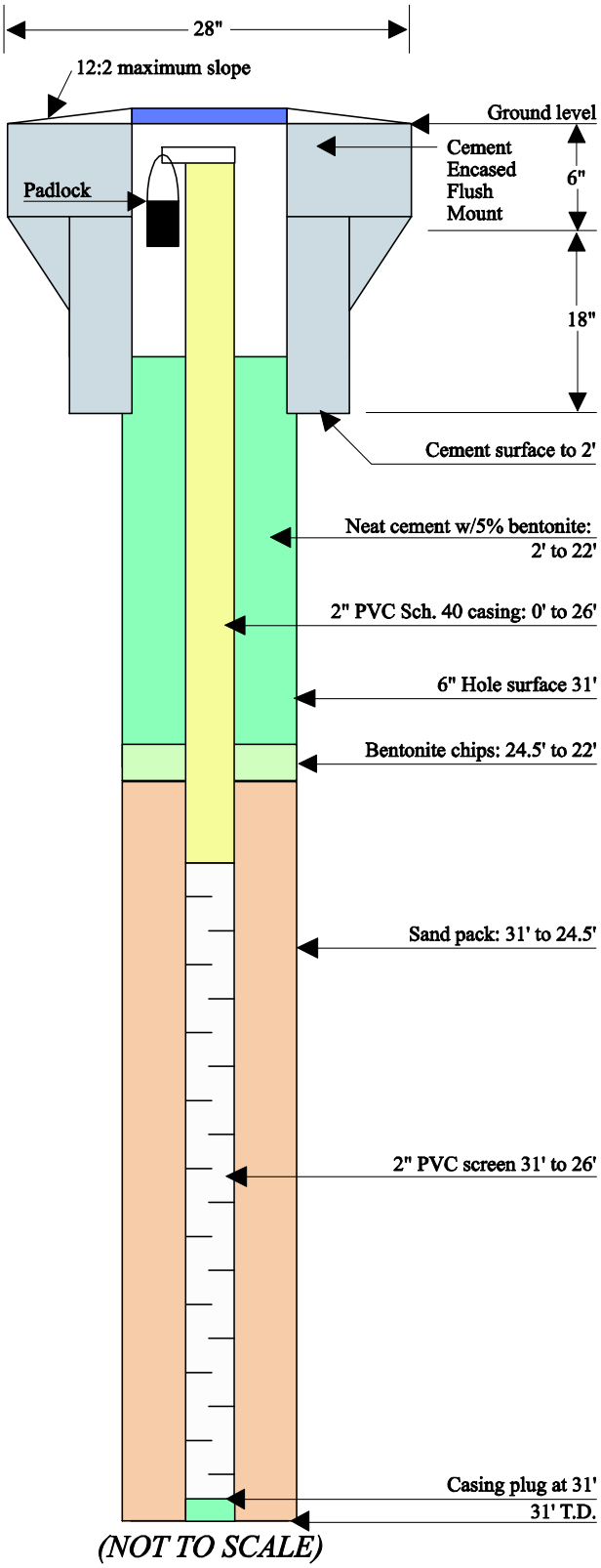
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424057

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW 11

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 Township Number: T 2 S Range Number: R 5 E/W
Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.8961
Longitude: -96.87042
Elevation: 1317.4
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Mr Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW
Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | NW | NE (X) | E
SW | SE
S

4 DEPTH OF COMPLETED WELL ..... 20 ..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ...X...; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ...X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded....Flush.....
Blank casing diameter .....2..... in. to .....15..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....0..... in., Weight .....lbs./ft. Wall thickness or guage No. .....1.280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From....20..... ft. to .....15..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From...20..... ft. to .....13..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ...Concrete.....
Grout Intervals: From .....13..... ft. to .....2..... ft., From ...2..... ft. to .....0..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	5	Red CLAY			
5	20	Tan Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 02/03/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ....658..... This Water Well Record was completed on (mo/day/year) ...02/20/2009. under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW11: Hanover, KS

N 39.8961 W 96.87042
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1317.40'

Date: 2/20/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

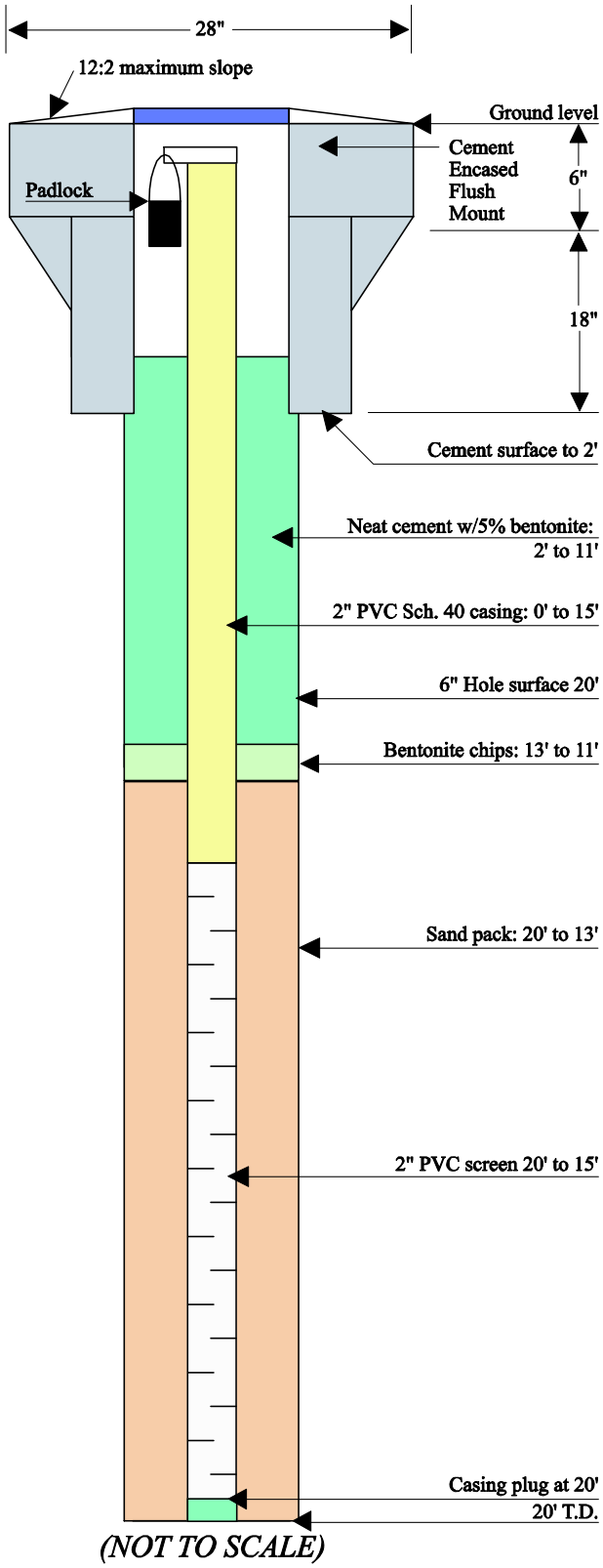
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424058

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW12

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 Township Number: T 2 S Range Number: R 5 (E)W
Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89538
Longitude: -96.87111
Elevation: 1321.91
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Mr Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:
N / W / E / S — NW, NE (X), SW, SE

4 DEPTH OF COMPLETED WELL 35 ft.
Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....
Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X.. If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X..

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded.....Flush
Blank casing diameter .....2..... in. to .....25..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steel 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From....35..... ft. to .....25..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....35..... ft. to .....23..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other Concrete
Grout Intervals: From ...23..... ft. to ...2..... ft., From ....2..... ft. to ....0..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	7	Brown CLAY			
7	32	Tan Weathered SHALE			
32	35	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 02/04/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 658 This Water Well Record was completed on (mo/day/year) 02/20/2009 under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW12: Hanover, KS

N 39.89538 W 96.87111
NW 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1321.91'

Date: 2/20/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

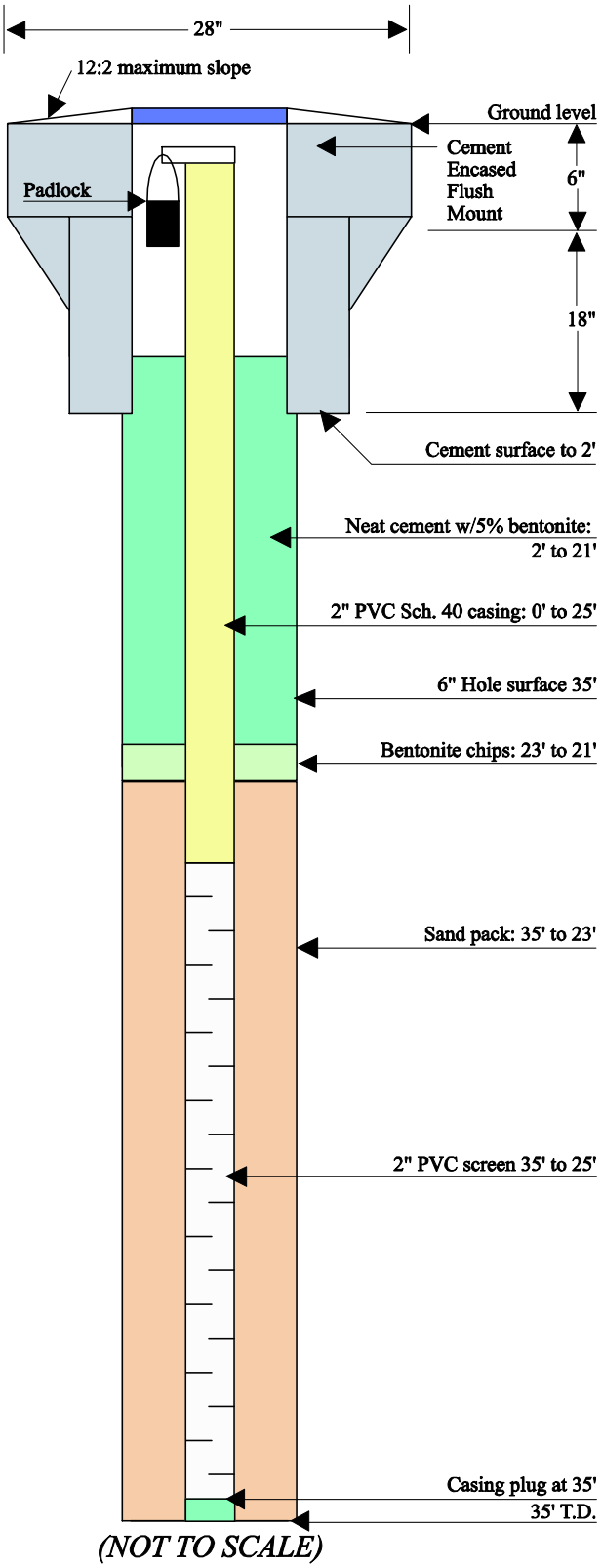
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424059

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW 13

1 LOCATION OF WATER WELL: County: Washington | Fraction: NW ¼ ¼ NE ¼ | Section Number: 9 | Township Number: T 2 S | Range Number: R 5 E/W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89621
Longitude: -96.87071
Elevation: 1311.7
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Mr Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W: -- NW -- | -- NE -- (X) E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL .....20..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ...X...; If yes, mo/day/yrs
Sample was submitted..... Water well disinfected? Yes ..... No ...X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ....2..... in. to ..15..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....0..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....20..... ft. to .....15..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....20..... ft. to .....13..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ....Concrete.....
Grout Intervals: From .....13..... ft. to ...2..... ft., From ....2..... ft. to ....0..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	5	Brown CLAY			
5	20	Tan Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 02/04/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 658 This Water Well Record was completed on (mo/day/year) 02/20/2009 under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW13: Hanover, KS

N 39.89621 W 96.87071
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1311.70'

Date: 2/20/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

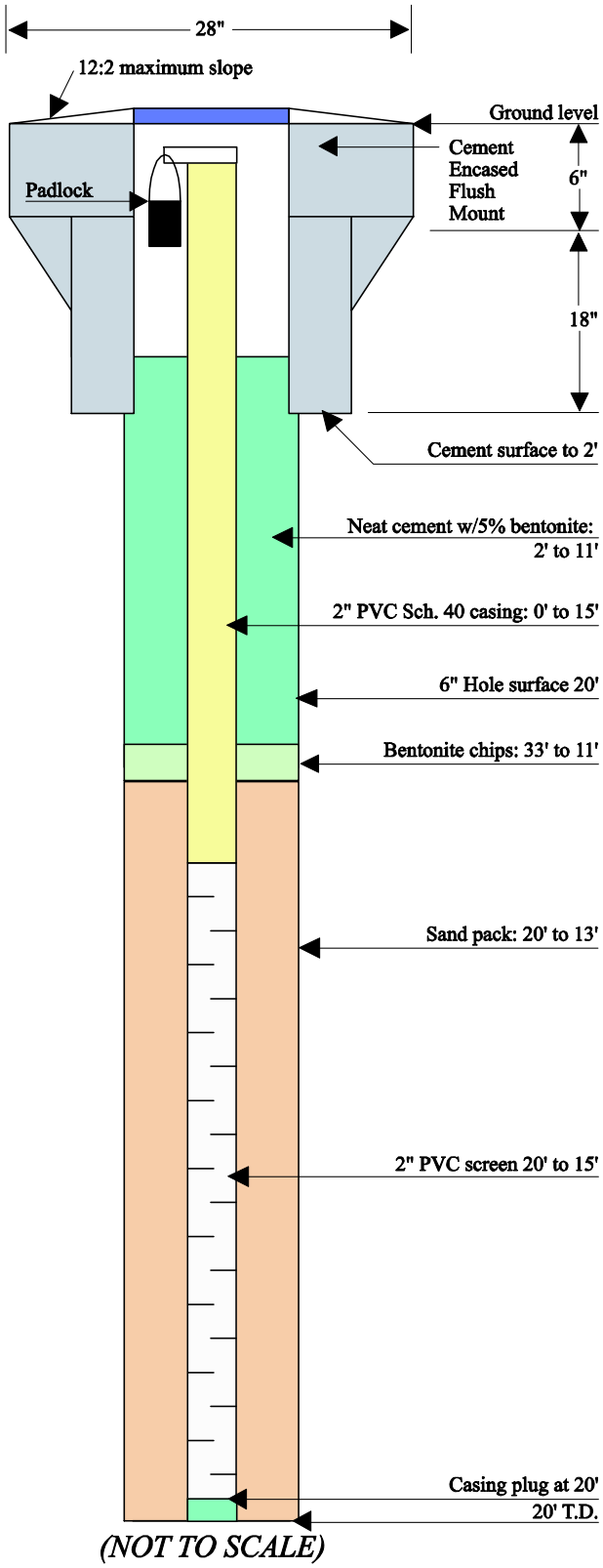
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424060

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-14

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 Township Number: T 2 S Range Number: R 5 (E)W
Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89627
Longitude: -96.87132
Elevation: 1308.98
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept. of Agriculture
RR#, St. Address, Box #: Attn: Mr. Steve Gilmore
City, State, ZIP Code: 1400 Independence Avenue SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W -- NW -- X NE -- E
-- SW -- -- SE --
S

4 DEPTH OF COMPLETED WELL .....19..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter .....2..... in. to .....14..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. ....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....19..... ft. to .....14..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....19..... ft. to .....12.5..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ...concrete.....
Grout Intervals: From ...12.5..... ft. to ....2..... ft., From ....2..... ft. to ...Ø..... ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
Ø	9	Brn + Blk CLAY w/ gravel			
9	19	Weathered BEDROCK			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) ...02/25/2009... and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ...658..... This Water Well Record was completed on (mo/day/year) ...03/17/2009... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW14: Hanover, KS

N 39.89627 W 96.87132
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1308.98'

Date: 3/17/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

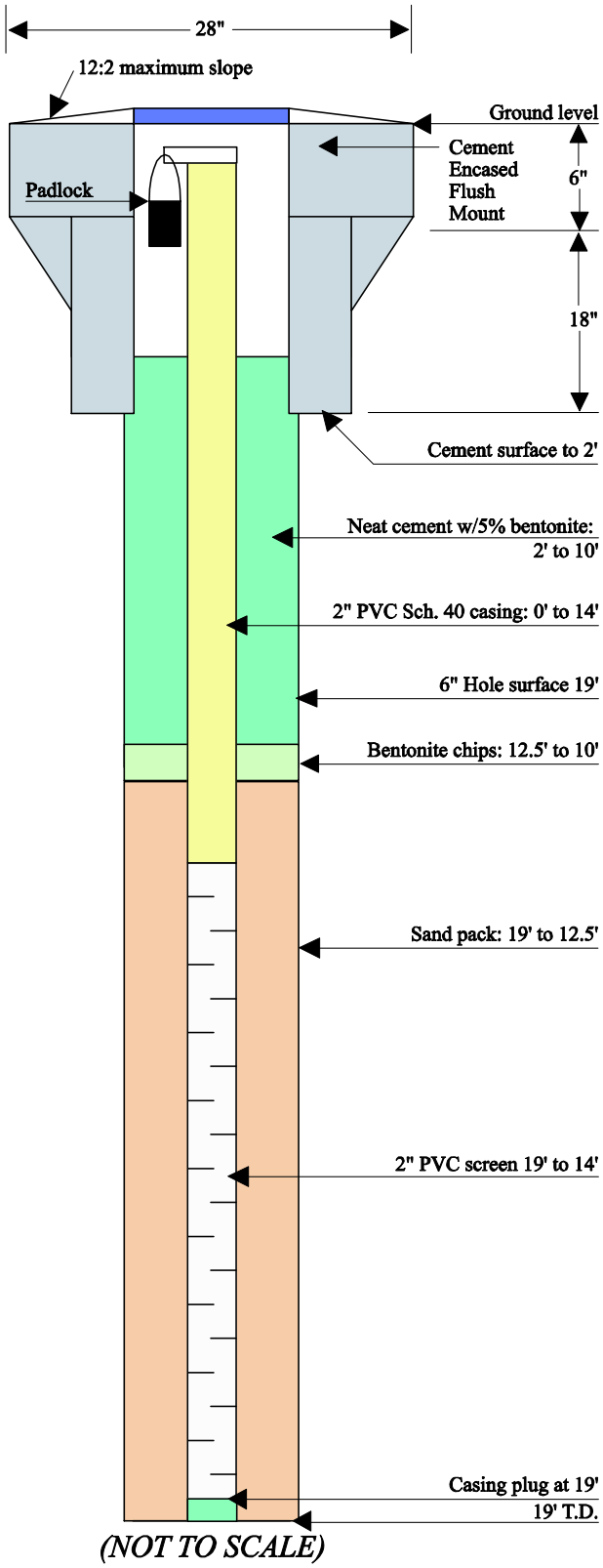
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424061

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-15

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼ ~~NE~~ ¼
Section Number: 9 Township Number: T 2 S Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89609
Longitude: -96.8723
Elevation: 1306.59
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Mr Steve Gilmore
City, State, ZIP Code: 1400 Independence Avenue SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | NW X | ~~NE~~ NE | E
SW | SE
S

4 DEPTH OF COMPLETED WELL 19 ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X.....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded....Flush.....
Blank casing diameter ....2..... in. to .....14..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. ....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....19..... ft. to .....14..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....21..... ft. to .....12.5..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ...concrete.....
Grout Intervals: From ...12.5..... ft. to .....2..... ft., From .....2..... ft. to .....Ø..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
Ø	6	Brn & Blk CLAY w/ gravel			
6	17	Tan Weathered BEDROCK			
17	18	Gray Weathered SHALE			
18	29	Tan Weathered BEDROCK			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 02/25/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ..1058..... This Water Well Record was completed on (mo/day/year) 03/17/2009 under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW15: Hanover, KS

N 39.89609 W 96.8723
NW 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1306.59'

Date: 3/17/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

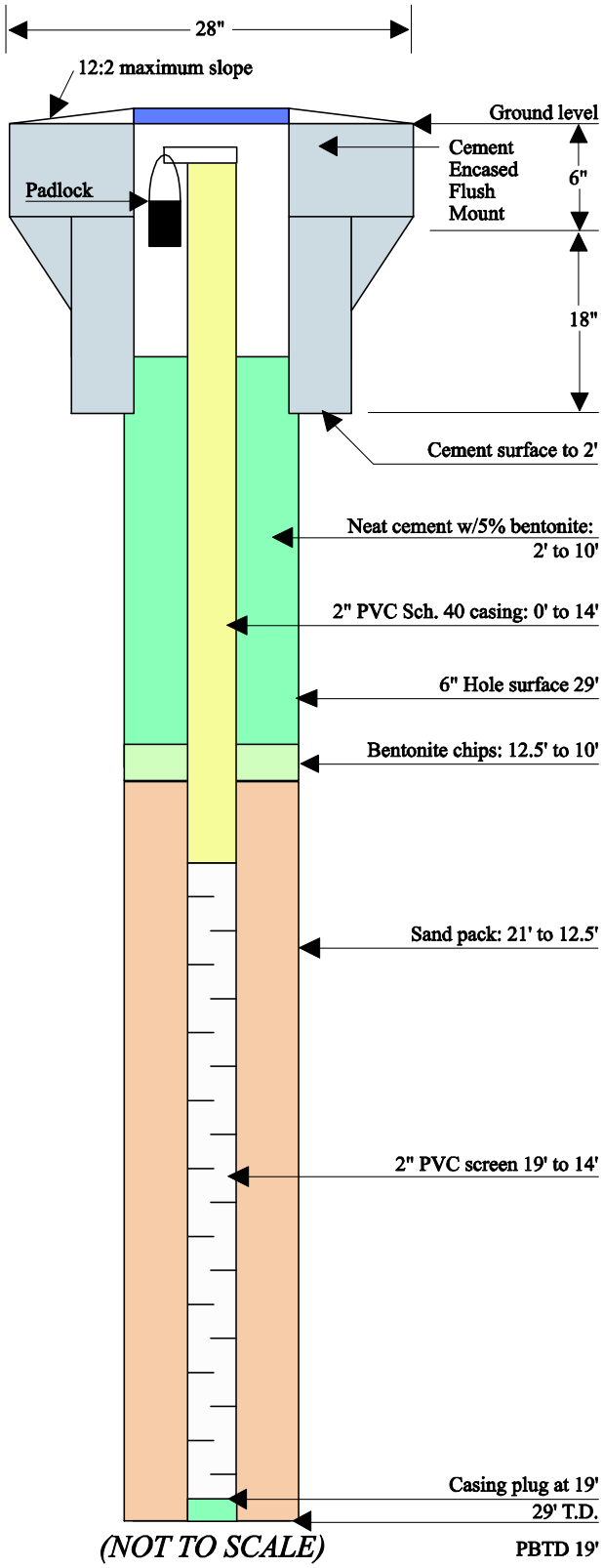
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424062

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-16

1 LOCATION OF WATER WELL: County: Washington	Fraction: NW ¼ ~~SW~~ ¼ NE ¼	Section Number: 9	Township Number: T 2 S	Range Number: R 5 (E)/W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89634
Longitude: -96.87193
Elevation: 1307.41
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Steve Gilmore
City, State, ZIP Code: 1400 Independence Avenue SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
- - NW - - X | - - NE - - X
W | E
- - SW - - | - - SE - -
S

4 DEPTH OF COMPLETED WELL .....25..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X.....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter .....2..... in. to .....15..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. .....28Ø.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....25..... ft. to .....15..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....25..... ft. to .....13..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ...concrete.....
Grout Intervals: From .....13..... ft. to .....2..... ft., From ...2..... ft. to .....Ø..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
Ø	9	Brn + Blk CLAY w/gravel			
9	21	Tan Weathered BEDROCK			
21	25	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 02/25/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ..458..... This Water Well Record was completed on (mo/day/year) ...02/17/2009.. under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW16: Hanover, KS

N 39.89634 W 96.87193
NW 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1307.41'

Date: 3/17/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

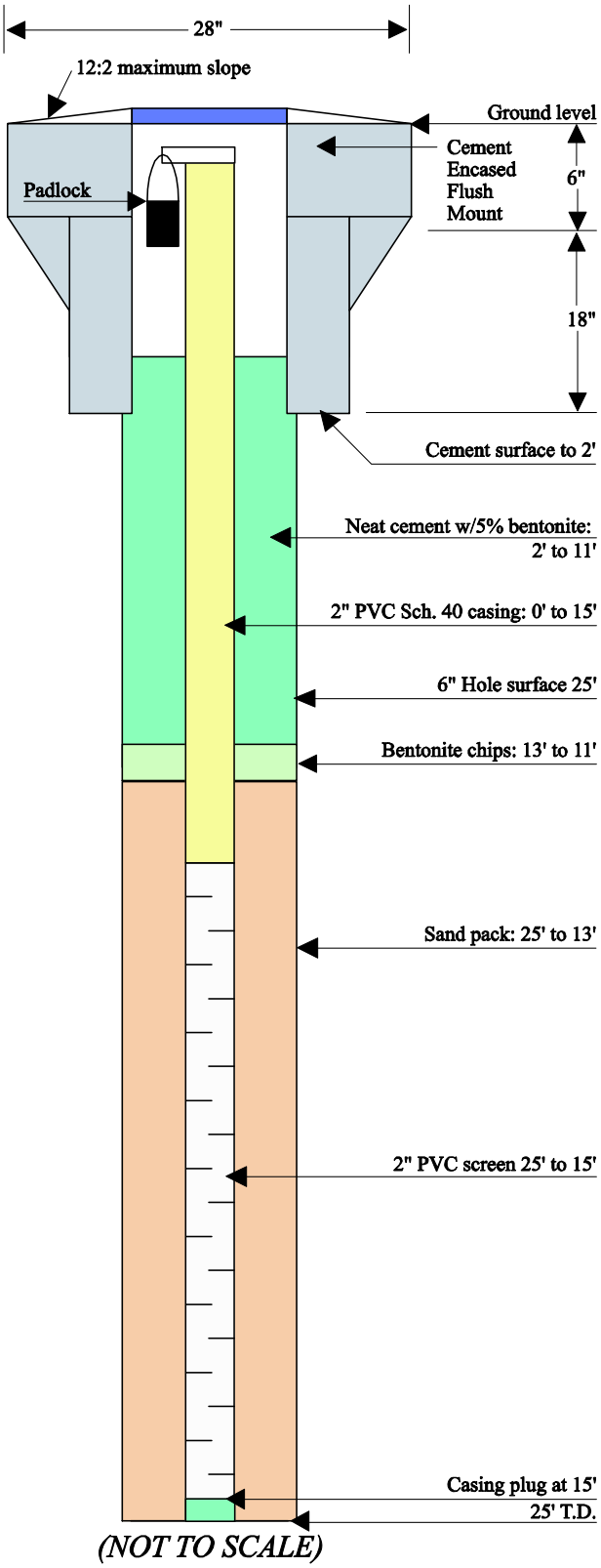
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424063

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-17

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 Township Number: T 2 S Range Number: R 5 (E)W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89495
Longitude: -96.87205
Elevation: 1305.41
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W -- NW -- X -- NE -- E
-- SW -- -- SE --
S

4 DEPTH OF COMPLETED WELL .....23..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter .....2..... in. to .....13..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. ...,280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....23..... ft. to .....13..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....23..... ft. to .....11..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ...Concrete.....
Grout Intervals: From .....11..... ft. to .....2..... ft., From ...2..... ft. to ....Ø..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
Ø	9	Brn + Blk CLAY w/ gravel			
9	18	Tan Weathered BEDROCK			
18	23	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 02/25/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ...654..... This Water Well Record was completed on (mo/day/year) ...03/17/2009... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW17: Hanover, KS

N 39.89495 W 96.87205
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1305.41'

Date: 3/17/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

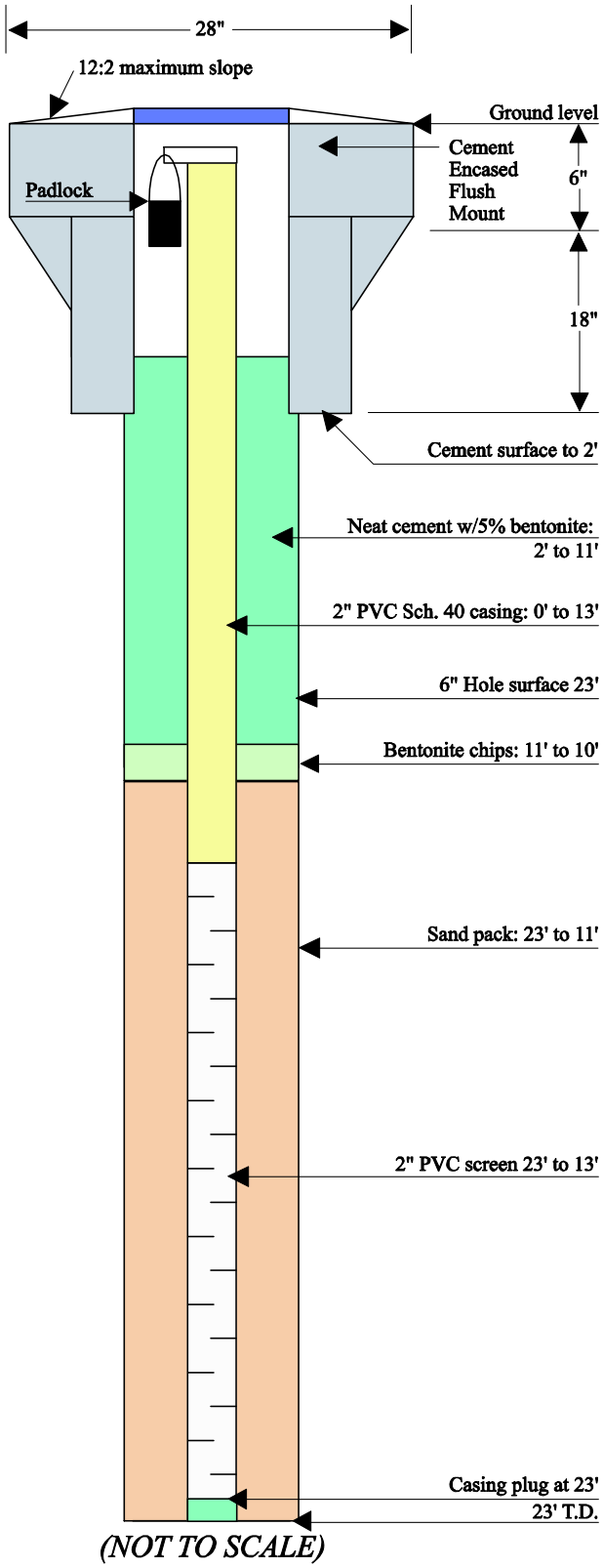
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424064

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-18

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89397
Longitude: -96.86949
Elevation: 1315.11
Datum: -
Data Collection Method:

2 WATER WELL OWNER: United States Dept. of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave. SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | X NE -- | E
-- SW -- | -- SE -- |
S

4 DEPTH OF COMPLETED WELL .....25..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded....Flush.....
Blank casing diameter ....2..... in. to .....15..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface.....~~0~~..... in., Weight .....lbs./ft. Wall thickness or guage No. .....1.280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....25..... ft. to .....15..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....26..... ft. to .....13..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ....Concrete.....
Grout Intervals: From ...13..... ft. to .....2..... ft., From ...2..... ft. to .....~~0~~..... ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
~~0~~	12	Red Brn CLAY w/ gravel			
12	29	Weathered BEDROCK			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) .02/26/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ..658..... This Water Well Record was completed on (mo/day/year) .03/17/2009..... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW18: Hanover, KS

N 39.89397 W 96.86949
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1315.11'

Date: 3/17/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

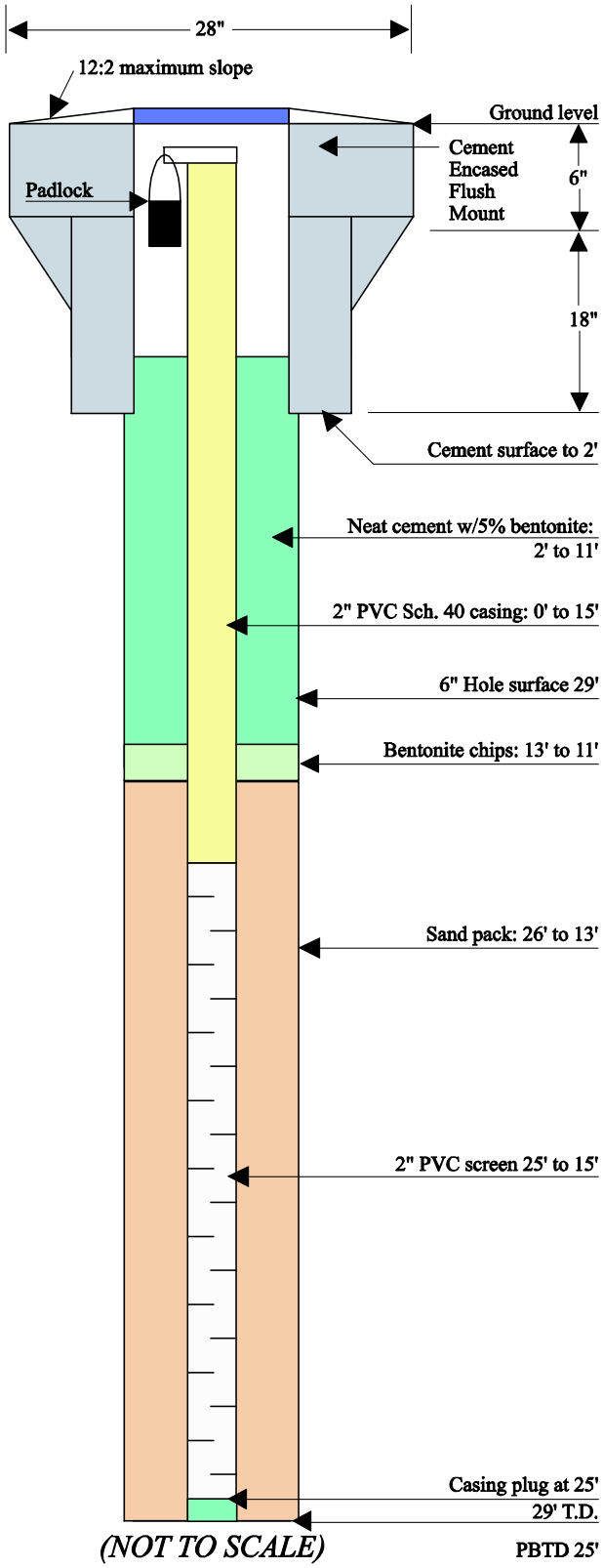
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424065

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-19

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89397
Longitude: -96.87009
Elevation: 1318.16
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W -- NW -- X NE -- E
-- SW -- -- SE --
S

4 DEPTH OF COMPLETED WELL 26 ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No X ; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No X

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded Flush
Blank casing diameter 2 in. to 16 ft., Diameter..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 0 in., Weight .....lbs./ft. Wall thickness or guage No. .280
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From 26 ft. to 16 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 27 ft. to 14 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other Concrete
Grout Intervals: From 14 ft. to 2 ft., From 2 ft. to 0 ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	11	Red CLAY w/gravel			
11	30	Weathered BEDROCK			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 02/26/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 658 This Water Well Record was completed on (mo/day/year) 03/17/2009 under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW19: Hanover, KS

N 39.89397 W 96.87009
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1318.16'

Date: 3/17/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

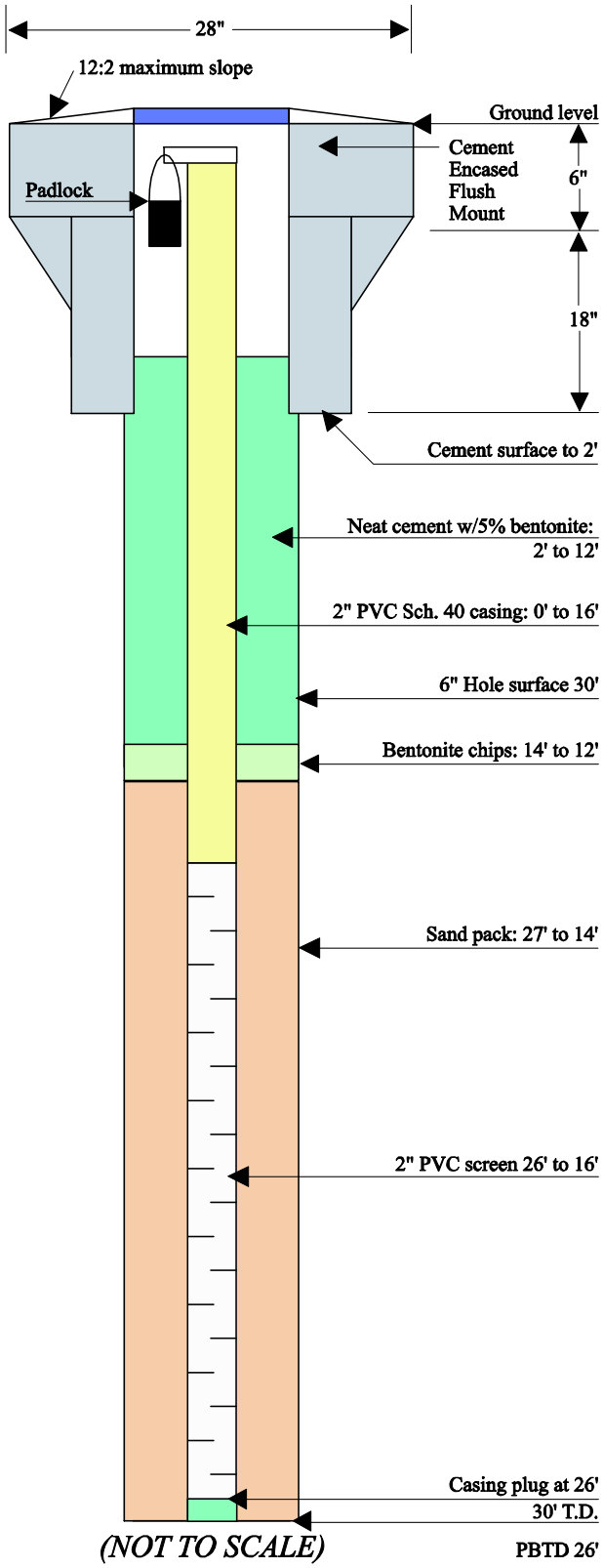
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424066

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-20

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89397
Longitude: −96.87066
Elevation: 1319.96
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | - - NW - - | X - - NE - - | E
- - SW - - | - - SE - - |
S

4 DEPTH OF COMPLETED WELL .....28..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X.....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter .....2..... in. to ....18..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....28..... ft. to .....18..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....30..... ft. to .....16..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ...concrete.....
Grout Intervals: From .....16..... ft. to ....2..... ft., From ....2..... ft. to ....Ø..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
Ø	9	Red CLAY w/ gravel			
9	26	Tan Weathered BEDROCK			
26	30	Grey SHALE Weathered Bedrock			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 02/26/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ....658..... This Water Well Record was completed on (mo/day/year) ....03/17/2009... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html

KSA 82a-1212

Monitor Well MW20: Hanover, KS

N 39.89397 W 96.87066
NE 1/4 of NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1319.96'

Date: 3/17/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

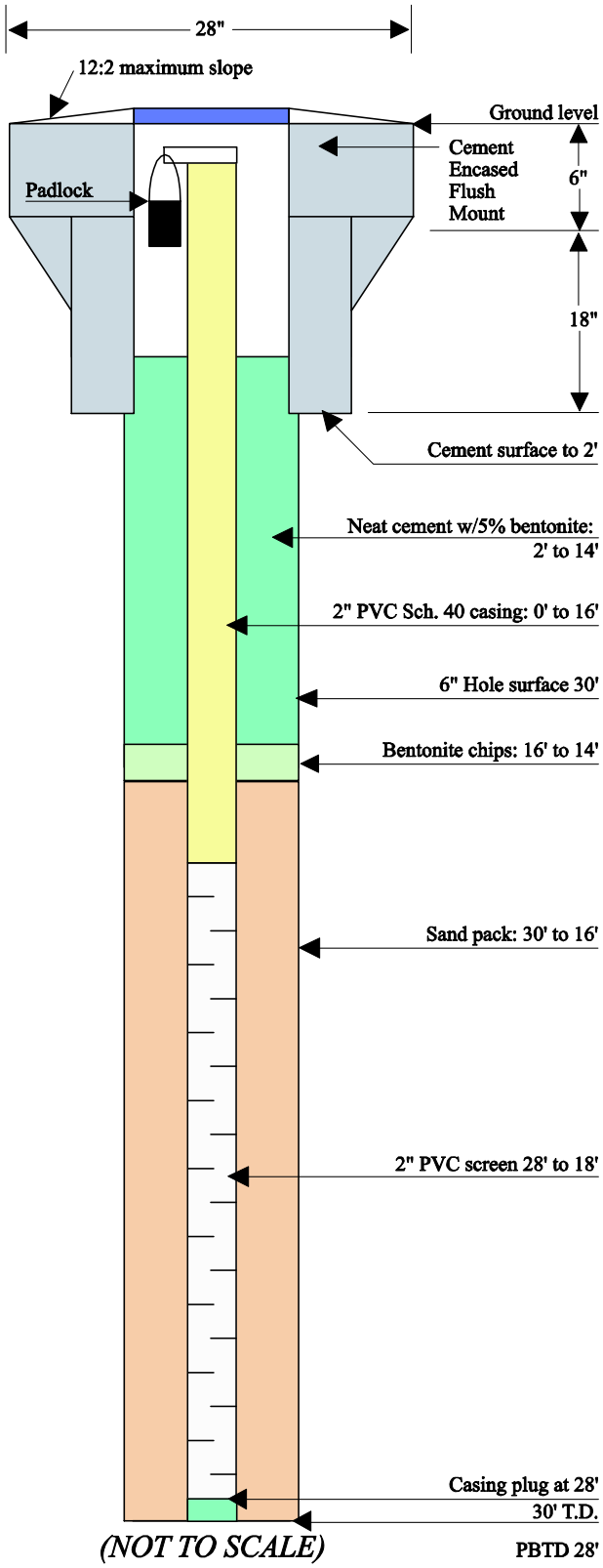
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

424067

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-21

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E)W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89455
Longitude: -96.87169
Elevation: 1316.46
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | NW | NE | E
X
SW | SE
S

4 DEPTH OF COMPLETED WELL 25 ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X.....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ....2..... in. to .....15..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....0..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....25..... ft. to .....15..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....26..... ft. to .....12..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ....Concrete.....
Grout Intervals: From ..... ft. to ..... ft., From ..... ft. to ..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	12	Red & Blk CLAY w/ gravel			
12	26	Tan Weathered BEDROCK			
26	29	Grey SHALE Weathered Bedrock			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) ...02/26/2009... and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ..658..... This Water Well Record was completed on (mo/day/year) ...03/17/2009.... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW21: Hanover, KS

N 39.89455 W 96.87169
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1316.46'

Date: 3/17/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

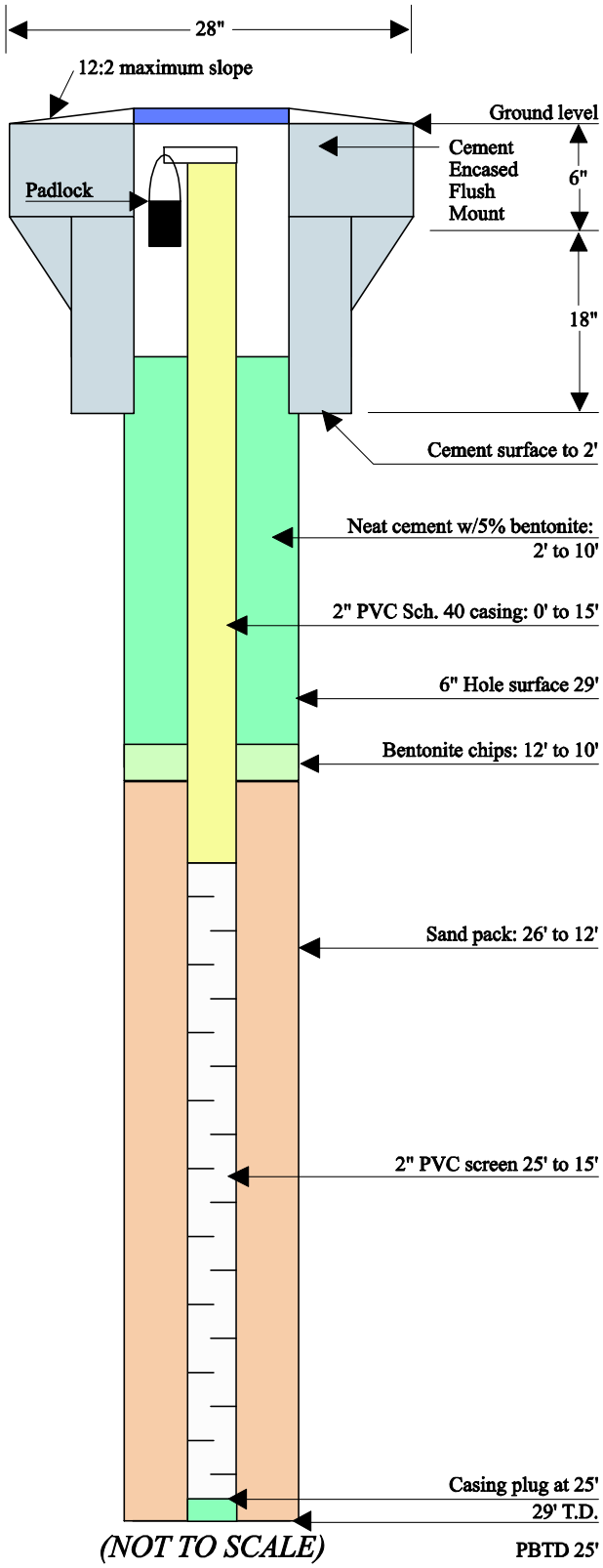
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

424068

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-22

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ¼ NE ¼
Section Number: 9 Township Number: T 2 S Range Number: R 5 (E)W
Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.8945
Longitude: -96.84852
Elevation: 1319.92
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept. of Agriculture
RR#, St. Address, Box # : Attn: Mr Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | X -- NE -- | E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL ..... 25 ..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ...X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded... Flush .....
Blank casing diameter .....2..... in. to .....15..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....2..... in., Weight .....lbs./ft. Wall thickness or guage No. ....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....28..... ft. to .....18..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....29..... ft. to .....16..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other .Concrete.....
Grout Intervals: From ....13..... ft. to .....2..... ft., From ....2..... ft. to .....0..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	11	Brn CLAY w/gravel			
11	29	Tan Weathered BEDROCK			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) ..02/27/2009.. and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ...658..... This Water Well Record was completed on (mo/day/year) ....03/16/2009.... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW22: Hanover, KS

N 39.89945 W 96.86852
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1319.92'

Date: 3/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

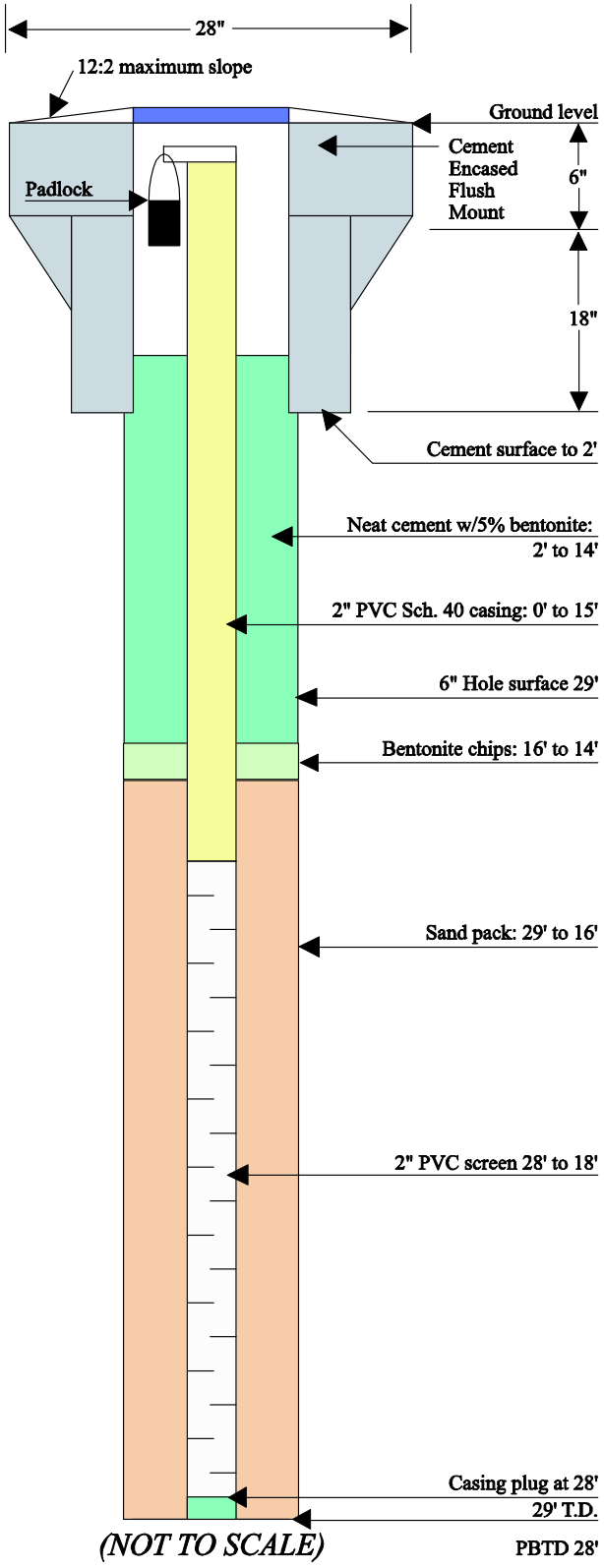
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424069

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-23

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 Township Number: T 2 S Range Number: R 5 (D)W
Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89616
Longitude: -96.86858
Elevation: 1324.84
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Mr Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | X NE -- | E
-- SW -- | -- SE -- |
S

4 DEPTH OF COMPLETED WELL 29 ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No X; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No X

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded Flush
Blank casing diameter 2 in. to 19 ft., Diameter..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 0 in., Weight .....lbs./ft. Wall thickness or guage No. .280
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From 29 ft. to 19 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 30 ft. to 17 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other concrete
Grout Intervals: From 17 ft. to 2 ft., From 2 ft. to 0 ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	17	Brn CLAY w/ gravel			
17	20	Tan Weathered BEDROCK			
20	29	Bedrock LIMESTONE			
29	32	Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 09/27/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 658 This Water Well Record was completed on (mo/day/year) 03/16/2009 under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW23: Hanover, KS

N 39.89616 W 96.86858
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1324.84'

Date: 3/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

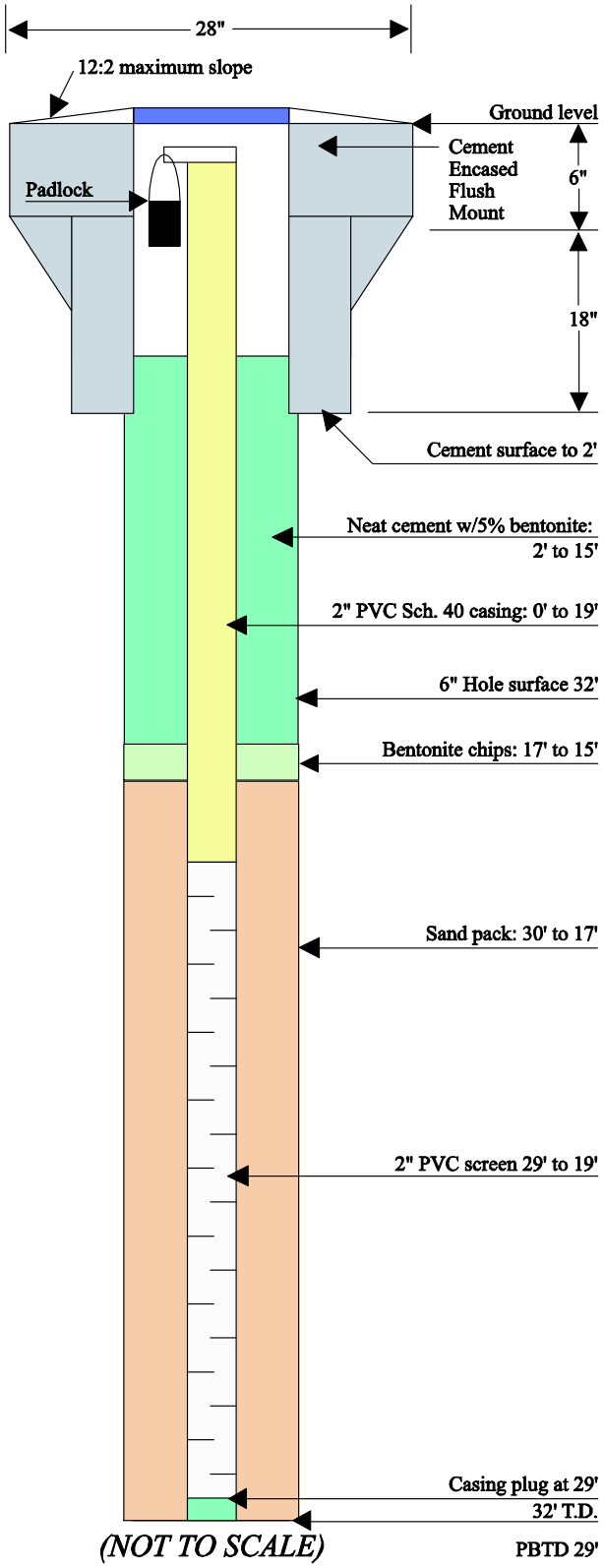
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



424070

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-24

1 LOCATION OF WATER WELL: County: Washington
Fraction: ¼ ~~SW~~ NW ¼ NE ¼
Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E)W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89647
Longitude: -96.87178
Elevation: 1305.65
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Mr Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
NW | X | NE
W | E
SW | SE
S

4 DEPTH OF COMPLETED WELL 18 ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ...X...

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ....2..... in. to .....13..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface.....8..... in., Weight .....lbs./ft. Wall thickness or guage No. ...280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....18..... ft. to .....13..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....19..... ft. to .....11..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ...concrete.....
Grout Intervals: From ..... ft. to ..... ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	7	Brn CLAY w/ gravel			
7	19	Tan Weathered LIMESTONE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 02/27/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ...658..... This Water Well Record was completed on (mo/day/year) ...03/16/2009..... under the business name of Roart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW24: Hanover, KS

N 39.89647 W 96.87178
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1305.65'

Date: 3/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

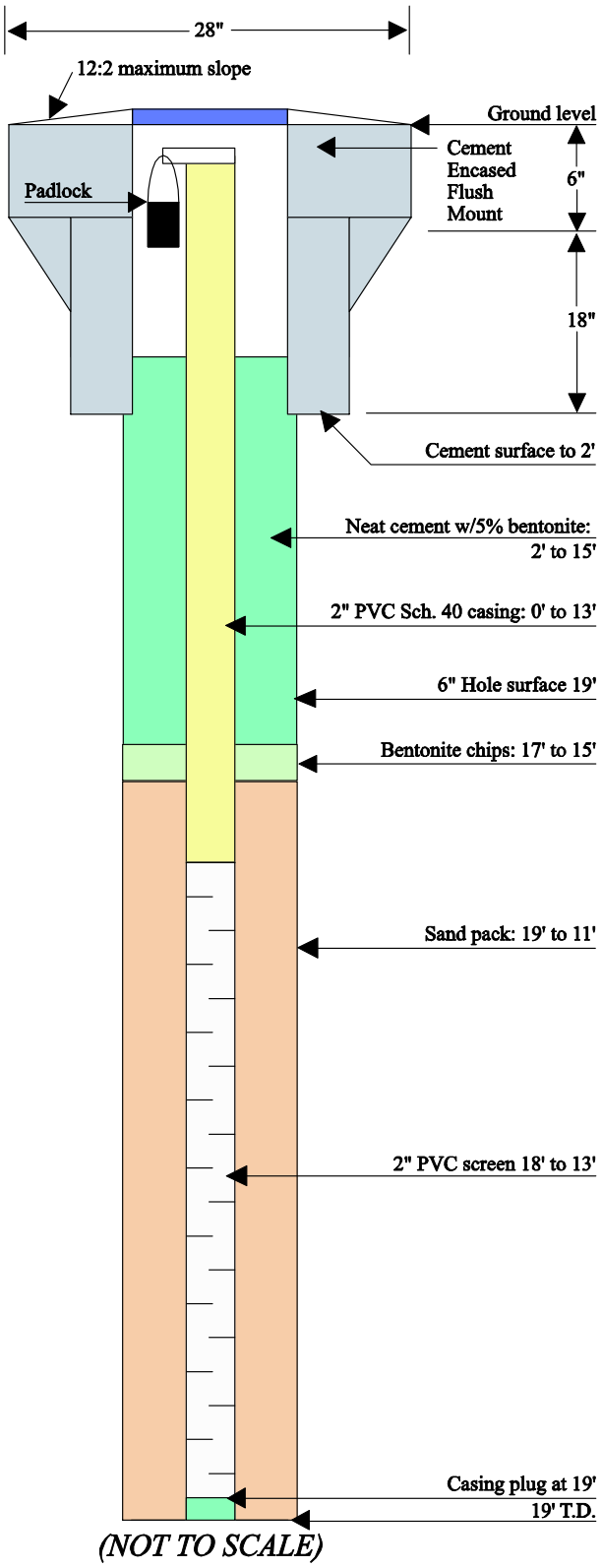
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

424071

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-25

1 LOCATION OF WATER WELL: County: Washington	Fraction NW ¼ ¼ NE ¼	Section Number 9	Township Number T 2 S	Range Number R 5 (E)W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89648
Longitude: -96.87253
Elevation: 1303.94
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave. SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W -- NW -- X -- NE -- E
-- SW -- -- SE --
S

4 DEPTH OF COMPLETED WELL .....25..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ...2..... in. to ....15..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. ..280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....25..... ft. to .....15..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....25..... ft. to .....13..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ...Concrete.....
Grout Intervals: From .....13..... ft. to .....2..... ft., From ...2..... ft. to ....Ø..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
Ø	4	Brn CLAY w/ gravel			
4	25	Tan Weathered BEDROCK			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) ..03/01/2009.. and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ...658..... This Water Well Record was completed on (mo/day/year) ....03/16/2009.... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW25: Hanover, KS

N 39.89648 W 96.87253
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1303.94'

Date: 3/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

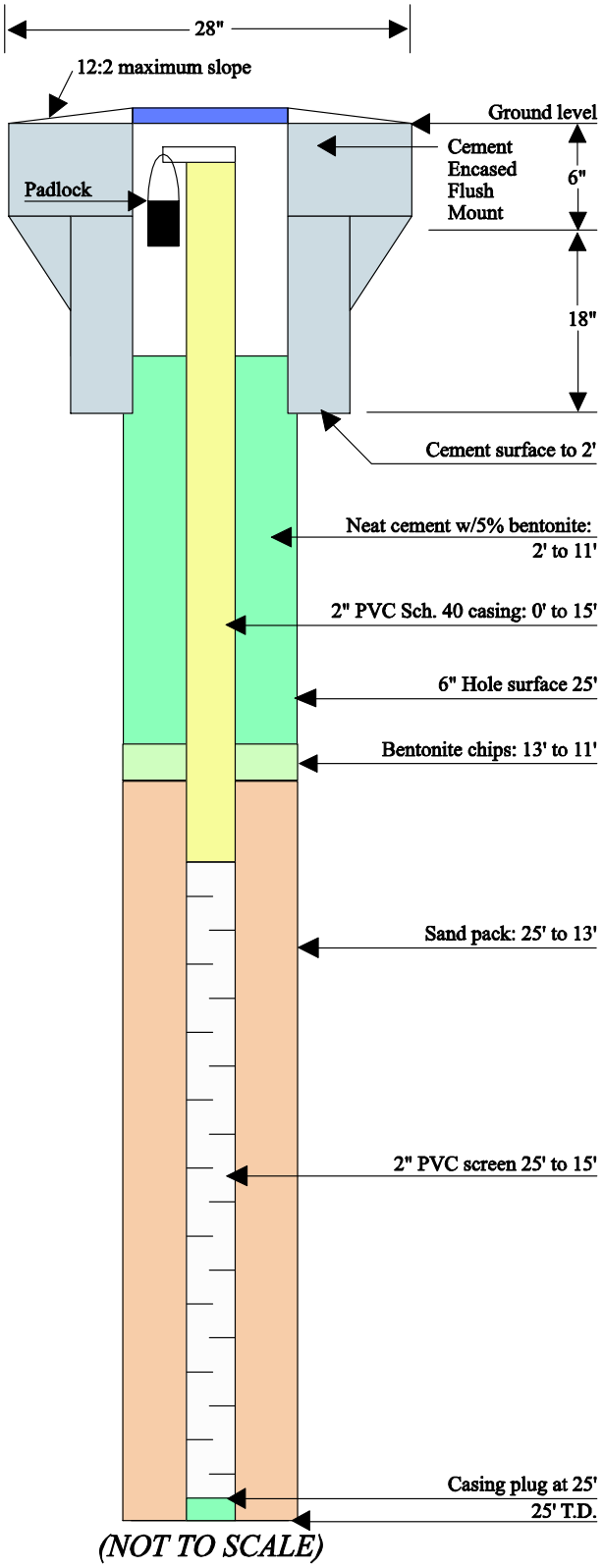
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424084

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-26

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼ | Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89671
Longitude: -96.87235
Elevation: 1303.79
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW X | -- NE -- | E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL 25 ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No X ; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No X

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded Flush
Blank casing diameter 2 in. to 10 ft., Diameter..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 0 in., Weight .....lbs./ft. Wall thickness or guage No. .280
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From 25 ft. to 10 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 27 ft. to 8 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other Concrete
Grout Intervals: From 8 ft. to 2 ft., From 2 ft. to 0 ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	4	Brn CLAY w/ gravel			
4	27	Tan Weathered BEDROCK			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/01/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 658 This Water Well Record was completed on (mo/day/year) 03/16/2009 under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW26: Hanover, KS

N 39.89671 W 96.87235
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1303.79'

Date: 3/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

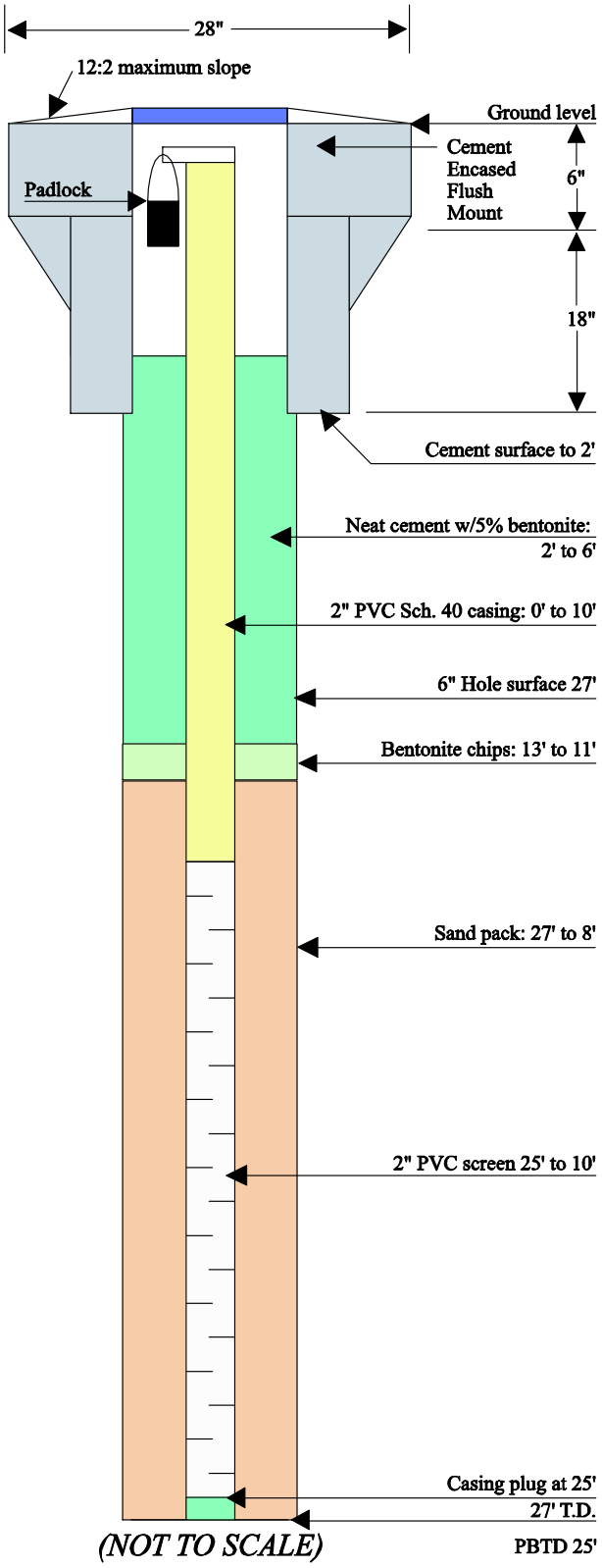
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424085

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-27

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.895
Longitude: -96.84858
Elevation: 1327.11
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | X -- NE -- | E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL .....30..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X..

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded..Flush.....
Blank casing diameter ....2..... in. to ....20..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....30..... ft. to .....20..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....30..... ft. to .....18..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ....concrete.....
Grout Intervals: From ....18..... ft. to .....2..... ft., From .....2..... ft. to ....Ø..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
Ø	17	Brn Silty + Sandy CLAY w/gravel			
17	30	Tan Weathered BEDROCK			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) ..03/01/2009.. and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ..658..... This Water Well Record was completed on (mo/day/year) ....03/16/2009.. under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW27: Hanover, KS

N 39.895 W 96.86858
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1327.11'

Date: 3/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

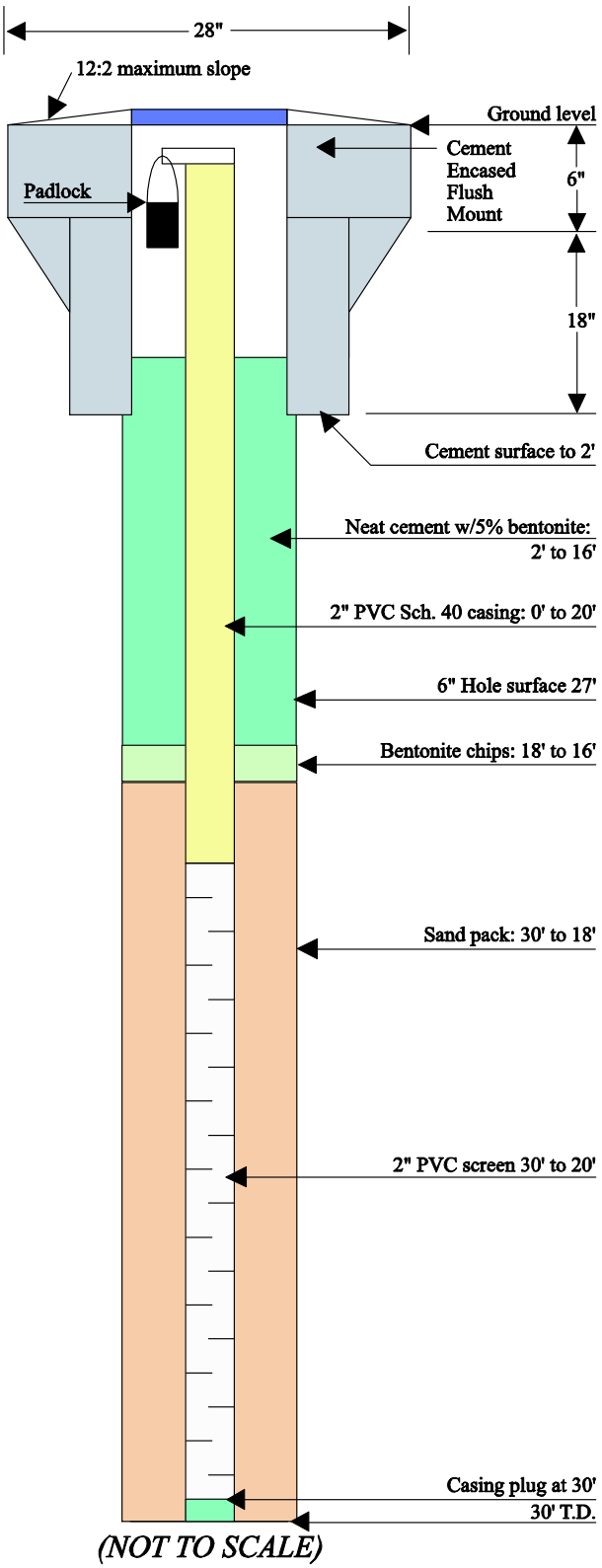
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424086

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-28

1 LOCATION OF WATER WELL: County: Washington	Fraction NW ¼ ¼ NE ¼	Section Number 9	Township Number T 2 S	Range Number R 5 (D)W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89423
Longitude: -94.87147
Elevation: 1323.39
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W -- NW -- | -- NE -- E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL .....29..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs
Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ....2..... in. to ....19..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....+2..... in., Weight .....lbs./ft. Wall thickness or guage No. ....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....29..... ft. to .....19..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....29..... ft. to .....17..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ....Concrete.....
Grout Intervals: From ....17..... ft. to .....2..... ft., From ....2..... ft. to ....0..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	12	Brn CLAY w/gravel			
12	14	Brn SAND			
14	29	Tan Weathered BEDROCK			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/03/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ..658..... This Water Well Record was completed on (mo/day/year) ..03/16/2009..... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW28: Hanover, KS

N 39.89423 W 96.87147
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1323.39'

Date: 3/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

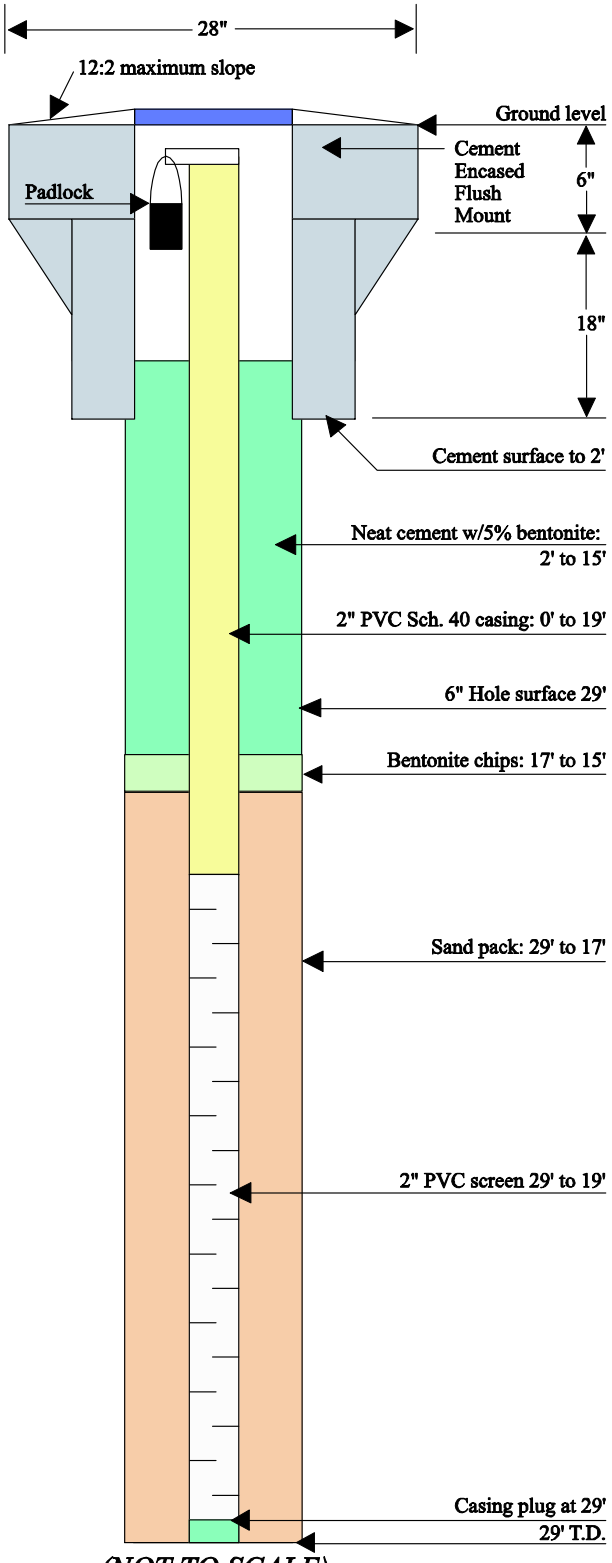
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424087

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-29

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E)W
Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89398
Longitude: -94.8712
Elevation: 1324.02
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | X NE -- | E
-- SW -- | -- SE -- |
S

4 DEPTH OF COMPLETED WELL 29 ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ....2..... in. to .....19..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....0..... in., Weight .....lbs./ft. Wall thickness or guage No. ...1280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete file 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....29..... ft. to .....19..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....30..... ft. to .....17..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ...Concrete.....
Grout Intervals: From ....17..... ft. to .....2..... ft., From ....2..... ft. to .....0..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	14	Brn CLAY w/ gravel			
14	17	Brn Md SAND			
17	19	Brn CLAY			
19	32	Tan Weathered BEDROCK			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/09/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ..658..... This Water Well Record was completed on (mo/day/year) ...03/16/2009..... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW29: Hanover, KS

N 39.89398 W 96.8712
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1324.02'

Date: 3/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

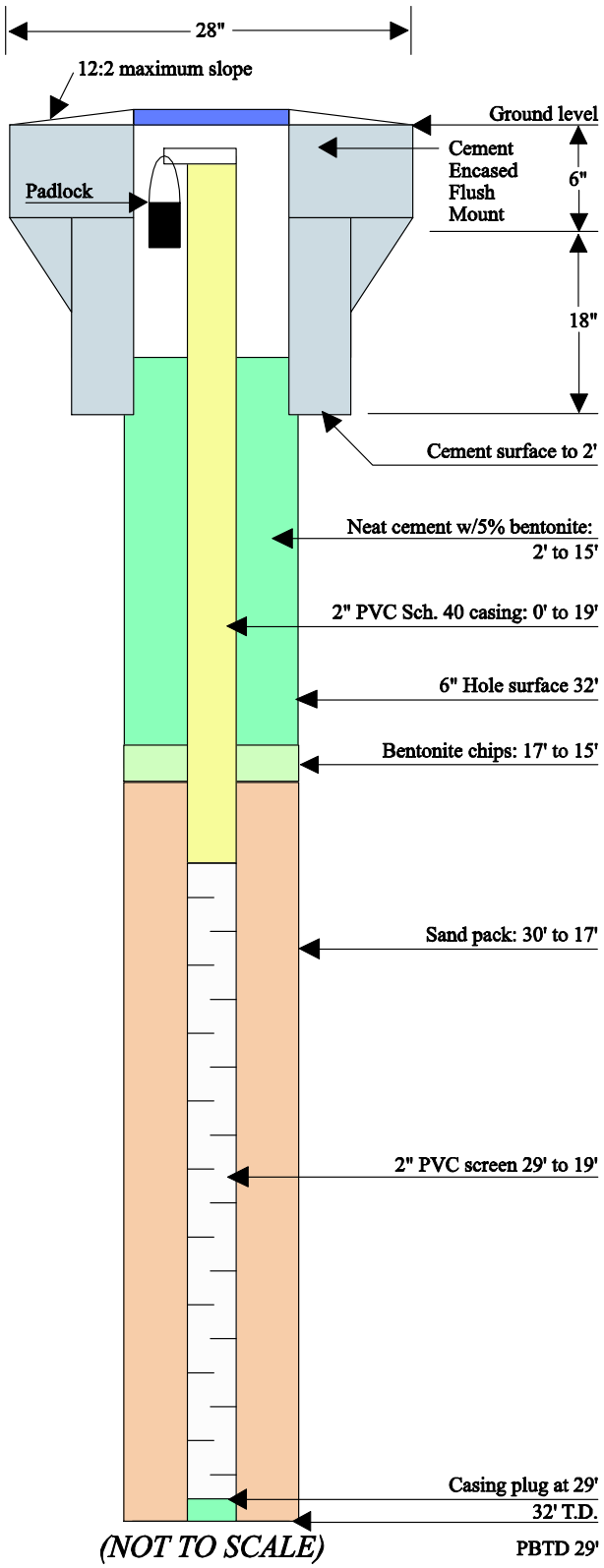
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424088

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-30

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼ | Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E)W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89344
Longitude: -96.86908
Elevation: 1308.4
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | X NE -- | E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL .....19..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ...X....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded....Flush.....
Blank casing diameter ....2..... in. to .....9..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....19..... ft. to .....9..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....20..... ft. to .....7..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ....Concrete.....
Grout Intervals: From .....7..... ft. to .....2..... ft., From ....2..... ft. to ..Ø..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
Ø	4	Grey CLAY w/gravel			
4	20	Tan Weathered BEDROCK			
20	22	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/02/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 1658 This Water Well Record was completed on (mo/day/year) 03/16/2009 under the business name of Bart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW30: Hanover, KS

N 39.89344 W 96.86908
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1308.40'

Date: 3/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

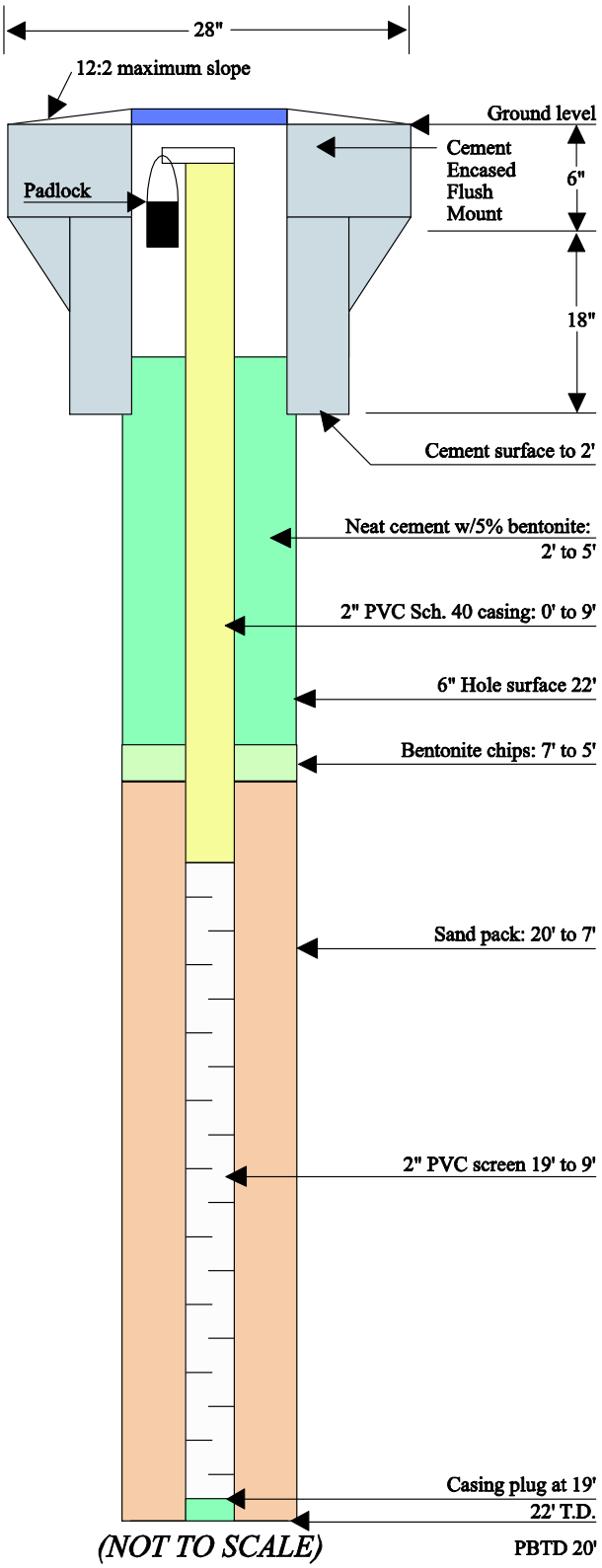
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424089

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-31

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 Township Number: T 2 S Range Number: R 5 (E)W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89344
Longitude: -96.84961
Elevation: 1310.1
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | X NE -- | E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL .....20..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No .X..... If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No .X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ....2..... in. to .....10..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface.....20..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....20..... ft. to .....10..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....21..... ft. to .....8..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ....concrete.....
Grout Intervals: From ....3..... ft. to ....2..... ft., From ....2..... ft. to ....0..... ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	9	Brn CLAY w/gravel			
9	21	Tan Weathered BEDROCK			
21	22	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) ..03/03/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ...658..... This Water Well Record was completed on (mo/day/year) ...03/16/2009..... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW31: Hanover, KS

N 39.89344 W 96.86961
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1310.10'

Date: 3/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

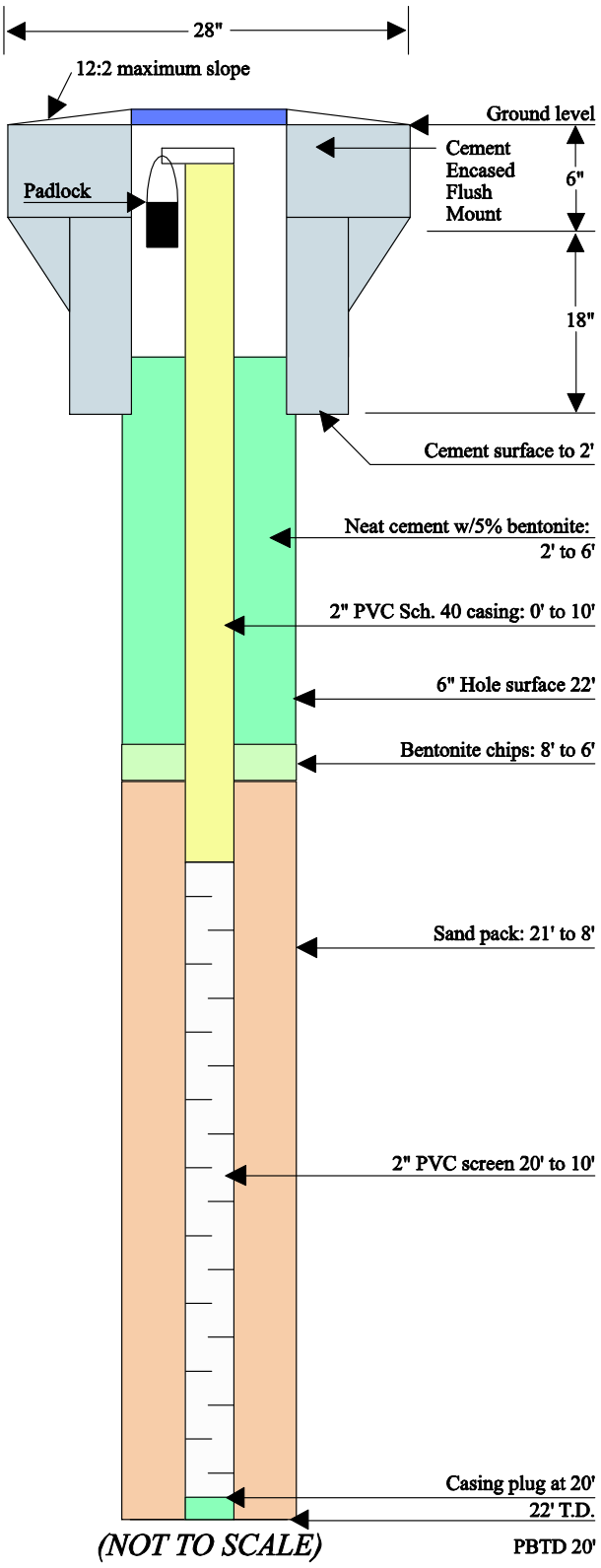
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424090

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-32

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 Township Number: T 2 S Range Number: R 5 (E)W
Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89572
Longitude: -96.87163
Elevation: 1312.3
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | NW | X | ~~X~~ | NE | E
SW | SE
S

4 DEPTH OF COMPLETED WELL 25 ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded... Flush.....
Blank casing diameter ....2..... in. to ...15..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface.....~~0~~..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....25..... ft. to .....10..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....26..... ft. to .....8..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ...concrete.....
Grout Intervals: From ....13..... ft. to .....2..... ft., From ....2..... ft. to ...~~0~~..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
~~0~~	.5	BLACKTOP			
.5	9	Brn CLAY w/gravel			
9	26	Tan Weathered BEDROCK			
26	30	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/03/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 658 This Water Well Record was completed on (mo/day/year) 03/16/2009 under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW32: Hanover, KS

N 39.89572 W 96.87163
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1312.30'

Date: 3/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

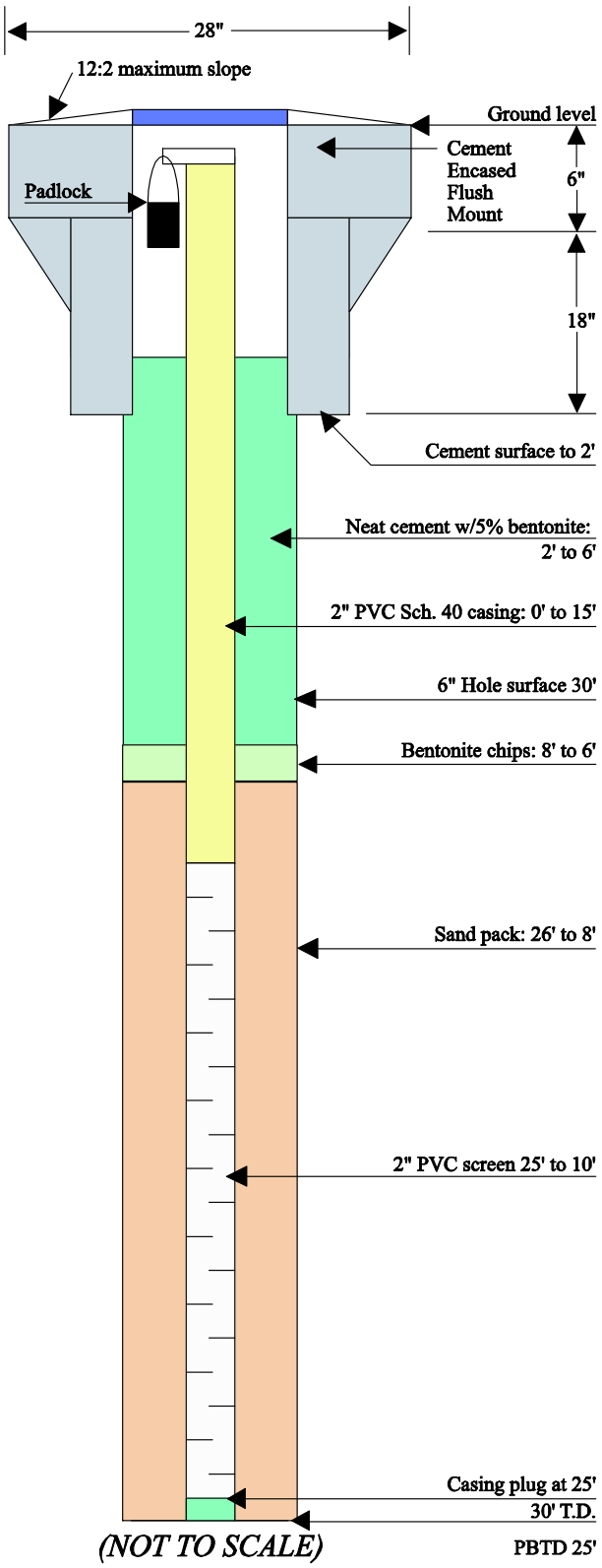
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424091

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-33

1 LOCATION OF WATER WELL: County: Washington	Fraction NW ¼ ~~SW~~ ¼ NE ¼	Section Number 9	Township Number T 2 S	Range Number R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89527
Longitude: -96.87165
Elevation: 1312.69
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W - - NW - - X NE - - E
- - SW - - - - SE - -
S

4 DEPTH OF COMPLETED WELL .....26..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ....2..... in. to .....11..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....~~2~~..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....26..... ft. to .....11..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....27..... ft. to .....9..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other .....Concrete.....
Grout Intervals: From ....9..... ft. to .....2..... ft., From ...2..... ft. to ...~~2~~..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
~~0~~	15	BLACKTOP			
15	7	Brn CLAY w/ gravel			
7	26	Tan Weathered BEDROCK			
26	27	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/03/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 658 This Water Well Record was completed on (mo/day/year) 03/09/2009 under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW33: Hanover, KS

N 39.89527 W 96.87165
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1312.69'

Date: 3/9/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

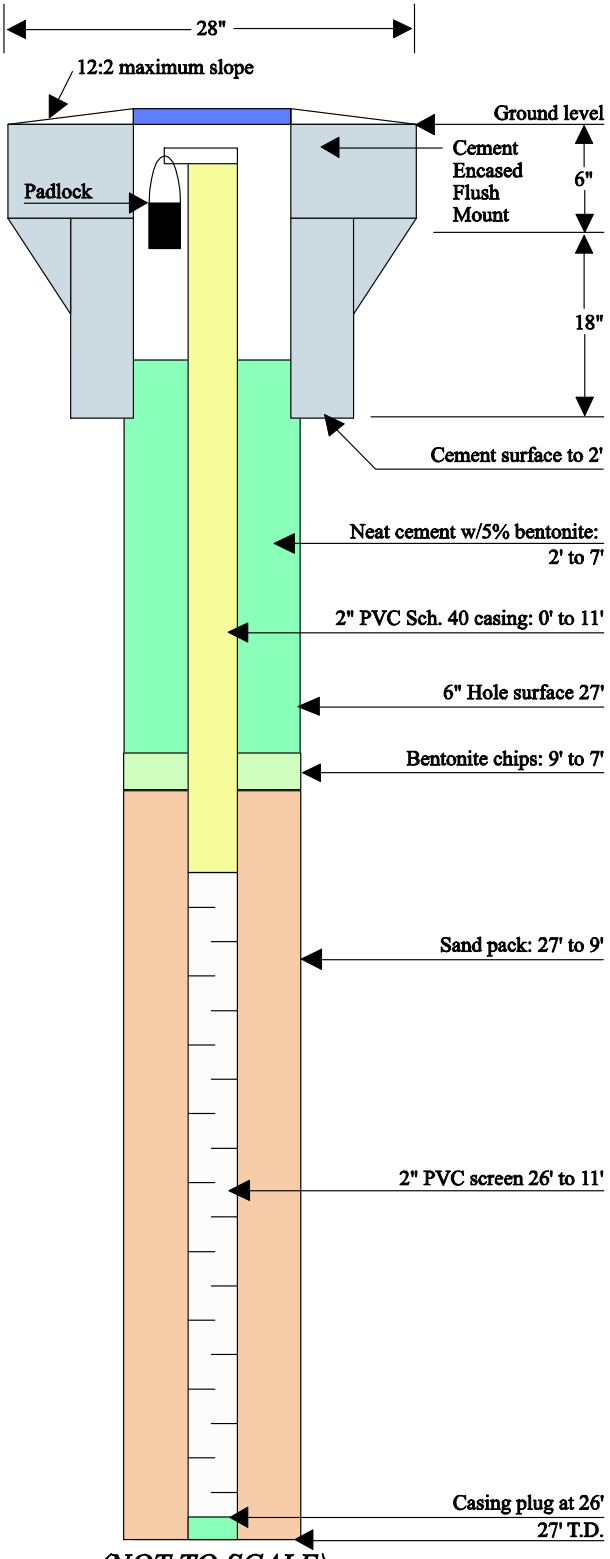
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424092

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-34

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E) W
Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89607
Longitude: -96.86948
Elevation: 1323.35
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW
Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W: -- NW -- X NE -- E
-- SW -- -- SE --
S

4 DEPTH OF COMPLETED WELL .....27..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ...X....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ...X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ....2..... in. to ....17..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....0..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From....27..... ft. to .....17..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....29..... ft. to .....15..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ....concrete.....
Grout Intervals: From ....15..... ft. to .....2..... ft., From .....2..... ft. to ....0..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	13	Brn CLAY w/ gravel			
13	28	Tan Weathered BEDROCK			
28	29	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/03/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 658 This Water Well Record was completed on (mo/day/year) 03/09/2009 under the business name of Bart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW34: Hanover, KS

N 39.89607 W 96.86948
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1323.35'

Date: 3/9/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

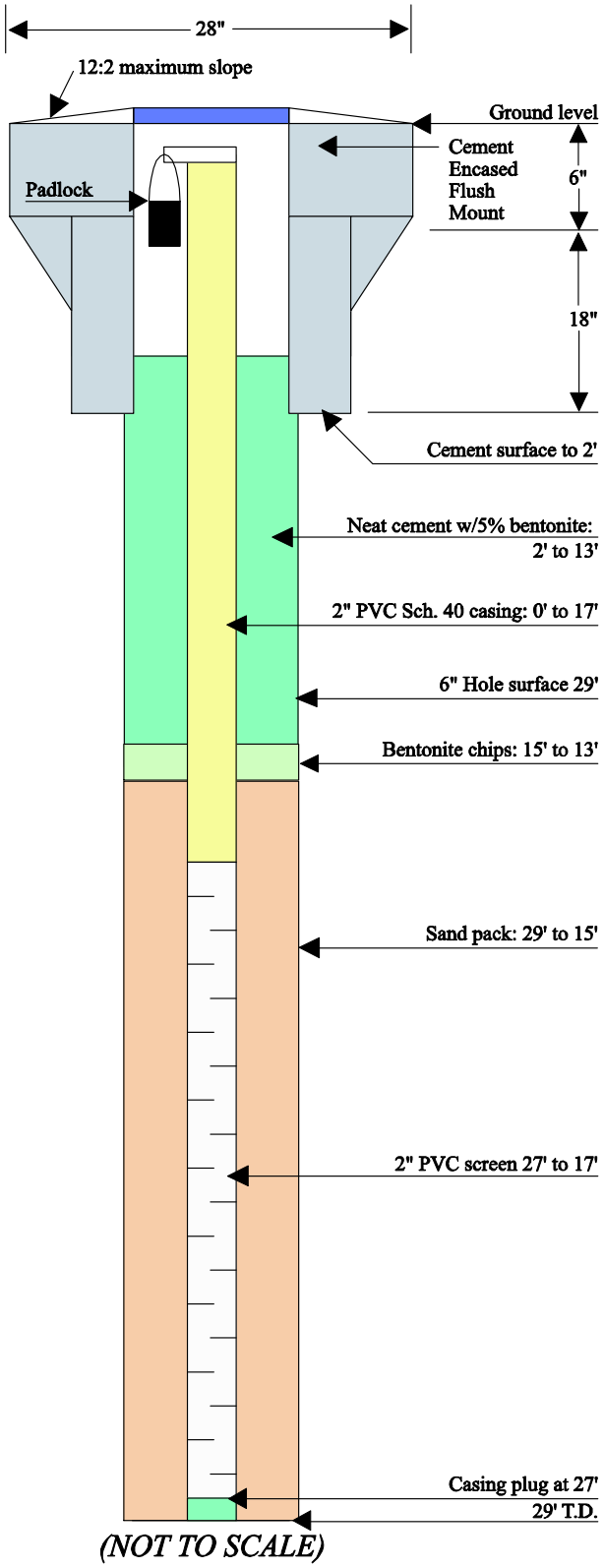
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424093

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-35

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼ | Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89402
Longitude: -96.86854
Elevation: 1313.08
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | X -- NE -- | E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL .....25..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No .X.....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No .X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded....Flush.....
Blank casing diameter ....2..... in. to .....15..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....20..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From....25..... ft. to .....15..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....25..... ft. to .....13..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other .....Concrete.....
Grout Intervals: From ....13..... ft. to ....2..... ft., From ....2..... ft. to ....20..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	9	Brn CLAY w/ gravel			
9	25	Tan Weathered BEDROCK			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/03/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ....1058..... This Water Well Record was completed on (mo/day/year) ....03/09/2009.... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW35: Hanover, KS

N 39.89402 W 96.86854
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1313.08'

Date: 3/9/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

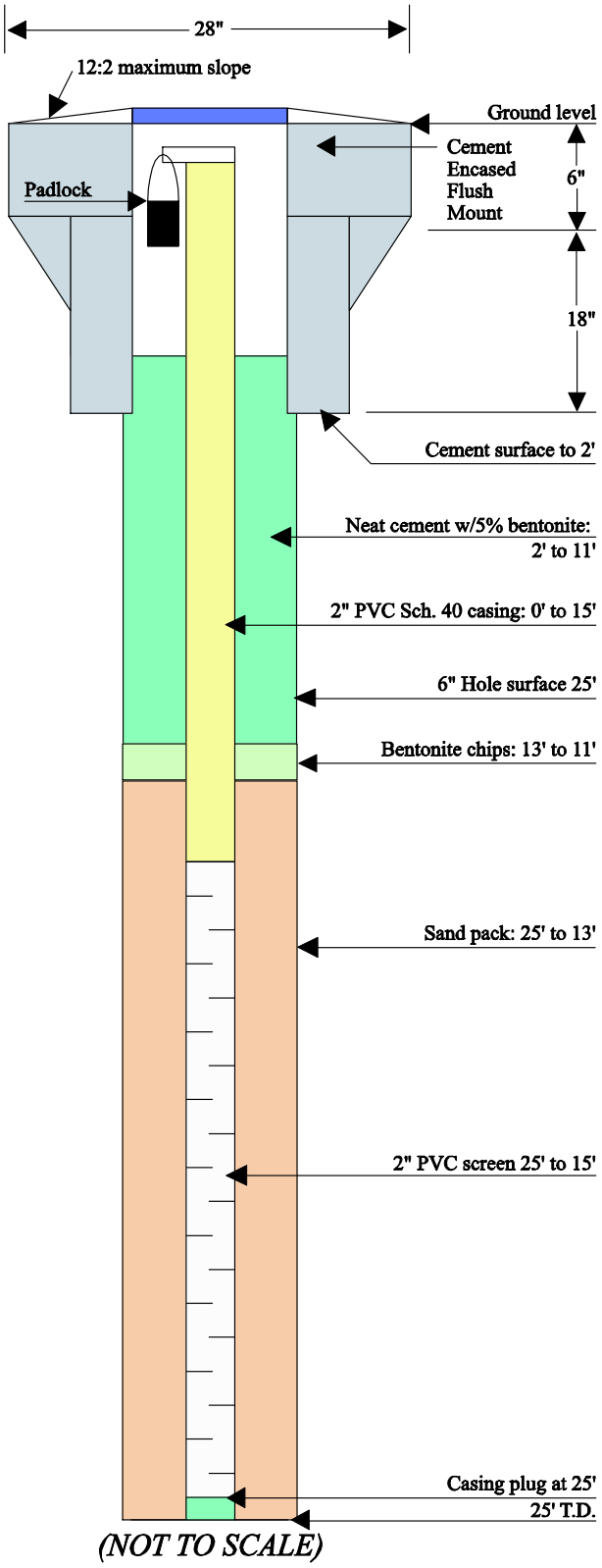
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424094

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-36

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89342
Longitude: -96.87057
Elevation: 1313.43
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | -- NE -- X | E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL 24 ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No X ; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No X

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded... Flush
Blank casing diameter ....2..... in. to ....14..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface.....0..... in., Weight .....lbs./ft. Wall thickness or guage No. .....250.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From....24..... ft. to .....14..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....24..... ft. to .....12..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other .....Concrete.....
Grout Intervals: From ....12..... ft. to ...2..... ft., From ....2..... ft. to ....0..... ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	14	Brn CLAY w/gravel			
14	23	Tan Weathered BEDROCK			
23	24	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/04/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 658 This Water Well Record was completed on (mo/day/year) 03/09/2009 under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW36: Hanover, KS

N 39.89342 W 96.87057
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1313.43'

Date: 3/9/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

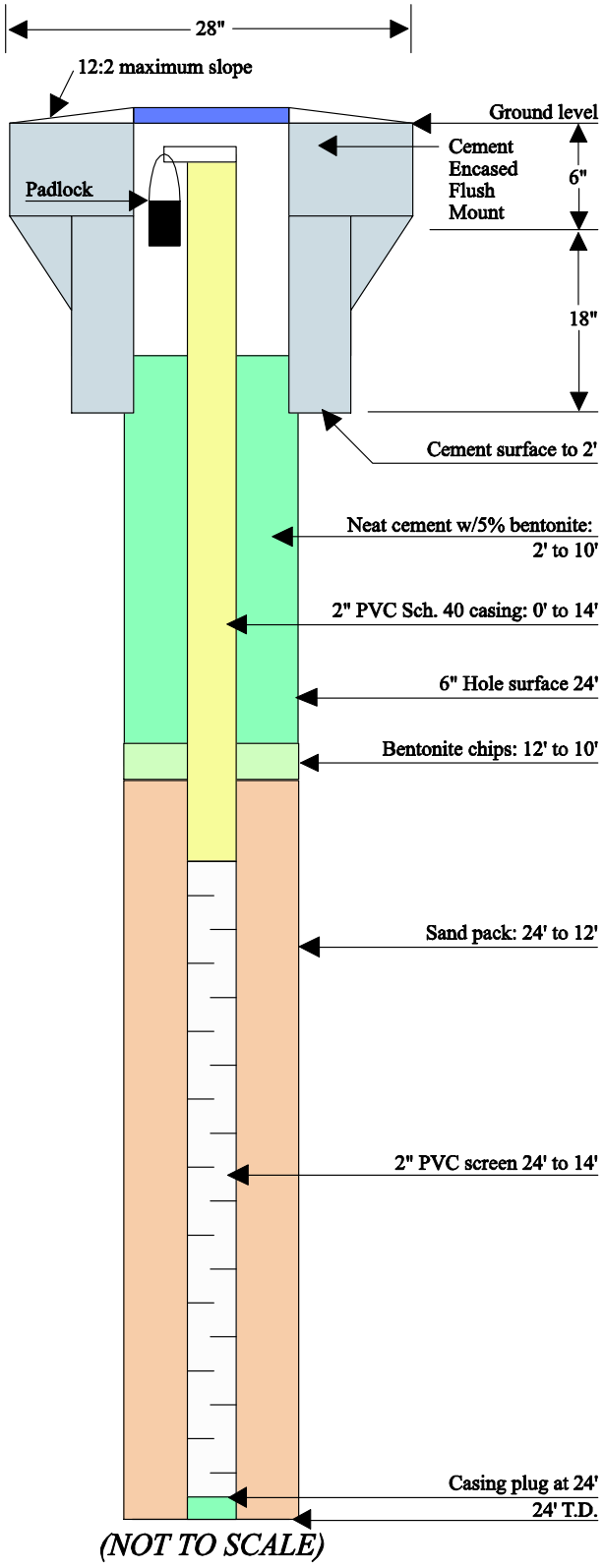
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

424095

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-37

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 Township Number: T 2 S Range Number: R 5 E/W
Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89342
Longitude: -96.87122
Elevation: 1317.14
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W -- NW -- X -- NE -- E
-- SW -- -- SE --
S

4 DEPTH OF COMPLETED WELL .....30..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X.....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ....2..... in. to ...15..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. .....1.28Ø.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....30..... ft. to .....15..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....33..... ft. to .....13..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other .....Concrete.....
Grout Intervals: From ...13..... ft. to .....2..... ft., From ...2..... ft. to ...Ø..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
Ø	14	Brn CLAY w/ gravel			
14	30	Tan Weathered BEDROCK			
30	33	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/04/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ...1058..... This Water Well Record was completed on (mo/day/year) ...03/09/2009... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW37: Hanover, KS

N 39.89342 W 96.87122
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1317.14'

Date: 3/9/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

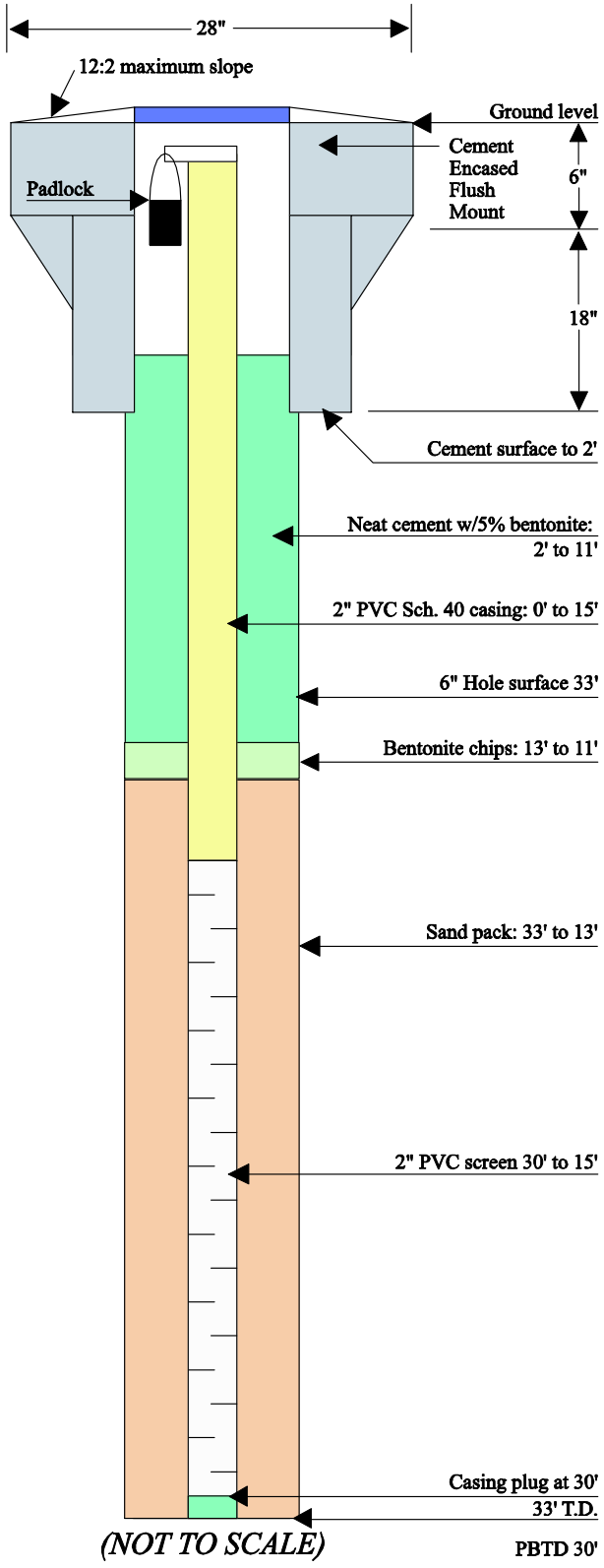
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424096

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-38

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼
Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89396
Longitude: -96.87225
Elevation: 1322.23
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- X | -- NE -- | E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL .....28..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No .X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No .X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded....Flush.....
Blank casing diameter ....2..... in. to .....18..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....~~0~~..... in., Weight .....lbs./ft. Wall thickness or guage No. ....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....28..... ft. to .....18..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....29..... ft. to .....16..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ....Concrete.....
Grout Intervals: From ....16..... ft. to ....2..... ft., From ....2..... ft. to ..~~0~~..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	11	Brn CLAY w/ gravel			
11	29	Tan Weathered BEDROCK			
29	35	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/04/2009, and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ..658..... This Water Well Record was completed on (mo/day/year) 03/09/2009 under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW38: Hanover, KS

N 39.89396 W 96.87225
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1322.23'

Date: 3/9/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

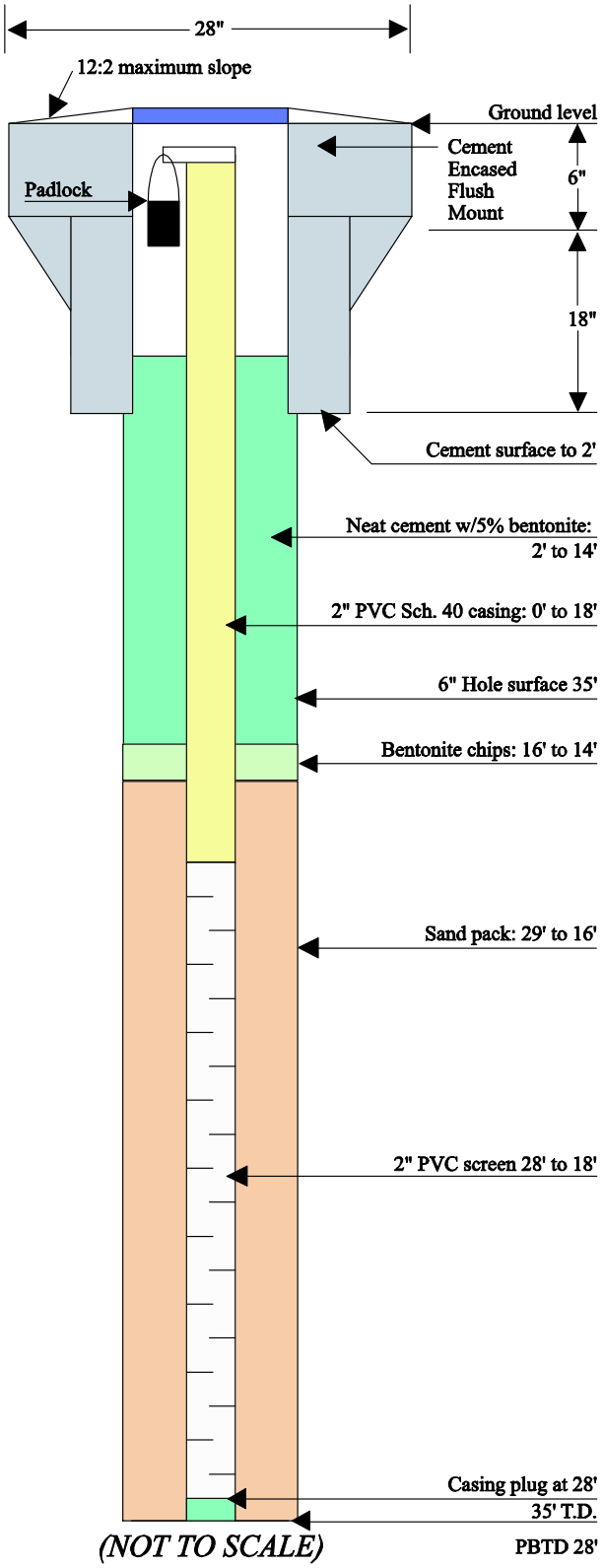
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424097

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-39

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼ | Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E)W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89435
Longitude: -96.87229
Elevation: 1315.02
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | - - NW - - X | - - NE - - | E
- - SW - - | - - SE - - |
S

4 DEPTH OF COMPLETED WELL .....22..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter .....2..... in. to .....12..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....20..... in., Weight .....lbs./ft. Wall thickness or guage No. .....1285.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From....22..... ft. to .....12..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....24..... ft. to .....10..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ....Concrete.....
Grout Intervals: From ....10..... ft. to ...2..... ft., From .....2..... ft. to ..20..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	9	Brn CLAY w/ gravel			
9	13	Tan Weathered BEDROCK			
13	21	Limestone BEDROCK			
21	27	Tan Weathered BEDROCK			
27	30	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/09/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ..658..... This Water Well Record was completed on (mo/day/year) ..03/09/2009.... under the business name of Bart Longyear by (signature)

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW39: Hanover, KS

N 39.89435 W 96.87229
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1315.02'

Date: 3/9/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

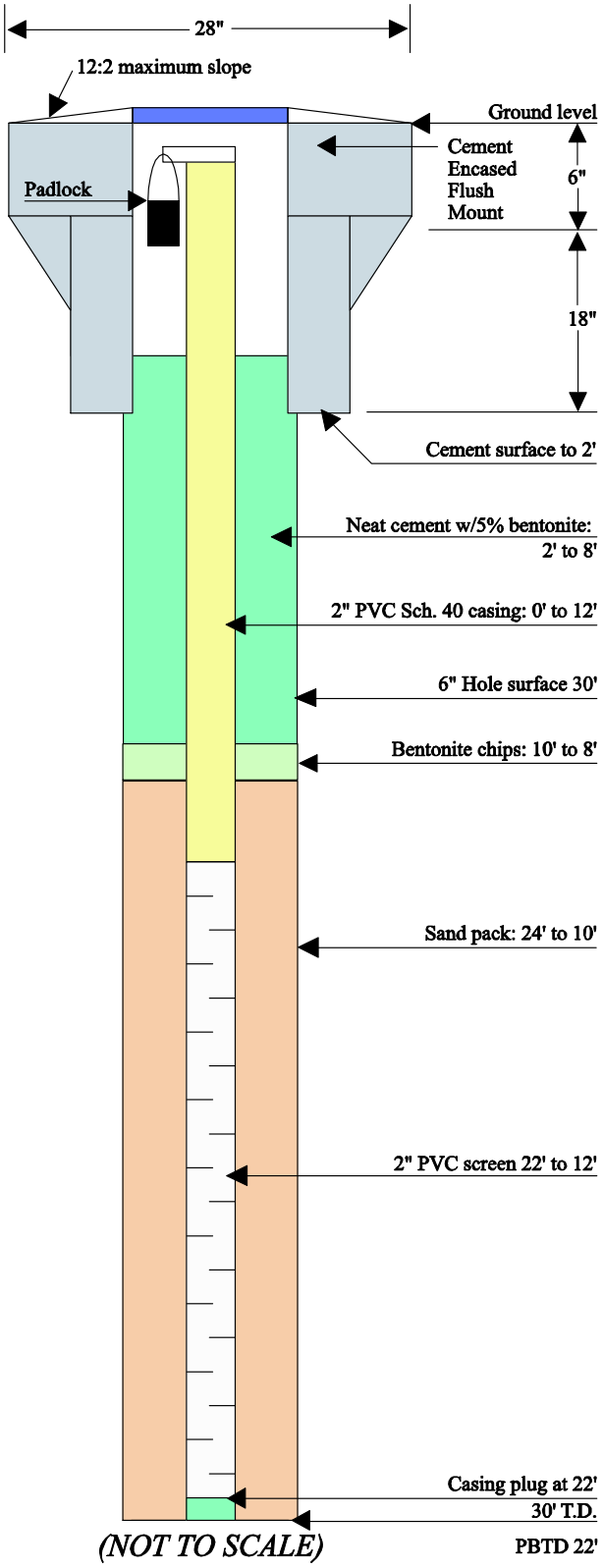
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. #424098 MW-40

1 LOCATION OF WATER WELL: County: Washington	Fraction NW ¼ ~~SW~~ ¼ NE ¼	Section Number 9	Township Number T 2 S	Range Number R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89385
Longitude: -96.8717
Elevation: 1324.55
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Mr Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | NW | X ~~NE~~ | E
SW | SE
S

4 DEPTH OF COMPLETED WELL .....30..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No .X.....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded....Flush.....
Blank casing diameter .....2..... in. to .....30..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface.....~~0~~..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....30..... ft. to .....20..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....31..... ft. to .....18..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other .....Concrete.....
Grout Intervals: From ....18..... ft. to .....2..... ft., From .....2..... ft. to .....~~0~~..... ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
~~0~~	8	Brn CLAY w/gravel			
8	17	Pushed COBBLE			
17	18.5	COBBLE			
18.5	31	Tan Weathered BEDROCK			
31	35	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/05/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ....658..... This Water Well Record was completed on (mo/day/year) ....03/09/2009.... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW40: Hanover, KS

N 39.89385 W 96.8717
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1324.55'

Date: 3/9/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

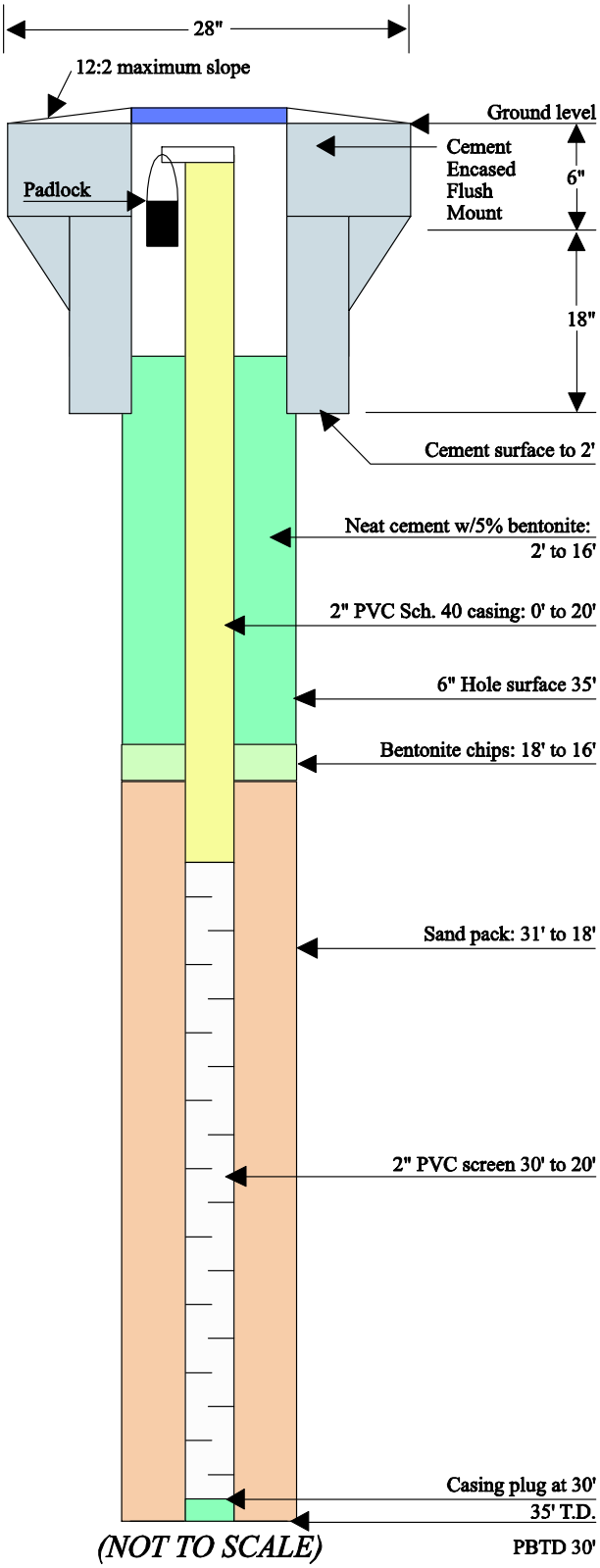
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424099

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-41

1 LOCATION OF WATER WELL: County: Washington
Fraction: NW ¼ ~~SW~~ ¼ NE ¼ | Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89495
Longitude: -96.87247
Elevation: 1300.45
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box #: Attn: Steve Gilmore
City, State, ZIP Code: 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | NW - X - NE | E
SW - SE
S

4 DEPTH OF COMPLETED WELL ....26.... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No X.....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded....Flush.....
Blank casing diameter .....2..... in. to .....6..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....~~0~~..... in., Weight .....lbs./ft. Wall thickness or guage No. ....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From....26..... ft. to .....6..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....27..... ft. to .....4..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ...Concrete.....
Grout Intervals: From ....4..... ft. to ....2..... ft., From ....2..... ft. to ....~~0~~..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	4	Brn Clay Fill w/ Bricks, Rock + gravel			
4	31	Tan Weathered BEDROCK			
31	34	Tan Weathered Shale BEDROCK			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 08/05/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 658 This Water Well Record was completed on (mo/day/year) 08/09/2009 under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW41: Hanover, KS

N 39.89495 W 96.87247
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1300.45'

Date: 3/9/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

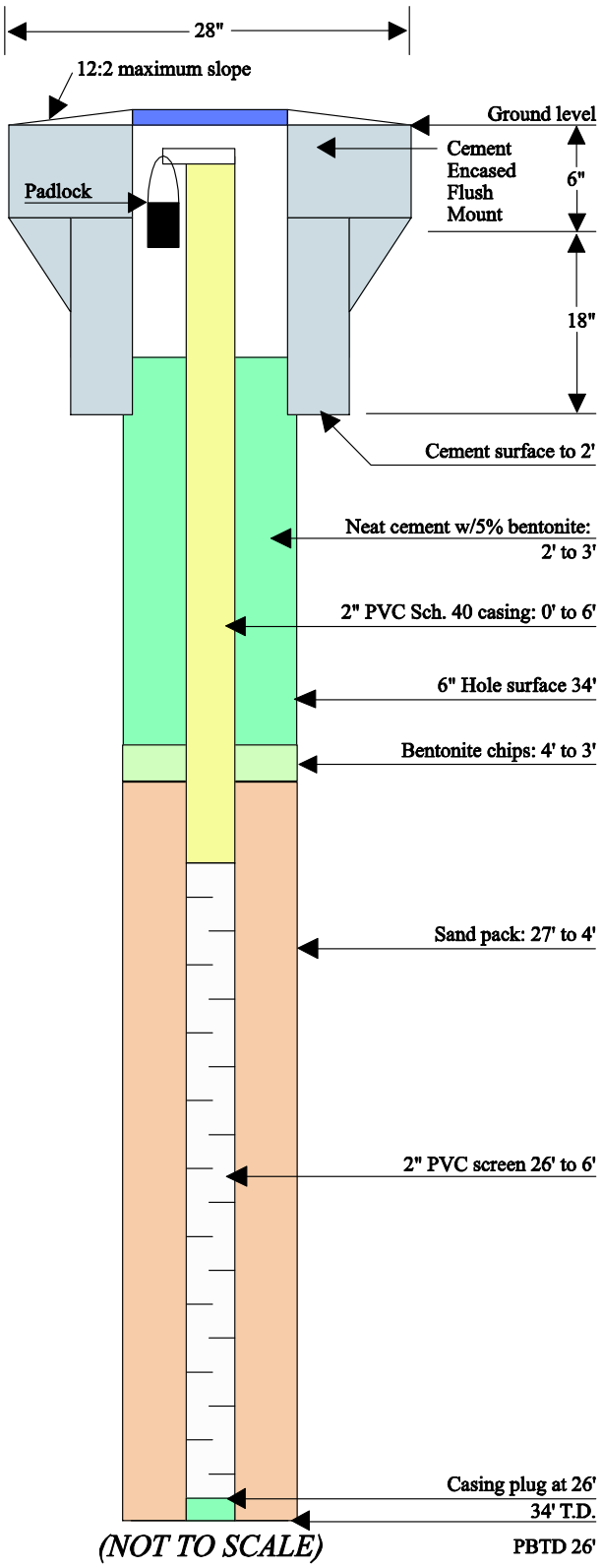
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424100

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-42

1 LOCATION OF WATER WELL: County: Washington	Fraction ¼ NW¼ NE ¼	Section Number 9	Township Number T 2 S	Range Number R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89341
Longitude: -96.87378
Elevation: 1306.08
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Mr Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- X | -- NE -- | E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL 28 ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ....2..... in. to ....8..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....0..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From....28..... ft. to .....8..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....29..... ft. to .....6..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ....Concrete.....
Grout Intervals: From .....6..... ft. to .....2..... ft., From .....2..... ft. to ....0..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	5	Brn CLAY w/ gravel			
5	24	Tan Weathered SHALE			
24	26	Grey Weathered SHALE			
26	29	Tan Weathered SHALE			
29	34	Red Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) ..03/24/2009.. and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ...658..... This Water Well Record was completed on (mo/day/year) ...04/13/2009... under the business name of Roart Longyear by (signature)

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW42: Hanover, KS

N 39.89341 W 96.87378
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1306.08'

Date: 4/13/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

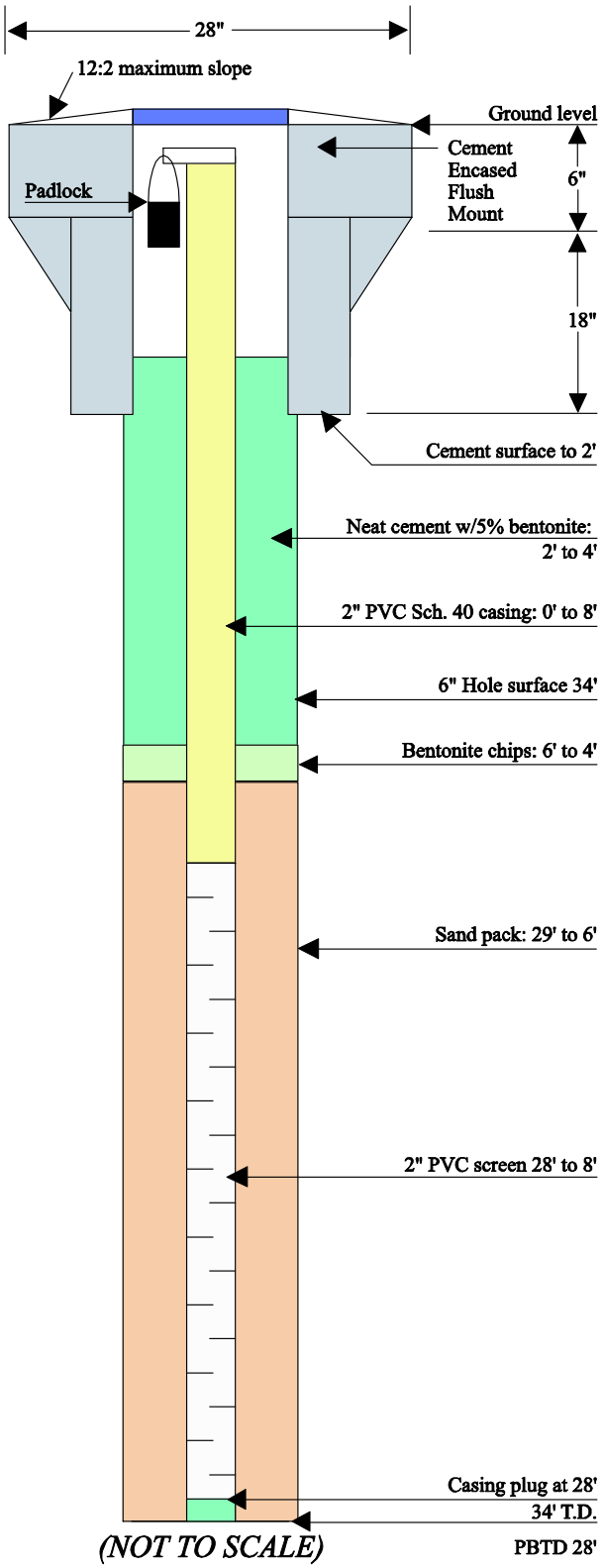
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424101

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-43

1 LOCATION OF WATER WELL: County: Washington	Fraction ¼ NW ¼ NE ¼	Section Number 9	Township Number T 2 S	Range Number R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89272
Longitude: -96.87316
Elevation: 1313.28
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Mr. Steve Gilmore
City, State, ZIP Code :

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W -- NW -- -- NE -- E
X
-- SW -- -- SE --
S

4 DEPTH OF COMPLETED WELL .....26..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter .....2..... in. to .....11..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....X..... in., Weight .....lbs./ft. Wall thickness or guage No. .....1280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From....26..... ft. to .....11..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....30..... ft. to .....9..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ....concrete.....
Grout Intervals: From .....9..... ft. to .....2..... ft., From .....2..... ft. to .....0..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	7	Brn CLAY w/gravel			
7	25	Tan Weathered SHALE			
25	30	Grey Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) .03/24/2009. and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ..658..... This Water Well Record was completed on (mo/day/year) .04/13/2009..... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW43: Hanover, KS

N 39.89272 W 96.87316
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1313.28'

Date: 4/13/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

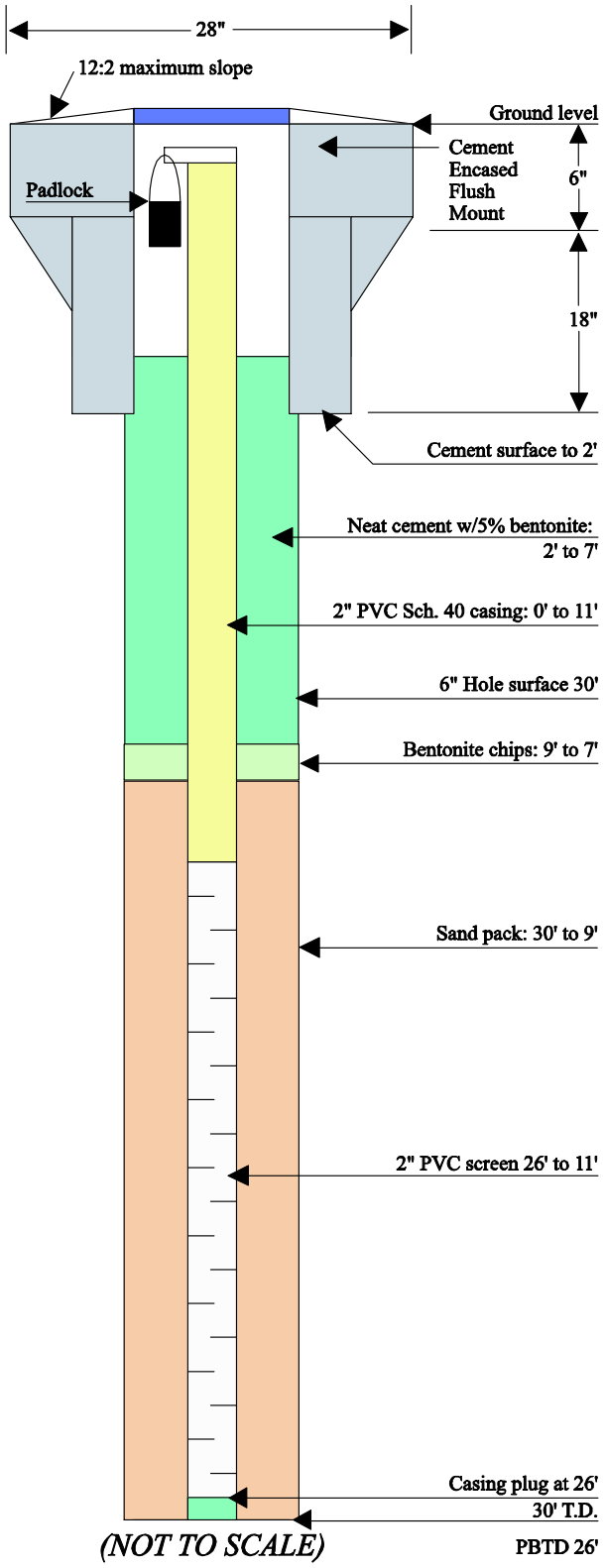
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



424104

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-445

1 LOCATION OF WATER WELL: County: Washington	Fraction ¼ NW ¼ NE ¼	Section Number 9	Township Number T 2 S	Range Number R 5 (E)W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89559
Longitude: -96.87376
Elevation: 1280.63
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Avenue SW Washington DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W - - NW - - X - - NE - - E
- - SW - - - - SE - -
S

4 DEPTH OF COMPLETED WELL .....40..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded....Flush.....
Blank casing diameter .....2..... in. to .....30..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....40..... ft. to .....30..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....40..... ft. to .....28..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other ...Concrete.....
Grout Intervals: From ...28..... ft. to ....2..... ft., From ...2..... ft. to ...Ø..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
Ø	2	Brn Silty CLAY			
2	9	Tan Weathered BEDROCK			
9	31	Red Weathered SHALE			
31	38	Grey Weathered BEDROCK w/sand			
38	40	Grey SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) ...03/27/2009... and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ...658... This Water Well Record was completed on (mo/day/year) ...04/13/2009... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW44Z2: Hanover, KS

N 39.89559 W 96.87376
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1280.63'

Date: 4/13/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

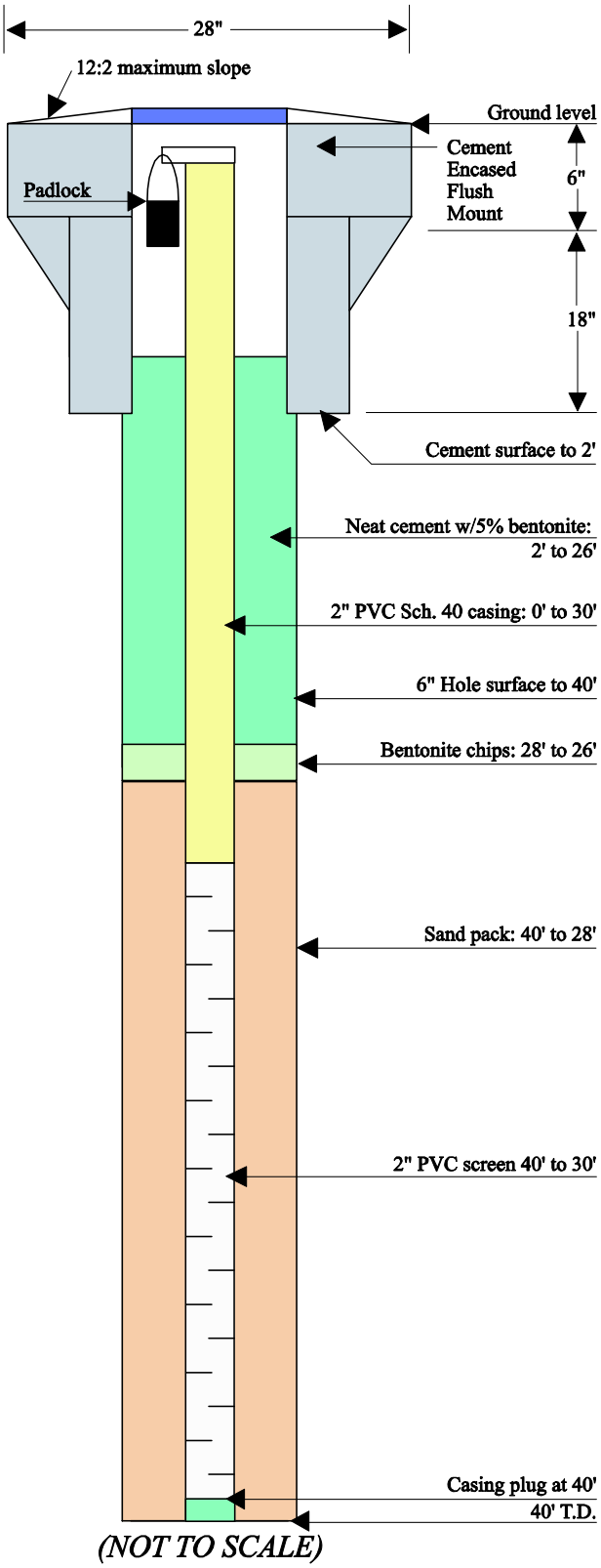
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424103

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-44M

1 LOCATION OF WATER WELL: County: Washington	Fraction ¼ NW¼ NE¼	Section Number 9	Township Number T 2 S	Range Number R 5 E/W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89557
Longitude: -96.87375
Elevation: 1280.91
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept. of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W -- NW -- NE -- E
-- SW -- -- SE --
S

4 DEPTH OF COMPLETED WELL .....75..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded..Flush.....
Blank casing diameter .....1..... in. to .....55..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....75..... ft. to .....55..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....78..... ft. to .....53..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement (2) Cement grout (3) Bentonite (4) Other ...concrete.....
Grout Intervals: From ...53..... ft. to .....42..... ft., From .....42..... ft. to .....2..... ft., From .....2..... ft. to ..Ø.....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
Ø	1	Brn CLAY			
1	16	Tan Weathered BEDROCK			
16	36	Red Weathered BEDROCK			
36	40	Red Weathered BEDROCK w/ Sand			
40	60	Grey SHALE			
60	100	Grey Red SHALE w/ Seams of gypson			
100	105	White GYPSON			
105	108	Red Grey SHALE w/ gypson			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) ..03/26/2009.. and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ..658..... This Water Well Record was completed on (mo/day/year) ..04/13/2009.... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW44Z3: Hanover, KS

N 39.89557 W 96.87375
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1280.91'

Date: 4/13/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

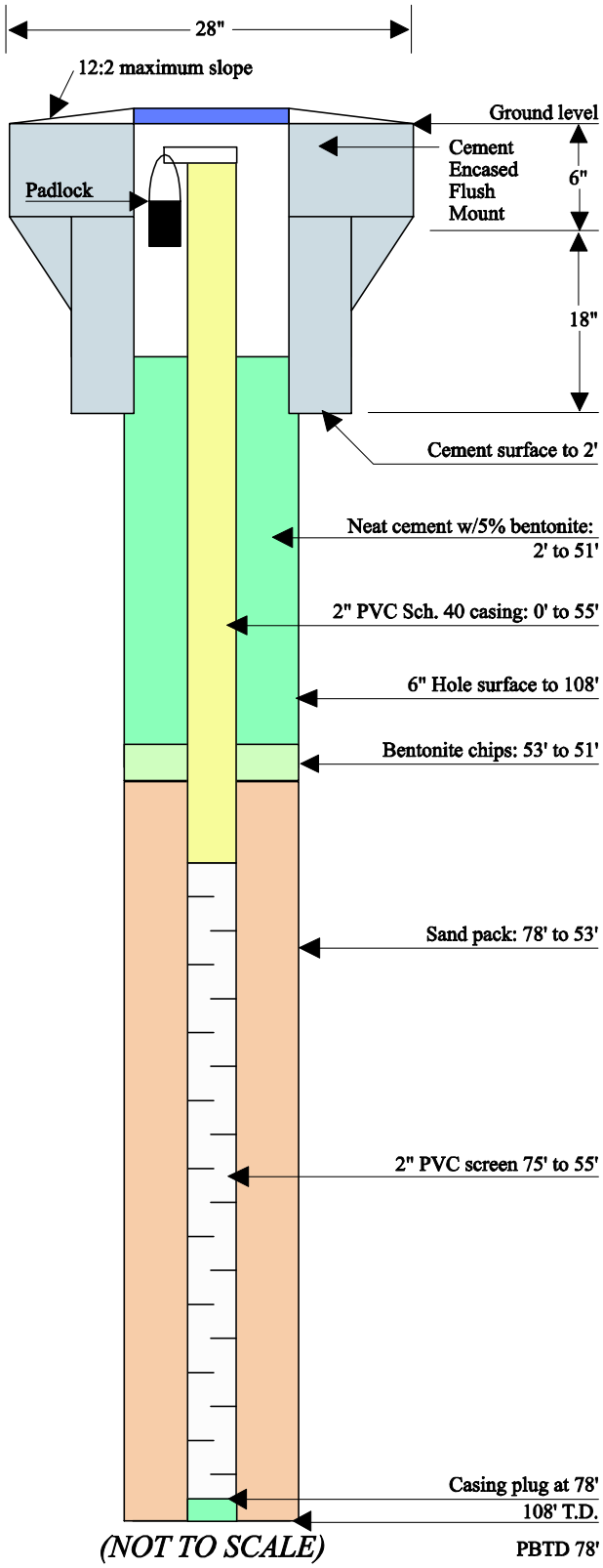
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424102

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-44D

1 LOCATION OF WATER WELL: County: Washington	Fraction ¼ NW ¼ NE ¼	Section Number 9	Township Number T 2 S	Range Number R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89557
Longitude: -96.87375
Elevation: 1280.92
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Avenue SW Washington DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | NW X | NE | E
SW | SE
S

4 DEPTH OF COMPLETED WELL .....107..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No .X....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter .....1..... in. to .....97..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. .....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From....107..... ft. to .....97..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From....108..... ft. to .....95..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite (4) Other ..Concrete.....
Grout Intervals: From ...95..... ft. to ....78..... ft., From .....78..... ft. to .....2..... ft., From .....2..... ft. to ..Ø.....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
Ø	1	Brn CLAY			
1	16	Tan Weathered BEDROCK			
16	36	Red Weathered BEDROCK			
36	40	Red Weathered BEDROCK w/ Sand			
40	60	Grey SHALE			
60	100	Grey Red SHALE w/ Seams of gypson			
100	105	White GYPSON			
105	108	Red Grey SHALE w/ gypson			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) ..03/26/2009..... and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ..658..... This Water Well Record was completed on (mo/day/year) ...04/13/2009..... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW44Z4: Hanover, KS

N 39.89557 W 96.87375
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1280.92'

Date: 4/13/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

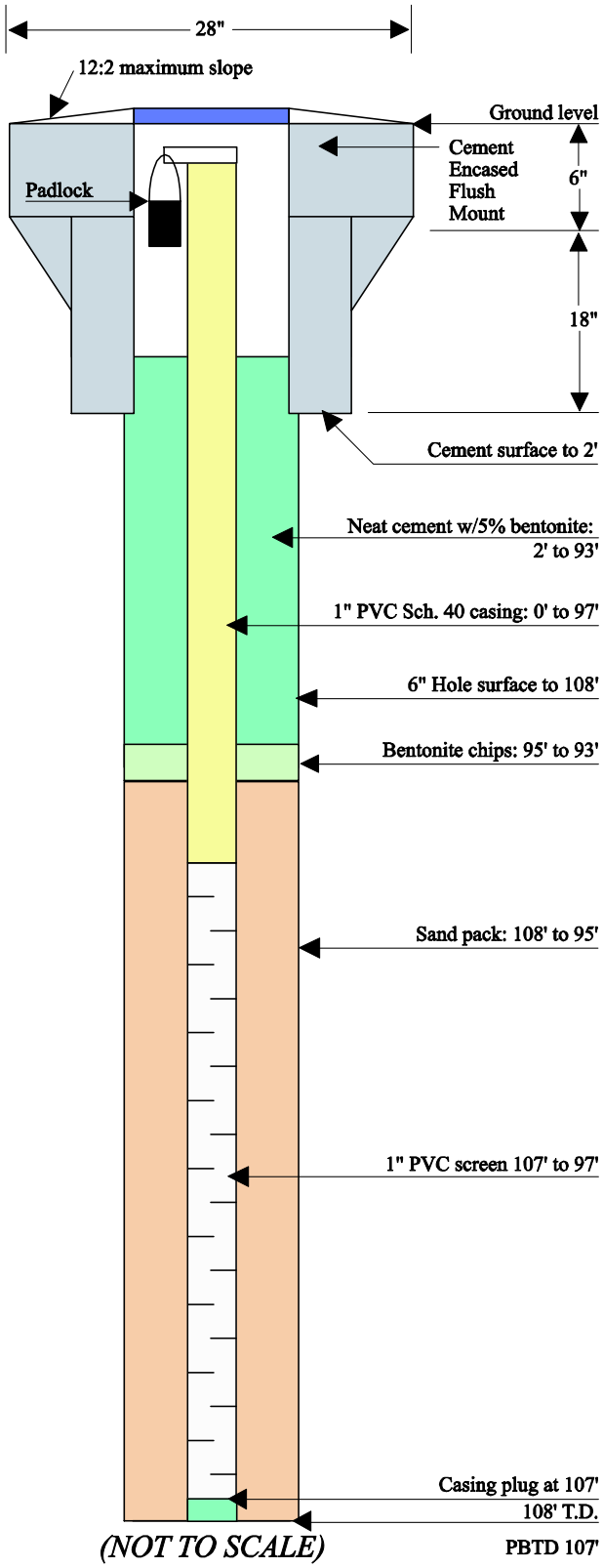
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424107

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-455

1 LOCATION OF WATER WELL: County: Washington	Fraction ¼ NW¼ NE ¼	Section Number 9	Township Number T 2 S	Range Number R 5 (E)W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89544
Longitude: -96.87467
Elevation: 1271.36
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N / W / E / S — NW: X; NE; SW; SE

4 DEPTH OF COMPLETED WELL .....30..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No .X.....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter ....2..... in. to .....20..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. ....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....30..... ft. to .....20..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....30..... ft. to .....18..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other .....Concrete.....
Grout Intervals: From .....18..... ft. to .....2..... ft., From .....2..... ft. to ...Ø..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
Ø	9	Brn CLAY w/gravel			
9	16	Tan Weathered BEDROCK			
16	30	Grey + Red Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/28/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 658 This Water Well Record was completed on (mo/day/year) 04/13/2009 under the business name of Boart Longyear by (signature) Michael May

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW45Z2: Hanover, KS

N 39.89544 W 96.87467
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1271.36'

Date: 4/13/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

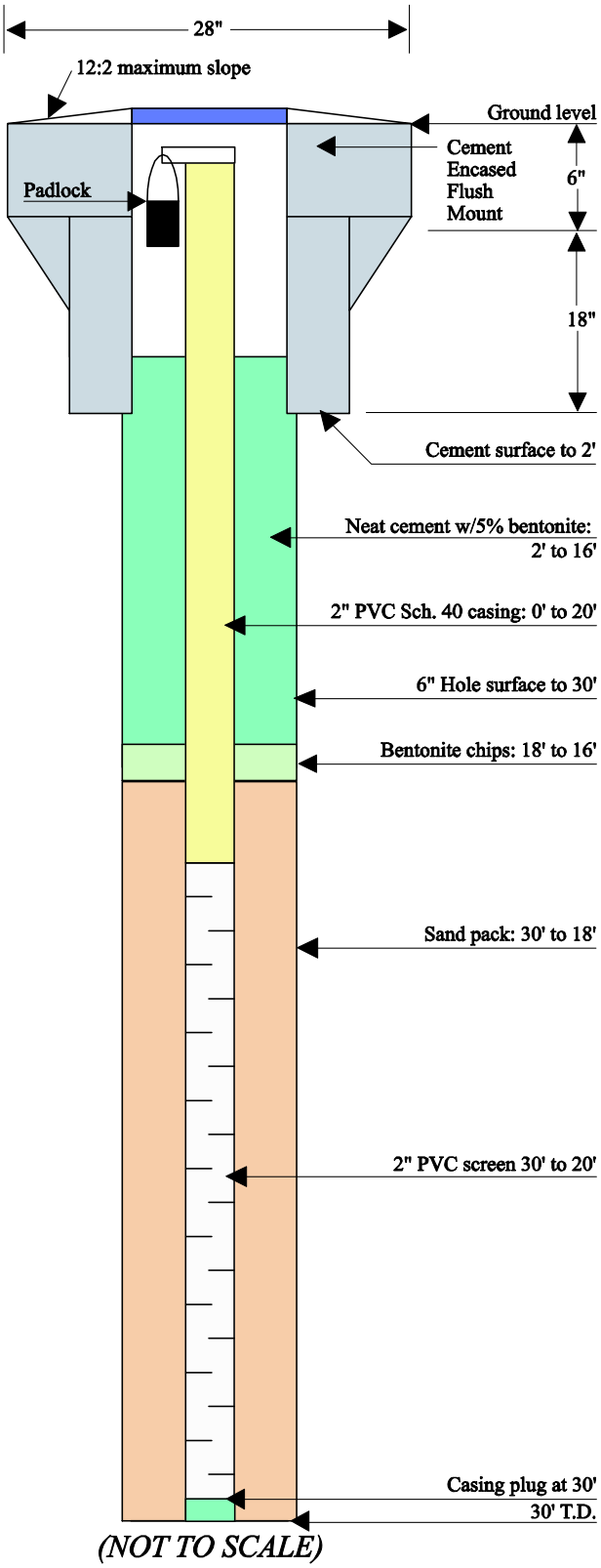
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424106

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-45M

1 LOCATION OF WATER WELL: County: Washington	Fraction ¼ NW ¼ NE ¼	Section Number 9	Township Number T 2 S	Range Number R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.89543
Longitude: -96.874666
Elevation: 1271.74
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- X | -- NE -- | E
-- SW -- | -- SE --
S

4 DEPTH OF COMPLETED WELL .....60..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X..; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded....Flush.....
Blank casing diameter ....2..... in. to .....50..... ft., Diameter..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....28..... in., Weight .....lbs./ft. Wall thickness or guage No. ....1.280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....60..... ft. to .....50..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....61..... ft. to .....48..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement (2) Cement grout (3) Bentonite (4) Other ...concrete.....
Grout Intervals: From ...48..... ft. to ...38..... ft., From ...38..... ft. to .....2..... ft., From ....2..... ft. to ..28....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	8	Brn CLAY w/ Sand + gravel			
8	13	Tan Weathered BEDROCK			
13	22	Red Weathered SHALE			
22	29	Grey Weathered Rock w/ gravel			
29	58	Grey SHALE			
58	72	Red SHALE			
72	90	Grey + Red SHALE			
90	93	White GYPSON			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/28/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ...658..... This Water Well Record was completed on (mo/day/year) ..04/13/2009... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW45Z3: Hanover, KS

N 39.89543 W 96.87466
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1271.74'

Date: 4/13/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

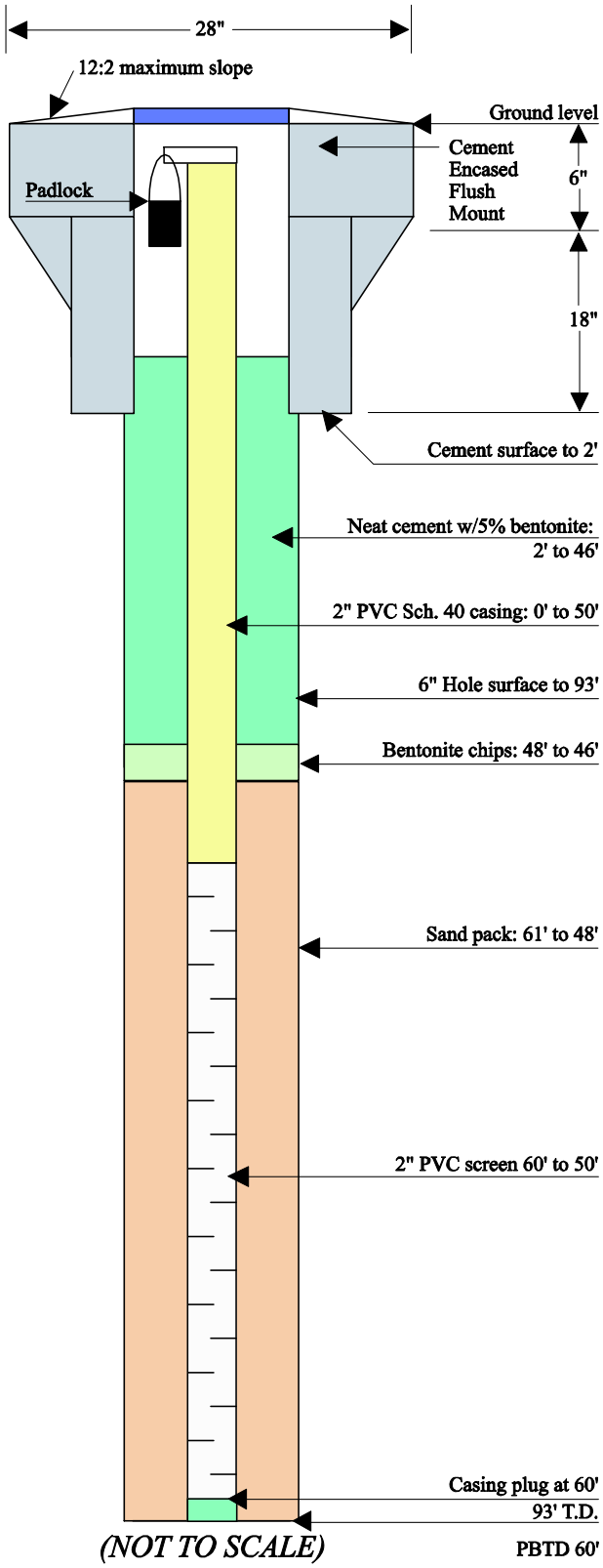
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424105

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-45D

1 LOCATION OF WATER WELL: County: Washington	Fraction ¼ NW ¼ NE ¼	Section Number 9	Township Number T 2 S	Range Number R 5 (E) W
Distance and direction from nearest town or city street address of well if located within city?		Global Positioning Systems (decimal degrees, min. of 4 digits) Latitude: 39.89543 Longitude: -96.874166 Elevation: 1271.74 Datum: Data Collection Method:		

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: State Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington, DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W - - NW - - X | - - NE - - E
- - SW - - | - - SE - -
S

4 DEPTH OF COMPLETED WELL .....93..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ...X...; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded....Flush.....
Blank casing diameter .....1..... in. to ....83..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....8..... in., Weight .....lbs./ft. Wall thickness or guage No. ....1280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....93..... ft. to ...83..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....93..... ft. to ....81..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite (4) Other .....Concrete.....
Grout Intervals: From ....81..... ft. to ....61..... ft., From ....61..... ft. to ....2..... ft., From .....2..... ft. to ..8..ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	8	Brn CLAY w/ Sand + gravel			
8	13	Tan Weathered BEDROCK			
13	22	Red Weathered SHALE			
22	29	Grey Weathered ROCK w/ gravel			
29	58	Grey SHALE			
58	72	Red SHALE			
72	90	Grey + Red SHALE			
90	93	White GYPSUM			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/27/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ...658..... This Water Well Record was completed on (mo/day/year) 04/13/2009... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW45Z4: Hanover, KS

N 39.89543 W 96.87466
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1271.74'

Date: 4/13/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

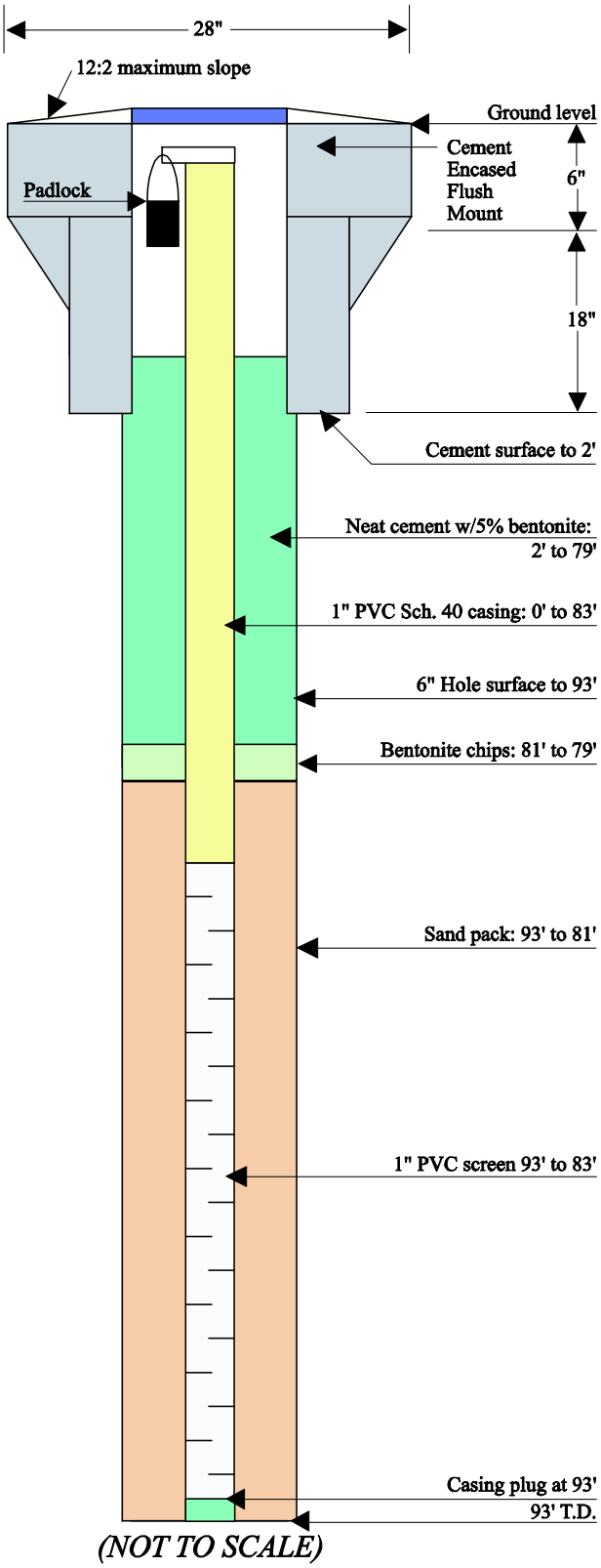
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

#424108

WATER WELL RECORD **Form WWC-5** Division of Water Resources; App. No. MW-46

1 LOCATION OF WATER WELL: County: Washington	Fraction ¼ NW ¼ NE ¼	Section Number 9	Township Number T 2 S	Range Number R 5 (E)/W

Distance and direction from nearest town or city street address of well if located within city?

Global Positioning Systems (decimal degrees, min. of 4 digits)
Latitude: 39.8927
Longitude: -96.84928
Elevation: 1300.63
Datum:
Data Collection Method:

2 WATER WELL OWNER: United States Dept of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington DC 20250-0513

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | -- NE -- | E
| -- SW -- | -- SE -- | X
S

4 DEPTH OF COMPLETED WELL ..... 29 ..... ft.

Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL..... ft. below land surface measured on mo/day/yr.....
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
Est. Yield.....gpm: Well water was.....ft. after..... hours pumping..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) (10) Monitoring well .....

Was a chemical/bacteriological sample submitted to Department? Yes ..... No ..X.....; If yes, mo/day/yrs Sample was submitted..... Water well disinfected? Yes ..... No ..X.....

5 TYPE OF CASING USED: 5 Wrought Iron 8 Concrete tile CASING JOINTS: Glued..... Clamped.....
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded.....
(2) PVC 4 ABS 7 Fiberglass ..... Threaded...Flush.....
Blank casing diameter .....2..... in. to .....19..... ft., Diameter. ..... in. to ..... ft., Diameter ..... in. to .....ft.
Casing height above land surface.....Ø..... in., Weight .....lbs./ft. Wall thickness or guage No. .....280.....
TYPE OF SCREEN OR PERFORATION MATERIAL:
1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 9 ABS 11 Other (Specify) .....
2 Brass 4 Galvanized Steal 6 Concrete tile 8 RM (SR) 10 Asbestos-Cement 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 7 Torch cut 9 Drilled holes 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 8 Saw Cut 10 Other (specify) .....
SCREEN-PERFORATED INTERVALS: From.....29..... ft. to .....19..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From.....30..... ft. to .....17..... ft., From ..... ft. to ..... ft.
From..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other .....Concrete.....
Grout Intervals: From ...17..... ft. to ....2..... ft., From ...2..... ft. to ....Ø..... ft., From ..... ft. to .....ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 13 Insecticide Storage 16 Other (specify below)
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 14 Abandoned water well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer Storage 15 Oil well/gas well .....
Direction from well? ..... How many feet? .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
Ø	4	Brn Silty CLAY w/ gravel			
4	29	Tan Weathered Rock			
29	30	Red Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/29/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. ...658..... This Water Well Record was completed on (mo/day/year) ..04/13/2009... under the business name of Boart Longyear by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212

Monitor Well MW46: Hanover, KS

N 39.8927 W 96.86928
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1300.63'

Date: 4/13/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

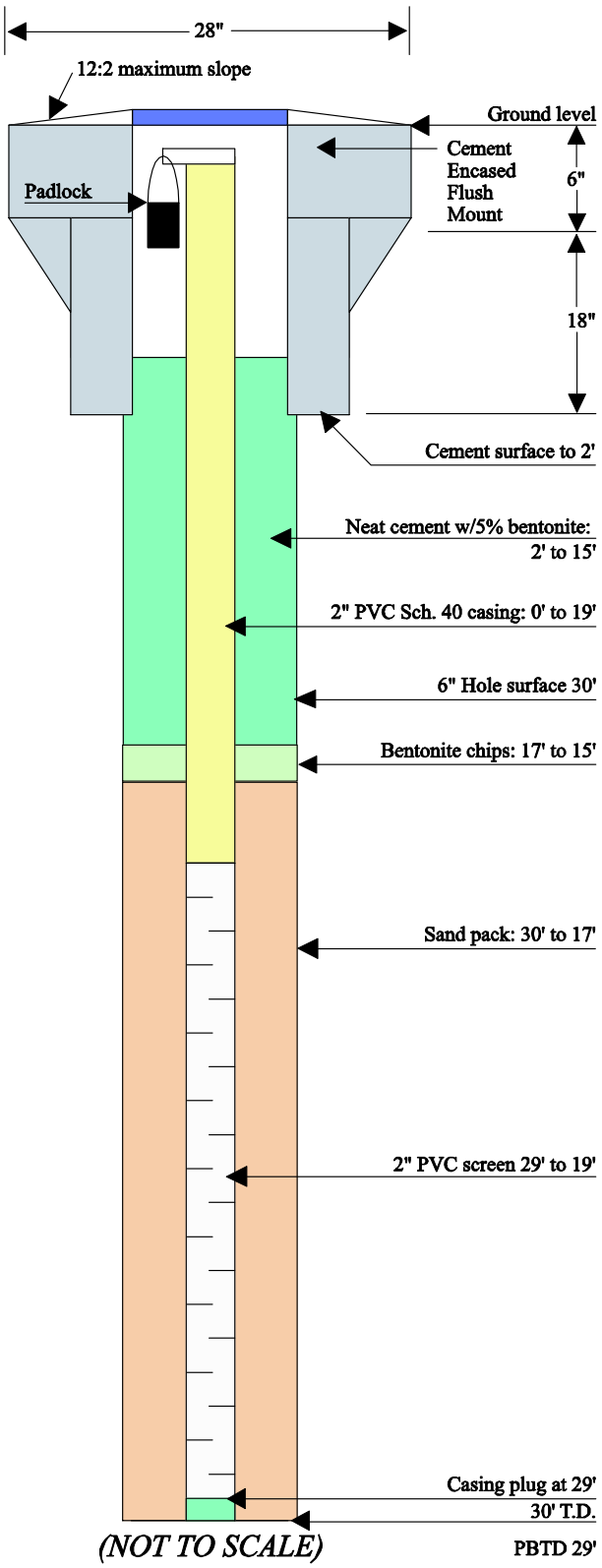
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



#424109

WATER WELL RECORD Form WWC-5 KSA 82a-1212 ID No. MW-47

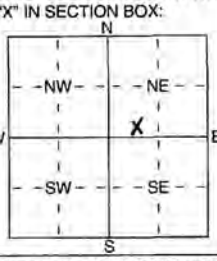
1 LOCATION OF WATER WELL: County: Washington | Fraction: ¼ NW ¼ NE ¼ | Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city? Lat: 39.89297 Long: -96.86852

2 WATER WELL OWNER: United States Dept. of Agriculture
RR#, St. Address, Box # : Attn: Steve Gilmore
City, State, ZIP Code : 1400 Independence Ave SW Washington DC 20250-0513

Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 30 ft. ELEVATION: 1300.02

Depth(s) Groundwater Encountered 1 ..... ft. 2 ..... ft. 3 ..... ft.
WELL'S STATIC WATER LEVEL ..... ft. below land surface measured on mo/day/yr .....
Pump test data: Well water was ..... ft. after ..... hours pumping ..... gpm
Est. Yield ..... gpm: Well water was ..... ft. after ..... hours pumping ..... gpm
WELL WATER TO BE USED AS: 1 Domestic 3 Feedlot 5 Public water supply 6 Oil field water supply 7 Domestic (lawn & garden) 8 Air conditioning 9 Dewatering (10) Monitoring well 11 Injection well 12 Other (Specify below) 2 Irrigation 4 Industrial

Was a chemical/bacteriological sample submitted to Department? Yes ..... No X ; If yes, mo/day/yrs sample was submitted
Water Well Disinfected? Yes (No)

5 TYPE OF BLANK CASING USED: 1 Steel 3 RMP (SR) 5 Wrought iron 6 Asbestos-Cement 8 Concrete tile 9 Other (specify below) (2) PVC 4 ABS 7 Fiberglass
CASING JOINTS: Glued ..... Clamped ..... Welded ..... Threaded Flush

Blank casing diameter 2 in. to 15 ft., Dia ..... in. to ..... ft., Dia ..... in. to ..... ft.
Casing height above land surface Ø in., weight ..... lbs./ft. Wall thickness or guage No. .280

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 3 Stainless Steel 5 Fiberglass (7) PVC 10 Asbestos-Cement 2 Brass 4 Galvanized Steel 6 Concrete tile 8 RMP (SR) 9 ABS 11 Other (Specify) ..... 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot (3) Mill slot 5 Guazed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) ..... 11 None (open hole) 2 Louvered shutter 4 Key punched

SCREEN-PERFORATED INTERVALS: From 30 ft. to 15 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 30 ft. to 13 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3) Bentonite (4) Other concrete
Grout Intervals: From 13 ft. to 2 ft., From 2 ft. to Ø ft., From ..... ft. to ..... ft.

What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 14 Abandoned water well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 15 Oil well/Gas well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer storage 16 Other (specify below) 13 Insecticide storage
Direction from well? How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
Ø	4	Brn Silty CLAY w/ gravel			
4	26	Tan Weathered BEDROCK			
26	30	Red Weathered SHALE			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 03/29/2009 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's Licence No 658 This Water Well Record was completed on (mo/day/yr) 04/13/2009 under the business name of Boart Longyear by (signature) Michael Mazza

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well.

Monitor Well MW47: Hanover, KS

N 39.89297 W 96.86852
NW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1300.02'

Date: 4/13/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

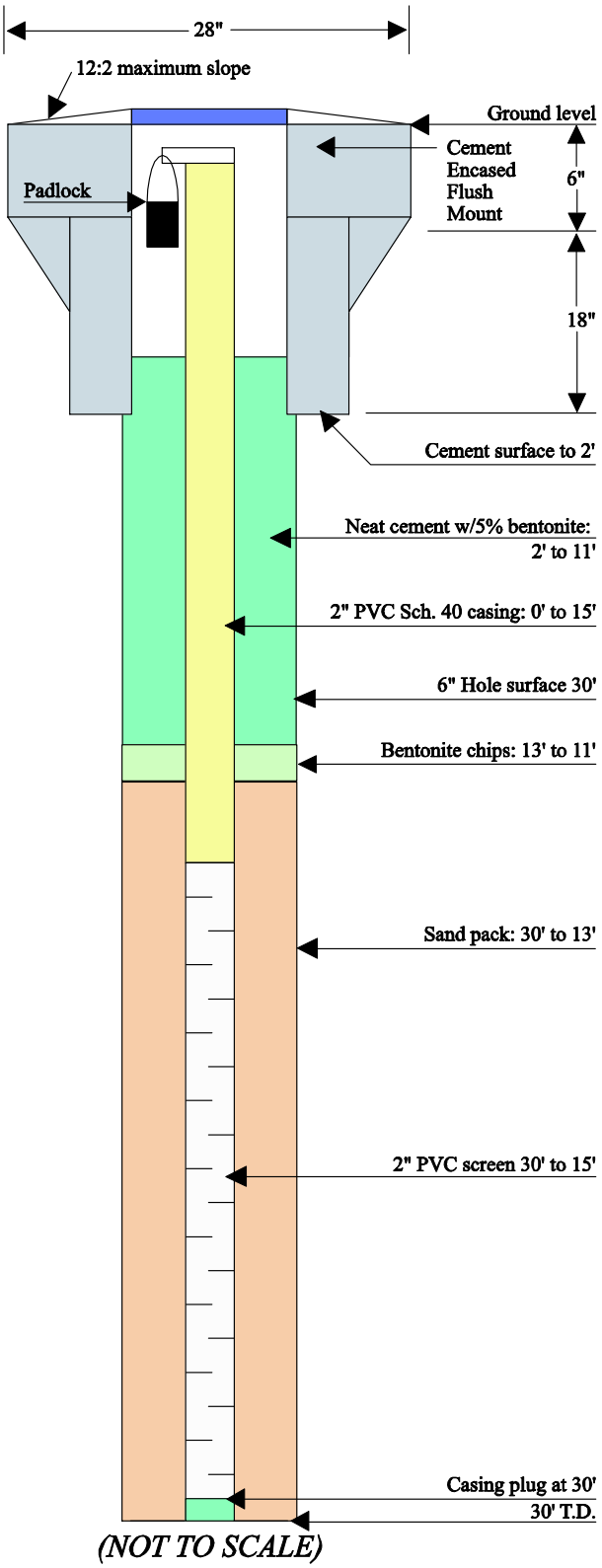
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

MW 48Z 2-GS

WATER WELL RECORD **Form WWC-5** Division of Water Resources App. No. #430630

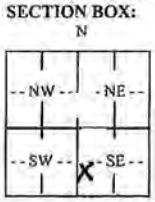
1 LOCATION OF WATER WELL: County: Washington | Fraction: ¼ NW ¼ SW ¼ SE ¼ | Section Number: 9 | Township No.: T 2 S | Range Number: R 5 ☑E ☐W

Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here ☐.
Southwest Corner of intersection between N. East Street and E. North Street, Hanover, KS

Global Positioning System (GPS) information:
Latitude: 39.8987 (in decimal degrees)
Longitude: -96.8714 (in decimal degrees)
Elevation: 1306.71
Datum: ☐ WGS 84, ☐ NAD 83, ☐ NAD 27
Collection Method:
☒ GPS unit (Make/Model: .....)
☐ Digital Map/Photo, ☐ Topographic Map, ☐ Land Survey
Est. Accuracy: ☒ <3 m, ☐ 3-5 m, ☐ 5-15 m, ☐ >15 m

2 WATER WELL OWNER: U.S. Dept. of Agriculture
RR#, Street Address, Box #: 1400 Independence Ave. SW
City, State, ZIP Code : Washington, DC 20250-0513

3 LOCATE WELL WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 59 ft.
Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL 52 ft. below land surface measured on mo/day/yr 10/05/09
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
EST. YIELD.....gpm. Well water was.....ft. after..... hours pumping..... gpm
Bore Hole Diameter 6 in. to 59 ft., and .....in. to .....ft.
WELL WATER TO BE USED AS: ☐ Public water supply ☐ Geothermal ☐ Injection well
☐ Domestic ☐ Feedlot ☐ Oil field water supply ☐ Dewatering ☐ Other (Specify below)
☐ Irrigation ☐ Industrial ☐ Domestic-lawn & garden ☑ Monitoring well
Was a chemical/bacteriological sample submitted to Department? ☐ Yes ☑ No
If yes, mo/day/yr sample was submitted.....
Water well disinfected? ☐ Yes ☑ No

5 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other .....
CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ☑ Threaded
Casing diameter 2.375 in. to 49 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 0 in., Weight .932 lbs./ft., Wall thickness or gauge No. .218
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous slot ☑ Mill slot ☐ Gauze wrapped ☐ Torch cut ☐ Drilled holes ☐ None (open hole)
☐ Louvered shutter ☐ Key punched ☐ Wire wrapped ☐ Saw cut ☐ Other (specify) .....
SCREEN-PERFORATED INTERVALS: From 49 ft. to 59 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 47 ft. to 59 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: ☑ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From 45 ft. to 47 ft., From 0 ft. to 45 ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
☐ Septic tank ☐ Lateral lines ☐ Pit privy ☐ Livestock pens ☐ Insecticide storage ☐ Other (specify below)
☐ Sewer lines ☐ Cesspool ☐ Sewage lagoon ☐ Fuel storage ☐ Abandoned water well
☐ Watertight sewer lines ☐ Seepage pit ☐ Feedyard ☐ Fertilizer storage ☐ Oil well/gas well .....
Direction from well ..... Distance from well .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	8	Brown Clay			
8	35	Gray Shale			
35	44	Red Shale			
44	58	Green Shale			
58	59	White Gypsm			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo/day/year) 9/21/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 597 This Water Well Record was completed on (mo/day/year) 12/16/09 under the business name of Boart Longyear Company by (signature) .....

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367, Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212 Check: ☑ White Copy, ☐ Blue Copy, ☐ Pink Copy

Monitor Well MW48Z2: Hanover, KS

N 39.8927 W 96.8714
NW 1/4 of SW 1/4 of SE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1306.71'

Date: 12/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

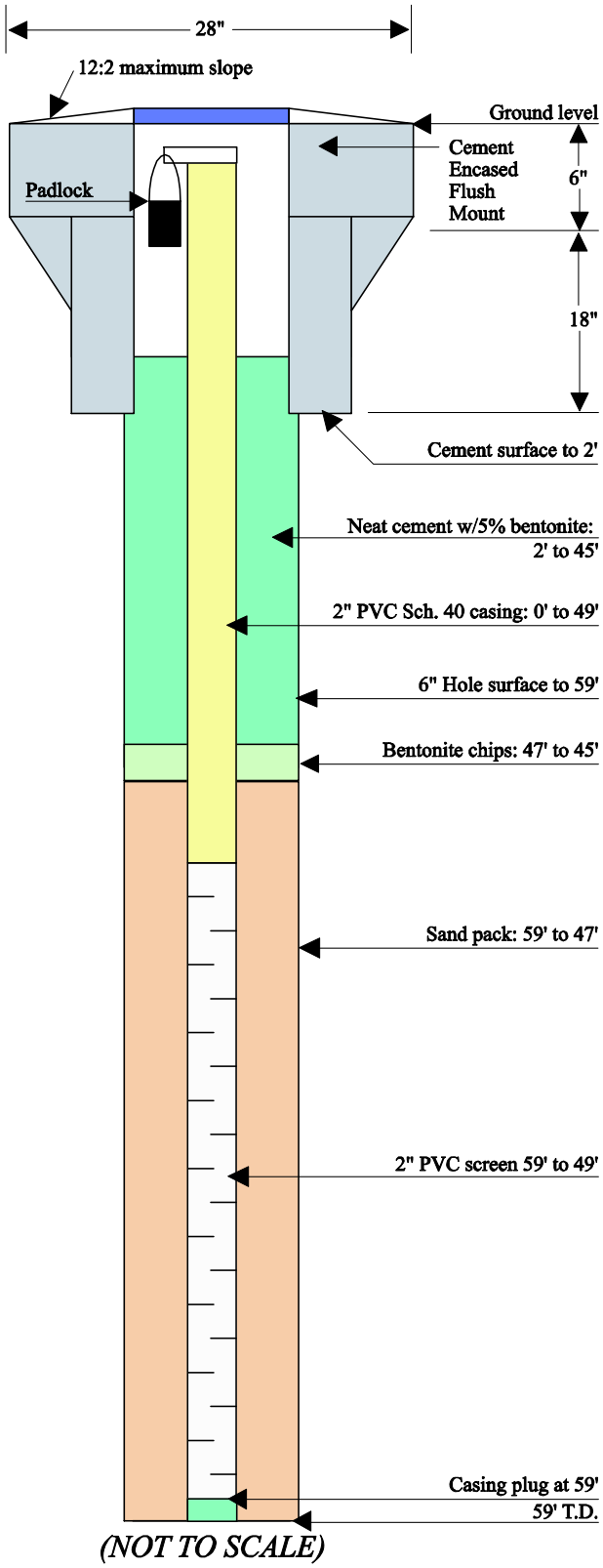
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

MW 48 Z 3-6S

WATER WELL RECORD **Form WWC-5** Division of Water Resources App. No. #430631

1 LOCATION OF WATER WELL: County: Washington | Fraction: ¼ NW ¼ SW ¼ SE ¼ | Section Number: 9 | Township No.: T 2 S | Range Number: R 5 ☑E ☐W

Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here ☐.
Southwest Corner of intersection between N. East Street and E. North Street, Hanover, KS

Global Positioning System (GPS) information:
Latitude: 39.8927 (in decimal degrees)
Longitude: -96.8714 (in decimal degrees)
Elevation: 1306.69
Datum: ☐ WGS 84, ☐ NAD 83, ☐ NAD 27
Collection Method:
☒ GPS unit (Make/Model: .....)
☐ Digital Map/Photo, ☐ Topographic Map, ☐ Land Survey
Est. Accuracy: ☒ <3 m, ☐ 3-5 m, ☐ 5-15 m, ☐ >15 m

2 WATER WELL OWNER: U.S. Dept. of Agriculture
RR#, Street Address, Box #: 1400 Independence Ave. SW
City, State, ZIP Code : Washington, DC 20250-0513

3 LOCATE WELL WITH AN "X" IN SECTION BOX:

N
W | NW | NE | E
SW | X | SE
S
|--------1 mile--------|

4 DEPTH OF COMPLETED WELL 93 ft.
Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL 52 ft. below land surface measured on mo/day/yr. 10/05/09
Pump test data: Well water was..... ft. after..... hours pumping..... gpm
EST. YIELD..... gpm. Well water was..... ft. after..... hours pumping..... gpm
Bore Hole Diameter 9 in. to 93 ft., and ..... in. to ..... ft.
WELL WATER TO BE USED AS: ☐ Public water supply ☐ Geothermal ☐ Injection well
☐ Domestic ☐ Feedlot ☐ Oil field water supply ☐ Dewatering ☐ Other (Specify below)
☐ Irrigation ☐ Industrial ☐ Domestic-lawn & garden ☑ Monitoring well
Was a chemical/bacteriological sample submitted to Department? ☐ Yes ☑ No
If yes, mo/day/yr sample was submitted.....
Water well disinfected? ☐ Yes ☑ No

5 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other .....
CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ☑ Threaded
Casing diameter 2.375 in. to 83 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 0 in., Weight .932 lbs./ft., Wall thickness or gauge No. .218
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous slot ☑ Mill slot ☐ Gauze wrapped ☐ Torch cut ☐ Drilled holes ☐ None (open hole)
☐ Louvered shutter ☐ Key punched ☐ Wire wrapped ☐ Saw cut ☐ Other (specify) .....
SCREEN-PERFORATED INTERVALS: From 83 ft. to 93 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 80 ft. to 93 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: ☑ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From 75 ft. to 80 ft., From 0 ft. to 75 ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
☐ Septic tank ☐ Lateral lines ☐ Pit privy ☐ Livestock pens ☐ Insecticide storage ☐ Other (specify below)
☐ Sewer lines ☐ Cesspool ☐ Sewage lagoon ☐ Fuel storage ☐ Abandoned water well
☐ Watertight sewer lines ☐ Seepage pit ☐ Feedyard ☐ Fertilizer storage ☐ Oil well/gas well .....
Direction from well ..... Distance from well .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	8	Brown Clay			
8	35	Gray Shale			
35	44	Red Shale			
44	58	Green Shale			
58	62	White Gypsm			
62	85	Gray/Green Shale			
85	93	Red Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo/day/year) 9/25/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 597 This Water Well Record was completed on (mo/day/year) 12/16/09 under the business name of Boart Longyear Company by (signature) .....

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212 Check: ☐ White Copy, ☐ Blue Copy, ☐ Pink Copy

Monitor Well MW48Z3: Hanover, KS

N 39.8927 W 96.8714
NW 1/4 of SW 1/4 of SE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1306.69'

Date: 12/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

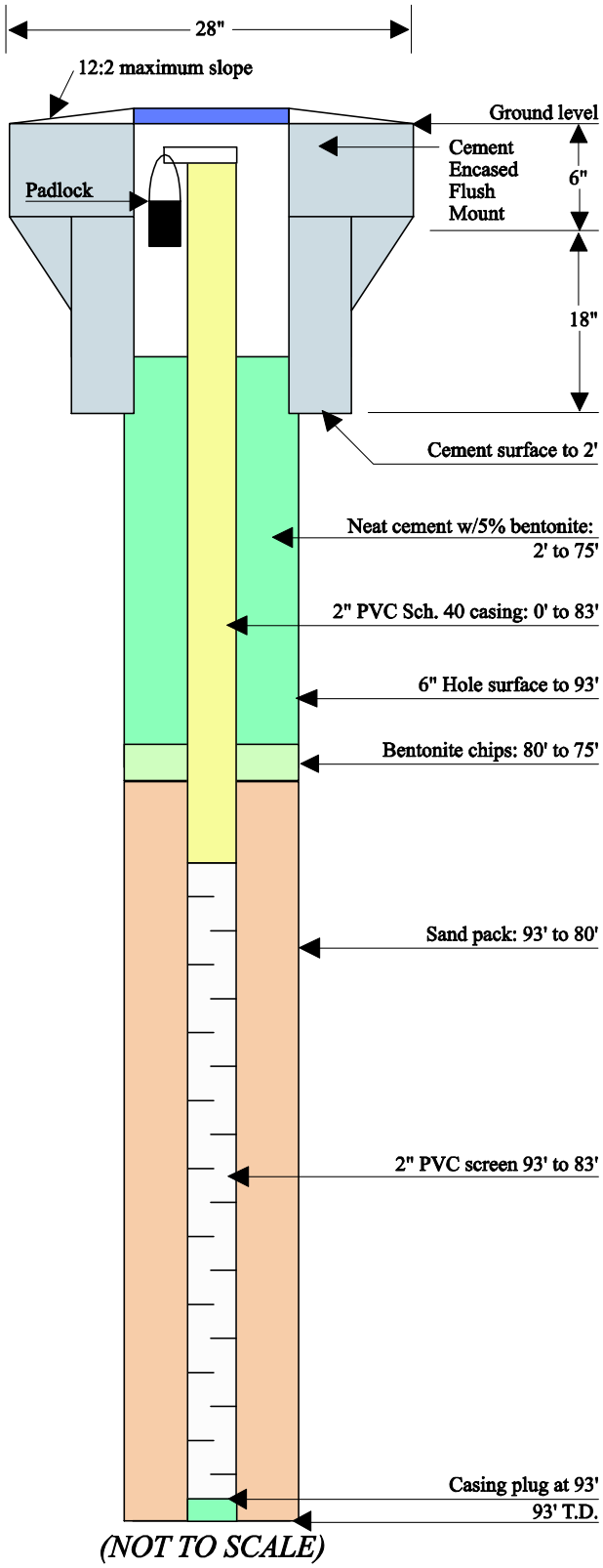
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

MW 48 Z 4-6S

WATER WELL RECORD **Form WWC-5** Division of Water Resources App. No. #430632

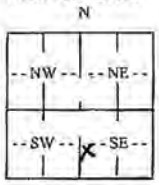
1 LOCATION OF WATER WELL: County: Washington | Fraction: ¼ NW ¼ SW ¼ SE ¼ | Section Number: 9 | Township No.: T 2 S | Range Number: R 5 ☑E ☐W

Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here ☐.
Southwest Corner of intersection between N. East Street and E. North Street, Hanover, KS

Global Positioning System (GPS) information:
Latitude: 39.8127 (in decimal degrees)
Longitude: -96.8714 (in decimal degrees)
Elevation: 1306.71
Datum: ☐ WGS 84, ☐ NAD 83, ☐ NAD 27
Collection Method:
☒ GPS unit (Make/Model: .....)
☐ Digital Map/Photo, ☐ Topographic Map, ☐ Land Survey
Est. Accuracy: ☒ <3 m, ☐ 3-5 m, ☐ 5-15 m, ☐ >15 m

2 WATER WELL OWNER: U.S. Dept. of Agriculture
RR#, Street Address, Box #: 1400 Independence Ave. SW
City, State, ZIP Code : Washington, DC 20250-0513

3 LOCATE WELL WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 121 ft.
Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL 52 ft. below land surface measured on mo/day/yr 10/05/09
Pump test data: Well water was ..... ft. after ..... hours pumping ..... gpm
EST. YIELD ..... gpm. Well water was ..... ft. after ..... hours pumping ..... gpm
Bore Hole Diameter 9 in. to 102 ft., and 6 in. to 121 ft.
WELL WATER TO BE USED AS: ☐ Public water supply ☐ Geothermal ☐ Injection well
☐ Domestic ☐ Feedlot ☐ Oil field water supply ☐ Dewatering ☐ Other (Specify below)
☐ Irrigation ☐ Industrial ☐ Domestic-lawn & garden ☑ Monitoring well
Was a chemical/bacteriological sample submitted to Department? ☐ Yes ☑ No
If yes, mo/day/yr sample was submitted .....
Water well disinfected? ☐ Yes ☑ No

5 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other .....
CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ☑ Threaded
Casing diameter 2.375 in. to 111 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 0 in., Weight .932 lbs./ft., Wall thickness or gauge No. .218
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous slot ☑ Mill slot ☐ Gauze wrapped ☐ Torch cut ☐ Drilled holes ☐ None (open hole)
☐ Louvered shutter ☐ Key punched ☐ Wire wrapped ☐ Saw cut ☐ Other (specify) .....
SCREEN-PERFORATED INTERVALS: From 111 ft. to 121 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 108 ft. to 121 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: ☑ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From 103 ft. to 108 ft., From 0 ft. to 103 ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
☐ Septic tank ☐ Lateral lines ☐ Pit privy ☐ Livestock pens ☐ Insecticide storage ☐ Other (specify below)
☐ Sewer lines ☐ Cesspool ☐ Sewage lagoon ☐ Fuel storage ☐ Abandoned water well
☐ Watertight sewer lines ☐ Seepage pit ☐ Feedyard ☐ Fertilizer storage ☐ Oil well/gas well .....
Direction from well ..... Distance from well .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	8	Brown Clay			
8	35	Gray Shale			
35	44	Red Shale			
44	58	Green Shale			
58	62	White Gypsm			
62	85	Gray/Green Shale			
85	102	Red Shale			
102	107	Gray Limestone			
107	121	Gray/Red Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo/day/year) 9/25/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 597 This Water Well Record was completed on (mo/day/year) 12/16/09 under the business name of Boart Longyear Company by (signature) .....

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212 Check: ☐ White Copy, ☐ Blue Copy, ☐ Pink Copy

Monitor Well MW48Z4: Hanover, KS

N 39.8927 W 96.8714
NW 1/4 of SW 1/4 of SE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1306.71'

Date: 12/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

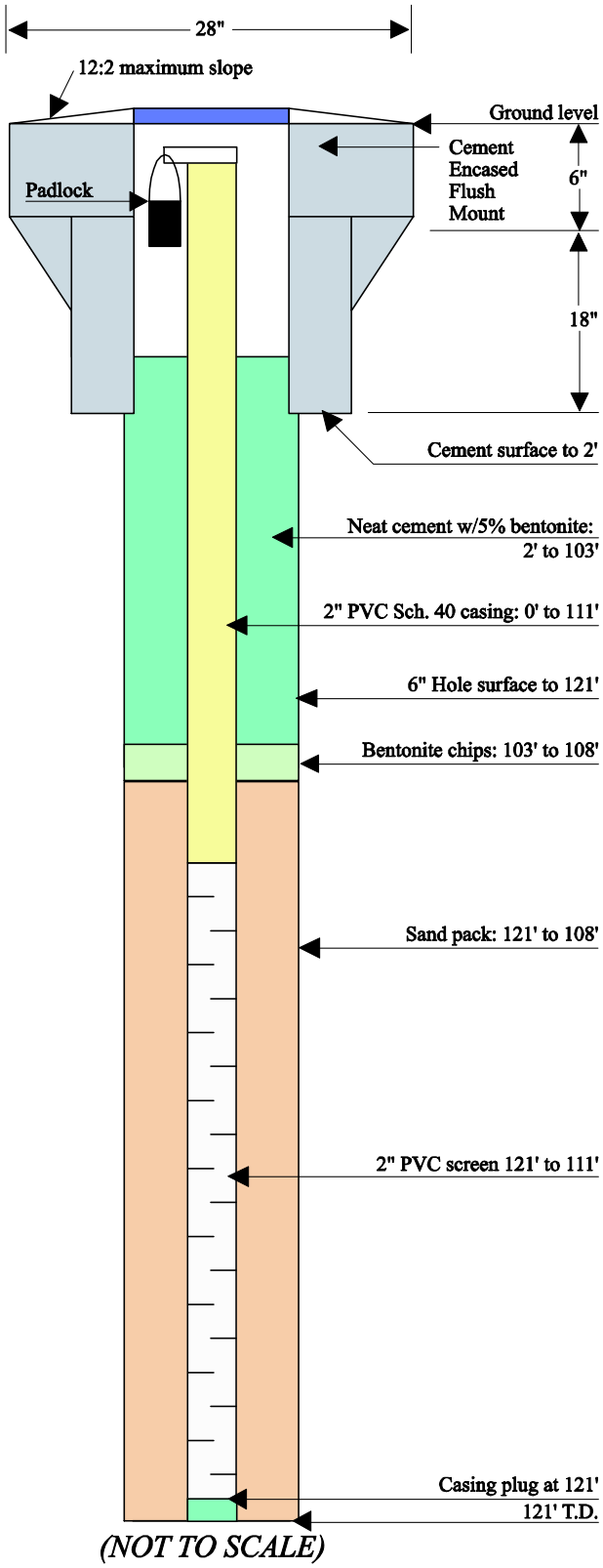
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

MW 49 Z 2- 65

WATER WELL RECORD **Form WWC-5** Division of Water Resources App. No. #430638

1 LOCATION OF WATER WELL: County: Washington | Fraction: ¼ NW ¼ SW ¼ NE ¼ | Section Number: 9 | Township No.: T 2 S | Range Number: R 5 ☑E ☐W

Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here ☐.
150' NE of 300 Westminster Street, Hanover, KS 66945

Global Positioning System (GPS) information:
Latitude: 39.896 (in decimal degrees)
Longitude: -96.8702 (in decimal degrees)
Elevation: 1321.5
Datum: ☐ WGS 84, ☐ NAD 83, ☐ NAD 27
Collection Method:
☒ GPS unit (Make/Model: .....)
☐ Digital Map/Photo, ☐ Topographic Map, ☐ Land Survey
Est. Accuracy: ☒ <3 m, ☐ 3-5 m, ☐ 5-15 m, ☐ >15 m

2 WATER WELL OWNER: U.S. Dept. of Agriculture
RR#, Street Address, Box #: 1400 Independence Ave. SW
City, State, ZIP Code : Washington, DC 20250-0513

3 LOCATE WELL WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | -- NE -- (X) | E
-- SW -- | -- SE --
S
|--------1 mile--------|

4 DEPTH OF COMPLETED WELL 65 ft.
Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL 52 ft. below land surface measured on mo/day/yr 10/08/09
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
EST. YIELD.....gpm. Well water was.....ft. after..... hours pumping..... gpm
Bore Hole Diameter 6 in. to 65 ft., and .....in. to .....ft.
WELL WATER TO BE USED AS: ☐ Public water supply ☐ Geothermal ☐ Injection well
☐ Domestic ☐ Feedlot ☐ Oil field water supply ☐ Dewatering ☐ Other (Specify below)
☐ Irrigation ☐ Industrial ☐ Domestic-lawn & garden ☑ Monitoring well .....
Was a chemical/bacteriological sample submitted to Department? ☐ Yes ☑ No
If yes, mo/day/yr sample was submitted.....
Water well disinfected? ☐ Yes ☑ No

5 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other .....
CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ☑ Threaded
Casing diameter 2.375 in. to 55 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 0 in., Weight 932 lbs./ft., Wall thickness or gauge No. 218
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous slot ☑ Mill slot ☐ Gauze wrapped ☐ Torch cut ☐ Drilled holes ☐ None (open hole)
☐ Louvered shutter ☐ Key punched ☐ Wire wrapped ☐ Saw cut ☐ Other (specify) .....
SCREEN-PERFORATED INTERVALS: From 55 ft. to 65 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 53 ft. to 65 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: ☑ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From 51 ft. to 53 ft., From 0 ft. to 53 ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
☐ Septic tank ☐ Lateral lines ☐ Pit privy ☐ Livestock pens ☐ Insecticide storage ☐ Other (specify below)
☐ Sewer lines ☐ Cesspool ☐ Sewage lagoon ☐ Fuel storage ☐ Abandoned water well
☐ Watertight sewer lines ☐ Seepage pit ☐ Feedyard ☐ Fertilizer storage ☐ Oil well/gas well .....
Direction from well ..... Distance from well .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	8	Red Clay	59	60	White Quartz
8	16	Brown Shale	60	64	Red Shale
16	25	Tan Limestone	64	65	White Gypsm
25	28	Tan Shale			
28	43	Gray Shale			
43	44	Gray/Tan Limestone			
44	46	Tan Shale			
46	52	Red Shale			
52	53	Green Shale			
53	59	Red Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo/day/year) 10/8/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 597 This Water Well Record was completed on (mo/day/year) 12/16/09 under the business name of Boart Longyear Company by (signature) .....

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212 Check: ☐ White Copy, ☐ Blue Copy, ☐ Pink Copy

Monitor Well MW49Z2: Hanover, KS

N 39.8960 W 96.8702
NW 1/4 of SW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1321.50'

Date: 12/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

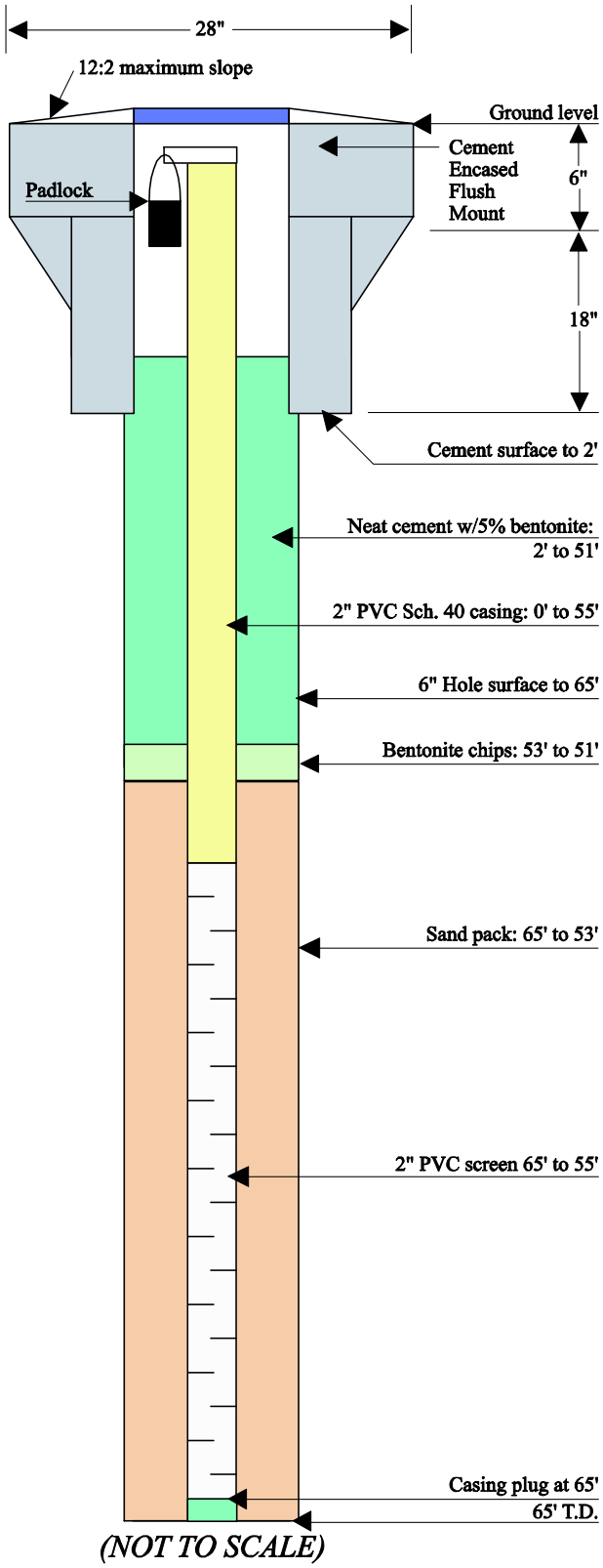
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

MW 49 Z 3-GS

WATER WELL RECORD **Form WWC-5** Division of Water Resources App. No. #430635

1 LOCATION OF WATER WELL: County: Washington | Fraction: ¼ NW ¼ SW ¼ NE ¼ | Section Number: 9 | Township No.: T 2 S | Range Number: R 5 ☑E ☐W

Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here ☐.
150' NE of 300 Westminster Street, Hanover, KS 66945

Global Positioning System (GPS) information:
Latitude: 39.896 (in decimal degrees)
Longitude: -96.8702 (in decimal degrees)
Elevation: 1321.43
Datum: ☐ WGS 84, ☐ NAD 83, ☐ NAD 27
Collection Method:
☒ GPS unit (Make/Model: .....)
☐ Digital Map/Photo, ☐ Topographic Map, ☐ Land Survey
Est. Accuracy: ☒ <3 m, ☐ 3-5 m, ☐ 5-15 m, ☐ >15 m

2 WATER WELL OWNER: U.S. Dept. of Agriculture
RR#, Street Address, Box #: 1400 Independence Ave. SW
City, State, ZIP Code : Washington, DC 20250-0513

3 LOCATE WELL WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | X -- NE -- | E
-- SW -- | -- SE --
S
|----------1 mile----------|

4 DEPTH OF COMPLETED WELL 115 ft.
Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL 52 ft. below land surface measured on mo/day/yr 10/08/09
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
EST. YIELD.....gpm. Well water was.....ft. after..... hours pumping..... gpm
Bore Hole Diameter 9 in. to 115 ft., and .....in. to .....ft.
WELL WATER TO BE USED AS: ☐ Public water supply ☐ Geothermal ☐ Injection well
☐ Domestic ☐ Feedlot ☐ Oil field water supply ☐ Dewatering ☐ Other (Specify below)
☐ Irrigation ☐ Industrial ☐ Domestic-lawn & garden ☑ Monitoring well .....
Was a chemical/bacteriological sample submitted to Department? ☐ Yes ☑ No
If yes, mo/day/yr sample was submitted.....
Water well disinfected? ☐ Yes ☑ No

5 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other .....
CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ☑ Threaded
Casing diameter 2.375 in. to 105 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 0 in., Weight .932 lbs./ft., Wall thickness or gauge No. .218
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous slot ☑ Mill slot ☐ Gauze wrapped ☐ Torch cut ☐ Drilled holes ☐ None (open hole)
☐ Louvered shutter ☐ Key punched ☐ Wire wrapped ☐ Saw cut ☐ Other (specify) .....
SCREEN-PERFORATED INTERVALS: From 105 ft. to 115 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 103 ft. to 115 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: ☑ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From 101 ft. to 103 ft., From 0 ft. to 101 ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
☐ Septic tank ☐ Lateral lines ☐ Pit privy ☐ Livestock pens ☐ Insecticide storage ☐ Other (specify below)
☐ Sewer lines ☐ Cesspool ☐ Sewage lagoon ☐ Fuel storage ☐ Abandoned water well
☐ Watertight sewer lines ☐ Seepage pit ☐ Feedyard ☐ Fertilizer storage ☐ Oil well/gas well .....
Direction from well ..... Distance from well .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	8	Red Clay	59	60	White Quartz
8	16	Brown Shale	60	64	Red Shale
16	25	Tan Limestone	64	79	White Gypsm
25	28	Tan Shale	79	105	Grey Shale
28	43	Gray Shale	105	110	Grey Shale (harder)
43	44	Gray/Tan Limestone	110	115	Red Shale
44	46	Tan Shale			
46	52	Red Shale			
52	53	Green Shale			
53	59	Red Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo/day/year) 10/8/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 597 This Water Well Record was completed on (mo/day/year) 12/16/09 under the business name of Boart Longyear Company by (signature) .....

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212 Check: ☐ White Copy, ☐ Blue Copy, ☐ Pink Copy

Monitor Well MW49Z3: Hanover, KS

N 39.8960 W 96.8702
NW 1/4 of SW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1321.43'

Date: 12/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

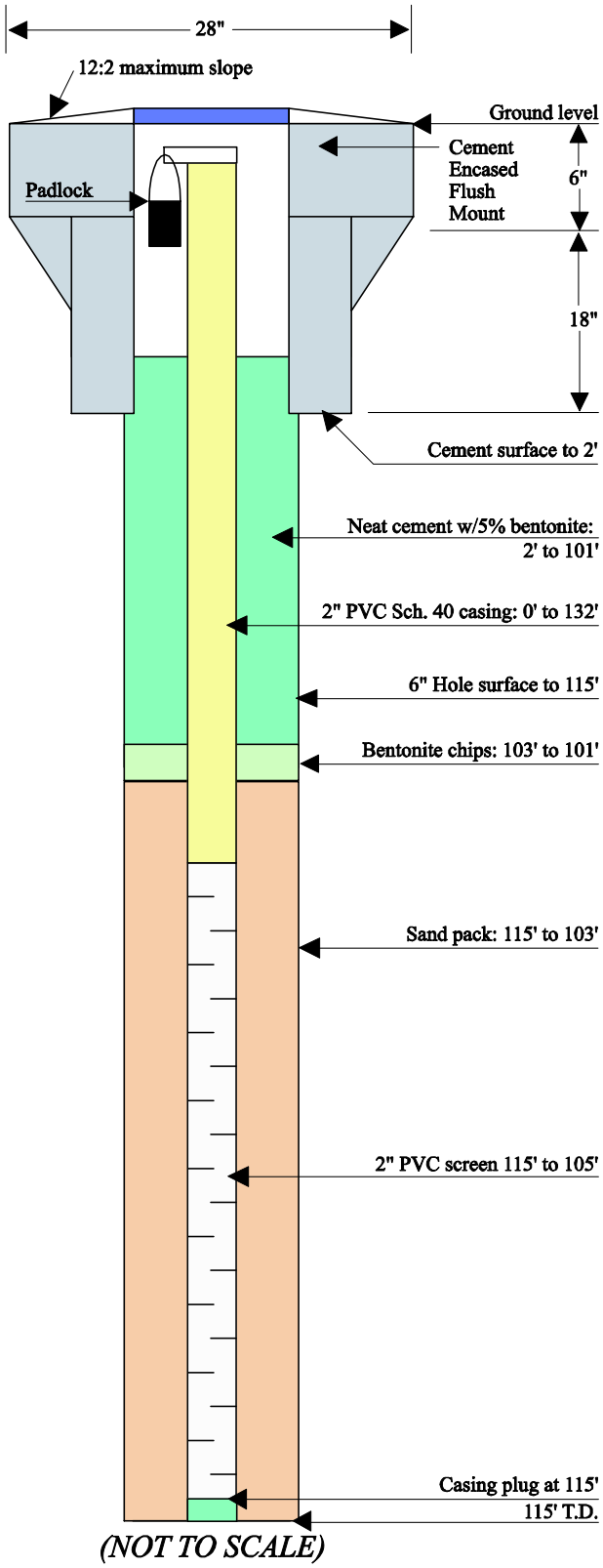
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

MW 49 Z 4-GS

WATER WELL RECORD **Form WWC-5** Division of Water Resources App. No. # 430628

1 LOCATION OF WATER WELL: County: Washington | Fraction: ¼ NW ¼ SW ¼ NE ¼ | Section Number: 9 | Township No.: T 2 S | Range Number: R 5 ☑E ☐W

Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here ☐.
150' NE of 300 Westminster Street, Hanover, KS 66945

Global Positioning System (GPS) information:
Latitude: 39.896 (in decimal degrees)
Longitude: -96.8702 (in decimal degrees)
Elevation: 1321.48
Datum: ☐ WGS 84, ☐ NAD 83, ☐ NAD 27
Collection Method:
☒ GPS unit (Make/Model: .....)
☐ Digital Map/Photo, ☐ Topographic Map, ☐ Land Survey
Est. Accuracy: ☒ <3 m, ☐ 3-5 m, ☐ 5-15 m, ☐ >15 m

2 WATER WELL OWNER: U.S. Dept. of Agriculture
RR#, Street Address, Box #: 1400 Independence Ave. SW
City, State, ZIP Code : Washington, DC 20250-0513

3 LOCATE WELL WITH AN "X" IN SECTION BOX:

N
-- NW -- | X -- NE --
W | E
-- SW -- | -- SE --
S
|——1 mile——|

4 DEPTH OF COMPLETED WELL 142 ft.
Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL 52 ft. below land surface measured on mo/day/yr. 10/08/09
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
EST. YIELD.....gpm. Well water was.....ft. after..... hours pumping..... gpm
Bore Hole Diameter 9 in. to 115 ft., and 6 in. to 142 ft.
WELL WATER TO BE USED AS: ☐ Public water supply ☐ Geothermal ☐ Injection well
☐ Domestic ☐ Feedlot ☐ Oil field water supply ☐ Dewatering ☐ Other (Specify below)
☐ Irrigation ☐ Industrial ☐ Domestic-lawn & garden ☑ Monitoring well
Was a chemical/bacteriological sample submitted to Department? ☐ Yes ☑ No
If yes, mo/day/yr sample was submitted.....
Water well disinfected? ☐ Yes ☑ No

5 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other .....
CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ☑ Threaded
Casing diameter 2.375 in. to 132 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 0 in., Weight 932 lbs./ft., Wall thickness or gauge No. 218
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous slot ☑ Mill slot ☐ Gauze wrapped ☐ Torch cut ☐ Drilled holes ☐ None (open hole)
☐ Louvered shutter ☐ Key punched ☐ Wire wrapped ☐ Saw cut ☐ Other (specify) .....
SCREEN-PERFORATED INTERVALS: From 132 ft. to 142 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 130 ft. to 142 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: ☑ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From 128 ft. to 130 ft., From 0 ft. to 128 ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
☐ Septic tank ☐ Lateral lines ☐ Pit privy ☐ Livestock pens ☐ Insecticide storage ☐ Other (specify below)
☐ Sewer lines ☐ Cesspool ☐ Sewage lagoon ☐ Fuel storage ☐ Abandoned water well
☐ Watertight sewer lines ☐ Seepage pit ☐ Feedyard ☐ Fertilizer storage ☐ Oil well/gas well .....
Direction from well ..... Distance from well .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	8	Red Clay	59	60	White Quartz
8	16	Brown Shale	60	64	Red Shale
16	25	Tan Limestone	64	79	White Gypsm
25	28	Tan Shale	79	105	Grey Shale
28	43	Gray Shale	105	110	Grey Shale (harder)
43	44	Gray/Tan Limestone	110	132	Red Shale
44	46	Tan Shale	132	133	White Gypsm
46	52	Red Shale	133	140	Red Shale
52	53	Green Shale	140	142	White Gypsm
53	59	Red Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo/day/year) 10/8/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 597 This Water Well Record was completed on (mo/day/year) 12/16/09 under the business name of Boart Longyear Company by (signature) .....

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212 Check: ☐ White Copy, ☐ Blue Copy, ☐ Pink Copy

Monitor Well MW49Z4: Hanover, KS

N 39.8960 W 96.8702
NW 1/4 of SW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1321.48'

Date: 12/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

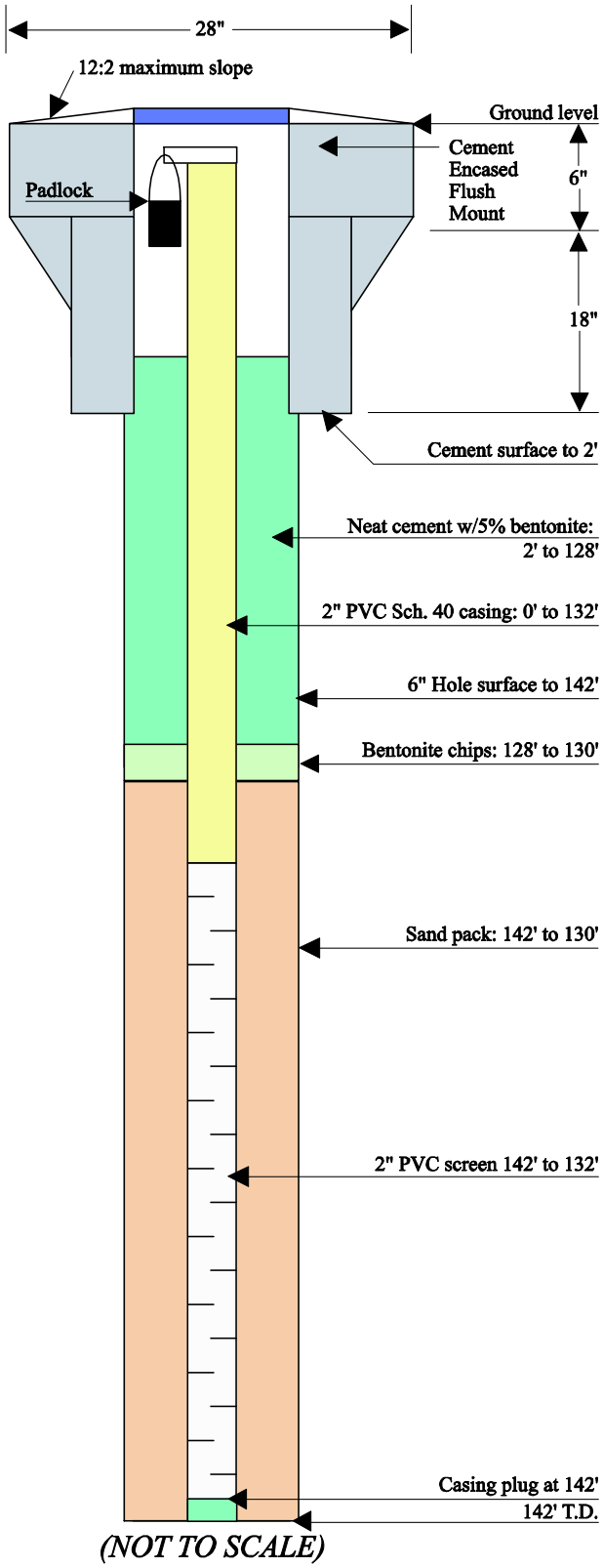
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

MW 5022-GS

WATER WELL RECORD **Form WWC-5** Division of Water Resources App. No. #430618

1 LOCATION OF WATER WELL: County: Washington | Fraction: ¼ SE ¼ SE ¼ NW ¼ | Section Number: 9 | Township No.: T 2 S | Range Number: R 5 ☑E ☐W

Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here ☐.
Northern End of N. Church Street (in the range of 200-200 N. Church St.,Hanover,KS 66945

Global Positioning System (GPS) information:
Latitude: 39.8946 (in decimal degrees)
Longitude: -96.8732 (in decimal degrees)
Elevation: 1307.12
Datum: ☐ WGS 84, ☐ NAD 83, ☐ NAD 27
Collection Method:
☒ GPS unit (Make/Model: .....)
☐ Digital Map/Photo, ☐ Topographic Map, ☐ Land Survey
Est. Accuracy: ☒ <3 m, ☐ 3-5 m, ☐ 5-15 m, ☐ >15 m

2 WATER WELL OWNER: U.S. Dept. of Agriculture
RR#, Street Address, Box #: 1400 Independence Ave. SW
City, State, ZIP Code : Washington, DC 20250-0513

3 LOCATE WELL WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | -- NE -- | E
-- SW -- | -- SE --
S
|---------1 mile---------|

4 DEPTH OF COMPLETED WELL 65 ft.
Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL 50 ft. below land surface measured on mo/day/yr. 10/12/09
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
EST. YIELD.....gpm. Well water was.....ft. after..... hours pumping..... gpm
Bore Hole Diameter 6 in. to 65 ft., and .....in. to .....ft.
WELL WATER TO BE USED AS: ☐ Public water supply ☐ Geothermal ☐ Injection well
☐ Domestic ☐ Feedlot ☐ Oil field water supply ☐ Dewatering ☐ Other (Specify below)
☐ Irrigation ☐ Industrial ☐ Domestic-lawn & garden ☑ Monitoring well .....
Was a chemical/bacteriological sample submitted to Department? ☐ Yes ☑ No
If yes, mo/day/yr sample was submitted.....
Water well disinfected? ☐ Yes ☑ No

5 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other .....
CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ☑ Threaded
Casing diameter 2.375 in. to 55 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 0 in., Weight 932 lbs./ft., Wall thickness or gauge No. 218
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous slot ☑ Mill slot ☐ Gauze wrapped ☐ Torch cut ☐ Drilled holes ☐ None (open hole)
☐ Louvered shutter ☐ Key punched ☐ Wire wrapped ☐ Saw cut ☐ Other (specify) .....
SCREEN-PERFORATED INTERVALS: From 55 ft. to 65 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 53 ft. to 65 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: ☑ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From 51 ft. to 53 ft., From 0 ft. to 53 ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
☐ Septic tank ☐ Lateral lines ☐ Pit privy ☐ Livestock pens ☐ Insecticide storage ☐ Other (specify below)
☐ Sewer lines ☐ Cesspool ☐ Sewage lagoon ☐ Fuel storage ☐ Abandoned water well
☐ Watertight sewer lines ☐ Seepage pit ☐ Feedyard ☐ Fertilizer storage ☐ Oil well/gas well .....
Direction from well ..... Distance from well .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	8	Red Clay			
8	35	Tan Shale			
35	50	Red Weathered Shale			
50	65	Gray Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo/day/year) 10/12/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 597 This Water Well Record was completed on (mo/day/year) 12/16/09 under the business name of Boart Longyear Company by (signature) .....

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212 Check: ☐ White Copy, ☐ Blue Copy, ☐ Pink Copy

Monitor Well MW50Z2: Hanover, KS

N 39.8946 W 96.8732
SE 1/4 of SE 1/4 of NW 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1307.12'

Date: 12/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

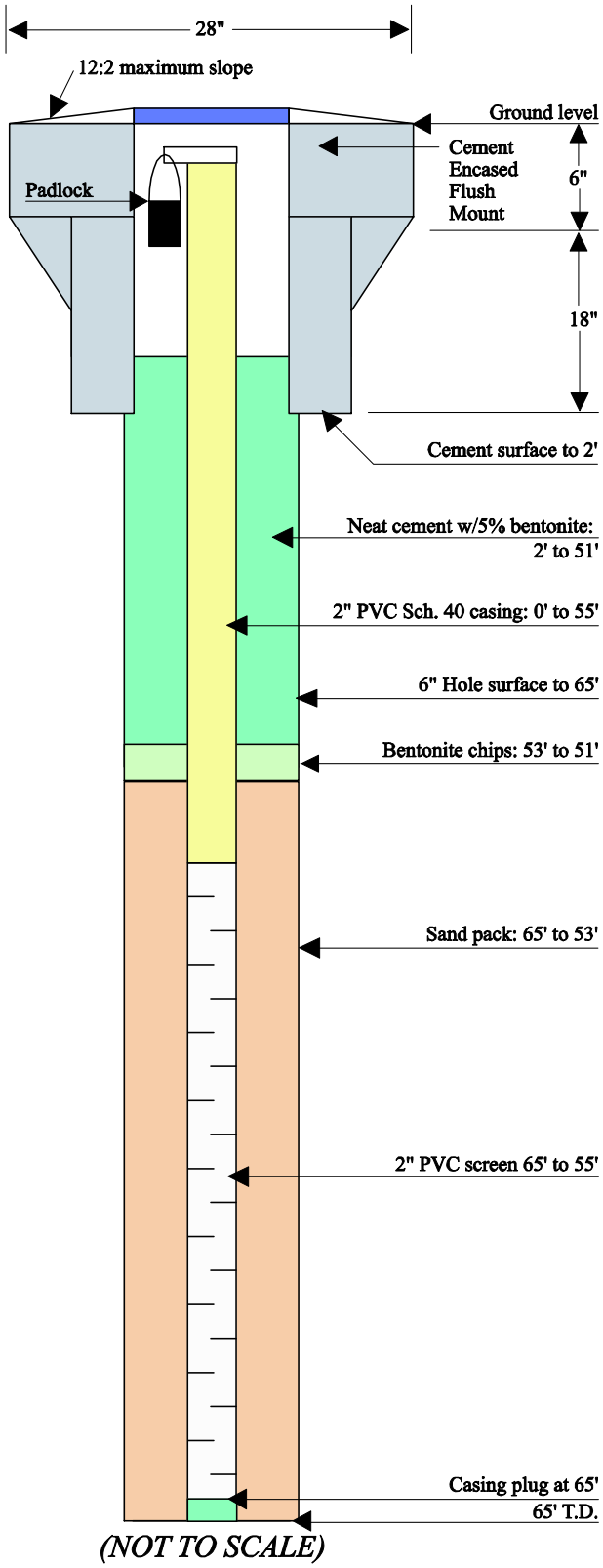
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

MW 5023-GS

#430620

WATER WELL RECORD **Form WWC-5** Division of Water Resources App. No.

1 LOCATION OF WATER WELL: County: Washington | Fraction: ¼ SE ¼ SE ¼ NW ¼ | Section Number: 9 | Township No. T 2 S | Range Number R 5 ☑E ☐W

Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here ☐.
Northern End of N. Church Street (in the range of 200-200 N. Church St.,Hanover,KS 66945

Global Positioning System (GPS) information:
Latitude: 39.8945 (in decimal degrees)
Longitude: -96.8733 (in decimal degrees)
Elevation: 1307.18
Datum: ☐ WGS 84, ☐ NAD 83, ☐ NAD 27
Collection Method: ☒ GPS unit (Make/Model:) ☐ Digital Map/Photo, ☐ Topographic Map, ☐ Land Survey
Est. Accuracy: ☒ <3 m, ☐ 3-5 m, ☐ 5-15 m, ☐ >15 m

2 WATER WELL OWNER: U.S. Dept. of Agriculture
RR#, Street Address, Box #: 1400 Independence Ave. SW
City, State, ZIP Code : Washington, DC 20250-0513

3 LOCATE WELL WITH AN "X" IN SECTION BOX:

N
NW | NE
W X E
SW | SE
S
|---1 mile---|

4 DEPTH OF COMPLETED WELL 99 ft.
Depth(s) Groundwater Encountered (1) ft. (2) ft. (3) ft.
WELL'S STATIC WATER LEVEL 50 ft. below land surface measured on mo/day/yr. 10/12/09
Pump test data: Well water was ft. after hours pumping gpm
EST. YIELD gpm. Well water was ft. after hours pumping gpm
Bore Hole Diameter 9 in. to 99 ft., and in. to ft.
WELL WATER TO BE USED AS: ☐ Public water supply ☐ Geothermal ☐ Injection well
☐ Domestic ☐ Feedlot ☐ Oil field water supply ☐ Dewatering ☐ Other (Specify below)
☐ Irrigation ☐ Industrial ☐ Domestic-lawn & garden ☑ Monitoring well
Was a chemical/bacteriological sample submitted to Department? ☐ Yes ☑ No
If yes, mo/day/yr sample was submitted
Water well disinfected? ☐ Yes ☑ No

5 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other
CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ☑ Threaded
Casing diameter 2.375 in. to 89 ft., Diameter in. to ft., Diameter in. to ft.
Casing height above land surface 0 in., Weight 932 lbs./ft., Wall thickness or gauge No. 218
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☑ PVC ☐ Other (Specify)
☐ Brass ☐ Galvanized Steel ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous slot ☑ Mill slot ☐ Gauze wrapped ☐ Torch cut ☐ Drilled holes ☐ None (open hole)
☐ Louvered shutter ☐ Key punched ☐ Wire wrapped ☐ Saw cut ☐ Other (specify)
SCREEN-PERFORATED INTERVALS: From 89 ft. to 99 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 87 ft. to 89 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: ☑ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other
Grout Intervals: From 85 ft. to 87 ft., From 0 ft. to 87 ft., From ft. to ft.
What is the nearest source of possible contamination:
☐ Septic tank ☐ Lateral lines ☐ Pit privy ☐ Livestock pens ☐ Insecticide storage ☐ Other (specify below)
☐ Sewer lines ☐ Cesspool ☐ Sewage lagoon ☐ Fuel storage ☐ Abandoned water well
☐ Watertight sewer lines ☐ Seepage pit ☐ Feedyard ☐ Fertilizer storage ☐ Oil well/gas well
Direction from well Distance from well

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	8	Red Clay			
8	35	Tan Shale			
35	50	Red Weathered Shale			
50	93	Gray Shale			
93	99	Red/Gray Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo/day/year) 10/12/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 597 This Water Well Record was completed on (mo/day/year) 12/16/09 under the business name of Boart Longyear Company by (signature)

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212 Check: ☐ White Copy, ☐ Blue Copy, ☐ Pink Copy

Monitor Well MW50Z3: Hanover, KS

N 39.8945 W 96.8733
SE 1/4 of SE 1/4 of NW 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1307.18'

Date: 12/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

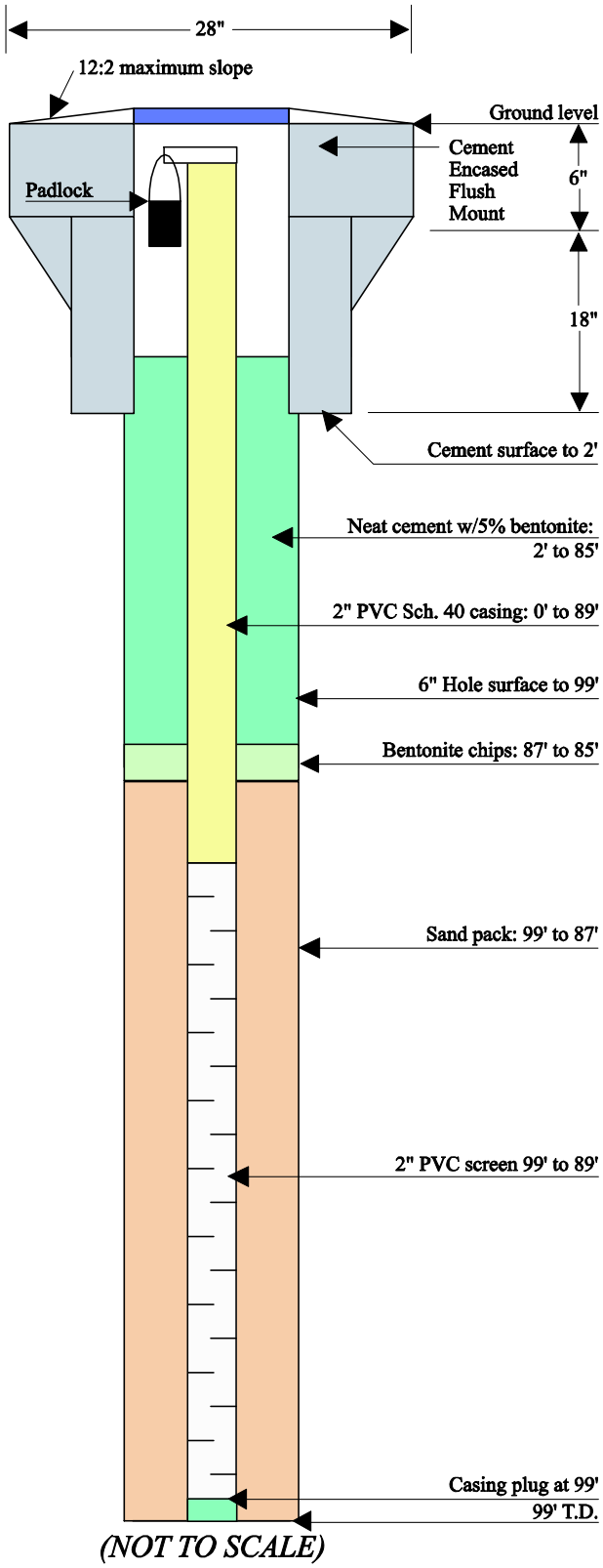
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

MW5024-GS

WATER WELL RECORD **Form WWC-5** Division of Water Resources App. No. #430621

1 LOCATION OF WATER WELL: County: Washington | Fraction: ¼ SE ¼ SE ¼ NW ¼ | Section Number: 9 | Township No.: T 2 S | Range Number: R 5 ☑E ☐W

Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here ☐.
Northern End of N. Church Street (in the range of 200-200 N. Church St.,Hanover,KS 66945

Global Positioning System (GPS) information:
Latitude: 39.8945 (in decimal degrees)
Longitude: -96.8732 (in decimal degrees)
Elevation: 1307.21
Datum: ☐ WGS 84, ☐ NAD 83, ☐ NAD 27
Collection Method:
☒ GPS unit (Make/Model: .....)
☐ Digital Map/Photo, ☐ Topographic Map, ☐ Land Survey
Est. Accuracy: ☒ <3 m, ☐ 3-5 m, ☐ 5-15 m, ☐ >15 m

2 WATER WELL OWNER: U.S. Dept. of Agriculture
RR#, Street Address, Box #: 1400 Independence Ave. SW
City, State, ZIP Code : Washington, DC 20250-0513

3 LOCATE WELL WITH AN "X" IN SECTION BOX:

N
W | -- NW -- | -- NE -- | E
| X |
-- SW -- | -- SE --
S
|---------1 mile---------|

4 DEPTH OF COMPLETED WELL 128 ft.
Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL 50 ft. below land surface measured on mo/day/yr. 10/12/09
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
EST. YIELD.....gpm. Well water was.....ft. after..... hours pumping..... gpm
Bore Hole Diameter 9 in. to 99 ft., and 6 in. to 128 ft.
WELL WATER TO BE USED AS: ☐ Public water supply ☐ Geothermal ☐ Injection well
☐ Domestic ☐ Feedlot ☐ Oil field water supply ☐ Dewatering ☐ Other (Specify below)
☐ Irrigation ☐ Industrial ☐ Domestic-lawn & garden ☑ Monitoring well .....
Was a chemical/bacteriological sample submitted to Department? ☐ Yes ☑ No
If yes, mo/day/yr sample was submitted.....
Water well disinfected? ☐ Yes ☑ No

5 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other .....
CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ☑ Threaded
Casing diameter 2.375 in. to 118 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 0 in., Weight .932 lbs./ft., Wall thickness or gauge No. .218
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous slot ☑ Mill slot ☐ Gauze wrapped ☐ Torch cut ☐ Drilled holes ☐ None (open hole)
☐ Louvered shutter ☐ Key punched ☐ Wire wrapped ☐ Saw cut ☐ Other (specify) .....
SCREEN-PERFORATED INTERVALS: From 118 ft. to 128 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 116 ft. to 128 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: ☑ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From 114 ft. to 116 ft., From 0 ft. to 116 ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
☐ Septic tank ☐ Lateral lines ☐ Pit privy ☐ Livestock pens ☐ Insecticide storage ☐ Other (specify below)
☐ Sewer lines ☐ Cesspool ☐ Sewage lagoon ☐ Fuel storage ☐ Abandoned water well
☐ Watertight sewer lines ☐ Seepage pit ☐ Feedyard ☐ Fertilizer storage ☐ Oil well/gas well .....
Direction from well ..... Distance from well .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	8	Red Clay			
8	35	Tan Shale			
35	50	Red Weathered Shale			
50	93	Gray Shale			
93	125	Red/Gray Shale			
125	128	White Gypsm			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo/day/year) 10/12/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 597 This Water Well Record was completed on (mo/day/year) 12/16/09 under the business name of Boart Longyear Company by (signature) .....

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212 Check: ☐ White Copy, ☐ Blue Copy, ☐ Pink Copy

Monitor Well MW50Z4: Hanover, KS

N 39.8945 W 96.8732
SE 1/4 of SE 1/4 of NW 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1307.21'

Date: 12/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

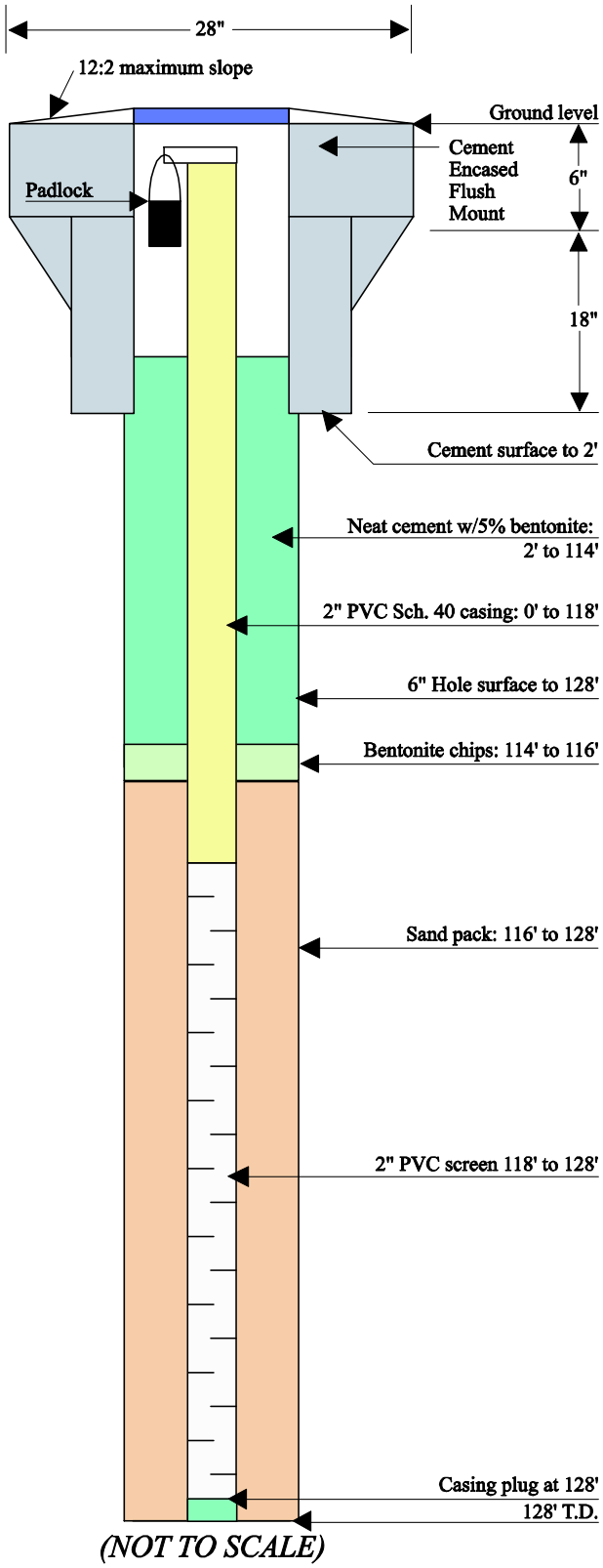
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

MW 51 Z 2-GS

WATER WELL RECORD **Form WWC-5** Division of Water Resources App. No. # 430627

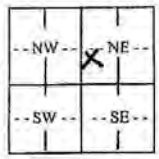
1 LOCATION OF WATER WELL: County: Washington	Fraction ¼ NW ¼ SW ¼ NE ¼	Section Number 9	Township No. T 2 S	Range Number R 5 ☑E ☐W

Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here ☐.
SE Corner of N. East Street & Kensington St. Across from 400 E. Kensington St, Hanover

Global Positioning System (GPS) information:
Latitude: 39.8949 (in decimal degrees)
Longitude: -96.8713 (in decimal degrees)
Elevation: ~~1373~~ 1318.55
Datum: ☐ WGS 84, ☐ NAD 83, ☐ NAD 27
Collection Method:
☒ GPS unit (Make/Model: .....)
☐ Digital Map/Photo, ☐ Topographic Map, ☐ Land Survey
Est. Accuracy: ☒ <3 m, ☐ 3-5 m, ☐ 5-15 m, ☐ >15 m

2 WATER WELL OWNER: U.S. Dept. of Agriculture
RR#, Street Address, Box #: 1400 Independence Ave. SW
City, State, ZIP Code : Washington, DC 20250-0513

3 LOCATE WELL WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 66 ft.
Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL 51 ft. below land surface measured on mo/day/yr. 10/15/09
Pump test data: Well water was ..... ft. after ..... hours pumping ..... gpm
EST. YIELD ..... gpm. Well water was ..... ft. after ..... hours pumping ..... gpm
Bore Hole Diameter 6 in. to 66 ft., and ..... in. to ..... ft.
WELL WATER TO BE USED AS: ☐ Public water supply ☐ Geothermal ☐ Injection well
☐ Domestic ☐ Feedlot ☐ Oil field water supply ☐ Dewatering ☐ Other (Specify below)
☐ Irrigation ☐ Industrial ☐ Domestic-lawn & garden ☑ Monitoring well .....
Was a chemical/bacteriological sample submitted to Department? ☐ Yes ☑ No
If yes, mo/day/yr sample was submitted .....
Water well disinfected? ☐ Yes ☑ No

5 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other .....
CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ☑ Threaded
Casing diameter 2.375 in. to 56 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 0 in., Weight .932 lbs./ft., Wall thickness or gauge No. .218
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous slot ☑ Mill slot ☐ Gauze wrapped ☐ Torch cut ☐ Drilled holes ☐ None (open hole)
☐ Louvered shutter ☐ Key punched ☐ Wire wrapped ☐ Saw cut ☐ Other (specify) .....
SCREEN-PERFORATED INTERVALS: From 56 ft. to 66 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 54 ft. to 66 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: ☑ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From 51 ft. to 54 ft., From 0 ft. to 51 ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
☐ Septic tank ☐ Lateral lines ☐ Pit privy ☐ Livestock pens ☐ Insecticide storage ☐ Other (specify below)
☐ Sewer lines ☐ Cesspool ☐ Sewage lagoon ☐ Fuel storage ☐ Abandoned water well
☐ Watertight sewer lines ☐ Seepage pit ☐ Feedyard ☐ Fertilizer storage ☐ Oil well/gas well .....
Direction from well ..... Distance from well .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	8	Red Clay			
8	24	Tan Shale			
24	42	Gray Shale			
42	62	Red/Gray Shale			
62	66	White Gypsm			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo/day/year) 10/15/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 597 This Water Well Record was completed on (mo/day/year) 12/16/09 under the business name of Boart Longyear Company by (signature) .....

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212 Check: ☐ White Copy, ☐ Blue Copy, ☐ Pink Copy

Monitor Well MW51Z2: Hanover, KS

N 39.8949 W 96.8713
NW 1/4 of SW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1318.55'

Date: 12/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

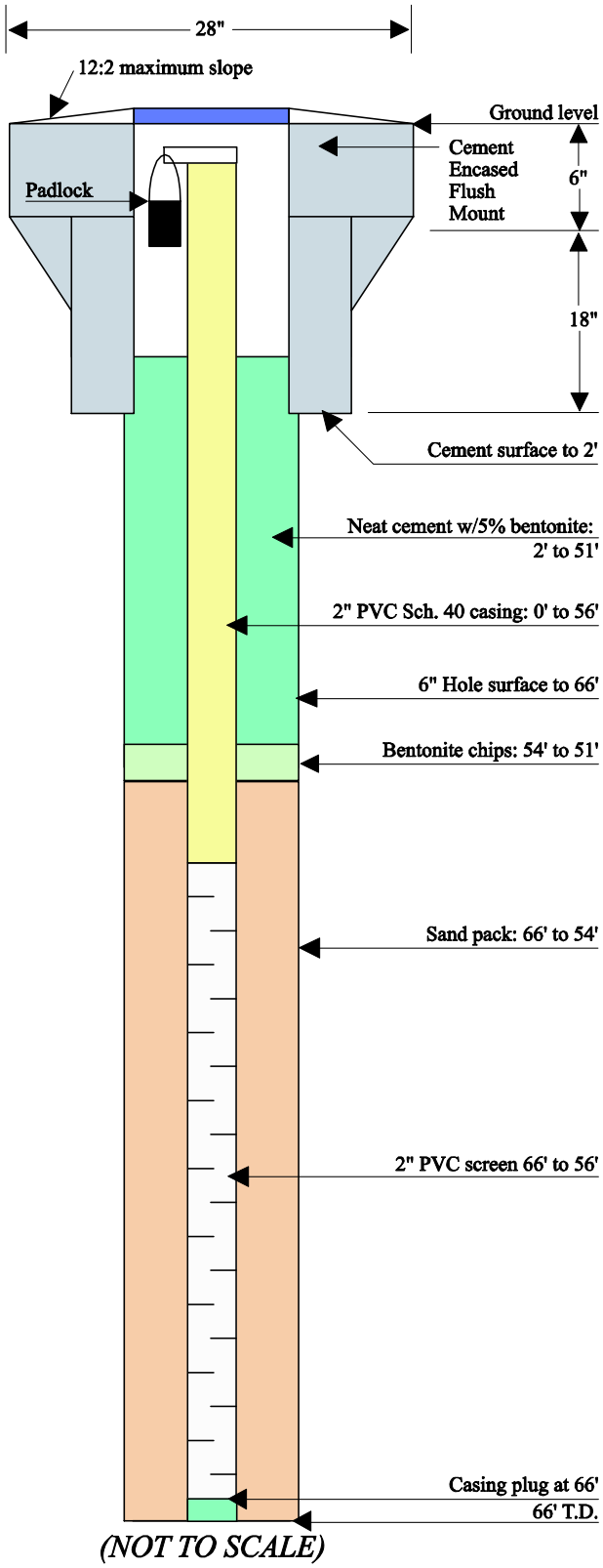
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

MW 51 23-GS

WATER WELL RECORD **Form WWC-5** Division of Water Resources App. No. #430625

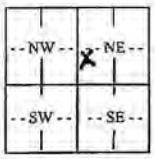
1 LOCATION OF WATER WELL: County: Washington	Fraction ¼ NW ¼ SW ¼ NE ¼	Section Number 9	Township No. T 2 S	Range Number R 5 ☑E ☐W

Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here ☐.
SE Corner of N. East Street & Kensington St. Across from 400 E. Kensington St, Hanover

Global Positioning System (GPS) information:
Latitude: 39.8949 (in decimal degrees)
Longitude: -96.8714 (in decimal degrees)
Elevation: 1318.37
Datum: ☐ WGS 84, ☐ NAD 83, ☐ NAD 27
Collection Method:
☒ GPS unit (Make/Model: .....)
☐ Digital Map/Photo, ☐ Topographic Map, ☐ Land Survey
Est. Accuracy: ☒ <3 m, ☐ 3-5 m, ☐ 5-15 m, ☐ >15 m

2 **WATER WELL OWNER:** U.S. Dept. of Agriculture
RR#, Street Address, Box #: 1400 Independence Ave. SW
City, State, ZIP Code : Washington, DC 20250-0513

3 **LOCATE WELL WITH AN "X" IN SECTION BOX:**



4 **DEPTH OF COMPLETED WELL** 114 ft.
Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL 51 ft. below land surface measured on mo/day/yr 10/15/09
Pump test data: Well water was ..... ft. after ..... hours pumping ..... gpm
EST. YIELD ..... gpm. Well water was ..... ft. after ..... hours pumping ..... gpm
Bore Hole Diameter 9 in. to 114 ft., and ..... in. to ..... ft.
WELL WATER TO BE USED AS: ☐ Public water supply ☐ Geothermal ☐ Injection well
☐ Domestic ☐ Feedlot ☐ Oil field water supply ☐ Dewatering ☐ Other (Specify below)
☐ Irrigation ☐ Industrial ☐ Domestic-lawn & garden ☑ Monitoring well .....
Was a chemical/bacteriological sample submitted to Department? ☐ Yes ☑ No
If yes, mo/day/yr sample was submitted .....
Water well disinfected? ☐ Yes ☑ No

5 **TYPE OF CASING USED:** ☐ Steel ☑ PVC ☐ Other .....
CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ☑ Threaded
Casing diameter 2.375 in. to 104 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 0 in., Weight .932 lbs./ft., Wall thickness or gauge No. .218
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous slot ☑ Mill slot ☐ Gauze wrapped ☐ Torch cut ☐ Drilled holes ☐ None (open hole)
☐ Louvered shutter ☐ Key punched ☐ Wire wrapped ☐ Saw cut ☐ Other (specify) .....
SCREEN-PERFORATED INTERVALS: From 104 ft. to 114 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 102 ft. to 114 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 **GROUT MATERIAL:** ☑ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From 99 ft. to 102 ft., From 0 ft. to 99 ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
☐ Septic tank ☐ Lateral lines ☐ Pit privy ☐ Livestock pens ☐ Insecticide storage ☐ Other (specify below)
☐ Sewer lines ☐ Cesspool ☐ Sewage lagoon ☐ Fuel storage ☐ Abandoned water well
☐ Watertight sewer lines ☐ Seepage pit ☐ Feedyard ☐ Fertilizer storage ☐ Oil well/gas well .....
Direction from well ..... Distance from well .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	8	Red Clay			
8	24	Tan Shale			
24	42	Gray Shale			
42	62	Red/Gray Shale			
62	78	White Gypsm			
78	108	Gray Shale			
108	114	Red Shale			

7 **CONTRACTOR'S OR LANDOWNER'S CERTIFICATION:** This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo/day/year) 10/15/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 597 This Water Well Record was completed on (mo/day/year) 12/16/09 under the business name of Boart Longyear Company by (signature) .....

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212 Check: ☐ White Copy, ☐ Blue Copy, ☐ Pink Copy

Monitor Well MW51Z3: Hanover, KS

N 39.8949 W 96.8714
NW 1/4 of SW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1318.37'

Date: 12/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

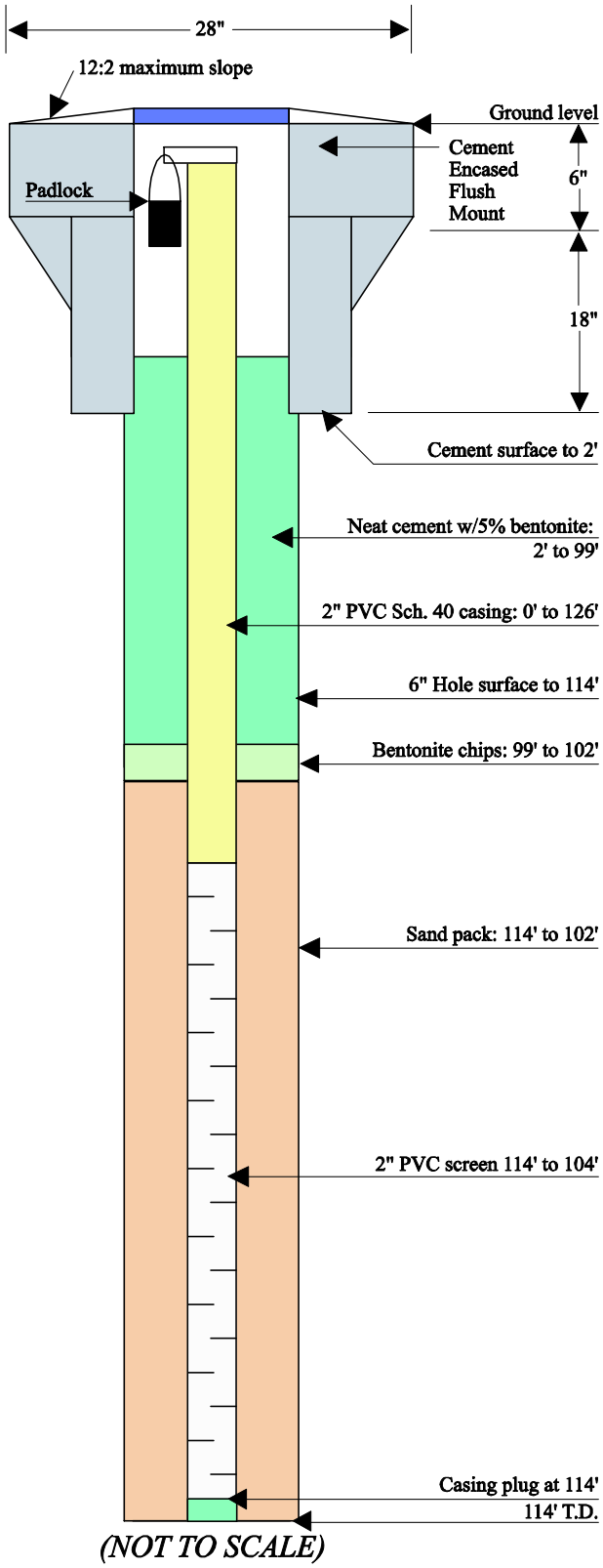
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

MW 51 Z4-GS

WATER WELL RECORD **Form WWC-5** Division of Water Resources App. No. #430623

1 LOCATION OF WATER WELL: County: Washington | Fraction: ¼ NW ¼ SW ¼ NE ¼ | Section Number: 9 | Township No.: T 2 S | Range Number: R 5 ☑E ☐W

Street/Rural Address of Well Location; if unknown, distance & direction from nearest town or intersection: If at owner's address, check here ☐.
SE Corner of N. East Street & Kensington St. Across from 400 E. Kensington St, Hanover

Global Positioning System (GPS) information:
Latitude: 39.8949 (in decimal degrees)
Longitude: -96.8714 (in decimal degrees)
Elevation: 1318.42
Datum: ☐ WGS 84, ☐ NAD 83, ☐ NAD 27
Collection Method:
☒ GPS unit (Make/Model: .....)
☐ Digital Map/Photo, ☐ Topographic Map, ☐ Land Survey
Est. Accuracy: ☒ <3 m, ☐ 3-5 m, ☐ 5-15 m, ☐ >15 m

2 WATER WELL OWNER: U.S. Dept. of Agriculture
RR#, Street Address, Box #: 1400 Independence Ave. SW
City, State, ZIP Code : Washington, DC 20250-0513

3 LOCATE WELL WITH AN "X" IN SECTION BOX:

N
W: - - NW - - | X - NE - - E
- - SW - - | - - SE - -
S
|---------1 mile---------|

4 DEPTH OF COMPLETED WELL 136 ft.
Depth(s) Groundwater Encountered (1)..... ft. (2)..... ft. (3)..... ft.
WELL'S STATIC WATER LEVEL 51 ft. below land surface measured on mo/day/yr. 10/15/09
Pump test data: Well water was.....ft. after..... hours pumping..... gpm
EST. YIELD.....gpm. Well water was.....ft. after..... hours pumping..... gpm
Bore Hole Diameter 9 in. to 114 ft., and 6 in. to 136 ft.
WELL WATER TO BE USED AS: ☐ Public water supply ☐ Geothermal ☐ Injection well
☐ Domestic ☐ Feedlot ☐ Oil field water supply ☐ Dewatering ☐ Other (Specify below)
☐ Irrigation ☐ Industrial ☐ Domestic-lawn & garden ☑ Monitoring well
Was a chemical/bacteriological sample submitted to Department? ☐ Yes ☑ No
If yes, mo/day/yr sample was submitted.....
Water well disinfected? ☐ Yes ☑ No

5 TYPE OF CASING USED: ☐ Steel ☑ PVC ☐ Other .....
CASING JOINTS: ☐ Glued ☐ Clamped ☐ Welded ☑ Threaded
Casing diameter 2.375 in. to 126 ft., Diameter ..... in. to ..... ft., Diameter ..... in. to ..... ft.
Casing height above land surface 0 in., Weight 932 lbs./ft., Wall thickness or gauge No. 218
TYPE OF SCREEN OR PERFORATION MATERIAL:
☐ Steel ☐ Stainless Steel ☑ PVC ☐ Other (Specify) .....
☐ Brass ☐ Galvanized Steel ☐ None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
☐ Continuous slot ☑ Mill slot ☐ Gauze wrapped ☐ Torch cut ☐ Drilled holes ☐ None (open hole)
☐ Louvered shutter ☐ Key punched ☐ Wire wrapped ☐ Saw cut ☐ Other (specify) .....
SCREEN-PERFORATED INTERVALS: From 126 ft. to 136 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 124 ft. to 136 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: ☑ Neat cement ☐ Cement grout ☑ Bentonite ☐ Other .....
Grout Intervals: From 121 ft. to 124 ft., From 0 ft. to 124 ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
☐ Septic tank ☐ Lateral lines ☐ Pit privy ☐ Livestock pens ☐ Insecticide storage ☐ Other (specify below)
☐ Sewer lines ☐ Cesspool ☐ Sewage lagoon ☐ Fuel storage ☐ Abandoned water well
☐ Watertight sewer lines ☐ Seepage pit ☐ Feedyard ☐ Fertilizer storage ☐ Oil well/gas well .....
Direction from well ..... Distance from well .....

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHO. LOG (cont.) or PLUGGING INTERVALS
0	8	Red Clay			
8	24	Tan Shale			
24	42	Gray Shale			
42	62	Red/Gray Shale			
62	78	White Gypsm			
78	108	Gray Shale			
108	125	Red Shale			
125	133	Red Shale/Layers of Gypsm			
133	136	White Gypsm			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was ☑ constructed, ☐ reconstructed, or ☐ plugged under my jurisdiction and was completed on (mo/day/year) 10/15/09 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 597 This Water Well Record was completed on (mo/day/year) 12/16/09 under the business name of Boart Longyear Company by (signature) .....

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks and check the correct answers. Send three copies (white, blue, pink) to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one copy to WATER WELL OWNER and retain one for your records. Include fee of $5.00 for each constructed well. Visit us at http://www.kdheks.gov/waterwell/index.html.

KSA 82a-1212 Check: ☐ White Copy, ☐ Blue Copy, ☐ Pink Copy

Monitor Well MW51Z4: Hanover, KS

N 39.8949 W 96.8714
NW 1/4 of SW 1/4 of NE 1/4 of Section 9, Twp. 2 South, Rge. 5 East
Washington County, State of Kansas
Elevation: 1318.42'

Date: 12/16/09

WELL HEAD PROTECTION
8" Morrison Brothers, Co. Model 418XA flush mount cover. Top of the well casing is fitted with a (J-Plug) Morrison Brothers, Co. Model 678XA and padlock.

CONCRETE PAD
Minimum of 8" thick and extends at least 8" larger than the flush mount (24" minimum). The top is sloped to prevent pooling of water, vegetation around well, and allows for placement of a surveyor pin.

IMPERVIOUS GROUT
The well is grouted with impervious Neat cement with 5% bentonite gel and tremied in the hole, mixed with clean fresh water to have a minimum density of 9.4 lbs. per gallon.

WELL CASING
Well casing is terminated as high as possible inside the flush mount and capped with a (J-Plug) Morrison Brothers, Co. Model 678XA locking plug and padlock.

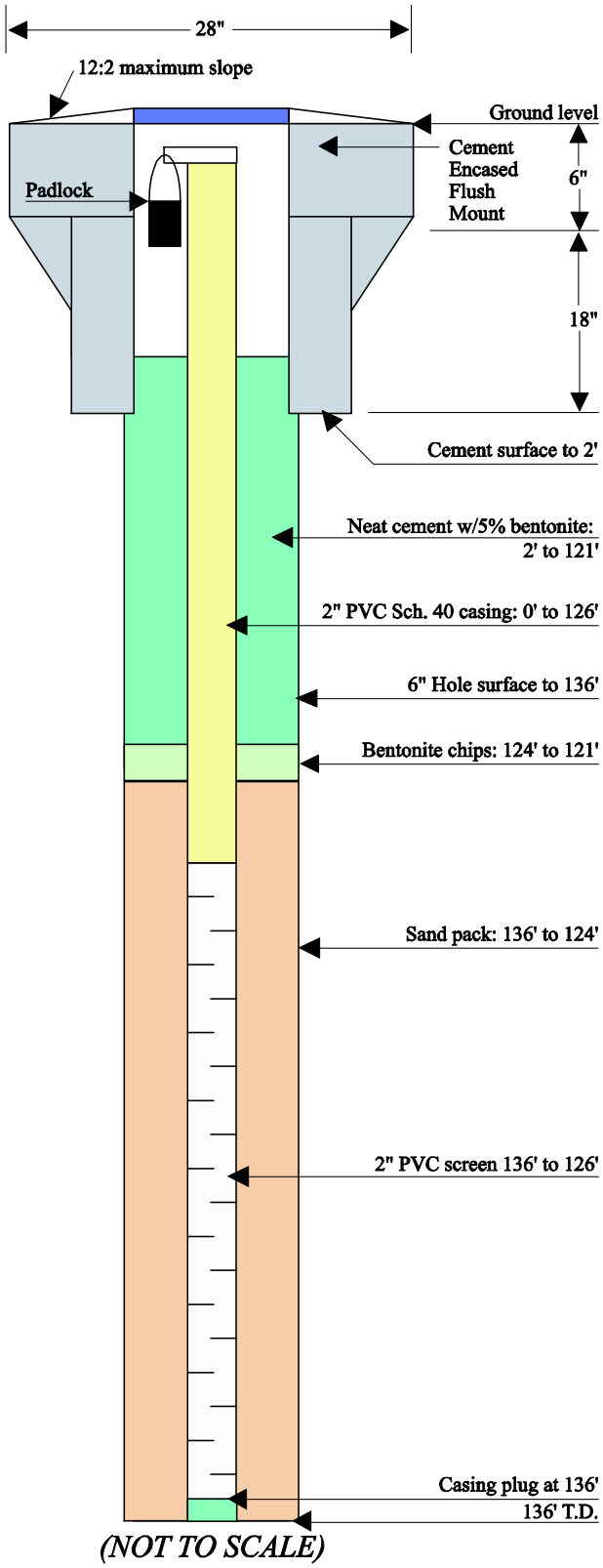
2" PVC Schedule 40 threaded casing and a 0.010" Mill Slot well screen were installed.

HOLE SIZE
The hole is 6" in diameter from the surface to T.D. and grouted from the top of the sand pack to the base of the flush mount.

GRAVEL/SAND PACK
10/20 filter pack sand, from the bottom of the hole to 2' above the top of the screen.

CONTRACTOR LICENSING
The well was constructed under the direction of a licensed water well contractor as specified under Kansas Department of Health and Environmental Regulation.

REGISTRATION
The well is registered with the Kansas Department of Health and Environment on form WWC-5 provided by that department.



(NOT TO SCALE)

WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL: County: Washington | Fraction: NW ¼ NW ¼ SE ¼ | Section Number: 9 | Township Number: T 2 S | Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city? East edge of Town

2 WATER WELL OWNER: Alan Bruna
RR#, St. Address, Box # : 1075 Hollenberg
City, State, ZIP Code : Hanover, Kansas 66945

Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N; NW, NE, W, X, E, SW, SE; S; 1 Mile

4 DEPTH OF COMPLETED WELL: 80 ft. ELEVATION:

Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.

WELL'S STATIC WATER LEVEL 55 ft. below land surface measured on mo/day/yr 7-3-89

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield 15 gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter 8 in. to 80 ft., and in. to ft.

WELL WATER TO BE USED AS: 1 Domestic X 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)

Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes X No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC X 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued X Clamped Welded Threaded

Blank casing diameter 5 in. to ft., Dia in. to ft., Dia in. to ft.

Casing height above land surface 24 in., weight 200 lbs./ft. Wall thickness or gauge No.

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC X 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut X 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 40 ft. to 60 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From 20 ft. to 80 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite X 4 Other

Grout Intervals: From 0 ft. to 20 ft., From ft. to ft., From ft. to ft.

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines ✓ 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)

Direction from well? West How many feet? 1000'

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	6	Brown Clay			
6	35	Tan shale + Limestone			
35	52	Red shale			
52	57	Tan shale + limestone			
57	80	Gray shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 7-3-89 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 2340 This Water Well Record was completed on (mo/day/yr) 10/31/89 under the business name of Strader's Blue Valley Drilling by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water Protection, Topeka, Kansas 66620-7320. Telephone: 913-296-5514. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

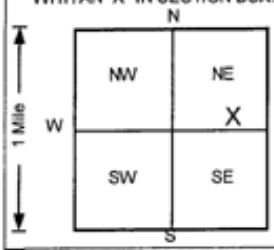
WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL: County: Washington	Fraction: SW ¼ SE ¼ NE ¼	Section Number: 9	Township Number: T 2 S	Range Number: R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city?
1/1 mile East of Hanover, Kansas

2 WATER WELL OWNER: Bill's Service Center
RR#, St. Address, Box # : 2832 Hilltop Avenue
City, State, ZIP Code : Hanover, Kansas 66945
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 50 ft. ELEVATION: 1295.06
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft
WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr
Pump test data: Well water was NA ft. after hours pumping gpm
Est. Yield NA gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 8 in. to 50 ft., and in. to ft
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only (10) Monitoring well ✓
Was a chemical/bacteriological sample submitted to Department? Yes No ✓; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No ✓

5 TYPE OF BLANK CASING USED:
1 Steel 3 RMP (SR) 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued Clamped
(2) PVC 4 ABS 6 Asbestos-Cement 9 Other (specify below) Welded
7 Fiberglass Threaded ✓
Blank casing diameter 2 in. to 35 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface -5.88 in., weight Sch 40 lbs./ft. Wall thickness or gauge No.
TYPE OF SCREEN OR PERFORATION MATERIAL
1 Steel 3 Stainless steel 5 Fiberglass (7) PVC 10 Asbestos-cement
2 Brass 4 Galvanized steel 6 Concrete tile 8 RMP (SR) 11 Other (specify)
9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 9 Drilled holes
7 Torch cut 10 Other (specify)
SCREEN-PERFORATED INTERVALS: From 35 ft. to 50 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 31 ft. to 50 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement (2) Cement grout (3) Bentonite 4 Other
Grout Intervals: From 0 ft. to 21 ft., From 21 ft. to 31 ft., From ft. to ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 14 Abandoned water well
2 Sewer lines 5 Cess pool 8 Sewage lagoon (11) Fuel storage 15 Oil well/Gas well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer storage 16 Other (specify below)
13 Insecticide storage
Direction from well? South How many feet? 10

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	0.5	Cement,			
0.5	18	Clay, Dark Brown			
18	21	Clay, Pale Yellow			
21	33	Clay, Red Brown			
33	50	Clay, Gray Green			
					MW14 , Tag # 00289711 , Flushmount
					Project Name: Bill's Service Center
					GeoCore # 406 , KDHE # A5 101 40078

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 9/1/99 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 527 This Water Well Record was completed on (mo/day/yr) 9/14/99 under the business name of GeoCore Services, Inc. by (signature)

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R EW SEC ¼ ¼ ¼

CORRECTION TO WATER WELL RECORD (WWC-5)

The following correction(s) was made to the attached WWC-5 log, in order to file the item or to rectify lacking or incorrect information.

Fraction (1/4 1/4 1/4) Section-Township-Range changed:

listed as _____

changed to _____

Other changes: Initial statements: 1/1 mile East, (blank)

Changed to: 1/4 mile East, static water level 42.27 on 9/2/99

Comments: _____

verification method: See records 307870, 307871

water level added per KDHE 4/17/2000 AL initials: DM date: 10/21/99

submitted by: Kansas Geological Survey, Data Resources Library, 1930 Constant Ave., Lawrence, KS 66047-3726
to: Kansas Dept of Health & Environment Bureau of Water Industrial Programs, Bldg 283, Forbes Field, KS 66620

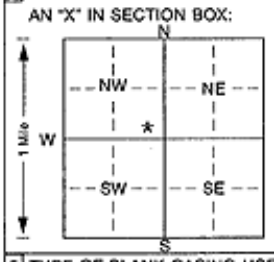
WATER WELL RECORD Form WWC-5 KSA 82a-1212 ID No. _____

1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Washington	SE ¼ SE ¼ NW ¼	9	T 2 S	R 5 (E/W

Distance and direction from nearest town or city street address of well if located within city?
314 N Hollenberg (Hanover)

2 WATER WELL OWNER: Don Martin
RR#, St. Address, Box # : 314 N Hollenberg
City, State, ZIP Code : Hanover, KS 66945
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 58 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 16 ft. below land surface measured on mo/day/yr 12/7/01
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 25 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 8 in. to 63 ft., and in. to ft.
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Domestic (lawn & garden) 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below) Lawn & Garden
Was a chemical/bacteriological sample submitted to Department? Yes * No ; If yes, mo/day/yrs sample was submitted
Water Well Disinfected? Yes * No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued * Clamped Welded Threaded
Blank casing diameter 5 in. to 28 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 18 in., weight 200 lbs./ft. Wall thickness or gauge No. .265
TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 28 ft. to 48 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 25 ft. to 58 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 0 ft. to 25 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)
Direction from well? East How many feet? 200

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	2	Topsoil			
2	35	Brown Clay			
35	43	Limestone & Yellow Shale			
43	63	REd Shale & Limestone			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 12/7/01 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's Licence No. 518 This Water Well Record was completed on (mo/day/yr) 12/20/01
under the business name of Blue Valley Drilling by (signature)

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone 785-296-5524. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well.

WATER WELL RECORD Form WWC-5 KSA 82a-1212 ID No.

1 LOCATION OF WATER WELL:

County: Washington	Fraction	Section Number	Township Number	Range Number
	NW ¼ SE ¼ NW ¼	9	T 2 S	R 5 (E)/W

Distance and direction from nearest town or city street address of well if located within city?
North Edge of Hanover

2 WATER WELL OWNER: Ron Schlabach
RR#, St. Address, Box # : 501 N Hollenberg
City, State, ZIP Code : Hanover, KS 66945

Board of Agriculture, Division of Water Resources
Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
NW * NE
W E
SW SE
S

4 DEPTH OF COMPLETED WELL 80' ft. ELEVATION:
Depth(s) Groundwater Encountered 1 ..... ft. 2 ..... ft. 3 ..... ft.
WELL'S STATIC WATER LEVEL 39 ft. below land surface measured on mo/day/yr 9/25/03
Pump test data: Well water was ..... ft. after ..... hours pumping ..... gpm
Est. Yield 20 gpm: Well water was ..... ft. after ..... hours pumping ..... gpm
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Domestic (lawn & garden) 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below) Garden

Was a chemical/bacteriological sample submitted to Department? Yes ..... No * ; If yes, mo/day/yrs sample was submitted
Water Well Disinfected? Yes * No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued * Clamped ..... Welded ..... Threaded .....
Blank casing diameter 5 in. to 75 ft., Dia ..... in. to ..... ft., Dia ..... in. to ..... ft.
Casing height above land surface 18 in., weight 200 lbs./ft. Wall thickness or guage No. .265
TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless Steel 4 Galvanized Steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-Cement 11 Other (Specify) ..... 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Guazed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) ..... 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 75 ft. to ~~85~~ 80 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 20 ft. to 80 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other .....
Grout Intervals: From 5 ft. to 20 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination:
1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below) .....
Direction from well? None Present How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	14	Brown Clay			
14	25	Yellow Shale			
25	43	Gray Shale			
43	75	Red Shale			
75	80	Limestone & Shale			
80	81	Gray Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 9/25/03 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's Licence No 518 This Water Well Record was completed on (mo/day/yr) 10/1/03 under the business name of Blue Valley Drilling by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well.

Appendix E:

Hand-Measured Water Level Data

TABLE E.1 Hand-measured groundwater levels at Hanover, February 10, 2009, to June 10, 2010.[a]

		February 10, 2009		February 11, 2009		February 19, 2009		March 19, 2009	
Location	TOC[b] Elevation (ft AMSL)	Depth to water (ft TOC)	Water Level Elevation (ft AMSL)	Depth to water (ft TOC)	Water Level Elevation (ft AMSL)	Depth to water (ft TOC)	Water Level Elevation (ft AMSL)	Depth to water (ft TOC)	Water Level Elevation (ft AMSL)
MW01	1326.00	21.67	1304.33	21.81	1304.19	22.42	1303.58	22.70	1303.30
MW02	1332.01	26.89	1305.12	26.94	1305.07	27.18	1304.83	27.43	1304.58
MW04	1327.68	24.56	1303.12	24.69	1302.99	25.10	1302.58	25.55	1302.13
MW05	1328.22	23.15	1305.07	23.21	1305.01	23.42	1304.80	23.60	1304.62
MW06	1317.54	25.79	1291.75	25.41	1292.13	22.88	1294.66	20.70	1296.84
MW07	1325.92	23.51	1302.41	23.63	1302.29	24.20	1301.72	24.62	1301.30
MW08	1330.99	25.91	1305.08	25.63	1305.36	25.67	1305.32	26.95	1304.04
MW09	1322.83	18.04	1304.79	18.12	1304.71	18.45	1304.38	19.90	1302.93
MW10	1325.04	22.11	1302.93	22.26	1302.78	22.68	1302.36	23.10	1301.94
MW11	1317.16			17.09	1300.07	17.28	1299.88	-	
MW12	1321.68	33.96	1287.72	32.87	1288.81	24.02	1297.66	22.16	1299.52
MW13	1311.48	14.81	1296.67	14.81	1296.67	14.91	1296.57	15.05	1296.43
MW14	1308.64							16.90	1291.74
MW15	1306.18							17.95	1288.23
MW16	1306.92							16.70	1290.22
MW17	1304.99							13.95	1291.04
MW18	1314.46							17.50	1296.96
MW19	1317.53							22.80	1294.73
MW20	1319.60							21.50	1298.10
MW21	1315.93							22.50	1293.43
MW22	1319.57							25.75	1293.82
MW23	1324.39							20.30	1304.09
MW24	1305.24							12.00	1293.24
MW25	1303.57							-	
MW26	1303.45							-	
MW27	1326.80							25.25	1301.55
MW28	1322.98							22.45	1300.53
MW29	1323.47							23.65	1299.82
MW30	1307.94							15.50	1292.44
MW31	1309.51							13.90	1295.61
MW32	1311.81							-	
MW33	1312.17							-	
MW34	1323.03							17.40	1305.63
MW35	1312.71							16.10	1296.61
MW36	1313.14							16.33	1296.81
MW37	1316.84							28.80	1288.04
MW38	1322.02							23.80	1298.22
MW39	1314.27							-	
MW40	1324.03							24.40	1299.63
MW41	1299.73							-	
MW42	1305.51								
MW43	1312.76								
MW44Z2	1280.13								
MW44Z3	1280.53								
MW44Z4	1280.54								
MW45Z2	1270.79								
MW45Z3	1271.27								
MW45Z4	1271.21								
MW46	1300.08								
MW47	1299.50								
MW48Z2	1306.04								
MW48Z3	1306.22								
MW48Z4	1306.20								
MW49Z2	1321.35								
MW49Z3	1321.17								
MW49Z4	1321.18								
MW50Z2	1306.10								
MW50Z3	1306.39								
MW50Z4	1306.52								
MW51Z2	1318.13								
MW51Z3	1318.06								
MW51Z4	1318.05								
BSMW09									
BSMW10									
BSMW14									
BSMW15									

TABLE E.1 (Cont.)

Location	April 1, 2009		April 15, 2009		July 23, 2009		Aug-Sept, 2009	
	Depth to water (ft TOC)	Water Level Elevation (ft AMSL)	Depth to water (ft TOC)	Water Level Elevation (ft AMSL)	Depth to water (ft TOC)	Water Level Elevation (ft AMSL)	Depth to water (ft TOC)	Water Level Elevation (ft AMSL)
MW01	22.17	1303.83	22.69	1303.31	22.15	1303.85	22.18	1303.82
MW02	27.15	1304.86	27.39	1304.62	26.87	1305.14	26.81	1305.20
MW04	25.26	1302.42	25.73	1301.95	24.28	1303.40	24.34	1303.34
MW05	23.49	1304.73	23.63	1304.59	23.22	1305.00	23.25	1304.97
MW06	20.18	1297.36	20.22	1297.32	17.87	1299.67	18.07	1299.47
MW07	24.25	1301.67	24.71	1301.21	24.05	1301.87	24.25	1301.67
MW08	25.59	1305.40	26.02	1304.97	25.09	1305.90		
MW09	19.51	1303.32	19.85	1302.98	18.47	1304.36	18.42	1304.41
MW10	22.81	1302.23	23.24	1301.80	21.94	1303.10	22.07	1302.97
MW11	-		-		16.63	1300.53	16.61	1300.55
MW12	21.92	1299.76	22.17	1299.51	20.17	1301.51	20.45	1301.23
MW13	14.95	1296.53	15.06	1296.42	14.62	1296.86	14.63	1296.85
MW14			17.17	1291.47	17.57	1291.07		
MW15			17.54	1288.64	16.57	1289.61		
MW16			16.84	1290.08	16.83	1290.09	16.96	1289.96
MW17			13.61	1291.38	13.06	1291.93		
MW18			17.27	1297.19	16.65	1297.81	16.92	1297.54
MW19			20.09	1297.44	19.56	1297.97		1317.53
MW20			21.47	1298.13	21.21	1298.39	21.49	1298.11
MW21			18.42	1297.51	16.39	1299.54	16.74	1299.19
MW22			22.46	1297.11	21.22	1298.35		
MW23			20.34	1304.05	19.55	1304.84		
MW24			14.14	1291.10	14.72	1290.52	15.20	1290.04
MW25			Dry		22.54	1281.03		
MW26			Dry		22.45	1281.00		
MW27			25.45	1301.35	23.57	1303.23		
MW28			22.59	1300.39	22.61	1300.37	22.91	1300.07
MW29			23.75	1299.72	23.75	1299.72	24.06	1299.41
MW30			11.70	1296.24	10.88	1297.06		
MW31			13.38	1296.13	13.05	1296.46		
MW32			Dry		18.53	1293.28		
MW33			Dry		19.82	1292.35		
MW34			17.44	1305.59	17.13	1305.90	17.08	1305.95
MW35			15.69	1297.02	14.87	1297.84		
MW36			16.27	1296.87	16.24	1296.90		
MW37			21.90	1294.94	20.03	1296.81	19.90	1296.94
MW38			23.83	1298.19	23.69	1298.33	23.82	1298.20
MW39			19.75	1294.52	19.78	1294.49		
MW40			24.38	1299.65	23.96	1300.07		
MW41			Dry		Dry			
MW42	Dry		Dry		Dry			
MW43	Dry		Dry		24.58	1288.18		
MW44Z2	32.81	1247.32	32.77	1247.36	32.91	1247.22	33.20	1246.93
MW44Z3	dry		>73 ft		65.10	1215.43	60.84	1219.69
MW44Z4	dry		102.33	1178.21	56.21	1224.33	44.77	1235.77
MW45Z2	23.54	1247.25	23.62	1247.17	23.59	1247.20	23.90	1246.89
MW45Z3	55.21	1216.06	56.60	1214.67	36.61	1234.66	37.89	1233.38
MW45Z4	45.17	1226.04	45.77	1225.44	43.35	1227.86	48.60	1222.61
MW46			25.11	1274.97	24.97	1275.11		
MW47	26.55	1272.95	23.97	1275.53	23.75	1275.75		
MW48Z2								
MW48Z3								
MW48Z4								
MW49Z2								
MW49Z3								
MW49Z4								
MW50Z2								
MW50Z3								
MW50Z4								
MW51Z2								
MW51Z3								
MW51Z4								
BSMW09								
BSMW10								
BSMW14								
BSMW15								

TABLE E.1 (Cont.)

Location	November 10, 2009		December 1, 2009		January 25, 2010		February 16, 2010	
	Depth to water (ft TOC)	Water Level Elevation (ft AMSL)	Depth to water (ft TOC)	Water Level Elevation (ft AMSL)	Depth to water (ft TOC)	Water Level Elevation (ft AMSL)	Depth to water (ft TOC)	Water Level Elevation (ft AMSL)
MW01			21.68	1304.32			Plug Frozen	
MW02			26.42	1305.59			26.62	1305.39
MW04			24.02	1303.66			24.30	1303.38
MW05			22.77	1305.45			22.95	1305.27
MW06			17.69	1299.85			17.99	1299.55
MW07			23.40	1302.52			Plug Frozen	
MW08			24.80	1306.19			25.25	1305.74
MW09			18.40	1304.43			18.47	1304.36
MW10			21.46	1303.58			21.82	1303.22
MW11			15.76	1301.40			16.25	1300.91
MW12			20.17	1301.51			20.63	1301.05
MW13			14.17	1297.31			14.31	1297.17
MW14								
MW15								
MW16								
MW17								
MW18								
MW19								
MW20								
MW21								
MW22								
MW23								
MW24								
MW25								
MW26								
MW27								
MW28								
MW29								
MW30								
MW31								
MW32								
MW33								
MW34								
MW35								
MW36								
MW37								
MW38								
MW39								
MW40								
MW41								
MW42								
MW43								
MW44Z2	33.12	1247.01			28.76	1251.37		
MW44Z3	57.37	1223.16			3.58	1276.95		
MW44Z4	47.94	1232.60			38.41	1242.13		
MW45Z2	23.89	1246.90			20.84	1249.95		
MW45Z3	48.08	1223.19			35.71	1235.56		
MW45Z4	50.09	1221.12			37.25	1233.96		
MW46								
MW47								
MW48Z2	50.64	1255.40			48.47	1257.57		
MW48Z3	89.16	1217.06			84.61	1221.61		
MW48Z4	73.25	1232.95			49.28	1256.92		
MW49Z2	56.58	1264.77			56.65	1264.70		
MW49Z3	109.91	1211.26			103.06	1218.11		
MW49Z4	106.26	1214.92			62.60	1258.58		
MW50Z2	57.84	1248.26			54.92	1251.18		
MW50Z3	96.58	1209.81			93.81	1212.58		
MW50Z4	98.75	1207.77			70.84	1235.68		
MW51Z2	52.67	1265.46			53.23	1264.90		
MW51Z3	100.03	1218.03			76.77	1241.29		
MW51Z4	96.09	1221.96			54.68	1263.37		
BSMW09					40.64			
BSMW10					41.92			
BSMW14					42.26			
BSMW15					33.73			

TABLE E.1 (Cont.)

Location	February 24, 2010 Depth to water ft TOC	February 24, 2010 Water Level Elevation ft AMSL	March 17, 2010 Depth to water ft TOC	March 17, 2010 Water Level Elevation ft AMSL	June 10, 2010 Depth to water ft TOC	June 10, 2010 Water Level Elevation ft AMSL
MW01	22.09	1303.91			21.49	1304.51
MW02	26.77	1305.24			25.44	1306.57
MW04	24.21	1303.47			23.45	1304.23
MW05	23.15	1305.07			21.92	1306.30
MW06	17.96	1299.58			17.05	1300.49
MW07	23.38	1302.54			22.33	1303.59
MW08	25.24	1305.75			24.41	1306.58
MW09	18.46	1304.37			17.03	1305.80
MW10	21.75	1303.29			20.94	1304.10
MW11	16.29	1300.87			15.42	1301.74
MW12	20.61	1301.07			19.84	1301.84
MW13	14.34	1297.14			13.82	1297.66
MW14						
MW15						
MW16						
MW17						
MW18						
MW19						
MW20						
MW21						
MW22						
MW23						
MW24						
MW25						
MW26						
MW27						
MW28						
MW29						
MW30						
MW31						
MW32						
MW33						
MW34						
MW35						
MW36						
MW37						
MW38						
MW39						
MW40						
MW41						
MW42						
MW43						
MW44Z2			26.42	1253.71	22.48	1257.65
MW44Z3					32.26	1248.27
MW44Z4					36.28	1244.26
MW45Z2			0.78	1270.01	14.96	1255.83
MW45Z3					24.49	1246.78
MW45Z4					29.97	1241.24
MW46						
MW47						
MW48Z2			47.14	1258.90	45.78	1260.26
MW48Z3					67.36	1238.86
MW48Z4					45.63	1260.57
MW49Z2			56.66	1264.69	56.59	1264.76
MW49Z3					68.83	1252.34
MW49Z4					50.44	1270.74
MW50Z2			51.92	1254.18	48.50	1257.60
MW50Z3					89.19	1217.20
MW50Z4					58.08	1248.44
MW51Z2			52.15	1265.98	52.92	1265.21
MW51Z3					55.57	1262.49
MW51Z4					48.99	1269.06
BSMW09					38.59	
BSMW10					39.44	
BSMW14					42.26	
BSMW15					33.68	

[a] Water levels measured in conjunction with sampling events are reported separately in Appendix C.

[b] Top of casing.

Appendix F:

Water Zone 1 Slug Test Data Summary

Appendix F Contents

FIGURE F.1 Observed slug test water level response and interpretive fit to the data for MW01 ..... F-4

FIGURE F.2 Observed slug test water level response and interpretive fit to the data for MW02 ..... F-6

FIGURE F.3 Observed slug test water level response and interpretive fit to the data for MW04 ..... F-8

FIGURE F.4 Observed slug test water level response and interpretive fit to the data for MW05 ..... F-10

FIGURE F.5 Observed slug test water level response and interpretive fit to the data for MW06 ..... F-12

FIGURE F.6 Observed slug test water level response and interpretive fit to the data for MW07 ..... F-13

FIGURE F.7 Observed slug test water level response and interpretive fit to the data for MW09 ..... F-14

FIGURE F.8 Observed slug test water level response and interpretive fit to the data for MW10 ..... F-16

FIGURE F.9 Observed slug test water level response and interpretive fit to the data for MW11 ..... F-18

FIGURE F.10 Observed slug test water level response and interpretive fit to the data for MW12 ..... F-20

FIGURE F.11 Observed slug test water level response and interpretive fit to the data for MW13 ..... F-21

FIGURE F.12 Observed slug test water level response and interpretive fit to the data for MW16 ..... F-23

FIGURE F.13 Observed slug test water level response and interpretive fit to the data for MW18 ..... F-24

FIGURE F.14 Observed slug test water level response and interpretive fit to the data for MW20 ..... F-26

FIGURE F.15 Observed slug test water level response and interpretive fit to the data for MW21 ..... F-27

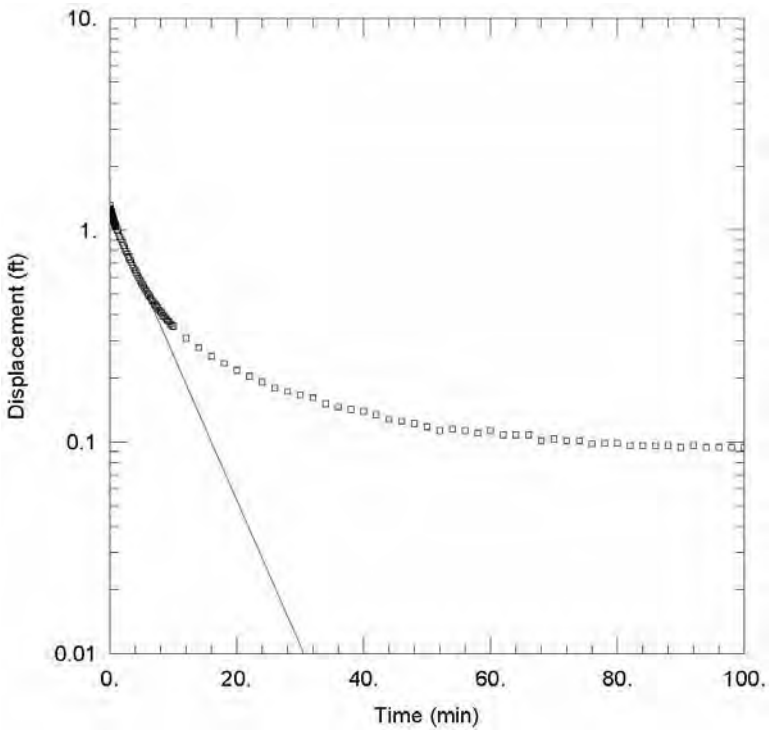
FIGURE F.16 Observed slug test water level response and interpretive fit to the data for MW28 ..... F-28

FIGURE F.17 Observed slug test water level response and interpretive fit to the data for MW29 ..... F-30

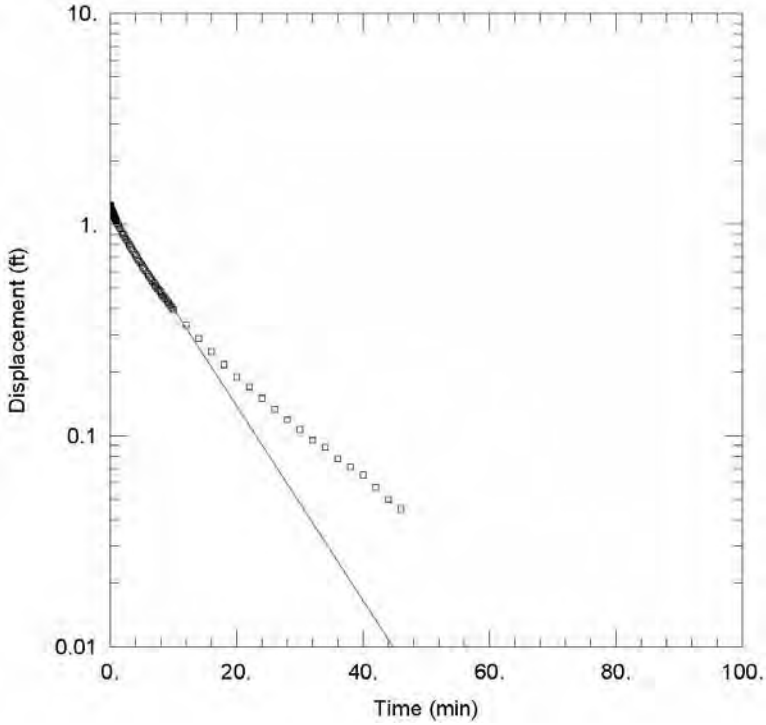
FIGURE F.18 Observed slug test water level response and interpretive fit to the data for MW34 ..... F-32

FIGURE F.19 Observed slug test water level response and interpretive fit to the data for MW37 ..... F-34

FIGURE F.20 Observed slug test water level response and interpretive fit to the data for MW38 ..... F-35

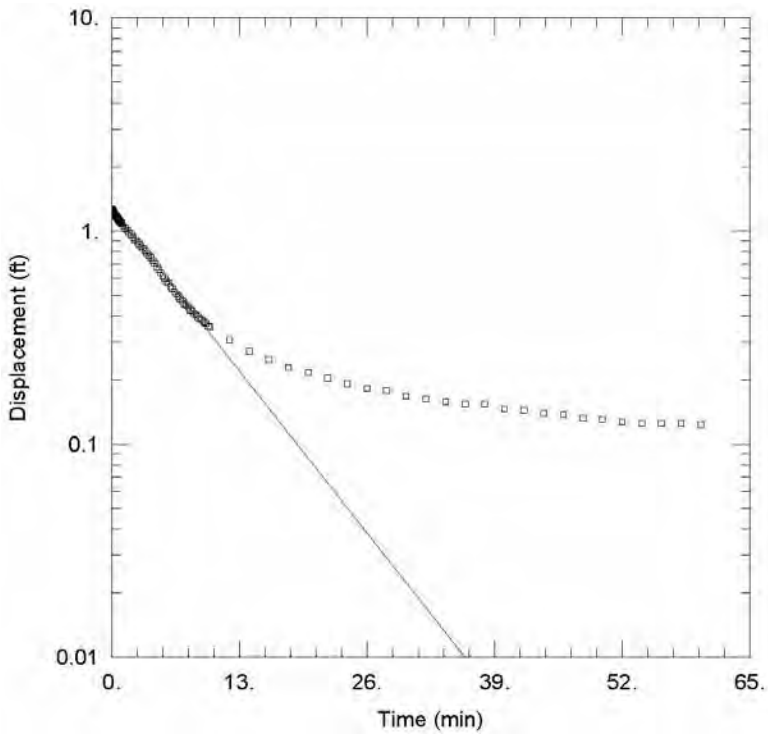


Observed slug test water level response and interpretive straight-line fit to the measured data for MW01, Test 1, slug in.

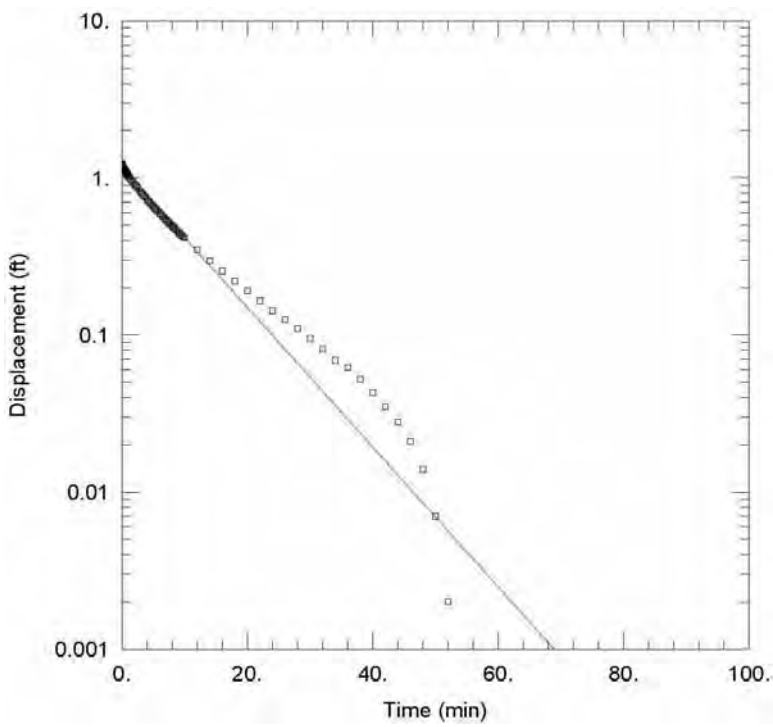


Observed slug test water level response and interpretive straight-line fit to the measured data for MW01, Test 2, slug out.

FIGURE F.1 Observed slug test water level response and interpretive fit to the data for MW01.

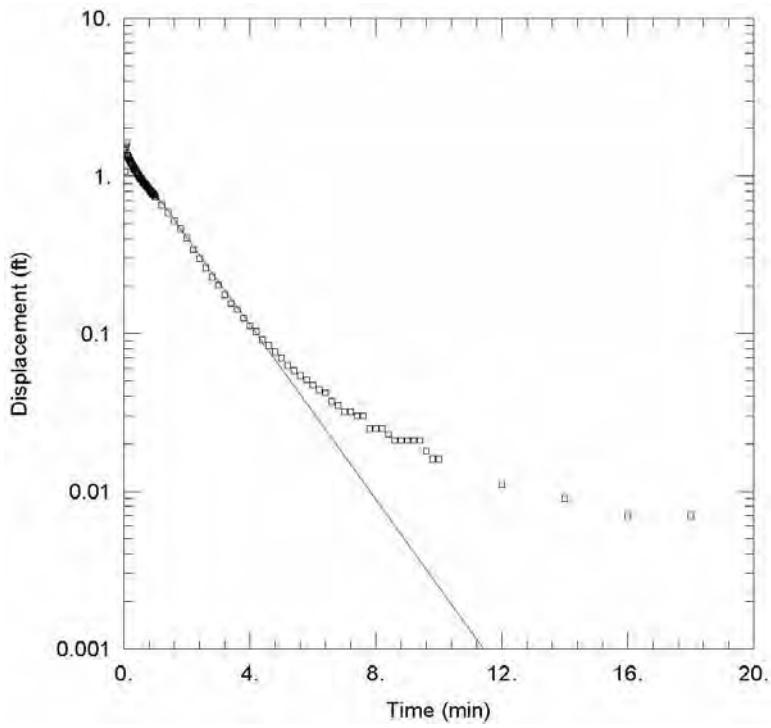


Observed slug test water level response and interpretive straight-line fit to the measured data for MW01, Test 3, slug in.

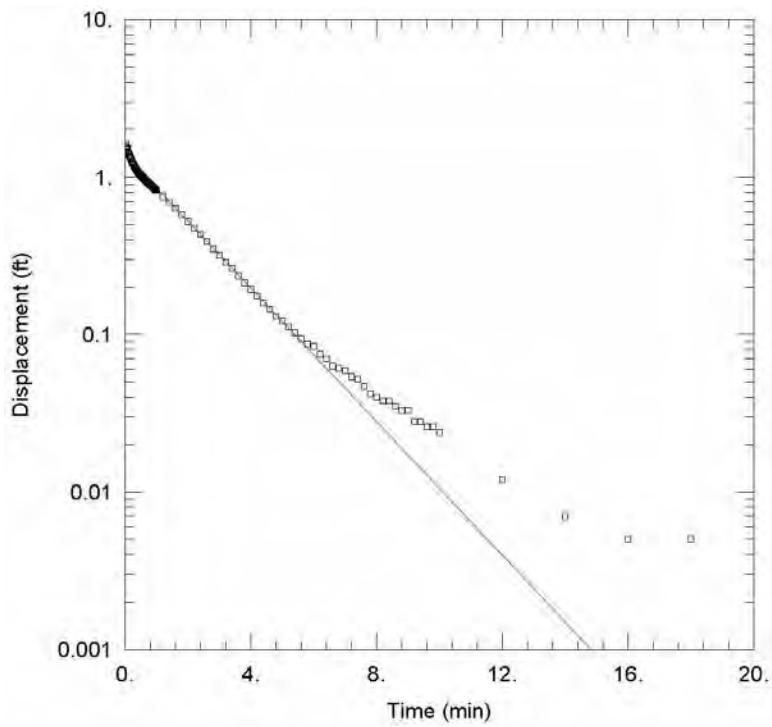


Observed slug test water level response and interpretive straight-line fit to the measured data for MW01, Test 4, slug out.

FIGURE F.1 (Cont.)

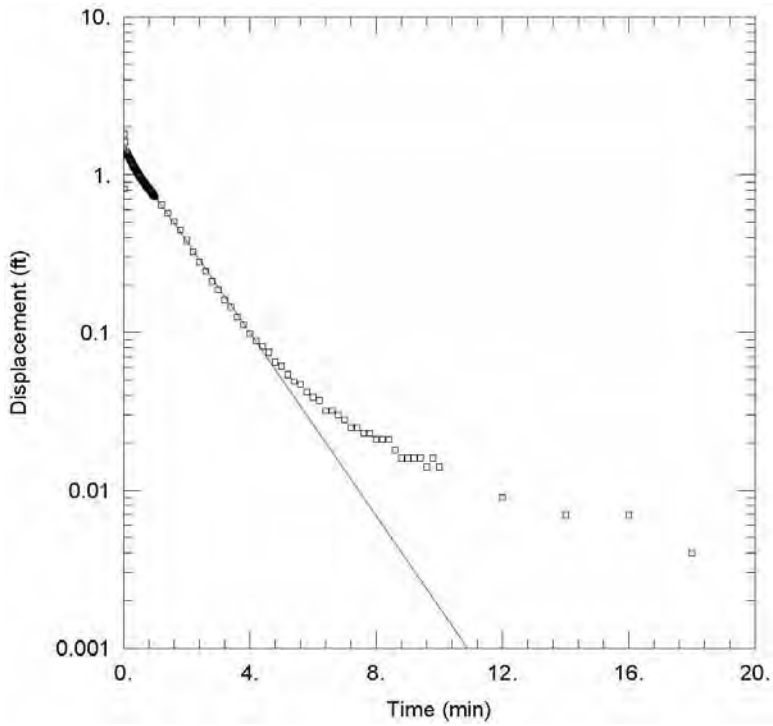


Observed slug test water level response and interpretive straight-line fit to the measured data for MW02, Test 1, slug in.

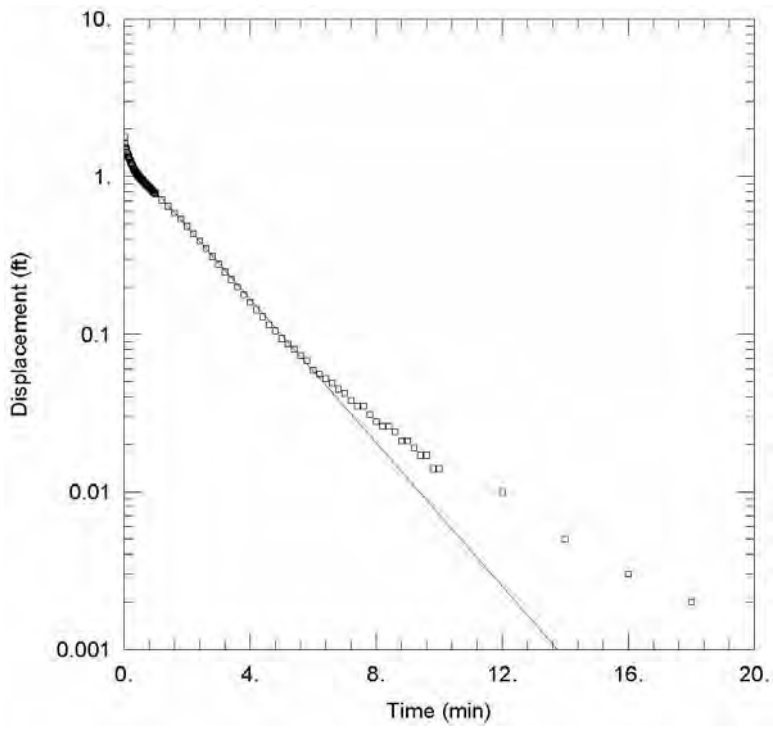


Observed slug test water level response and interpretive straight-line fit to the measured data for MW02, Test 2, slug out.

FIGURE F.2 Observed slug test water level response and interpretive fit to the data for MW02.

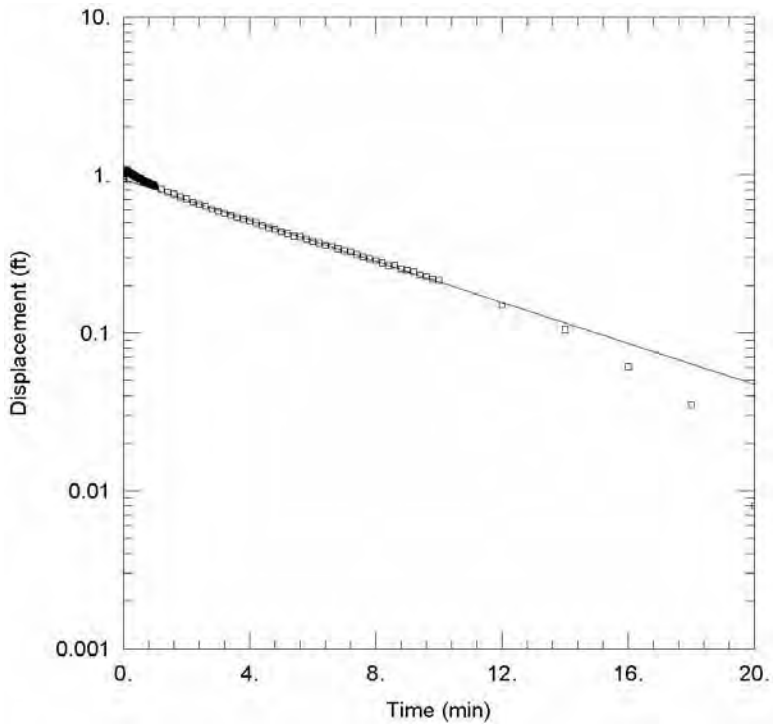


Observed slug test water level response and interpretive straight-line fit to the measured data for MW02, Test 3, slug in.

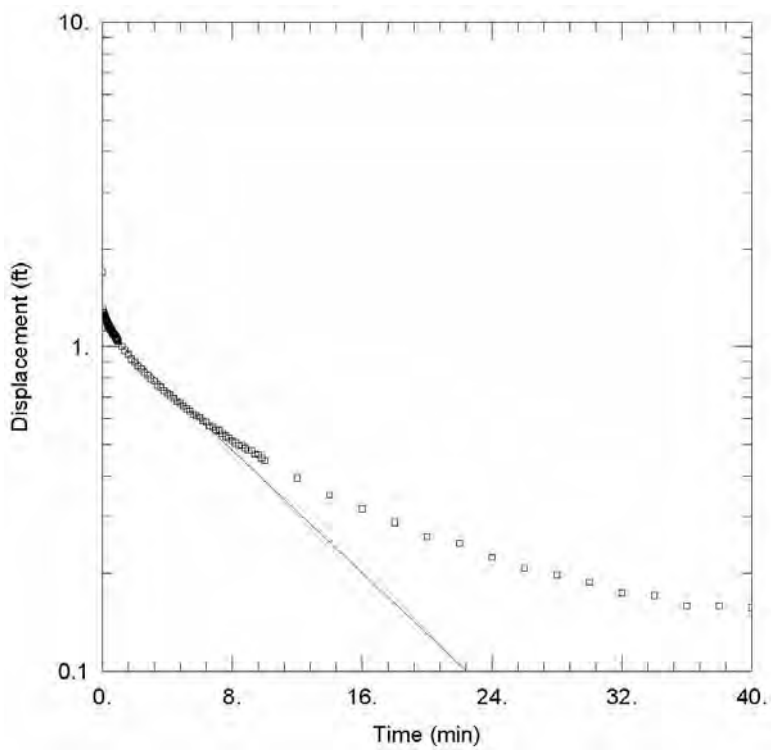


Observed slug test water level response and interpretive straight-line fit to the measured data for MW02, Test 4, slug out.

FIGURE F.2 (Cont.)

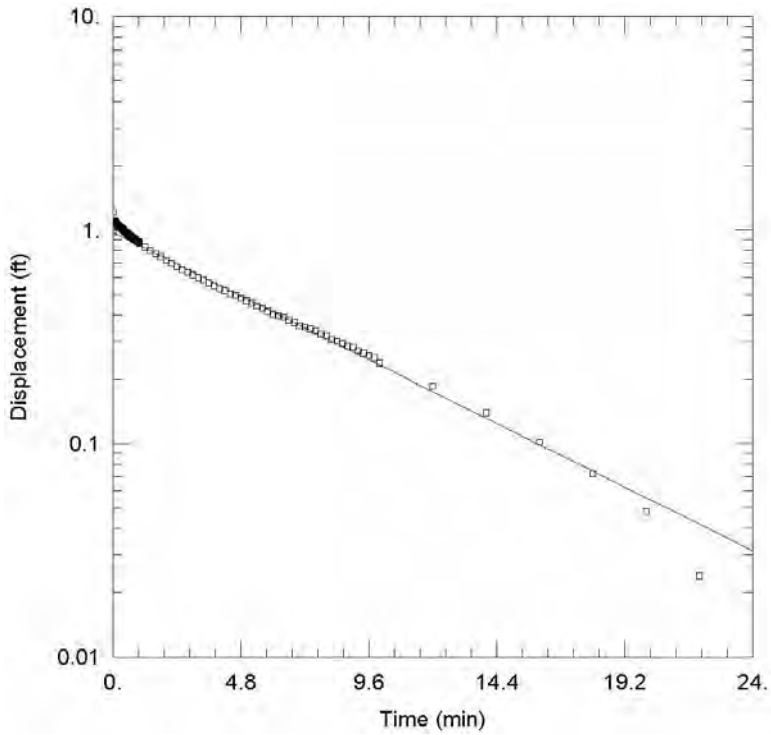


Observed slug test water level response and interpretive straight-line fit to the measured data for MW04, Test 1, slug in.

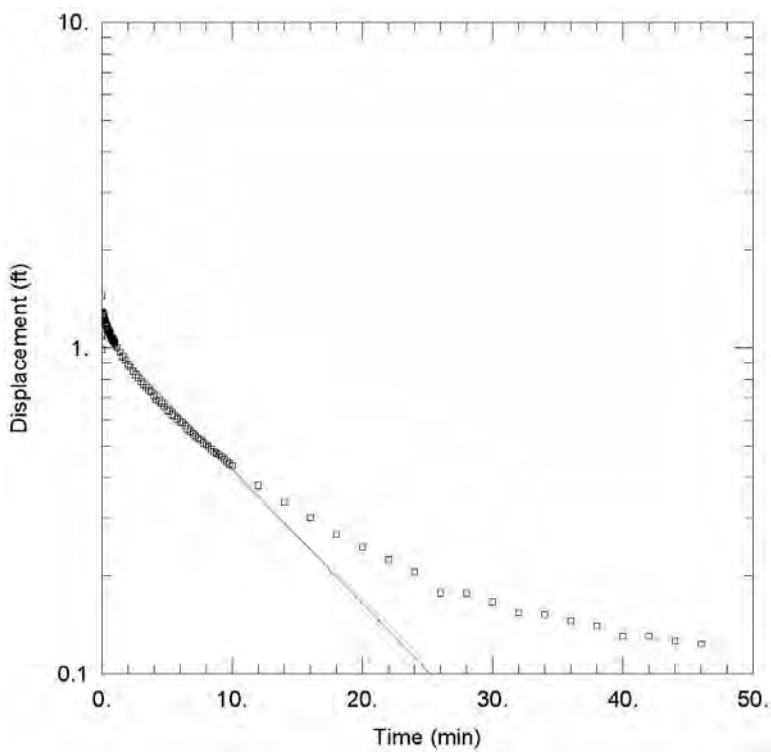


Observed slug test water level response and interpretive straight-line fit to the measured data for MW04, Test 2, slug out.

FIGURE F.3 Observed slug test water level response and interpretive fit to the data for MW04.

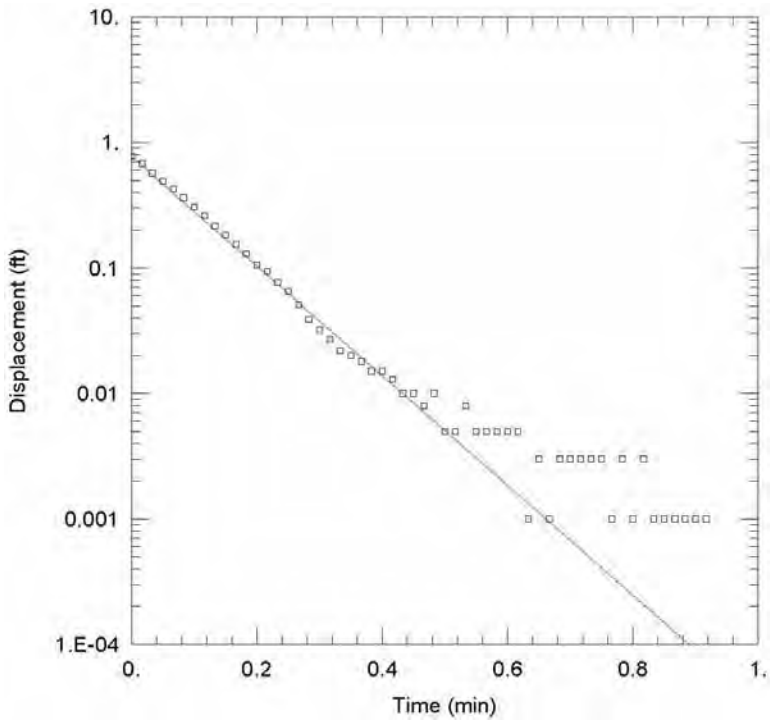


Observed slug test water level response and interpretive straight-line fit to the measured data for MW04, Test 3, slug in.

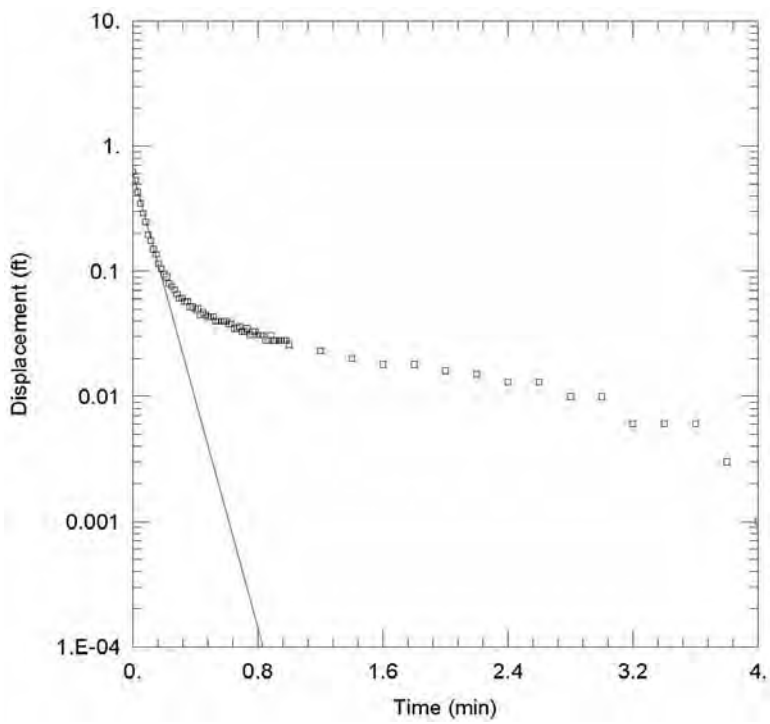


Observed slug test water level response and interpretive straight-line fit to the measured data for MW04, Test 4, slug out.

FIGURE F.3 (Cont.)

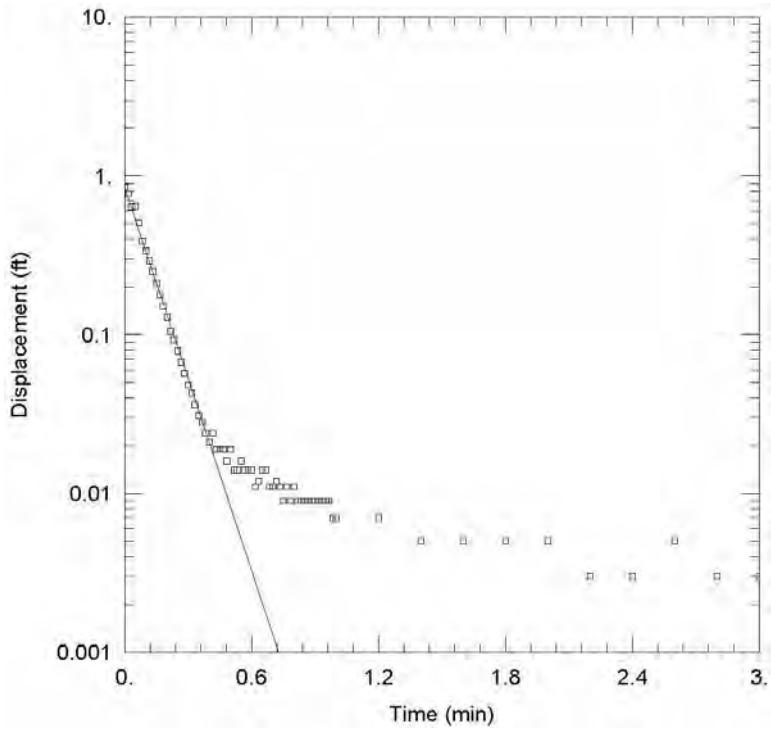


Observed slug test water level response and interpretive straight-line fit to the measured data for MW05, Test 1, slug in.

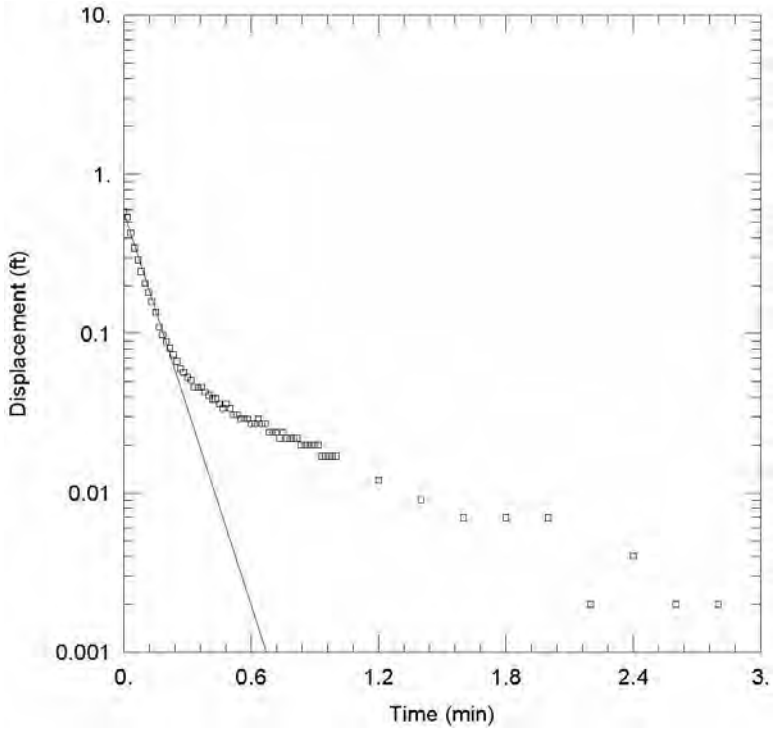


Observed slug test water level response and interpretive straight-line fit to the measured data for MW05, Test 2, slug out.

FIGURE F.4 Observed slug test water level response and interpretive fit to the data for MW05.

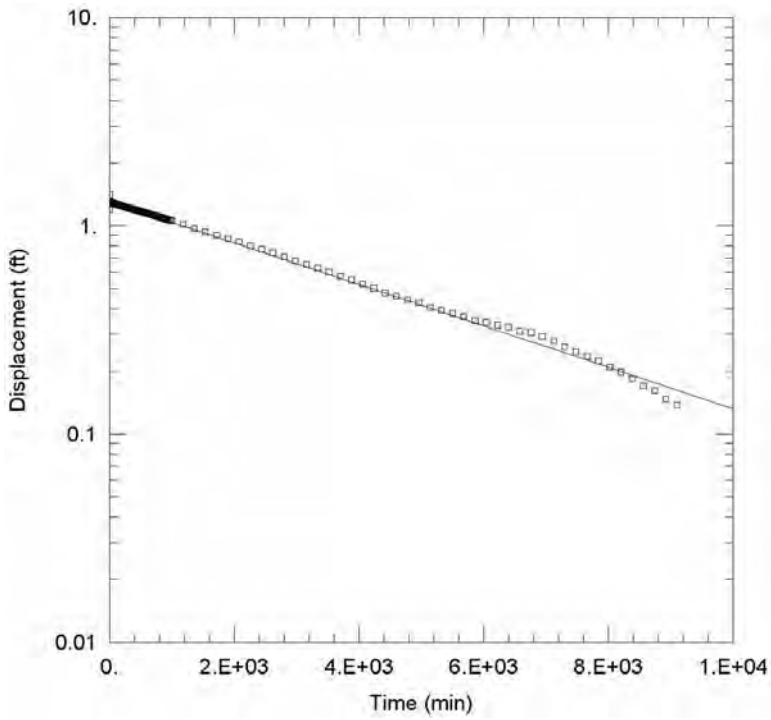


Observed slug test water level response and interpretive straight-line fit to the measured data for MW05, Test 3, slug in.



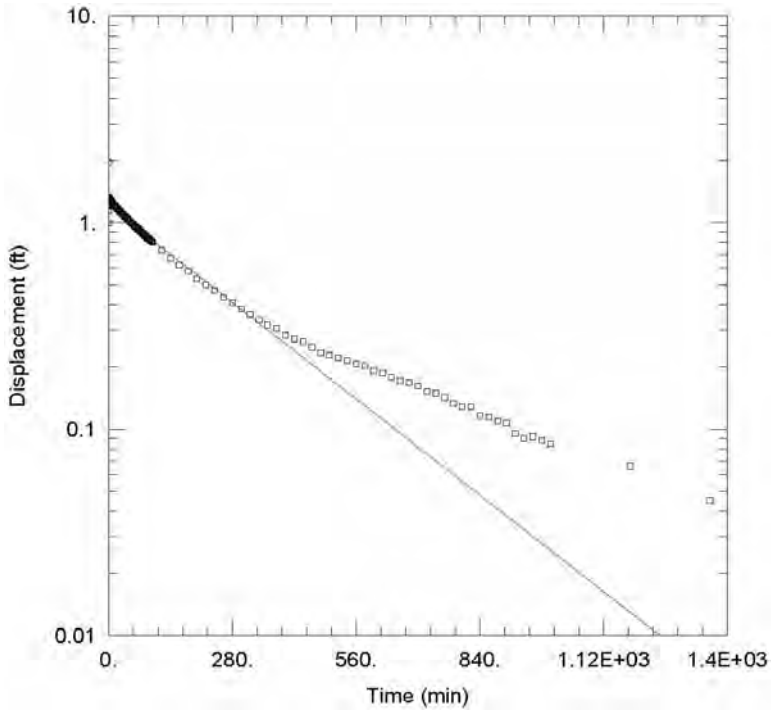
Observed slug test water level response and interpretive straight-line fit to the measured data for MW05, Test 4, slug out.

FIGURE F.4 (Cont.)

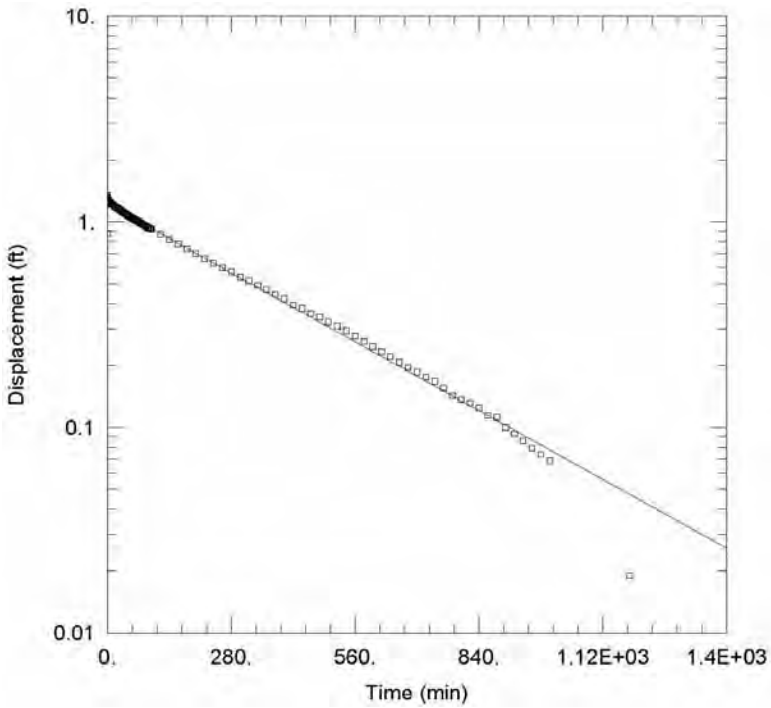


Observed slug test water level response and interpretive straight-line fit to the measured data for MW06, Test 1, slug in.

FIGURE F.5 Observed slug test water level response and interpretive fit to the data for MW06.

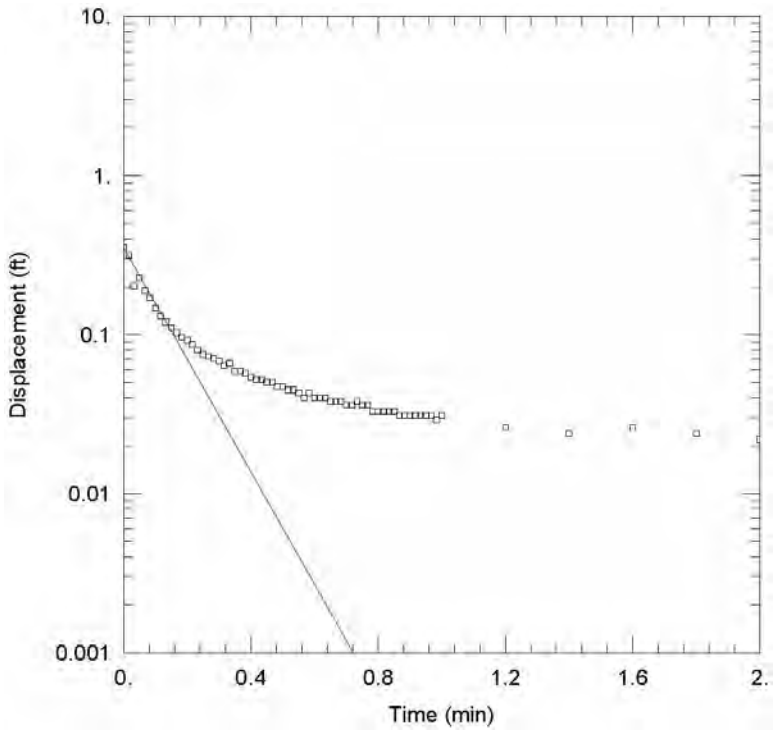


Observed slug test water level response and interpretive straight-line fit to the measured data for MW07, Test 1, slug in.

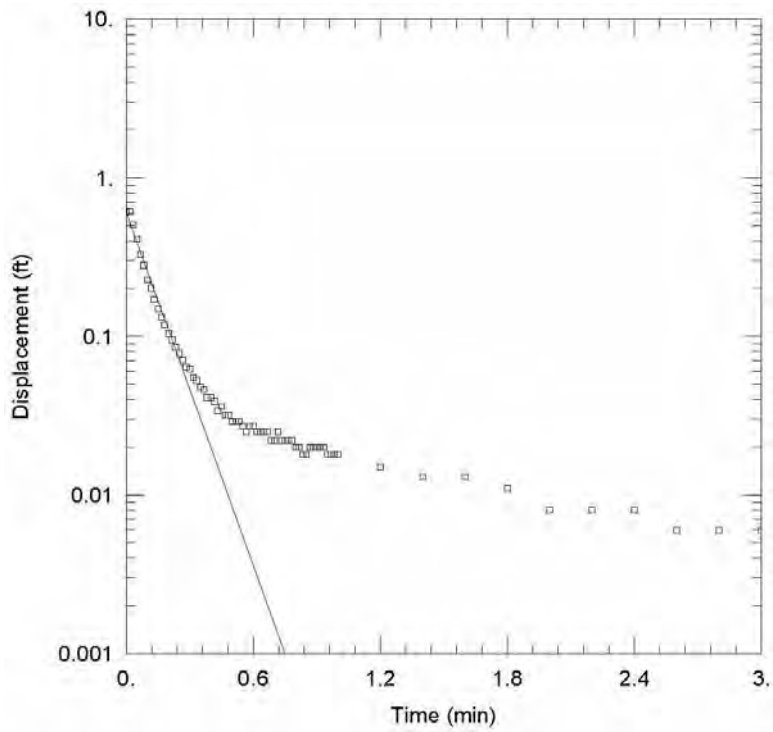


Observed slug test water level response and interpretive straight-line fit to the measured data for MW07, Test 2, slug out.

FIGURE F.6 Observed slug test water level response and interpretive fit to the data for MW07.

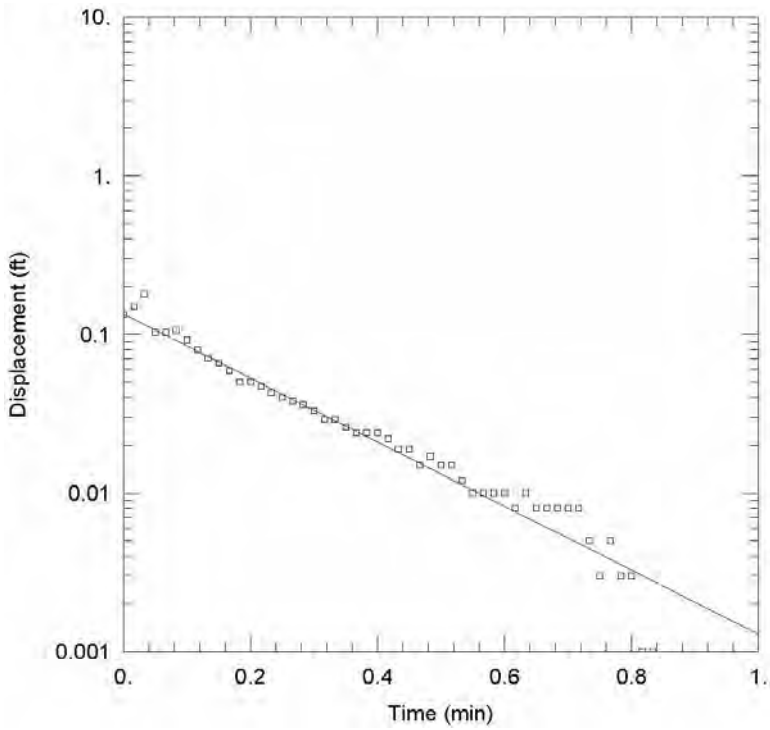


Observed slug test water level response and interpretive straight-line fit to the measured data for MW09, Test 1, slug in.

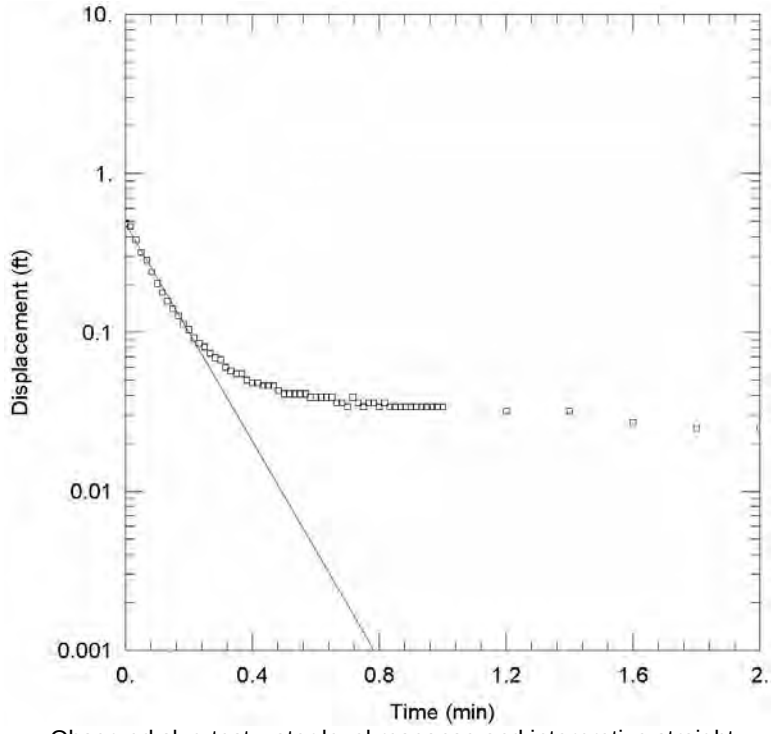


Observed slug test water level response and interpretive straight-line fit to the measured data for MW09, Test 2, slug out.

FIGURE F.7 Observed slug test water level response and interpretive fit to the data for MW09.

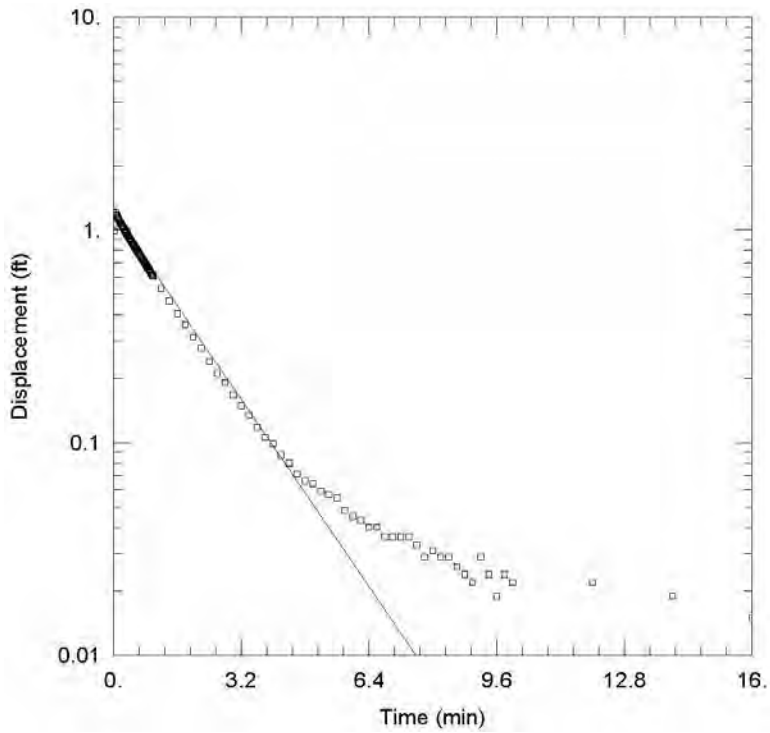


Observed slug test water level response and interpretive straight-line fit to the measured data for MW09, Test 3, slug in.

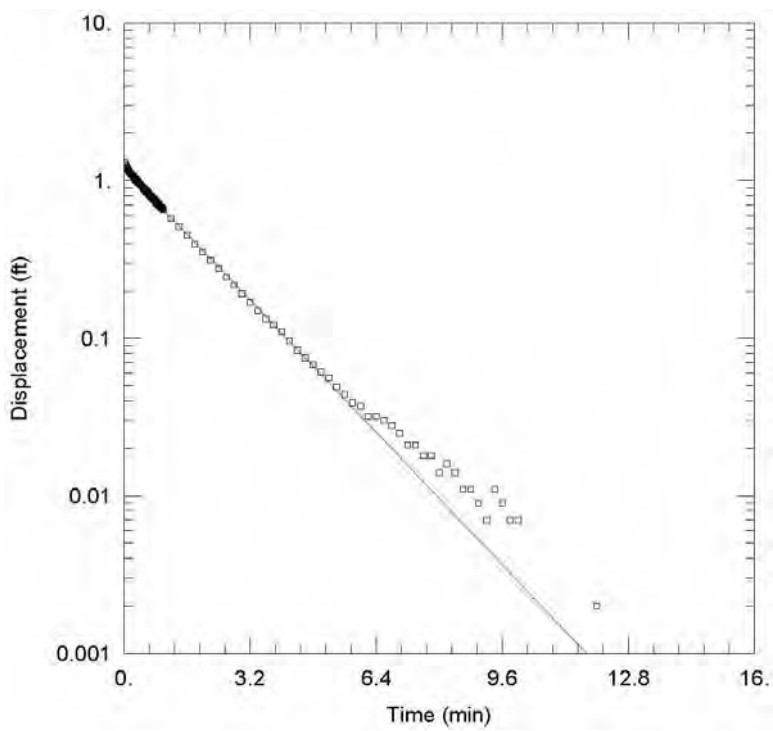


Observed slug test water level response and interpretive straight-line fit to the measured data for MW09, Test 4, slug out.

FIGURE F.7 (Cont.)

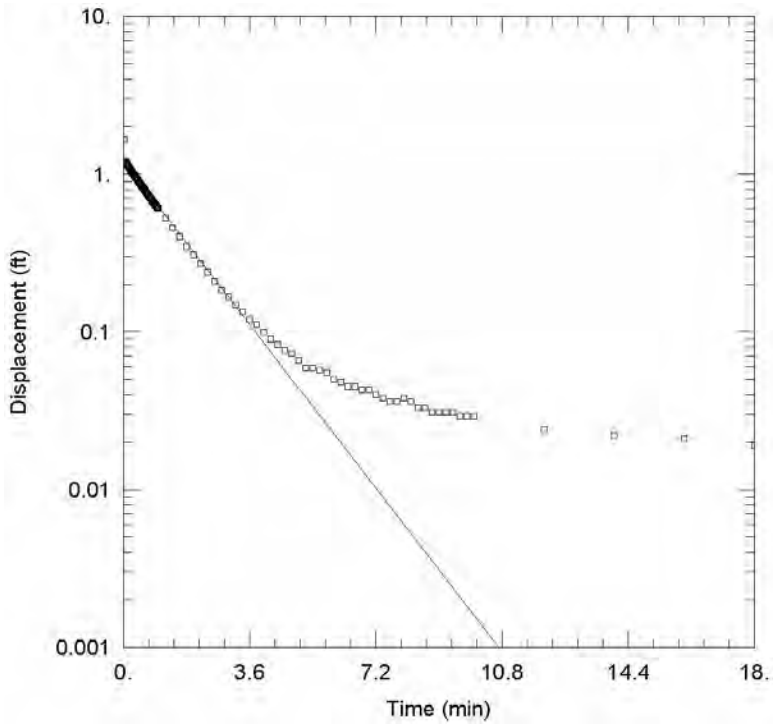


Observed slug test water level response and interpretive straight-line fit to the measured data for MW10, Test 1, slug in.

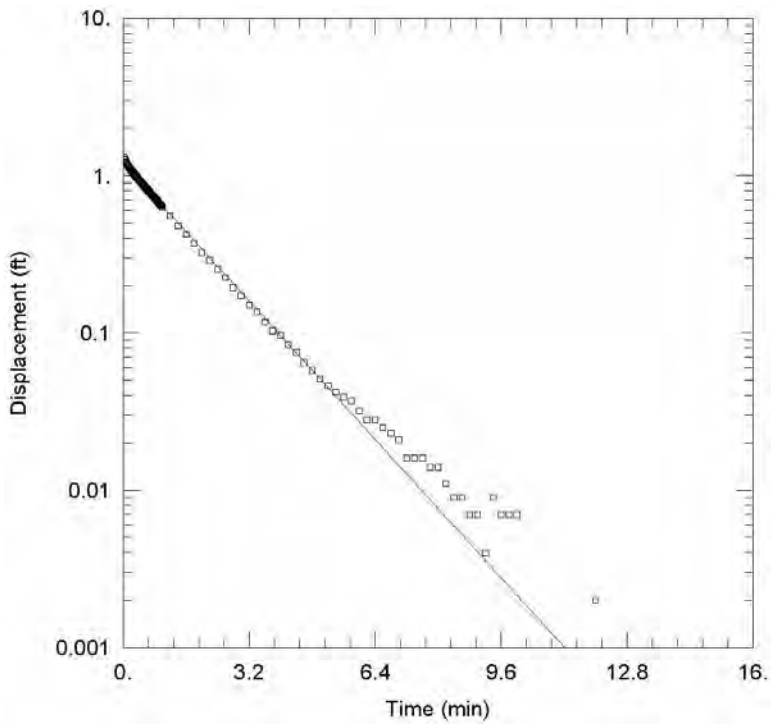


Observed slug test water level response and interpretive straight-line fit to the measured data for MW10, Test 2, slug out.

FIGURE F.8 Observed slug test water level response and interpretive fit to the data for MW10.

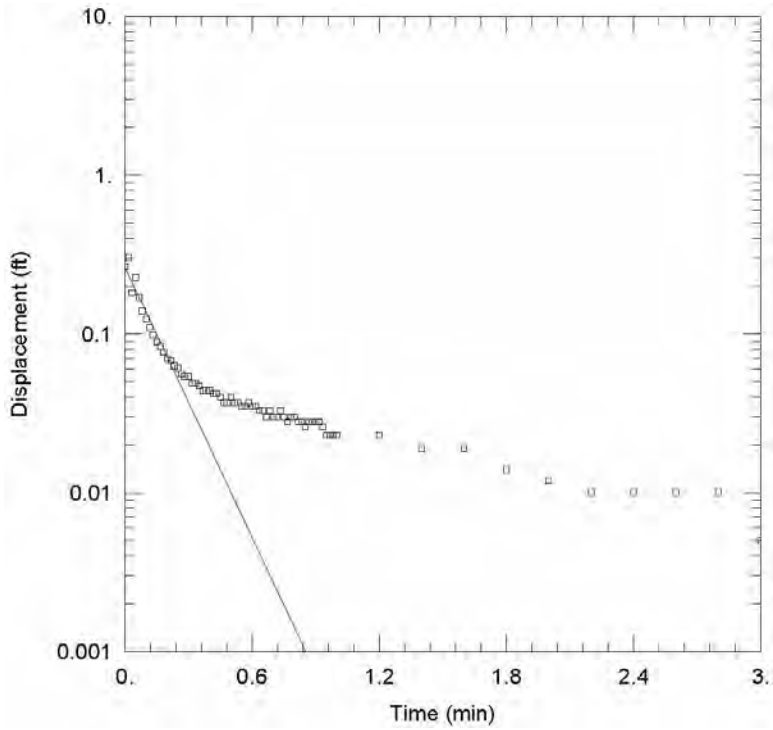


Observed slug test water level response and interpretive straight-line fit to the measured data for MW10, Test 3, slug in.

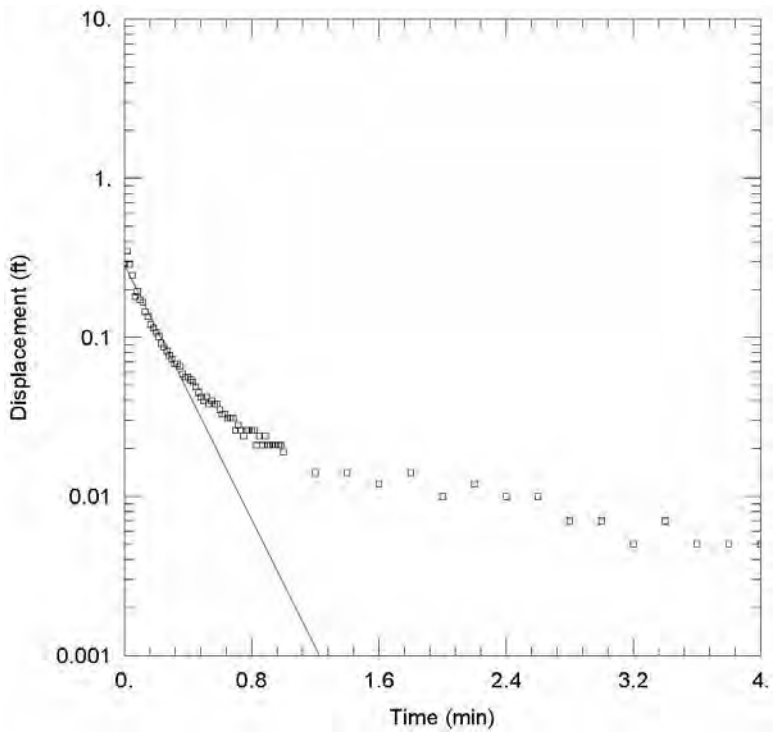


Observed slug test water level response and interpretive straight-line fit to the measured data for MW10, Test 4, slug out.

FIGURE F.8 (Cont.)

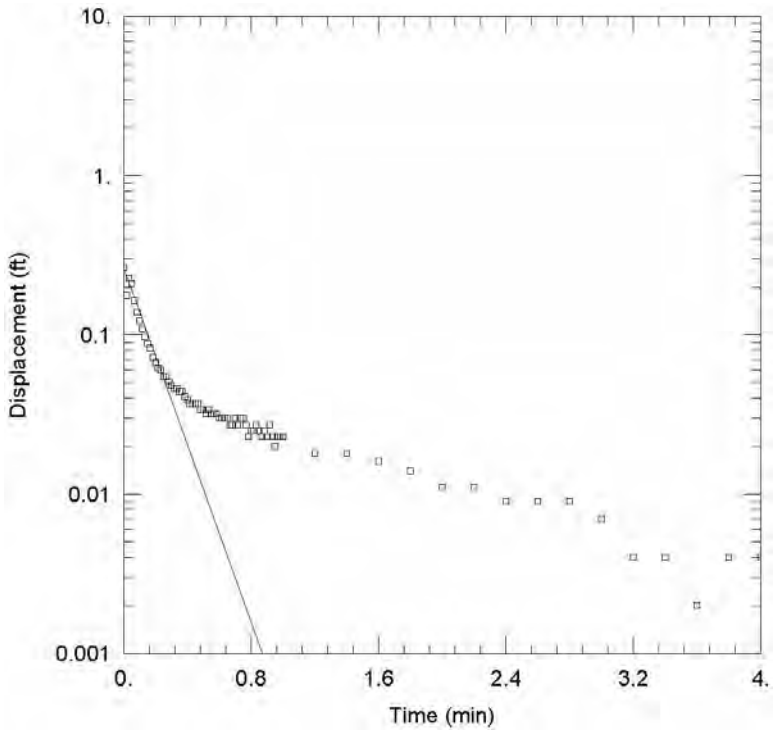


Observed slug test water level response and interpretive straight-line fit to the measured data for MW11, Test 1, slug in.

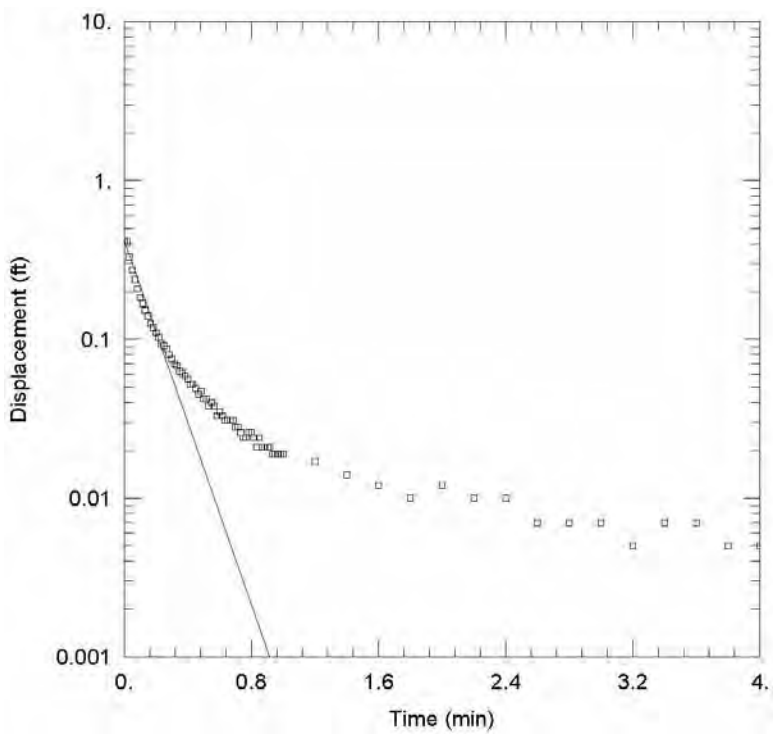


Observed slug test water level response and interpretive straight-line fit to the measured data for MW11, Test 2, slug out.

FIGURE F.9 Observed slug test water level response and interpretive fit to the data for MW11.

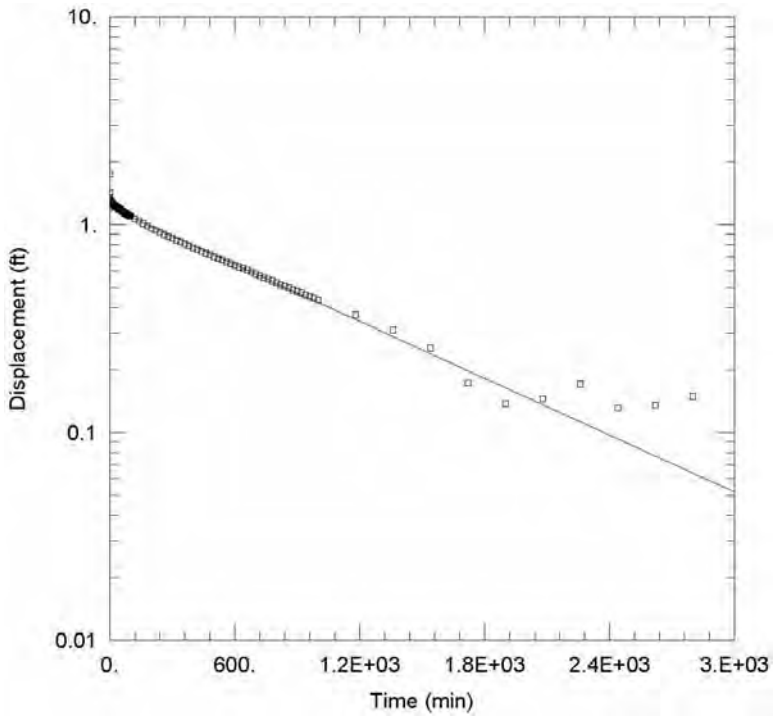


Observed slug test water level response and interpretive straight-line fit to the measured data for MW11, Test 3, slug in.



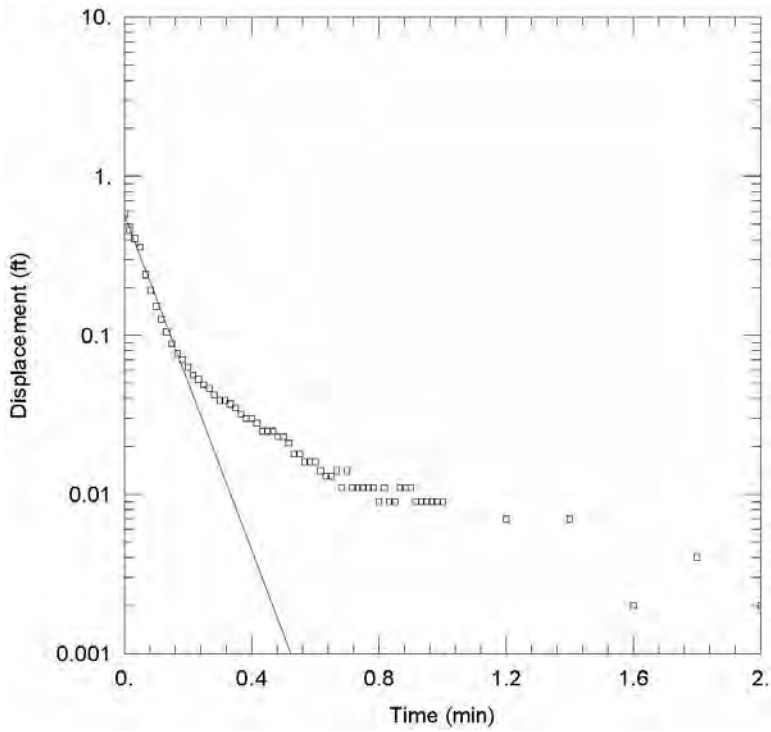
Observed slug test water level response and interpretive straight-line fit to the measured data for MW11, Test 4, slug out.

FIGURE F.9 (Cont.)

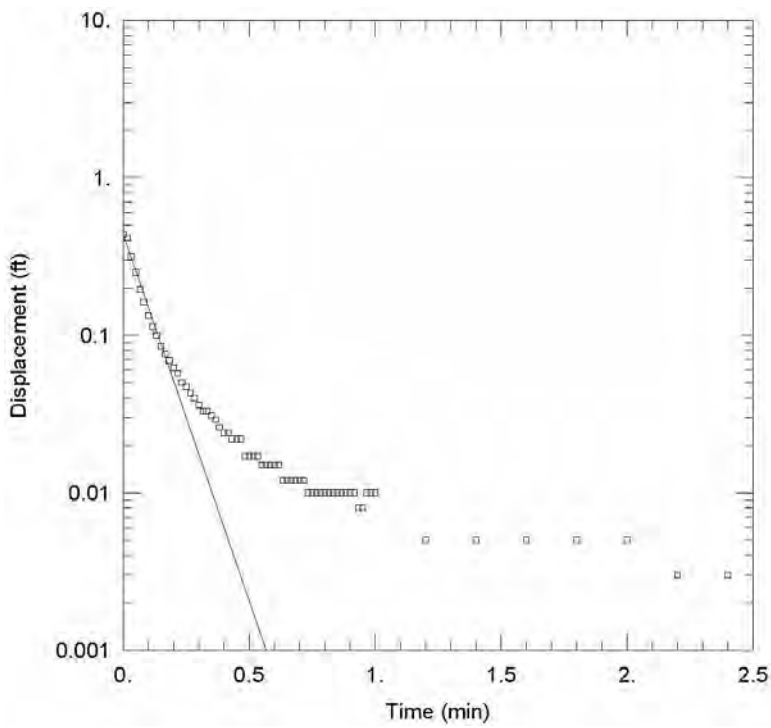


Observed slug test water level response and interpretive straight-line fit to the measured data for MW12, Test 1, slug in.

FIGURE F.10 Observed slug test water level response and interpretive fit to the data for MW12.

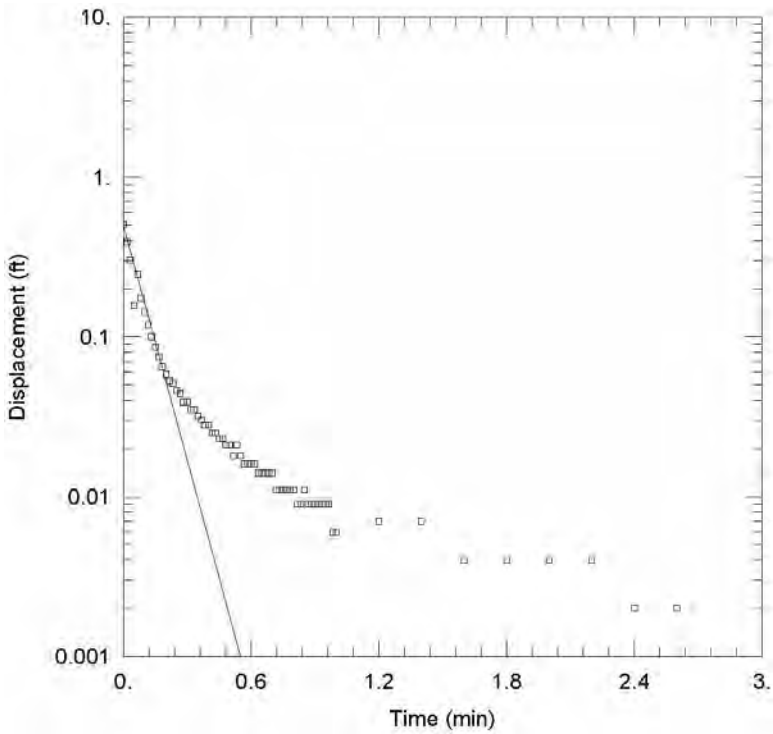


Observed slug test water level response and interpretive straight-line fit to the measured data for MW13, Test 1, slug in.

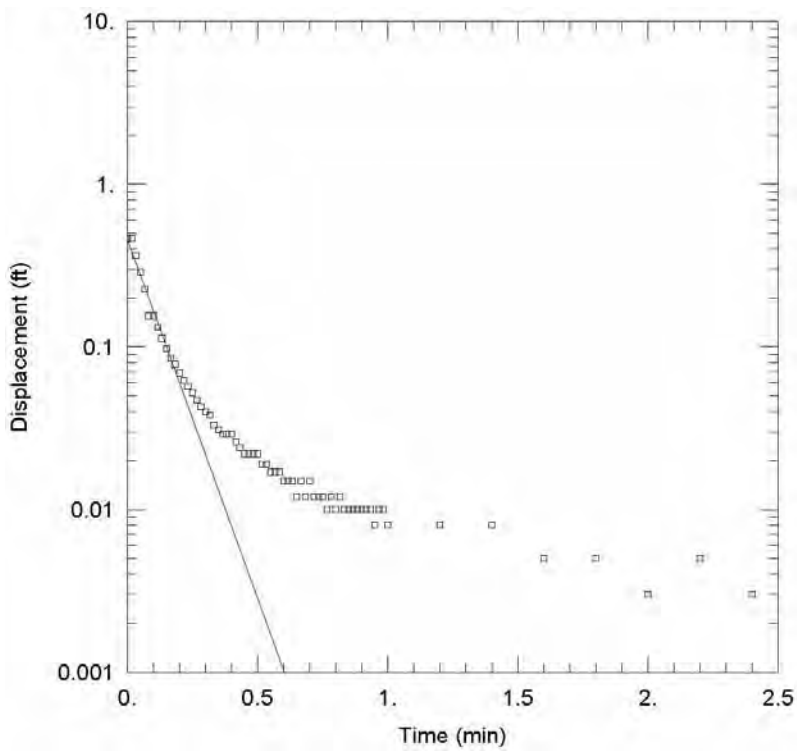


Observed slug test water level response and interpretive straight-line fit to the measured data for MW13, Test 2, slug out.

FIGURE F.11 Observed slug test water level response and interpretive fit to the data for MW13.

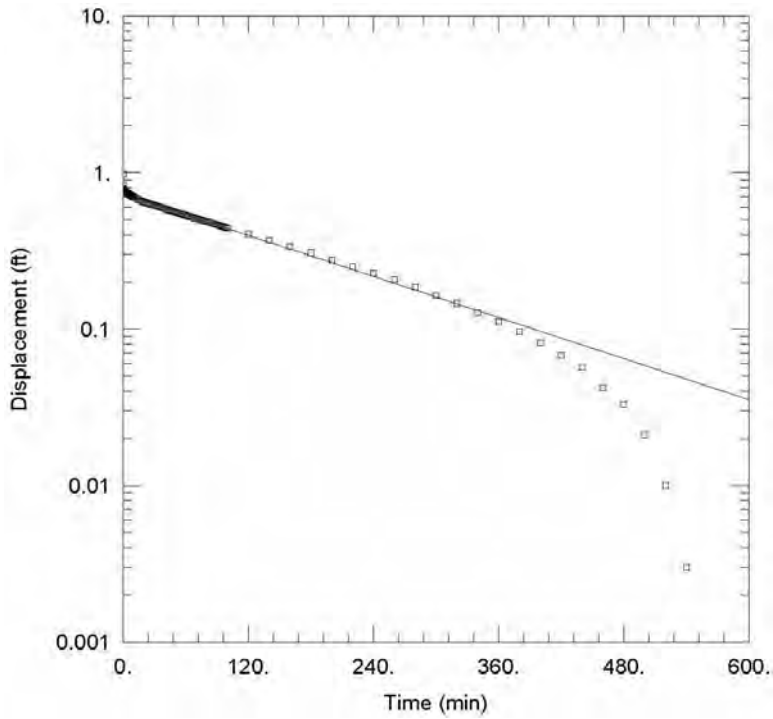


Observed slug test water level response and interpretive straight-line fit to the measured data for MW13, Test 3, slug in.

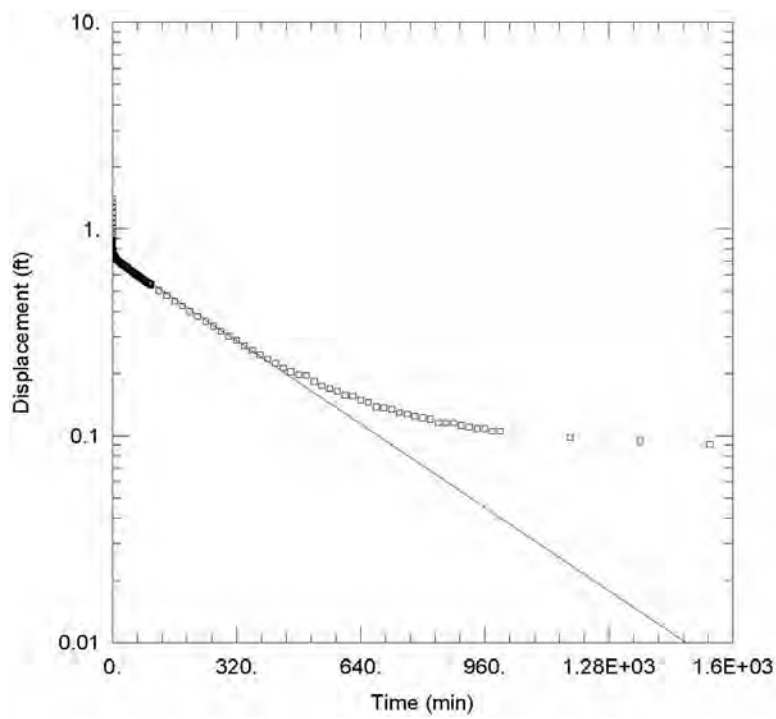


Observed slug test water level response and interpretive straight-line fit to the measured data for MW13, Test 4, slug out.

FIGURE F.11 (Cont.)

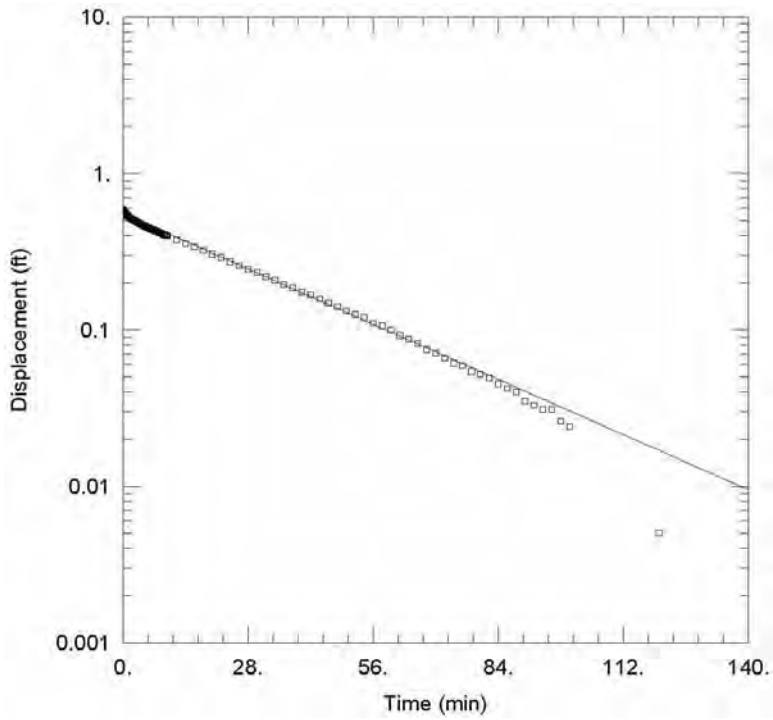


Observed slug test water level response and interpretive straight-line fit to the measured data for MW16, Test 1, slug in.

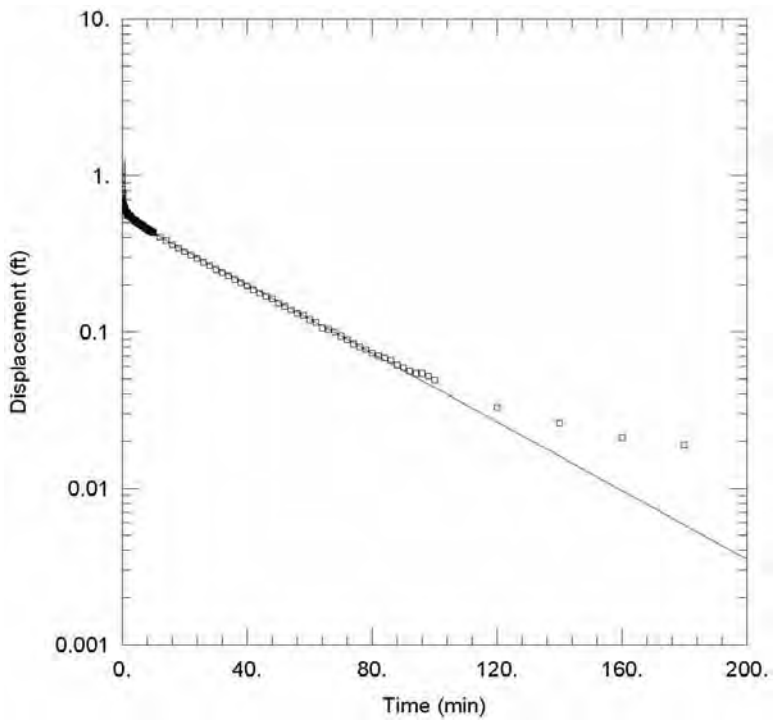


Observed slug test water level response and interpretive straight-line fit to the measured data for MW16, Test 2, slug out.

FIGURE F.12 Observed slug test water level response and interpretive fit to the data for MW16.

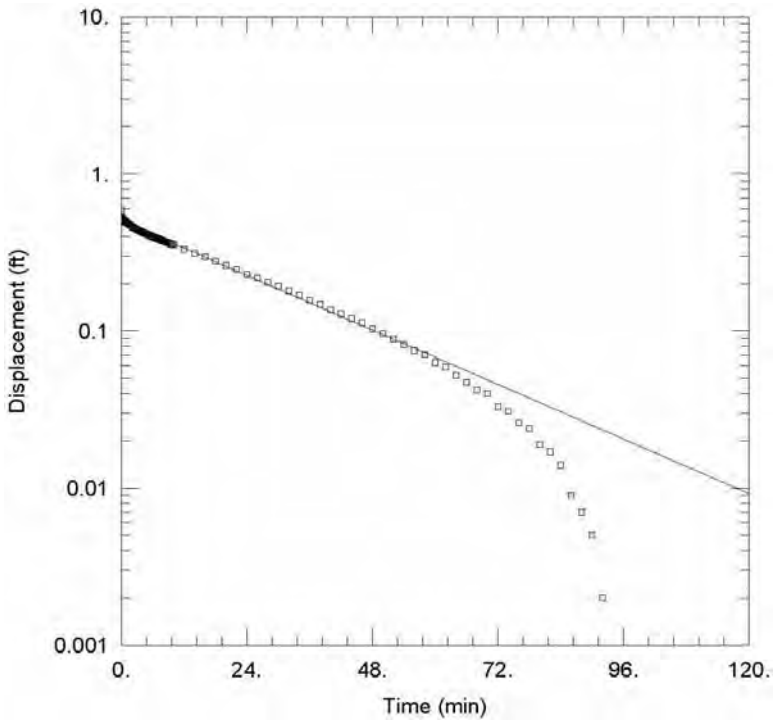


Observed slug test water level response and interpretive straight-line fit to the measured data for MW18, Test 1, slug in.



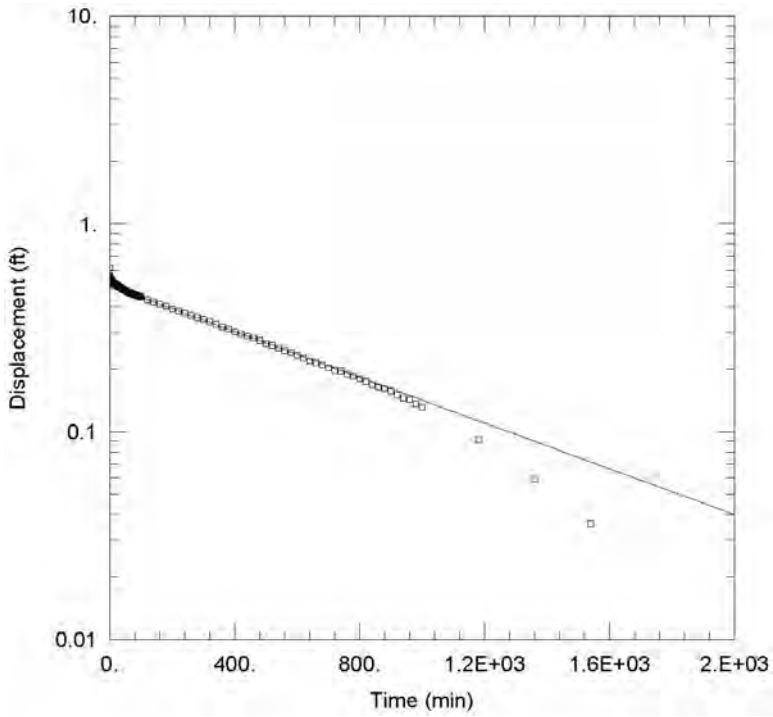
Observed slug test water level response and interpretive straight-line fit to the measured data for MW18, Test 2, slug out.

FIGURE F.13 Observed slug test water level response and interpretive fit to the data for MW18.



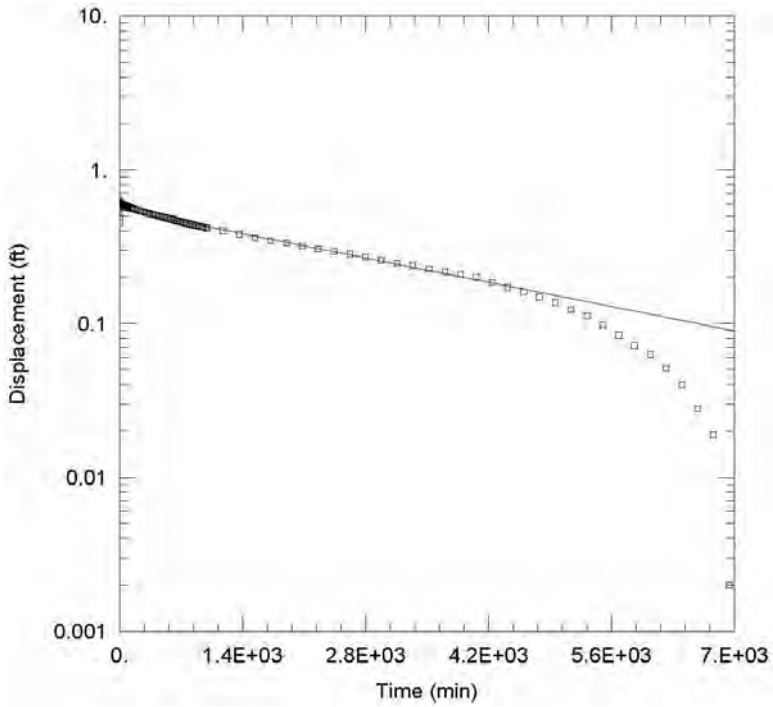
Observed slug test water level response and interpretive straight-line fit to the measured data for MW18, Test 3, slug in.

FIGURE F.13 (Cont.)



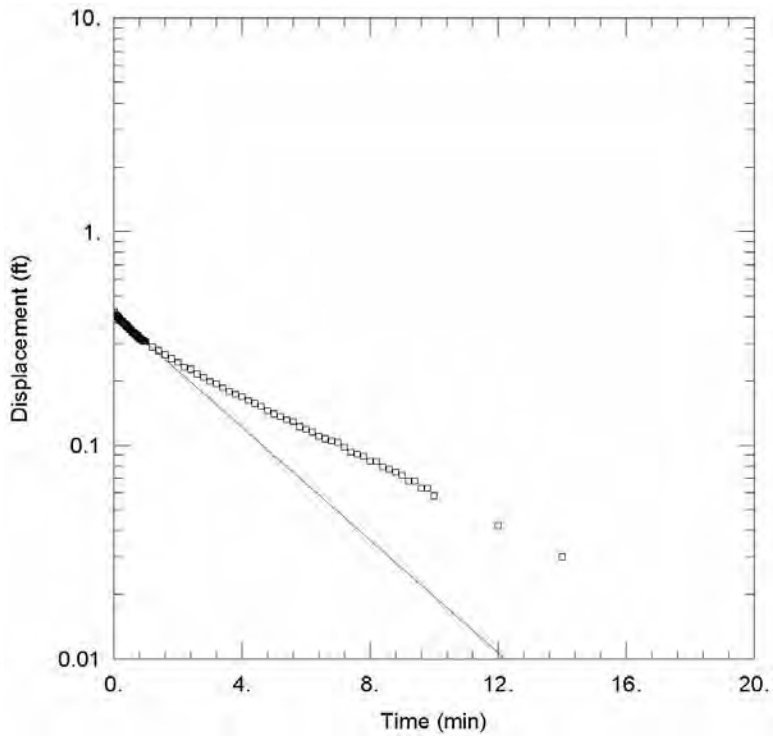
Observed slug test water level response and interpretive straight-line fit to the measured data for MW20, Test 1, slug in.

FIGURE F.14 Observed slug test water level response and interpretive fit to the data for MW20.

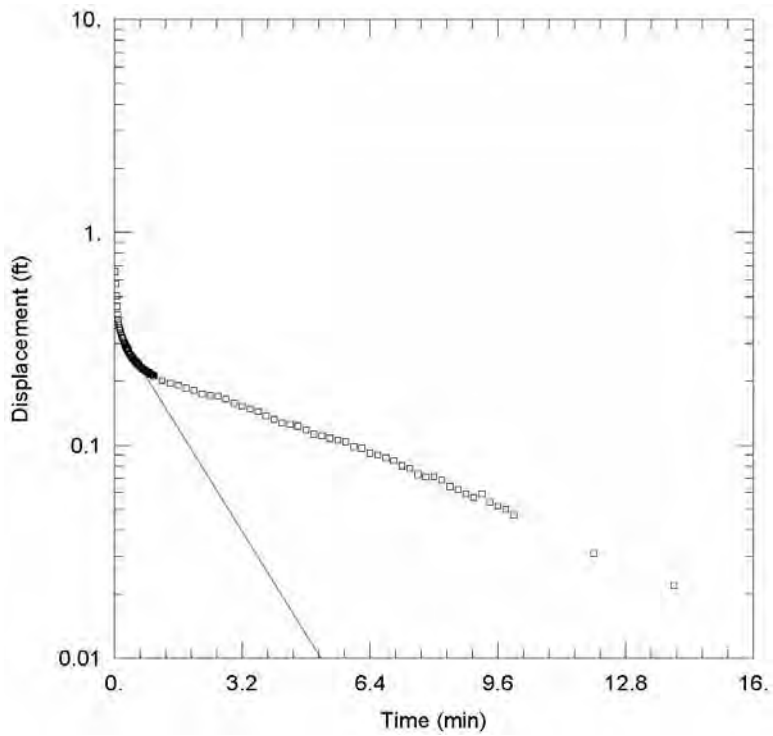


Observed slug test water level response and interpretive straight-line fit to the measured data for MW21, Test 1, slug in.

FIGURE F.15 Observed slug test water level response and interpretive fit to the data for MW21.

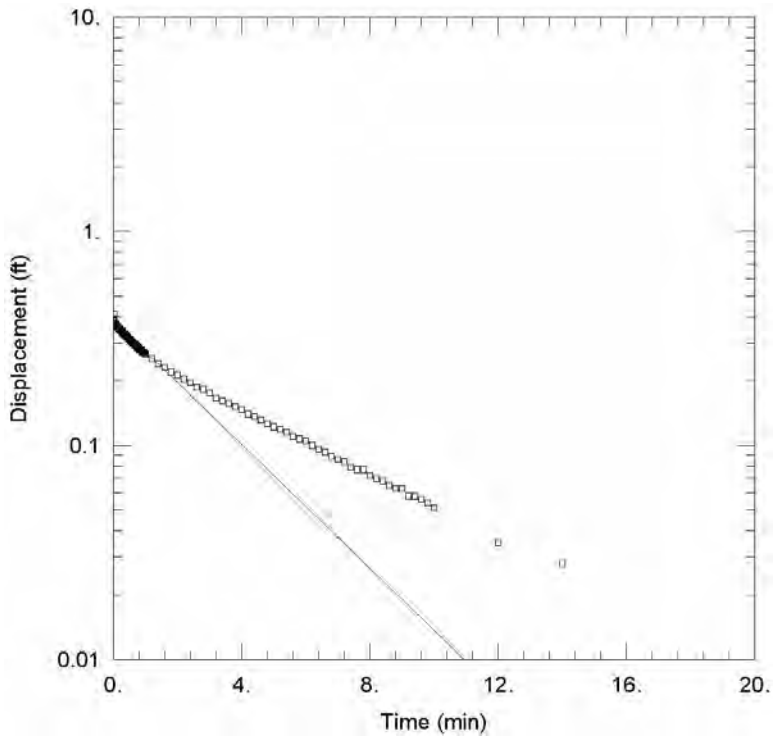


Observed slug test water level response and interpretive straight-line fit to the measured data for MW28, Test 1, slug in.

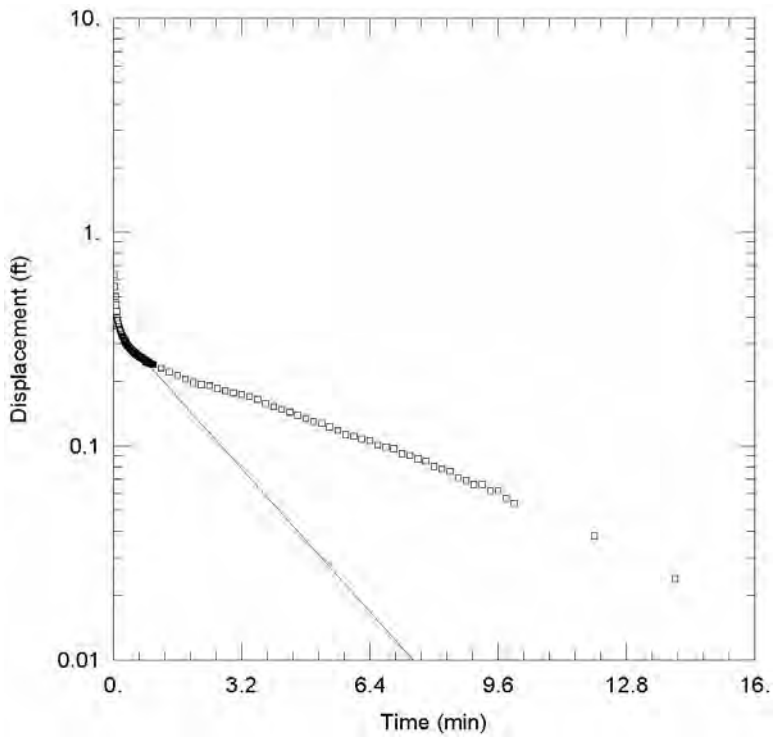


Observed slug test water level response and interpretive straight-line fit to the measured data for MW28, Test 2, slug out.

FIGURE F.16 Observed slug test water level response and interpretive fit to the data for MW28.

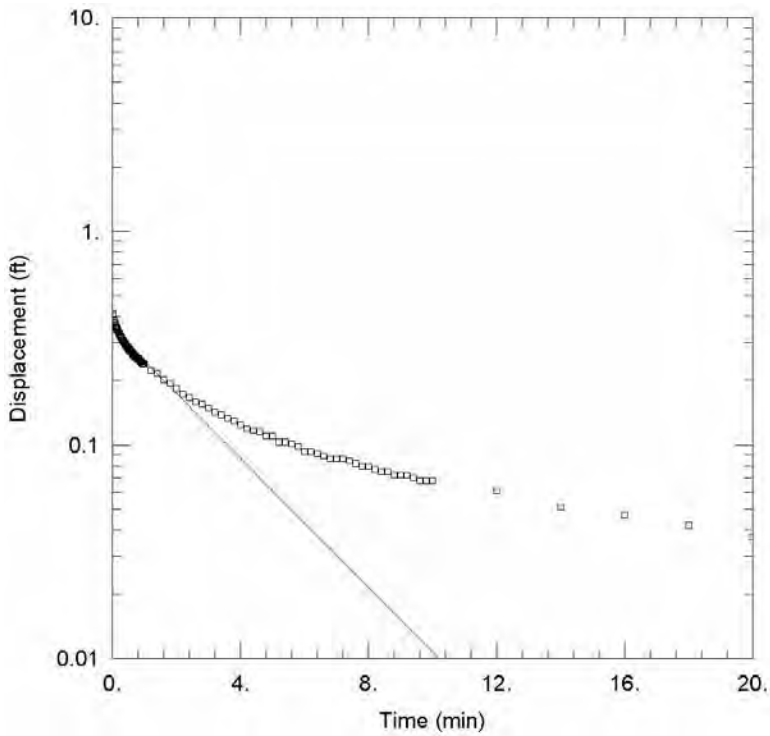


Observed slug test water level response and interpretive straight-line fit to the measured data for MW28, Test 3, slug in.

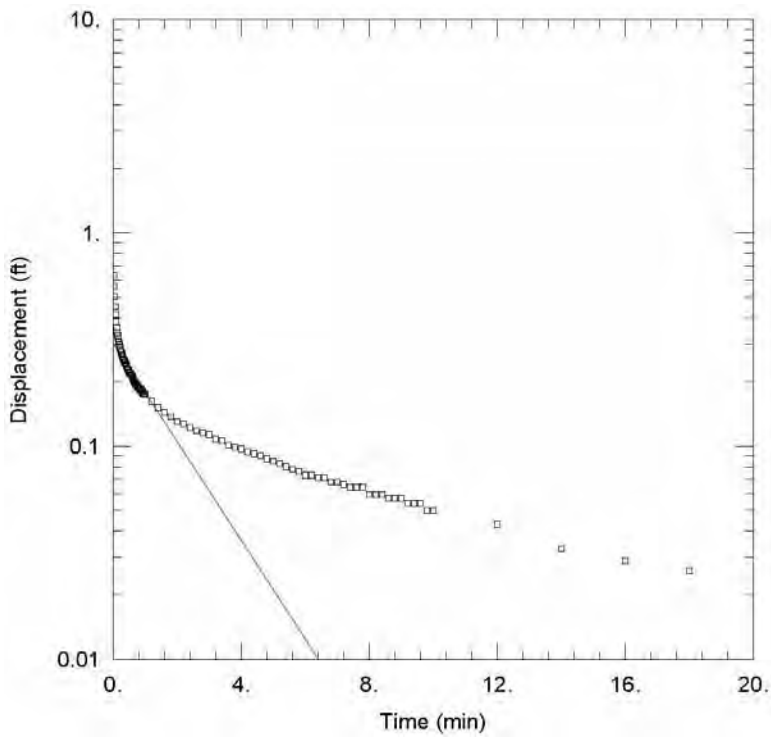


Observed slug test water level response and interpretive straight-line fit to the measured data for MW28, Test 4, slug out.

FIGURE F.16 (Cont.)

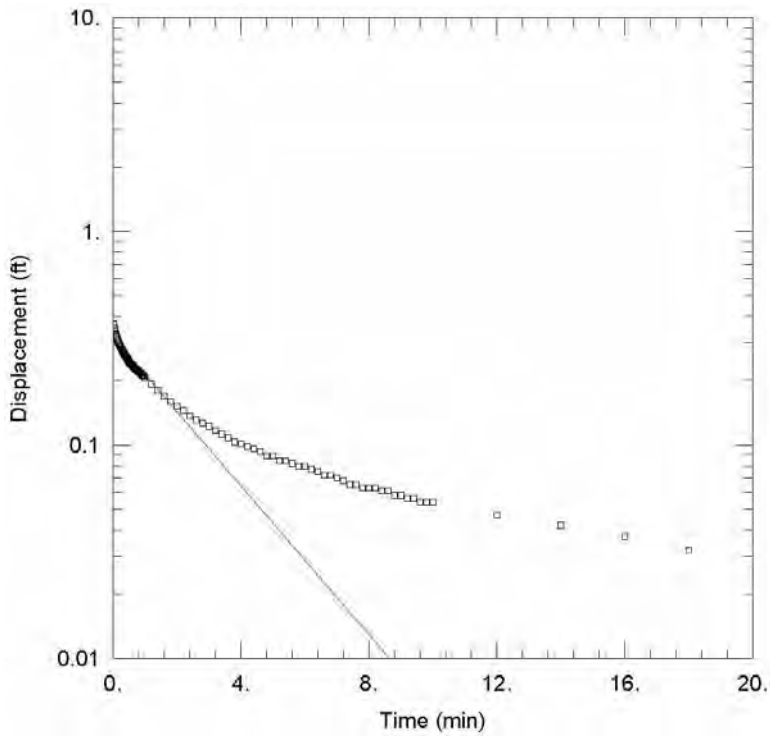


Observed slug test water level response and interpretive straight-line fit to the measured data for MW29, Test 1, slug in.

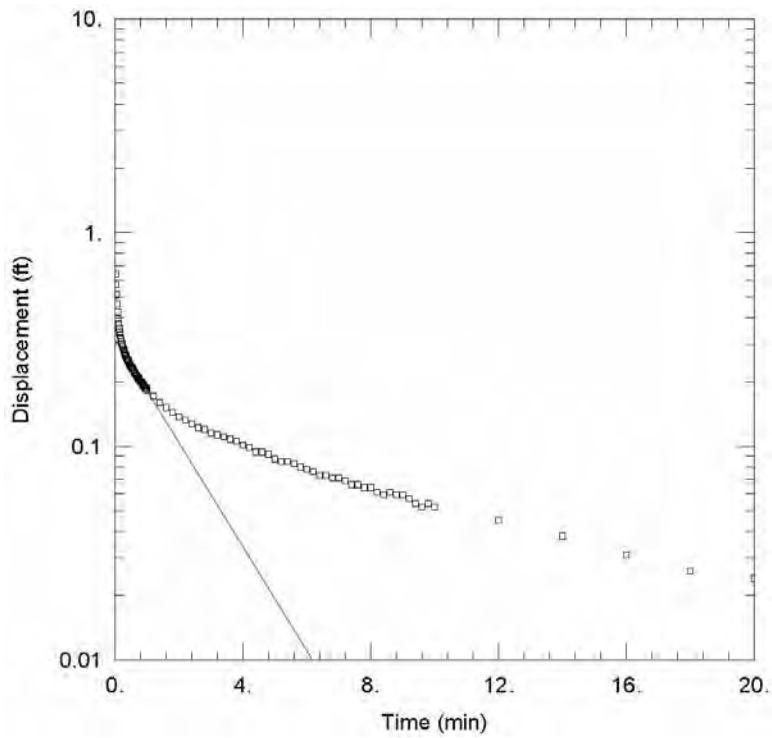


Observed slug test water level response and interpretive straight-line fit to the measured data for MW29, Test 2, slug out.

FIGURE F.17 Observed slug test water level response and interpretive fit to the data for MW29.

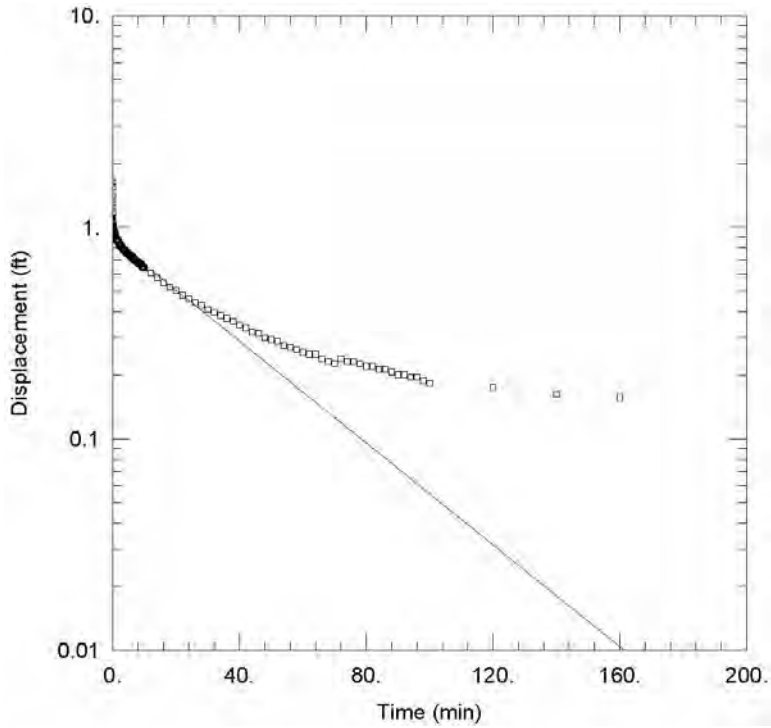


Observed slug test water level response and interpretive straight-line fit to the measured data for MW29, Test 3, slug in.

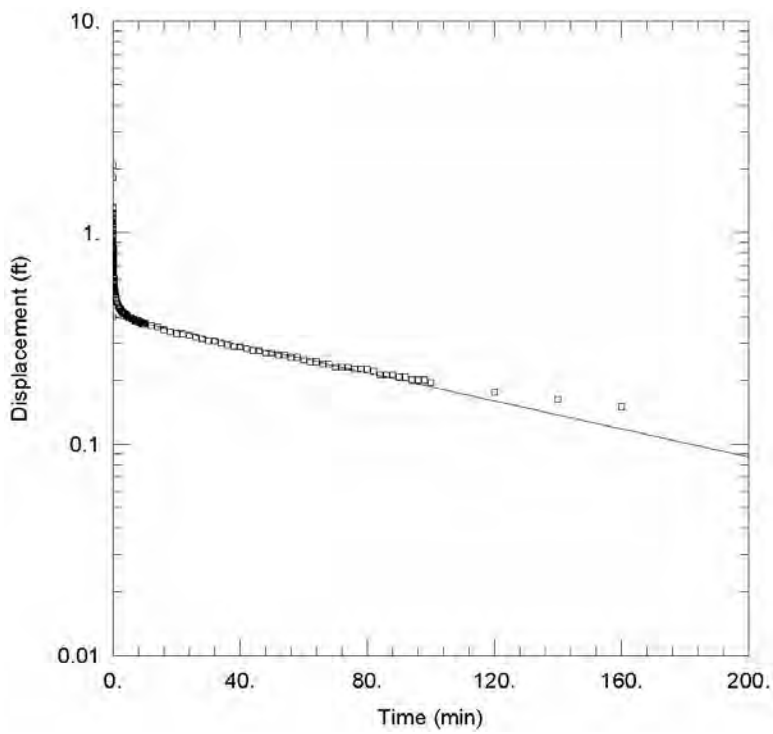


Observed slug test water level response and interpretive straight-line fit to the measured data for MW29, Test 4, slug out.

FIGURE F.17 (Cont.)

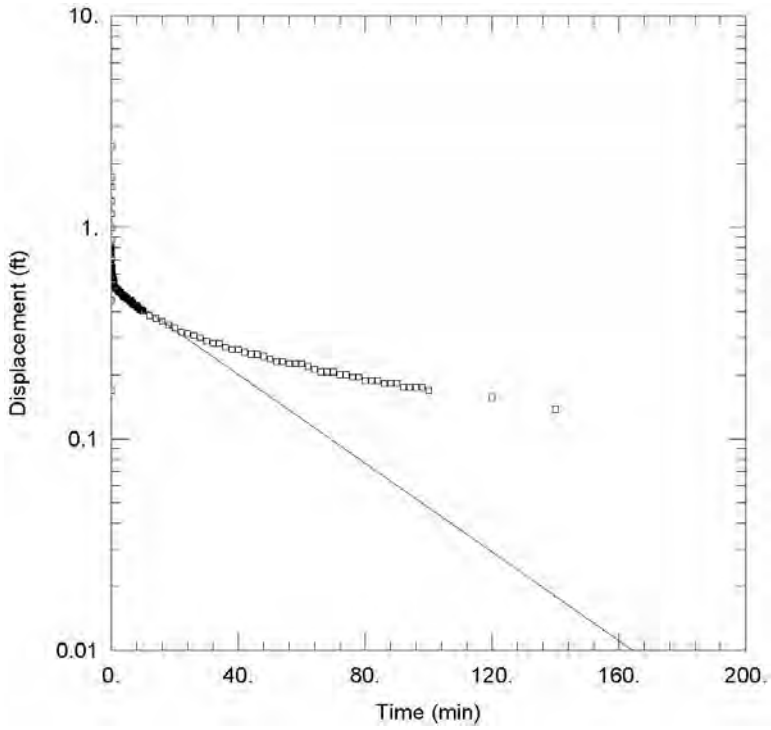


Observed slug test water level response and interpretive straight-line fit to the measured data for MW34, Test 1, slug in.



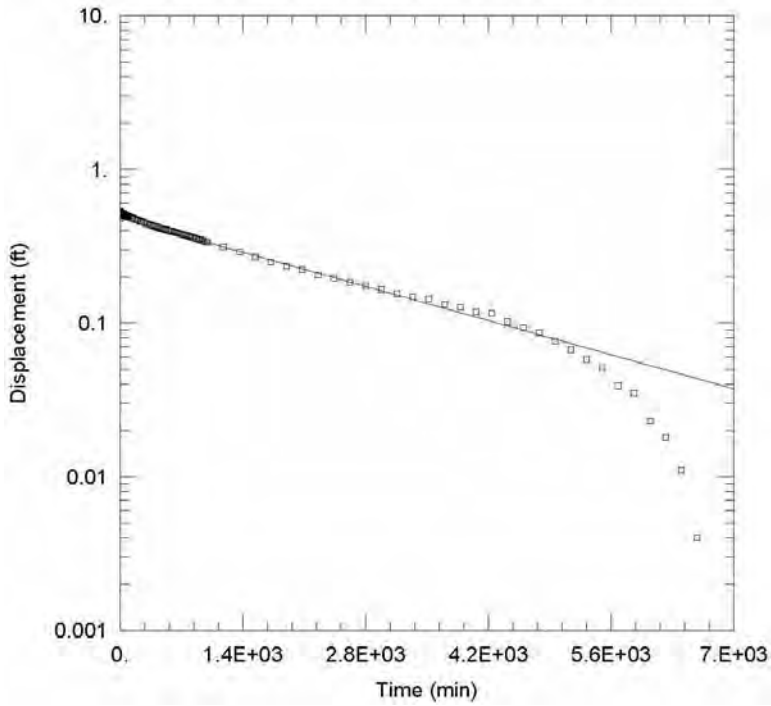
Observed slug test water level response and interpretive straight-line fit to the measured data for MW34, Test 2, slug out.

FIGURE F.18 Observed slug test water level response and interpretive fit to the data for MW34.



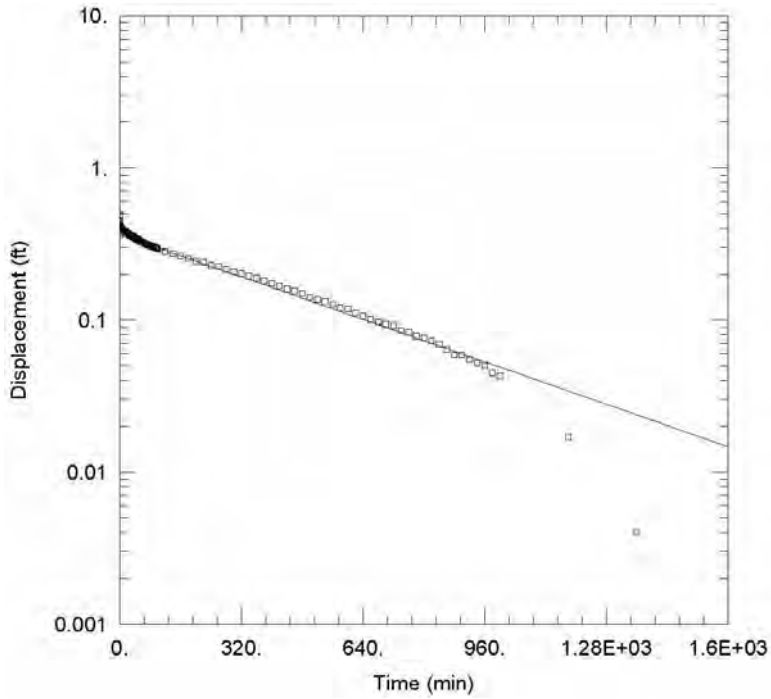
Observed slug test water level response and interpretive straight-line fit to the measured data for MW34, Test 3, slug in.

FIGURE F.18 (Cont.)



Observed slug test water level response and interpretive straight-line fit to the measured data for MW37, Test 1, slug in.

FIGURE F.19 Observed slug test water level response and interpretive fit to the data for MW37.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW38, Test 1, slug in.

FIGURE F.20 Observed slug test water level response and interpretive fit to the data for MW38.

Appendix G:

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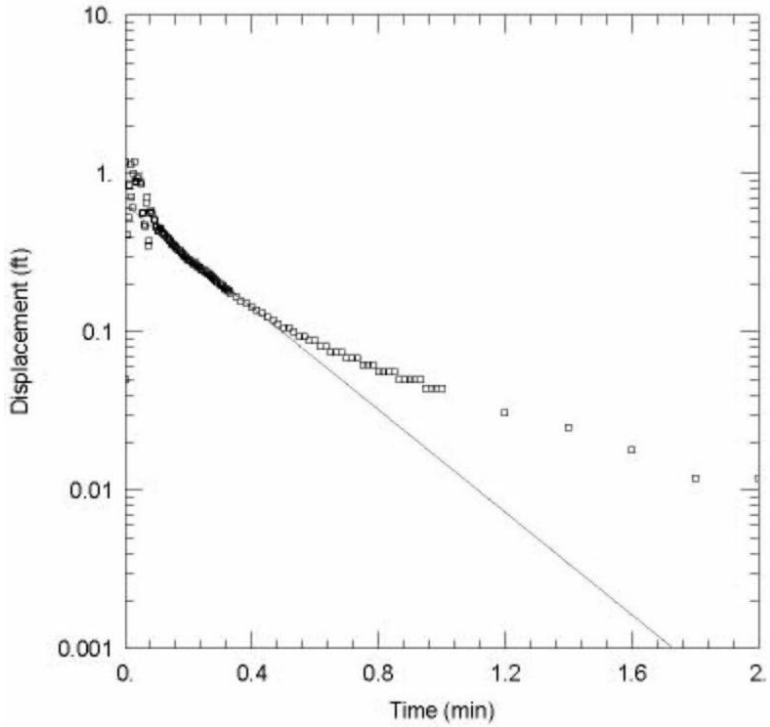
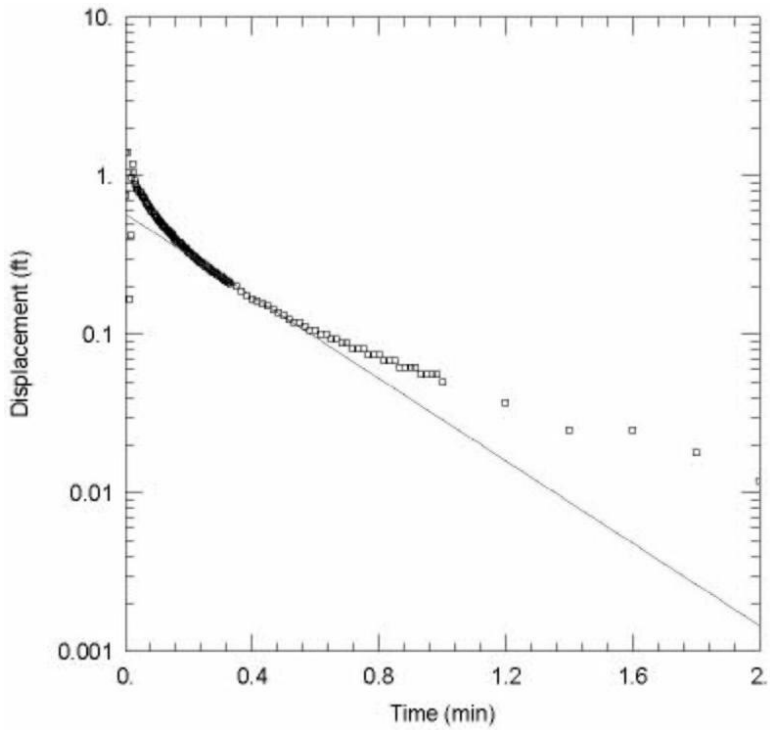
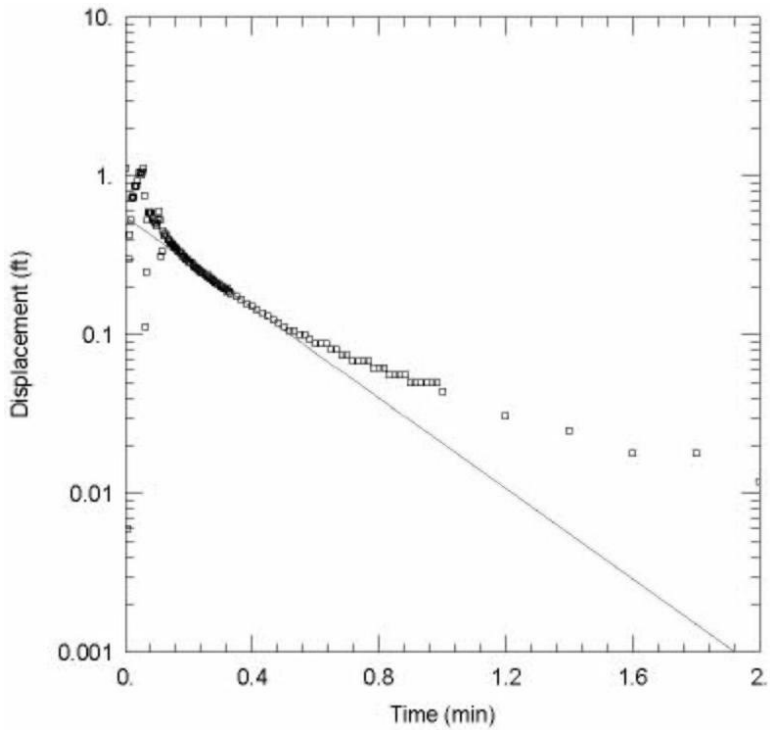


Observed slug test water level response and interpretive straight-line fit to the measured data for MW44Z2, Test 1, slug in.

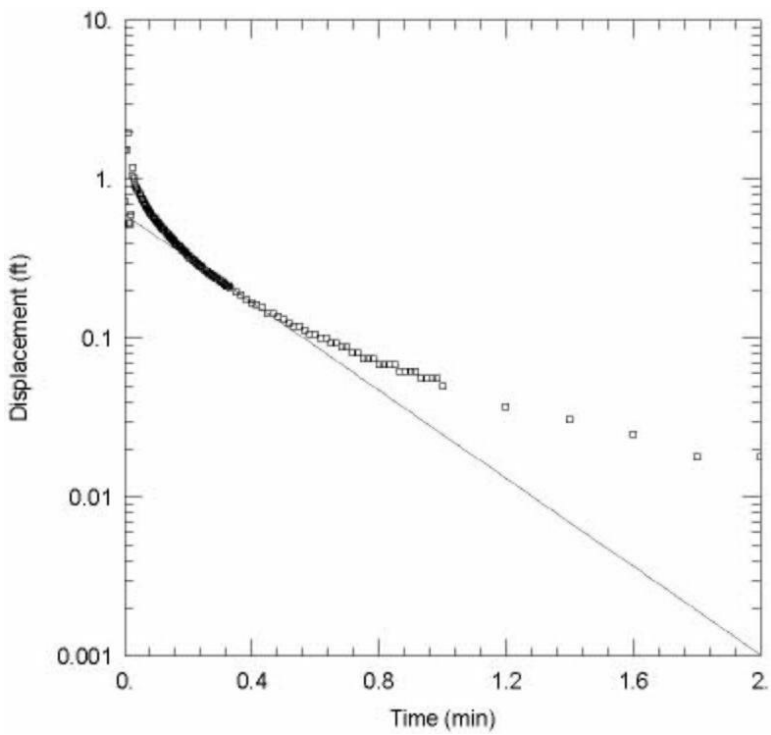


Observed slug test water level response and interpretive straight-line fit to the measured data for MW44Z2, Test 2, slug out.

FIGURE G.1 Observed slug test water level response and interpretive fit for the data for MW44Z2.

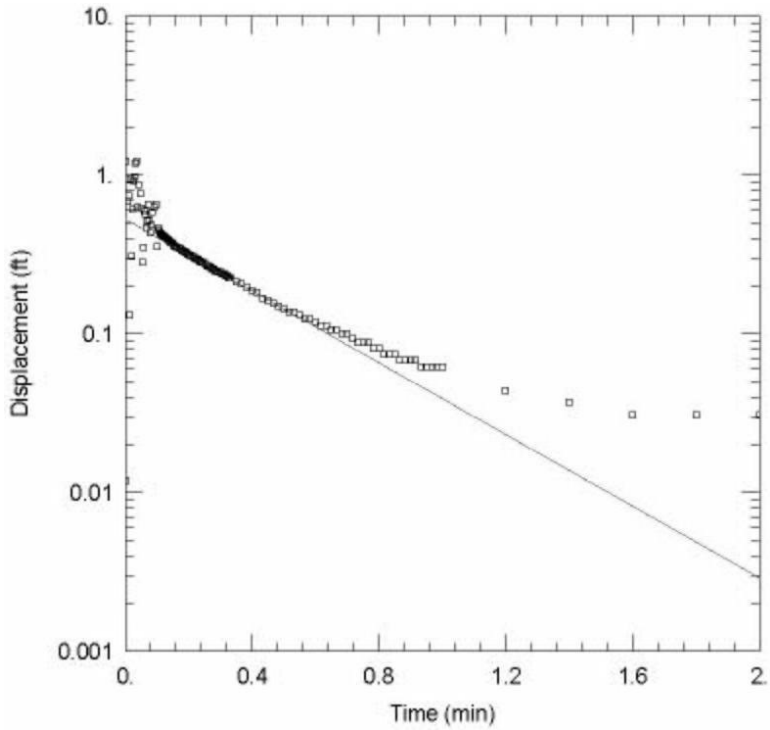


Observed slug test water level response and interpretive straight-line fit to the measured data for MW44Z2, Test 3, slug in.

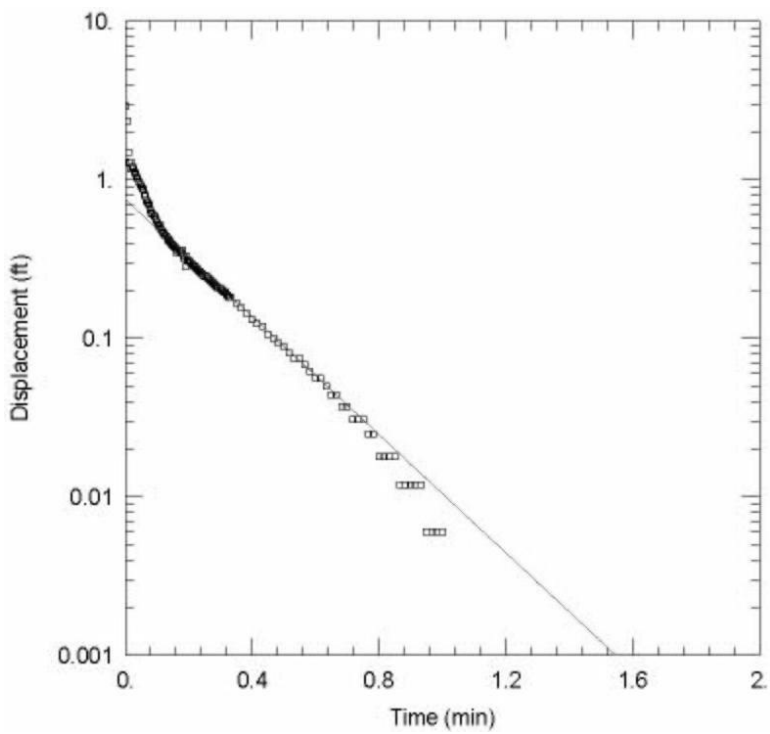


Observed slug test water level response and interpretive straight-line fit to the measured data for MW44Z2, Test 4, slug out.

FIGURE G.1 (Cont.)

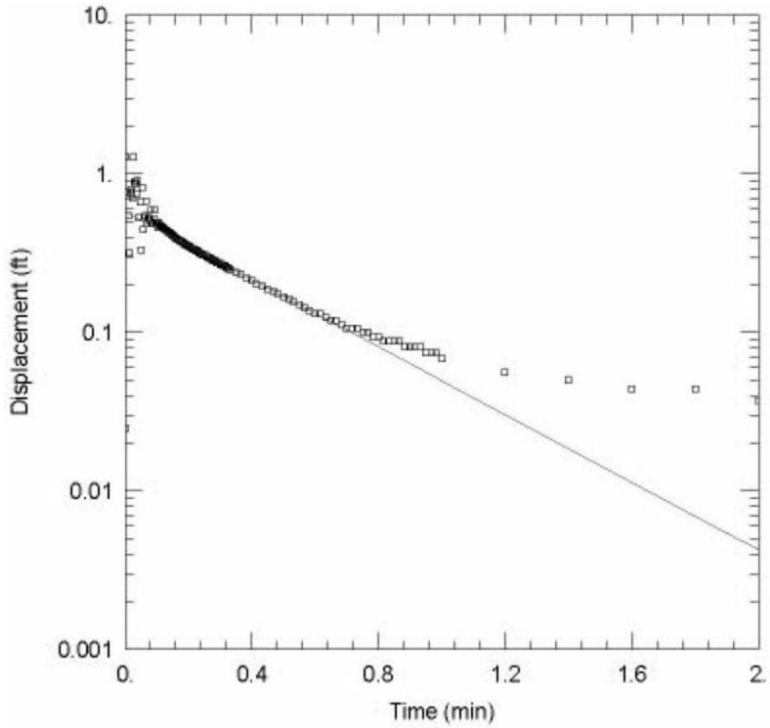


Observed slug test water level response and interpretive straight-line fit to the measured data for MW45Z2, Test 1, slug in.

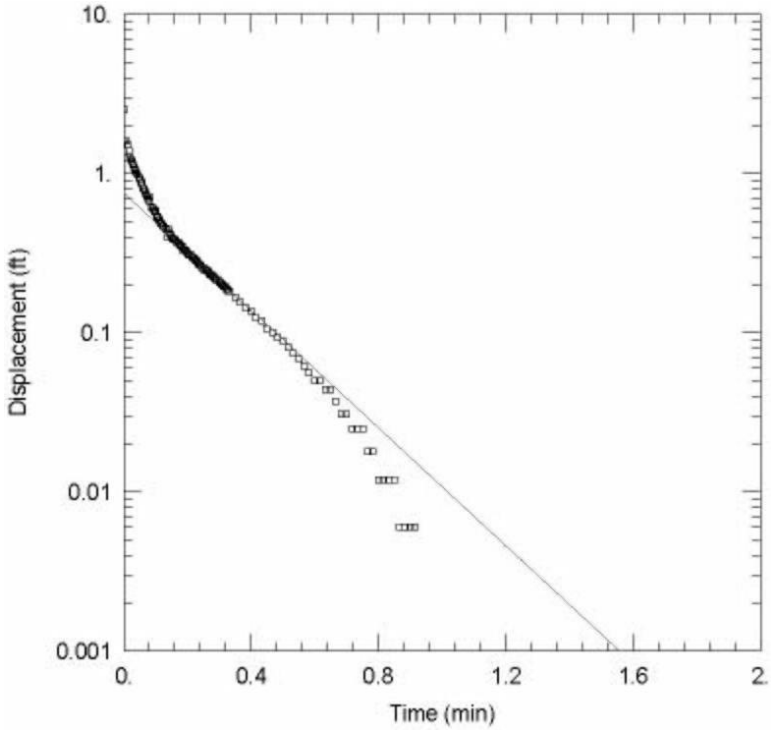


Observed slug test water level response and interpretive straight-line fit to the measured data for MW45Z2, Test 2, slug out.

FIGURE G.2 Observed slug test water level response and interpretive fit for the data for MW45Z2.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW45Z2, Test 3, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW45Z2, Test 4, slug out.

FIGURE G.2 (Cont.)

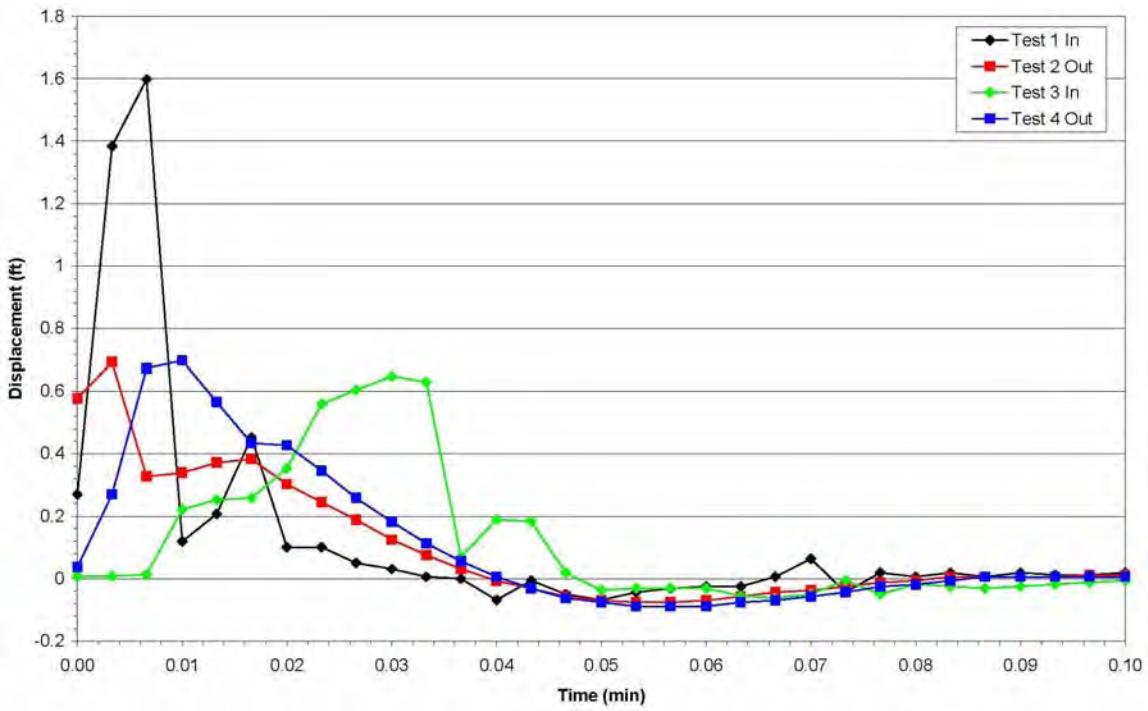
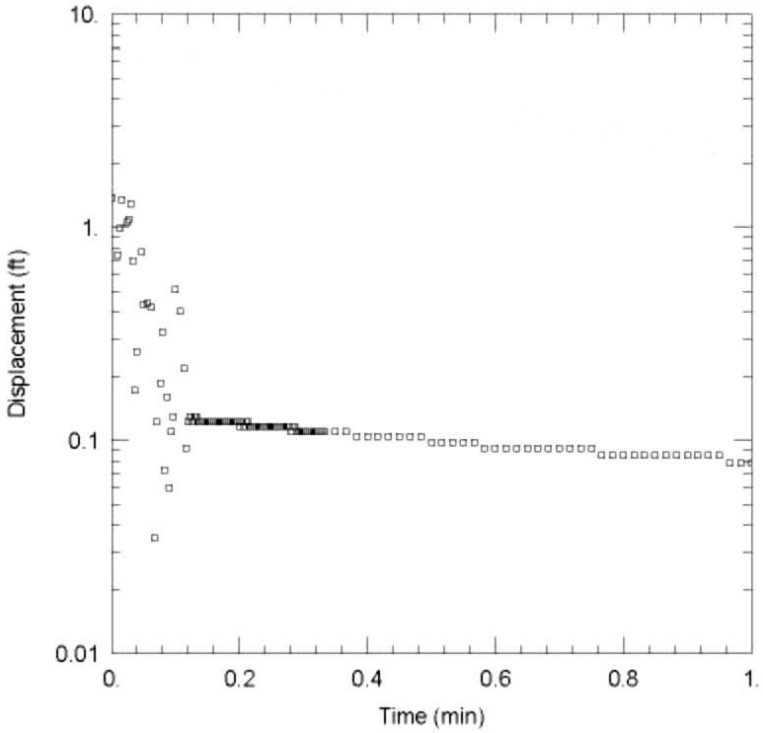
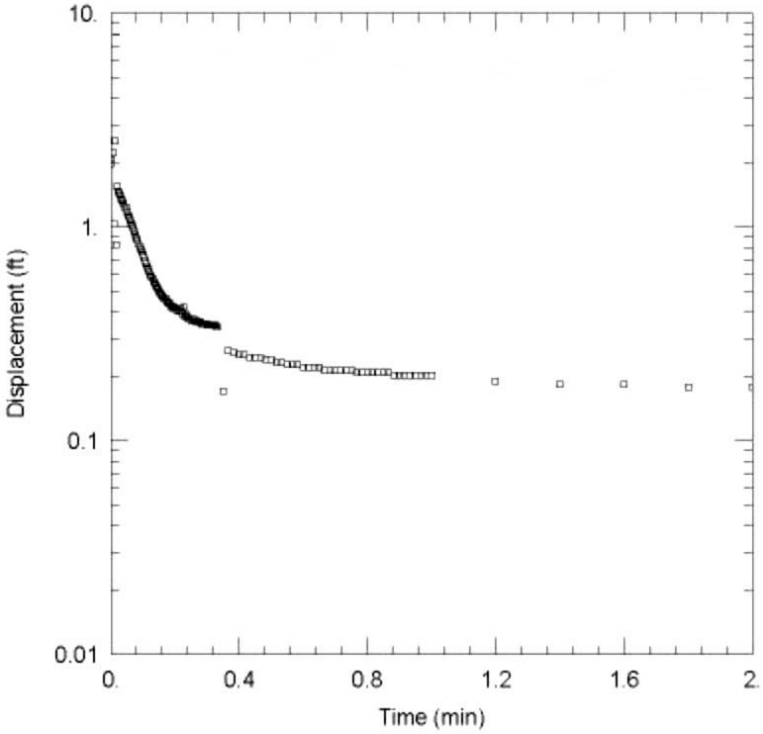


FIGURE G.3 Observed slug test water level response data for MW48Z2. Data for this well cannot be fully displayed in semi-logarithmic format.

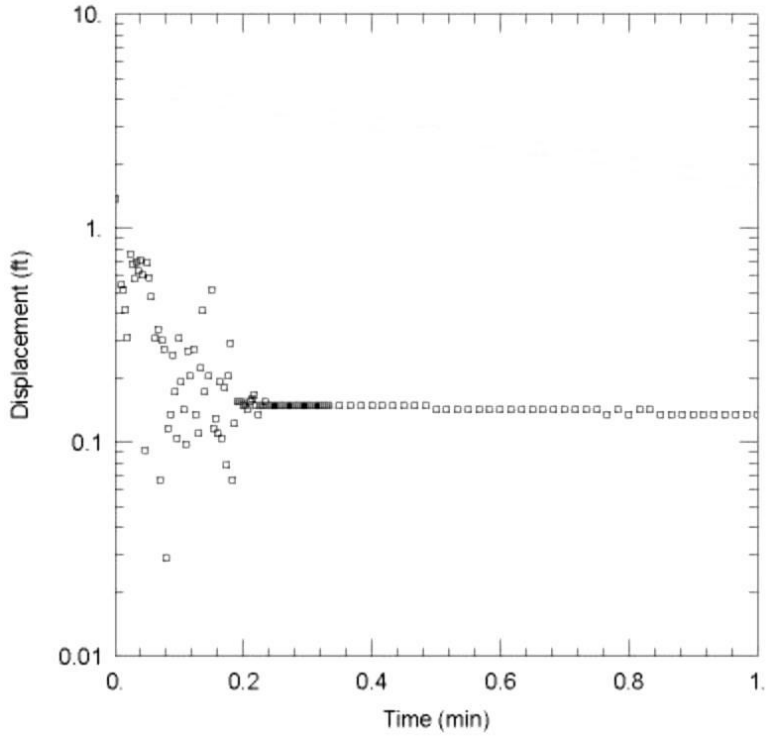


Observed slug test water level response data for MW49Z2, Test 1, slug in.

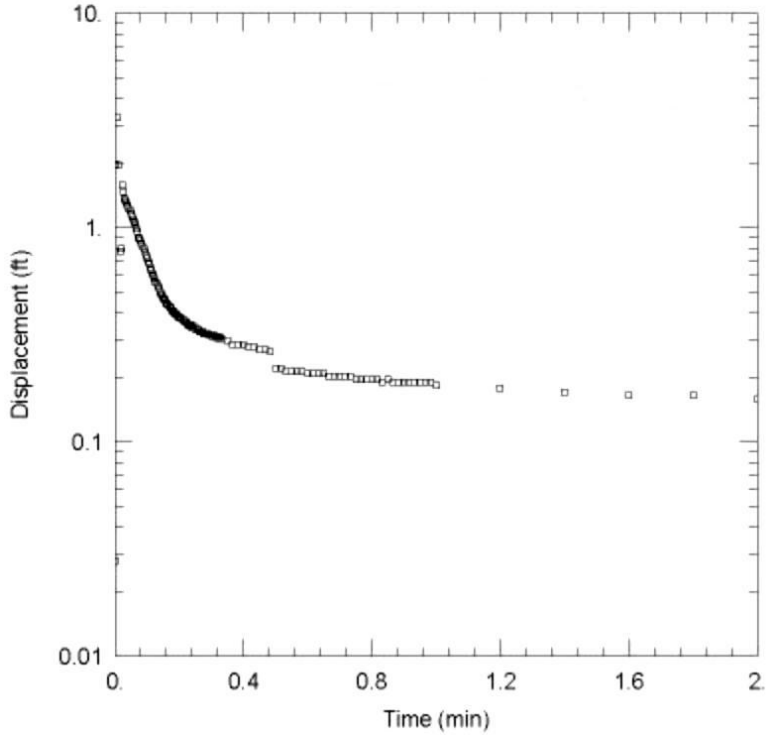


Observed slug test water level response data for MW49Z2, Test 2, slug out.

FIGURE G.4 Observed slug test water level response data for MW49Z2.

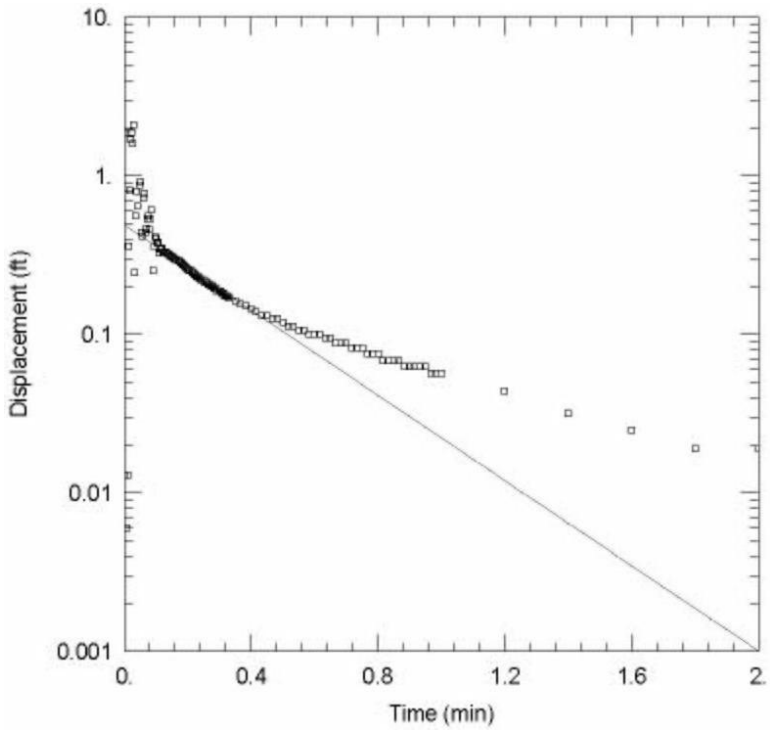


Observed slug test water level response data for MW49Z2, Test 3, slug in.

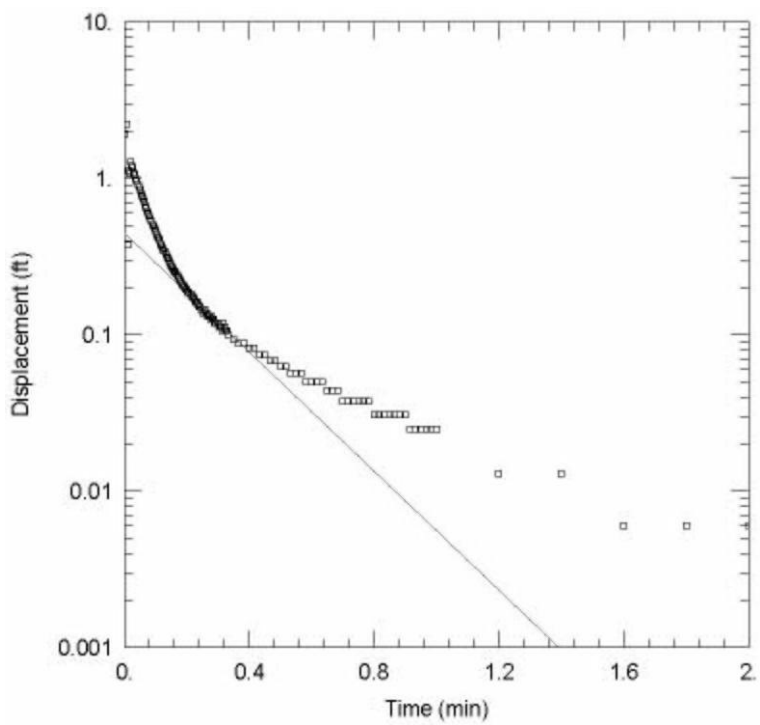


Observed slug test water level response data for MW49Z2, Test 4, slug out.

FIGURE G.4 (Cont.)

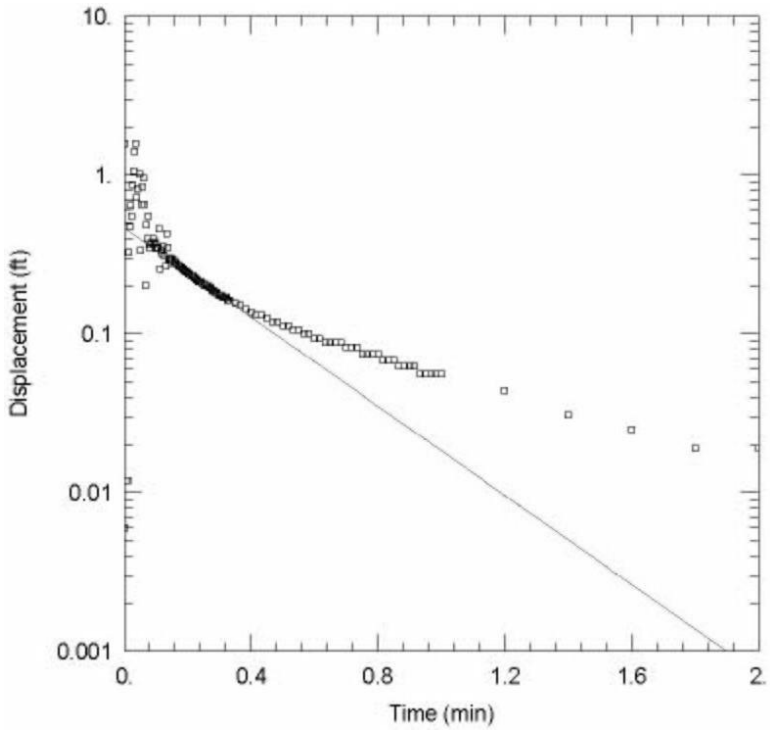


Observed slug test water level response and interpretive straight-line fit to the measured data for MW50Z2, Test 1, slug in.

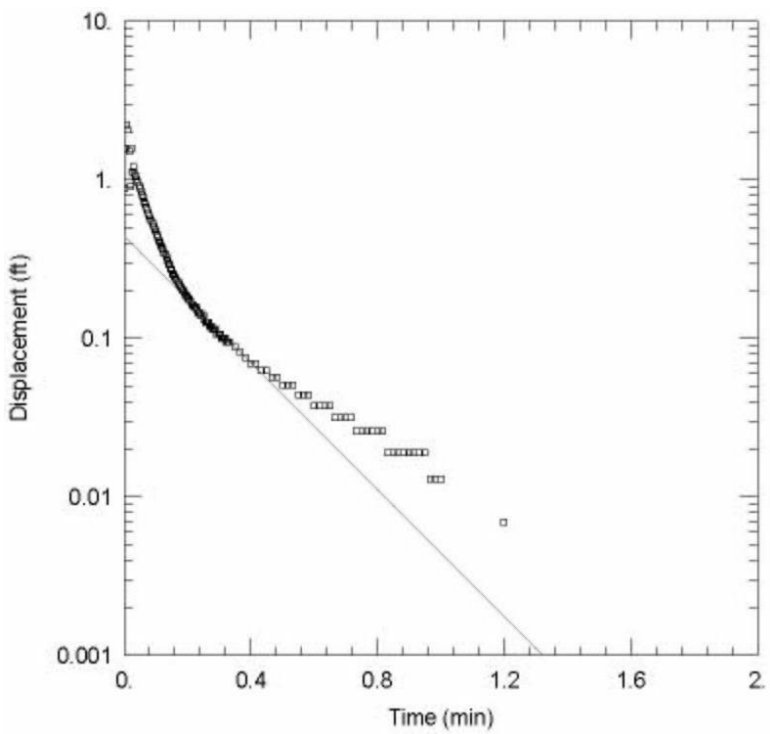


Observed slug test water level response and interpretive straight-line fit to the measured data for MW50Z2, Test 2, slug out.

FIGURE G.5 Observed slug test water level response and interpretive fit for the data for MW50Z2.

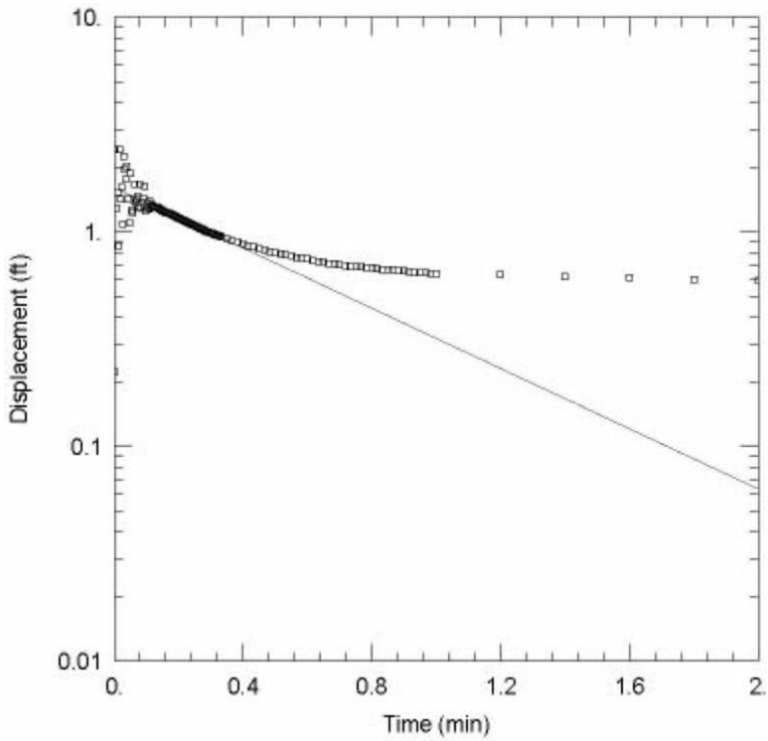


Observed slug test water level response and interpretive straight-line fit to the measured data for MW50Z2, Test 3, slug in.

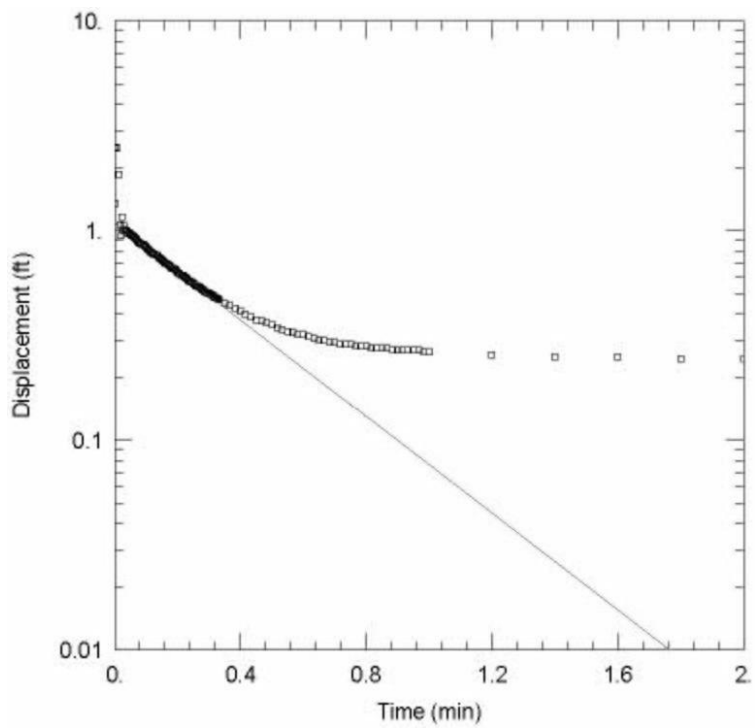


Observed slug test water level response and interpretive straight-line fit to the measured data for MW50Z2, Test 4, slug out.

FIGURE G.5 (Cont.)

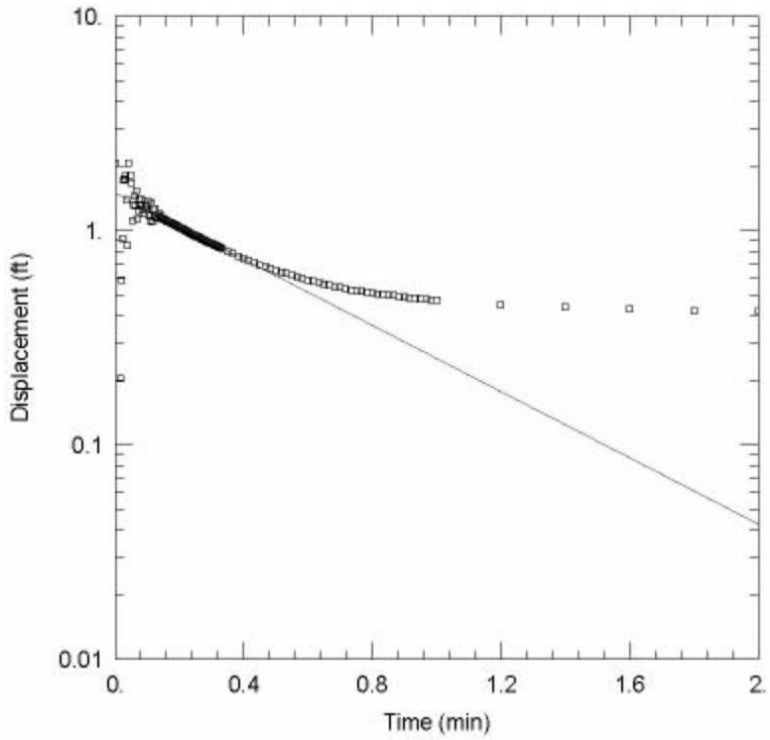


Observed slug test water level response and interpretive straight-line fit to the measured data for MW51Z2, Test 1, slug in.

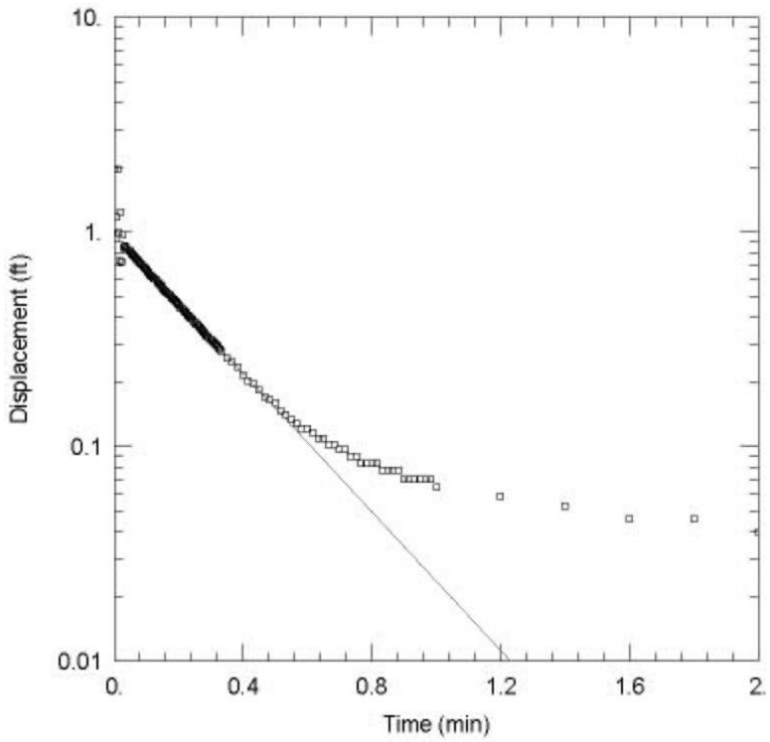


Observed slug test water level response and interpretive straight-line fit to the measured data for MW51Z2, Test 2, slug out.

FIGURE G.6 Observed slug test water level response and interpretive fit for the data for MW51Z2.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW51Z2, Test 3, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW51Z2, Test 4, slug out.

FIGURE G.6 (Cont.)

Appendix H:

Water Zone 1 Step Pumping Test Data Summary

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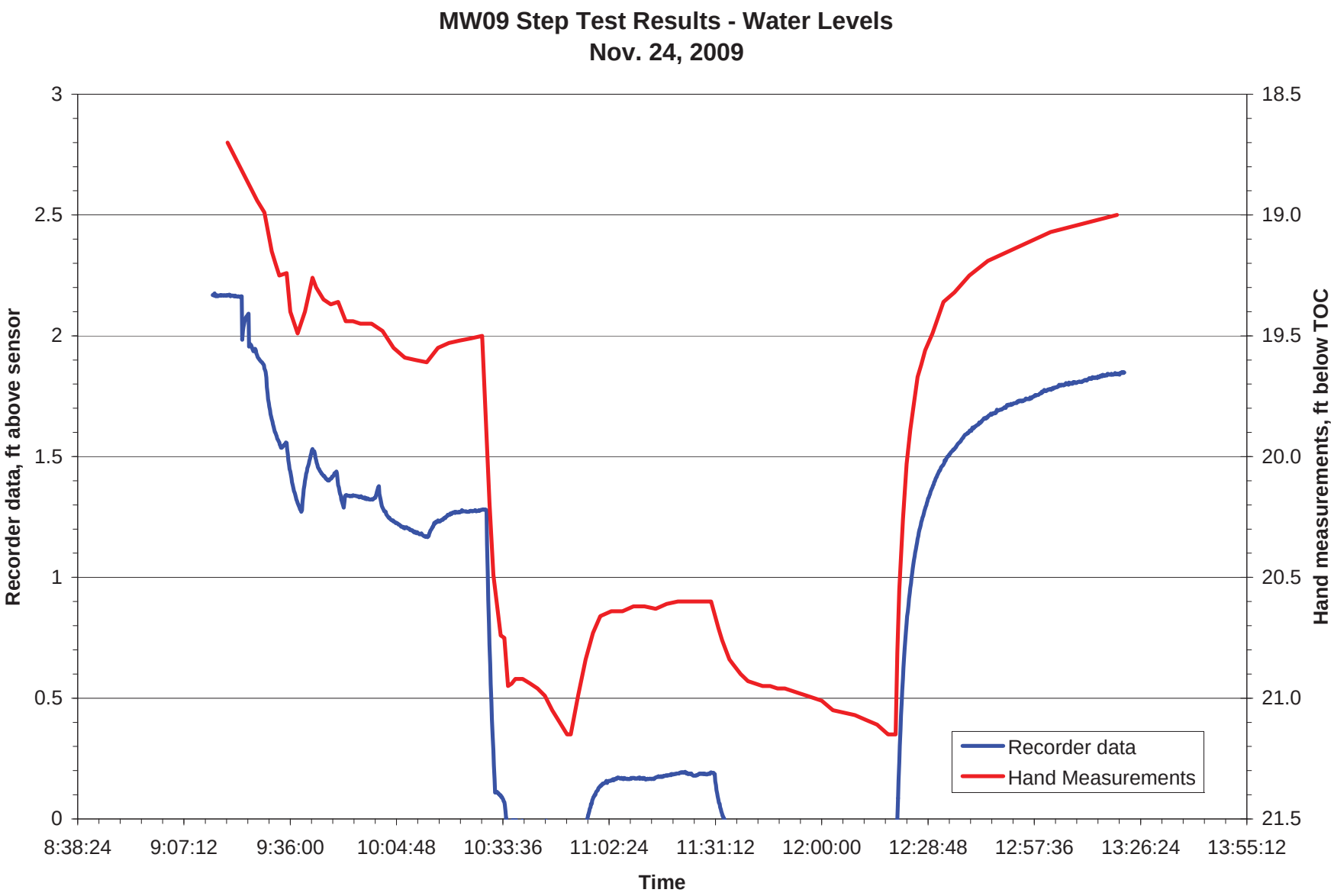

FIGURE H.1 Water levels measured manually and automatically in MW09 during the step test pumping of this well, November 24, 2009.

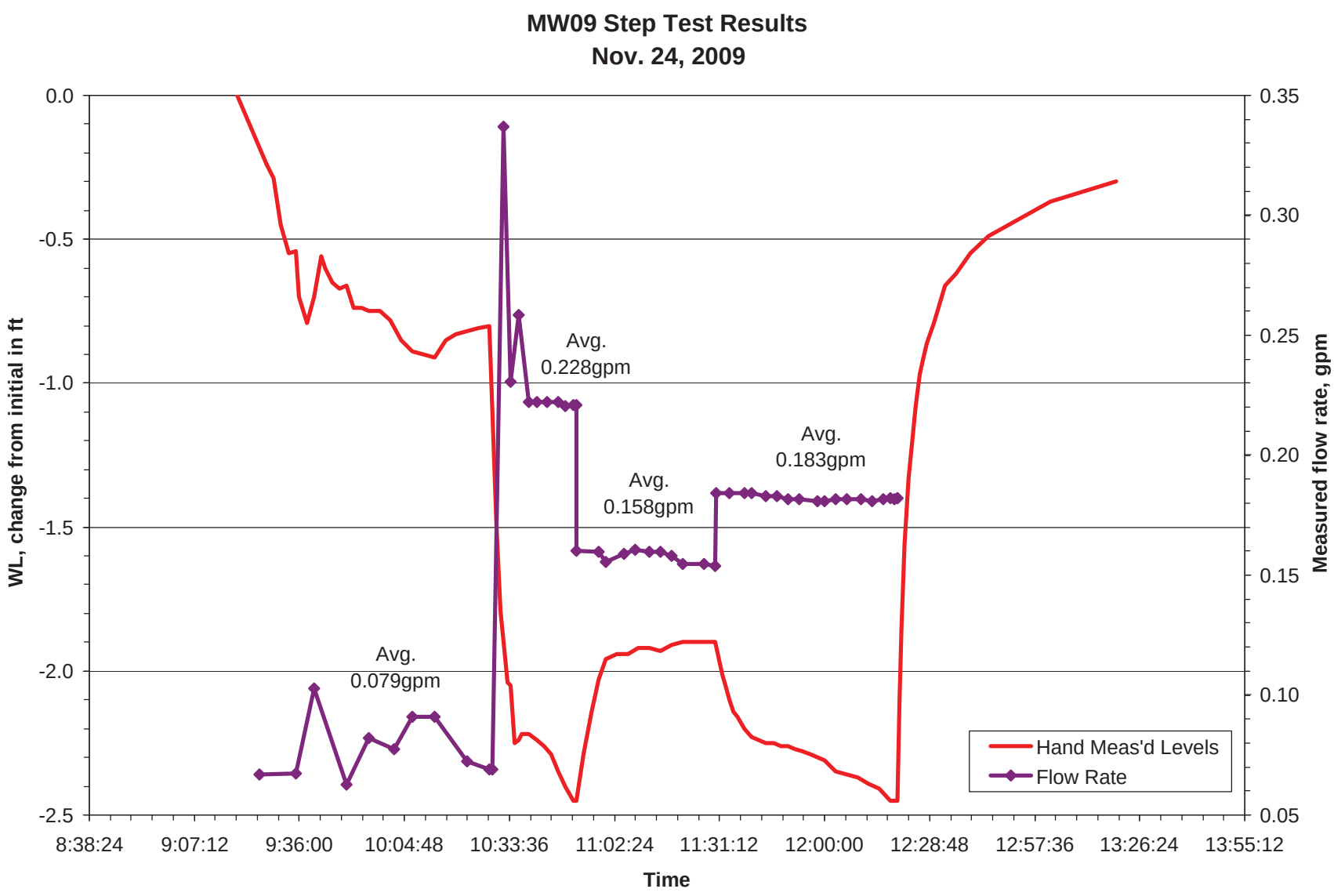

FIGURE H.2 Time-weighted average pumping rates and water level responses for well MW09, November 24, 2009.

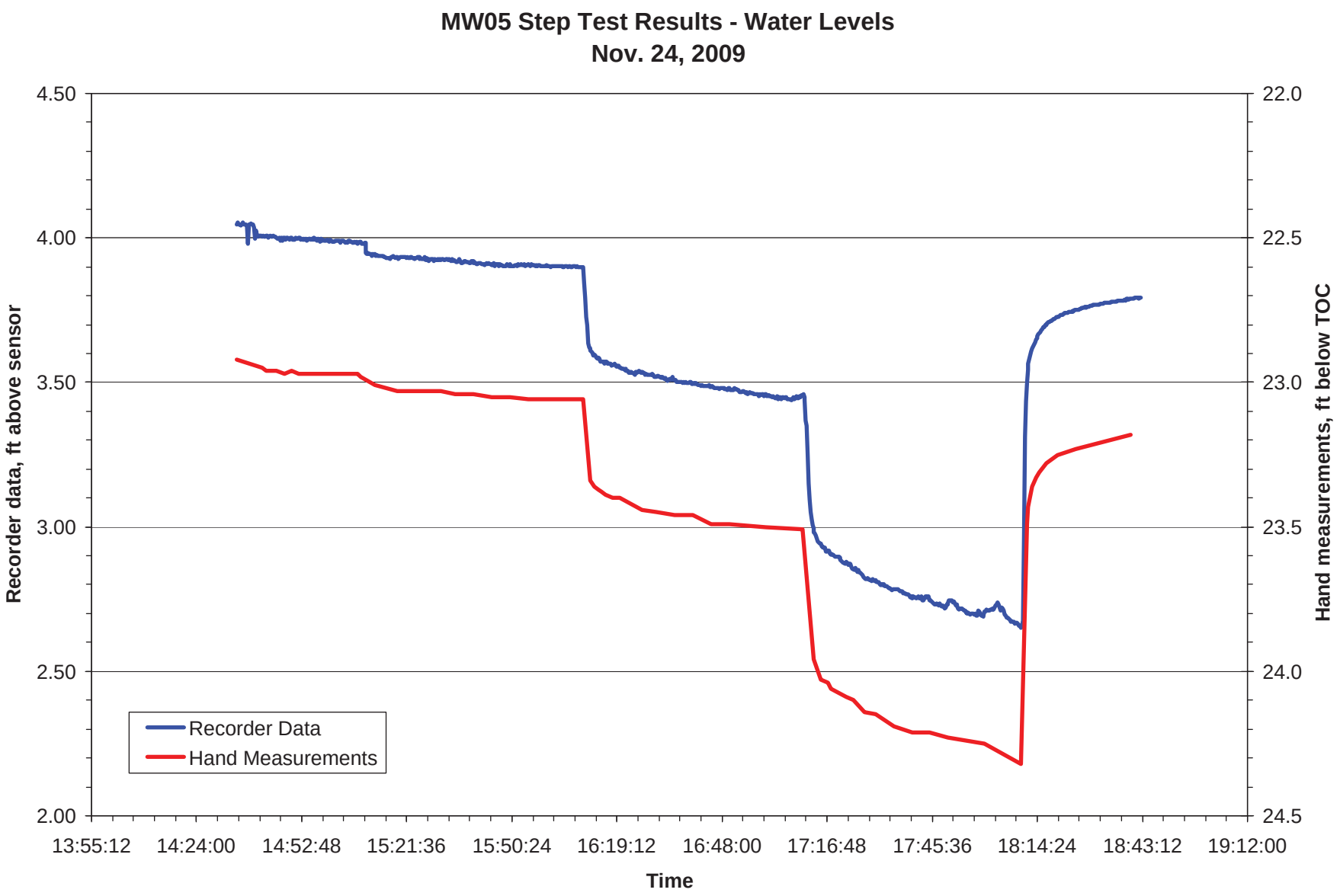

FIGURE H.3 Water levels measured manually and automatically in MW05 during the step test pumping of this well, November 24, 2009.

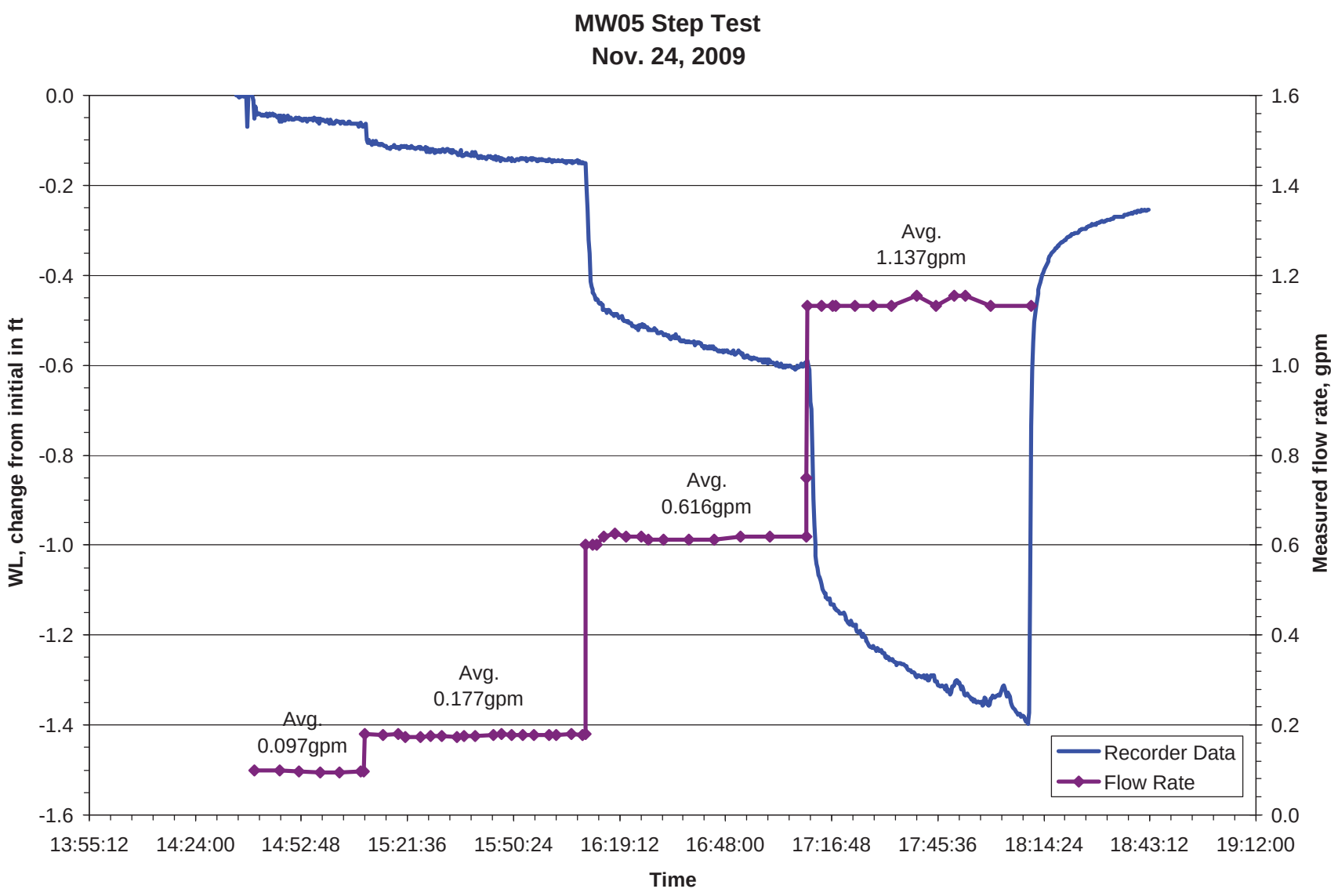

FIGURE H.4 Time-weighted average pumping rates and water level responses for well MW05, November 24, 2009.

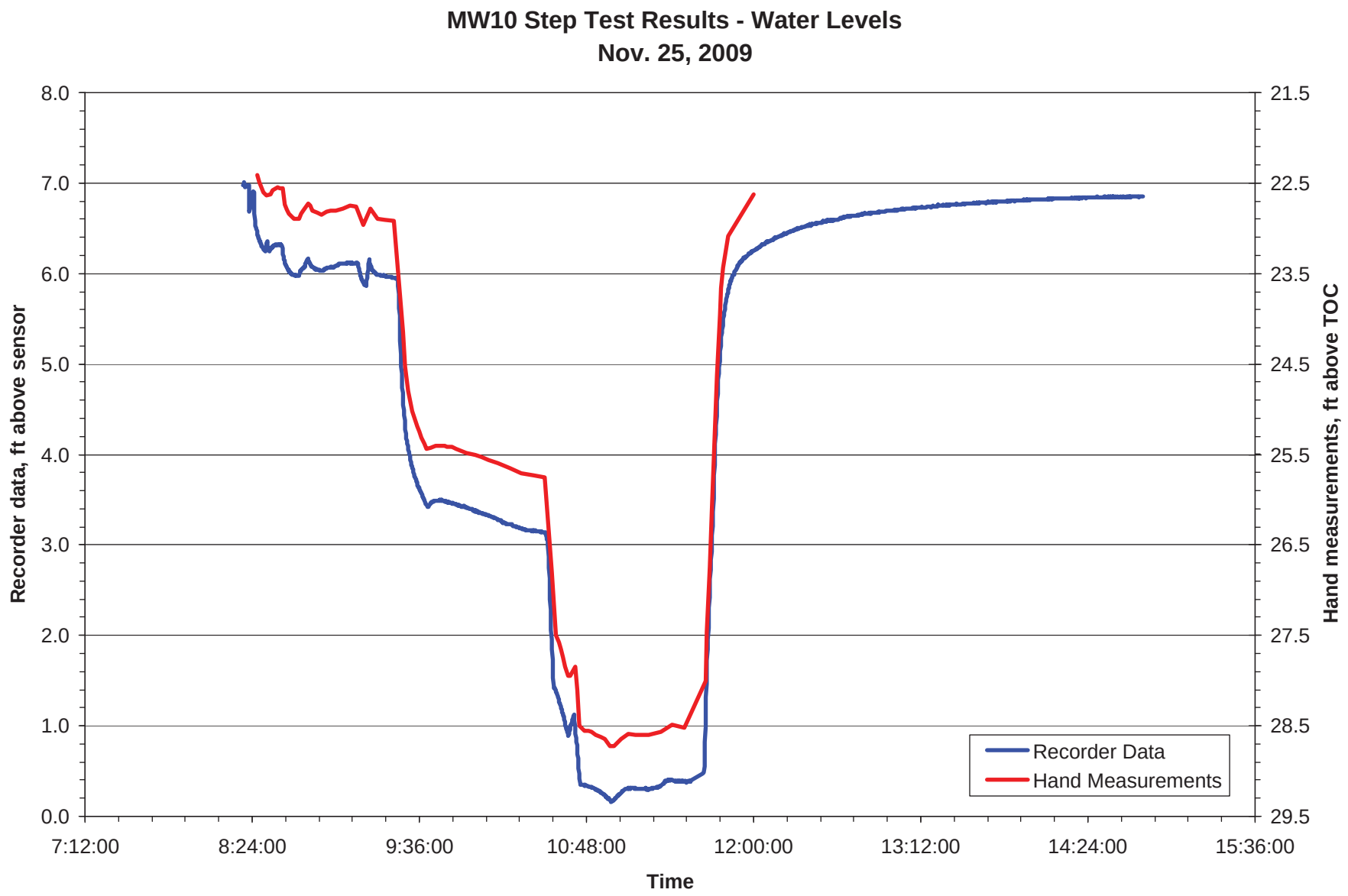

FIGURE H.5 Water levels measured manually and automatically in MW10 during the step test pumping of this well, November 25, 2009.

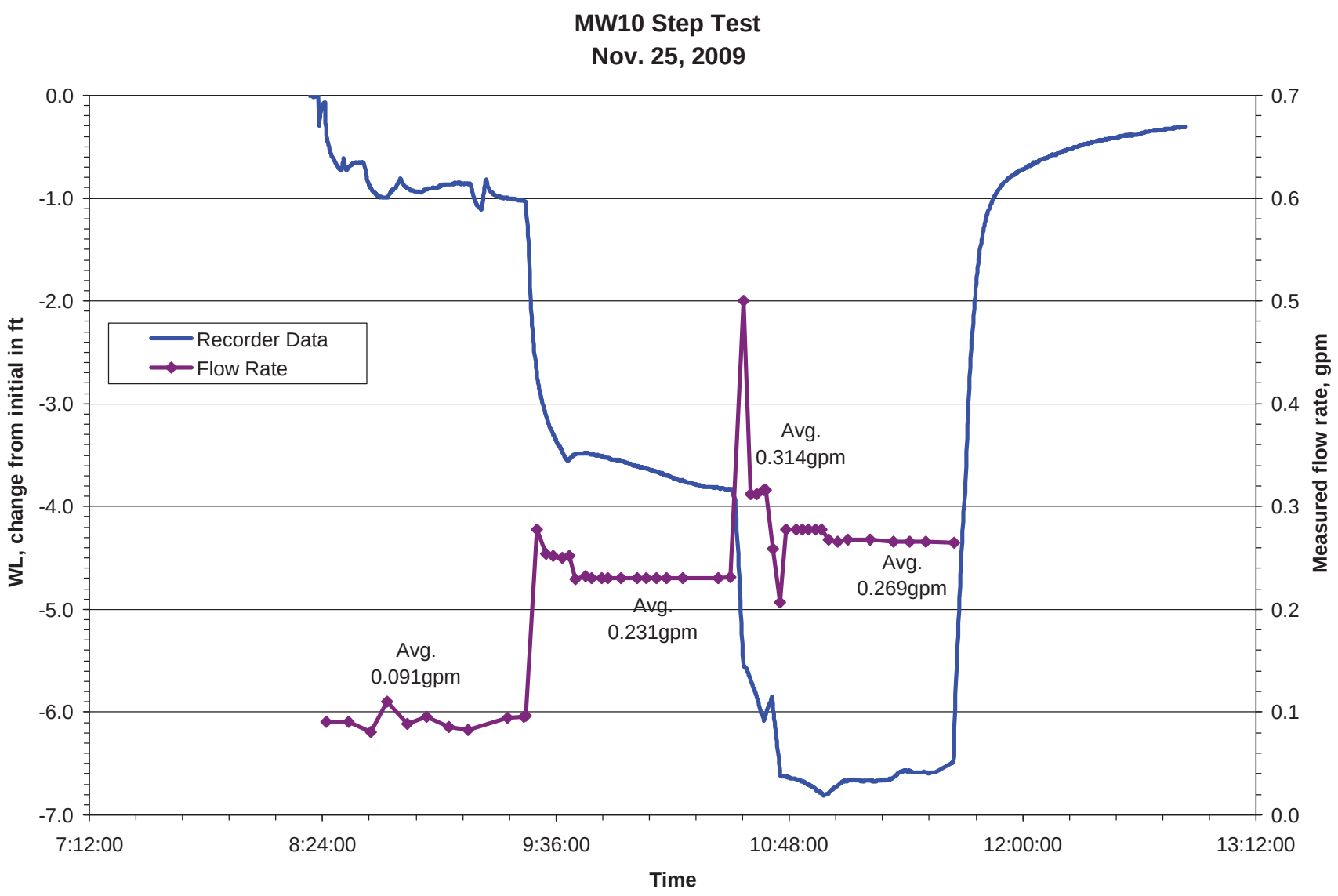

FIGURE H.6 Time-weighted average pumping rates and water level responses for well MW10, November 25, 2009.

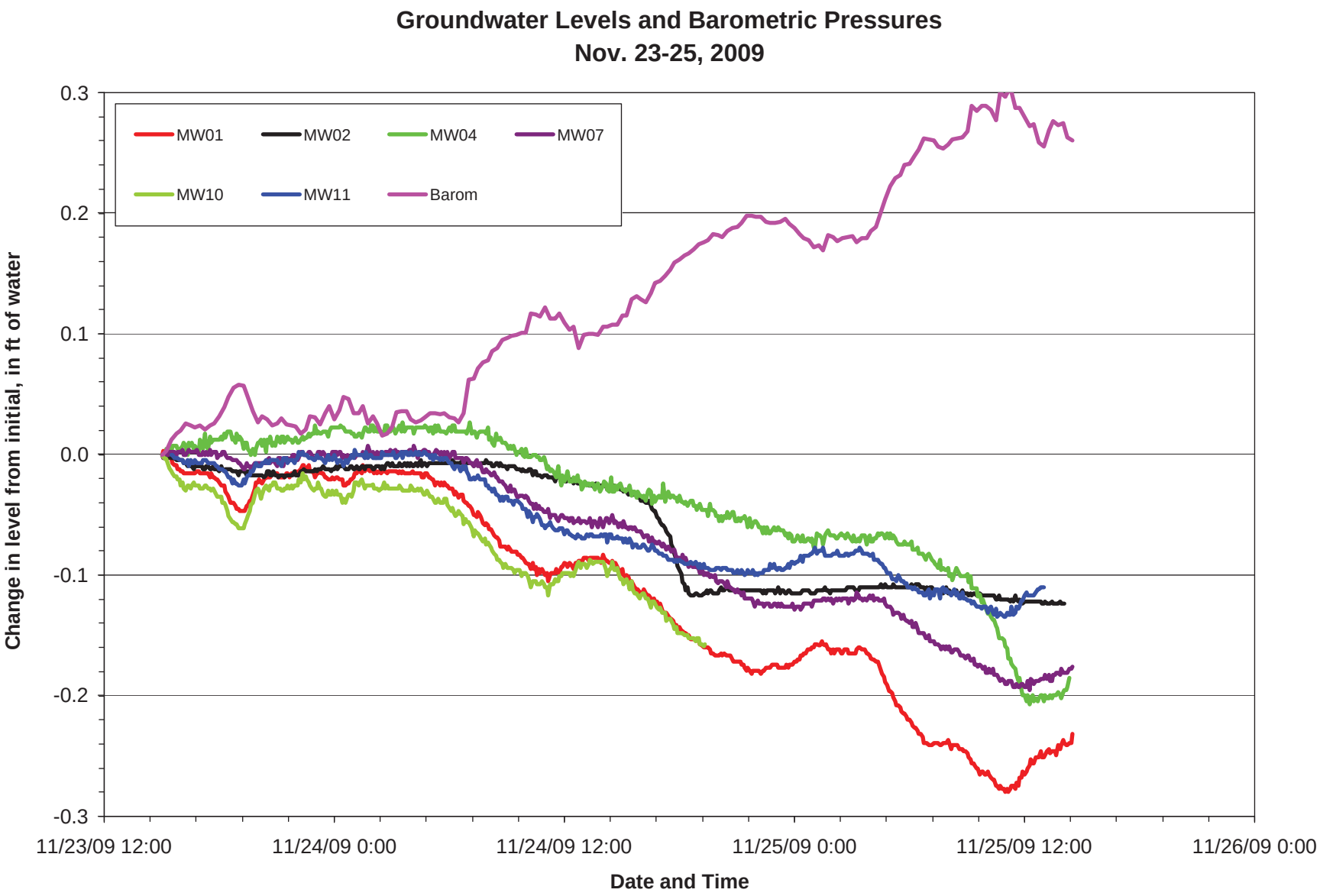

FIGURE H.7 Normalized water level changes in monitored wells that showed generally declining trends during the November 23-25 field session, on an expanded scale and without the anomalous observations for well MW34, with barometric pressure.

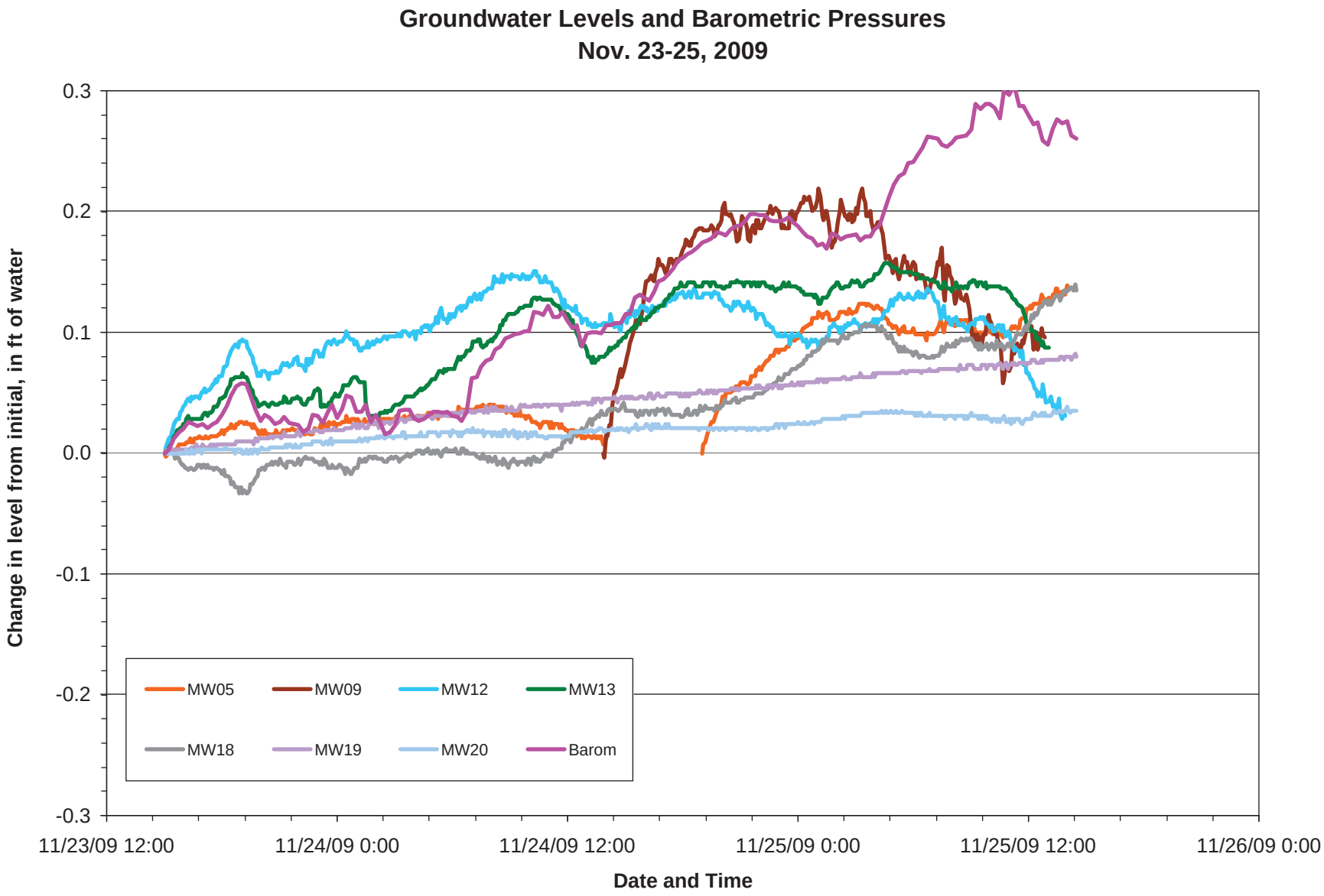

FIGURE H.8 Normalized water level changes in monitored wells that showed generally increasing trends during the November 23-25 field session, on an expanded scale and without the anomalous observations for well MW34, with barometric pressure.

Appendix I:

Water Zone 1 Constant-Rate Pumping Test Data Summary

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TABLE I.1 Chronologic summary of measurements made during the pretest pumping of well MW05 on February 22, 2010.

Time	Elapsed Time (min)	Water Level above Hermit™ Sensor (ft)	Measured Water Level (ft TOC)	Flow Rate		Notes
				Digital Meter Reading	Timed	
16:50	0			1.75	1 gal/34.16 sec	Start pumping, controller set at 104
16:57	7	2.12	25.04			
17:00	10	2.45	25.40		1 gal/35.16 sec	
17:03	13		26.51			Adjust valve to target 1.5 gpm
17:05	15	2.72	25.40			
17:10	20	2.12	24.98	1.57-1.60	1 gal/38.2 sec	
17:15	25	2.37	25.25	1.53-1.57	1 gal/38.12 sec	
17:20	30	3.12	26.10	1.57	1 gal/38.5 sec	
17:23	33	3.70	26.60			Adjust valve slightly, target 1.5 gpm
17:24	34					
17:25	35	3.16	26.00		1 gal/40.2 sec	
17:30	40	2.98	25.85	1.50		Set controller at 100
17:35	45	3.24	26.15	1.50		
17:36	46			1.43		Set controller at 95
~ 17:41	51					Set controller at 98
~ 17:44	54					Pump off

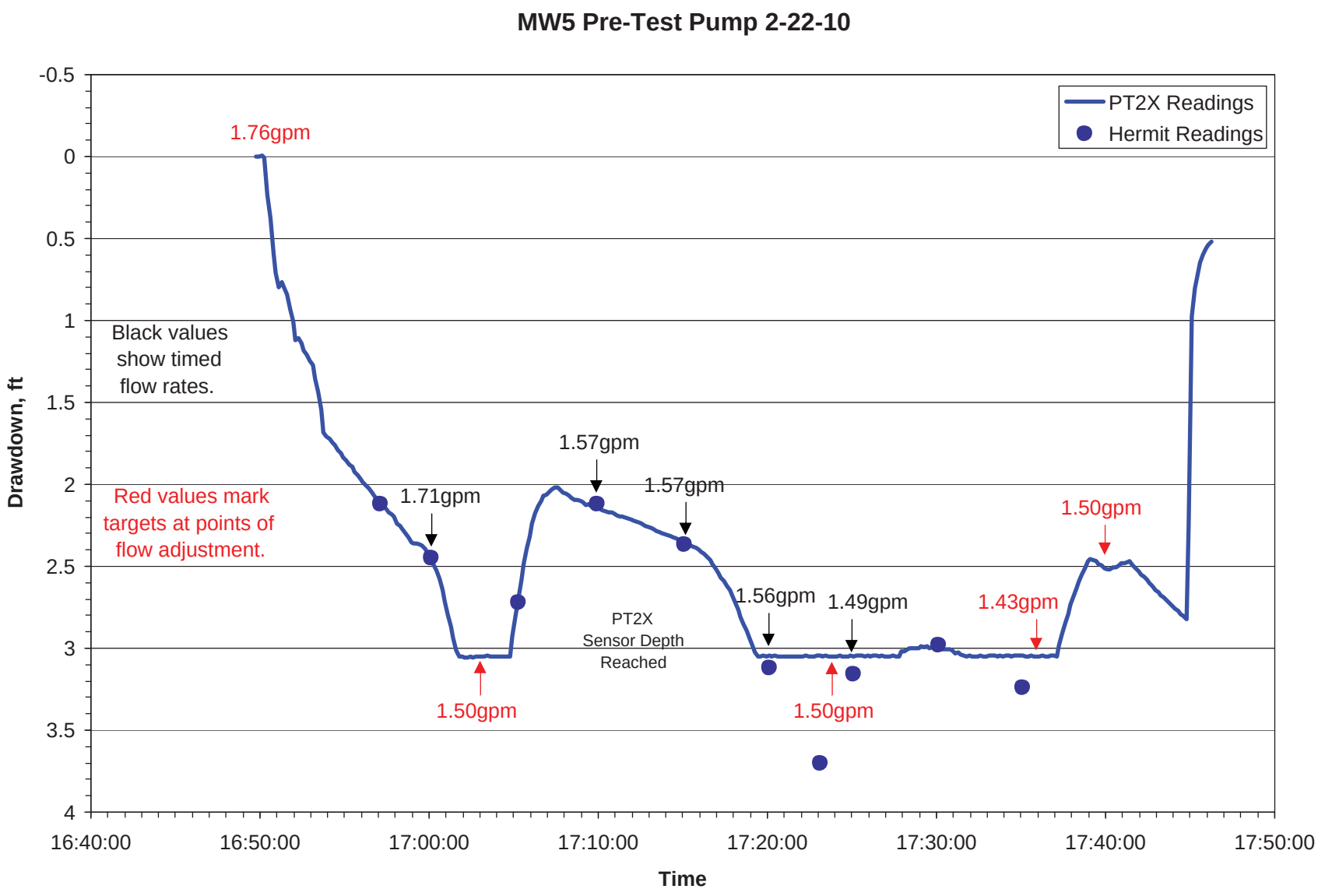

FIGURE I.1 Water level responses and measured flow rates during pre-test pumping of well MW05.

TABLE I.2 Chronologic summary of measurements made during MW05 pumping test 1 on February 23, 2010.

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O)		MW05 Measured Water Level (ft TOC)	Flow Rate		Notes
		MW05	MW02		Digital Meter Reading	Timed	
8:50	-71			22.92			
9:55	-6	0.00	0.00				Hermit references set = 0
10:00	-1						Start pump, valve shut
10:01	0				1.39-1.43		Open and adjust valve
10:02	1					1 gal/43.9 sec	
10:03	2			24.10			
10:05	4			24.15			Collect water sample
10:07	6			24.20			
10:08	7				1.39-1.43	1 gal/44.28 sec	Adjust valve
10:10	9			24.25			
10:12	11	1.33	0.00	24.28	1.39-1.43		Adjust valve
10:14	13					1 gal/43.53 sec	
10:15	14	1.38	0.00	24.35	1.39-1.43		
10:18	17					1 gal/44.03 sec	
10:20	19	1.49	0.01	24.47	1.39-1.43		Adjust valve very slightly
10:22	21					1 gal/43.22 sec	
10:25	24	1.55	0.01	24.52	1.39-1.43		
10:28	27				1.39-1.43	1 gal/42.78 sec	Adjust valve very slightly
10:30	29	1.61	0.01	24.59			
10:33	32				1.39-1.43	1 gal/43.53 sec	
10:35	34	1.62	0.01		1.36-1.39		Adjust valve
10:37	36			24.65	1.39-1.43	1 gal/43.72 sec	
10:40	39	1.69	0.02	24.68	1.39-1.43		Adjust valve very slightly
10:43	42					1 gal/43.69 sec	
10:45	44	1.77	0.03	24.75	1.39-1.43		
10:48	47				1.39-1.43	1 gal/43.54 sec	
10:49	48						Adjust valve very slightly
10:50	49	1.86	0.04	24.85			
10:55	54				1.39-1.43	1 gal/43.47 sec	
10:58	57						Adjust valve very slightly
11:00	59	2.03	0.05	25.01		1 gal/43.35 sec	
11:10	69	2.31	0.06	25.29	1.39-1.43	1 gal/43.65 sec	Adjust valve slightly
11:15	74	2.69	0.07	25.79?			Dropline probe catching?
11:18	77				1.39	1 gal/43.78 sec	Adjust valve
11:20	79	3.14	0.08	26.25	1.39		Adjust valve

TABLE I.2 (Cont.)

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O)		MW05 Measured Water Level (ft TOC)	Flow Rate		Notes
		MW05	MW02		Digital Meter Reading	Timed	
11:22	81				1.36-1.39	1 gal/43.59 sec	
11:23	82	3.6	0.08	26.45+			Probe catching; can't reach water
11:24	83	3.62	0.08		1.36-1.39		Adjust valve
11:26	85	3.74	0.08		1.36		Adjust valve
11:28	87	3.76	0.08		1.36	1 gal/44.64 sec	Hermit reading at max
11:29	88	3.76	0.08		1.32-1.36		Adjust valve; can't hold rate
11:31	90	3.76	0.08				
11:32	91			23.60			Stop pump; read water level quickly
11:39	0			23.30			Rising
11:42	3	0.34	0.09				
12:08	29	0.25	0.10	23.19			
12:35	56	0.21	0.10				
12:45	66	0.21	0.09	23.16			
12:51	72						Remove PT2X recorder
13:14	95	0.18	0.08	23.12			
14:06	147		0.07	23.10			
15:00	201	0.08	0.07	23.08			

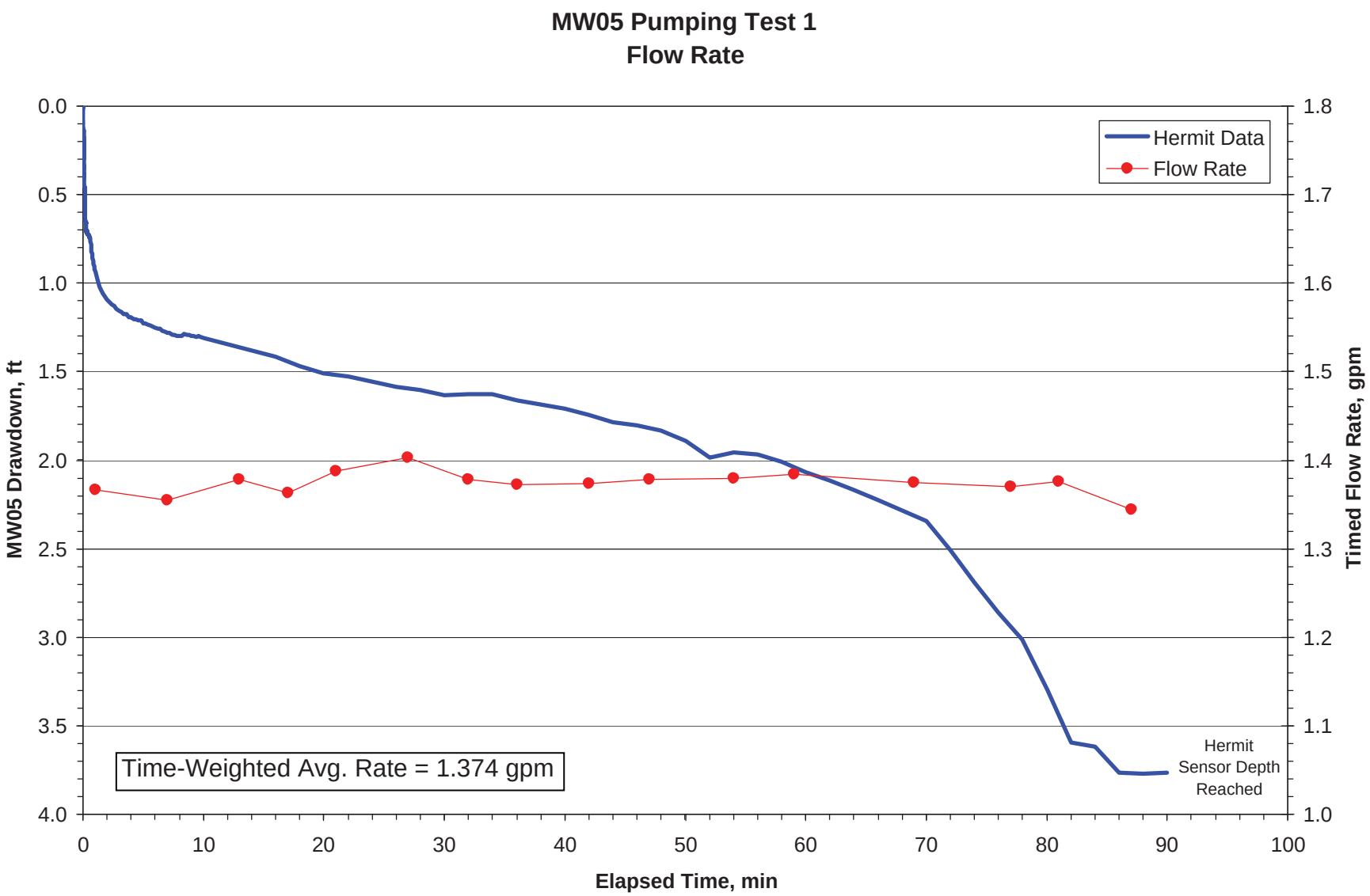

FIGURE I.2 Water level responses and measured flow rates in well MW05 during the pumping phase of constant-rate pumping test 1.

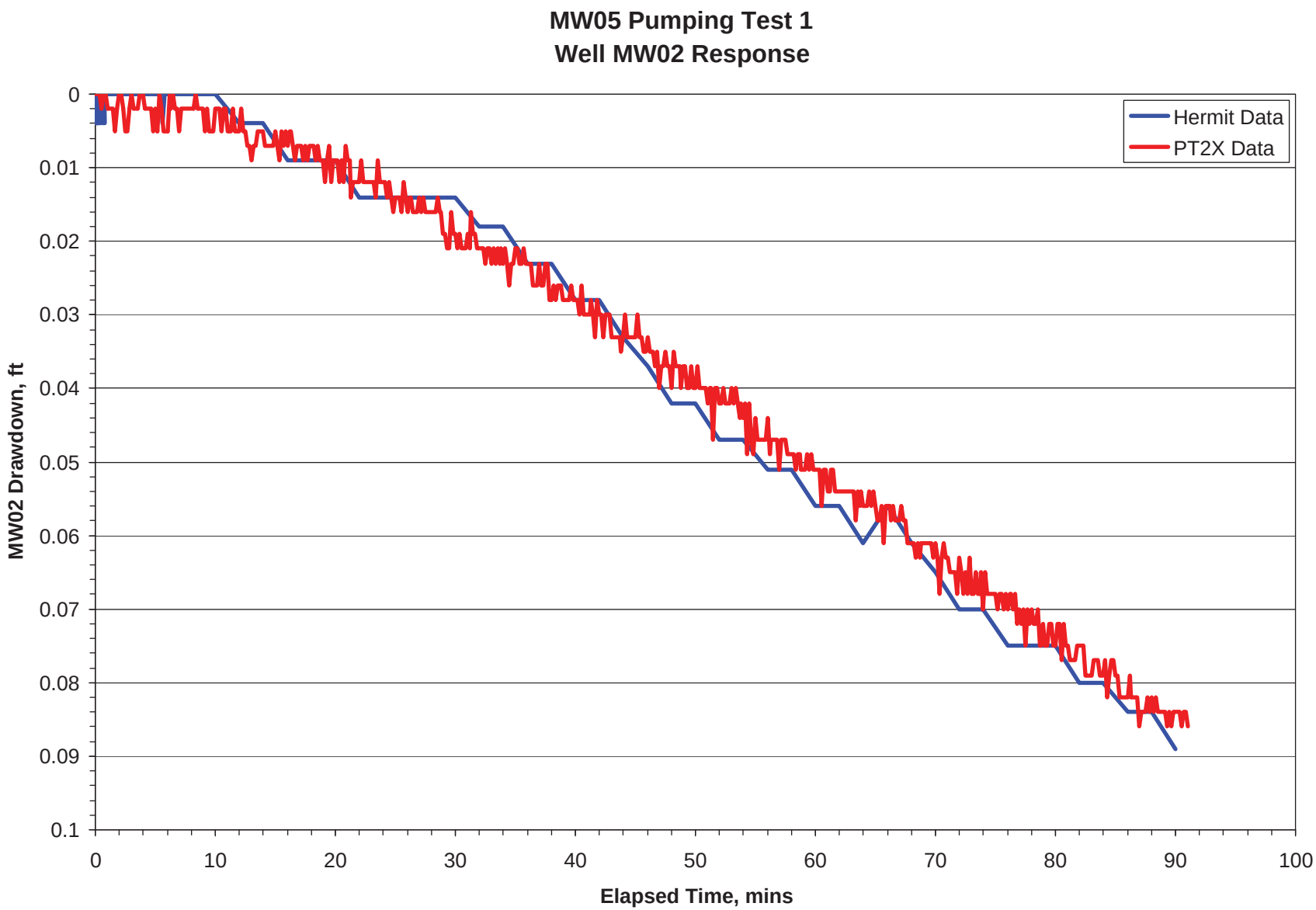

FIGURE I.3 Water level responses in well MW02 during the pumping phase of constant-rate pumping test 1.

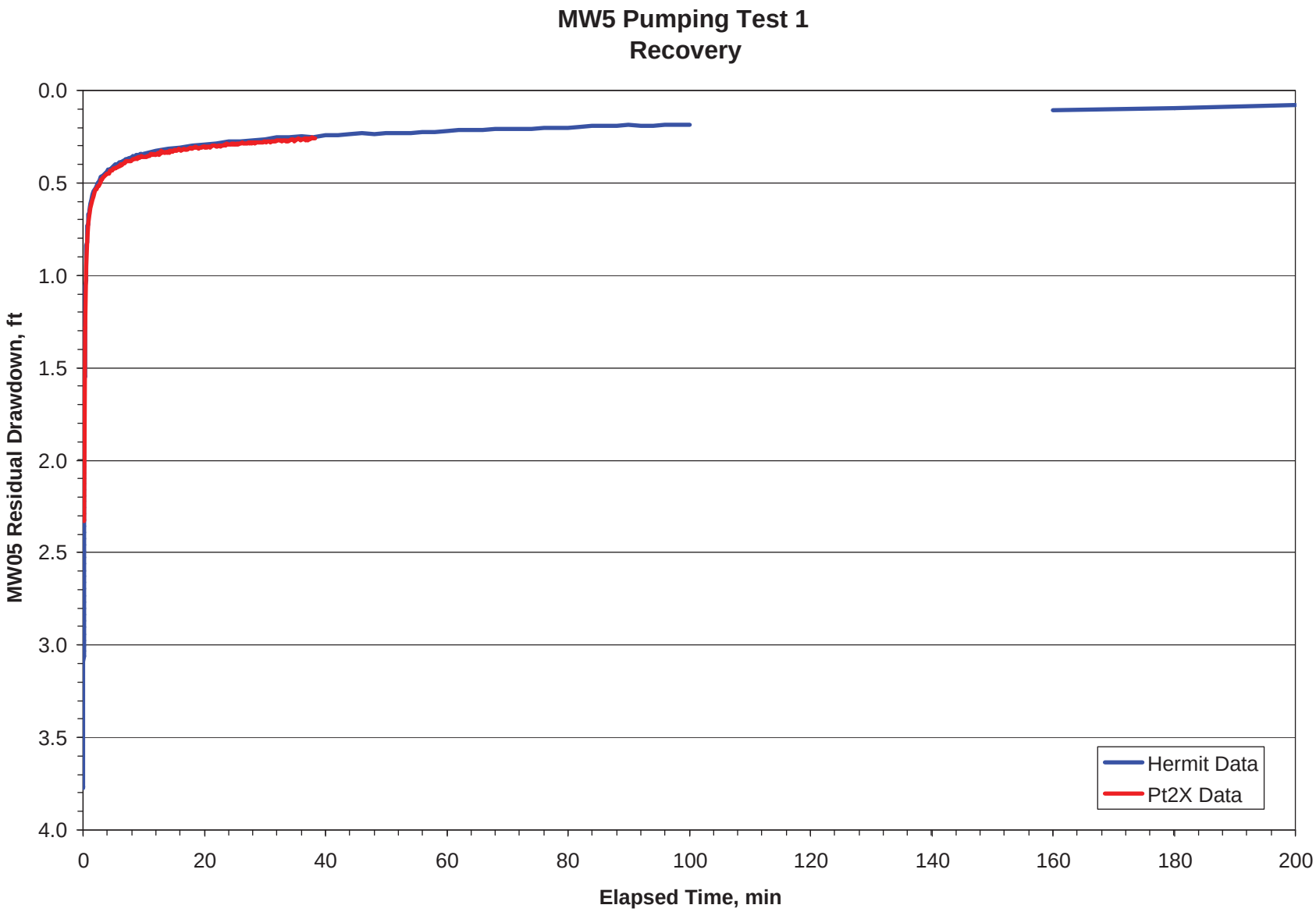

FIGURE I.4 Water level responses in well MW05 during the recovery phase of constant-rate pumping test 1.

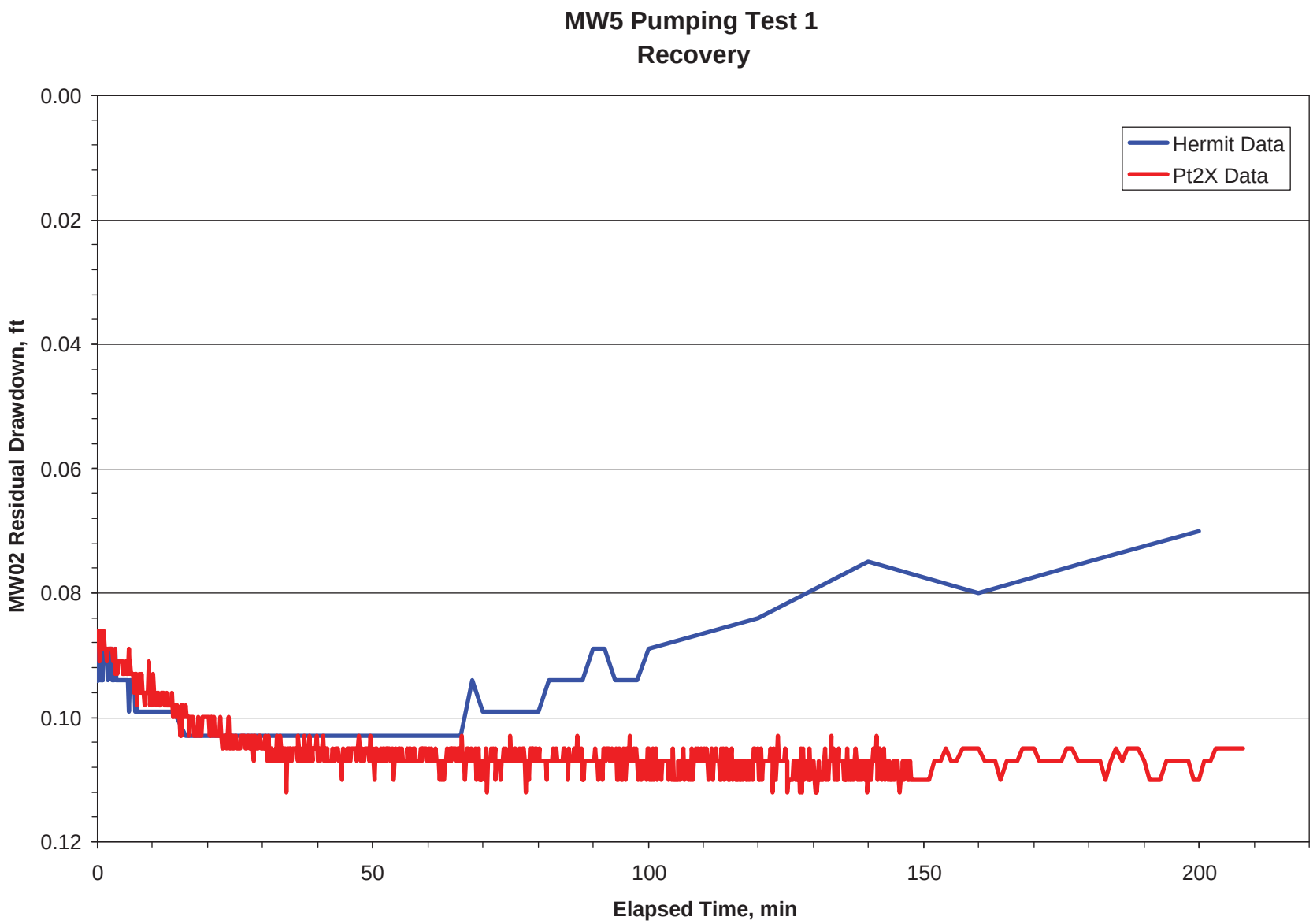

FIGURE I.5 Water level responses in well MW02 during the recovery phase of constant-rate pumping test 1.

TABLE I.3 Chronologic summary of measurements made during MW05 pumping test 2 on February 23, 2010.

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O) MW05	MW02	MW05 Measured Water Level (ft TOC)	Flow Rate Digital Meter Reading	Timed	Notes
15:00	-3	0.08	0.07	23.08			
15:02	-1						Start pump, valve shut
15:03	0				1.18-1.21	1 gal/49.97 sec	Open valve and adjust
15:05	2			24.00			
15:07	4			24.08	1.18-1.21	1 gal/50.50 sec	
15:10	7			24.13	1.18-1.21	1 gal/50.03 sec	
15:15	12	1.17	0.07	24.19	1.18-1.21		
15:18	15				1.18-1.21	1 gal/49.50 sec	
15:20	17	1.23	0.07				
15:25	22	1.28	0.08	24.30	1.18-1.21		
15:27	24					1 gal/49.75	
15:30	27	1.30	0.08	24.33	1.18-1.21		
15:32	29					1 gal/49.63 sec	
15:35	32	1.33	0.08	24.36	1.18-1.21		
15:37	34					1 gal/50.03 sec	
15:42	39	1.36	0.08	24.39	1.18-1.21		
15:44	41					1 gal/50.12 sec	
15:46	43				1.18-1.21		Adjust valve slightly
15:50	47	1.43	0.09	24.47	1.18-1.21		
15:52	49					1 gal/49.37 sec	
16:00	57	1.48	0.10	24.51	1.18-1.21	1 gal/49.40 sec	
16:10	67	1.52	0.11	24.54	1.18-1.21	1 gal/49.97 sec	
16:14	71						Adjust valve slightly
16:20	77	1.58	0.12	24.61	1.18-1.21	1 gal/48.94 sec	
16:30	87	1.64	0.12	24.67	1.18-1.25	1 gal/48.90 sec	Adjust valve slightly
16:40	97			24.70	1.18-1.21	1 gal/49.22 sec	
16:50	107			24.74	1.18-1.21	1 gal/49.40 sec	
16:53	110	1.73	0.14				
17:00	117	1.75	0.15	24.78	1.18-1.21	1 gal/49.34	
17:10	127	1.80	0.16	24.83	1.18-1.21	1 gal/49.43 sec	
17:21	138	1.88	0.16	24.91	1.18-1.21	1 gal/49.34 sec	
17:30	147	1.94	0.16	24.97	1.18-1.21	1 gal/49.38 sec	
17:41	158	2.04	0.17	25.08	1.18-1.21	1 gal/49.60 sec	
17:50	167	2.40	0.18	25.55	1.18-1.21		
17:53	170					1 gal/49.18 sec	

TABLE I.3 (Cont.)

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O)		MW05 Measured Water Level (ft TOC)	Flow Rate		Notes
		MW05	MW02		Digital Meter Reading	Timed	
18:00	177	2.96	0.19	26.03	1.18-1.21	1 gal/49.97 sec	Adjust valve
18:05	182	3.50	0.19	26.69	1.18-1.21	1 gal/49.56 sec	
18:09	186						Adjust valve
18:10	187	3.76	0.20	27.2+	1.18-1.21		Probe hitting top of pump
18:12	189						Stop pump

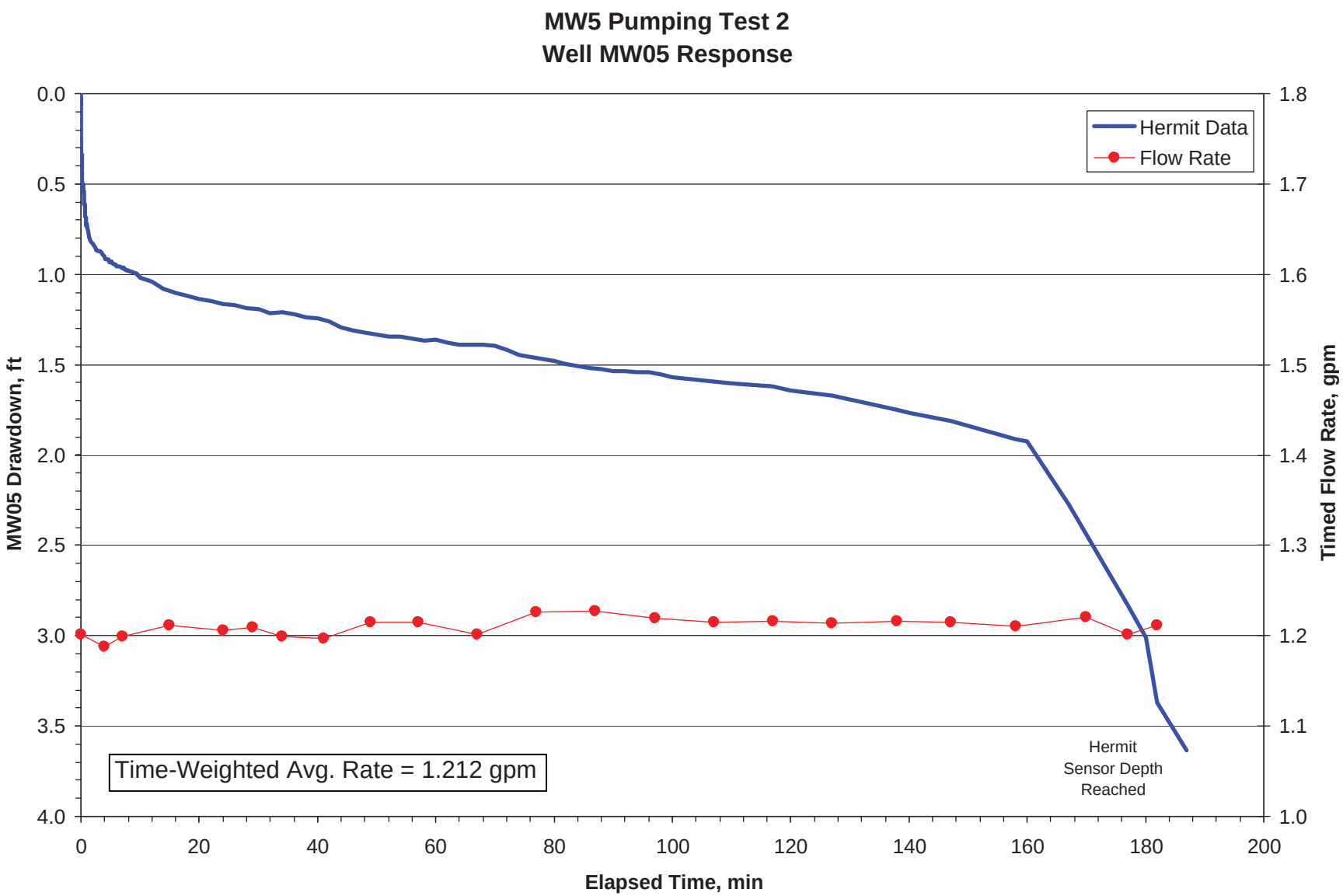

FIGURE I.6 Water level responses and measured flow rates in well MW05 during the pumping phase of constant-rate pumping test 2.

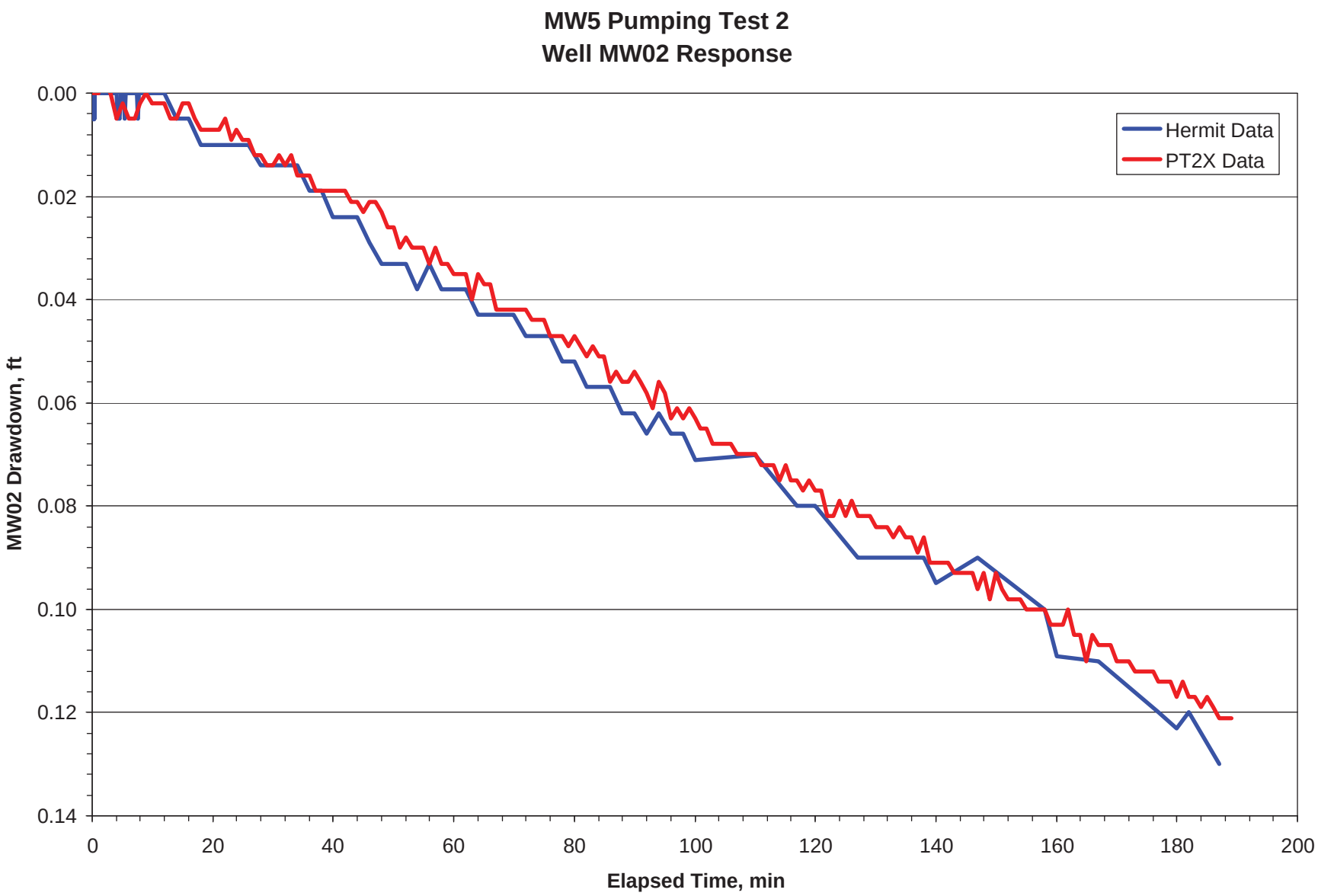

FIGURE I.7 Water level responses in well MW02 during the pumping phase of constant-rate pumping test 2.

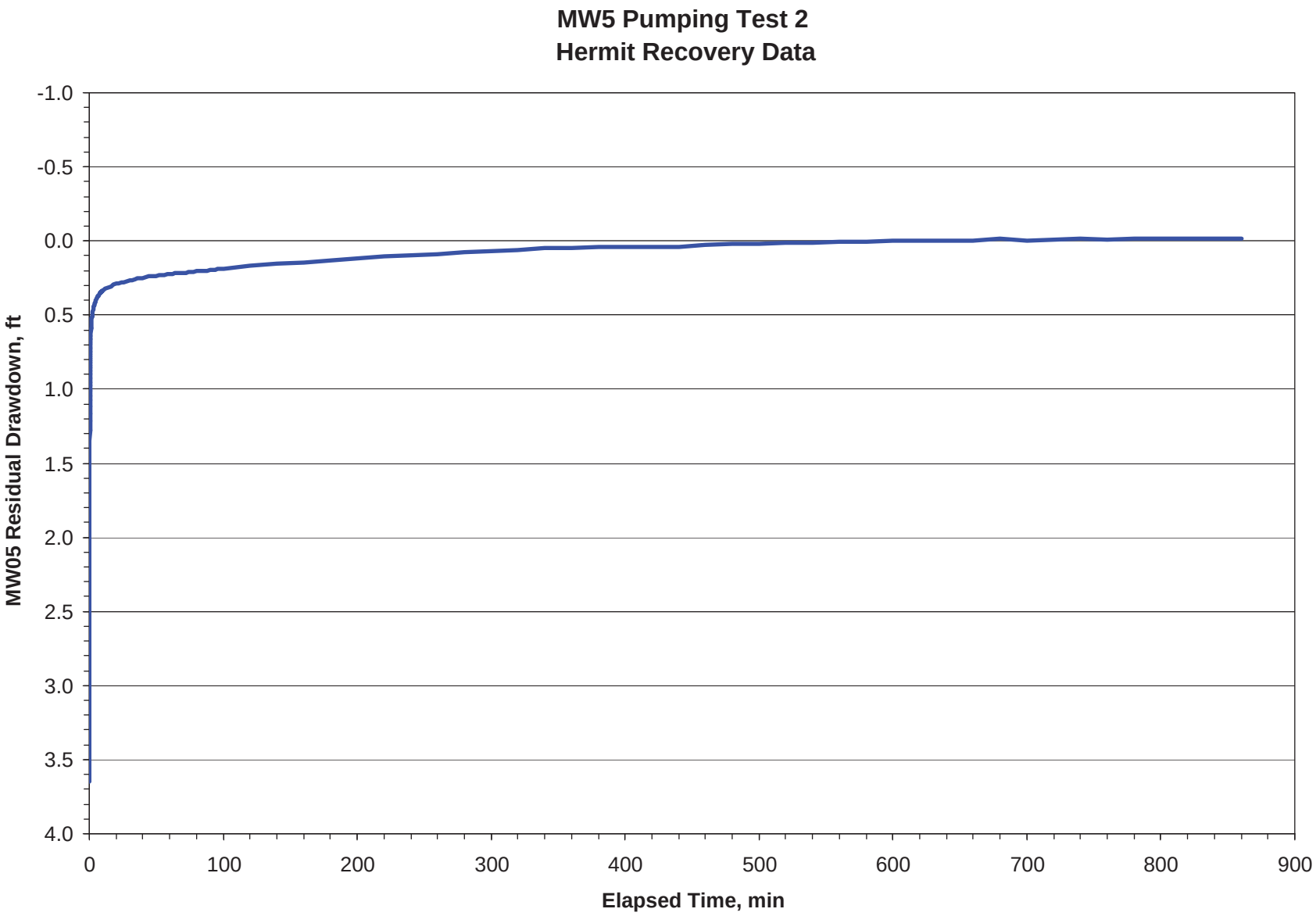

FIGURE I.8 Water level responses in well MW05 during the recovery phase of constant-rate pumping test 2.

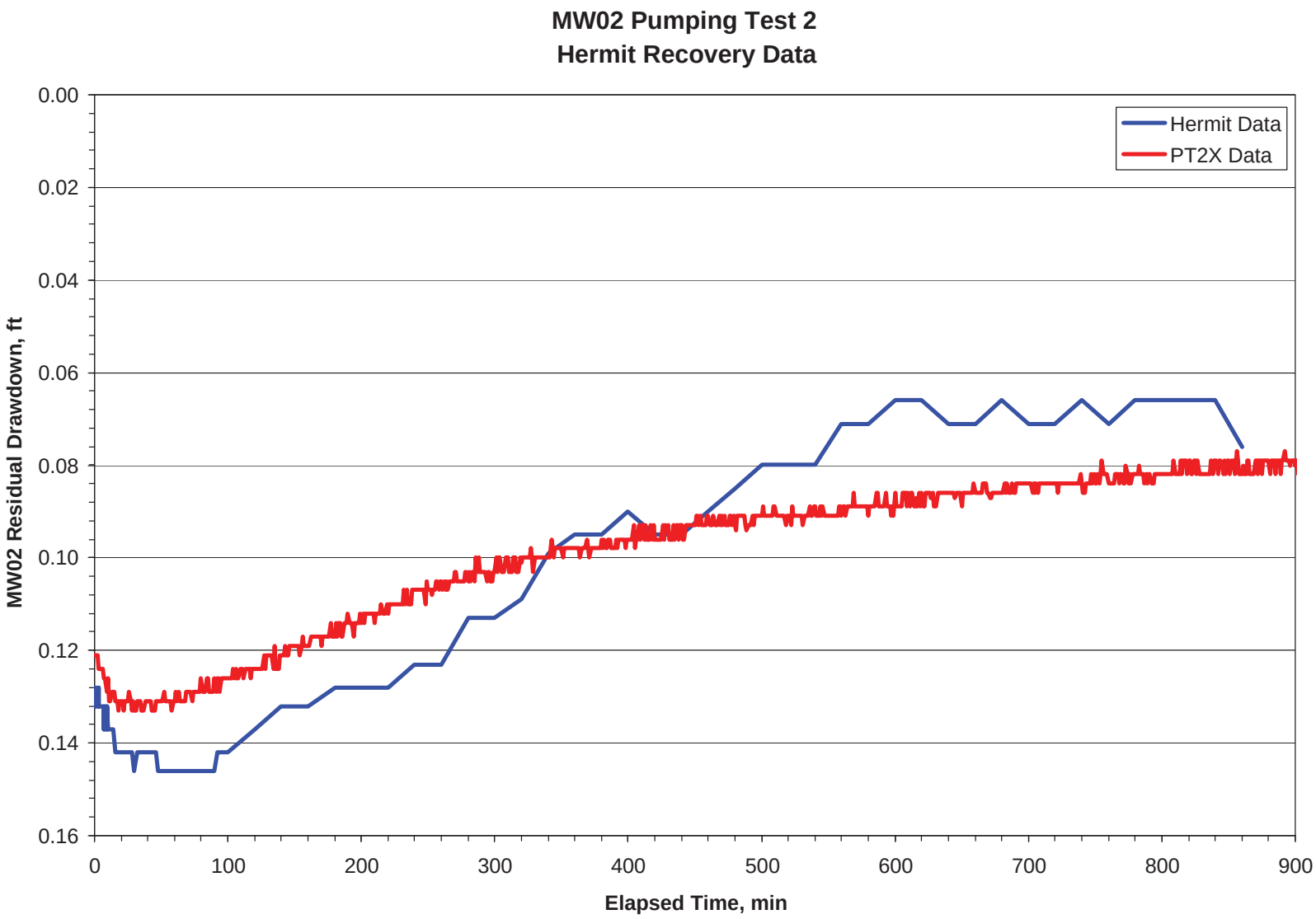

FIGURE I.9 Water level responses in well MW02 during the recovery phase of constant-rate pumping test 2.

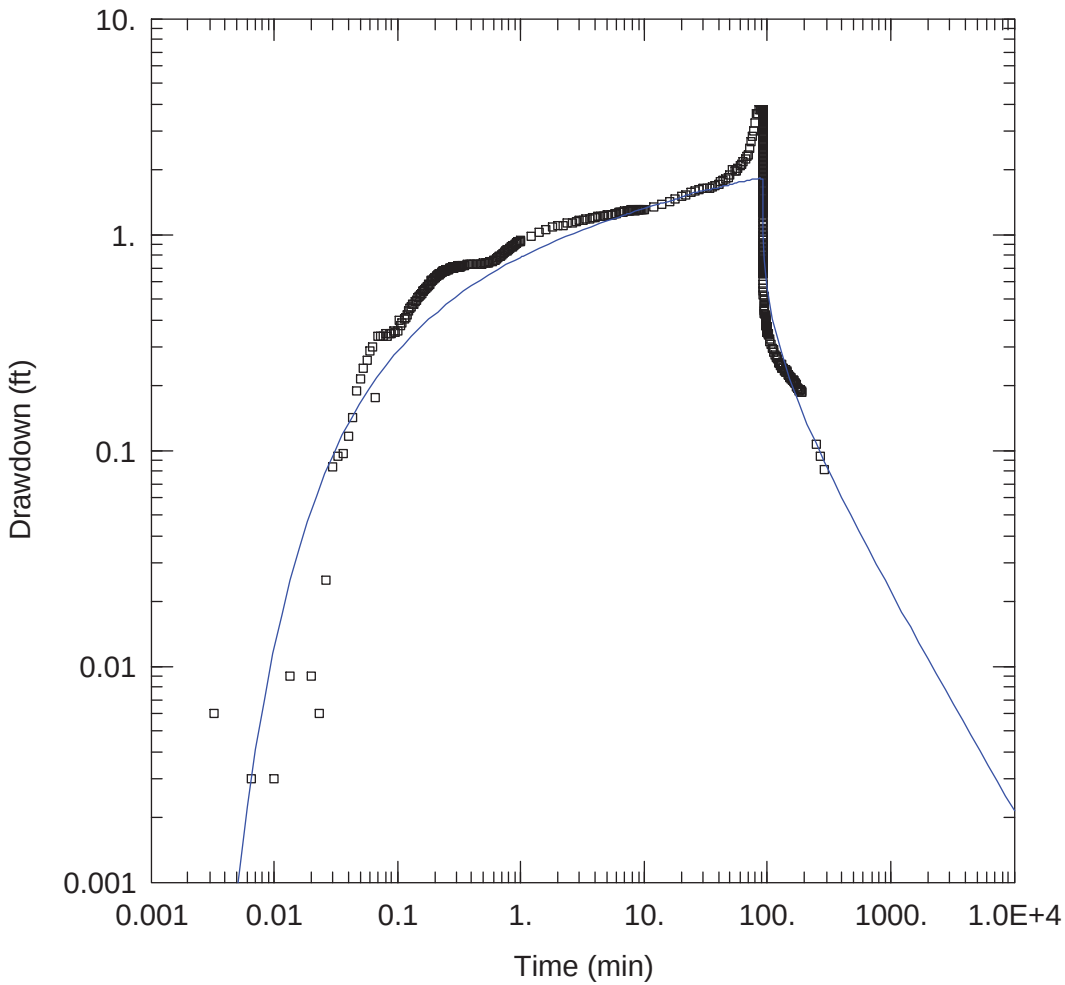

FIGURE I.10 Water level drawdown and recovery data for MW05 during pumping test 1, with interpretive curve fit for the Theis (1935) method of analysis.

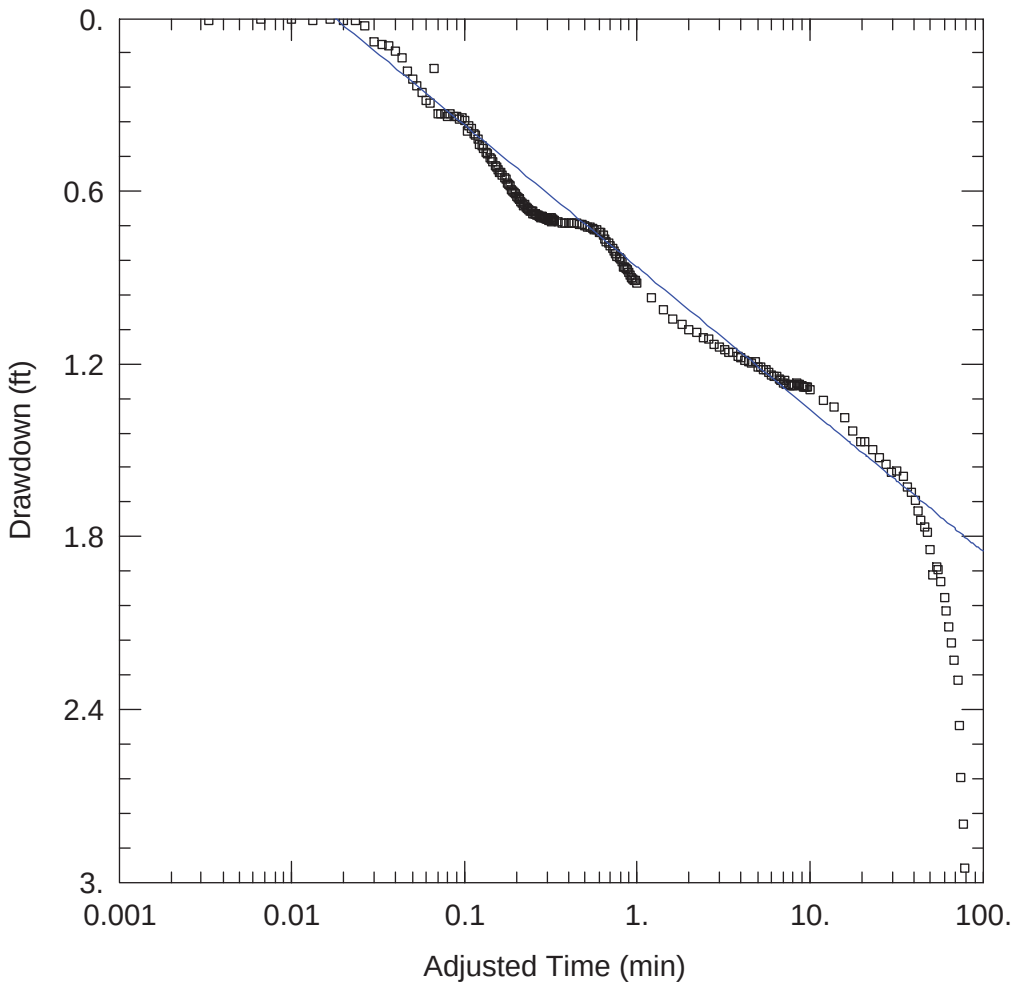

FIGURE I.11 Water level drawdown and recovery data for MW05 during pumping test 1, with interpretive straight-line fit for the Cooper-Jacob (1946) method of analysis.

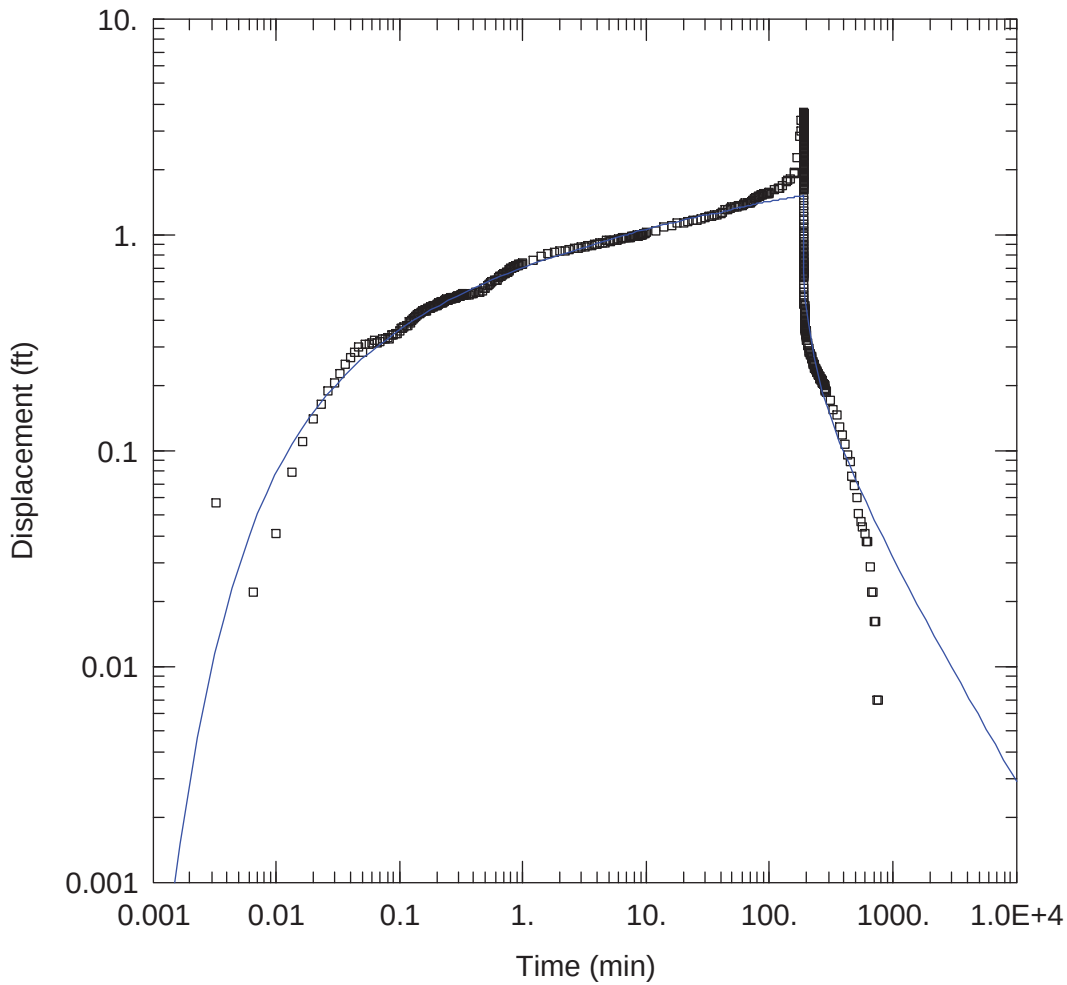

FIGURE I.12 Water level drawdown and recovery data for MW05 during pumping test 2, with interpretive curve fit for the Theis (1935) method of analysis.

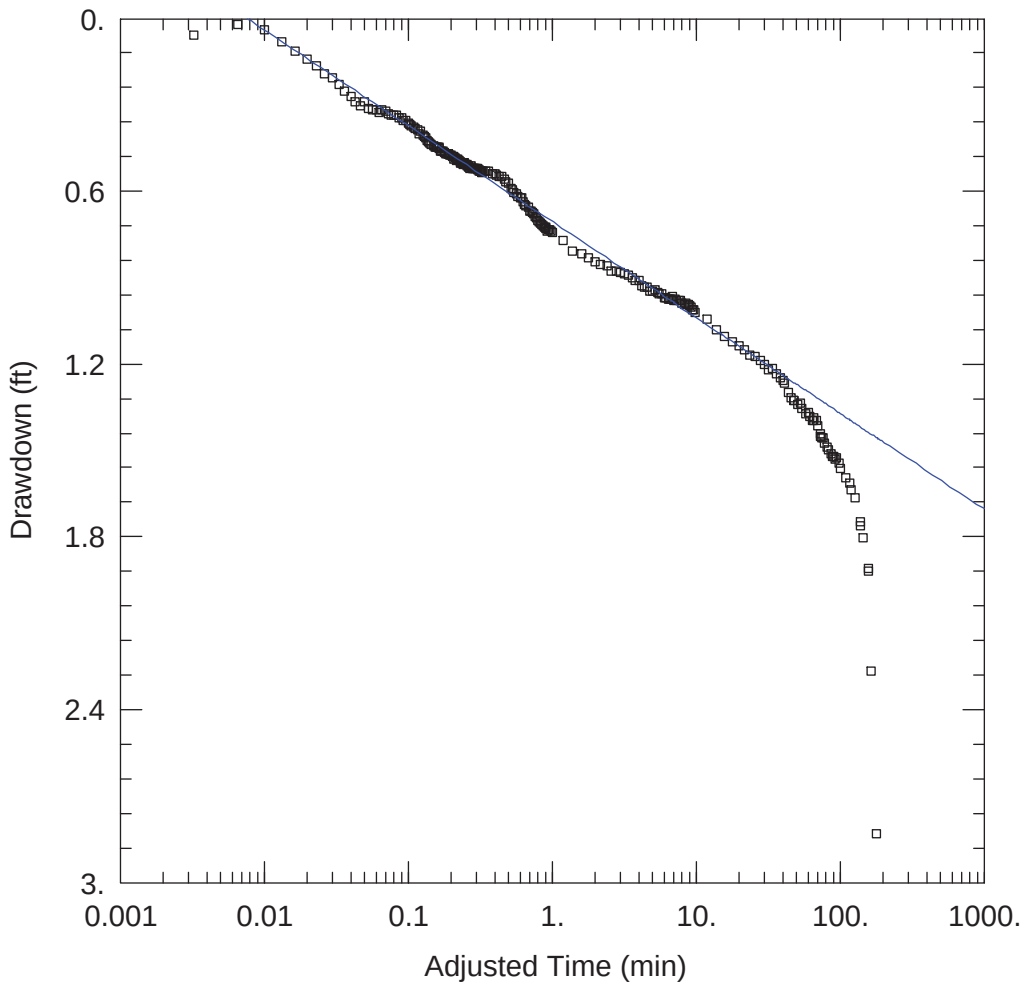

FIGURE I.13 Water level drawdown and recovery data for MW05 during pumping test 2, with interpretive straight-line fit for the Cooper-Jacob (1946) method of analysis.

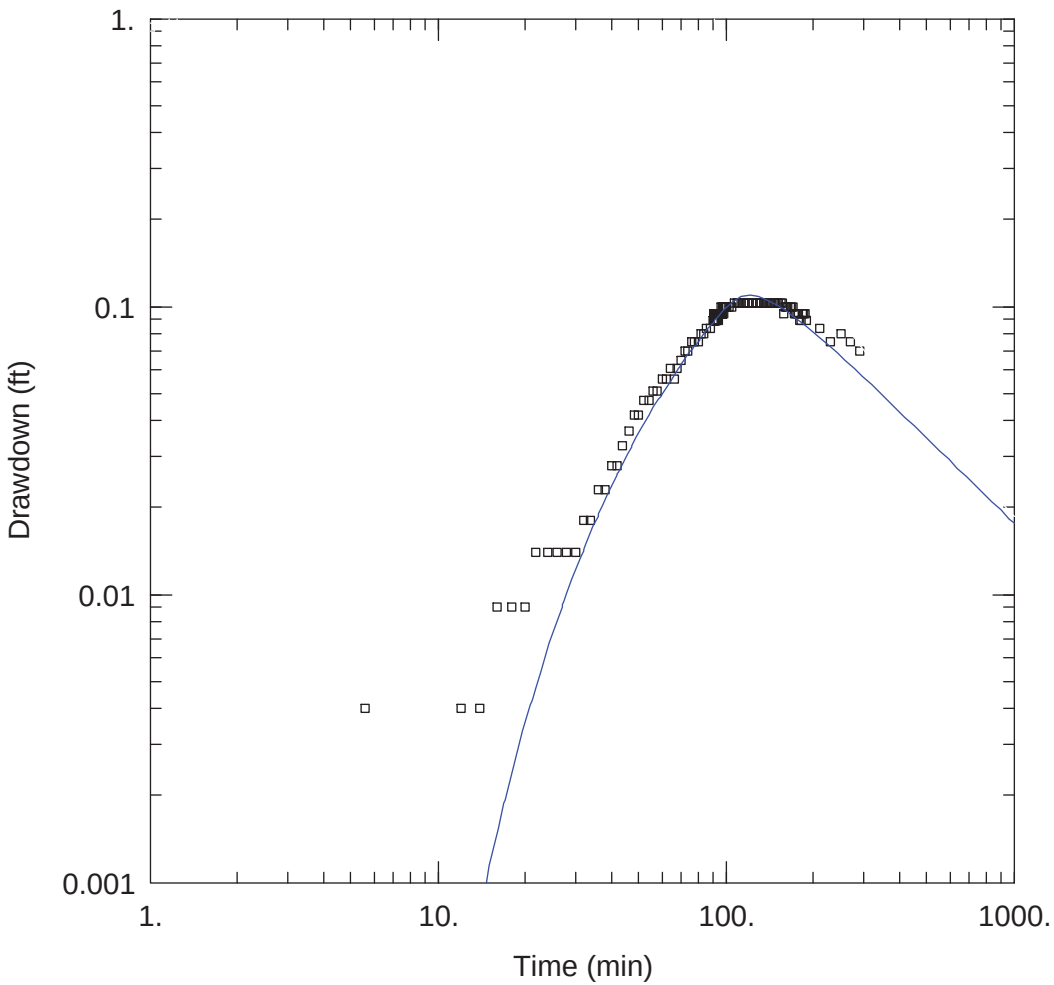

FIGURE I.14 Water level drawdown and recovery data for MW02 during pumping test 1, with interpretive curve fit for the Theis (1935) method of analysis.

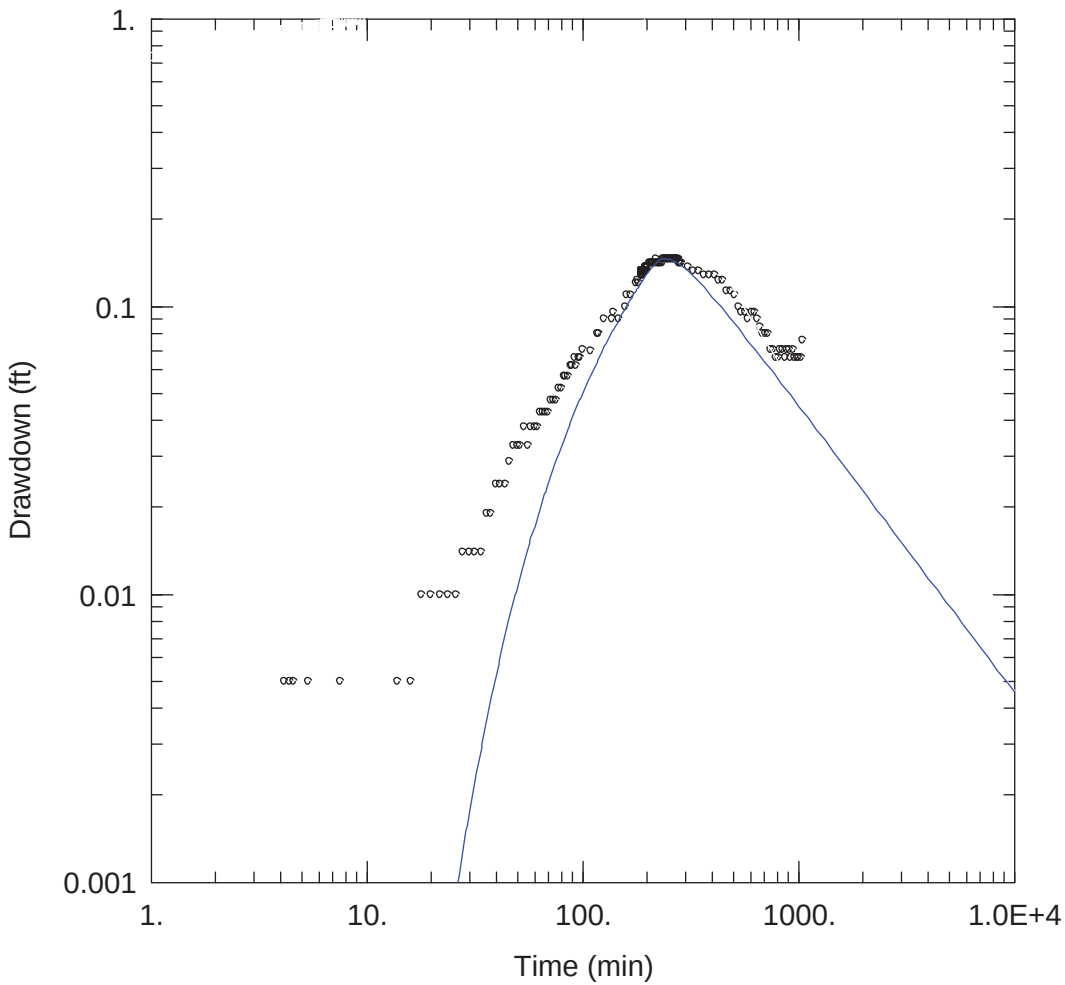

FIGURE I.15 Water level drawdown and recovery data for MW02 during pumping test 2, with interpretive curve fit for the Theis (1935) method of analysis.

Appendix J:

Water Zone 2 Constant-Rate Pumping Test Data Summary

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TABLE J.1 Chronologic summary of measurements made at well MW44Z2 during the pre-test pumping of well MW44Z2 on March 17, 2010.

Time	Elapsed Time (min)	Water Level above Hermit™ sensor (ft)	MW44Z2 Measured Water Level (ft below TOC)	Flow Rate: Digital Meter Reading	Flow Rate: Time (min:sec) to Pump 1 gal	Notes
15:26			26.39			Static level before pumping
15:30		10.22				Pump on, control valve shut
15:31	0			0.48-0.52		Open valve, controller set at 80
15:33	2	9.77	26.87			
15:35	4				01:51.7	Water is muddy, then clears
15:36	5	9.68	26.95	0.48-0.52		
15:38	7	9.67		0.48-0.52		
15:43	12	9.64		0.48-0.52	01:53.1	
15:47	16	9.63		0.48-0.52		
15:53	22	9.61	27.00		01:53.3	
15:55	24	9.60		0.48-0.52		
15:59	28	9.60		0.48	01:53.6	
16:00	29			0.74-0.78		Adjust valve
16:01	30	9.33				
16:03	32	9.28	27.35	0.74-0.78	01:17.9	
16:05	34	9.26				
16:08	37	9.25		0.74-0.78	01:18.4	
16:10	39	9.25	27.39	0.74-0.78		
16:14	43				01:19.1	Adjust valve; overshoot and put back
16:15	44	9.21		0.74-0.78		
16:19	48	9.21		0.74-0.78	01:18.2	
16:24	53	9.19		0.74-0.78	01:18.2	
16:29	58	9.19	27.44	0.74-0.78	01:18.1	
16:31	60					Set controller at 150
16:32	61	8.64	28.00	1.21-1.25		
16:34	63				00:48.9	
16:35	64	8.49	28.14	1.21-1.25		
16:40	69	8.42		1.21-1.25		
16:42	71	8.40	28.20	1.21-1.25	00:48.9	
16:47	76	8.38	28.23	1.21-1.25	00:49.3	
16:50	79	8.37	28.24			
16:56	85			1.21-1.25	00:49.4	Adjust valve slightly
16:57	86	8.30	28.30		00:48.1	
17:00	89	8.29		1.21-1.25		
17:02	91	8.28	28.32	1.21-1.25	00:48.3	

TABLE J.1 (Cont.)

Time	Elapsed Time (min)	Water Level above Hermit™ sensor (ft)	MW44Z2 Measured Water Level (ft below TOC)	Flow Rate		Notes
				Digital Meter Reading	Time (min:sec) to Pump 1 gal	
17:03	92					Set controller at 170 and adjust valve
17:04	93	7.69		1.64-1.68		
17:05	94	7.60	29.02	1.60-1.64	00:36.2	
17:07	96	7.56		1.60-1.64		
17:10	99	7.54	29.07	1.64	00:37.0	
17:15	104	7.48	29.13	1.64	00:36.5	
17:20	109	7.48	29.13	1.60-1.64	00:36.7	
17:25	114	7.47	29.14	1.60-1.64	00:36.8	
17:30	119	7.46		1.57-1.60	00:36.8	
17:33	122	7.48	29.13			
17:35	124					Set controller at 230 and adjust valve
17:37	126	6.73	29.92	2.03-2.07	00:29.2	
17:38	127					Set controller at 240
17:39	128	6.51	30.19	2.10-2.14	00:27.3	
17:43	132	6.38		2.10-2.14		
17:45	134	6.35		2.10-2.14	00:28.1	
17:49	138	6.29		2.10-2.14	00:27.6	
17:51	140	6.30	30.33			Set controller at 241
17:55	144	6.30	30.33	2.10-2.14	00:28.0	
17:58	147					Set controller at 244
18:00	149	6.33	30.30	2.07-2.10	00:28.3	
18:04	153	6.35	30.29	2.03-2.07		
18:10	159	6.37	20.28	2.03-2.07	00:29.0	
18:11	160					Pump off
18:14	163					Remove second valve and restart
18:16	165		29.95 falling	2.17-2.21		Controller set at 244
18:21	170	6.28	30.36	2.17-2.21		
18:25	174	6.21		2.14-2.17		
18:29	178	6.20	30.42	2.14-2.17		
18:30	179					Stop pumping

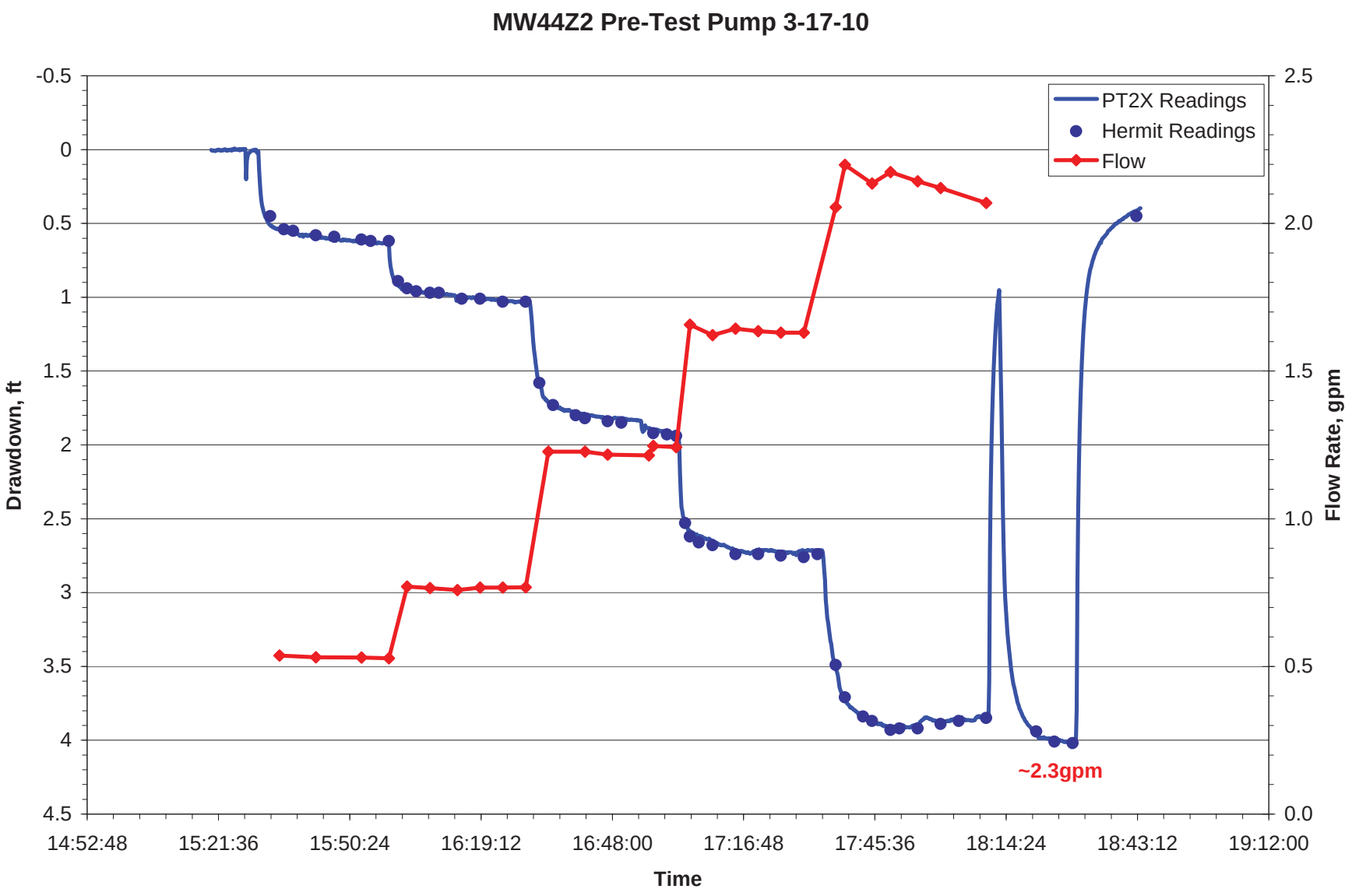

FIGURE J.1 Water level responses and measured flow rates during background pumping of well MW44Z2.

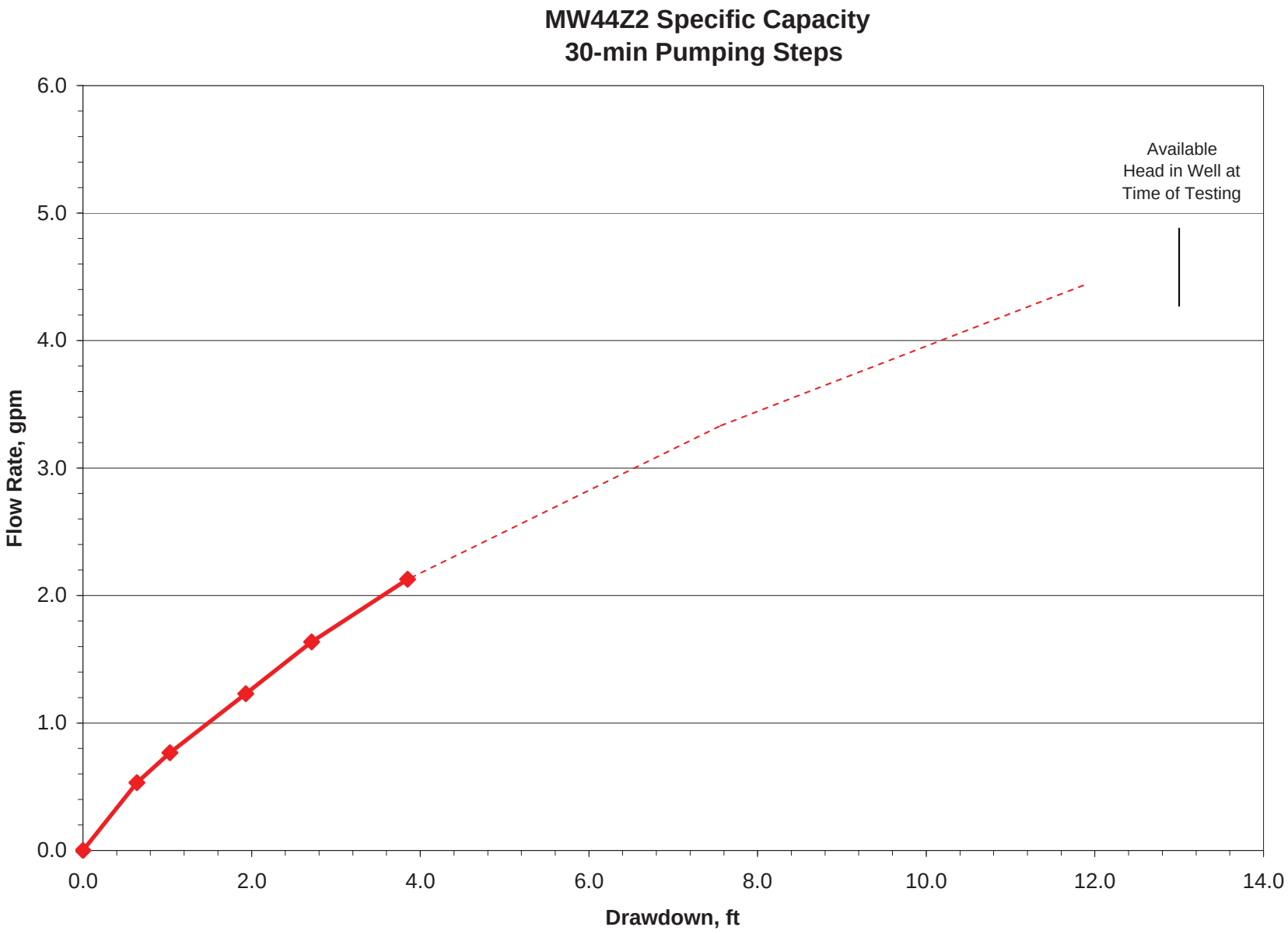

FIGURE J.2 Specific capacity estimates for well MW44Z2, calculated on the basis of 30-min pumping steps.

TABLE J.2 Chronologic summary of measurements made at wells MW44Z2 and MW45Z2 during the constant-rate pumping of well MW44Z2 on March 18-19, 2010.

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O)		MW44Z2 Measured Water Level (ft below TOC)	Flow Rate		Notes
		MW44Z2	MW45Z2		Digital Meter Reading	Time (sec) to Pump 1 gal	
March 18							
10:08				26.27			Static level before pumping
10:13							Start pump, valve shut
10:14							Set controller at 240, valve shut
10:15	0						Open valve, adjust flow ~ 2 gpm
10:16	1				1.96-2.00	30.31	
10:17:20	2.33			28.67			
10:18:30	3.5				1.96	30.38	Adjust valve slightly
10:19:40	4.67			29.02	1.96-2.00		
10:21	6			29.16	1.96-2.00	30.12	
10:25	10			29.18		30.12	
10:26	11	3.00	-0.03				
10:31	16				1.93-1.96		Adjust valve slightly
10:32	17			29.42			
10:33	18					30.78	
10:35	20	3.16	-0.01				
10:37	22				1.93-1.96	30.72	Adjust valve slightly
10:39	24				1.96-2.00	30.43	
10:40	25			29.56			
10:45	30			29.61	1.96-2.00	30.50	
10:46	31	3.33	-0.01				
10:50	35				2.00		
10:52	37			29.71	1.96-2.00	30.40	
10:55	40	3.42	-0.01	29.72	1.96-2.00		MW44Z2 PT2X reads 3.42
10:59	44				1.96-2.00		
11:00	45						Adjust valve slightly
11:08	53					30.63	Adjust valve slightly
11:09	54				1.96-2.00		
11:10	55	3.51	0.00	29.79	1.96-2.00		
11:13	58					30.15	
11:15	60			29.84	1.96-2.00		
11:17	62				2.00-2.03		
11:19	64					29.94	

TABLE J.2 (Cont.)

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O)		MW44Z2 Measured Water Level (ft below TOC)	Flow Rate		Notes
		MW44Z2	MW45Z2		Digital Meter Reading	Time (sec) to Pump 1 gal	
11:29	74					30.22	
11:30	75	3.62	-0.02	29.93			
11:42	87						Adjust valve slightly
11:45	90					30.50	
11:47	92			29.95			
11:50	95	3.66	0.00		1.96-2.00	30.13	
12:01	106			29.99	1.96-2.00	30.28	
12:03	108	3.68	0.00				
12:15	120			29.99	1.96-2.00	30.81	Adjust valve slightly
12:19	124	3.70	-0.03		1.96-2.00	30.25	
12:31	136			30.02	1.96-2.00		
12:33	138					30.31	
12:43	148						Adjust valve slightly
12:45	150			30.04	1.96-2.00	30.19	Note rate slightly affected by transfer
12:55	160	3.75	-0.04	30.06	1.96-2.00		Pump electric draw, on vs. off
13:04	169			30.03	1.96-2.00	30.41	
13:21	186	3.74	-0.02	30.06	1.96-2.00		
13:39	204				1.96-2.00	30.63	Transfer pump on
13:42	207				1.96-2.00	29.90	Transfer pump off
13:58	223			30.05	1.96-2.00	30.06	Transfer pump off
14:10	235				1.96-2.00	30.41	Transfer pump on
14:11:30	236.5					29.97	Transfer pump off
14:28	253	3.75	-0.06	30.06	1.96-2.00	30.13	Transfer pump off
14:46	271	3.75	-0.08	30.06	1.96-2.00	30.59	Transfer pump on
14:51	276						Adjust valve slightly
14:57	282			30.07	1.96-2.00	30.09	Transfer pump off
15:15	300	3.77	-0.10	30.07	1.96-2.00	30.44	
15:28	313						MW45Z2 PT2X reads -0.087
15:37	322				1.96-2.00	31.04	Transfer pump on
15:38	323					30.35	Transfer pump off; adjust valve slightly
15:40	325	3.77	-0.11	30.08	2.00		
16:00	345			30.07	1.96-2.00	30.38	Transfer pump on
16:23	368	3.78	-0.10		1.96-2.00	30.06	Transfer pump off
16:40	385			30.07	1.96-2.00	30.52	Transfer pump on
17:05	410	3.78	-0.12	30.10	1.96-2.00	30.34	

TABLE J.2 (Cont.)

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O) MW44Z2	MW45Z2	MW44Z2 Measured Water Level (ft below TOC)	Flow Rate Digital Meter Reading	Time (sec) to Pump 1 gal	Notes
17:39	444	3.75	-0.12	30.07	1.96-2.00	30.13	Transfer pump off
18:14	479	3.74	-0.13	30.05	1.93-1.96	30.66	Transfer pump on; adjust valve slightly
18:46	511	3.79	-0.12	30.10	1.96-2.00	30.28	Transfer pump off
19:17	542	3.80	-0.10	30.10	1.96-2.00	30.68	Transfer pump on
20:06	591	3.84	-0.10	30.15	1.96-2.00	30.19	
20:33	618	3.86	-0.09	30.17	1.96-2.00	30.22	Transfer pump off
21:16	661			30.16	1.96-2.00	30.19	Transfer pump off
21:46	691	3.89	-0.06	30.19	1.96-2.00	30.25	Transfer pump off
22:22	727			30.19	1.96-2.00	30.22	Transfer pump off
22:52	757			30.18	1.96-2.00	30.19	Transfer pump off
23:23	788	3.85	-0.06	30.17	1.96-2.00	30.16	Transfer pump off
23:54	819						MW44Z2 PT2X reads 3.867
23:56	821					30.54	Transfer pump on
March 19							
0:02	827						Adjust valve slightly
0:06	831			30.20	1.96-2.00	30.30	Transfer pump off
0:33	858			30.21	1.96-2.00	30.23	Transfer pump off
1:03	888	3.92	-0.05	30.21	1.96-2.00	30.38	Transfer pump off
1:32	917			30.23	1.96-2.00	30.81	Transfer pump on
2:02	947			30.26	1.96-2.00	30.78	
2:34	979	3.99	0.00	30.29	2.00	30.22	Transfer pump off
3:08	1013			30.31	2.00	30.10	MW44Z2 PT2X reads 3.995
3:34	1039			30.30	2.00	30.03	
3:57	1062				1.96-2.00	30.25	Transfer pump on
4:00	1065	3.98	-0.02	30.29	2.00	30.18	
4:32	1097			30.30	2.00	29.94	Transfer pump off
5:03	1128			30.29	1.96-2.00	30.22	Transfer pump off
5:32	1157			30.30	1.96-2.00	30.37	Transfer pump off
6:00	1185	4.00	-0.01	30.30	1.96-2.00	30.19	Transfer pump off
6:31	1216			30.31	2.00-2.03	30.16	Transfer pump off
7:03	1248	4.01	0.00	30.32	2.00	29.82	Transfer pump off
7:34	1279			30.34		29.63	Transfer pump off
8:01	1306	4.03	-0.02	30.34	1.96-2.00	29.75	MW44Z2 PT2X reads 4.037
8:31	1336			30.34	1.96-2.00	30.03	
9:02	1367	4.07	-0.04	30.36	1.96-2.00	30.16	

TABLE J.2 (Cont.)

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O)		MW44Z2 Measured Water Level (ft below TOC)	Flow Rate		Notes
		MW44Z2	MW45Z2		Digital Meter Reading	Time (sec) to Pump 1 gal	
9:33	1398	4.07	-0.05	30.38	2.00	29.90	Transfer pump off
10:03	1428			30.40		29.91	Transfer pump off
10:15	1440						Stop pumping

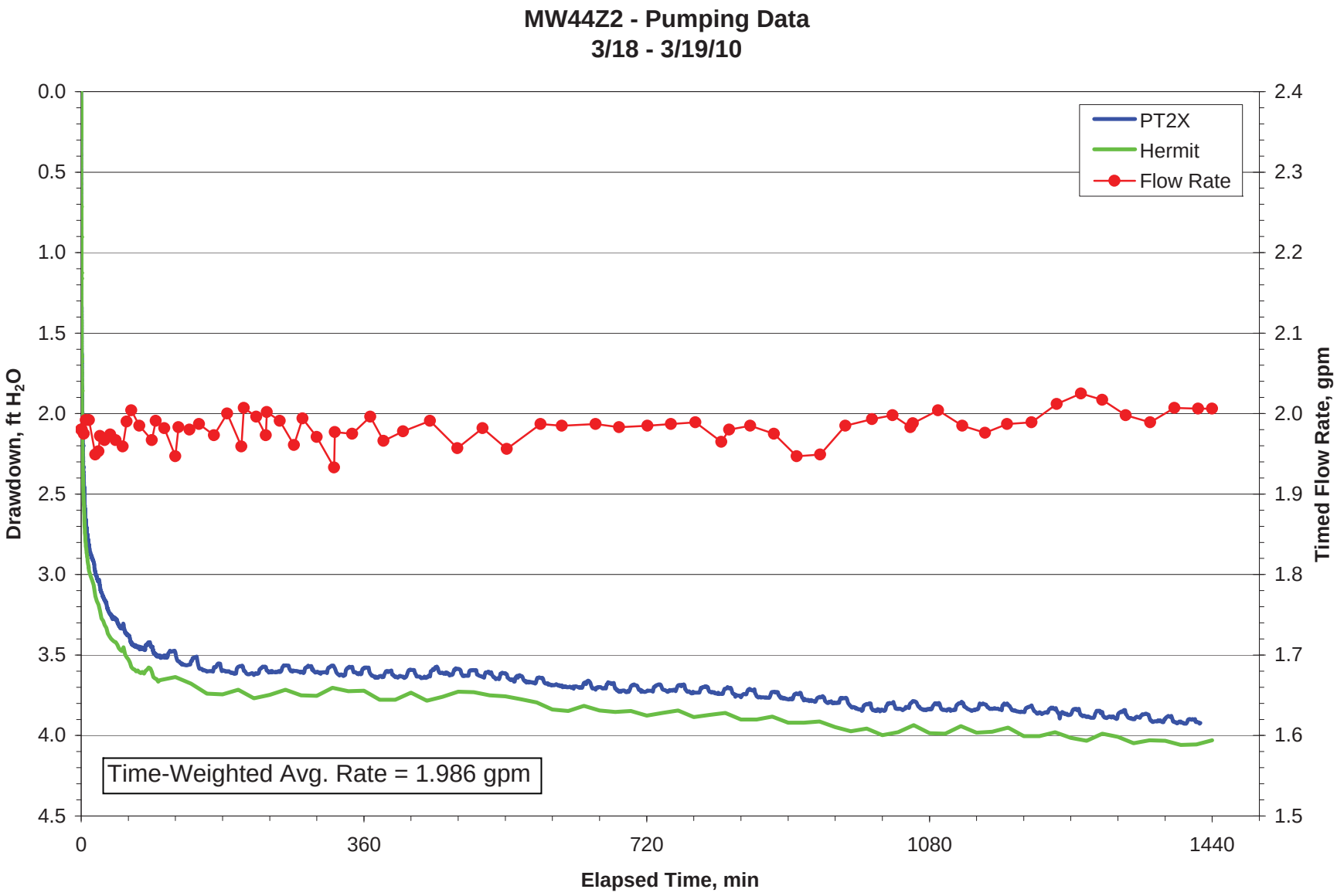

FIGURE J.3 Water level responses and measured flow rates in well MW44Z2 during the pumping phase of the constant-rate pumping test on March 18-19, 2010.

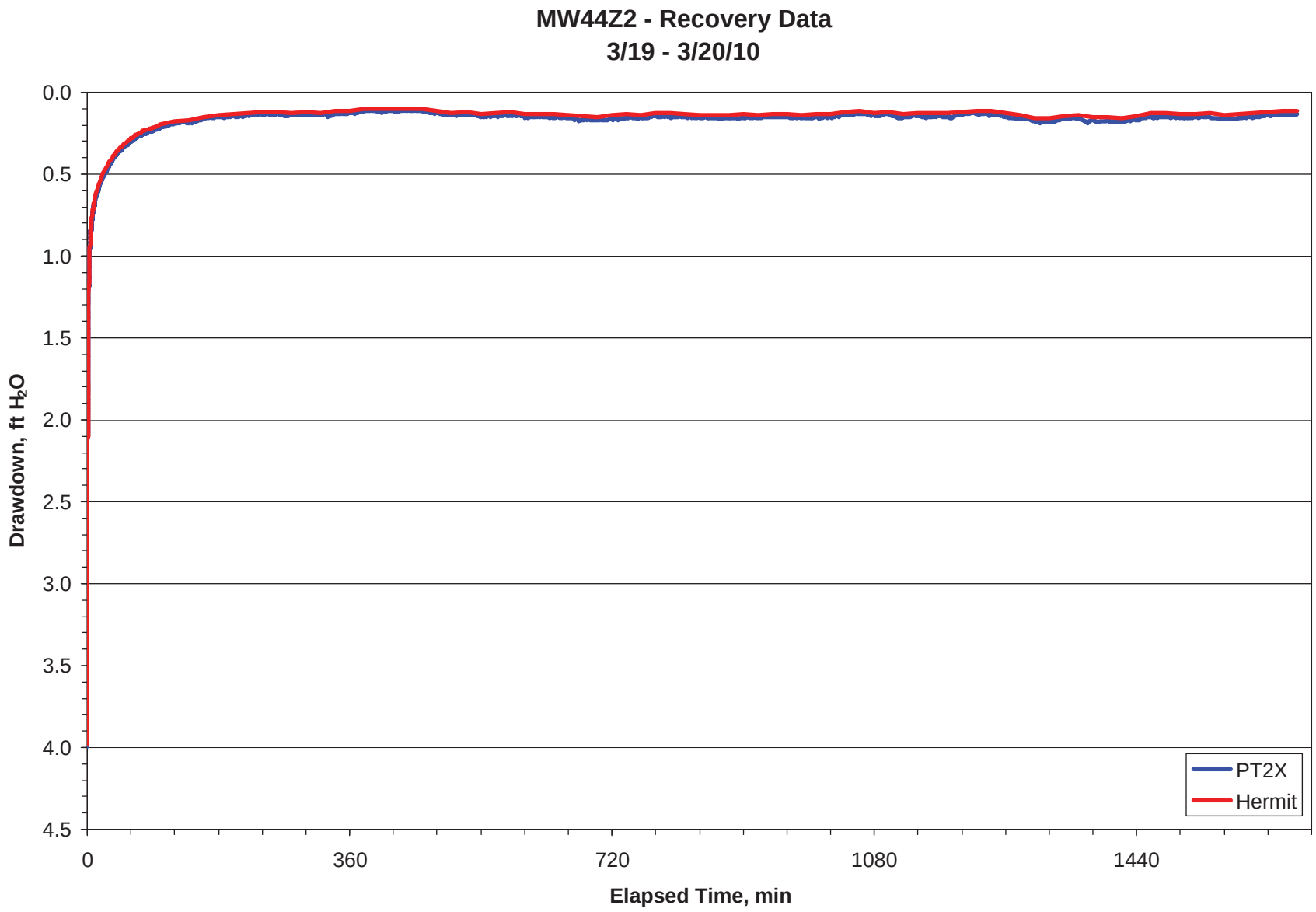

FIGURE J.4 Water level responses in well MW44Z2 during the recovery phase of the constant-rate pumping test on March 19-20, 2010.

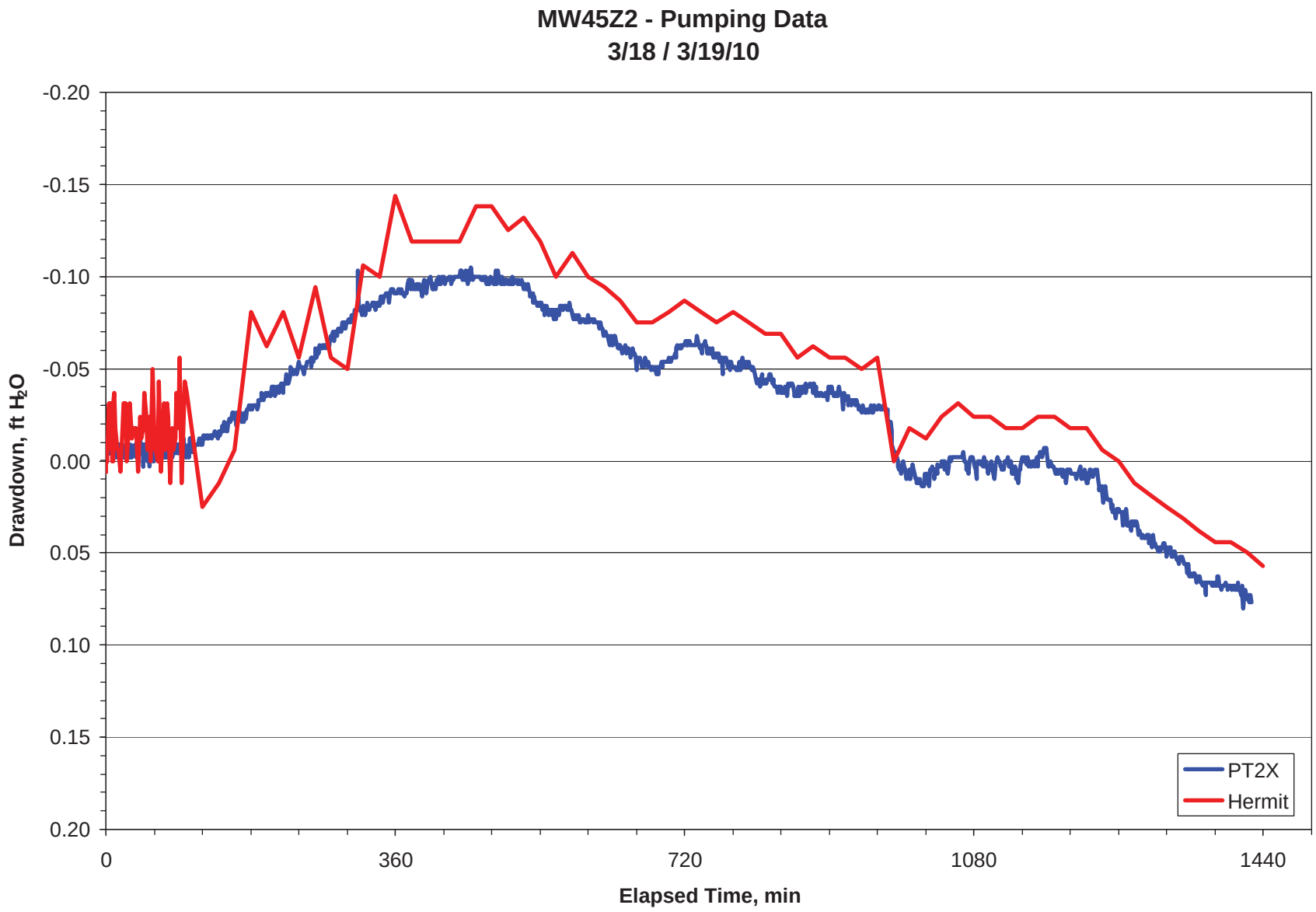

FIGURE J.5 Water level responses in well MW45Z2 during the pumping phase of the constant-rate pumping test on March 18-19, 2010.

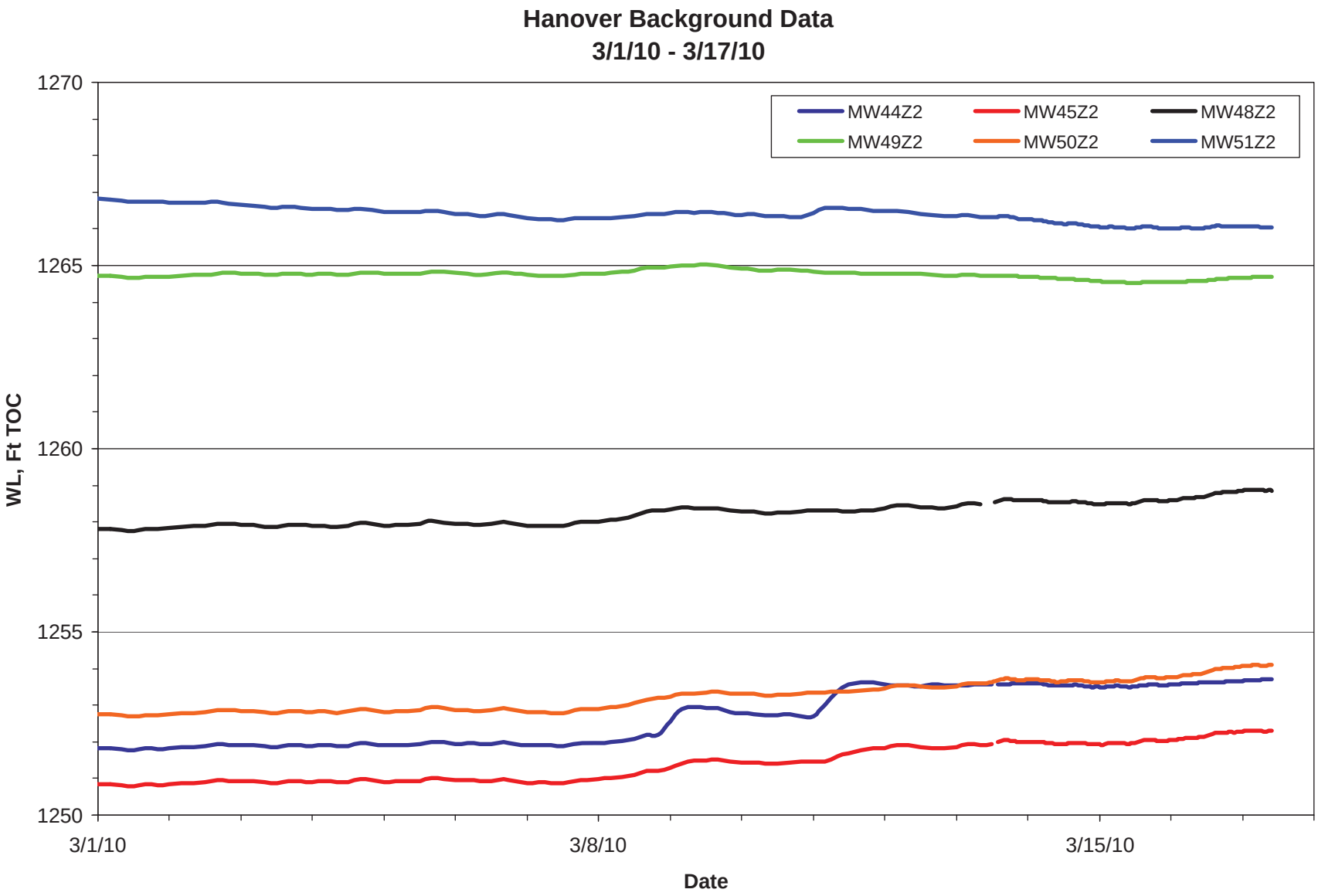

FIGURE J.6 Groundwater level variations in monitoring wells, March 1-17, 2010.

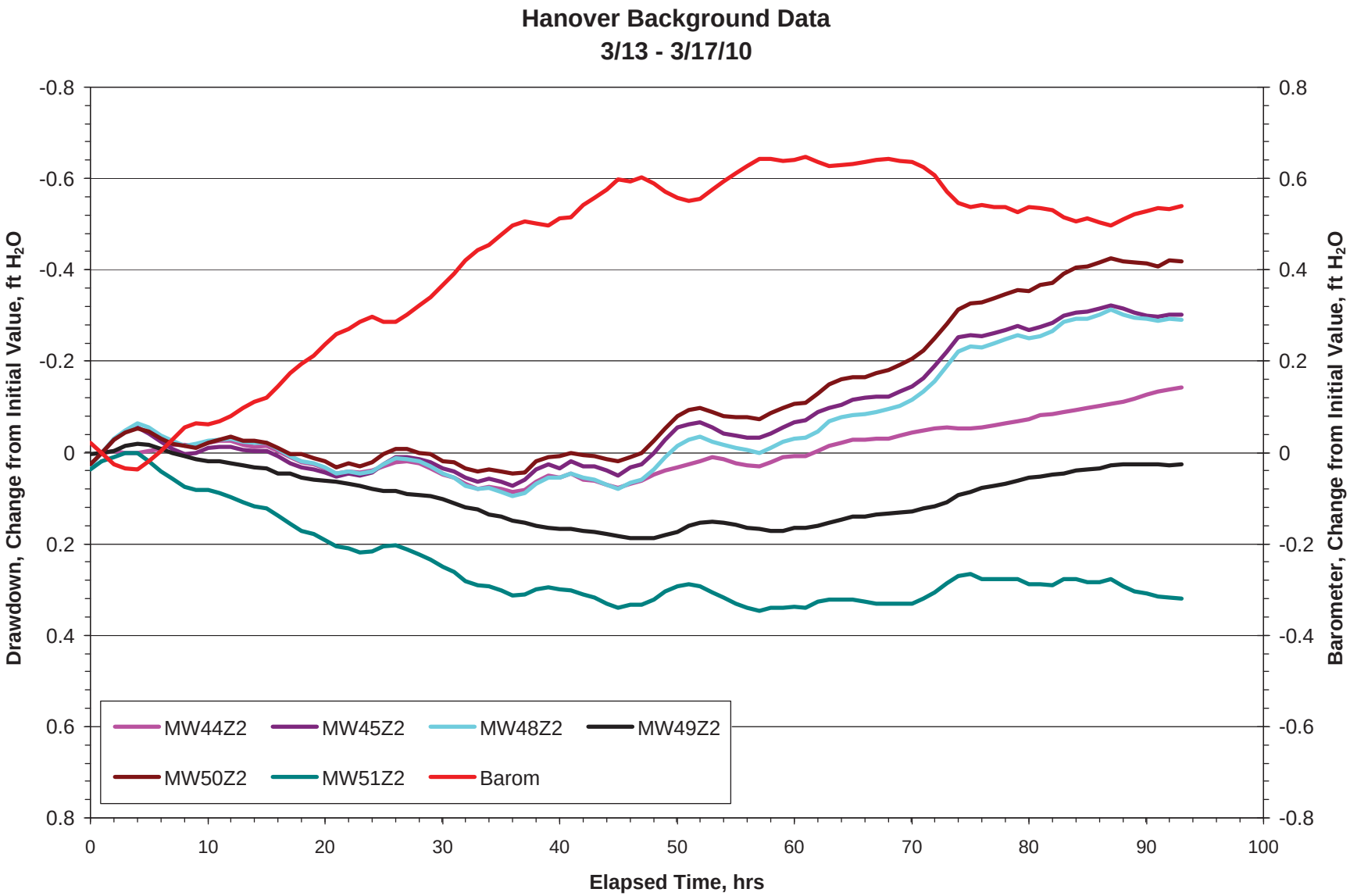

FIGURE J.7 Normalized groundwater level variations in monitoring wells and variations in barometric pressure during the background observation period, March 13-17, 2010.

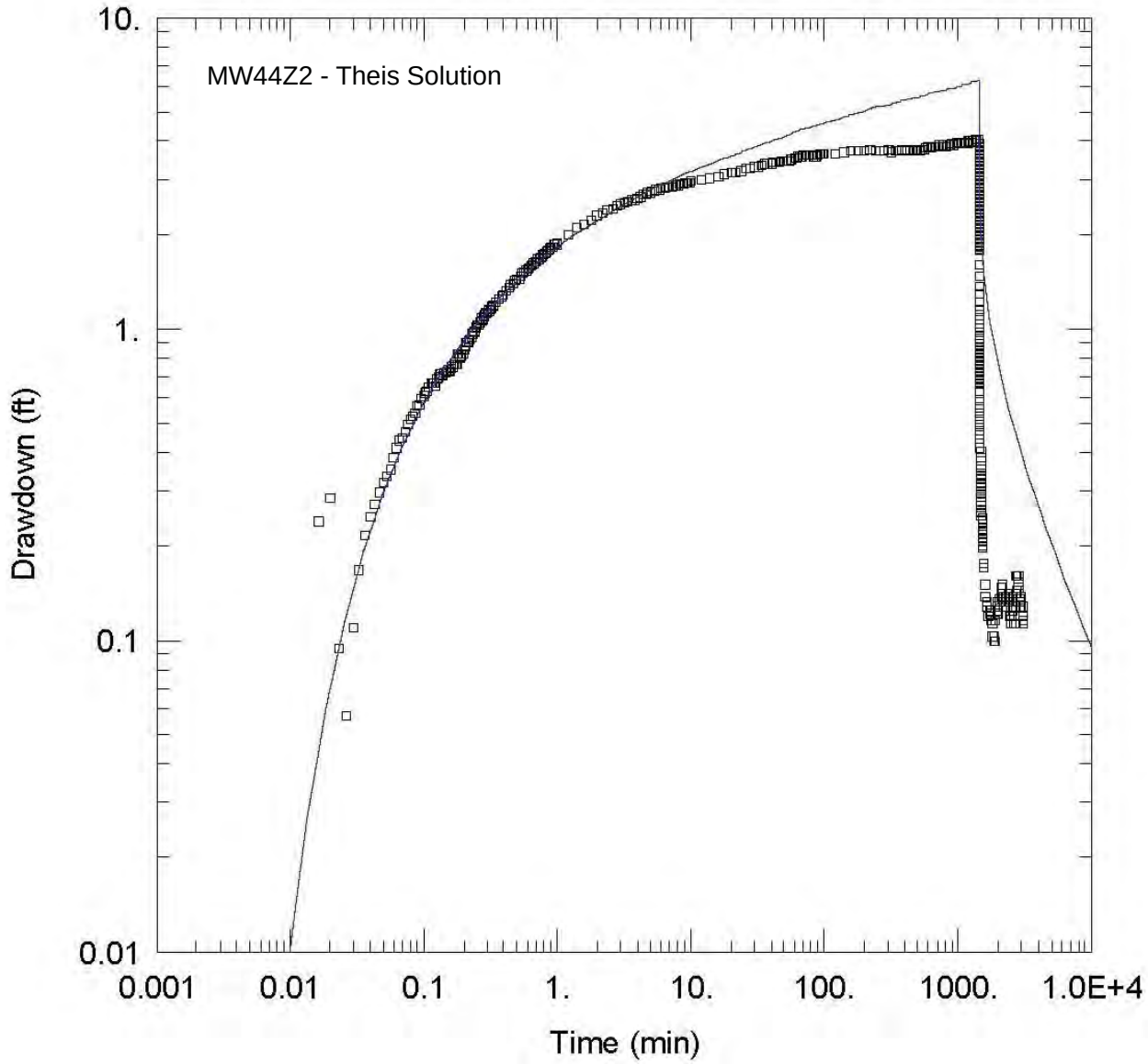

FIGURE J.8 Water level drawdown and recovery data for MW44Z2, with interpretive curve fit for the Theis method of (confined aquifer) analysis.

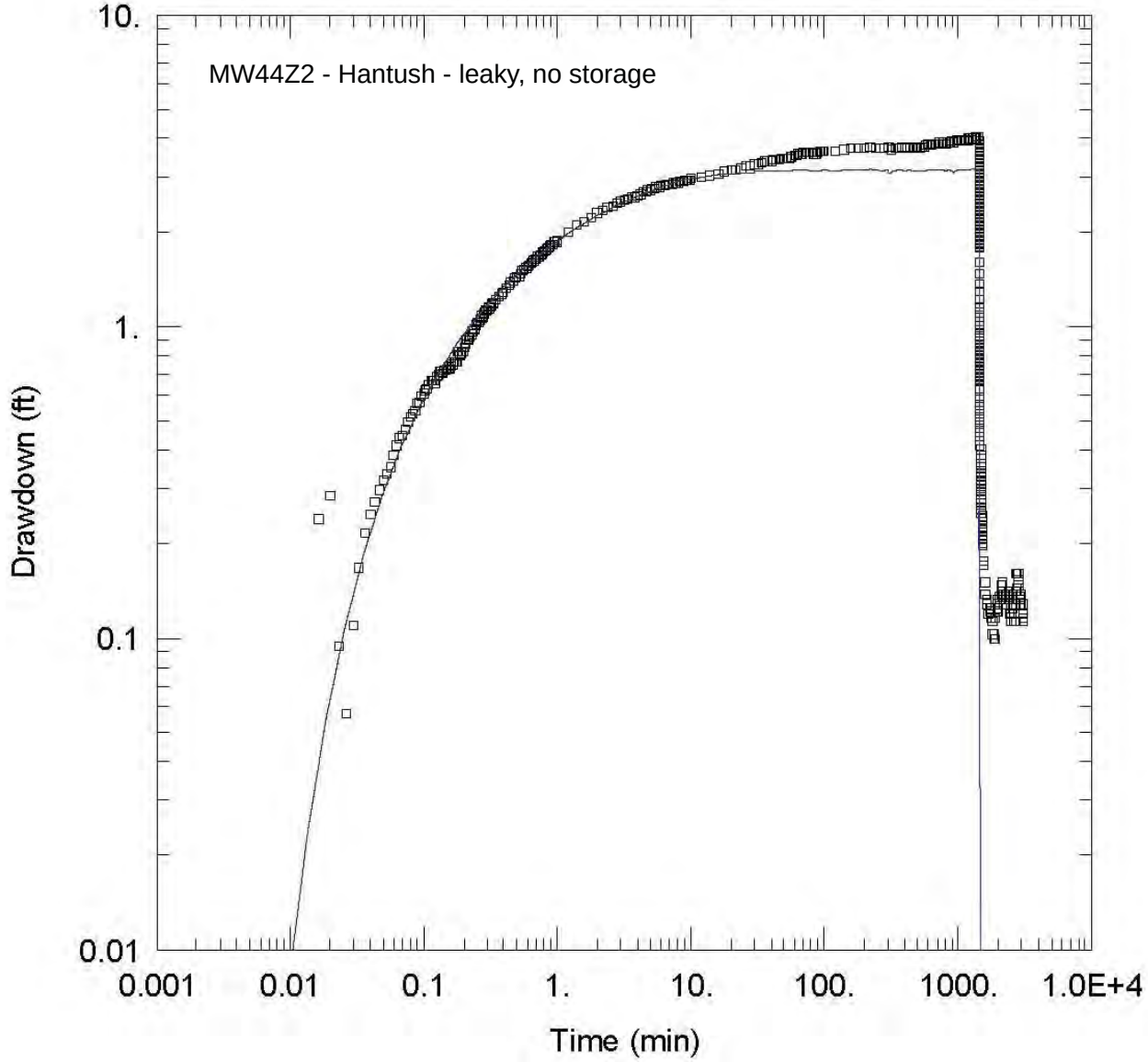

FIGURE J.9 Water level drawdown and recovery data for MW44Z2, with interpretive curve fit for the Hantush method of (leaky-confined aquifer) analysis assuming no groundwater storage in the aquitard.

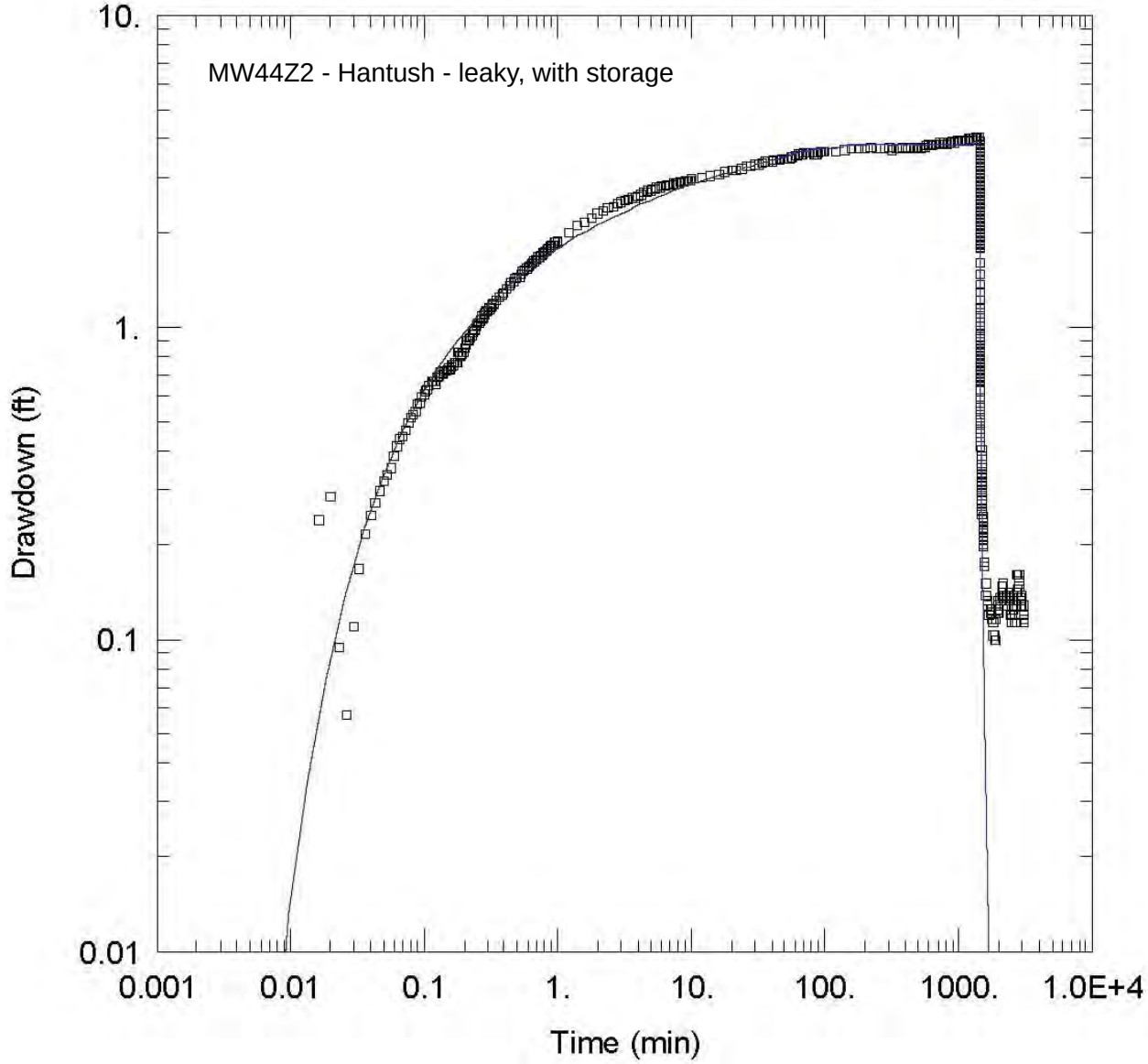

FIGURE J.10 Water level drawdown and recovery data for MW44Z2, with interpretive curve fit for the Hantush method of (leaky-confined aquifer) analysis assuming groundwater storage in the aquitard.

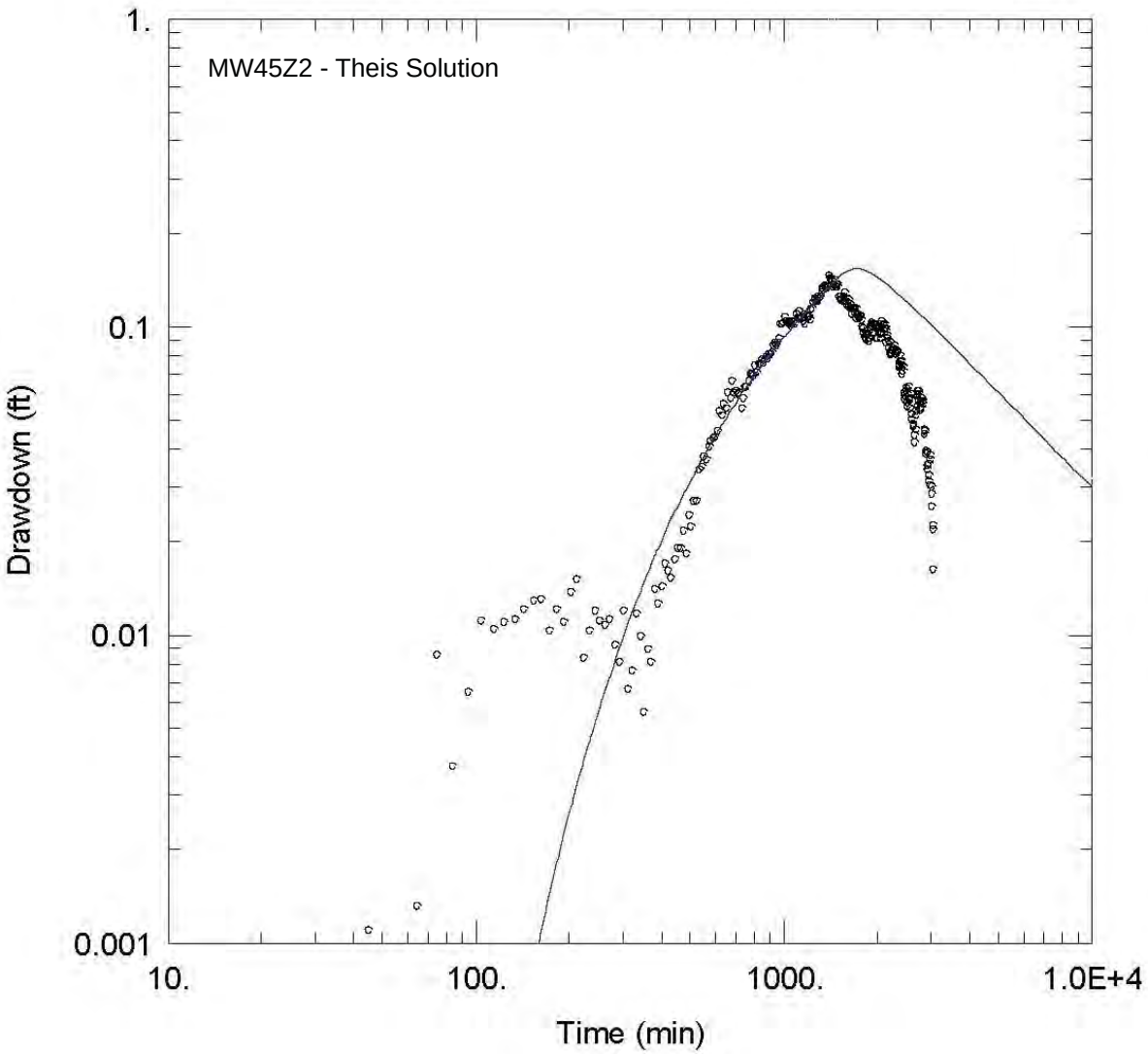

FIGURE J.11 Water level drawdown and recovery data for MW45Z2, with interpretive curve fit for the Theis method of (confined aquifer) analysis.

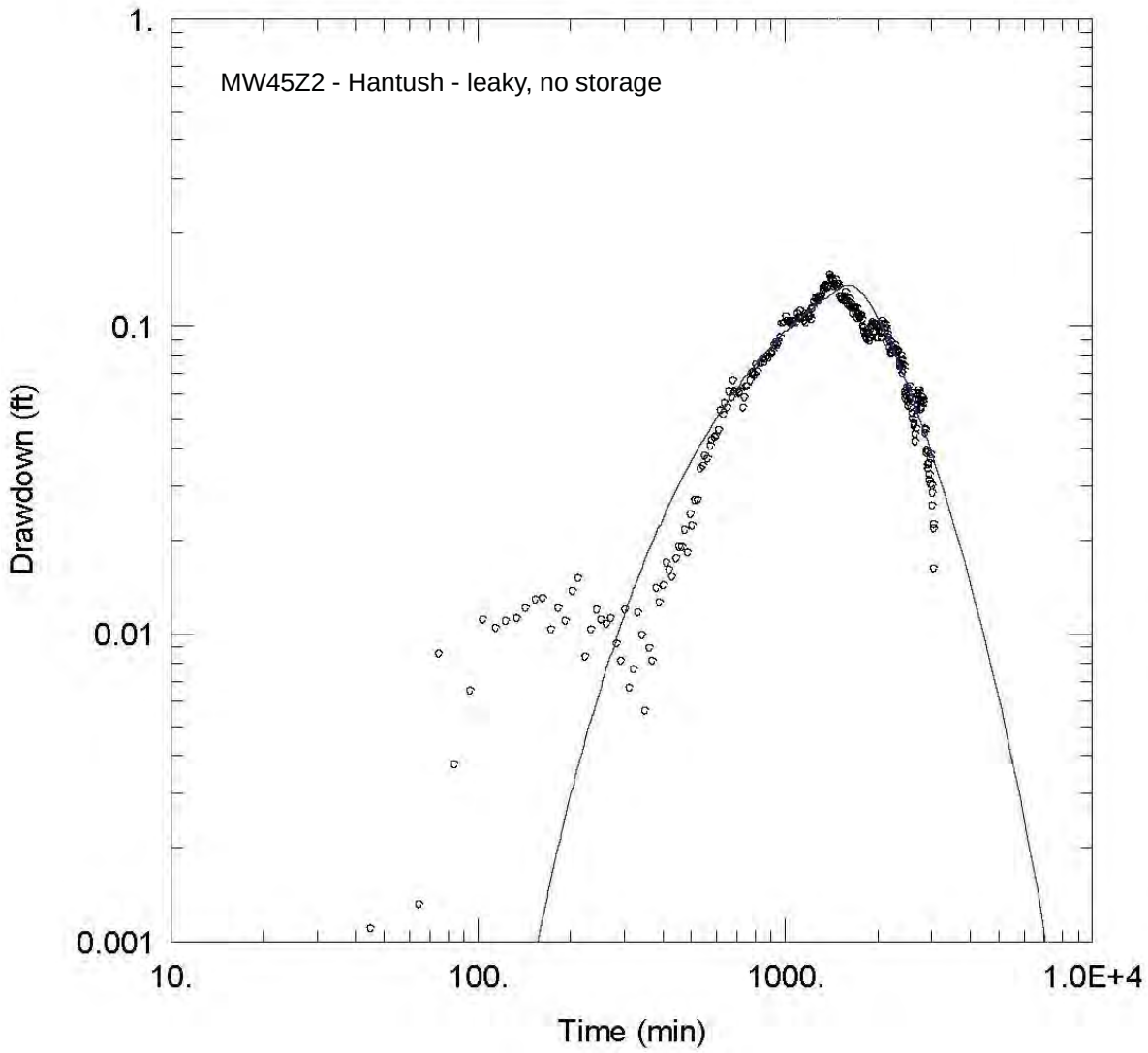

FIGURE J.12 Water level drawdown and recovery data for MW45Z2, with interpretive curve fit for the Hantush method of (leaky-confined aquifer) analysis assuming no groundwater storage in the aquitard.

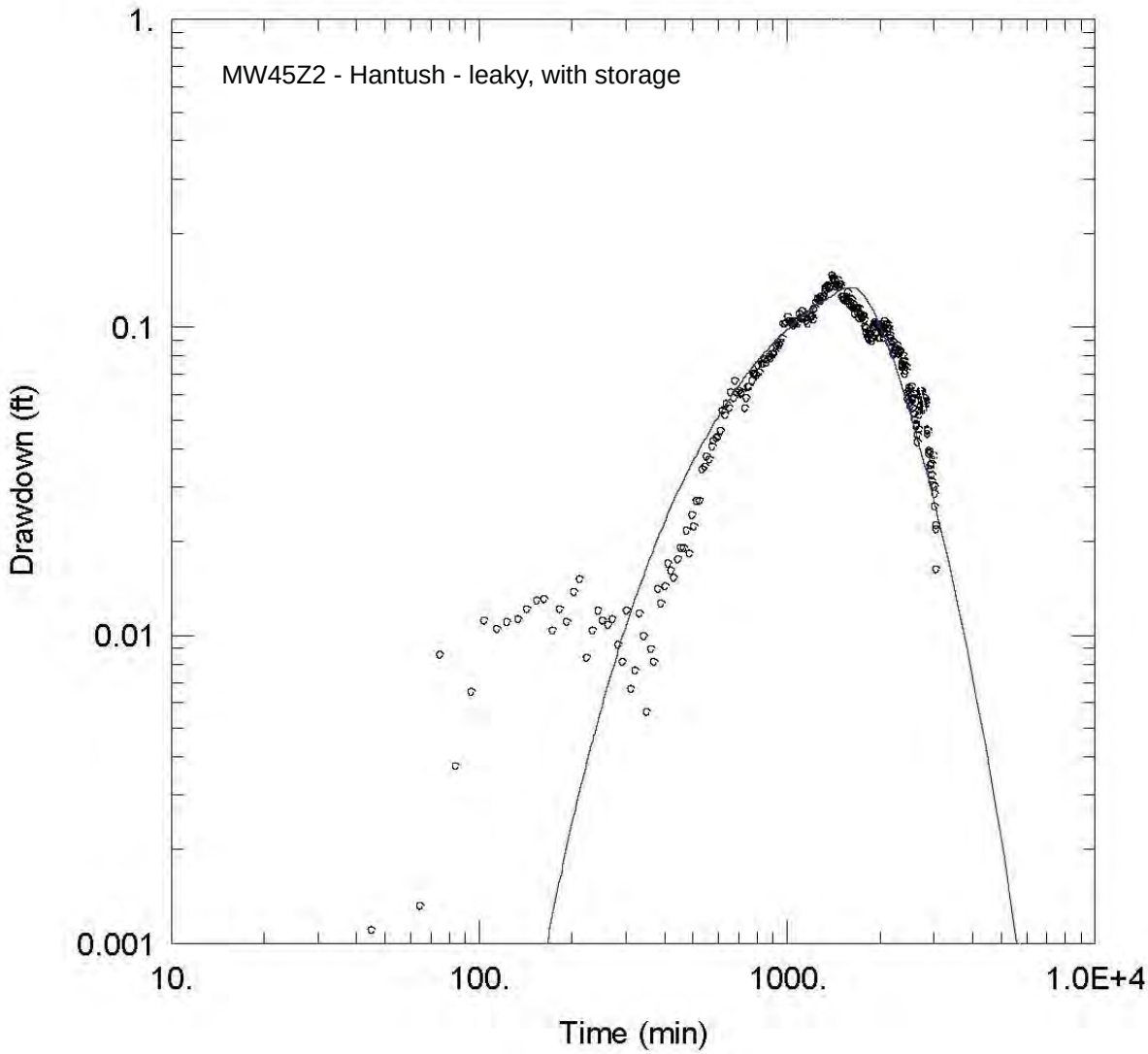

FIGURE J.13 Water level drawdown and recovery data for MW45Z2, with interpretive curve fit for the Hantush method of (leaky-confined aquifer) analysis assuming groundwater storage in the aquitard.

Appendix K:

Chronological Summary of Soil Vapor and Indoor Air Results

TABLE K.1 Chronological summary of soil vapor and indoor air results for each location sampled.[a,b,c]

			Volatile Organic Compounds						Radon		
			On-site Laboratory[d]		Off-site Laboratory[d]						
Residence Address	Sample Location	Sample Date	Carbon Tetrachloride (µg/m^3)	Sample Delivery Group	Carbon Tetrachloride (µg/m^3)	Chloroform (µg/m^3)	Sample Delivery Group	Analytical Laboratory[e]	Concentration (pCi/L)	Sample	Analytical Laboratory[e]
Former CCC/USDA facility											
400 N. East St.	Basement	7/11/07	–	–	3.7	ND	120862	TA	–	–	–
	First floor	2/4/09	–	–	17	ND	09-02-0406	CEL	–	–	–
	Basement	2/4/09	–	–	26	ND	09-02-0406	CEL	5.2	–	USC
	Sub-slab	2/4/09	–	–	62000	140	MC020509-12	H&P	2616	–	USC
	Sub-slab	2/4/09	–	–	28500	96	1088914	PAS	–	–	–
	First floor	8/12/09	–	–	8.8	1.3	133065	TA	–	–	–
	Bathroom	8/12/09	–	–	8.2	1.4	133065	TA	–	–	–
	Basement	8/12/09	–	–	11	1.2	133065	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	ND	ND	135715	TA	0.7	5662552	KSU
413 E. Kensington St.	Basement	7/11/07	–	–	4.8	ND	120862	TA	–	–	–
	First floor	2/4/09	–	–	11	ND	09-02-0406	CEL	–	–	–
	Kitchen	2/4/09	–	–	16	ND	1088914	PAS	–	–	–
	Basement	2/4/09	–	–	16	ND	09-02-0406	CEL	9.4	–	USC
	Basement	2/4/09	–	–	16	ND	1088914	PAS	–	–	–
	Sub-slab	2/4/09	–	–	350	ND	MC020509-12	H&P	2500	–	USC
	First floor	1/26/10	–	–	ND	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	ND	ND	135715	TA	0.7	5662567	KSU
400 E. Kensington St.	Basement	7/11/07	–	–	1.4	ND	120862	TA	–	–	–
	First floor	2/4/09	–	–	ND	ND	09-02-0406	CEL	–	–	–
	Basement	2/4/09	–	–	1.8	ND	09-02-0406	CEL	8.0	–	USC
	Sub-slab	2/4/09	–	–	130	ND	MC020509-12	H&P	1293	–	USC
	First floor	8/12/09	–	–	1.5	1.2	133084	TA	–	–	–
	Basement	8/12/09	–	–	1.8	1.1	133084	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	ND	ND	135715	TA	7.9	5662548	KSU
300 Westminster St.	Basement	7/11/07	–	–	ND	1.2	120862	TA	–	–	–
	First floor	3/13/09	–	–	ND	ND	09-03-1380	CEL	–	–	–
	Basement	3/13/09	–	–	ND	ND	09-03-1380	CEL	–	–	–
297 Westminster St.	Basement	7/11/07	–	–	ND	1.1	120862	TA	–	–	–
	First floor	3/13/09	–	–	ND	ND	09-03-1381	CEL	–	–	–
	Basement	3/13/09	–	–	ND	ND	09-03-1381	CEL	–	–	–
	Basement	3/13/09	–	–	ND	ND	1091136	PAS	–	–	–

TABLE K.1 (Cont.)

			Volatile Organic Compounds						Radon		
			On-site Laboratory[d]		Off-site Laboratory[d]						
Residence Address	Sample Location	Sample Date	Carbon Tetrachloride (µg/m^3)	Sample Delivery Group	Carbon Tetrachloride (µg/m^3)	Chloroform (µg/m^3)	Sample Delivery Group	Analytical Laboratory[e]	Concentration (pCi/L)	Sample	Analytical Laboratory[e]
Former CCC/USDA facility (cont.)											
300 N. Belgrave St.	Basement	7/11/07	–	–	ND	1.2	120862	TA	–	–	–
	First floor	3/13/09	–	–	ND	ND	09-03-1382	CEL	–	–	–
	Basement	3/13/09	–	–	ND	ND	09-03-1382	CEL	–	–	–
301 N. Belgrave St.	Basement	7/11/07	–	–	ND	ND	120862	TA	–	–	–
	First floor	3/13/09	–	–	2.9	ND	09-03-1383	CEL	–	–	–
	Basement	3/13/09	–	–	4.2	ND	09-03-1383	CEL	–	–	–
	First floor	8/12/09	–	–	ND	ND	133084	TA	–	–	–
	Basement	8/12/09	–	–	ND	ND	133084	TA	–	–	–
	First floor[f]	1/26/10	–	–	–	–	–	–	–	–	–
	Basement[f]	1/26/10	–	–	–	–	–	–	–	–	–
	First floor	6/17/10	–	–	ND	0.98	137834	TA	–	–	–
	Basement	6/17/10	–	–	ND	1.0	137834	TA	–	–	–
									–	–	–
298 N. Belgrave St.	Basement	7/11/07	–	–	ND	4.4	120862	TA	–	–	–
	First floor	3/13/09	–	–	ND	3.6	09-03-1385	CEL	–	–	–
	Basement	3/13/09	–	–	ND	3.4	09-03-1385	CEL	–	–	–
	Basement	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	13	BH 2009	13	ND	MC041309-13	H&P	–	–	–
414 E. Kensington St.	Basement	7/11/07	–	–	1.4	1.2	120862	TA	–	–	–
	First floor	3/13/09	–	–	2.6	ND	09-03-1386	CEL	–	–	–
	Basement	3/13/09	–	–	3.7	ND	09-03-1386	CEL	–	–	–
	First floor	8/12/09	–	–	1.4	1.7	133093	TA	–	–	–
	Basement	8/12/09	–	–	1.5	1.6	133093	TA	–	–	–
	First floor[g]	1/26/10	–	–	–	–	–	–	–	–	–
	Basement[g]	1/26/10	–	–	–	–	–	–	–	–	–
	First floor[g]	6/17/10	–	–	–	–	–	–	–	–	–
	Basement[g]	6/17/10	–	–	–	–	–	–	–	–	–
Ambient	300 Belgrave	7/11/07	–	–	ND	ND	120862	TA	–	–	–
Ambient	400 N. East	7/11/07	–	–	ND	ND	120862	TA	–	–	–
Ambient	Water tower	2/4/09	–	–	ND	ND	09-02-0406	CEL	–	–	–
Ambient	Water tower	3/13/09	–	–	ND	ND	09-03-1384	CEL	–	–	–
Ambient	North tree line	8/12/09	–	–	ND	ND	133065	TA	–	–	–
Ambient	Water tower	8/12/09	–	–	ND	ND	133084	TA	–	–	–
Ambient	Water tower	1/26/10	–	–	ND	ND	135746	TA	–	–	–
Ambient	Water Zone 2 homes	2/24/10	–	–	ND	ND	136146	TA	–	–	–

TABLE K.1 (Cont.)

			Volatile Organic Compounds						Radon		
			On-site Laboratory[d]		Off-site Laboratory[d]						
Residence Address	Sample Location	Sample Date	Carbon Tetrachloride (µg/m^3)	Sample Delivery Group	Carbon Tetrachloride (µg/m^3)	Chloroform (µg/m^3)	Sample Delivery Group	Analytical Laboratory[e]	Concentration (pCi/L)	Sample	Analytical Laboratory[e]
East Elm Street											
211 E. Elm	First floor	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Garage	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab (in garage)	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
304 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	16	BH 2009	–	–	–	–	–	–	–
307 E. Elm	Sub-slab	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
308 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
309 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	1.7	BH 2009	–	–	–	–	–	–	–
	Sub-slab	3/27/09	290	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	3.0	18	133093	TA	–	–	–
	Basement	8/12/09	–	–	ND	9.3	133093	TA	–	–	–
	First floor	1/26/10	–	–	2.0	1.1	135715	TA	–	–	–
	Basement	1/26/10	–	–	2.3	ND	135715	TA	16.0	5662571	KSU
310 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
311 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	1.8	BH 2009	–	–	–	–	–	–	–
	Basement	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/8/09	2200	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	1.6	1.4	133093	TA	–	–	–
	Basement	8/12/09	–	–	2.3	ND	133093	TA	–	–	–
	First floor	1/26/10	–	–	2.0	1.3	135746	TA	–	–	–
	Basement	1/26/10	–	–	2.4	ND	135746	TA	7.7	5662569	KSU
314 E. Elm	First floor	3/27/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/27/09	ND	BH 2009	–	–	–	–	–	–	–
315 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-dirt	4/7/09	ND	BH 2009	–	–	–	–	–	–	–

TABLE K.1 (Cont.)

			Volatile Organic Compounds						Radon		
			On-site Laboratory[d]		Off-site Laboratory[d]						
Residence Address	Sample Location	Sample Date	Carbon Tetrachloride (µg/m^3)	Sample Delivery Group	Carbon Tetrachloride (µg/m^3)	Chloroform (µg/m^3)	Sample Delivery Group	Analytical Laboratory[e]	Concentration (pCi/L)	Sample	Analytical Laboratory[e]
East Elm Street (cont.)											
400 E. Elm	First floor	3/26/09	ND	BH 2009	1.7	–	MC033109-11	H&P	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	–	2800	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	ND	ND	133084	TA	–	–	–
	Basement	8/12/09	–	–	ND	ND	133084	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135716	TA	–	–	–
	Basement	1/26/10	–	–	1.7	ND	135716	TA	4.6	5662551	KSU
401 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/8/09	400	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	ND	3.5	133093	TA	–	–	–
	Basement	8/12/09	–	–	1.6	4.6	133093	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135746	TA	–	–	–
	Basement	1/26/10	–	–	1.4	ND	135746	TA	9.1	5662557	KSU
404 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Crawl space	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
405 E. Elm	First floor	3/26/09	ND	BH 2009	2.6	–	MC033109-11	H&P	–	–	–
	First floor dup	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	22	BH 2009	–	–	–	–	–	–	–
	Basement dup	3/26/09	19	BH 2009	–	–	–	–	–	–	–
	Sub-slab	3/27/09	2800	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	2.3	3.3	133084	TA	–	–	–
	Basement	8/12/09	–	–	2.9	2.6	133084	TA	–	–	–
	First floor	1/26/10	–	–	1.9	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	4.7	ND	135715	TA	10.4	5662574	KSU
	First floor	6/17/10	–	–	ND	ND	137834	TA	–	–	–
	Basement	6/17/10	–	–	ND	ND	137834	TA	–	–	–
406 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	3.0	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	9.4	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	410	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	1.5	ND	133084	TA	–	–	–
	Basement	8/12/09	–	–	4.5	ND	133084	TA	–	–	–
	First floor	1/26/10	–	–	2.1	ND	135746	TA	–	–	–
	Basement	1/26/10	–	–	3.9	ND	135746	TA	15.3	5662556	KSU
	Basement dup	1/26/10	–	–	4.0	ND	135746	TA	–	–	–

TABLE K.1 (Cont.)

			Volatile Organic Compounds						Radon		
			On-site Laboratory[d]		Off-site Laboratory[d]						
Residence Address	Sample Location	Sample Date	Carbon Tetrachloride (µg/m^3)	Sample Delivery Group	Carbon Tetrachloride (µg/m^3)	Chloroform (µg/m^3)	Sample Delivery Group	Analytical Laboratory[e]	Concentration (pCi/L)	Sample	Analytical Laboratory[e]
East Elm Street (cont.)											
408 E. Elm	First floor	3/26/09	2.6	BH 2009	7.0[h]	–	MC033109-11	H&P	–	–	–
	Basement	3/26/09	2.3	BH 2009	–	–	–	–	–	–	–
	Sub-slab	3/27/09	1600	BH 2009	–	–	–	–	–	–	–
	First floor	4/8/09	2.7	BH 2009	–	–	–	–	–	–	–
	Basement	4/8/09	6.0	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	1900	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	11	ND	133084	TA	–	–	–
	Basement	8/12/09	–	–	17	ND	133084	TA	–	–	–
	First floor	1/26/10	–	–	5.9	ND	135716	TA	–	–	–
	Basement	1/26/10	–	–	6.9	ND	135716	TA	21.8	5662562	KSU
	First floor	6/17/10	–	–	ND	ND	137834	TA	–	–	–
	Basement	6/17/10	–	–	ND	ND	137834	TA	–	–	–
409 E. Elm	First floor	3/26/09	2.4[h]	BH 2009	1.5	–	MC033109-11	H&P	–	–	–
	First floor dup	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	6.2[h]	BH 2009	ND	–	MC033109-11	H&P	–	–	–
	Basement dup	3/26/09	2.7	BH 2009	–	–	–	–	–	–	–
	Sub-slab	3/27/09	2400	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	ND	ND	133093	TA	–	–	–
	Basement	8/12/09	–	–	1.4	ND	133093	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135746	TA	–	–	–
	Basement	1/26/10	–	–	ND	ND	135746	TA	3.4	5662549	KSU
411 E. Elm	First floor	3/25/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/25/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
412 E. Elm	First floor	4/10/09	–	–	2.1	–	MC041309-13	H&P	–	–	–
	Sub-slab	4/10/09	–	–	360	–	MC041309-13	H&P	–	–	–
	First floor	8/12/09	–	–	1.9	ND	133084	TA	–	–	–
	Basement	8/12/09	–	–	2.8	ND	133084	TA	–	–	–
	First floor	1/26/10	–	–	1.6	ND	135746	TA	–	–	–
	Basement	1/26/10	–	–	1.3	ND	135746	TA	–	–	–
415 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
500 E. Elm	Basement	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/8/09	ND	BH 2009	–	–	–	–	–	–	–

TABLE K.1 (Cont.)

			Volatile Organic Compounds						Radon		
			On-site Laboratory[d]		Off-site Laboratory[d]						
Residence Address	Sample Location	Sample Date	Carbon Tetrachloride (µg/m^3)	Sample Delivery Group	Carbon Tetrachloride (µg/m^3)	Chloroform (µg/m^3)	Sample Delivery Group	Analytical Laboratory[e]	Concentration (pCi/L)	Sample	Analytical Laboratory[e]
East Elm Street (cont.)											
501 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
504 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	100	BH 2009	91	–	MC041309-13	H&P	–	–	–
505 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
508 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	51	BH 2009	–	–	–	–	–	–	–
509 E. Elm	First floor	3/27/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/27/09	ND	BH 2009	–	–	–	–	–	–	–
513 E. Elm	First floor	3/26/09	2.1	BH 2009	ND	–	MC033109-11	H&P	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	3/27/09	290	BH 2009	260	–	MC033109-11	H&P	–	–	–
	First floor	8/13/09	–	–	ND	ND	133093	TA	–	–	–
	Basement	8/13/09	–	–	ND	ND	133093	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	ND	ND	135715	TA	6.8	5662554	KSU
North East Street											
210 N. East	Basement #1	3/25/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement #2	3/25/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/8/09	33	BH 2009	–	–	–	–	–	–	–
211 N. East	First floor	4/8/09	1.6	BH 2009	–	–	–	–	–	–	–
	Basement	4/8/09	2.7	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	940	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	1.8	ND	133093	TA	–	–	–
	Basement	8/12/09	–	–	2.5	ND	133093	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135716	TA	–	–	–
	Basement	1/26/10	–	–	ND	ND	135716	TA	6.3	5662560	KSU

TABLE K.1 (Cont.)

			Volatile Organic Compounds						Radon		
			On-site Laboratory[d]		Off-site Laboratory[d]						
Residence Address	Sample Location	Sample Date	Carbon Tetrachloride (µg/m^3)	Sample Delivery Group	Carbon Tetrachloride (µg/m^3)	Chloroform (µg/m^3)	Sample Delivery Group	Analytical Laboratory[e]	Concentration (pCi/L)	Sample	Analytical Laboratory[e]
East Elm Street (cont.)											
213 N. East	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
303 N. East	First floor	8/12/09	–	–	1.4	3.4	133084	TA	–	–	–
	Basement	8/12/09	–	–	1.9	3.3	133084	TA	–	–	–
	Sub-slab	8/12/09	–	–	ND	19	133093	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	ND	1.0	135715	TA	6.4	5662553	KSU
311 N. East	First floor	3/27/09	14	BH 2009	–	–	–	–	–	–	–
	First floor	4/7/09	4.3	BH 2009	–	–	–	–	–	–	–
	Basement	3/27/09	18	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	9.0	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	4500	BH 2009	–	–	–	–	–	–	–
	First floor	1/26/10	–	–	ND	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	ND	ND	135715	TA	< 0.3	5662566	KSU
East North Street											
204 E. North	First floor	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	20	BH 2009	–	–	–	–	–	–	–
214 E. North	First floor	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
312 E. North	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	300	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	2.0	ND	133093	TA	–	–	–
	Basement	8/12/09	–	–	3.2	ND	133093	TA	–	–	–
	First floor	1/26/10	–	–	1.5	0.98	135715	TA	–	–	–
	Basement	1/26/10	–	–	2.1	ND	135715	TA	17.6	5662561	KSU
400 E. North	First floor	3/27/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/27/09	ND	BH 2009	–	–	–	–	–	–	–

TABLE K.1 (Cont.)

			Volatile Organic Compounds						Radon		
			On-site Laboratory[d]		Off-site Laboratory[d]						
Residence Address	Sample Location	Sample Date	Carbon Tetrachloride (µg/m^3)	Sample Delivery Group	Carbon Tetrachloride (µg/m^3)	Chloroform (µg/m^3)	Sample Delivery Group	Analytical Laboratory[e]	Concentration (pCi/L)	Sample	Analytical Laboratory[e]
East North Street (cont.)											
404 E. North	First floor	3/27/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/27/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/8/09	180	BH 2009	200	–	MC041309-13	H&P	–	–	–
	First floor	8/12/09	–	–	1.6	ND	133084	TA	–	–	–
	Basement	8/12/09	–	–	1.8	ND	133084	TA	–	–	–
	First floor	1/26/10	–	–	1.3	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	1.3	ND	135715	TA	21.3	5662573	KSU
500 E. North	First floor	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
512 E. North	North	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
	South	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
100 S. Church St	–	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
107 N. Church St	First floor	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
Northwestern area											
211 N. Hanover	First floor	2/24/10	–	–	ND	ND	136146	TA	–	–	–
	Crawl space	2/24/10	–	–	ND	ND	136146	TA	2.1	5662568	KSU
309 N. Hanover	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	7.2	BH 2009	–	–	–	–	–	–	–
	First floor	2/24/10	–	–	ND	ND	136146	TA	–	–	–
	Basement	2/24/10	–	–	ND	ND	136146	TA	3.1	5662577	KSU
310 N. Hanover	First floor	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/8/09	64	BH 2009	68	–	MC041309-13	H&P	–	–	–
	First floor	2/24/10	–	–	ND	ND	136146	TA	–	–	–
	Basement	2/24/10	–	–	ND	ND	136146	TA	11.6	5694019	KSU
	Basement dup	2/24/10	–	–	ND	ND	136146	TA	–	–	–
208 N. Hollenberg	First floor	2/24/10	–	–	ND	0.98	136146	TA	–	–	–
	Basement	2/24/10	–	–	ND	ND	136146	TA	4.1	5693980	KSU
212 N. Hollenberg	First floor	2/24/10	–	–	ND	1.7	136146	TA	–	–	–
	Basement	2/24/10	–	–	ND	ND	136146	TA	9.2	5693976	KSU

TABLE K.1 (Cont.)

			Volatile Organic Compounds								
			On-site Laboratory[d]		Off-site Laboratory[d]				Radon		
Residence Address	Sample Location	Sample Date	Carbon Tetrachloride (µg/m^3)	Sample Delivery Group	Carbon Tetrachloride (µg/m^3)	Chloroform (µg/m^3)	Sample Delivery Group	Analytical Laboratory[e]	Concentration (pCi/L)	Sample	Analytical Laboratory[e]
Northwestern area (cont.)											
300 N. Hollenberg	First floor	2/24/10	–	–	ND	ND	136146	TA	9.8	5662576	KSU
	Crawl space	2/24/10	–	–	ND	ND	136146	TA	17.5	5693969	KSU
304 N. Hollenberg	First floor	2/24/10	–	–	ND	ND	136146	TA	–	–	–
	Basement	2/24/10	–	–	ND	ND	136146	TA	13.9	5662575	KSU
307 N. Hollenberg	First floor	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
308 N. Hollenberg	First floor	2/24/10	–	–	ND	ND	136146	TA	–	–	–
	Basement	2/24/10	–	–	ND	ND	136146	TA	9.8	5662550	KSU
314 N. Hollenberg	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	9.1	BH 2009	–	–	–	–	–	–	–
	First floor	2/24/10	–	–	ND	ND	136146	TA	–	–	–
	Basement	2/24/10	–	–	ND	ND	136146	TA	27.6	5693971	KSU
Multi-tenant housing east of Highland Street											
Highland Haven #2	Sub-slab north	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab south	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
Highland Haven #3	Sub-slab	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
Highland Haven #4	Indoor air	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
Highland Haven #5	Indoor air	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
Highland Haven #11	Indoor air	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
Highland Haven office	Indoor air	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
Schools											
Hanover Public School	Kindergarten	2/23/10	ND	BH 2010	ND, ND[i]	2.3, ND[i]	136119	TA	14.2	5694063	KSU
	Weight room	2/23/10	ND	BH 2010	–	–	–	–	1.7	5694061	KSU
	Math room	2/23/10	ND	BH 2010	–	–	–	–	0.6	5694062	KSU
	Math room	2/23/10	ND	BH 2010	ND	1.7	136119	TA	2.3	5694060	KSU
	Band room	2/23/10	ND	BH 2010	ND	1.5	136119	TA	4.6	5694066	KSU
	Grades 3-4	2/23/10	ND	BH 2010	–	–	–	–	3.4	5694065	KSU

TABLE K.1 (Cont.)

Residence Address	Sample Location	Sample Date	Volatile Organic Compounds: On-site Laboratory[d] Carbon Tetrachloride (µg/m^3)	On-site Laboratory[d] Sample Delivery Group	Off-site Laboratory[d] Carbon Tetrachloride (µg/m^3)	Off-site Laboratory[d] Chloroform (µg/m^3)	Off-site Laboratory[d] Sample Delivery Group	Off-site Laboratory[d] Analytical Laboratory[e]	Radon Concentration (pCi/L)	Radon Sample	Radon Analytical Laboratory[e]
Schools (cont.)											
Hanover Public School (cont.)										5694047	KSU
	Office	2/23/10	ND	BH 2010	–	–	–	–	< 0.3		
	Office	2/23/10	ND	BH 2010	ND	2.2	136119	TA	1.0	5694058	KSU
	Grades 1-2	2/23/10	ND	BH 2010	–	–	–	–	1.8	5694071	KSU
	Special ed room	2/23/10	ND	BH 2010	–	–	–	–	3.1	5694064	KSU
	Special ed room	2/23/10	ND	BH 2010	–	–	–	–	6.0	5694048	KSU
	Back counselor room	2/23/10	ND	BH 2010	–	–	–	–	5.4	5694067	KSU
	Front counselor room	2/23/10	ND	BH 2010	–	–	–	–	7.0	5694050	KSU
	Computer room	2/23/10	ND	BH 2010	–	–	–	–	2.9	5694049	KSU
	Computer room	2/23/10	ND	BH 2010	–	–	–	–	1.8	5694043	KSU
	Chemistry	2/23/10	ND	BH 2010	–	–	–	–	2.3	5694052	KSU
	Science	2/23/10	ND	BH 2010	–	–	–	–	3.1	5694041	KSU
	Chem lab	2/23/10	ND	BH 2010	–	–	–	–	2.4	5694044	KSU
	Library	2/23/10	ND	BH 2010	–	–	–	–	4.9	5694045	KSU
	English	2/23/10	ND	BH 2010	–	–	–	–	2.5	5694057	KSU
	History	2/23/10	ND	BH 2010	–	–	–	–	1.9	5694055	KSU
	Grades 5-6	2/23/10	ND	BH 2010	–	–	–	–	4.8	5694051	KSU
	Library	2/23/10	ND	BH 2010	–	–	–	–	5.2	5694046	KSU
	FCCLA classroom	2/23/10	ND	BH 2010	–	–	–	–	0.9	5694053	KSU
	Gym	2/23/10	ND	BH 2010	–	–	–	–	3.3	5694035	KSU
	Art room	2/23/10	ND	BH 2010	–	–	–	–	4.8	5694034	KSU
	Cafeteria	2/23/10	ND	BH 2010	–	–	–	–	1.1	5694038	KSU
	Woodshop 1	2/23/10	ND	BH 2010	–	–	–	–	2.1	5694056	KSU
	Woodshop 2	2/23/10	ND	BH 2010	–	–	–	–	2.6	5694059	KSU
	Woodshop 3	2/23/10	ND	BH 2010	–	–	–	–	2.8	5694054	KSU
	Woodshop 4	2/23/10	ND	BH 2010	–	–	–	–	2.7	5694069	KSU
	Ag shop 1	2/23/10	ND	BH 2010	–	–	–	–	2.8	5694068	KSU
	Ag shop 2	2/23/10	ND	BH 2010	–	–	–	–	2.1	5694036	KSU
	Math	2/23/10	ND	BH 2010	–	–	–	–	1.5	5694030	KSU
	Chemistry	2/23/10	ND	BH 2010	–	–	–	–	1.2	5694039	KSU
	English	2/23/10	ND	BH 2010	–	–	–	–	1.3	5694037	KSU
	Classroom	2/23/10	ND	BH 2010	–	–	–	–	0.9	5694024	KSU
	Ambient air	2/23/10	ND	BH 2010	ND	ND	136119	TA	–	–	–
St. John's School	Gym	2/23/10	ND	BH 2010	–	–	–	–	2.0	5694032	KSU
	All-purpose room 1	2/23/10	ND	BH 2010	–	–	–	–	6.0	5694022	KSU
	All-purpose room 2	2/23/10	ND	BH 2010	ND, ND[i]	ND, ND[i]	136119	TA	3.7	5694029	KSU
	Kitchen	2/23/10	ND	BH 2010	ND	ND	136119	TA	–	–	–
	Northwest room	2/23/10	ND	BH 2010	–	–	–	–	1.2	5694033	KSU
	Northeast room	2/23/10	ND	BH 2010	ND	ND	136119	TA	1.0	5694031	KSU
	Southwest room	2/23/10	ND	BH 2010	–	–	–	–	2.2	5694023	KSU
	Southeast room	2/23/10	ND	BH 2010	ND	ND	136119	TA	< 0.3	5694016	KSU
	Northwest room	2/23/10	ND	BH 2010	–	–	–	–	0.7	5694021	KSU

TABLE K.1 (Cont.)

			Volatile Organic Compounds						Radon		
			On-site Laboratory[d]		Off-site Laboratory[d]						
Residence Address	Sample Location	Sample Date	Carbon Tetrachloride (µg/m^3)	Sample Delivery Group	Carbon Tetrachloride (µg/m^3)	Chloroform (µg/m^3)	Sample Delivery Group	Analytical Laboratory[e]	Concentration (pCi/L)	Sample	Analytical Laboratory[e]
Schools (cont.)											
St. John's School (cont.)	Northeast room	2/23/10	ND	BH 2010	–	–	–	–	1.1	5694028	KSU
	Office 1	2/23/10	ND	BH 2010	–	–	–	–	1.9	5694026	KSU
	Office 2	2/23/10	ND	BH 2010	–	–	–	–	1.1	5694025	KSU
	Workroom	2/23/10	ND	BH 2010	–	–	–	–	1.1	5694040	KSU
	Library	2/23/10	ND	BH 2010	–	–	–	–	1.0	5694070	KSU
	South room	2/23/10	ND	BH 2010	–	–	–	–	0.8	5692572	KSU
	Ambient air	2/23/10	ND	BH 2010	ND	ND	136119	TA	–	–	–

[a] Analytical data are in Supplement 7 (on CD).

[b] Analytical reporting limits:

Carbon tetrachloride (on-site laboratory)	1.5 µg/m^3
Carbon tetrachloride (off-site laboratories)	1.3 µg/m^3
Chloroform	0.98 µg/m^3
Radon	0.3 pCi/L

[c] Regulatory levels for indoor air:

Carbon tetrachloride (KDHE)	4.1 µg/m^3
Chloroform (KDHE)	1.058 µg/m^3
Radon (EPA)	4.0 pCi/L

[d] On-site analytical services were provided by Blayne Hartman, H&P Mobile Geochemistry, Carlsbad, California.

[e] Off-site analytical services:
CEL = Calscience Environmenal Laboratories, Inc., Garden Grove, California.
H&P = H&P Mobile Geochemistry, Carlsbad, California.
KSU = Kansas State University, Air Chek, Inc., Naples, North Carolina.
PAS = Pace Analytical Services, Inc., Minneapolis, Minnesota.
TA = TestAmerica Laboratories, Inc., South Burlington, Vermont.
USC = University of Southern California, Department of Earth Sciences, Los Angeles, California.

[f] Residence not sampled in January 2010; resident out of town for the winter.

[g] Residence not sampled in January or June 2010; illness in family.

[h] Laboratory reported interference possibly causing high bias in results.

[i] An 8-hr and a 24-hr canister were collected.

Appendix L:

Survey Data

TABLE L.1 Survey Data for 2009-2010 Investigation at Hanvover.[a]

Location	Northing[b] (ft)	Easting[b] (ft)	Elevation (ft AMSL) Ground	Top of Casing	Survey Date
Soil boring locations					
TI01	570731.030	1629295.652	1326.51	–	4/13/09
TI02	570783.612	1629271.451	1326.32	–	4/13/09
TI03	570848.525	1629269.432	1326.27	–	4/13/09
TI04	570930.440	1629279.875	1326.65	–	4/13/09
TI05	570969.247	1629407.533	1332.44	–	4/13/09
TI06	570901.431	1629196.717	1327.20	–	4/13/09
TI07	570967.071	1629284.612	1327.36	–	4/13/09
TI08	570663.154	1629251.387	1328.00	–	4/13/09
TI09	570856.968	1629091.439	1322.27	–	4/13/09
TI10	571029.362	1629070.515	1319.54	–	4/13/09
TI11	571089.102	1629164.971	1322.97	–	4/13/09
TI12	571129.102	1629287.653	1320.64	–	4/13/09
TI13	571090.329	1629377.448	1327.81	–	4/13/09
TI14	570930.278	1629070.655	1321.38	–	4/13/09
TI15	571065.761	1628987.971	1316.15	–	4/13/09
TI16	571088.057	1629063.022	1318.24	–	4/13/09
TI17	570761.794	1629001.633	1317.35	–	4/13/09
TI18	570763.334	1629090.725	1321.97	–	4/13/09
TI19	570706.718	1629161.226	1326.11	–	4/13/09
TI20	570763.753	1629371.477	1327.18	–	4/13/09
TI21	570740.888	1629484.001	1330.09	–	4/13/09
TI22	570799.415	1629577.722	1331.20	–	4/13/09
TI23	570859.191	1629477.382	1331.59	–	4/13/09
TI24	570976.118	1629580.082	1332.01	–	4/13/09
TI25	571103.400	1629465.017	1326.96	–	4/13/09
TI26	570724.541	1629005.482	1317.93	–	4/14/09
TI27	571301.145	1629196.204	1308.29	–	4/13/09
TI28	571297.589	1629090.266	1306.83	–	4/13/09
TI29	571302.176	1629368.571	1313.51	–	4/13/09
TI30	571153.497	1629394.361	1323.03	–	4/13/09
Private wells					
A. Bruna	569699.623	1629246.385	1305.31	–	4/13/09
B. Bruna	570914.599	1627995.872	1265.93	–	4/13/09
D. Bruna Home	567229.200	1626599.040	–	–	7/23/09[c]
D. Bruna IRR	566882.510	1626812.800	–	–	7/23/09[c]
Ted Bruna	568795.384	1629018.206	1284.08	–	4/13/09
Tony Bruna	568680.799	1628897.016	1274.64	–	4/13/09
Farmers Co-op	571215.996	1625574.644	1224.08	–	4/13/09
K. Jueneman	570789.130	1627387.170	–	–	7/23/09[c]
T. Koss	570870.800	1625136.706	1210.26	–	4/13/09
Jim Kruse	567273.586	1627797.712	1218.00	–	4/13/09
Don Martin	571011.178	1627811.806	1253.52	–	4/13/09
J. Meier	567995.430	1627693.310	–	–	7/23/09[c]
Dennis Minge	570945.248	1626745.289	1235.73	–	4/13/09
K. Prell	568847.391	1626275.605	1213.42	–	4/13/09
R. Schlabach (E)	571824.562	1628834.410	1287.70	–	4/13/09
R. Schlabach (W)	571183.611	1627964.959	1256.39	–	4/13/09

TABLE L.1 (Cont.)

Location	Northing[b] (ft)	Easting[b] (ft)	Elevation (ft AMSL) Ground	Top of Casing	Survey Date
Private wells (cont.)					
J. Schmidt	570569.365	1625120.091	1211.29	–	4/13/09
R. Warren	569032.309	1630764.865	1273.36	–	4/13/09
USD223	570946.042	1630296.393	1311.64	–	4/13/09
Monitoring wells installed for the KDHE Bill's Service Station investigation					
BSMW09	569936.192	1630680.717	1285.36	–	4/13/09
BSMW10	569922.213	1630097.689	1290.93	–	4/13/09
BSMW12	570143.900	1630550.184	1292.42	–	4/13/09
BSMW13	570091.650	1630435.583	1293.99	1293.51	4/13/09
BSMW14	570138.922	1630413.607	1295.03	1294.59	4/13/09
BSMW15	569955.168	1630412.059	1285.13	1284.77	4/13/09
Monitoring wells installed for the CCC/USDA investigation					
MW01	570731.259	1629297.222	1326.46	1326.00	4/13/09
MW02	570969.460	1629405.610	1332.42	1332.01	4/13/09
MW03 (plugged)	571087.711	1629063.772	1318.16	–	1/0/00
MW04	570722.056	1629600.393	1328.14	1327.68	4/13/09
MW05	570965.198	1629298.812	1328.77	1328.22	4/13/09
MW06	570724.541	1629005.482	1317.93	1317.54	4/13/09
MW07	570591.981	1629244.504	1326.14	1325.92	4/13/09
MW08	570921.557	1629659.029	1331.41	1330.99	4/13/09
MW09	571153.872	1629401.833	1323.08	1322.83	4/13/09
MW10	570599.685	1629409.099	1325.34	1325.04	4/13/09
MW11	571178.752	1629278.228	1317.40	1317.16	4/13/09
MW12	570913.936	1629086.559	1321.91	1321.68	4/13/09
MW13	571216.367	1629194.994	1311.70	1311.48	4/13/09
MW14	571236.007	1629025.024	1308.98	1308.64	4/13/09
MW15	571169.101	1628750.671	1306.59	1306.18	4/13/09
MW16	571262.276	1628851.022	1307.41	1306.92	4/13/09
MW17	570752.611	1628824.264	1305.41	1304.99	4/13/09
MW18	570406.509	1629547.260	1315.11	1314.46	4/13/09
MW19	570404.370	1629378.322	1318.16	1317.53	4/13/09
MW20	570400.651	1629220.144	1319.96	1319.60	4/13/09
MW21	570610.303	1628928.220	1316.46	1315.93	4/13/09
MW22	570601.476	1629818.816	1319.92	1319.57	4/13/09
MW23	571207.281	1629791.693	1324.84	1324.39	4/13/09
MW24	571310.052	1628893.804	1305.65	1305.24	4/13/09
MW25	571309.828	1628682.307	1303.94	1303.57	4/13/09
MW26	571395.017	1628734.148	1303.79	1303.45	4/13/09
MW27	570784.005	1629799.648	1327.11	1326.80	4/13/09
MW28	570495.180	1628992.020	1323.39	1322.98	4/13/09
MW29	570402.255	1629067.616	1324.02	1323.47	4/13/09
MW30	570213.524	1629665.921	1308.40	1307.94	4/13/09
MW31	570213.560	1629516.212	1310.10	1309.51	4/13/09
MW32	571037.379	1628938.046	1312.30	1311.81	4/13/09
MW33	570871.210	1628936.895	1312.69	1312.17	4/13/09
MW34	571170.041	1629537.642	1323.35	1323.03	4/13/09
MW35	570428.056	1629814.108	1313.08	1312.71	4/13/09
MW36	570203.114	1629246.993	1313.43	1313.14	4/13/09

TABLE L.1 (Cont.)

Location	Northing[b] (ft)	Easting[b] (ft)	Elevation (ft AMSL) Ground	Top of Casing	Survey Date
Monitoring wells installed for the CCC/USDA investigation (cont.)					
MW37	570199.891	1629063.814	1317.14	1316.84	4/13/09
MW38	570394.379	1628773.016	1322.23	1322.02	4/13/09
MW39	570535.995	1628759.124	1315.02	1314.27	4/13/09
MW40	570354.459	1628928.484	1324.55	1324.03	4/13/09
MW41	570751.431	1628706.964	1300.45	1299.73	4/13/09
MW42	570188.980	1628346.231	1306.08	1305.51	4/13/09
MW43	569936.692	1628522.879	1313.28	1312.76	4/13/09
MW44Z2	570979.574	1628342.217	1280.63	1280.13	4/13/09
MW44Z3	570972.766	1628345.153	1280.91	1280.53	4/13/09
MW44Z4	570972.536	1628344.962	1280.92	1280.54	4/13/09
MW45Z2	570924.932	1628088.884	1271.36	1270.79	4/13/09
MW45Z3	570918.377	1628091.354	1271.74	1271.27	4/13/09
MW45Z4	570918.394	1628091.036	1271.74	1271.21	4/13/09
MW46	569944.766	1629612.979	1300.63	1300.08	4/13/09
MW47	570045.208	1629825.045	1300.02	1299.50	4/13/09
MW48Z2	569951.809	1629030.701	1306.36	1306.04	10/29/09
MW48Z3	569952.879	1629023.034	1306.69	1306.22	10/29/09
MW48Z4	569952.861	1629023.437	1306.71	1306.20	10/29/09
MW49Z2	571151.266	1629346.909	1321.50	1321.35	10/29/09
MW49Z3	571150.901	1629342.187	1321.44	1321.17	10/29/09
MW49Z4	571150.789	1629342.451	1321.48	1321.18	10/29/09
MW50Z2	570606.111	1628491.331	1307.12	1306.10	10/29/09
MW50Z3	570600.222	1628490.728	1307.18	1306.39	10/29/09
MW50Z4	570600.048	1628491.064	1307.21	1306.52	10/29/09
MW51Z2	570725.092	1629022.700	1318.55	1318.13	10/29/09
MW51Z3	570724.941	1629016.586	1318.37	1318.06	10/29/09
MW51Z4	570724.740	1629016.728	1318.42	1318.05	10/29/09
Survey control locations					
BM CALIBRATE D 113	570325.970	1626778.423	1231.57	–	4/13/09
BM FD D 113	570325.970	1626778.423	1231.57	–	4/13/09
check #3 2-10-09	571327.421	1629852.011	1326.33	–	4/13/09
CONTROL	570810.797	1629878.251	1325.00	–	4/13/09
CONTROL	571327.411	1629851.964	1326.30	–	4/13/09

[a] Surveyed by Schwab-Eaton Consulting Engineers, Manhattan, Kansas, except as indicated.

[b] Coordinates in State Plane (ft) Kansas northern zone. Horizontal datum = NAD83; vertical datum = NAVD88.

[c] Global positioning system survey.

Supplement 1:

Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas

Argonne NATIONAL LABORATORY

ANL/EVS/AGEM/TR-08-10

Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas

Environmental Science Division

USDA United States Department of Agriculture

Work sponsored by Commodity Credit Corporation,
United States Department of Agriculture

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ANL/EVS/AGEM/TR-08-10

Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas

by
Applied Geosciences and Environmental Management Section
Environmental Science Division, Argonne National Laboratory

November 2008

United States Department of Agriculture

Work sponsored by Commodity Credit Corporation,
United States Department of Agriculture

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Notation

AGEM	Applied Geosciences and Environmental Management
AMSL	above mean sea level
AST	aboveground storage tank
BGL	below ground level
°C	degree(s) Celsius
CCC	Commodity Credit Corporation
CPT	cone penetrometer
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
FSA	Farm Service Agency
ft	foot (feet)
gal	gallon(s)
h	hour(s)
IDW	investigation-derived waste
in.	inch(es)
KDHE	Kansas Department of Health and Environment
µg/kg	microgram(s) per kilogram
µg/L	microgram(s) per liter
MCL	maximum contaminant level
mi	mile(s)
NAIP	National Agricultural Imagery Program
pg/g	picogram(s) per gram
PVC	polyvinyl chloride
PWS	public water supply
RWD	Rural Water District
SRE	site reconnaissance and evaluation
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
VOC	volatile organic compound

Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas

1 Introduction

The Commodity Credit Corporation (CCC), an agency of the U.S. Department of Agriculture (USDA), operated a grain storage facility at the northeastern edge of the city of Hanover, Kansas, from 1950 until the early 1970s. During this time, commercial grain fumigants containing carbon tetrachloride were in common use by the grain storage industry to preserve grain in their facilities. In February 1998, trace to low levels of carbon tetrachloride (below the maximum contaminant level [MCL] of 5.0 μg/L) were detected in two private wells near the former grain storage facility at Hanover, as part of a statewide USDA private well sampling program that was implemented by the Kansas Department of Health and Environment (KDHE) near former CCC/USDA facilities.

In April 2007, the CCC/USDA collected near-surface soil samples at 1.8-2 ft BGL (below ground level) at 61 locations across the former CCC/USDA facility. All soil samples were analyzed by the rigorous gas chromatograph-mass spectrometer analytical method (purge-and-trap method). No contamination was found in soil samples above the reporting limit of 10 μg/kg.

In July 2007, the CCC/USDA sampled indoor air at nine residences on or adjacent to its former facility to address the residents' concerns regarding vapor intrusion. Low levels of carbon tetrachloride were detected at four of the nine homes.

Because carbon tetrachloride found in private wells and indoor air at the site might be linked to historical use of fumigants containing carbon tetrachloride at its former grain storage facility, the CCC/USDA is proposing to conduct an investigation to determine the source and extent of the carbon tetrachloride contamination associated with the former facility. This investigation will be conducted in accordance with the intergovernmental agreement between the KDHE and the Farm Service Agency (FSA) of the USDA.

The investigation at Hanover will be performed, on behalf of the CCC/USDA, by the Environmental Science Division of Argonne National Laboratory. Argonne is a nonprofit, multidisciplinary research center operated by UChicago Argonne, LLC, for the U.S. Department

of Energy (DOE). The CCC/USDA has entered into an interagency agreement with DOE, under which Argonne provides technical assistance to the CCC/USDA with environmental site characterization and remediation at its former grain storage facilities.

Seven technical objectives have been proposed for the Hanover investigation. They are as follows:

1. Identify the sources and extent of soil contamination beneath the former CCC/USDA facility.

2. Characterize groundwater contamination beneath the former CCC/USDA facility.

3. Determine groundwater flow patterns.

4. Define the vertical and lateral extent of the groundwater plume outside the former CCC/USDA facility.

5. Evaluate the aquifer and monitor the groundwater system.

6. Identify any other potential sources of contamination that are not related to activities of the CCC/USDA.

7. Determine whether there is a vapor intrusion problem at the site attributable to the former CCC/USDA facility.

The technical objectives will be accomplished in a phased approached. Data collected during each phase will be evaluated to determine whether the subsequent phase is necessary. The KDHE project manager and the CCC/USDA will be contacted during each phase and kept apprised of the results. Whether implementation of each phase of work is necessary will be discussed and mutually agreed upon by the CCC/USDA and KDHE project managers.

Proposed phases of work for the investigation at Hanover are as follows:

- **Phase 1.** Identify potential soil sources, and determine the vertical and lateral distribution of potential soil contamination beneath the former CCC/USDA facility.

- **Phase 2.** Determine the potential vertical and lateral extent of groundwater contamination beneath the former CCC/USDA facility, and obtain data to accurately characterize the site lithology, hydrostratigraphy, and groundwater flow.

- **Phase 3.** Delineate the off-site vertical and lateral extents of the groundwater plume emanating from any potential source areas identified on the former CCC/USDA facility, and develop a monitoring system to evaluate groundwater flow patterns. This is a contingency phase to be pursued only if data indicate that contamination associated with the former CCC/USDA facility has migrated off the property.

- **Phase 4.** Install additional monitoring wells to augment data collected during Phases 1-3 and to establish a long-term monitoring network. Conduct hydrogeologic testing to evaluate aquifer properties. This is a contingency phase to be pursued only if data indicate that a source area exists on the former CCC/USDA facility and that additional delineation and monitoring of the contaminant plume is warranted.

- **Phase 5.** Conduct a vapor intrusion investigation. The CCC/USDA is committed to implementing a program to address vapor intrusion if the data collected during Phases 1 and 2 indicate the potential for adverse vapor intrusion impacts to residences — relative to state criteria — due to CCC/USDA activities. A separate supplemental work plan will be developed for this phase of work. That supplemental work plan will follow the KDHE's guidance on vapor intrusion (KDHE 2007a).

This present site-specific *Work Plan* provides details on the specific technical objectives and scope of work proposed for the phased environmental investigation at Hanover. In addition to this document, Argonne has issued a *Master Work Plan* (Argonne 2002) that describes the general scope of all investigations at former CCC/USDA facilities in Kansas and provides

guidance for these investigations. That document has been approved by the KDHE and should be consulted for the complete details of plans for work associated with the former facility at Hanover, Kansas.

2 Background and Previous Studies

2.1 Site Background

2.1.1 Area Description

Hanover, Kansas, is a rural city located in northeastern Washington County, in Section 9, Township 2 South, Range 5 East, approximately 78 mi northwest of Manhattan, Kansas, and 90 mi southwest of Lincoln, Nebraska (Figure 2.1). Hanover is a state historic site known for the Hollenberg Pony Express Station. The city has numerous small businesses, the Farmers Co-op Association, and a hospital. It also has a public school, a library, a weekly newspaper, a recreation facility, and churches.

The 2000 Census recorded 653 people in 329 housing units in the city of Hanover. The residents of the city are served by a public water supply system that obtains water from Washington County Rural Water District (RWD) #1, which has wells outside the investigation area.

2.1.2 Former CCC/USDA Grain Storage Facility

The CCC/USDA operated a grain storage facility from 1950 to the early 1970s on approximately 6.5 acres at the northeast edge of the Hanover (Figure 2.2). The property is now a residential area with nine homes located within or adjacent to the boundary of the former facility.

The historical ownership of the former facility was determined on the basis of property documents acquired from the Washington County Courthouse. Aerial photos showing the layout of the former facility in 1957, 1969, 1978, and 2006 are shown in Figure 2.3. Figure 2.4 shows the property ownership and lease boundaries over time. A summary of historical ownership and property records is in Table 2.1. The property documents are reproduced in Appendix A.

The information in Table 2.1 and Figure 2.4 shows the progression of leases and property ownership during CCC/USDA's presence on the property. The CCC/USDA initially leased 4.0 acres from Wilfred and Loretta Poell for a period of 15 years from July 19, 1950, until

July 19, 1965. In 1954 a supplemental lease expanded the CCC/USDA property to 5.4 acres. In 1955, the Poells sold a number of tracts of land, including the property leased to the CCC/USDA, to Charles and Ruth Schwartz. The CCC/USDA lease continued with the property transfer to the Schwartzes.

The 1957 aerial photograph shows an array of 159 grain bins on the site (Figure 2.3). In 1966, the lease of the property (from Schwartz) was extended until 1971, and the size of the property was increased to 6.5 acres. The 1969 aerial photograph shows an array of 223 grain bins and one rectangular building (Figure 2.3). In addition, the community swimming pool had been installed east of the CCC/USDA grain bin facility (Figure 2.4). In 1971, the lease between Schwartz and the CCC/USDA was extended for a period of 5 years, from July 31, 1971, to July 31, 1976. No lease termination agreement was on file.

In October 16, 1971, the Schwartzes sold the property including the area of the former CCC/USDA facility to Roger Warren, who intended to develop the land for residential use. In 1973, all grain bins were sold at auction and removed from the former CCC/USDA facility. The plan was to subdivide the property into 16 lots and develop it as the Warren Addition to the city. The Warren plot plan was approved in July of 1974. The first residents (Leonard and Eleanora Meier) bought lots 11 and 12 in 1975.

The 1978 aerial photograph (Figure 2.3) shows that all grain bins had been removed and four homes built within the footprint of the grain bin array (Meier, S. Jueneman, L. Jueneman, Poell). A fifth home was on the southern boundary of the former CCC/USDA property (Goeckel). The 2006 aerial photograph indicates that the former facility is currently occupied by eight residential properties (Meier, S. Jueneman, L. Jueneman, Bruna, K. Hynek, Poell, J. Hynek, and Hagedorn.). In addition, the Goeckel property is adjacent to the southern edge of the former CCC/USDA facility.

2.1.3 Private Grain Storage Facility

A major private grain storage facility, operated by the Farmers Cooperative Association (the Co-op), is located approximately 2,000 ft west of the former CCC/USDA property (Figures 2.2 and 2.5). This facility has several grain elevators and storage buildings. The 1957 and 1969 aerial photographs indicate that the first two elevators were built on the west side of the

railroad track between 1957 and 1969. Subsequent grain operations at that location might also provide a potential source for groundwater contamination detected in some private wells.

2.2 Previous Investigations

The limited investigations of the carbon tetrachloride contamination at Hanover conducted to date include the following KDHE studies:

- Private well sampling in early 1998
- Pre-CERCLIS site reconnaissance and evaluation (SRE) in July 1998
- Private well sampling in April 2006

These prior investigations, as well as actions by the CCC/USDA to address residents' health concerns and other investigations for groundwater contamination surrounding the former facility, are discussed below.

2.2.1 Private Well Sampling in February and April 1998

Carbon tetrachloride contamination was initially detected at levels below the MCL in 1998, during the statewide USDA private well sampling program (KDHE 1998). Three private wells were sampled by the KDHE in February 1998 (Table 2.2 and Figure 2.5). Carbon tetrachloride and chloroform were detected in the Alan Bruna well (405 E. North Street), approximately 1,000 ft south of the former CCC/USDA facility, at 1.3 µg/L and 3.0 µg/L, respectively. A low level of carbon tetrachloride, 1.0 µg/L, was also detected in the Ebeling well (2285 Shady Boulevard) located north-northeast of the former facility. No carbon tetrachloride was detected at a detection limit of 0.5 µg/L in an abandoned school well (USD 223) approximately 1,100 ft east-southeast of the former facility.

The Bruna and Ebeling wells were resampled in April 1998 (KDHE 1998). Carbon tetrachloride and chloroform were detected again in the Bruna well at 1.0 µg/L and 1.8 µg/L,

respectively. Only a trace amount of carbon tetrachloride (0.5 µg/L) was found in the Ebeling well.

2.2.2 Pre-CERCLIS Site Reconnaissance and Evaluation in July 1998

On July 7, 1998, the KDHE collected soil samples at the Hanover site by using direct-push technology as part of its SRE (KDHE 1998). The objective was to determine whether the former CCC/USDA facility could be a source of the carbon tetrachloride contamination detected in the private wells. Subsurface soil samples were collected at 10.5-11.5 ft BGL at nine locations (SP-1 to SP-9) across the site (Figure 2.6). Shale was encountered at approximately 13 ft BGL in the western portion of the site and 21 ft BGL in the eastern portion of the site. Two additional soil samples were collected at a depth of 19.5 ft BGL on the eastern side (SP-6 and SP-7), where the depth to shale is relatively deep.

All soil samples were analyzed in the field by using a gas chromatograph with an electron capture detector (Table 2.2). Carbon tetrachloride was detected at 3.9 µg/kg at one location (SP-9 at 11.5 ft BGL) at the northwest edge of the former facility. Only trace concentrations (0.1-0.2 µg/kg) of carbon tetrachloride were detected in 5 of the 10 soil samples collected at other locations. Four samples (SP-1, SP-7, SP-8, and SP-9) were submitted for off-site verification analysis. The off-site analyses indicated carbon tetrachloride contamination at 7.1 µg/kg in the soil sample collected at location SP-9 (11.5 ft BGL) (which had been analyzed in the field with a result of 3.9 µg/kg). The other three soil samples showed no carbon tetrachloride or chloroform in the verification analysis, at a method limit of 1.0 µg/kg. All results are summarized in Table 2.2.

As part of the July 1998 SRE (KDHE 1998), the KDHE resampled the Bruna and Ebeling private wells and sampled two additional lawn and garden wells (Meyn and Doebele). The locations are shown in Figure 2.5, and the analytical results are in Table 2.2. Carbon tetrachloride and chloroform were detected in the Bruna well at 1.1 µg/L and 1.9 µg/L, respectively. The groundwater sample from the Ebeling well also showed a trace amount of carbon tetrachloride (0.6 µg/L). In the Meyn lawn and garden well, located approximately 1,000 ft west of the former CCC/USDA grain storage facility, carbon tetrachloride and chloroform were detected at 5.9 µg/L and 0.8 µg/L, respectively. No contamination was detected in the Doebele lawn and garden well to the south-southwest of the former facility.

2.2.3 Private Well Sampling in April 2006

In April 2006, the KDHE resampled two private wells (Bruna and Meyn) where contamination had been detected in the previous sampling events (Table 2.2 and Figure 2.5). Analysis was performed by an off-site laboratory. The sample collected from the Meyn well contained carbon tetrachloride at 4.3 µg/L, below the MCL. No carbon tetrachloride was detected in the Bruna well. A low level of chloroform (1.5 µg/L), however, was still present in the Bruna well (KDHE 2007b).

2.2.4 Near-Surface Soil and Indoor Air Sampling in 2007

In 2007, the CCC/USDA conducted near-surface soil sampling across the former facility and indoor air sampling in the nine residences on and adjacent to its former property. The objective was to address residents' concerns regarding the potential for residual carbon tetrachloride to be present in near-surface soils, as well as for vapor intrusion into homes at the former CCC/USDA grain storage facility. The results for soil samples and indoor air samples are summarized in Tables 2.3 and 2.4, respectively.

Near-surface soil samples were collected at a depth of 1.8-2 ft BGL by using a hand-driven coring device, at 61 locations across the former CCC/USDA facility (Figure 2.7). The sampling locations were evenly distributed in the accessible areas between houses. A background soil sample was collected at a location along the southern edge of the Cemetery Road, approximately 180 ft north of the former facility (Figure 2.7). All soil samples were collected on April 19, 2007, preserved on dry ice, and shipped to the Applied Geosciences and Environmental Management (AGEM) Laboratory at Argonne for analysis.

The soil samples were analyzed by using the heated-headspace and purge-and-trap methods as described in the *Master Work Plan* (Argonne 2002). Heated-headspace analysis is a highly sensitive screening method; the results can be used as an indicator of possible soil contamination in the deeper vadose zone (Alvarado and Rose 2004). In this application, the headspace data are not used quantitatively but are examined for distribution patterns in order to prioritize areas for additional, follow-up sampling and analysis of deeper subsurface soils. The purge-and-trap method is a quantitative analysis using the more rigorous gas chromatograph-mass spectrometer analytical method with a quantitation limit of 10 µg/kg.

Trace concentrations of carbon tetrachloride and chloroform were detected by the heated-headspace analytical method, and no detectable concentrations were found by the purge-and-trap analysis. Headspace results for carbon tetrachloride and chloroform are shown in Figure 2.7 and Table 2.3. Patterns of higher carbon tetrachloride concentrations in soil are illustrated as shaded areas on Figure 2.7. An area with concentrations exceeding 1.0 µg/kg in the center of the former facility, among four houses, has a southward extension to the southern edge of the former facility. Three additional small areas with carbon tetrachloride above 1.0 µg/kg are in the northern, northwestern, and southwestern parts of the former facility. The four areas, as shown on Figure 2.7, appear to be the most likely locations for possible contamination of underlying subsurface soils.

In analysis by the heated-headspace screening method, only two soil samples showed detectable concentrations of chloroform (0.8-1.0 µg/kg). These samples were collected in the northeastern part of the former facility.

In July 2007, indoor air samples were collected from the basement areas of nine residences on or adjacent to the former CCC/USDA property (Figure 2.8). Samples of background air were also collected outside two of the residences. All air samples were analyzed by Severn-Trent Laboratories with U.S. Environmental Protection Agency (EPA) Method TO-15.

As the analytical results indicate, carbon tetrachloride was detected in the air samples collected in four of the nine residences at concentrations ranging from 1.4 to 4.8 $\mu g/m^3$ (Table 2.4 and Figure 2.8). The carbon tetrachloride concentrations detected in the four residences exceeded the Kansas Tier 2 risk-based regulatory standard of 0.893 $\mu g/m^3$ for carbon tetrachloride in indoor air. This standard was updated by the KDHE in June 2007 (KDHE 2007c).

Chloroform was also detected in five of the nine homes, at concentrations of 1.1-4.4 $\mu g/m^3$. These detections showed no apparent correlation with the chloroform concentrations identified in near-surface soil samples. Some of the homes with relatively high chloroform concentrations are near the community swimming pool east of the former CCC/USDA facility. Proximity to the pool could be a contributing factor to the concentrations detected.

2.2.5 Additional Investigations Related to Petroleum Contamination Detected in Hanover

In 1996, approximately 6,000 gal of unleaded gasoline was discovered to have leaked from a bulk aboveground storage tank (AST) at a gas station owned by Bill's Service Center, approximately 500 ft east from the east edge of Hanover (Figure 2.2). The AST is approximately 1,000 ft southeast of the former CCC/USDA facility. The releases resulted in contamination of soil and groundwater by petroleum constituents. None of the petroleum-related contamination is associated with the former CCC/USDA facility.

In 1997 and 1999, GeoCore Services, Inc., conducted two limited environmental site assessments, on behalf of the Bill's Service Center location southeast of the former CCC/USDA facility (GeoCore 1997, 1999). The site assessment work included 15 soil borings, hydrogeologic testing, and the installation of 7 permanent monitoring wells. The GeoCore reports provide detailed results regarding the distribution of petroleum products in soil and groundwater at and around the AST site (GeoCore 1997, 1999). No analytical results for carbon tetrachloride or chloroform were reported.

Groundwater at Bill's Service Center was encountered in the Permian bedrock (gray-green to brown, red-brown shale) at approximately 41-45 ft BGL. The estimated groundwater flow is generally toward the southeast, with an average hydraulic gradient of 0.016-0.026 ft/ft.

An additional release of petroleum occurred at a second Bill's Service Center site within the city (Figure 2.2). This facility is approximately 1,100 ft southwest of the former CCC/USDA facility. Leaking underground storage tanks were removed from this property in 1997. No investigation has been conducted to determine the impact and extent of contamination associated with the petroleum release at this site.

2.3 Geologic and Hydrogeologic Setting

2.3.1 Regional Geology and Hydrogeology

Hanover lies at the western edge of Glaciated Region physiographic province in northeastern Kansas. This region of Kansas experienced several periods of continental glaciation, each of which deposited a ground moraine of unconsolidated drift (till) during the Pleistocene.

Hanover, however, may have experienced limited impact by glaciers because of its location at the boundary of this region. Since withdrawal of the glaciers, this region has undergone erosion, principally by headwater migration and downcutting of streams, as well as deposition of eolian silt and clay on upland areas and alluvium sediments in floodplains along major streams. The portion of Washington County surrounding Hanover is mainly dissected and drained by the Little Blue River and its tributary creeks, such as Cottonwood Creek (Figure 2.9).

The bedrock beneath the Pleistocene eolian and/or alluvium sediments in the eastern portion of the Washington County consists of Wellington Shale of the Sumner Group and underlying interbedded shales and limestones of Chase Group. Both were deposited during the Permian age. The bedrock surface exhibits pre-Pleistocene erosion — especially near the Little Blue Valley — cutting through the entire Cretaceous System, the Permian Wellington shale of the Sumner Group, and the Chase Group. The total relief of the bedrock may exceed 200 ft. The Wellington shale of the Sumner Group has been eroded and is not present in Hanover.

The weathered zone near the top of the bedrock (the shale and limestone unit) forms a regional water-bearing unit that yields small quantities of hard water in upland areas such as Hanover. The thickness of the weathered zone at the top of the Permian shale and limestone unit is currently unknown, on the basis of available data. The degree of weathering of this unit may vary depending on lithology and depth.

2.3.2 Local Geology and Hydrogeology

The former CCC/USDA grain storage facility at Hanover is located in uplands northeast of the Little Blue River and its floodplain and northwest of Cottonwood Creek. The land surface elevation of the former facility is approximately 1,310-1,330 ft above mean sea level (AMSL). A local surface drainage divide extends roughly in a north-to-south direction through the former CCC/USDA facility.

The headwaters of several intermittent creeks dissect the surface to the east, south, and west of the site, creating local relief of 50-70 ft (Figure 2.9). The intermittent creeks drain the area of the former facility to the Cottonwood Creek southeast of the former facility and to the Little Blue River southwest and south of the former facility. Cottonwood Creek flows in a southwesterly direction into the Little Blue River. The Little Blue River flows south to

southeasterly and borders the western edge of Hanover. Coupled with the surface drainage divide, the dissecting creeks potentially create a complex hydrogeologic system that will significantly impact the course of this investigation.

Geologic and hydrogeologic information for the local Hanover area was obtained from KDHE water well registration records and results of previous investigations of groundwater contamination. In an area within 1 mi of the former CCC/USDA facility, 32 water well records were found, including records for 22 private water wells, 1 plugged city public water supply (PWS) well, and 7 monitoring wells (Figure 2.10). All of these water wells penetrate the Permian bedrock to the Chase Group shale and limestone unit, except for the shallow, hand-dug PWS well that has been plugged. The local water well data indicate that the depths of private wells and monitoring wells range from 41 ft to 110 ft BGL. Water is produced mainly from the upper portion of the Chase Group shale and limestone unit in uplands or the alluvial aquifer in the Little Blue River valley.

The water well records used to construct geologic/hydrogeologic cross sections for this document are in Appendix B. These records are summarized in Table B.1, Appendix B. The locations of the geologic/hydrogeologic cross sections are shown in Figure 2.10, and the interpretative cross sections are in Figures 2.11 and 2.12. Cross section A-A´ runs approximately 1,000 ft south of the former CCC/USDA facility and extends west-east from the Little Blue River valley to the uplands across the surface drainage divide (Figure 2.11). Cross section B-B´ also starts from the Little Blue River valley; it initially extends northeastward and then northward to the uplands along the surface drainage divide at the former CCC/USDA facility (Figure 2.12).

The interpretations presented in cross section A-A´ (Figure 2.11) indicate that the Permian bedrock high is generally consistent with the surface drainage divide, where the former CCC/USDA facility is located. A thin eolian unit of silty clay (3-17 ft) unconformably overlies the Chase Group shale and limestone unit along the bedrock high. The thickness of the silty clay unit increases at the slope of the hill (45 ft at the D. Minge well) and becomes relatively thinner again at the Schmidt well and the former city PWS well (20-26 ft) in the valley of the Little Blue River.

Underlying the silty clay unit are alluvium deposits developed on the bedrock in the Little Blue River valley, with a thickness of more than 20 ft. The results of previous KDHE (1998)

investigations indicate an anticipated depth of 10-25 ft BGL for the shale and limestone unit at the former CCC/USDA facility.

The bedrock aquifer appears to host the potentially contaminated groundwater at and near the locations of the private wells and beneath the former CCC/USDA facility. Water levels measured from 1997 to 2007 by GeoCore (1997, 2007) in monitoring wells MW9 and MW10 were approximately 42-45 ft BGL. These values are more reliable than the water levels reported for private wells. The difference in surface elevations between the monitoring wells and the former CCC/USDA facility and the hydraulic gradient of 0.016-0.026 ft/ft indicate that the water level at the former facility can be anticipated at approximately 40-55 ft BGL.

The interpretations presented in cross section B-B´ (Figure 2.12) indicate similar local geologic and hydrogeologic settings. In the uplands, the depth to the Chase Group shale and limestone unit is 1-8 ft BGL, and water levels occur at 40-60 ft BGL. The unsaturated zone extends from the silty clay to the top of the saturated bedrock unit.

In general, groundwater flow patterns on both cross sections mimic the surface topography. The former CCC/USDA facility is located on the bedrock high. Groundwater west of the bedrock high likely flows west to southwest, seeping to the Little Blue River; groundwater east of the bedrock high probably flows southeast, discharging to the Cottonwood Creek. At the Bill's Service Center AST site southeast of the former CCC/USDA facility (Figure 2.2), the groundwater flow direction has historically been to the southeast (GeoCore 1997, 1999). This finding confirms the local southeasterly groundwater flow pattern east of the bedrock high.

The interpretations for the two cross sections (Figures 2.11 and 2.12) indicate that the nature of the aquifer in the area varies significantly. The bedrock aquifer is believed to be unconfined in the uplands, semi-confined to confined along the hill slopes, and unconfined in the alluvial aquifer in the Little Blue River valley.

The permeability of the bedrock aquifer is reported to be low. The hydraulic conductivity of the upper water-bearing zone in the shale was estimated, on the basis of slug test results, at approximately 0.2 ft/day (GeoCore 1997).

2.4 Summary

The findings of a comprehensive review of data from previous investigations and regional and local data relevant to geology and hydrogeology of the Hanover site are summarized as follows:

- The CCC/USDA operated a grain storage facility from 1950 to the early 1970s on approximately 6.5 acres in the northeast part of the city. The facility reached a maximum operational scale in the late 1960s with 223 grain bins and 1 storage building. Nine residences are located on or adjacent to the former CCC/USDA property.

- In 1998, five private wells were sampled as part of the USDA private well sampling program and the subsequent KDHE SRE investigation. Carbon tetrachloride was found in groundwater at a concentration (5.9 µg/L) exceeding the MCL at one private well (Meyn). This result was confirmed in 2006 at a lower level (4.3 µg/L). The well is used for lawn and garden purposes and is approximately 1,000 ft west of the former CCC/USDA facility. Trace (~ 1 µg/L) to no contamination was detected in groundwater samples collected from five private wells surrounding the former CCC/USDA facility.

- In July 1998, the KDHE collected 11 soil samples above the bedrock (9 samples at 10.5-11.5 ft BGL and 2 samples at 19.5 ft BGL) in a pre-CERCLIS SRE investigation. All soil samples showed trace or no carbon tetrachloride contamination, except for one collected at the west edge of the former CCC/USDA facility. A low level of carbon tetrachloride (7.1 µg/kg) was detected at 11.5 ft BGL at this location (SP-9).

- In April 2007, Argonne collected near-surface soil samples at 1.8-2 ft BGL at 61 locations across the former CCC/USDA facility. Analysis of soil samples using the heated-headspace method as a screening tool indicated four areas with slightly higher carbon tetrachloride concentrations, which warrant further investigation of underlying subsurface soils. No contamination was found in

analysis of the samples by the rigorous gas chromatograph-mass spectrometer analytical method (purge-and-trap method).

- In July 2007, indoor air samples were collected from the basement areas of nine residences on or adjacent to the former CCC/USDA property. Carbon tetrachloride was detected in the air samples from four residences at concentrations ranging from 1.4 to 4.8 µg/kg.

- The regional geologic sequence consists of (1) a few feet of topsoil overlying an eolian silty clay unit in upland areas and alluvial sand deposits in the Little Blue River valley at various thicknesses and (2) an underlying weathered bedrock unit of Permian shale and limestone. Groundwater is produced mainly from the upper portion of the shale and limestone unit in uplands or the alluvial aquifer in Little Blue River valley.

- The former CCC/USDA facility is located on uplands at a local surface drainage divide that is consistent with the bedrock high. The expected geologic sequence consists of a thin (10-25 ft) layer of silty clay that unconformably overlies the weathered shale and limestone unit of the Permian Chase Group, which hosts potentially contaminated groundwater.

- Groundwater is estimated at 40-55 ft BGL within the bedrock; the groundwater might exhibit patterns of radial flow that mimic the local topographic relief. From the bedrock high at the former CCC/USDA facility, groundwater flow *east* of the facility is likely from east to southeast, while *west* of the facility flow is likely from west to southwest. Along the bedrock high (or the drainage divide), the flow may be toward the south.

TABLE 2.1 Documented transactions and activities for the former CCC/USDA property at Hanover.[a]

Document Date	Lease Length	Grantor	Grantee	Description	Total Acreage Leased by CCC
7/19/50	7/19/50-7/19/65	Wilfred and Loretta Poell	CCC	Original lease.	4.0
7/31/54	7/31/54-7/31/59	Wilfred and Loretta Poell	CCC	Supplemental lease; includes property to the east of the original lease.	1.4
3/24/55	Unknown	Wilfred and Loretta Poell	Charles and Ruth Schwartz	Warranty deed for 28.8 acres, including the CCC-leased property.	5.4
3/23/59	7/31/59-7/19/65	Charles and Ruth Schwartz	CCC	Lease extension for 6 years, so that the expiration dates of both parcels will coincide.	5.4
6/15/66	7/31/66-7/31/71	Charles and Ruth Schwartz	CCC	Lease extension for 5 years; expanded the total leased acreage to the east.	6.5
2/17/71	7/31/71-7/31/76	Charles and Ruth Schwartz	CCC	Lease extension for 5 years.	6.5
10/16/71	Unknown	Charles and Ruth Schwartz	Roger D. Warren	Warranty deed for ~8 acres, including the former CCC-leased property.[b]	Unknown
1973	Unknown	Unknown	Unknown	All grain bins on the former CCC facility were sold at auction and removed from the property. No entity other than CCC used the bins prior to their removal.[c]	Unknown
7/17/74	Unknown	Unknown	Unknown	Approval of plot plan of Warren Addition (subdivided into 16 Lots), including the former CCC-leased property.	Unknown
5/1/75	Unknown	Roger and Linda Warren	Leonard and Eleanora Meier	Warranty deed for Lots 11 and 12 of the Warren Addition (the first transaction for plots in the Warren Addition).	Unknown

[a] The progression of transactions and activities is illustrated in Figure 2.4. The documents are reproduced in Appendix A.
[b] Neither a lease document with Warren nor a lease termination document is on file at the Washington County courthouse.
[c] Schlabach (2008).

TABLE 2.2 Prior analytical results for soil and groundwater samples collected at Hanover.

	Sample			Field Analysis (ppb)[a]	Laboratory Analysis (ppb)[a]		
Location	Date	Medium	Depth (ft BGL)	Carbon Tetrachloride	Carbon Tetrachloride	Chloroform	Nitrate
Private well sampling in February 1998 (μg/L)							
Bruna	2/17/98	Water	–	–	1.3	3	–
Ebeling	2/17/98	Water	–	–	1.0	0.5 U[b]	–
USD 223[c]	2/17/98	Water	–	–	0.5 U	0.5 U	–
Private well sampling in April 1998 (μg/L)							
Bruna	4/6/98	Water	–	–	1.0	1.8	–
Ebeling	4/6/98	Water	–	–	0.5	0.5 U	–
Soil sampling in July 1998 (μg/kg)							
SP-1	7/7/98	Soil	11.5	0.2	1 U	1 U	–
SP-2	7/7/98	Soil	11.5	0.1 U	–	–	–
SP-3	7/7/98	Soil	11.5	0.1 U	–	–	–
SP-4	7/7/98	Soil	10.5	0.1 U	–	–	–
SP-4	7/7/98	Soil	11.5	0.1 U	–	–	–
SP-5	7/7/98	Soil	10.5	0.1	–	–	–
SP-5	7/7/98	Soil	11.5	0.1 U	–	–	–
SP-6	7/7/98	Soil	11.5	0.1 U	–	–	–
SP-6	7/7/98	Soil	19.5	0.1	–	–	–
SP-7	7/7/98	Soil	11.5	0.2	–	–	–
SP-7	7/7/98	Soil	19.5	0.2	1 U	1 U	–
SP-8	7/7/98	Soil	11.5	0.1 U	1 U	1 U	–
SP-9	7/7/98	Soil	11.5	3.9	7.1	1 U	–
Groundwater sampling in July 1998 (μg/L)							
Doebele	7/7/98	Water	–	–	0.5 U	0.5 U	–
Ebeling	7/7/98	Water	–	–	0.6	0.5 U	–
Bruna	7/7/98	Water	–	–	1.1	1.9	–
Meyn	7/7/98	Water	–	–	5.9	0.8	–
Private well sampling in April 2006 (μg/L)							
Bruna	4/26/06	Water	–	–	1 U	1.5	2700
Meyn	4/26/06	Water	–	–	4.3	1 U	2400

a Parts per billion are equivalent to μg/L in water or μg/kg in soil.

b Qualifier U indicates that the constituent was not detected at the indicated detection limit.

c Incorrectly identified as USD 233 in the SRE report (KDHE 1998).

Sources of data: KDHE (1998, 2007b).

TABLE 2.3 Analytical results for carbon tetrachloride in near-surface soil samples collected on and near the former CCC/USDA property at Hanover on April 19, 2007.

		Carbon Tetrachloride (µg/kg)				Carbon Tetrachloride (µg/kg)	
Location	Sample	Headspace Screening[a]	Purge-and-Trap GC-MS[b]	Location	Sample	Headspace Screening[a]	Purge-and-Trap GC-MS[b]
NS01	HANS01-S-23560	ND[c]	ND	NS28	HANS28-S-23590	0.7	ND
NS02	HANS02-S-23561	0.2	ND	NS29	HANS29-S-23589	1.4	ND
NS03	HANS03-S-23562	2.5	ND	NS30	HANS30-S-23587	0.5	ND
NS04	HANS04-S-23565	0.2	ND	NS31	HANS31-S-23586	0.3	ND
NS05	HANS05-S-23566	0.1	ND	NS32	HANS32-S-23571	0.9	ND
NS06	HANS06-S-23568	0.4	ND	NS33	HANS33-S-23572	ND	ND
NS07	HANS07-S-23607	1.1	ND	NS34	HANS34-S-23573	ND	ND
NS08	HANS08-S-23609	0.6	ND	NS35	HANS35-S-23574	ND	ND
NS09	HANS09-S-23610	0.8	ND	NS36	HANS36-S-23575	ND	ND
NS10	HANS10-S-23612	0.5	ND	NS37	HANS37-S-23576	ND	ND
NS11	HANS11-S-23613	1.1	ND	NS38	HANS38-S-23579	ND	ND
NS12	HANS12-S-23614	0.6	ND	NS39	HANS39-S-23581	0.4	ND
NS13	HANS13-S-23599	1.2	ND	NS40	HANS40-S-23582	ND	ND
NS14	HANS14-S-23600	0.2	ND	NS41	HANS41-S-23584	0.2	ND
NS15	HANS15-S-23601	0.5	ND	NS42	HANS42-S-23585	1.3	ND
NS16	HANS16-S-23603	1.0	ND	NS43	HANS43-S-23583	0.1	ND
NS17	HANS17-S-23604	0.3	ND	NS44	HANS44-S-23567	ND	ND
NS18	HANS18-S-23569	ND	ND	NS45	HANS45-S-23619	0.5	ND
NS19	HANS19-S-23597	0.4	ND	NS46	HANS46-S-23618	0.2	ND
NS20	HANS20-S-23598	0.1	ND	NS47	HANS47-S-23617	ND	ND
NS21	HANS21-S-23596	ND	ND	NS48	HANS48-S-23616	ND	ND
NS22	HANS22-S-23595	1.0	ND	NS49	HANS49-S-23620	ND	ND
NS23	HANS23-S-23594	0.2	ND	NS50	HANS50-S-23615	0.9	ND
NS24	HANS24-S-23593	2.4	ND	NS51	HANS51-S-23578	ND	ND
NS25	HANS25-S-23591	1.7	ND	NS52	HANS52-S-23577	0.5	ND
NS26	HANS26-S-23592	3.2	ND	NS53	HANS53-S-23563	0.2	ND
NS27	HANS27-S-23570	1.9	ND	NS54	HANS54-S-23564	0.4	ND

TABLE 2.3 (Cont.)

Location	Sample	Carbon Tetrachloride (µg/kg) Headspace Screening[a]	Carbon Tetrachloride (µg/kg) Purge-and-Trap GC-MS[b]	Location	Sample	Carbon Tetrachloride (µg/kg) Headspace Screening[a]	Carbon Tetrachloride (µg/kg) Purge-and-Trap GC-MS[b]
NS55	HANS55-S-23580	ND	ND	NS59	HANS59-S-23625	1.2	ND
NS56	HANS56-S-23588	1.0	ND	NS60	HANS60-S-23626	ND	ND
NS57	HANS57-S-23623	0.3	ND	NS61	HANS61-S-23627	ND	ND
NS58	HANS58-S-23624	4.0	ND	BG	Background sample	ND	ND

[a] Analysis by EPA Method 5021.

[b] Analysis by EPA Method 8260B (gas chromatograph-mass spectrometer).

[c] ND, not detected at a reporting limit of 0.1 µg/kg for headspace analysis or 10 µg/kg for purge-and-trap analysis.

TABLE 2.4 Carbon tetrachloride concentrations measured in indoor air at residences in Hanover, Kansas, July 2007.

Residence	Carbon Tetrachloride in Indoor Air (µg/m^3)
M. Goeckel	4.8
E. Meier	3.7
L. Jueneman	1.4
S. Jueneman	1.4
Bruna	ND[a]
Hagedorn	ND
J. Hynek	ND
K. Hynek	ND
Poell	ND

[a] ND, carbon tetrachloride was not detected at a reporting limit of 1.3 µg/m^3 by EPA Method TO-15.

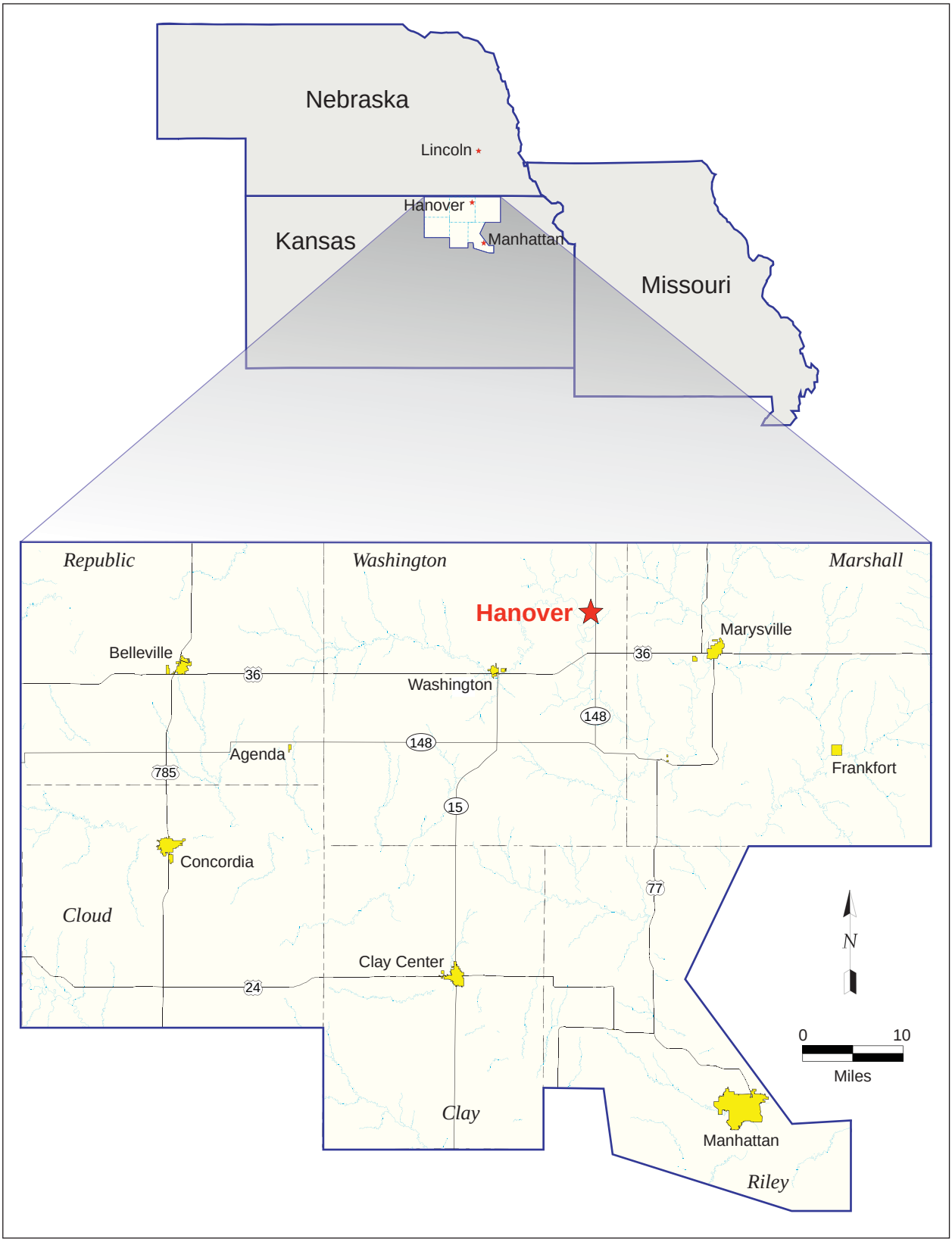


FIGURE 2.1 Location of Hanover, Kansas.

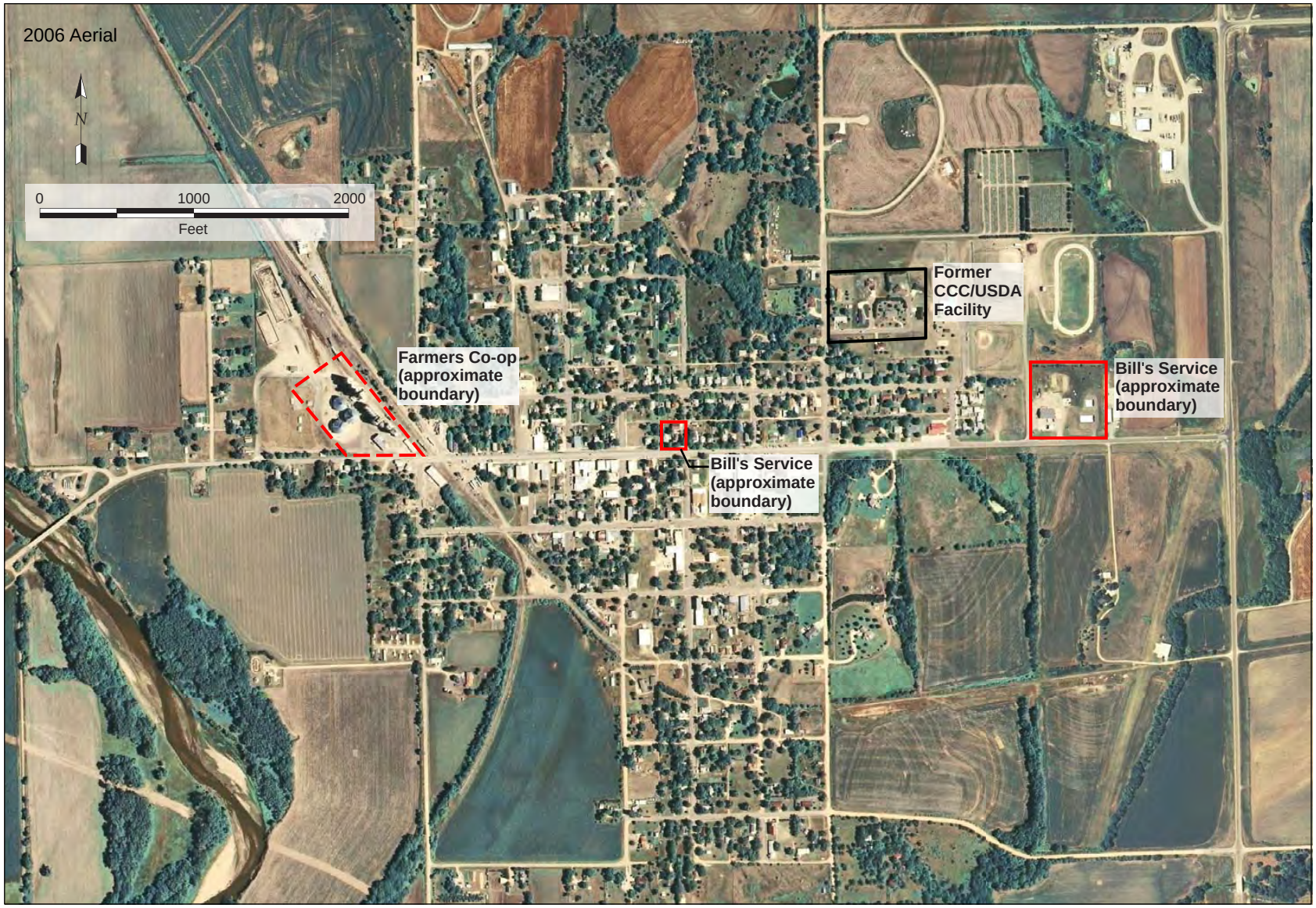


FIGURE 2.2 Location of the former CCC/USDA facility, Farmers Co-op Association, and petroleum-contaminated sites in Hanover, Kansas. Source of photograph: NAIP (2006).

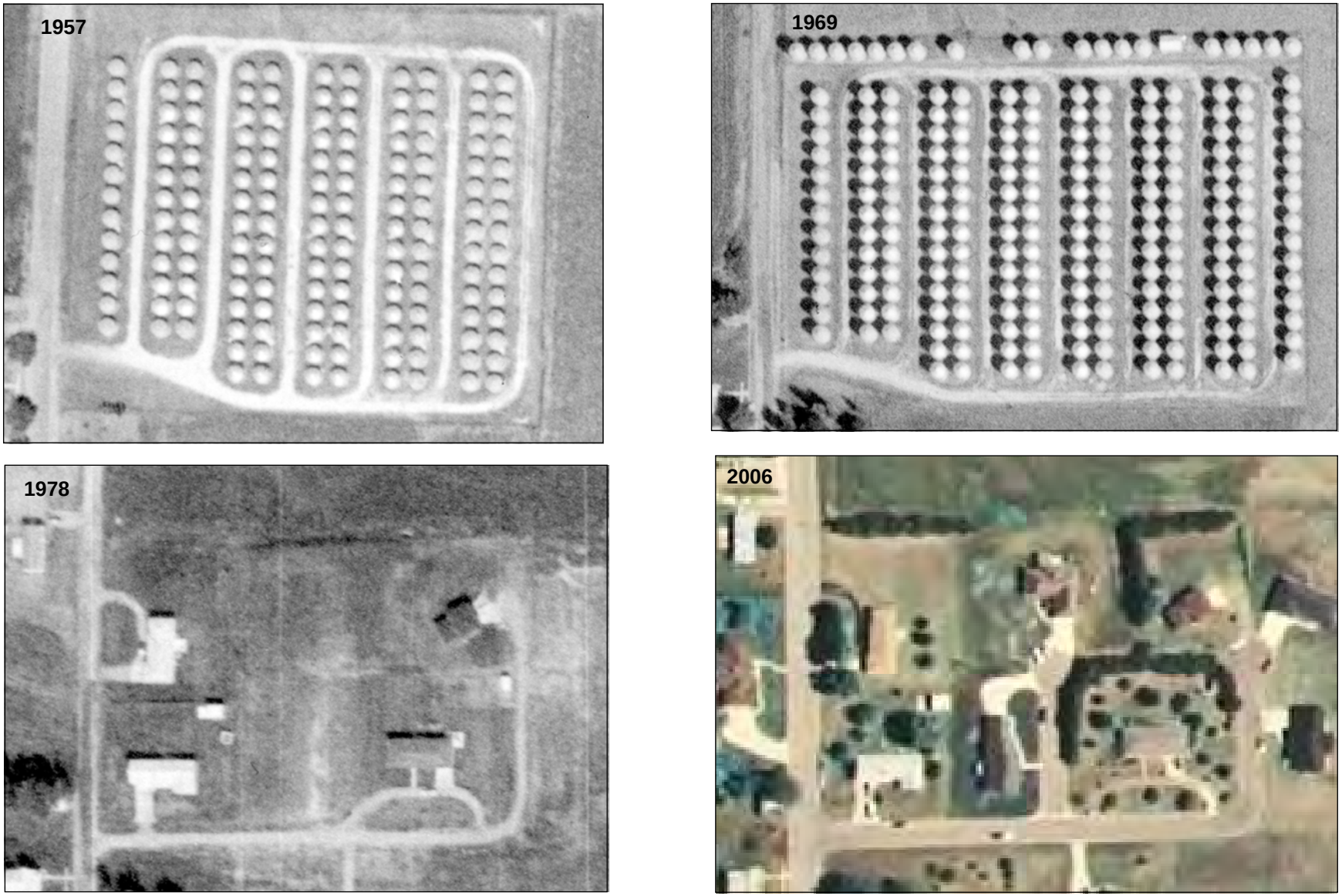


FIGURE 2.3 Historical aerial photographs of the former CCC/USDA grain storage facility at Hanover taken in 1957, 1969, 1978, and 2006. Sources of photographs: USDA (1957, 1969, 1978); NAIP (2006).

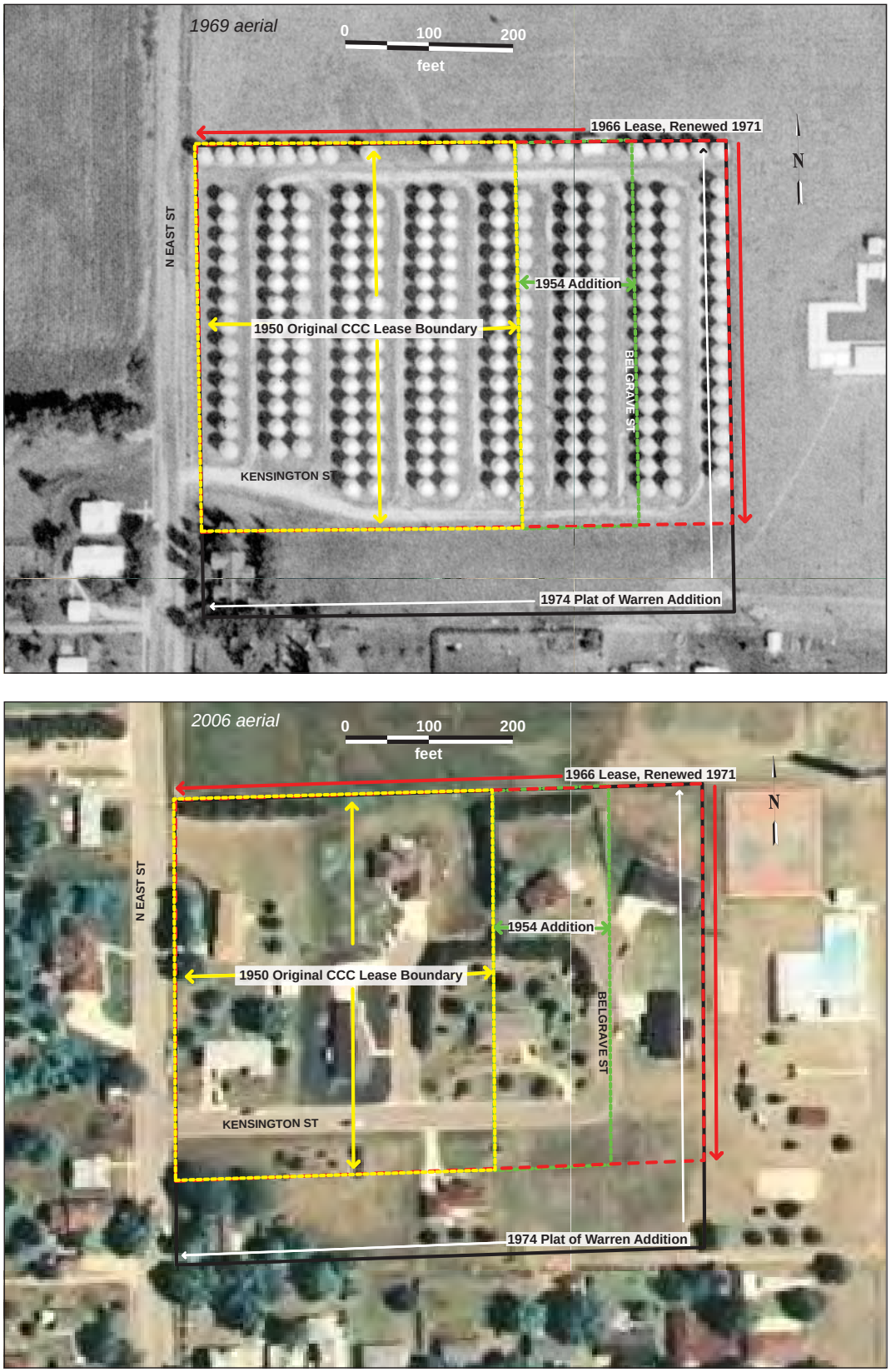


FIGURE 2.4 Progression of the CCC/USDA leases at Hanover in 1950-1971, overlain on 1969 and 2006 aerial photographs. Sources of photographs: USDA (1969); NAIP (2006).

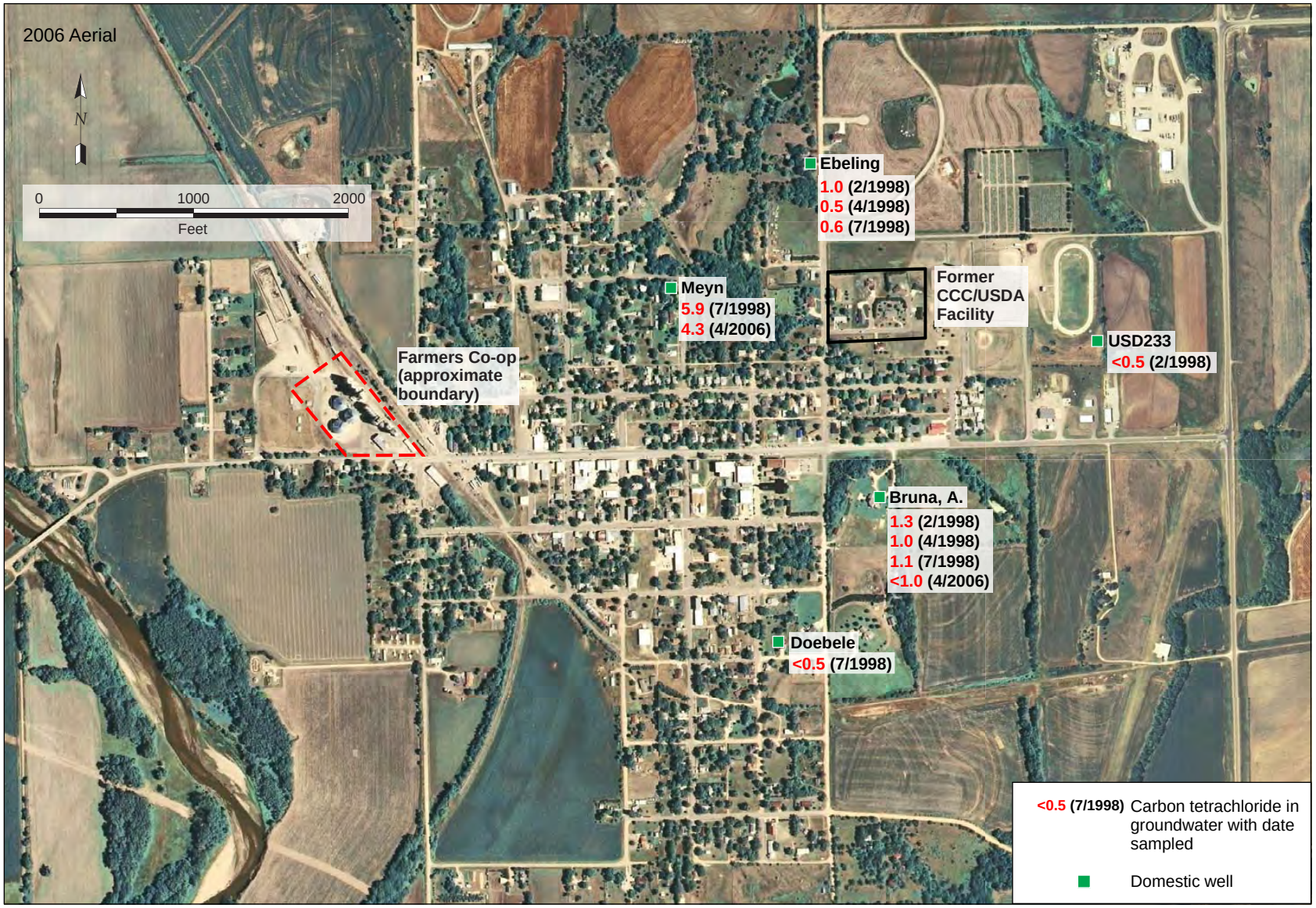


FIGURE 2.5 Historical results of analyses for carbon tetrachloride in groundwater samples collected by the KDHE from private wells in and near Hanover in February, April, and July 1998 and in April 2006. Source of photograph: NAIP (2006).

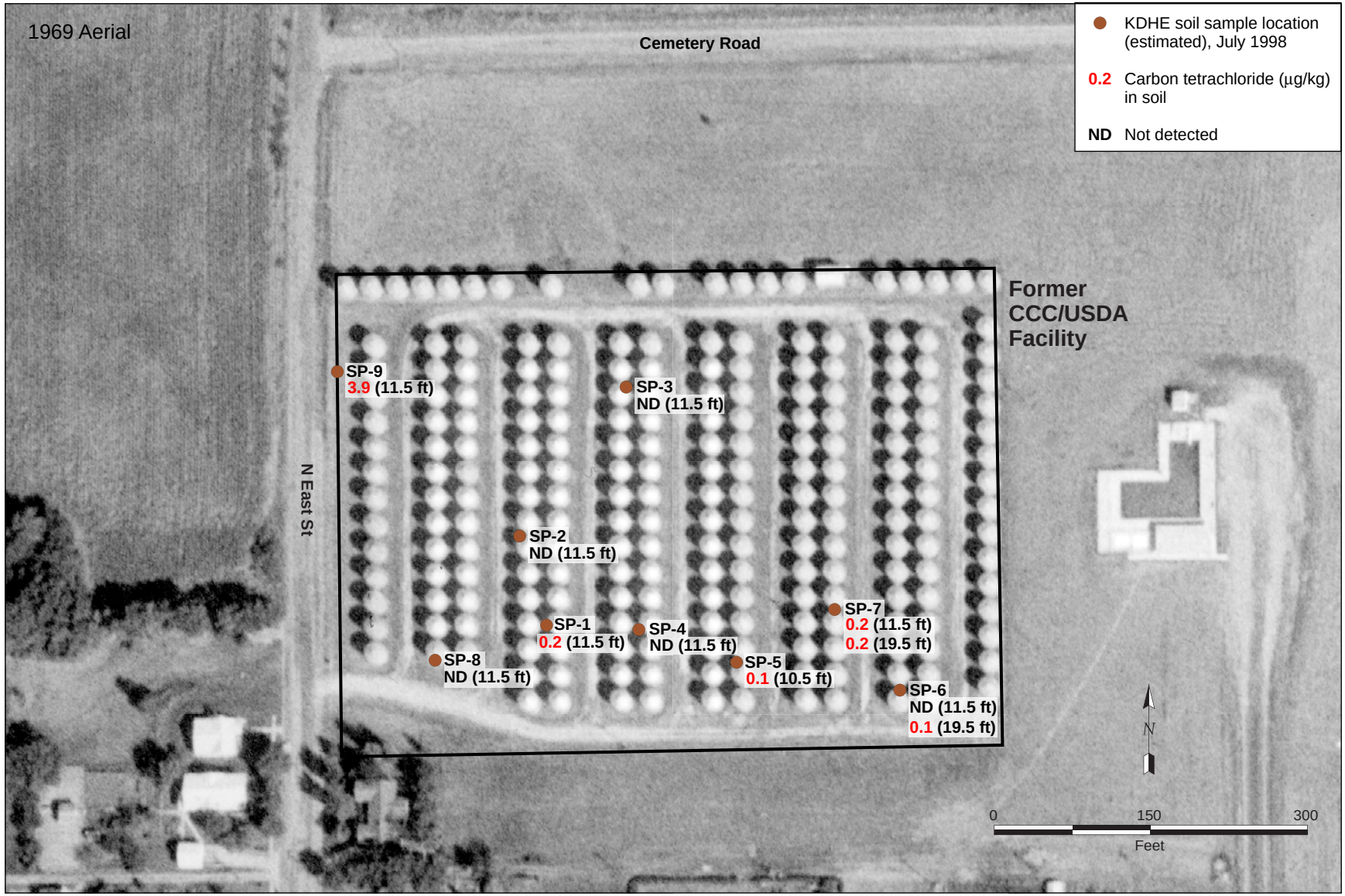


FIGURE 2.6 Field laboratory results for carbon tetrachloride in soil samples collected by the KDHE in 1998 at the former CCC/USDA facility. Sample depths were 10.5, 11.5, and 19.5 ft BGL (with the deepest samples only locations SP-6 and SP-7). Source of photograph: USDA (1969).

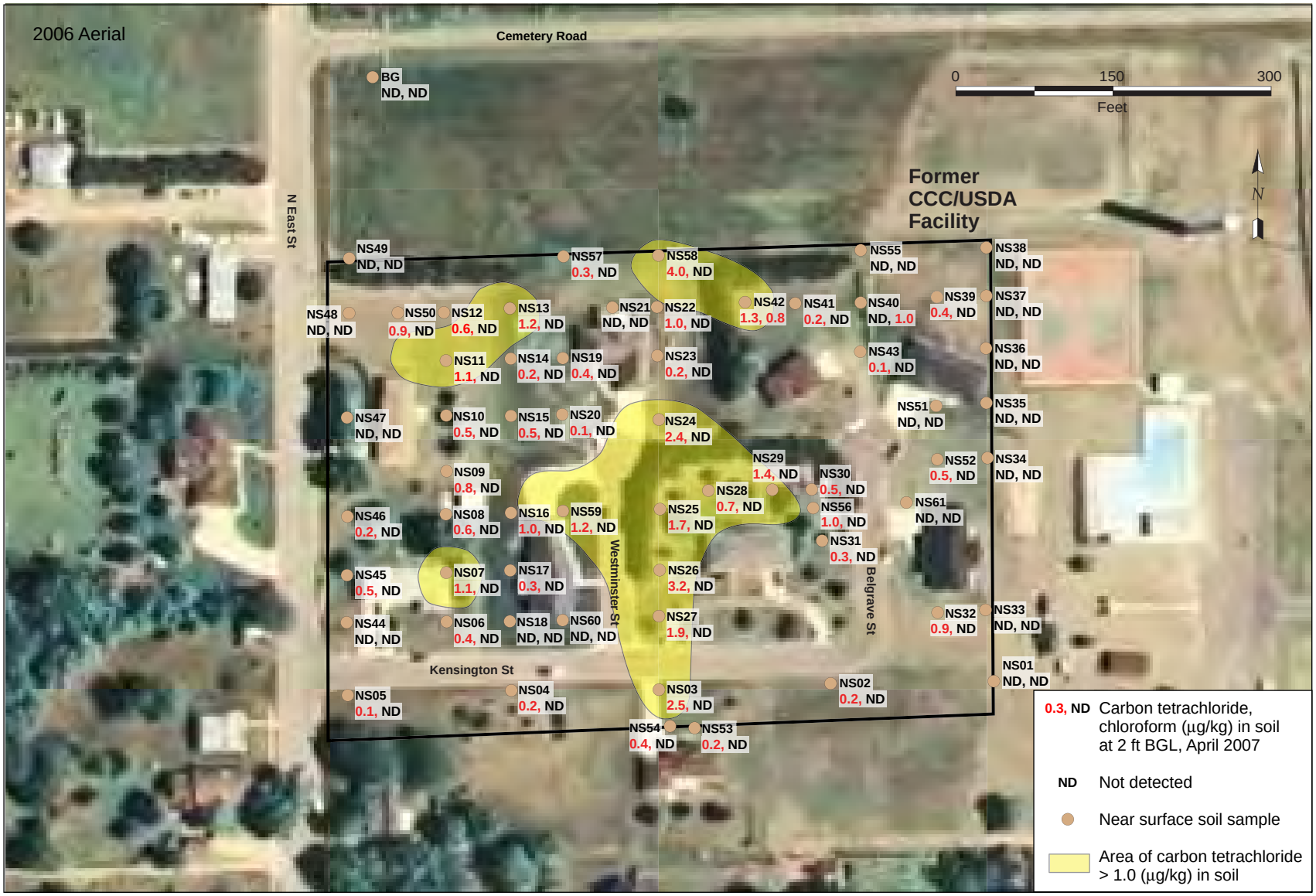


FIGURE 2.7 Results of headspace screening analyses for carbon tetrachloride in near-surface soil samples collected in 2007 at the former CCC/USDA facility. Source of photograph: NAIP (2006).

FIGURE 2.8 Results of analyses for carbon tetrachloride and chloroform in indoor air samples collected in 2007 at the former CCC/USDA facility. Source of photograph: NAIP (2006).

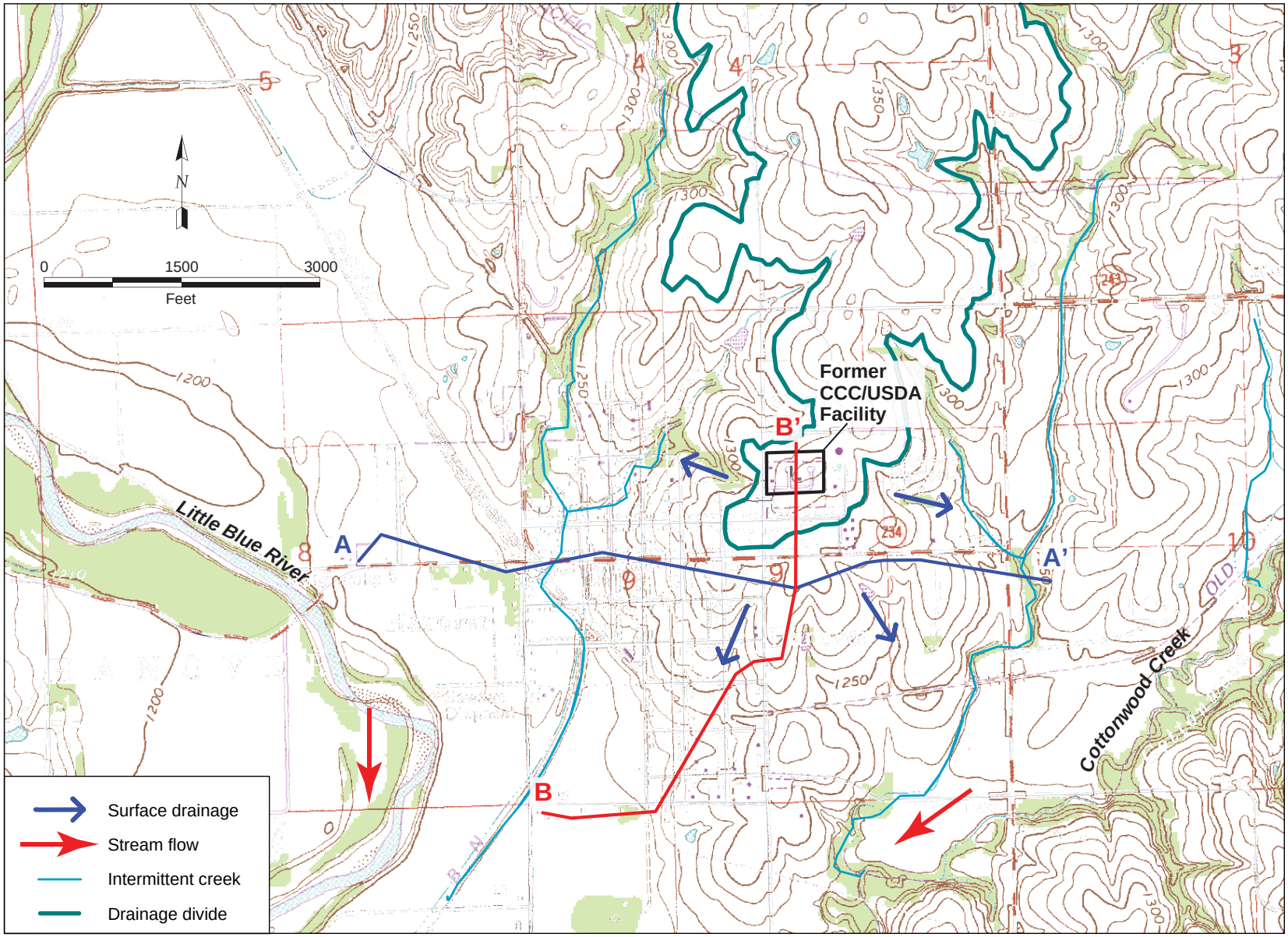


FIGURE 2.9 Surface topography in the Hilton area, showing estimated surface drainage directions. Source of map: USGS (1997).

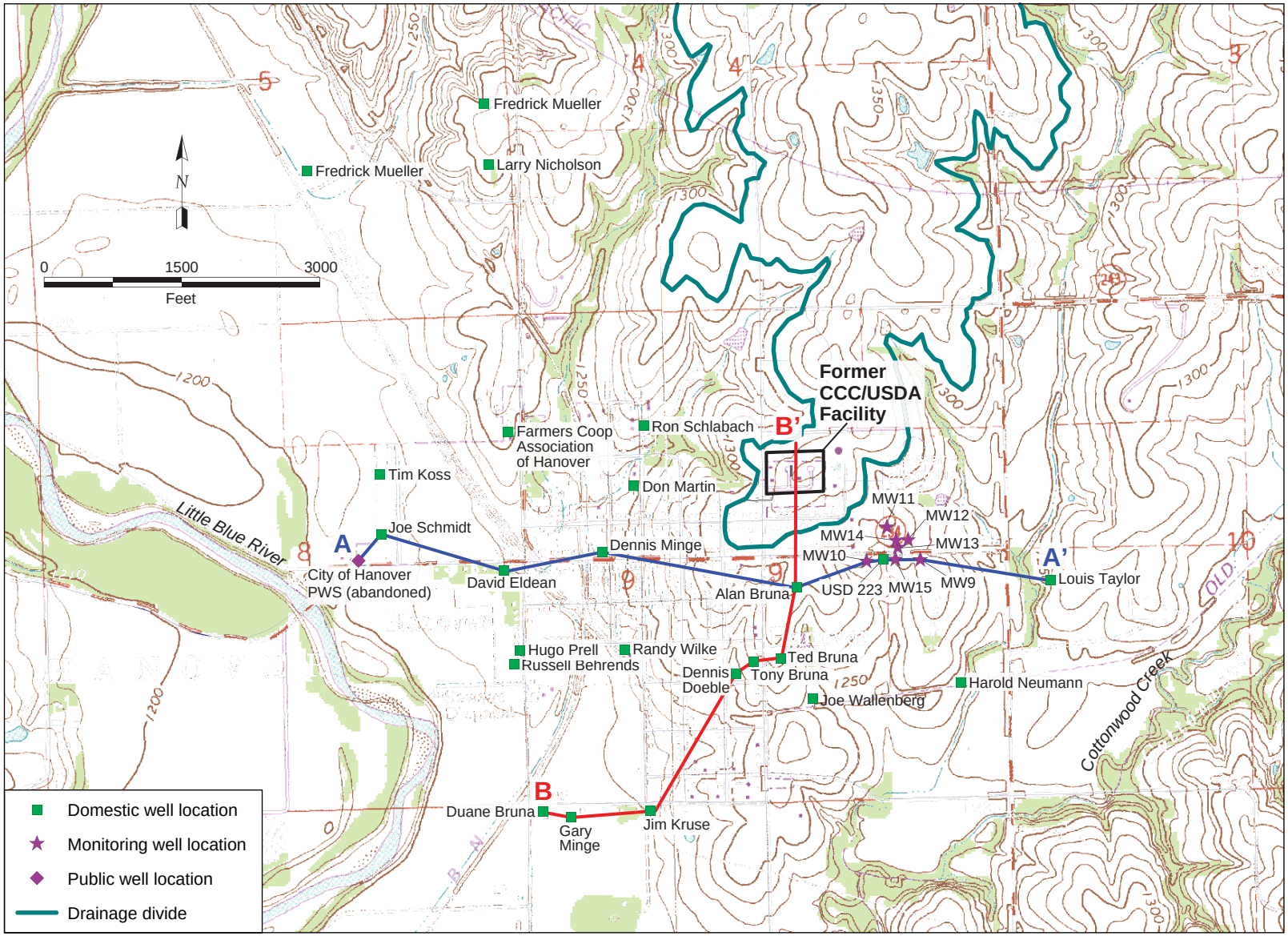


FIGURE 2.10 Locations of registered water wells within 1 mi of the former CCC/USDA facility, with locations of geologic cross sections A-A´ and B-B´. Source of map: USGS (1997).

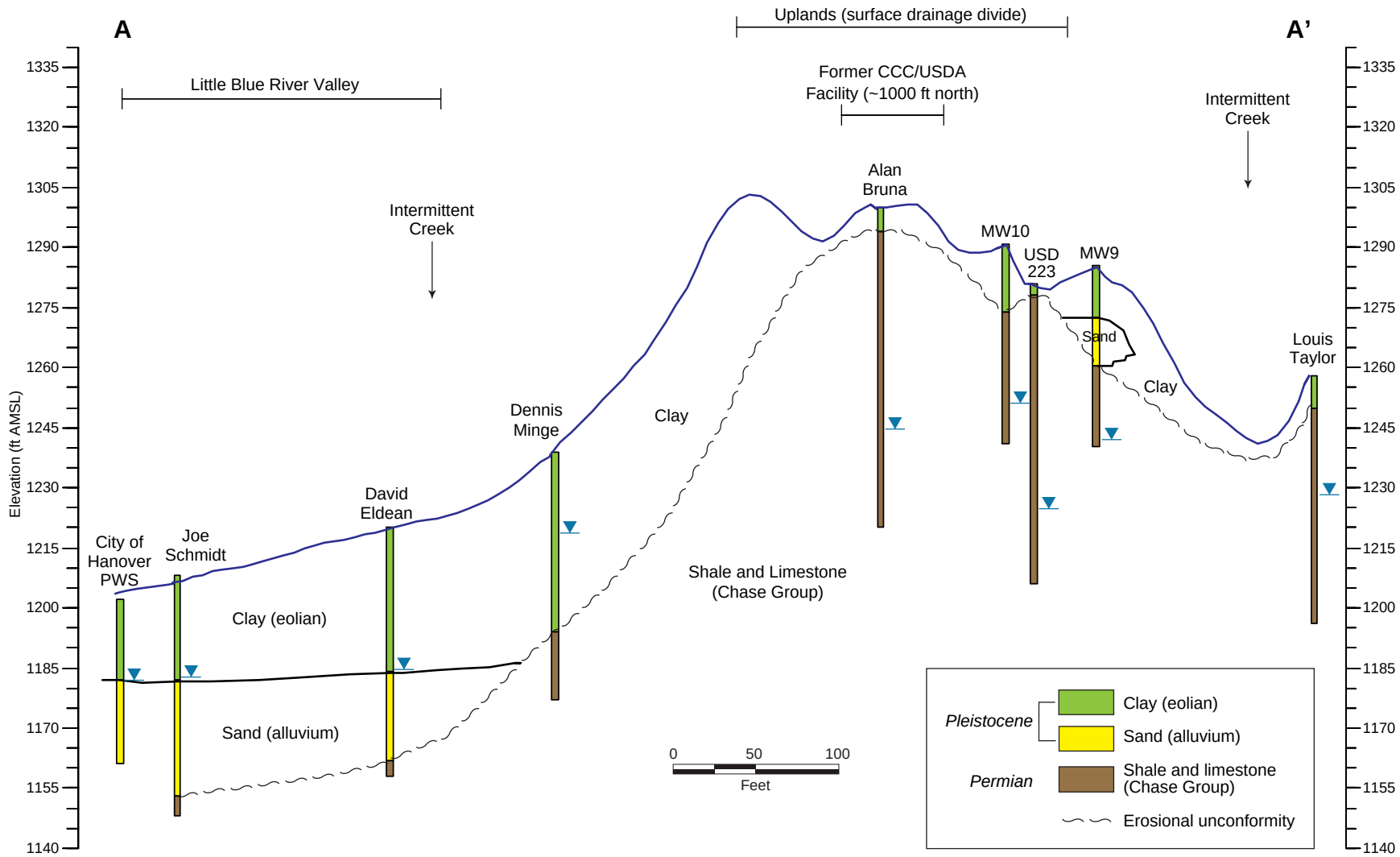


FIGURE 2.11 West-to-east geologic cross section A-A´ (vertically exaggerated), illustrating the stratigraphic relationships and water levels near the former CCC/USDA facility.

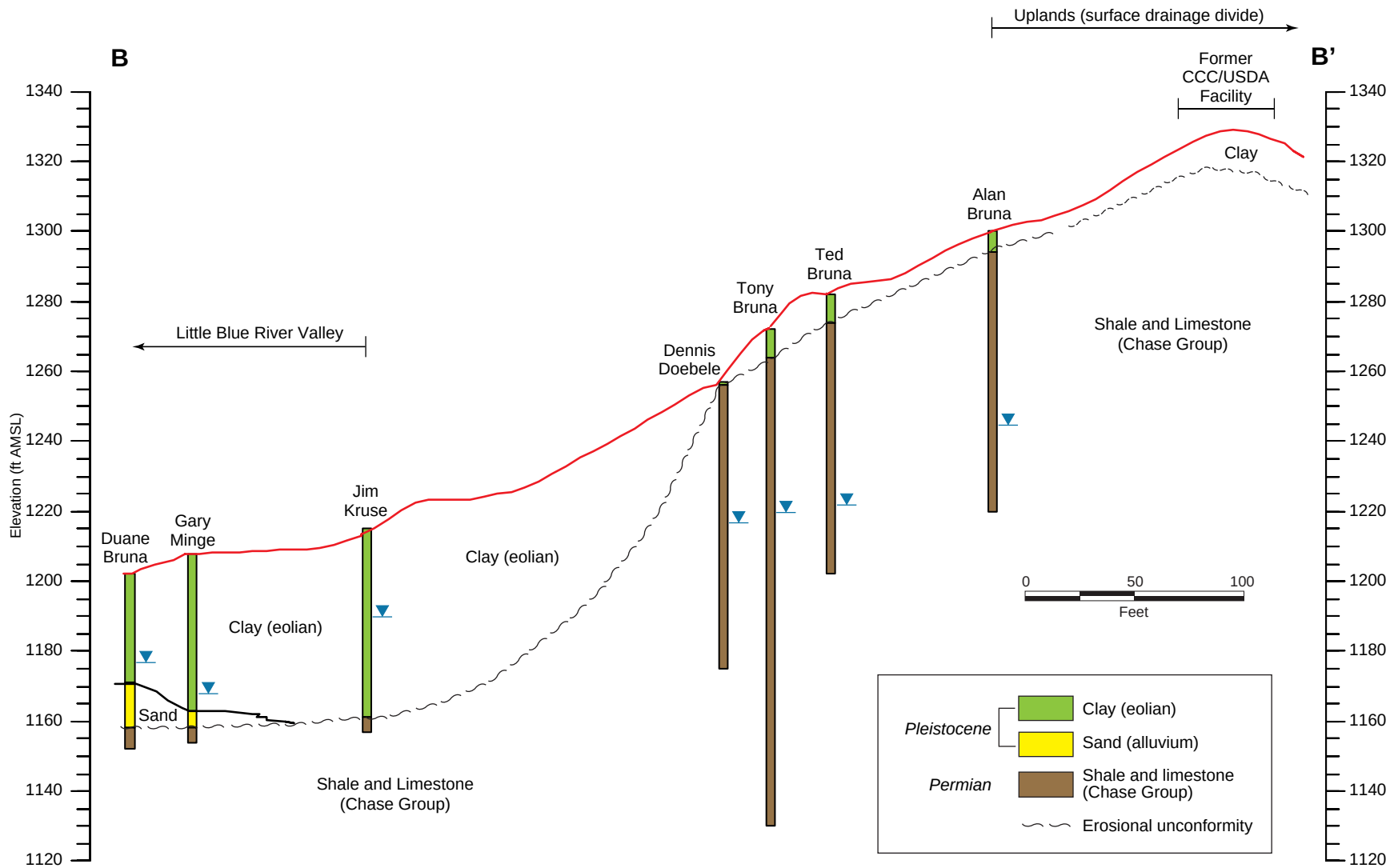


FIGURE 2.12 Southwest-to-northeast geologic cross section B-B´ (vertically exaggerated), illustrating the stratigraphic relationships and water levels near the former CCC/USDA facility.

3 Proposed Technical Program

The goal of the proposed technical program at Hanover is to characterize soil and groundwater contamination associated with the past use of carbon tetrachloride-based grain fumigants at the former CCC/USDA facility. The results of the investigation will be used to determine whether the potential contamination warrants remedial action. This section describes the detailed technical objectives, the scope of proposed work, methods of investigation, and quality assurance/quality control procedures.

3.1 Technical Objectives

Seven technical objectives have been identified to meet the investigational goals. The objectives are as follows:

1. Identify the sources and extent of soil contamination beneath the former CCC/USDA facility.

2. Characterize groundwater contamination beneath the former CCC/USDA facility.

3. Determine groundwater flow patterns.

4. Define the vertical and lateral extent of the groundwater plume outside the former CCC/USDA facility.

5. Evaluate the aquifer and monitor the groundwater system.

6. Identify any other potential sources of contamination that are not related to activities of the CCC/USDA.

7. Determine whether there is a vapor intrusion problem at the site attributable to the former CCC/USDA facility.

The proposed investigation activities are guided by these technical objectives. The activities are divided into five implementation phases. Data collected during each phase will be evaluated to determine whether the subsequent phase is necessary. The CCC/USDA and KDHE project managers will be contacted during each phase and kept apprised of the results. Whether implementation of each phase of work is necessary will be discussed and mutually agreed upon by the CCC/USDA and KDHE project managers.

Proposed phases of work for the investigation at Hanover are as follows:

- **Phase 1.** Identify potential soil sources, and determine the vertical and lateral distribution of potential soil contamination beneath the former CCC/USDA facility.

- **Phase 2.** Determine the potential vertical and lateral extent of groundwater contamination beneath the former CCC/USDA facility, and obtain data to accurately characterize the site lithology, hydrostratigraphy, and groundwater flow.

- **Phase 3.** Delineate the off-site vertical and lateral extents of the groundwater plume emanating from any potential source areas identified on the former CCC/USDA facility, and develop a monitoring system to evaluate groundwater flow patterns. This is a contingency phase to be pursued only if data indicate that contamination associated with the former CCC/USDA facility has migrated off the property.

- **Phase 4.** Install additional monitoring wells to augment data collected during Phases 1-3 and to establish a long-term monitoring network. Conduct hydrogeologic testing to evaluate aquifer properties. This is a contingency phase to be pursued only if data indicate that a source area exists on the former CCC/USDA facility and that additional delineation and monitoring of the contaminant plume is warranted.

- **Phase 5.** Conduct a vapor intrusion investigation. The CCC/USDA is committed to implementing a program to address vapor intrusion if the data collected during Phases 1 and 2 indicate the potential for adverse impacts to

residences — relative to state criteria — due to CCC/USDA activities. A separate supplemental work plan will be developed for this phase of work. That supplemental work plan will follow the KDHE's guidance on vapor intrusion (KDHE 2007a).

3.2 Investigation Phases

3.2.1 Phase 1 — Identify and Characterize Potential Soil Sources beneath the Former CCC/USDA Facility

Phase 1 of the investigation is designed to target potential soil sources that might be contributing to contamination in groundwater, to vapor intrusion, or to both. Soil profiling will be conducted in the vadose zone above bedrock on the former CCC/USDA property. The depth to bedrock is estimated at 10-25 ft BGL. Proposed sample locations are based on results of the 2007 near-surface soil sampling across the former CCC/USDA facility, the 2007 indoor air sampling, and the KDHE's previous subsurface soil sampling (KDHE 1998).

Soil samples will be collected during Phase 1 by using a cone penetrometer (CPT) unit or other direct-push technique. The procedures in the *Master Work Plan* (Argonne 2002) will be followed.

Activities conducted during Phase 1 will be as follows:

- Initial shallow boreholes will be advanced with the CPT or other direct-push technology at 15 locations (TI01-TI15) in areas (1) where carbon tetrachloride was found at concentrations above 1.0 μg/kg in the 2007 near-surface soil sampling or the KDHE's 1998 subsurface soil sampling and (2) that are near the homes in which carbon tetrachloride was detected in indoor air. Soils will be cored continuously from the ground surface to the top of bedrock. The anticipated depths will be approximately 10-25 ft BGL. The proposed sample locations are shown on the 2006 aerial photograph in Figure 3.1 and on the 1969 aerial photograph in Figure 3.2.

- Upon completion of the initial sampling at TI01-T15, up to 10 additional shallow boreholes will be advanced with the CPT or other direct-push technology at selected locations (TI16-T25, Figures 3.1 and 3.2) to the top of bedrock at an approximate depth of 10-25 ft BGL. Results for these additional locations will address potential data gaps and validate data collected at or near selected near-surface soil sampling (2007) locations. Additional locations TI16-TI25 may be modified or omitted if analytical data from the initial 15 borehole locations (TI01-TI15) identify a specific source area or if soil analytical data show that the proposed location is no longer integral in advancing the investigation. Soils will be cored continuously from the ground surface to the top of bedrock.

- Soil samples will be collected at intervals of approximately 4 ft from the ground surface to bedrock at an anticipated depth of 10-25 ft BGL, for analysis for volatile organic compounds (VOCs). Continuous cores will be logged for lithologic evaluation. Selected samples may be submitted for geotechnical analysis such as grain size and other hydrogeologic testing, as appropriate, if contamination is identified.

- The actual number of boreholes advanced during this phase will depend on the physical feasibility of access to the location with the proper sampling equipment and will require permission from property owners.

- If groundwater is encountered in this upper unconsolidated zone, then groundwater samples will be collected for laboratory analysis.

- As data are collected in the field, adjustments to the number of sampling points, sample locations, and sampling intervals may be necessary. The CCC/USDA and KDHE project managers will be kept apprised of the results. Any proposed changes to this *Work Plan* will be discussed with and mutually agreed upon by the CCC/USDA and KDHE project managers.

3.2.2 Phase 2 — Determine the Extent of Groundwater Contamination beneath the Former CCC/USDA Facility and Characterize Lithology, Hydrostratigraphy, and Groundwater Flow

No investigations have been conducted on the former CCC/USDA facility to evaluate the groundwater characteristics; however, data collected from well records for the Hanover area provide information on local geology and hydrogeology. The estimated groundwater depth, as discussed in Section 2, is approximately 40-55 ft BGL in the bedrock formation (Permian Chase Group) under the former CCC/USDA facility. The sampling locations for Phase 2 will be selected on the basis of analytical results for shallow soil sampling conducted during Phase 1.

Soil and groundwater samples will be collected during Phase 2 by using a CPT or other direct-push technology, a sonic rig, or another conventional drilling method. The procedures in the *Master Work Plan* (Argonne 2002) will be followed. Activities during Phase 2 will be as follows:

- For the purpose of groundwater sampling from the saturated bedrock, up to eight deep boreholes will be advanced on the former CCC/USDA property to a depth that penetrates the upper part of the saturated bedrock. Five tentative locations for deep boring and groundwater sampling are presented in Figure 3.3. These five tentative locations were chosen on the basis of data collected during the 2007 near-surface soil sampling. In addition to the groundwater sampling, groundwater levels will be measured at the deep boring locations for the purpose of determining the groundwater flow direction at and near the former CCC/USDA property. Additional deep boring-groundwater sampling locations will be selected, if warranted, on the basis of data collected during Phase 1. The actual number and locations of boreholes advanced will depend on the results from Phase 1, the potential for gaining access with the appropriate drilling methods, and obtaining permission from property owners. Activities will include the following:

  - Groundwater samples will be collected for VOCs analyses from the saturated bedrock at all deep boreholes. At each borehole, vertical-profile groundwater samples will be collected to identify groundwater contamination through at least the upper part of the saturated bedrock. Selected groundwater samples may be submitted for inorganic analyses.

- Soil samples for VOCs analyses will be collected, at intervals of approximately 4 ft, from the top of the bedrock (at a depth of 10-25 ft BGL) to immediately above the top of groundwater within the bedrock formation. The collected soil samples will be shipped to and stored at the AGEM Laboratory. If groundwater samples from any deep boreholes are found to be contaminated, the soil samples collected from those boreholes will be analyzed for VOCs.

- Core samples will be collected continuously in the deep boreholes for lithologic and hydrostratigraphic evaluation. Selected samples may be submitted for geotechnical analyses, such as grain size and other hydrogeologic testing, as necessary to accomplish the technical objectives.

- Monitoring wells will be installed in selected boreholes. Wells will be completed at the locations expected to yield the most advantageous data for resolving the complex hydrologic system. The proposed locations will be discussed with the CCC/USDA and KDHE project managers.

- One of the groundwater sampling locations on the former CCC/USDA facility will be selected, as necessary, for drilling to collect a deeper core and acquire continuous geologic records such as lithologic changes, weathered zones, and multiple zones of saturation. The data gathered will be used to characterize the site-specific lithologies and hydrostratigraphy that control groundwater and contaminant movement. These data will guide the potential off-site investigations in subsequent phases. The total depth of this core will not exceed 100 ft. Most of the private wells in the Hanover area were installed at lesser depths.

- As data are collected in the field, adjustments to the number of locations and sampling intervals may be necessary. The CCC/USDA and KDHE project managers will be kept apprised of the results. Any proposed changes will be discussed with and mutually agreed upon by the CCC/USDA and KDHE project managers.

3.2.3 Phase 3 — Delineate the Extent of Any Identified Groundwater Plume and Develop a Groundwater Monitoring System

Phase 3 is a contingency phase of investigation outside the former CCC/USDA property, to be pursued only if data gathered in Phases 1 and 2 indicate that contamination associated with the former facility has migrated off-site.

Groundwater sampling during contingency Phase 3 will be conducted by using a CPT or other direct-push technology, a sonic rig, or another conventional drilling method. The procedures in the *Master Work Plan* (Argonne 2002) will be followed.

Additional monitoring wells may be advanced in Phase 3 at off-site locations to determine the full extent of any groundwater plume emanating from the former CCC/USDA facility. This work will be guided by contaminant source areas identified at the former CCC/USDA facility in Phase 1, together with available information on groundwater flow patterns. The exact number and locations of wells will be determined after data are collected from Phase 2 wells and the initial wells are installed during Phase 3. The need for the additional wells and their locations will be discussed with the CCC/USDA and KDHE project managers.

Activities in Phase 3 will be as follows:

- Groundwater samples will be collected for VOCs analyses from the existing private wells (Ebeling, Meyn, Bruna, Doebele) that were sampled in 1998. Additional private wells may be sampled if the results are determined to be integral to advancing the investigation.

- At the beginning of Phase 3, if the groundwater flow pattern cannot be determined adequately from the monitoring wells installed during Phase 2, three or four monitoring wells may be installed at locations outside the former CCC/USDA facility to measure off-site groundwater levels in the upper part of the saturated bedrock. The exact locations will be determined on the basis of available data. The flow pattern derived from all monitoring wells installed in Phase 2 and the initial Phase 3 work will be used to guide groundwater sampling outside the former CCC/USDA facility.

- Groundwater samples will be collected for VOCs analyses at selected locations to delineate any off-site groundwater plume determined to be emanating from the former CCC/USDA facility. The exact number and locations of sampling points will be determined on the basis of the size and extent of the actual groundwater plume identified outside the former facility. At each sampling point, groundwater samples will be collected at intervals of 5-10 ft throughout the vertical extent of the contaminant plume. Some groundwater samples may also be selected for inorganic analysis as needed.

- Core samples may be collected at selected intervals as necessary for lithologic and hydrostratigraphic evaluation.

- Groundwater levels will be measured in all wells installed in Phase 2 and at the beginning of Phase 3, at least 24 h after the wells have been completed and after they have stabilized. Location coordinates and surface elevations of all wells will be estimated by Argonne personnel using a global positioning system and survey equipment.

- During the sitewide water level measurements (after the wells have stabilized), changes in groundwater levels will be monitored continuously at one or more locations for at least 24 h to identify any immediate nearby pumping effects that might distort the flow pattern.

3.2.4 Phase 4 — Install Additional Monitoring Wells to Complete the Long-Term Monitoring Network and Conduct Hydrogeologic Testing

Phase 4 is a contingency to be pursued only if data indicate that a source area exists on the former CCC/USDA property and that additional delineation and monitoring of the contaminant plume is warranted.

After completion of Phases 1-3, monitoring wells may be installed at selected locations by using a CPT or other direct-push technology, a sonic rig, or another conventional drilling method. The procedures in the *Master Work Plan* (Argonne 2002) will be followed. Activities conducted during Phase 4 will be as follows:

- Additional monitoring wells may be installed at off-site locations to establish a complete network for monitoring and characterizing groundwater flow. The exact numbers and locations of wells will be determined after data are collected in Phases 1-3, in consultation with the CCC/USDA and KDHE project managers.

- Groundwater samples will be collected at each Phase 4 borehole location for VOCs analyses. Selected soil core samples will be collected for lithologic and hydrostratigraphic evaluation.

- Selected monitoring wells installed in Phases 2-4 will be fitted with data loggers to record accurate water levels at specific time intervals. The data generated will be used to evaluate groundwater flow throughout the area.

- All monitoring wells will be surveyed by a licensed surveyor for their location coordinates and the elevations of ground surface and reference points. Slug testing may be conducted at selected wells to generate data on the range and distribution of the aquifer hydraulic conductivity values across the area. This information will be used to evaluate potential remedial options.

3.2.5 Phase 5 — Conduct a Vapor Intrusion Investigation

Phase 5 is a contingency to be pursued if data collected during Phases 1 and 2 indicate a potential for adverse vapor intrusion impacts to residences — relative to state criteria — due to CCC/USDA activities. The CCC/USDA is committed to implementing this investigation if needed. A separate supplemental work plan will be developed for the Phase 5 work. The vapor intrusion investigation work plan will follow KDHE's guidance document on vapor intrusion (KDHE 2007a).

After completion of Phases 1-3, potential vapor sources in contaminated groundwater and soil will be evaluated on the basis of KDHE screening criteria (KDHE 2007a). The areas of concern for potential vapor intrusion will be identified for further investigation. Procedures for conducting Phase 5 of the investigation will be detailed in the supplemental work plan.

3.3 Investigation Methods

The investigation at Hanover will be conducted in accordance with procedures in the *Master Work Plan* (Argonne 2002), which provides details concerning investigation procedures at former CCC/USDA facilities in Kansas and has been approved by the KDHE.

Acquiring the data needed to meet the technical objectives of this investigation will require, at a minimum, the collection of groundwater level measurements, aquifer parameter data, soil samples, and groundwater samples. The samples collected will be analyzed for VOCs, as well as for lithologic, hydrostratigraphic, and hydrogeologic properties. Some groundwater samples also may be analyzed for inorganic compounds including nitrate. The resulting data can be used for evaluating potential remedial options.

Shallow vertical-profile soil sampling (to the top of bedrock) will be conducted by using a CPT or other direct-push technology. Soil samples will be collected continuously at intervals of approximately 4-5 ft or at each change of lithology, from the surface to the top of bedrock at approximately 10-25 ft BGL. Deeper soil samples will be collected at intervals of 5-10 ft by using a sonic rig or other conventional drilling methods, if the data are determined to be integral to the accomplishment of the investigational goals. Methods for drilling into bedrock will include collection of discrete soil samples through use of dual-tube sampling methods.

Groundwater samples will be collected from the bedrock aquifer at 5-ft intervals within the water producing zone. One to three vertical-profile samples are expected to be collected at each location for rapid-turnaround analysis. Groundwater depth is estimated to be approximately 40-55 ft BGL.

At each sampling location in the bedrock aquifer, a single hole will be drilled with a mini-sonic rig. The hole will be drilled to the first aquifer by using an 8.625-in. overriding casing. The overriding casing will be stopped at the top of the aquifer, and the inner drill string will be advanced 5 ft deeper into the aquifer. The inner drill string will then be retracted from the hole, and a water sample will be collected by using a stainless steel bailer. The overriding casing will then be advanced deeper to protect the 5-ft section just sampled. The inner drill string will be drilled an additional 5 ft or until the next water-bearing zone is encountered. The overriding casing will be stopped at the top of the next sampling interval, and the inner drill string will be advanced another 5 ft into the water-bearing zone. The inner casing will be retracted from the

hole, and the next sample will be collected as previously. These steps will be repeated until the discrete water sampling requirement has been satisfied. The well can be completed as a permanent installation with up to three sampling points in a single borehole by using a 1-in. × 10-ft PVC screen and riser pipe. Each screen will have a filter pack of the appropriate size emplaced. A minimum of 3 ft of bentonite seal will be placed on top of the filter pack.

After collection of the initial soil and groundwater data, small-diameter piezometers or 2-in. monitoring wells will be installed in selected boreholes. The data collected during this work will further delineate the vertical and horizontal extent of potential contaminant source areas associated with historical activities at the former CCC/USDA facility and will establish additional sampling points for future monitoring and aquifer evaluation. The numbers and locations of piezometers or monitoring points will be mutually agreed upon by the CCC/USDA and KDHE project managers prior to installation.

Small-diameter piezometers and monitoring wells installed during this investigation will be completed in accordance with KDHE regulations by using a sonic rig or other conventional drilling methods. These regulations include installation of wells in boreholes at least 2 in. larger than the outside diameter of the well casing. Wells will be cased by using Schedule 40 PVC with a 0.010-in. slotted screen. Screen lengths and depths will be dictated by the aquifer thickness and the groundwater analytical data collected during the initial sampling. The KDHE project manager will be consulted before the exact screen depth intervals are determined.

Appropriate quantities of sand and grout will be used to complete each piezometer or well. Sand (10-20 silica) will be placed from total depth to at least one foot above the screened zone. Five feet of bentonite chips will be used to provide a seal immediately above the sand pack. An appropriate quantity of water will be added to the bentonite to ensure that an adequate seal is obtained. Bentonite grout slurry will be added to a depth of approximately 3 ft BGL. A tremie pipe will be used to ensure that materials are placed properly in all annular spaces. Wells will be completed flush to the ground where necessary. All other piezometers or wells will be completed above grade. Piezometer or well completions will be in accordance with KDHE regulations and with the procedures in the *Master Work Plan* (Argonne 2002). Flush-mount waivers will be obtained from the KDHE as needed. Any deviations from the standard well installation regulations will be discussed with the KDHE project manager, and a waiver will be obtained from the Bureau of Water.

Before groundwater samples are collected, field parameters will be recorded to ensure that each sample is representative of groundwater conditions. All data collected during groundwater sampling will be recorded for documentation in the final report.

Private wells sampled as part of this investigation will be evaluated for well total depth, water level, well condition, and (if possible) well construction information. If necessary, private wells will be purged prior to sampling. Purging will continue until field parameters indicate that a representative groundwater sample can be collected. Data obtained in this effort will be recorded for documentation in the final report.

Soil and groundwater samples will be collected in laboratory-approved containers and shipped overnight to the AGEM Laboratory at Argonne. Before shipment, soil samples will be preserved on dry (carbon dioxide) ice, and groundwater samples will be preserved on regular (water) ice. All soil and groundwater samples will be analyzed within the holding times required by the analytical methods. The groundwater samples will be analyzed first, and then the soil samples.

At the AGEM Laboratory, the soil samples will be analyzed for carbon tetrachloride and chloroform by using a gas chromatograph-mass spectrometer, according to EPA Methods 5030B and 8260B (EPA 1998). Groundwater samples will be analyzed at the AGEM Laboratory, within 24 h after sampling, for VOCs including carbon tetrachloride and chloroform, according to EPA Method 524.2 (EPA 1995). In addition, selected groundwater samples may be analyzed for cations and anions at a certified reference laboratory, and hydrogeologic testing will be conducted on selected soil samples. Proposed tests that may be conducted include porosity, organic carbon content, dry bulk density, and grain size.

3.4 Handling and Disposal of Investigation-Derived Waste

Investigation-derived waste (IDW) will include soil from well installations and groundwater from sampling activities at private and monitoring wells. All waste generated from field activities will be stored in 55-gal drums, roll-off containers, or polyurethane tanks on the former CCC/USDA property.

Soil samples from the IDW will be collected and analyzed by a KDHE-certified laboratory. A Special Waste Disposal Authorization will be obtained from the KDHE for disposal in a permitted landfill. If analytical results indicate that the soil waste cannot be disposed of as special waste, alternative disposal methods will be determined.

Groundwater samples from the IDW will be collected and analyzed by a KDHE-certified laboratory. Disposal methods will be discussed with the KDHE project manager and will be dependent on the analytical results.

3.5 Sampling and Reporting Schedule

Argonne will notify the KDHE project manager a minimum of seven days prior to the start of field activities. After field activities have been completed and the data have been received and evaluated, a comprehensive final report will be completed. The report will include documentation and discussions of all field activities and analytical data, in accordance with KDHE policy BER-RS-018 (KDHE 2005).

3.6 Quality Assurance and Quality Control

The procedures necessary to maintain the quality of data will be implemented during all phases of the proposed investigation. Descriptions of the quality assurance and quality control methods are in Section 4 of the *Master Work Plan* (Argonne 2002). That document should be consulted for a more detailed narrative of these procedures.

TABLE 3.1 Summary of planned activities in Phases 1-4 of the Hanover investigation.a

Activity	Boring Equipment	Number, Location	Soil VOCs Samples	Soil Coring	Soil Geotech Samples	GW VOCs Samples[b]	Max Depth BGL	GW Levels
Phase 1 (on-site)								
Initial shallow borings	Push	15, TI01-TI15	4-ft intervals to bedrock	Continuous	If contamination is found	If present	To top of bedrock at 10-25 ft	
Additional shallow borings	Push	≤ 10, TI16-TI25	4-ft intervals to bedrock	Continuous	If contamination is found	If present	To top of bedrock at 10-25 ft	
Phase 2 (on-site)								
Deep borings	Push/drill	≤ 8, TBD	4-ft intervals to GW — analyze for VOCs if VOCs are found in GW	Continuous	Selected intervals	1-3 samples in vertical profile	Penetrate upper bedrock to 50-60 ft	
Install MWs	Drill	TBD, selected deep borings					~ 60 ft	Manual (all)
Deeper boring	Drill	1, selected GW location		Continuous	Selected intervals		≤ 100 ft	
Phase 3 (off-site; contingency)								
Sample existing wells	–	4 (+ more?)				4 (+) wells		
GW sampling	Drill	3-4, TBD		Selected intervals		Intervals 5-10 ft through plume		
Install MWs	Drill	3-4, TBD					~ 60 ft	Manual (all); 1 or more loggers
Phase 4 (off-site; contingency)								
Install MWs to complete network	Push/Drill	TBD, TBD		Selected intervals		Intervals 5-10 ft through plume	~ 60 ft	Manual (all); loggers at selected MWs
Survey MWs	–	All MWs						
Optional: Slug testing	–	TBD						

[a] Abbreviations: BGL, below ground level; GW, groundwater; max, maximum; MW, monitoring well; TBD, to be determined; VOC, volatile organic compound.

[b] Some groundwater samples will also be analyzed for inorganic compounds including nitrate.

FIGURE 3.1 Proposed soil sampling locations on and adjacent to the former CCC/USDA property, in relation to present structures. Source of photograph: NAIP (2006).

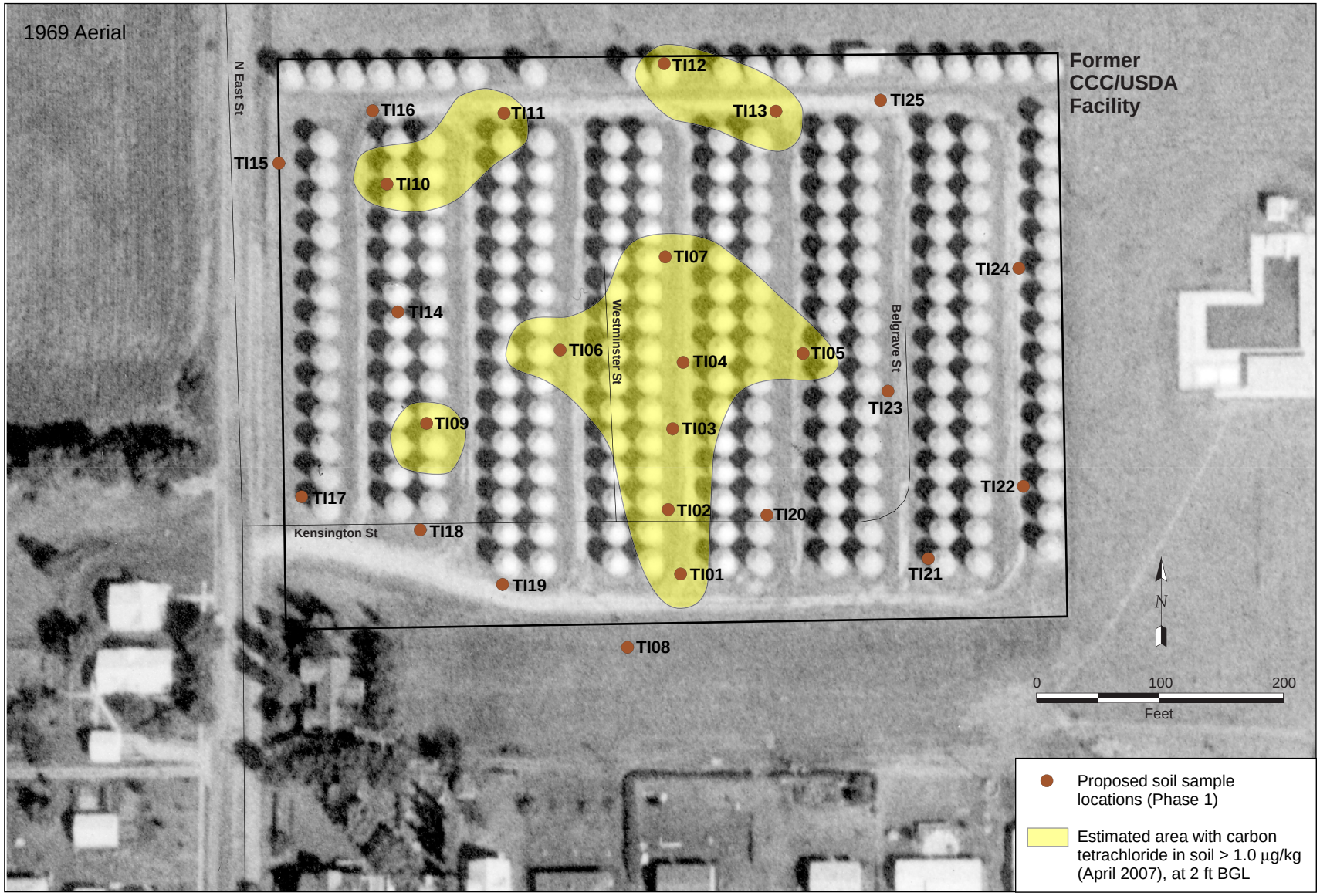


FIGURE 3.2 Proposed soil sampling locations on and adjacent to the former CCC/USDA property, in relation to the former CCC/USDA grain storage structures. Source of photograph: USDA (1969).

FIGURE 3.3 Tentatively proposed locations for deep boring and groundwater sampling. Source of photograph: NAIP (2006).

4 Community Relations Plan

This community relations plan outlines activities to be conducted during the investigation at Hanover, Kansas.

The CCC/USDA, which operated a former grain storage facility at the northeast corner of the Hanover city limits from 1950 until the early 1970s, has assumed lead responsibility for all technical and community relations activities at Hanover. Argonne will conduct these activities for the CCC/USDA. These efforts will be closely coordinated with the KDHE, which will oversee the work performed at the site.

Hanover residents obtain their drinking water from the Washington County RWD #1 and are not affected by the groundwater contamination detected in private wells near the former CCC/USDA facility. The contamination detected has been confined to two private wells used for lawn and garden watering.

Nine residences are located within or adjacent to the boundaries of the former CCC/USDA facility. The initial investigation will be conducted in this area. Argonne will work closely with the residents in these homes prior to, during, and after the investigation, to address any access issues regarding the work to be conducted and any other concerns that may arise. All residents will be provided with the results of the work in a timely manner. In addition, Argonne will work with residents in homes adjacent to or near the investigation area to inform them of the work being performed and to answer any questions.

The city park and swimming pool are located just east of investigation area. Local interest is likely to increase when the field work begins and Argonne's presence becomes known. Argonne will work with the city of Hanover to ensure that interested citizens can learn about the investigation and the results.

Argonne has developed a fact sheet for review by the KDHE that describes the investigation and will provide copies to residents in and near the investigation area, to other interested citizens, and to the city office. The fact sheet provides the names and contact information for the KDHE and CCC/USDA officials and the Argonne staff involved in the investigation.

This community relations plan is divided into sections including site description, community background, community relations objectives, timing of community relations activities, and contact list of key officials.

4.1 Site Description

Section 2 of this report contains a complete description of the site and its history.

4.2 Community Background

The incorporated city of Hanover is governed by a mayor and a city council. In addition to public works and other city responsibilities, the mayor and council have authority to provide and maintain the municipal water supply system. The city operates an office that is staffed by the city clerk.

Residents within the Hanover municipal limits receive their drinking water from a municipal distribution system that obtains its water supply from the Washington County RWD #1.

4.3 Community Relations Objectives

The Hanover community relations plan has the following major objectives:

1. Explain the investigation plans of the CCC/USDA and provide general information about the program.

2. Inform residents within the former boundaries of the CCC/USDA facility, other interested residents, and city officials of the investigation's findings and developments.

3. Respond to citizens' inquiries about site activities and the presence of health and environmental hazards.

4. Ensure that the public has appropriate opportunities for involvement in site-related decisions.

5. Provide appropriate opportunities for interested residents to learn about the site.

4.4 Timing of Community Relations Activities

This section describes the activities needed to meet the community relations objectives. Many of these activities need to take place before the field work begins. Milestones and planned activities are discussed below.

4.4.1 Activities before Field Work Begins

The CCC/USDA and Argonne will conduct of the following community relations activities, to the extent practicable, before field work begins:

1. A point of contact will be designated for Argonne. The individual will be Argonne's liaison with interested residents.

2. Upon obtaining approval from the CCC/USDA, Argonne will make initial contact with local residents and officials of the city government to explain proposed activities and schedules.

3. Argonne will make arrangements to conduct discussions (by telephone and in person) with interested residents and any other affected parties, as appropriate, to address their concerns and information needs.

4. Upon completion and approval of this site-specific *Work Plan*, Argonne will provide a copy of the document to the city for public viewing by interested parties.

4.4.2 Activities during Field Work

The CCC/USDA and Argonne will provide for the conduct of the following community relations activities, to the extent practicable, during field work:

1. Meet with interested residents and other parties when needed.

2. Prepare and distribute fact sheets or letters to inform the community of the investigation's progress, significant milestones, or changes in plans.

3. Continue telephone contact with interested residents and with state and local officials.

4. Allow for site visits by interested parties, within allowable safety limitations.

4.4.3 Activities upon Completion of Field Work Activities

The CCC/USDA and Argonne will conduct the following community relations activities, to the extent practicable, upon completion of the field work:

1. If requested, arrange for a meeting with interested citizens, as appropriate, to present and discuss the investigation's findings, results, and recommendations, as well as any future activities at the site.

2. Prepare and distribute information outlining the investigation's results and any future activities at the site, as appropriate.

4.5 Contact List of Key Officials

State Officials

Beth Finzer, Environmental Scientist
Bureau of Environmental Remediation
Kansas Department of Health and Environment
1000 SW Jackson, Suite 410
Topeka, KS 66612-1367
Telephone: 785-296-1936
BFinzer@kdhe.state.ks.us

Christopher C. Carey, Post-Remediation Unit
Bureau of Environmental Remediation
Kansas Department of Health and Environment
1000 SW Jackson, Suite 410
Topeka, KS 66612-1367
Telephone: 785-296-0225
CCarey@kdhe.state.ks.us

Federal Officials

Caroline Roe
Conservation and Environmental Protection Division
Farm Service Agency
Commodity Credit Corporation
U.S. Department of Agriculture
Room 4723, Stop 0513, South Agriculture Building
1400 Independence Avenue, SW
Washington, DC 20250-0513
202-720-9964
caroline.roe@wdc.usda.gov

Local Officials

Hanover City Hall
201 North Railroad
Hanover, KS 66949
Court Street
Telephone 785-337-2261
cityclerk@networksplus.net

4.6 Contact Information for the Investigation Team at Hanover, Kansas

The Argonne program manager is Lorraine LaFreniere (630-252-7969). The Argonne community relations representative is James Hansen (202-488-2453). Further information is in Section 5, Table 5.1.

5 Health and Safety

A site-specific health and safety plan for the investigation at Hanover has been developed and approved by the Argonne field safety coordinator. That plan is to be brought to the site for reference during the investigation. An Argonne health-safety-environmental protection representative will visit the site during field activities to observe, monitor, and report on operations.

The general health and safety plan for use during the work at Hanover is in Section 3 of the *Master Work Plan* (Argonne 2002). That document addresses all anticipated safety issues for activities at the Hanover site. Specific emergency information for use at the site is in Table 5.1.

Hanover has emergency 911 service. All emergency calls, including police, fire, and ambulance calls, will be directed for an appropriate response from this number. The city of Hanover also has a hospital with emergency medical facilities. Driving directions to the hospital and the map showing the route are in Figure 5.1. Additional emergency information is in Table 5.1.

TABLE 5.1 Emergency information for the investigation at Hanover, Kansas.[a]

Resource	Telephone Number	Name
All Emergencies	911	
Medical Care	785-337-2214	Hanover Hospital[b] 205 S. Hanover St., Hanover, Kansas
Fire Protection	911	Hanover Fire Department 206 S. Hanover St., Hanover, Kansas
(County Fire Protection)	911	Washington County Fire District #10 2832 Hilltop Ave., Hanover, Kansas
Police	785-337-2591	210 W Elm St., Hanover, Kansas
Industrial Hygiene	630-252-3310	Argonne-Industrial Hygiene
Safety	630-252-2885 630-252-3294	EVS Division[c] Field Safety Coordinator (Monte Brandner) EVS Division[c] Environmental, Safety, and Health Coordinator (Dave Peterson)
Project Management	630-252 7969 630-252-1275 630-408-7114 630-252-6322	Argonne Program Manager (Lorraine LaFreniere) Argonne Field Project Manager (David Surgnier) (Surgnier cellular) Argonne Technical Project Manager (Eugene Yan)
Security	630-252-5737 630-252-5731	Argonne-Operations Security (workdays) (after hours and weekends)
Poison Control	800-222-1222 913-588-6633	Mid-America Poison Control Center, University of Kansas Medical Center
Utilities Survey	800-344-7233 800-DIG-SAFE	Kansas One Call, Wichita, Kansas

[a] Post this table in the field operations base.

[b] The route from the investigation site to Hanover Hospital is shown in Figure 5.1.

[c] Environmental Science Division at Argonne.

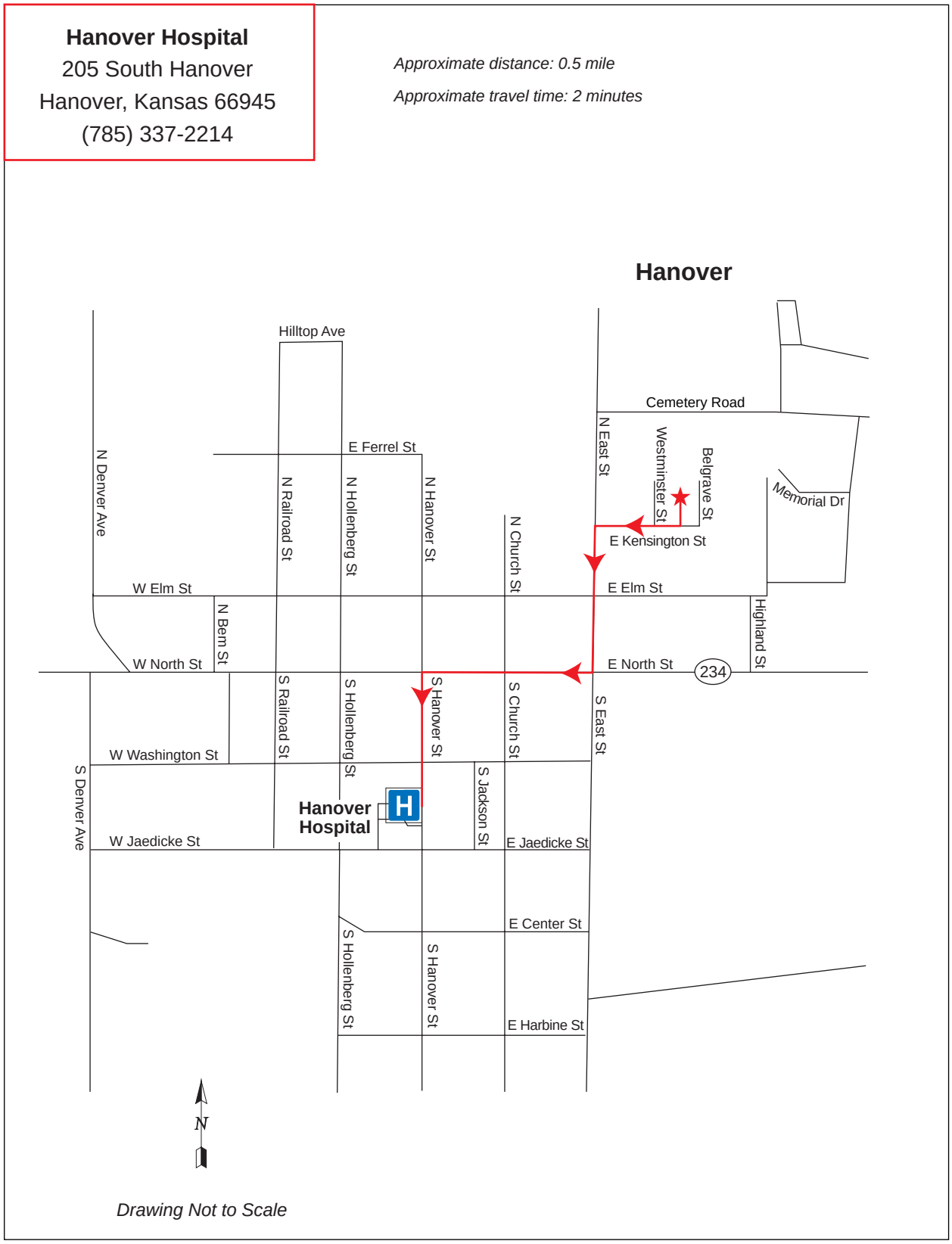


FIGURE 5.1 Emergency route from the Hanover investigation site to the Hanover Hospital.

6 References

Alvarado, J.S., and C. Rose, 2004, "Static Headspace Analysis of Volatile Organic Compounds in Soil and Vegetation Samples for Site Characterization," *Talanta* 62:17-23.

Argonne, 2002, *Final Master Work Plan: Environmental Investigations at Former CCC/USDA Facilities in Kansas, 2002 Revision*, ANL/ER/TR-02/004, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, December.

EPA, 1995, *Method 524.2: Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry, Revision 4.1*, edited by J.W. Munch, National Exposure Research Laboratory, Office of Research and Development, U.S. Environmental Protection Agency, Cincinnati, Ohio.

EPA, 1998, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, EPA SW-846, 3rd edition, Draft Update IVA, U.S. Environmental Protection Agency, January.

GeoCore, 1997, *Environmental Site Assessment Report of Bill's Service Center, 1/4 Mile East of Town, Hanover, Kansas*, KDHE UST Project Code A5 101 40078, prepared by GeoCore Services, Inc., Salina, Kansas, March 17.

GeoCore, 1999, *Environmental Site Assessment Report of Bill's Service Center, 1/4 Mile East of Town, Hanover, Kansas*, KDHE UST Project Code A5 101 40078, prepared by GeoCore Services, Inc., Salina, Kansas, September 24.

GeoCore, 2007, letter from J.W. Miller (GeoCore Services, Inc., Salina, Kansas), to N. Luna (Storage Tank Section, Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas), regarding the first of four monitoring events at the KDHE underground storage tank trust fund site at Bill's Service Center (KDHE site identifier A5-101-40078), Hanover, Kansas, November 1.

KDHE 1998, *Site Reconnaissance and Evaluation: Hanover USDA/CCC Site, Hanover, Kansas, KDHE Identification Number P5-101-70430*, prepared by the Kansas Department of Health and Environment, Bureau of Environmental Remediation, Topeka, Kansas, July.

KDHE, 2005, *Scope of Work (SOW) for a Comprehensive Investigation*, policy BER-RS-018, Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas, revised December 19 (linked at http://www.kdheks.gov/ber/policies.htm).

KDHE 2007a, *Kansas Vapor Intrusion Guidance: Chemical Vapor Intrusion and Residential Indoor Air*, Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas, June (http://www.kdheks.gov/ber/download/Ks_VI_Guidance.pdf).

KDHE, 2007b, *Private Well Sampling at CCC/USDA Sites in Kansas*, memorandum from C. Carey to R. Bean (Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas), January 30.

KDHE, 2007c, *Risk Based Standards for Kansas: RSK Manual — 4th Version*, Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas, June (www.kdheks.gov/remedial/rsk_manual_page.htm).

KDHE, 2008, letter from E. McWilliams (Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas), to C. Roe (Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C.), regarding a supplemental work plan for investigation of upward vapor intrusion at the former CCC/USDA grain storage facility at Hanover, Kansas.

NAIP, 2006, aerial photograph of Hanover, Kansas, naip_1-1_1n_s_ks201_2006_1, National Agricultural Imagery Program, Field Service Agency, U.S. Department of Agriculture, Salt Lake City, Utah, August 31 (http://www.apfo.USDA.gov/NAIP.html).

Schlabach, D., 2008, telephone conversation between Schlabach (resident of Hanover, Kansas) and J. Hansen (Argonne National Laboratory, Argonne Illinois), regarding the sale and removal of the grain storage bins from the former CCC/USDA property at Hanover, July 8.

USDA, 1957, Aerial photograph YV-6T-59L, U.S. Department of Agriculture, Washington, D.C., July 12.

USDA, 1969, Aerial photograph YV-2KK-146D, U.S. Department of Agriculture, Washington, D.C., September 20.

USDA, 1978, Aerial photograph 20201-177-294L, U.S. Department of Agriculture, Washington, D.C., October 11.

USGS, 1997, *Digital Raster Graphics (DRG) UTM NAD 83 of Washington County, Kansas*, (created from USGS 1982 7.5-minute topographic maps), U.S. Geological Survey, Reston, Virginia.

Appendix A:

Property Ownership Records for the Former CCC/USDA Grain Storage Facility at Hanover

LEASE:

From Wilfred J.Poell and Loretta E.Poell, Lessor, To Commodity Credit Corporation. Lessee.

THIS LEASE, made and entered into this 19 day of July, 1950, by and between Wilfred J.Poell and Loretta E.Poell, of Hanover, Kansas, Lessor, and Commodity Credit Corporation, Lessee.

WITNESSETH THAT:

1. The Lessor leases to the Lessee, and the Lessee hereby leases from the Lessor, upon the terms and conditions hereinafter stated, the following described real estate (hereinafter called "property") situated in the County of Washington and State of Kansas:

Tract of Land (4 acres) in the South West quarter (SW¼NE¼) Section Nin. Township two (2) Range Five (5), east of the 6th P.M. Described as follows: commencing at a point One hundred twenty-two (122) feet due North of the North west corner of Lot 8 Block 2 Brockmeyer's Addition. Thence running due east three hundred eighty-two (382) feet, thence running due north Four hundred fifty (450) feet, thence running due west. three hundred eighty-two (382) feet, thence running due south Four hundred fifty (450) feet to the point of beginning.

2. The term of the lease shall be for a period of Fifteen (15) years, commencing the 19 day of July 1950 and ending the 19 day of July, 1965, with the right of the Lessee to terminate said lease, and liability for any further rent, on the 19 day of July of any year, by giving thirty (30) days' previous notice in wirting to the Lessor.

3. As rent for said property, the Lessee shall pay the Lessor Fifty & no/100 Dollars ($50.00) per acre per year, such rent to be payable annually July 19 of each year.

4. The Lessor warrants that he is the owner of the property, has the right to give the Lessee possession under this lease, and will, so long as this lease remains in effect, warrant and defend the Lessee's possession against any and all persons whomsoever.

5. The Lessee shall have the right to construct or erect storage structures or facilities on said property and, at the expiration of said lease or any renewal or extension thereof or at any time this lease is in effect, may remove said storage structures or facilities or any part thereof, whether or not such structures or facilities have become legally a fixture.

6. The Lessee shall not assign this lease nor sublet said property or any part thereof without the written consent of the Lessor.

7. (Special provisions)

Wilfred J.Poell, Lessor
Loretta E.Poell, Wife

(Title)
Commodity Credit Corporation, Lessee
By Edw J.Knedlik
Contracting officer.

State of Kansas, County of Washington, ss.

BE IT REMEMBERED, That on this 19 day of July A.D.1950, before me the undersigned, Notary Public in and for the County and State aforesaid, came Wilfred J.Poell and Loretta E.Poell and Edw.J.Knedlik, Chairman Washington County PMA and Contracting Officer who are personally known to me to be the same persons' who executed the

LEASE OF PROPERTY:

From Wilfred J.Poell and
Loretta E.Poell

4

To Commodity Credit Corporation

U.S. Department of Agriculture
Agruculture Stabilization and Conservation
Commodity Credit Corporation

Supplemental Lease of Additional land to the Hanover Bin Site-005,Hanover, Kansas

THIS LEASE, made and entered into this 31st day of July,1954, by and between Wilfred J.Poell and Loretta E.Poell of Hanover, Kansas, Lessor, and Commodity Credit Corporation, Lessee.

WITNESSETH THAT:

1. The Lessor leases to the Lessee, and the Lessee hereby leases from the Lessor, upon the terms and conditions hereinafter stated, the following described real estate (hereinafter called "property") situated in the County of Washington and State of Kansas:

Described as follows: Commencing at a point 122 feet due north of the NW corner of Lot 8,Block2, Brockmeyer's addition, and 382 feet east, the additional land to be leased starts at this point, thence runs due east 138 feet, thence due north 450 feet, thence due west 138 feet to meet the NE corner of land already under lease to the Commodity Credit Corporation. Containing 1.4 acres, more or less.

2. The term of the lease shall be for a period of five years, commencing the 31st day of July,1954, and ending the 31st day of July,1959, with the right of the Lessee, during such term or any extension thereof, to terminate said lease, and liability for any further rent, on the 31 day of July of any year, by giving thirty days previous notice in writing to the Lessor.

3. As rent for said property, the Lessee shall pay the Lessor fifty and no/100 Dollars ($50.00) per acre pre year, such rent to be payable in advance, but to be apportionable in the event the lease is terminated as provided in paragraph 2 hereof:

4. The Lessor warrants that he is the owner of the property, has the right to give the Lessee possession under this lease, and will, so long as this lease remains in effect, warrant and defend the Lessee's possession against any and all persons whomsoever.

5. The Lessee shall have the right, during this lease, to erect storage structures, or facilities, make alterations, install scales, fences, or signs, in or upon the premises hereby leased and, at the expiration of said lease or any renewal or extension thereof or at any time this lease is in effect, may remove said storage structure, facilities, scales, fences, or signs or any part thereof, whether or not such structures, facilities, scales, fences or signs habe become legally a fixture.

6. The Lessee shall not assign this lease without the written consent of the Lessor. The Lessee, may, however, sublet the structures on the premises leased hereunder, or any one or more of them for the term of the lease or any part thereof upon such terms and conditions as Lessee may wish to so sublet.

7. The Lessee, if required by the Lessor, shall upon the expiration of this lease, or renewal thereof, restore the premises to the same condition as that existing at the time of entering upon the same under this lease, reasonable and ordinary wear and tear and damages by the elements or by circumstances over which the Lessee has no control excepted: Provided, however, That if the Lessor requires such restoration, the Lessor shall give written notice thereof to the Lessee thirty days before the termination of the lease.

8. The Lessor grants and gives the Lessee the option as a consideration of this lease and for the further consideration of one dollar,the receipt of which is hereby acknowledged, to renew said lease for a period of 15 years from the Lessor,his heirs, executors, administrators, and assigns, for the sum of Fifty and no/100 Dollars ($50.00 per acre) per year.

9. _____

10. In the event any increased tax assessment is made against the Lessor or the property by virtue of the erection of storage structures and facilities thereon by the Lessee, the Lessor agrees to cooperate fully in any contest of such increased assessment which the Lessee feels should be made. The Lessee agrees that the rental hereunder shall be adjusted upward by the amount of any such increased tax assessment which the Lessor and Lessee mutually agree to be proper or which is determined to be legally valid in court proceedings.

11. No member of or Delegate to Congress or Resident Commissioner, shall be admitted to any share or part of this lease or purchase or to any benefit that may arise therefrom, but this provisions shall not be construed to extend to this lease or purchase if made with a corporation for its general benefit.

12. The Lessor warrants that he has not employed any person to solicit or secure this lease upon anyagreement for a commission, percentage, brokerage, or contingent fee and that no such consideration or payment has been or will be made. Breach of this warranty shall give CCC the right to annul the lease, or, in its discretion, to deduct from the rental or purchase price the amount of such commission, percentage, brokerage or contingent fees. This warranty shall not apply to commissions payable by the Lessor if the lease is secured or made through a bona-fide agent maintained by the Lessor for the purpose of leasing or selling his property.

(Seal) Wilfred J.Poell,Lessor
(Seal) Loretta E. Poell,Lessor
Commodity Credit Corporation,Lessee
By Edw.J.Knedlik
Chairman,Washington County
ASC Committee

3. As rent for said property, the Lessee shall pay the Lessor fifty and no/100 Dollars ($50.00) per acre, per year, such rent to be payable in advance, but to be apportionable in the event the lease is terminated as provided in paragraph 2 hereof.

4. The Lessor warrants that he is the owner of the property, has the right to give the Lessee possession under this lease, and will, so long as this lease remains in effect, warrant and defend the Lessee's possession against any and all persons whomsoever.

5. The Lessee shall have the right, during this lease, to erect storage structures, or facilities, make alterations, install scales, fences, or signs, in or upon the premises hereby leased and, at the expiration of said lease or any renewal or extension thereof or at any time this lease is in effect, may remove said storage structures, facilities, scales, fences, or signs or any part thereof, whether or not such structures, facilities, scales, fences, or signs have become legally a fixture.

6. The Lessee shall not assign this lease without the written consent of the Lessor. The Lessee, may, however, sublet the structures on the premises leased hereunder, or any one or more of them for the term of the lease or any part thereof upon such terms and conditions as Lessee may wish to so sublet.

7. The Lessee, if required by the Lessor, shall upon the expiration of this lease, or renewal thereof, restore the premises to the same condition as that existing at the time of entering upon the same under this lease, reasonable and ordinary wear and tear and damages by the elements or by circumstances over which the Lessee has no control excepted; Provided, however, That if the Lessor requires such restoration, the Lessor shall give written notice thereof to the Lessee Thirty days before the remination of the lease.

8. The Lessor grants and gives the Lessee the option as a consideration of this lease and for the further consideration of one dollar, the receipt of which is hereby acknowledged, to renew said lease for a period of 15 years from the Lessor, his heirs, executors, administrators, and assigns, for the sum of Fifty and no/100 Dollars ($50.00) per acre per year.

9. _____

10. In the event any increased tax assessment is made aginst the Lessor or the property by virtue of the erection of storage structures and facilities thereon by the Lessee, the Lessor agrees to cooperate fully in any contest of such increased assessment which Lessee feels should be made. The Lessee agrees that the rental hereunder shall be adjusted upward by the amount of any such increased tax assessment which the Lessor and Lessee mutually agree to be proper or which is determined to be legally valid in court proceedings.

11. No member of or Delegate to Congress or Resident Commissioner, shall be admitted to any share or part of this lease or purchase or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this lease or purchase if made with a corporation for its general benefit.

12. The Lessor warrants that he has not employed any person to solicit or secure this lease upon any agreement for a commission, percentage, brokerage, or contingent fee and that no such consideration or payment has been or will be made. Breach of this warranty shall give CCC the right to annul the lease, or, in its discretion, to deduct from the rental or purchase price the amount of such commission, percentage, brokerage or contingent fees. This warranty shall not apply to commissions payable by the Lessor if the lease is secured or made through a bona-fide agent maintained by the Lessor for the purpose of leasing or selling his property.

(Seal) Christian E.Sawyer, Lessor
(Seal) Clara Elizabeth Sawyer, Lessor

Commodity Credit Corporation
Lessee
By Edw.J.Knedlik
Chairman, Washington County
ASC Committee

State of Kansas, County of Washington, ss.

BE IT REMEMBERED, That on this 31st day of July A.D.1954, before me, the undersigned Notary Public in and for the County and State aforesaid, came Christian E. Sawyer and Clara Elizabeth Sawyer and Edward J.Knedlik, Chairman, Washington Countu ASC and Contracting Officer, who are personally known to me to be the same persons who executed the within instrument of writing, and such persons duly acknowledged the execution of the same.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Notarial seal, the day and year last above written.

(SEAL) A.W.Soller, Notary Public.

Term expires May 7, 1955.

State of Kansas, Washington County, ss.

This instrument was filed for record on the 10th day of December A.D.1954, at 4 o'clock P.M., and duly recorded in book 132 of Deeds on page 84.

(SEAL) W.B.Westing, Register of Deeds.

WARRANTY DEED:

From Wilfred J.Poell and Loretta E.Poell,his wife, To Ruth Corinne Schwartz and Charles T.Schwartz, or survivor.

THIS INDENTURE, Made this 24th day of March A.D.1955 between Wilfred J.Poell and Loretta E.Poell, husband and wife, of Washington County, in the State of Kansas, of the first part, and Ruth Corinne Schwartz and Charles T.Schwartz, wife and husband, and the survivor of them, as joint tenants and not as tenants in common, of Washington County, in the State of Kansas, of the second part.

WITNESSETH,That said parties of the first part, in consideration of the sum of One Dollar ($1.00) and other valuable consideration and No/100 Dollars, the receipt whereof is hereby acknowledged, do by these presents Grant, Bargain, Sell and Convey unto said parties of the second part, their heirs and assigns, all the following-described REAL ESTATE, situated in the County of Washington and State of Kansas, to-wit:

A part of portion of the Southwest Quarter of the Northeast Quarter (SW¼NE¼) of Section Nine (9), Township Two (2), Range Five (5), described as follows, to-wit:

BEGINNING at a point 122 feet due North of the Northwest corner of Lot 8 in Block 2 in Brockmeyer's Addition to the City of Hanover, Kansas; and running thence due North 641½ feet, more or less, to a point 16½ feet South of the North line of the said Southwest Quarter of the Northeast Quarter(SW¼NE¼) of said Section Nine (9), said point being on the South line of the road known as the Cemetery Road; thence East along the South line of said Cemetery Road, 1290 feet, to the East line of said Southwest Quarter of the Northeast Quarter (SW¼NE¼) of said Section Nine (9); thence South along said East line, 1250.8 feet, more or less, to a point 52.7 feet North of the Southeast Corner of said South west Quarter of the Northeast Quarter (SW¼NE¼) of said Section Nine (9), being a point on the North line of the Highway; thence West on said Highway line, 495 feet, more or less, to the Southeast corner of Poell's First Addition to Hanover; thence North 372.6 feet to the Northeast corner of said Poell's First Addition; thence West along the North line of said Poell's First Addition, 399 feet, to the East line of said Brockmeyer's Addition; thence North to the Northeast corner of said Brockmeyer's Addition; thence West,261 feet, more or less, to a point on the North line of said Brockmeyer's Addition 16 feet North and 95 feet East of the Northwest corner of Lot 8 in Block 2 of said Brockmeyer's Addition; thence North,106 feet; thence West, 95 feet, to the place of beginning; containing 28.8 Acres, more or less, situated in the County of Washington and State of Kansas.

TO HAVE AND TO HOLD THE SAME,Together with all and singular the tenements, hereditaments and appurtenances thereunto belonging or in anywise appertaining forever.

And said parties of the first part, for themselves, their heirs, executors, and administrators,do hereby covenant, promise and agree, to and with said parties of the second part that at the delivery of these presents they are lawfully seized in their own right of an absolute and indefeasible estate of inheritance, in fee simple,of and in all and singular the above granted and described premises, with the appurtenances; that the same are free, clear, discharged and unincumbered of and from all former and other grants, titles, charges, estates, judgments, taxes, assessments and incumbrances, of what nature or kind soever; Except, subject to leases to the Commodity Credit Corporation for Hanover Bin Site-005, Hanover, Kansas, and that they will Warrant and Forever Defend the same unto said parties of the second part, their heirs and assigns, against said partiesof the first part, their heirs, and all and every person or persons whomsoever, alwfully claiming or to claim the same.

IN WITNESS WHEREOF,The said parties of the first part have hereunto set their hands, the day and year first above written.

$5.50 U.S.Documentary Revenue Stamps Attached and Cancelled.

Wilfred J.Poell
Loretta E.Poell

State of Kansas, Washington County,ss.

BE IT REMEMBERED,That on this 24th day of March A.D.1955 before me, the undersigned, a Notary Public in and for the County and State aforesaid, came Wilfred J.Poell and Loretta E. Poell, husband and wife, who are personally known to me to be the same persons who executed the within instrument of writing, and such persons duly acknowledged the execution of the same.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my seal, the day and year last above written.

(SEAL) A.C.Wurtz, Notary Public.

Term expires June 27, 1957.

Entered in Transfer Record in my office, this 29th day of March A.D.1955.

Loren A.Lobaugh, County Clerk.

State of Kansas, Washington County,ss.

This instrument was filed for record on the 29th day of March A.D.1955 at 1:30 o'clock P.M.,and duly recorded in Book 133 of Deeds, at page 120.

(SEAL) W.B.Westing,Register of Deeds.

EXTENSION OF LEASE

From Ruth Corinne Schwartz & Charles T. Schwartz To Commodity Credit Corporation

This extension of lease made and entered into this 23rd day of March, 1959, by and between Ruth Corinne Schwartz and Charles T. Schwartz, wife and husband, and the survivor of them, as joint tenants and not as tenants in common, Lessors, hereinafter called Lessor, and Commodity Credit Corporation, hereinafter called Lessee.

WITNESSETH: WHEREAS, The parties hereto have heretofore entered into a certain lease dated July 31, 1954, wherein the lessor leased to the lessee the following described property:

Described as follows: commencing at a point 122 feet due north of the North West corner of Lot 8, Block 2, Brockmeyer's Addition, and 382 feet east the additional land to be leased starts at this point, thence runs due east 138 feet, thence due north 450 feet, thence due west 138 feet to meet the North East corner of land already under lease to the Commodity Credit Corporation.

For a term ending July 31, 1959 and
Whereas, it is desired by the parties hereto to extend the said lease for an additional term under the same terms and conditions:

Now Therefore, it is mutually understood and agreed by and between the parties hereto as follows:

(1) The said lease is hereby extended for an additional term beginning July 31, 1959, and ending July 19, 1965.

(2), Lessors grant and give to the lessee the option of further ranewals of the lease for an additional period of Five (5) years ending July 19,1970, under the same terms and conditions of the lease as extended herein provided the Lessee gives the lessors written notice to renew at least Thirty (30) days prior to the time the lease, as extended, would otherwise expire.

IN WITNESS WHEREOF, The parties hereto have executed this extension of lease on the day first above written.

Ruth Corinne Schwartz, Lessor
(Ruth Corinne Schwartz)

Charles T. Schwartz, Lessor
(Charles T. Schwartz)

COMMODITY CREDIT CORPORATION

By: John R. Dummermuth
(John R. Dummermuth)
Contracting Officer)

State of Kansas, Washington County, ss:

I, A.D. Wurtz, do hereby certify that Ruth Corinne Schwartz and Charles T. Schwartz, to me known to be the person (or persons) who executed the foregoing instrument, personally appeared before me and acknowledged that he (she or they) executed the same as his (her or their) free act and deed and, in case said instrument was executed the same as his (her or their) free act and deed and, in case said instrument was executed on behalf of a corporation, that he (she or they) as John R. Dummermuth, contracting officer, was duly authorized by the Board of Directors of said corporation to execute the said instrument on behalf of said corporation and to affix the corporate seal thereto.

Given under my official hand and seal this day of March 23, 1959.

(SEAL)

A. C. Wurtz, Notary Public
(A. C. Wurtz)

My commission expires June 27, 1961

State of Kansas, Washington County, ss;

This instrument was filed for record on the 11th day of May, 1959 at 4:45 o'clock P.M., and duly recorded in Book 132 of Deeds on Page 446.

(SEAL)

W. B. Westing, Register of Deeds
By: Karel Johnson, Deputy

EXTENSION OF LEASE

FROM Charles T. Schwartz and Ruth Corine Schwartz, Husband and wife TO Commodity Credit Corporation

THIS EXTENSION OF LEASE, madeand entered into this 15th day of June, 1966, by and between Ruth Corine Schwartz and Charles T. Schwartz, hereinafter called Lessor, and Commodity Credit Corporation, hereinafter called Lessee.

WITNESSETH

WHEREAS, the parties hereto have heretofore entered into a certain lease dated July 19, 1950, wherein the Lessor leased to the Lessee the following described property: (Enter Legal description of the property)

Tract of land in the South West Quarter of the North East Quarter (SW¼NE¼) Section Nine (9), Township Two (2), Range Five (5); Described as follows: Commencing at a point, One Hundred Twenty Two Feet due North of the North West Corner of Lot 8 Block 2 Brockmeyer's Addition. Then running due East Six Hundred Thirty-three (633) Feet; then North Four Hundred Fifty (450) feet; then West Six Hundred Twenty-eight (628) feet; then South Four Hundred Fifty (450) feet to the point of beginning.

for a term ending July 31, 1966 and
WHEREAS, it is desired by the parties hereto to extend the said lease for an additional term under the same terms and conditions:
NOW, THEREFORE, it is mutually understood and agreed by and between the parties hereto as follows:

(1) The said lease is hereby extended for an additional term beginning July 31, 1966, and ending July 31, 1971.
(2) Lessors grant and give to the Lessee the option of further renewal of the lease for an additional period of five (5) years ending July 31, 1976, under the same terms and conditions of the lease as extended herein provided the Lessee gives the Lessors written notice to renew at least thirty (30) days prior to the time the lease, as extended, would otherwise expire.
(3) The option to purchase included as paragraph 9 of the said lease is hereby made expressly applicable to this extension and to any renewal of the lease provided for herein.

IN WITNESS WHEREOF, the parties hereto have executed this Extension of Lease on the day first above written.

Charles T. Schwartz
(Lessor)

Ruth Corine Schwartz
(Lessor's spouse)

COMMODITY CREDIT CORPORATION

By: John R. Dummermuth
Chairman Washington ASC County Committee

ACKNOWLEDGMENT

I, Paul K. Wilkinson, do hereby certify that Ruth Corine Schwartz & Charles T. Schwartz, to me known to be the persons who executed the foregoing instrument, personally appeared before me and acknowledged that they executed the same as their free act and deed and, in case said instrument was executed the same as his (her or their) free act and deed and, in case said instrument was executed on behalf of a corporation, that he as John R. Dummermuth, Contracting Officer, Commodity Credit Corporation was duly authorized by the Board of Directors of said corporation to execute the said instrument on behalf of said corporation and to affix the corporate seal thereto.

Given under my official hand and seal this day of June 22, 1966, My commission expires Aug. 7, 1966.

(SEAL)

Paul K. Wilkinson
Notary Public

STATE OF KANSAS, WASHINGTON COUNTY, SS:
This instrument was filed for record on the 28th day of June 1966 at 10:45 o'clock A.M., and duly recorded in Book 136 of Misc. on Page 429.

(SEAL)

W.B. Westing
Register of Deeds

LEASE OF PROPERTY

FROM Ruth C. Schwartz & Charles T. Schwartz. TO Commodity Credit Corporation

THIS LEASE, made and entered into this 17th day of February, 1971, by and between Ruth C. Schwartz & Charles T. Schwartz, Hanover, Ks. 66945 (hereinafter called the "Lessor") and Commodity Credit Corporation, (hereinafter called the "Lessee").

WITNESSETH THAT:

1. The Lessor leases to the Lessee, and the Lessee hereby leases from the Lessor, upon the terms and conditions hereinafter stated, the following described real estate (hereinafter called "property") situated in the County of Washington and State of Kansas.

Tract of land in the Southwest Quarter of the Northeast Quarter (SW¼NE¼) Section Nine (9), Township Two (2), Range Five (5); described as follows: Commencing at a point, one hundred and twenty-two feet due North of the Northwest corner of Lot 8, Block 2, Brockmeyer's addition. Then running due East Six Hundred and thirty-three (633) feet; then North four hundred and fifty (450) feet; then West Six Hundred and twenty-eight (628) feet; then South Four Hundred and fifty (450) feet to the point of beginning. containing 6.5 acres, more or less.

2. The term of the lease shall be for a period of 5 years, commencing the 31st day of July, 1971 and ending the 31st day of July, 1976, with the right of the Lessee, at any time during such term or any extension thereof, to terminate said lease, and liability for any further rent, by giving 30 days' previous notice in writing to the Lessor.

3. As rent for said property, the Lessee shall pay the Lessor Three Hundred and twenty-five Dollars ($325.00) per year, such rent to be payable in advance, but to be apportionable in the event the lease is terminated as provided in paragraph 2 hereof.

4. The Lessor warrants that he is the owner of the property, has the right to give the Lessee possession under this lease, and will, so long as this lease remains in effect, warrant and defend the Lessee's possession against any and all persons whomsoever.

5. The Lessee shall have the right, during this lease, to erect storage structures or facilities, make alterations, install scales, fences, or signs, in or upon the premises hereby leased and, at the expiration of said lease or any renewal or extension thereof or at any time this lease is in effect, may remove said storage structures, facilities, scales, fences or signs or any part thereof, whether or not such structures, facilities, scales, fences or signs have become legally a fixture.

6. The Lessee shall not assign this lease without the written consent of the Lessor. The Lessee, may, however, sublet the structures on the premises leased hereunder, or any one or more of them for the term of the lease or any part thereof upon such terms and conditions as Lessee may wish to so sublet.

7. The Lessee, if required by the Lessor, shall upon the expiration of this lease, restore the premises to the same condition as that existing at the time of first entering upon the same under this lease or under any prior lease from the Lessor to the Lessee which has been continuous, reasonable and ordinary wear and tear and damages by the elements or by circumstances over which the Lessee has no control excepted: Provided, however, That if the Lessor requires such restoration, the Lessor shall give written Notice thereof to the Lessee 30 days before the termination of the lease.

8. The Lessor grants and gives the Lessee the option as a consideration of this lease and for the further consideration of one dollar, the receipt of which is hereby acknowledged, to renew said lease for a period of 5 years from the Lessor, his heirs, executors, administrators, and assigns, for the sum of Three Hundred Twenty-five Dollars ($325.00) per year.

9. As a consideration of this lease and for the further consideration of one dollar, the receipt of which is hereby acknowledged, the Lessor grants and gives the Lessee the option, at any time while this lease is in effect, to purchase said property from the Lessor, his heirs, executors, administrators, and assigns, for the sum of Dollars ($). In the event the Lessee shall exercise this option to purchase said property, the Lessor agrees to furnish at his own expense an abstract of title, certificate of title, or other evidence of title satisfactory to CCC and to execute a good and sufficient warranty deed conveying fee simple title to said property free and clear of all taxes, liens, or encumbrances except for the following, and no others.

10. In the event any increased tax assessment is made against the Lessor or the property by virtue of the erection of storage structures and facilities thereon by the Lessee, the Lessor agrees to cooperate fully in any contest of such increased assessment which the Lessee feels should be made. The Lessee agrees that the rental hereunder shall be adjusted upward by the amount of any such increased tax assessment which the Lessor and Lessee mutually agree to be proper or which is determined to be legally valid in court proceedings.

11. No member of or Delegate to Congress or Resident Commissioner, shall be admitted to any share or part of this lease or purchase or to any benefit that may arise therefrom, but this provision shall not be construed to extend to this lease or purchase if made with a corporation for its general benefit.

12. The Lessor warrants that he has not employed any person to solicit or secure this lease upon any agreement for a commission, percentage, brokerage, or contingent fee and that no such consideration or payment has been or will be made. Breach of this warranty shall give CCC the right to annul the lease, or, in its discretion, to deduct from the rental or purchase price the amount of such commission, percentage, brokerage, or contingent fees. This warranty shall not apply to commissions payable by the Lessor if the lease is secured or made through a bona-fide

agent maintained by the Lessor for the purpose of leasing or selling his property.

COMMODITY CREDIT CORPORATION, LESSEE

(SEAL) Charles T. Schwartz, Lessor
(Charles T. Schwartz)

(SEAL) Ruth Corine Schwartz, Lessor
(Ruth Corine Schwartz)

Regina Overwald, Witness
(Regina Overwald)

By: Emil Peters
(Emil Peters) Chairman, Washington ASC County Committee Contracting Officer.

I, Paul K. Wilkinson, do hereby certify that Charles T. Schwartz & Ruth Corine Schwartz, to me known to be the persons who executed the foregoing instrument, personally appeared before me and acknowledged that they executed the same as their free act and deed.
Given under my official hand and seal this day of 17th of February, 1971.

Paul K. Wilkinson
Notary Public
Washington Co., Kans.

Paul K. Wilkinson
Notary Public.

My commission expires: August 7, 1974.

The above Lease of Property was recorded & filed for record on March 8, 1971 at 10 o'clock A.M. and duly recorded in Volume 136, page 536.
State of Kansas, County of Washington.

(SEAL)

W.B. Westing
Register of Deeds.

SEVERANCE AGREEMENT

FROM Hoovers, Inc. of Greenleaf, Kansas TO Hawkeye Chemical Company of Clinton, Iowa.

WHEREAS Hoovers, Inc. of Greenleaf, Kansas is leasing from Hawkeye Chemical
Name of Lessee Address
Company of Clinton, Iowa, the following equipment.

Type of Equipment	Serial Number
1 - We-Mac Mfg. 12,000 Gal. Solution Storage Tank	1-SOL-NEBR-68-22
1 - Barnes 5 HP 3 PH Pump and Motor	

Located on the following described Real Estate situated in the County of Washington State of Kansas.

S.E. ¼ Section 4 T 4 S R. 4 E., 200 Feet North at the Missouri Pacific Railroad, 25 feet West of Local Street, Pine Grove St. at Greenleaf, Kansas.

It is agreed by Both Parties that such structures and/or equipment

1. Shall remain severed from said Real Estate, and,
2. Even if attached to the realty, shall remain their personal character, shall be removable from the real estate treated as personal property with respect to the right of the parties and shall not become fixtures or a part of the real estate, and,
3. Shall not be subject to the lien of any security transaction or instrument heretofore or hereafter rising againstthe structure or realty on which it is placed.

IN WITNESS WHEREOF, the undersigned have executed these presents on the dates immediately below their respective signatures.

HOOVERS, INC.

James Hoover
Signature of Lessee

Date 2-18-71

HAWKEYE CHEMICAL COMPANY

R.H. Woodward
President

Date 2-23-71.

Entered in Transfer Record in my office, this 22nd day of March A.D. 1974.

Eileen Cox
County Clerk

STATE OF KANSAS, WASHINGTON COUNTY, SS:

This instrument was filed for record on the 22nd day of March A.D. 1974, at 3:30 P.M. and duly recorded in Book 150 of Deeds, at page 15.

(SEAL) W. B. Westing
Register of Deeds

WARRANTY DEED

FROM: Ruth Corinne Schwartz and Charles T. Schwartz, Husband and wife

TO: Roger D. Warren

THIS INDENTURE, Made this 16 day of October A.D. 1971, between Ruth Corinne Schwartz and Charles T. Schwartz, wife and husband of Washington County, in the State of Kansas of the first part, and Roger D. Warren of Washington County, in the State of Kansas of the second part,

WITNESSETH, That said parties of the first part, in consideration of the sum of One Dollar and other valuable consideration ----Dollars, the receipt whereof is hereby acknowledged, do by these presents grant, bargain, sell and convey unto said party of the second part, his heirs and assigns, all the following described real estate, situated in the County of Washington and State of Kansas, to wit:

All or the following described real estate, situated in the county of Washington and State of Kansas, to-wit:

A part of portion of the Southwest Quarter of the Northeast Quarter (SW¼NE¼) of Section Nine (9), Township Two (2), Range Five (5) described as follows, to-wit: BEGINNING at a point 122 feet due north of the Northwest corner of Lot 8 in Block 2 in Brockmeyer's Addition to the City of Hanover, Kansas; and running thence due North 641½ feet, more or less, to a point 16½ feet south of the North Line of the Southwest Quarter of the Northeast Quarter (SW¼NE¼) of said Section Nine (9), said point being on the south line of the road known as the Cemetery Road; thence East along the south line of said Cemetery Road 1290 feet, to the East line of said Southwest Quarter of the Northeast Quarter (SW¼NE¼) of said Section Nine (9); thence South along said East line, 1250.8 feet, more or less, to a point 52.7 feet north

of the Southeast corner of the Southwest Quarter of the Northeast Quarter (SW¼NE¼) of said Section Nine (9), being a point on the North line of the Highway; thence West on said highway line, 495 feet, more or less, to the Southeast corner of Poell's First Addition to Hanover; thence North 372.6 feet to the Northeast corner of said Poell's First Addition; thence West along the North line of said Poell's First Addition, 399 feet, to the east line of said Brockmeyer's Addition; thence North to the Northeast corner of said Brockmeyer's Addition; thence West 261 feet, more of less, to a point on the North line of said Brockmeyer's Addition 16 feet north and 90 feet east of the Northwest corner of Lot 8 in Block 2 of said Brockmeyer's Addition; thence North 106 feet; thence West 90 feet, to the place of beginning; containing 28.8 acres, more of less, situated in the County of Washington and State of Kansas;

EXCEPT the following described tract of land: A tract of land in the Southeast corner of the Southwest Quarter of the Northeast Quarter (SW¼NE¼) of Section Nine (9), Township Two (2) South, Range Five (5) East of the 6th P.M. described as follows: Beginning at a point 250 feet east of the Northeast corner of Poell's Addition to the City of Hanover, which is 250 feet east of the steel stake in the ground at a point 35 feet east and 70 feet north of the Northeast corner of Lot One (1) in said Poell's Addition to the City of Hanover; thence running East 245 feet, more or less, to the east line of the Southwest Quarter of the Northeast Quarter of said Section Nine (9); thence South to a point on the north line ofHighway 15-E which point is about 52 feet north of the Southeast corner of the Southwest Quarter of the Northeast Quarter of said Section Nine (9); thence West 245 feet, more or less, to the east line of the tract heretofore conveyed to said grantees by warranty deed recorded in Book 135, Page 544 of the Deed Records of said county; thence North to the place of beginning, all in Washington County, Kansas;

ALSO EXCEPT the following described tract of land: A tract of land beginning at a point 35 feet east and 70 feet north of the northeast corner of Lot One (1), in Poell's Addition to the City of Hanover, Washington County, Kansas, said point being designated by a steel stake driven in the ground, thence east 250 feet, thence South to the north line of Highway 15, thence West 250 feet, to a point 35 feet directly east of the Southeast corner of Lot Eight (8) in said Addition thence North to the place of beginning, being out of the Southwest Quarter of Northeast Quarter (SW¼NE¼) of Section Nine (9), Township Two (2) Range Five (5), in Washington County, Kansas;

AND ALSO EXCEPT the following described tract of land: A tract of land beginning at a point 425.3 feet north of the Southeast corner of the Southwest Quarter of the Northeast Quarter (SW¼NE¼) of Section Nine (9), Township Two (2) Range Five (5), thence north 878.2 feet, more or less, to a point 16.5 feet south of the north line of said Southwest Quarter of the Northeast Quarter (SW¼NE¼) of Section Nine (9), Township Two (2) Range Five (5), said point being on the south line of the road known as the Cemetery Road; thence west along the south line of said Cemetery Road 1290 feet; thence South 191.5 feet; thence East 628 feet, more or less, thence South 450 feet; thence West 538 feet; thence South 106 feet; thence East 660 feet; thence South 158 feet to the Northeast corner of Poell's Addition, thence east 495 feet to the place of beginning, all in Washington County, Kansas.

TO HAVE AND TO HOLD THE SAME, Together with all and sigular the tenements, hereditaments and appurtenances thereunto belonging or in anywise appertaining, forever.

And said Grantors, for for themselves, their heirs, executors or administrators, do hereby covenant, promise and agree to andwith said party of the second part, that at the delivery of these presents they are lawfully seized in their own right, of an absolute and indefeasible estate of inheritance, in fee simple, of and in all and singular the above granted and described premises, with the appurtenances; that the same are free, clear, discharged and unincumbered of and from all former and other grants, titles, charges, estates, judgments, assessments and incumbrances, of what nature or kind soever, and that they will warrant and forever defend the same unto said party of the second part, his heirs and assigns, against said parties of the first part, their heirs, and all and every person or persons, whomsoever, lawfully claiming or to claim the same.

IN WITNESS WHEREOF, the said parties of the first part have hereunto set their hands, the day and year first above written.

Ruth Corinne Schwartz
(Ruth Corinne Schwartz)

Charles T. Schwartz
(Charles T. Schwartz)

STATE OF KANSAS, WASHINGTON COUNTY, ss.
The foregoing instrument was acknowledged before me this 16 day of October, 1971 by Ruth Corinne Schwartz and Charles T. Schwartz, wife and husband,

William Byrnes (SEAL)
Notary Public
Washington County, Kansas
My commission expires March 29, 1974

William Byrnes
(William Byrnes) Notary Public

Entered in Transfer Record in my office this 25th day of March A. D. 1974.

Eileen Cox
County Clerk

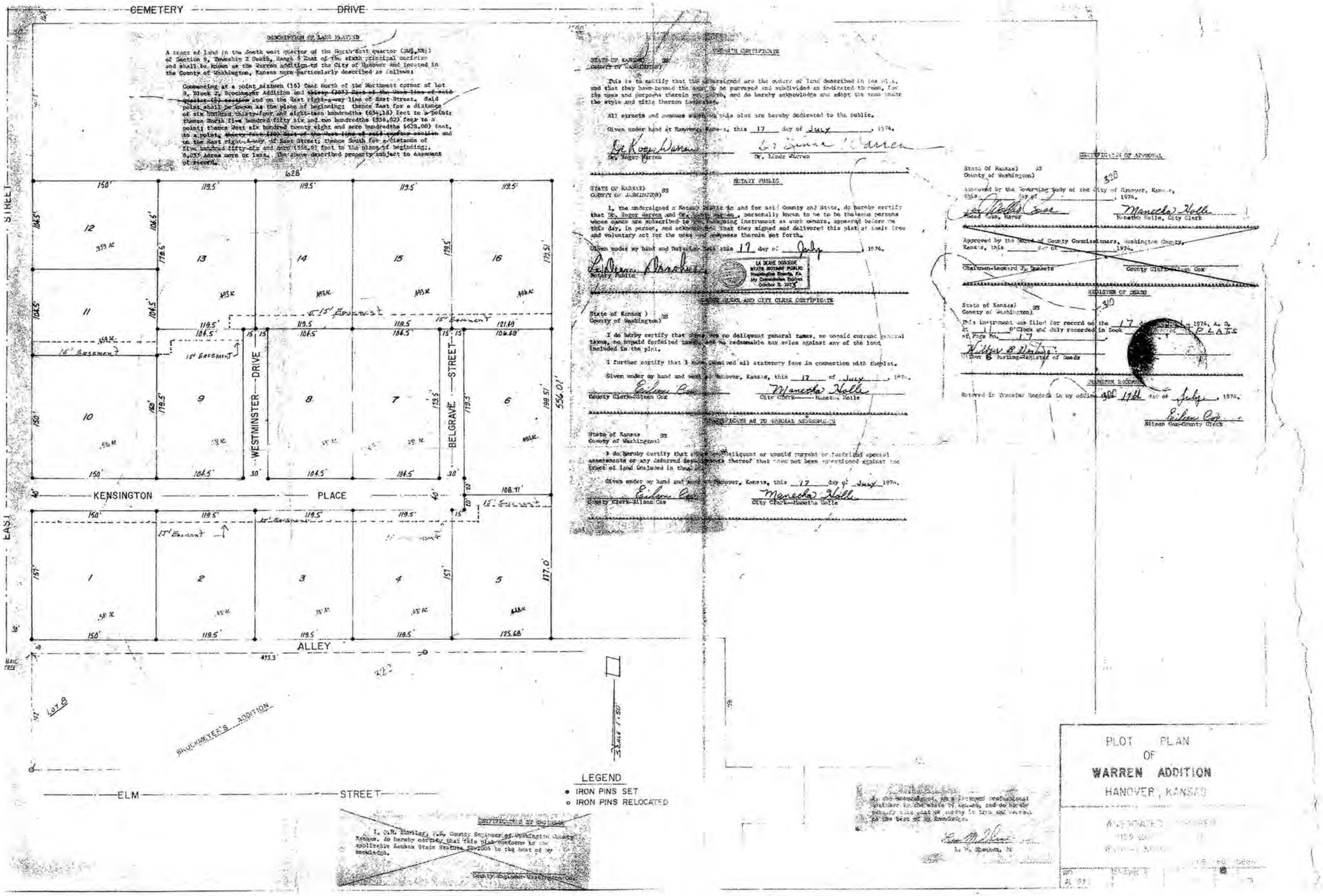
STATE OF KANSAS ss.
Washington County,

This instrument was filed for record on the 25th day of March A. D. 1974, at 2:45 o'clock P.M., and duly recorded in Book 150 of Deeds, at page 16.

(SEAL)

W. B. Westing
Register of Deeds

WARRANTY DEED


GEMETERY
DRIVE
DESCRIPTION OF LAND PLATTED
A tract of land in the South west quarter of the North east quarter (SW¼NE¼) of Section 9, Township 1 South, Range 5 East of the sixth principal meridian and shall be known as the Warren addition to the City of Hanover and located in the County of Washington, Kansas more particularly described as follows:
Commencing at a point sixteen (16) feet north of the Northeast corner of Lot 8, Block 2, Brockmeyer Addition and ~~thirty (30) feet of the South line of said section (2) section~~ and on the East right-a-way line of East Street. Said point shall be known as the place of beginning; thence East for a distance of six hundred thirty-four and eight-tenn hundredths (634.18) feet to a point; thence North five hundred fifty six and two hundredths (556.02) feet to a point; thence West six hundred twenty eight and zero hundredths (628.00) feet, to a point; ~~thence ten (10) feet of the East line of said section~~ and to the East right-A-way of East Street; thence South for a distance of five hundred fifty-six and zero (556.0) feet to the place of beginning;. 8.035 Acres more or less. The above described property subject to easement of record.
628'
150'
119.5'
119.5'
119.5'
119.5'
12
13
14
15
16
11
15' Easement
15' Easement
121.19'
106.48'
15' Easement
15' Easement
10
9
8
7
6
WESTMINSTER DRIVE
BELGRAVE STREET
556.01'
KENSINGTON PLACE
108.71'
15' Easement
1
2
3
4
5
177.0'
125.68'
ALLEY
473.3'
LOT 8
BROOKMEYER'S ADDITION
SCALE 1"=50'
ELM STREET
LEGEND
• IRON PINS SET
o IRON PINS RELOCATED
OWNER'S CERTIFICATE
STATE OF KANSAS
COUNTY OF WASHINGTON
This is to certify that the undersigned are the owners of land described in the plat, and that they have caused the same to be surveyed and subdivided as indicated thereon, for the uses and purposes therein set forth, and do hereby acknowledge and adopt the same under the style and title thereon indicated.
All streets and avenues shown on this plat are hereby dedicated to the public.
Given under hand at Hanover, Kansas, this 17 day of July, 1974.
Dr. Roger Warren
Dr. Linda Warren
NOTARY PUBLIC
STATE OF KANSAS
COUNTY OF WASHINGTON
I, the undersigned a Notary Public in and for said County and State, do hereby certify that Dr. Roger Warren and Dr. Linda Warren, personally known to me to be the same persons whose names are subscribed to the foregoing instrument as such owners, appeared before me this day, in person, and acknowledged that they signed and delivered this plat of their free and voluntary act for the uses and purposes therein set forth.
Given under my hand and Notarial Seal this 17 day of July, 1974.
Notary Public
LA DEAN DORSEE
STATE OF KANSAS NOTARY PUBLIC
Washington County, Kansas
My Commission Expires
October 8, 1975
COUNTY CLERK AND CITY CLERK CERTIFICATE
State of Kansas
County of Washington
I do hereby certify that there are no delinquent general taxes, no unpaid current general taxes, no unpaid forfeited taxes, and no redeemable tax sales against any of the land included in the plat.
I further certify that I have received all statutory fees in connection with the plat.
Given under my hand and seal at Hanover, Kansas, this 17 day of July, 1974.
County Clerk-Eileen Cox
City Clerk-Manetha Nolle
CERTIFICATE AS TO SPECIAL ASSESSMENTS
State of Kansas
County of Washington
I do hereby certify that there are no delinquent or unpaid current or forfeited special assessments or any deferred special assessments thereof that have not been apportioned against the tract of land included in the plat.
Given under my hand and seal at Hanover, Kansas, this 17 day of July, 1974.
County Clerk-Eileen Cox
City Clerk-Manetha Nolle
CERTIFICATE OF APPROVAL
State Of Kansas
County of Washington
Approved by the Governing Body of the City of Hanover, Kansas, this day of , 1974.
Mayor
Manetha Nolle, City Clerk
Approved by the Board of County Commissioners, Washington County, Kansas, this day of , 1974.
Chairman-Leonard J. Dabelle
County Clerk-Eileen Cox
REGISTER OF DEEDS
State of Kansas
County of Washington
This instrument was filed for record on the 17 day of July, 1974, at 9 o'Clock and duly recorded in Book PLATS at Page No. 17
Register of Deeds
TRANSFER RECORD
Entered in Transfer Records in my office this 17th day of July, 1974.
Eileen Cox-County Clerk
I, the undersigned, as a licensed professional surveyor in the state of Kansas, and do hereby certify this plat or survey to be true and correct to the best of my knowledge.
L. S.
I, O.M. Shepley, P.E. County Engineer of Washington County, Kansas, do hereby certify that this plat conforms to the applicable Kansas State Statutes Chapter 58 to the best of my knowledge.
County Engineer-Washington Co.
PLOT PLAN
OF
WARREN ADDITION
HANOVER, KANSAS

CONSOLIDATED BLANK-STANDARD-B-75 MADE IN KANSAS

FROM

Roger D. Warren & Linda D. Warren
Husband and wife

TO

Leonard G. Meier & Eleanora C. Meier,
husband and wife

Entered in Transfer Record in my office this 13th day of May, A. D., 19 75.
Eileen Cox, County Clerk.
, Deputy.

STATE OF KANSAS, WASHINGTON COUNTY, ss.
This instrument was filed for record on the 13th day of May, A. D. 19 75, at 11 o'clock A. M. and duly recorded in Book 153 of Deeds Page 331
(Seal)
W. B. Westing, Register of Deeds.
By , Deputy.

THIS INDENTURE, Made this 1st day of May A. D. 19 75, between

Roger D. Warren & Linda D. Warren, husband & wife

of Washington County, in the State of Kansas, of the first part, and

Leonard G. Meier and Eleanora C. Meier, husband & wife

of Washington County, in the State of Kansas as joint tenants with the right of survivorship and not as tenants in common, , of the second part:

WITNESSETH, That the said part ies of the first part, in consideration of the sum of One Dollar and other valuable consideration - - - and - 100 DOLLARS, the receipt whereof is hereby acknowledged, do by these presents grant, bargain, sell and convey unto the said part ies of the second part, as joint tenants with the right of survivorship, and not as tenants in common, all of the following described REAL ESTATE, situated in the County of Washington, and State of Kansas, to wit:

Lots Eleven (11) and Twelve (12), in Warren's Addition to the City of Hanover, subject to restrictions and easements of record.

TO HAVE AND TO HOLD THE SAME, Together with all and singular the tenements, hereditaments and appurtenances thereunto belonging or in anywise appertaining, forever as joint tenants, the survivor to take the whole estate.

And said grantors, for themselves, their heirs, executors, or administrators, do hereby covenant, promise and agree, to and with said part ies of the second part, that at the delivery of these presents they are lawfully seized in their own right of an absolute and indefeasible estate of inheritance, in fee simple, of and in all and singular the above granted and described premises, with the appurtenances; that the same are free, clear, discharged and unincumbered of and from all former and other grants, titles, charges, estates, judgments, taxes, assessments and incumbrances, of what nature or kind soever;

and that they will WARRANT AND FOREVER DEFEND the same unto the said part ies of the second part, as joint tenants with the right of survivorship and not as tenants in common, their assigns, and the heirs and assigns of the survivor of them against the said part ies of the first part, their heirs, and all and every person or persons whomsoever, lawfully claiming or to claim the same.

IN WITNESS WHEREOF, The said part ies of the first part have hereunto set their hands, the day and year first above written.

Roger D. Warren (Roger D. Warren)
Linda D. Warren (Linda D. Warren)

STATE OF KANSAS WASHINGTON COUNTY, ss.

The foregoing instrument was acknowledged before me this 1st day of May, 1975 by Roger D. Warren and Linda D. Warren, husband and wife.

(SEAL) PAUL L. MONTY NOTARY PUBLIC WASHINGTON COUNTY, KANS.
Paul L. Monty (Paul L. Monty)

My commission expires July 21, 1978

STATE OF KANSAS, COUNTY, ss.
Be It Remembered, That on this day of , A. D. 19 , before me, the undersigned, a Notary Public in and for the County and State aforesaid, came

who personally known to me to be the same person who executed the within instrument of writing, and such person duly acknowledged the execution of the same.

(SEAL) IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Seal, the day and year last above written.

Notary Public

TOTAL P.02

Appendix B:

Water Well Registration Data Used in Construction of Hydrogeologic Cross Sections A-A´ and B-B´

Contents

Table B.1 Summary of water well records used to construct hydrogeologic cross sections A-A´ and B-B´

Water well records for cross section A-A´:

City of Hanover PWS
Joe Schmidt
David Eldean
Dennis Minge
Alan Bruna
Bill's Service Center (MW10)
USD 223
Bill's Service Center (MW9)
Louis Taylor

Water well records for cross section B-B´:

Duane Bruna
Gary Minge
Jim Kruse
Dennis Doebele
Tony Bruna
Ted Bruna
Alan Bruna

TABLE B.1 Summary of water well logs used for cross sections A-A' and B-B'.

Owner	Depth (ft BGL)						Well Use	Date of completion
	Well	Static Water Level)	Screen Interval	Clay/silt	Sand/Gravel	Shale and Limestone		
A-A' (W-E)								
1 City of Hanover PWS	41	20	unknown	0-20	20-41		Plugged	07/28/87
2 Joe Schmidt	52	25	42-52	0-26	26-55	55-60	Lawn/garden	04/21/99
3 David Eldean	58	35	38-58	0-36	36-58	58-62	Lawn/garden	10/27/03
4 Dennis Minge	62	20	32-52	0-45		45-62	Lawn/garden	10/27/01
5 Alan Bruna	80	55	40-60	0-6		6-80	Domestic	07/03/89
6 Bill's Service Center (MW10)	50	39.6	30-50	0-17		17-50	Monitoring well	02/13/97
7 USD 223	75	56	55-75	0-3		3-75	Lawn/garden	04/08/92
8 Bill's Service Center (MW9)	45	42.9	25-45	0-13	13-25	25-45	Monitoring well	02/12/97
9 Louis Taylor	62	29	42-62	0-8		8-62	Domestic	11/17/99
B-B' (SW-NE)								
1 Duane Bruna	45	25	25-45	0-31	31-44	44-50	Lawn/garden	06/02/00
2 Gary Minge	54	40	34-54	0-45	45-50	50-54	Domestic	08/17/82
3 Jim Kruse	58		48-58	0-54		54-58	Domestic	04/08/92
4 Dennis Doeble	82	40	42-62	0-1		1-82	Domestic	11/07/90
5 Tony Bruna	82	52	62-82	0-8		8-142	Lawn/garden	07/07/00
6 Ted Bruna	80	60	65-75	0-8		8-80	Domestic	07/03/89
7 Alan Bruna	80	55	40-60	0-6		6-80	Domestic	07/03/89

Source: KDHE water well registration WWC-5 records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212 PLUGGING REPORT

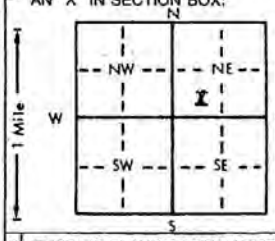
1 LOCATION OF WATER WELL: County: Washington	Fraction ¼ SW ¼ NE ¼	Section Number 8	Township Number T 2 S	Range Number R 5 E/W

Distance and direction from nearest town or city street address of well if located within city?
605 W. North St.

2 WATER WELL OWNER: City of Hanover
RR#, St. Address, Box # : P. O. Box 416
City, State, ZIP Code : Hanover, Ks.

Board of Agriculture, Division of Water Resources Application Number: N/A Available

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL $ 41 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. 20 ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 20 ft. below land surface measured on mo/day/yr 7/14/87
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter in. to ft., and in. to ft.
WELL WATER ~~TO BE~~ WAS USED AS: 5. Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6. Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Observation well
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No

5 TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Dug well Brick walls. Threaded
Blank casing diameter 12 ft. x to ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 5 ft. below in., weight lbs./ft. Wall thickness or gauge No.
TYPE OF SCREEN OR PERFORATION MATERIAL: 7 PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)
SCREEN-PERFORATED INTERVALS: From ft. to ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From ft. to ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 5 ft. to 4.5 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 14 Abandoned water well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 15 Oil well/Gas well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer storage 16 Other (specify below)
13 Insecticide storage
Direction from well? How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
41	20	21 ft. sand			
20	5	Clay type soil			
5	4.5	6 inch concrete slab			
4.5	0	Black topsoil			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 7/28/87 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. This Water Well Record was completed on (mo/day/yr) 1/28/88 under the business name of by (signature) Gary Martin

INSTRUCTIONS: Use typewriter or ball point pen, *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Division of Environment, Environmental Geology Section, Topeka, KS 66620. Send one to WATER WELL OWNER and retain one for your records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Washington	SE ¼ SW ¼ NE ¼	8	T 2 S	R 5 (E/W)

Distance and direction from nearest town or city street address of well if located within city?
212 N Wulff

2 WATER WELL OWNER: Joe Schmidt
RR#, St. Address, Box # : Rt. 1
City, State, ZIP Code : Hanover, KS. 66945

Board of Agriculture, Division of Water Resources
Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N / NW / NE / W / E / SW / SE / S

4 DEPTH OF COMPLETED WELL 52 ft. ELEVATION:
Depth(s) Groundwater Encountered 1 ft. 2 ft. 3 ft.
WELL'S STATIC WATER LEVEL 25 ft. below land surface measured on mo/day/yr 4/21/99
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 50 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 9 in. to 60 ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Monitoring well
Was a chemical/bacteriological sample submitted to Department? Yes No * ; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes * No

5 TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued * Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded
Blank casing diameter 5 in. to 42 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 18 in., weight 200 lbs./ft. Wall thickness or gauge No. .265
TYPE OF SCREEN OR PERFORATION MATERIAL: 7 PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)
SCREEN-PERFORATED INTERVALS: From 42 ft. to 52 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 25 ft. to 52 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 5 ft. to 25 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well
1 Septic tank 4 Lateral lines 7 Pit privy 11 Fuel storage 15 Oil well/Gas well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage 16 Other (specify below)
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage
Direction from well? None How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	3	Topsoil			
3	26	Brown Clay			
26	34	Sand (Fine)			
34	55	Sand (Med.-Corse)			
55	60	Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 4/21/99 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 518 This Water Well Record was completed on (mo/day/yr) 4/28/99
under the business name of Blue Valley Drilling by (signature)

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001, Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R BWM SEC. ¼ ¼ ¼

WATER WELL RECORD Form WWC-5 KSA 82a-1212 ID No.

1 LOCATION OF WATER WELL:

County:	Fraction	Section Number	Township Number	Range Number
Washington	NE ¼ NE ¼ SE ¼	8	T 2 S	R 5 (E)W

Distance and direction from nearest town or city street address of well if located within city?
605 W. North St.

2 WATER WELL OWNER: David Eldean
RR#, St. Address, Box # : 605 W. North St.
City, State, ZIP Code : Hanover, KS. 66945

Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
NW NE
W * E
SW SE
S

4 DEPTH OF COMPLETED WELL 58 ft. ELEVATION:
Depth(s) Groundwater Encountered 1 ..... ft. 2 ..... ft. 3 ..... ft.
WELL'S STATIC WATER LEVEL 35 ft. below land surface measured on mo/day/yr 10/27/03
Pump test data: Well water was ..... ft. after ..... hours pumping ..... gpm
Est. Yield 50 gpm: Well water was ..... ft. after ..... hours pumping ..... gpm
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) 10 Monitoring well Lawn & Garden
Was a chemical/bacteriological sample submitted to Department? Yes ..... No * ; If yes, mo/day/yrs sample was submitted
Water Well Disinfected? Yes * No

5 TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued * Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded
Blank casing diameter 5 in. to 38 ft., Dia ..... in. to ..... ft., Dia ..... in. to ..... ft.
Casing height above land surface 18 in., weight 200 lbs./ft. Wall thickness or guage No. .265
TYPE OF SCREEN OR PERFORATION MATERIAL: 7 PVC 10 Asbestos-Cement
1 Steel 3 Stainless Steel 5 Fiberglass 8 RMP (SR) 11 Other (Specify)
2 Brass 4 Galvanized Steel 6 Concrete tile 9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 5 Gravel wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify) ft.
SCREEN-PERFORATED INTERVALS: From 38 ft. to 58 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.
GRAVEL PACK INTERVALS: From 30 ft. to 58 ft., From ..... ft. to ..... ft.
From ..... ft. to ..... ft., From ..... ft. to ..... ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 5 ft. to 30 ft., From ..... ft. to ..... ft., From ..... ft. to ..... ft.
What is the nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well
1 Septic tank 4 Lateral lines 7 Pit privy 11 Fuel storage 15 Oil well/Gas well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage 16 Other (specify below)
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage
Direction from well? None Present How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	2	Topsoil			
2	36	Brown Clay (Silty)			
36	41	Sand (Fine/Yellow)			
41	58	Sand (Med.-Course/Yellow)			
58	62	Limestone & Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 10/27/03 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 518 This Water Well Record was completed on (mo/day/yr) 10/30/03
under the business name of Blue Valley Drilling by (signature)

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Geology Section, 1000 SW Jackson St., Suite 420, Topeka, Kansas 66612-1367. Telephone 785-296-5522. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well.

WATER WELL RECORD Form WWC-5 KSA 82a-1212 ID No.

1 LOCATION OF WATER WELL: County: Washington | Fraction: SW ¼ SW ¼ NW ¼ | Section Number: 9 | Township Number: T 2 S | Range Number: R 5 E/W

Distance and direction from nearest town or city street address of well if located within city?: 204 W North

2 WATER WELL OWNER: Dennis Minge
RR#, St. Address, Box #: 204 W North
City, State, ZIP Code: Hanover, KS 66945

Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N, NW, NE, W, *, E, SW, SE, S

4 DEPTH OF COMPLETED WELL: 62 ft. ELEVATION:

Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. 10/27/01 ft.

WELL'S STATIC WATER LEVEL 20 ft. below land surface measured on mo/day/yr

Pump test data: Well water was ft. after hours pumping gpm

Est. Yield 10 gpm: Well water was ft. after hours pumping gpm

Bore Hole Diameter 10 in. to 62 ft., and in. to ft.

WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Domestic (lawn & garden) 10 Monitoring well Garden

Was a chemical/bacteriological sample submitted to Department? Yes No *; If yes, mo/day/yr sample was submitted

Water Well Disinfected? Yes * No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)

CASING JOINTS: Glued * Clamped Welded Threaded

Blank casing diameter 5 in. to 32 ft., Dia in. to ft., Dia in. to ft.

Casing height above land surface 18 in., weight 200 lbs./ft. Wall thickness or gauge No. .265

TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)

SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)

SCREEN-PERFORATED INTERVALS: From 32 ft. to 52 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

GRAVEL PACK INTERVALS: From 20 ft. to 62 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other

Grout Intervals: From 0 ft. to 20 ft., From ft. to ft., From ft. to ft.

What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)

Direction from well? None How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	3	Topsoil			
3	45	Gray Clay			
45	62	Red Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 10/27/01 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 518 This Water Well Record was completed on (mo/day/yr) 11/11/01 under the business name of Blue Valley Drilling by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone 785-296-5524. Send one to WATER WELL OWNER and retain one for your records. Fee of $5.00 for each constructed well.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Washington	NW ¼ NW ¼ SE ¼	9	T 2 S	R 5 (E) W

Distance and direction from nearest town or city street address of well if located within city? East edge of Town

2 WATER WELL OWNER: Alan Bruna
RR#, St. Address, Box # : 1075 Hollenberg
City, State, ZIP Code : Hanover, Kansas 66945

Board of Agriculture, Division of Water Resources
Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N — NW — NE — W — X — E — SW — SE — S — 1 Mile

4 DEPTH OF COMPLETED WELL 80 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 55 ft. below land surface measured on mo/day/yr 7-3-89
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 15 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 8 in. to 80 ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic X 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Monitoring well
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes X No

5 TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued X Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC X 4 ABS 7 Fiberglass Threaded
Blank casing diameter 5 in. to ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 24 in., weight 200 lbs./ft. Wall thickness or gauge No.
TYPE OF SCREEN OR PERFORATION MATERIAL: 7 PVC X 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut X 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)
SCREEN-PERFORATED INTERVALS: From 40 ft. to 60 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 20 ft. to 80 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite X 4 Other
Grout Intervals: From 0 ft. to 20 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well
1 Septic tank 4 Lateral lines 7 Pit privy 11 Fuel storage 15 Oil well/Gas well
2 Sewer lines ✓ 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage 16 Other (specify below)
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage
Direction from well? West How many feet? 1000+

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	6	Brown Clay			
6	35	Tan shale + Limestone			
35	52	Red shale			
52	57	Tan shale + limestone			
57	80	gray shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 7-3-89 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 2340 This Water Well Record was completed on (mo/day/yr) 10/4/89
under the business name of Strader's Blue Valley Drilling by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water Protection, Topeka, Kansas 66620-7320. Telephone: 913-296-5514. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

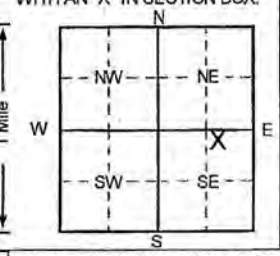
WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: **Washington**	NW ¼ NE ¼ SE ¼	9	T 2 S	R 5 (E)/W

Distance and direction from nearest town or city street address of well if located within city?
1/4 mile East of Hanover, Kansas

2 WATER WELL OWNER: **Bill's Service Center**
RR#, St. Address, Box # : **2832 Hilltop Avenue**
City, State, ZIP Code : **Hanover, Kansas 66945**
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 50 ft. ELEVATION: 1290.85
Depth(s) Groundwater Encountered 1. 44 ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 41.89 ft. below land surface measured on mo/day/yr 2/18/97
Pump test data: Well water was NA ft. after hours pumping gpm
Est. Yield NA gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 8 in. to 50 ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only (10) Monitoring well
Was a chemical/bacteriological sample submitted to Department? Yes No ✓; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No ✓

5 TYPE OF BLANK CASING USED:
1 Steel 3 RMP (SR) 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued Clamped
(2) PVC 4 ABS 6 Asbestos-Cement 9 Other (specify below) Welded
7 Fiberglass Threaded ✓
Blank casing diameter 2 in. to 30 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 27.6 in., weight lbs./ft. Wall thickness or gauge No. Sch. 40
TYPE OF SCREEN OR PERFORATION MATERIAL
1 Steel 3 Stainless steel 5 Fiberglass (7) PVC 10 Asbestos-cement
2 Brass 4 Galvanized steel 6 Concrete tile 8 RMP (SR) 11 Other (specify)
9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE:
1 Continuous slot (3) Mill slot 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
2 Louvered shutter 4 Key punched 6 Wire wrapped 9 Drilled holes
7 Torch cut 10 Other (specify)
SCREEN-PERFORATED INTERVALS: From 30 ft. to 50 ft., From ft. to ft
From ft. to ft., From ft. to ft
GRAVEL PACK INTERVALS: From 27 ft. to 50 ft., From ft. to ft
From ft. to ft., From ft. to ft

6 GROUT MATERIAL: 1 Neat cement (2) Cement grout (3) Bentonite 4 Other
Grout Intervals: From 0 ft. to 25 ft., From 25 ft. to 27 ft., From ft. to ft
What is the nearest source of possible contamination:
1 Septic tank 4 Lateral lines 7 Pit privy 10 Livestock pens 14 Abandoned water well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 15 Oil well/Gas well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer storage (16) Other (specify below)
13 Insecticide storage AST Basin
Direction from well? NE How many feet? 380

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	1	Clay, Dark Brown			
1	17	Clay, Light Green to Light Gray			
17	33	Shale, Red Brown			
33	50	Shale, Green Gray			
					(MW10) Tag # 00181268 , Abovegrade
					Project Name: Bill's Service Center
					GeoCore # 406 , KDHE # A5 101 40078

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 2/13/97 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 527 This Water Well Record was completed on (mo/day/yr) 2/21/97 under the business name of **GeoCore Services, Inc.** by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Washington	NE ¼ NW ¼ SE ¼	9	T 2 S	R 5 E/W

Distance and direction from nearest town or city street address of well if located within city?
East edge of Hanover

2 WATER WELL OWNER: UNIFIED SCHOOL DISTRICT NO. 223
RR#, St. Address, Box # : Box 188
City, State, ZIP Code : Barnes, Ks. 66933

Board of Agriculture, Division of Water Resources
Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N / NW / NE / W / E / SW / SE / S / 1 Mile

4 DEPTH OF COMPLETED WELL 75 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 56 ft. below land surface measured on mo/day/yr 4/8/92
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 15 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 8 in. to 75 ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Monitoring well
Was a chemical/bacteriological sample submitted to Department? Yes No *; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes * No

5 TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued * Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded
Blank casing diameter 5 in. to 55 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 24 in., weight 200 lbs./ft. Wall thickness or gauge No.
TYPE OF SCREEN OR PERFORATION MATERIAL: 7 PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)
SCREEN-PERFORATED INTERVALS: From 55 ft. to 75 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 30 ft. to 75 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 5 ft. to 30 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well
1 Septic tank 4 Lateral lines 7 Pit privy 11 Fuel storage 15 Oil well/Gas well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage 16 Other (specify below)
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage
Direction from well? SW How many feet? 500

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	3	Topsoil			
3	27	Yellow Shale			
27	29	Gray Shale			
29	38	Yellow Shale			
38	56	Red Shale			
56	60	Yellow Shale			
60	66	Limestone			
66	75	Gray Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 4/8/92 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 518 This Water Well Record was completed on (mo/day/yr) 4/8/92
under the business name of Blue Valley Drilling by (signature) Eric Strader

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-7320. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY
T R E/W SEC. ¼ ¼ ¼

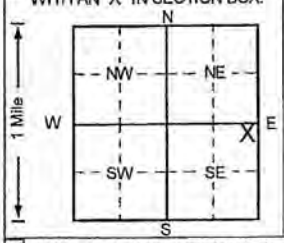
WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL: County: Washington	Fraction: NE ¼ NE ¼ SE ¼	Section Number: 9	Township Number: T 2 S	Range Number: R 5 (E)/W

Distance and direction from nearest town or city street address of well if located within city?
1/4 mile East of Hanover, Kansas

2 WATER WELL OWNER: Bill's Service Center
RR#, St. Address, Box # : 2832 Hilltop Avenue
City, State, ZIP Code : Hanover, Kansas 66945
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 45 ft. ELEVATION: 1285.42
Depth(s) Groundwater Encountered 1. 999 ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 45.2 ft. below land surface measured on mo/day/yr 2/18/97
Pump test data: Well water was NA ft. after hours pumping gpm
Est. Yield NA gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 8 in. to 45 ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only (10) Monitoring well
Was a chemical/bacteriological sample submitted to Department? Yes No ✓; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes No ✓

5 TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
(2) PVC 4 ABS 7 Fiberglass Threaded ✓
Blank casing diameter 2 in. to 25 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 27.6 in., weight lbs./ft. Wall thickness or gauge No. Sch. 40
TYPE OF SCREEN OR PERFORATION MATERIAL (7) PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot (3) Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)
SCREEN-PERFORATED INTERVALS: From 25 ft. to 45 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 22 ft. to 45 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement (2) Cement grout (3) Bentonite 4 Other
Grout Intervals: From 0 ft. to 20 ft., From 20 ft. to 22 ft., From ft. to ft.
What is the nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well
1 Septic tank 4 Lateral lines 7 Pit privy 11 Fuel storage 15 Oil well/Gas well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage (16) Other (specify below)
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage AST Basin
Direction from well? NW How many feet? 340

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	4	Clay, Dark Gray			
4	13	Clay, Red Brown			
13	25	Sand, Light Gray			
25	30	Shale, Red Brown			
30	45	Shale, Green to Gray			
					(MW9) Tag # 00181275, Abovegrade
					Project Name: Bill's Service Center
					GeoCore # 406, KDHE # A5 101 40078

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 2/12/97 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 527 This Water Well Record was completed on (mo/day/yr) 2/21/97 under the business name of GeoCore Services, Inc. by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

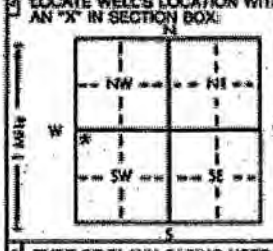
WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Washington	NW ¼ NW ¼ SW ¼	10	T 2 S	R 5 E/W

Distance and direction from nearest town or city street address of well if located within city?
½ East of Hanover

2 WATER WELL OWNER: Lous ~~THXXXX~~ Taylor
RR#, St. Address, Box # : 206 East Elm
City, State, ZIP Code : Hanover, KS. 66945
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 62 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 29 ft. below land surface measured on mo/day/yr 11/17/99
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 30 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 9" in. to 62 ft. and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Monitoring well
Was a chemical/bacteriological sample submitted to Department? Yes No * ; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes * No

5 TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued * Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded
Blank casing diameter 5 in. to 42 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 18 in., weight 200 lbs./ft. Wall thickness or gauge No. 265
TYPE OF SCREEN OR PERFORATION MATERIAL: 7 PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)
SCREEN-PERFORATED INTERVALS: From 42 ft. to 62 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 30 ft. to 62 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 5 ft. to 30 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well
1 Septic tank 4 Lateral lines 7 Pit privy 11 Fuel storage 15 Oil well/Gas well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage 16 Other (specify below)
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage
Direction from well? None Present How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	1	Topsoil			
1	8	Red Clay			
8	13	Tan Shale			
13	15	Limestone			
15	26	Gray Shale			
26	30	Limestone			
30	36	Gray Shale			
36	47	Limestone			
47	62	Red Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 11/17/99 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 518 This Water Well Record was completed on (mo/day/yr) 11/27/99 under the business name of Blue Valley Drillimg by (signature)

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL: County: Washington	Fraction: NW ¼ NW ¼ NW ¼	Section Number: 16	Township Number: T 2 S	Range Number: R 5 E/W

Distance and direction from nearest town or city street address of well if located within city?
South edge of Hanover

2 WATER WELL OWNER: Duane Bruna
RR#, St. Address, Box #: Rt. 1
City, State, ZIP Code: Hanover, KS. 66945
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX: N, NW, NE, W, E, SW, SE, S; 1 Mile

4 DEPTH OF COMPLETED WELL: 45 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 25 ft. below land surface measured on mo/day/yr 6/2/00
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 50+ gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 10 in. to 50 ft., and in. to ft.
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes No * ; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes * No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued * Clamped Welded Threaded
Blank casing diameter 5 in. to 25 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 18 in., weight 160 lbs./ft. Wall thickness or gauge No. .265
TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 25 ft. to 45 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 20 ft. to 45 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 5 ft. to 20 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)
Direction from well? West How many feet? 150

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	1	Topsoil			
1	22	Brown Clay			
22	31	Black Clay			
31	44	Sand (Med.-Corse)			
44	50	Gray Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 6/2/00 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 518 This Water Well Record was completed on (mo/day/yr) 6/10/00 under the business name of Blue Valley Drilling by (signature)

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R EAW SEC ¼ ¼ ¼

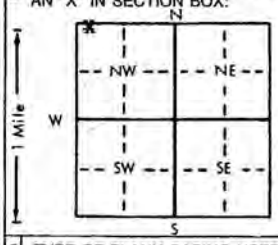
WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL: County: Washington	Fraction: NW ¼ NW ¼ NW ¼	Section Number: 16	Township Number: T 2 S	Range Number: R 5 E/W

Distance and direction from nearest town or city street address of well if located within city?
In Hanover (Southern Part)

2 WATER WELL OWNER: Gary Minge
RR#, St. Address, Box # : Box 375
City, State, ZIP Code : Hanover, Kansas 66945
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 54 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 40 ft. below land surface measured on mo/day/yr 8/17/82
Pump test data: Well water was NA ft. after hours pumping gpm
Est. Yield 10 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 8 in. to 54 ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
xx1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Observation well
Was a chemical/bacteriological sample submitted to Department? Yes No x; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes x No

5 TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued x Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
xx2 PVC 4 ABS 7 Fiberglass Threaded
Blank casing diameter 5 in. to 34 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 12 in., weight 3 lbs./ft. Wall thickness or gauge No. .258
TYPE OF SCREEN OR PERFORATION MATERIAL: xx7 PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped xxx8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)
SCREEN-PERFORATED INTERVALS: From 34 ft. to 54 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 14 ft. to 54 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: xx1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 4 ft. to 14 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination:
1 Septic tank xx4 Lateral lines 7 Pit privy 10 Livestock pens 14 Abandoned water well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 11 Fuel storage 15 Oil well/Gas well
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 12 Fertilizer storage 16 Other (specify below)
13 Insecticide storage
Direction from well? East How many feet? 75

FROM	TO	LITHOLOGIC LOG	FROM	TO	LITHOLOGIC LOG
0	3	topsoil			
3	18	brown clay			
18	45	brown sandy clay			
45	50	limestone gravel			
50	54	limestone (hard)			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 8/17/1982 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 359 This Water Well Record was completed on (mo/day/yr) 9/13/1982 under the business name of Daryl Cox & Sons Inc. by (signature)

INSTRUCTIONS: Use typewriter or ball point pen, *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Division of Environment, Environmental Geology Section, Topeka, KS 66620. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY

WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL: County: Washington | Fraction: NW ¼ NE ¼ NW ¼ | Section Number: 16 | Township Number: T 2 S | Range Number: R 5 E/W

Distance and direction from nearest town or city street address of well if located within city?
South edge of Hanover

2 WATER WELL OWNER: Jim Kruse
RR#, St. Address, Box # : Rt. 1 Box 101
City, State, ZIP Code : Hanover, Ks. 66945

Board of Agriculture, Division of Water Resources
Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N
NW: * | NE
W | E
SW | SE
S
1 Mile

4 DEPTH OF COMPLETED WELL 58 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL ft. below land surface measured on mo/day/yr 4/8/92
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 7 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 10 in. to 58 ft., and in. to ft.
WELL WATER TO BE USED AS: 1 Domestic 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes No *; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes * No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued * Clamped Welded Threaded
Blank casing diameter 5 in. to 48 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 18 in., weight 200 lbs. lbs./ft. Wall thickness or gauge No.
TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 48 ft. to 58 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 30 ft. to 58 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 5 ft. to 30 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)
Direction from well? SE How many feet? 75

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	3	Topsoil			
3	10	Brown Clay			
10	40	Tan Clay			
40	54	Red Clay			
54	58	Limestone			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 4/8/92 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 518 This Water Well Record was completed on (mo/day/yr) 4/8/92 under the business name of Blue Valley Drilling by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-7320. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY

WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Washington	NE ¼ NE ¼ SW ¼	9	T 2 S	R 5 (E)/W

Distance and direction from nearest town or city street address of well if located within city? Church and Center Street Hanover

2 WATER WELL OWNER: Dennis Doeble
RR#, St. Address, Box # : 204 Jackson
City, State, ZIP Code : Hanover KS 66945

Board of Agriculture, Division of Water Resources
Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N / NW / NE / W / E / X / SW / SE / S / 1 Mile

4 DEPTH OF COMPLETED WELL 82 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 40 ft. below land surface measured on mo/day/yr 11/7/90
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 8 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 8 in. to ft., and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
(1 Domestic) 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Monitoring well
Was a chemical/bacteriological sample submitted to Department? Yes No ✓; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes ✓ No

5 TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued ✓ Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
(2 PVC) 4 ABS 7 Fiberglass Threaded
Blank casing diameter 5 in. to 42 ft., Dia 6 in. to 82 ft., Dia in. to ft.
Casing height above land surface 18 in., weight 300 lbs./ft. Wall thickness or gauge No.
TYPE OF SCREEN OR PERFORATION MATERIAL: (7 PVC) 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
(1 Continuous slot) 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)
SCREEN-PERFORATED INTERVALS: From 42 ft. to 62 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 40 ft. to 82 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout (3 Bentonite) 4 Other
Grout Intervals: From 0 ft. to 40 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well
1 Septic tank 4 Lateral lines 7 Pit privy 11 Fuel storage 15 Oil well/Gas well
(2 Sewer lines) 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage 16 Other (specify below)
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage
Direction from well? South How many feet? 300

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	1	Topsoil			
1	5	Yellow Shale			
5	24	Red Shale			
24	28	Yellow Shale			
28	33	Limestone Layers			
33	51	Gray Shale			
51	53	Limestone			
53	62	Gray Shale			
62	82	Red Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 11/7/90 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 518 This Water Well Record was completed on (mo/day/yr) 11/8/90 under the business name of Blue Valley Drilling by (signature) Eric Seal

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-7320. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

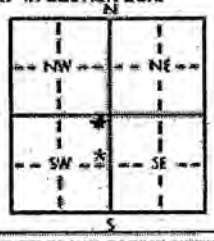
WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL: County: Washington	Fraction: SE ¼ NE ¼ SW ¼	Section Number: 9	Township Number: T 2 S	Range Number: R 5 E/W

Distance and direction from nearest town or city street address of well if located within city?
East edge of Hanover

2 WATER WELL OWNER: Tony Bruna
RR#, St. Address, Box #: 400 N Hoollenberg
City, State, ZIP Code: Hanover, KS. 66945
Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL: 82 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 52 ft. below land surface measured on mo/day/yr 7/7/00
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 15 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 9 in. to 82 ft. and in. to ft.
WELL WATER TO BE USED AS: 5 Public water supply 8 Air conditioning 11 Injection well
1 Domestic 3 Feedlot 6 Oil field water supply 9 Dewatering 12 Other (Specify below)
2 Irrigation 4 Industrial 7 Lawn and garden only 10 Monitoring well
Was a chemical/bacteriological sample submitted to Department? Yes No * ; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes * No

5 TYPE OF BLANK CASING USED: 5 Wrought iron 8 Concrete tile CASING JOINTS: Glued * Clamped
1 Steel 3 RMP (SR) 6 Asbestos-Cement 9 Other (specify below) Welded
2 PVC 4 ABS 7 Fiberglass Threaded
Blank casing diameter 5 in. to 62 ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 18 in., weight 200 lbs./ft. Wall thickness or gauge No.
TYPE OF SCREEN OR PERFORATION MATERIAL: 7 PVC 10 Asbestos-cement
1 Steel 3 Stainless steel 5 Fiberglass 8 RMP (SR) 11 Other (specify)
2 Brass 4 Galvanized steel 6 Concrete tile 9 ABS 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 5 Gauzed wrapped 8 Saw cut 11 None (open hole)
1 Continuous slot 3 Mill slot 6 Wire wrapped 9 Drilled holes
2 Louvered shutter 4 Key punched 7 Torch cut 10 Other (specify)
SCREEN-PERFORATED INTERVALS: From 62 ft. to 82 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 30 ft. to 82 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite 4 Other
Grout Intervals: From 5'XXX ft. to 30 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination: 10 Livestock pens 14 Abandoned water well
1 Septic tank 4 Lateral lines 7 PR privy 11 Fuel storage 15 Oil well/Gas well
2 Sewer lines 5 Cess pool 8 Sewage lagoon 12 Fertilizer storage 16 Other (specify below)
3 Watertight sewer lines 6 Seepage pit 9 Feedyard 13 Insecticide storage
Direction from well? None How many feet?

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	8	Brown Clay			
8	11	Yellow Shale			
11	13	Limestone			
13	15	Yellow & Gray Shale			
15	35	Red Shale			
35	37	Gray Shale			
37	45	Limestone & Yellow Shale			
45	60	Gray Shale			
60	62	Limestone & Shale			
62	72	Gray Shale			
72	142	Red Shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 7/7/00 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 518 This Water Well Record was completed on (mo/day/yr) 7/20/00 under the business name of Blue Valley Drilling by (signature)

INSTRUCTIONS: Use typewriter or ball point pen. PLEASE PRESS FIRMLY and PRINT clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water, Topeka, Kansas 66620-0001. Telephone: 913-296-5545. Send one to WATER WELL OWNER and retain one for your records.

WATER WELL RECORD Form WWC-5 KSA 82a-1212

1 LOCATION OF WATER WELL: County: Washington | Fraction: NW ¼ NW ¼ SE ¼ | Section Number: 9 | Township Number: T 2 S | Range Number: R 5 E/W

Distance and direction from nearest town or city street address of well if located within city? East edge of Hanover

2 WATER WELL OWNER: Ted Bruna
RR#, St. Address, Box # : 210 S Jackson
City, State, ZIP Code : Hanover, Kansas 66945

Board of Agriculture, Division of Water Resources Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:

N / NW / NE / W / X / E / SW / SE / S / 1 Mile

4 DEPTH OF COMPLETED WELL 80 ft. ELEVATION:
Depth(s) Groundwater Encountered 1 ft. 2 ft. 3 ft.
WELL'S STATIC WATER LEVEL 60 ft. below land surface measured on mo/day/yr 7-3-89
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 15 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 8 in. to 81 ft., and in. to ft.
WELL WATER TO BE USED AS: 1 Domestic X 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes X No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC X 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued X Clamped Welded Threaded
Blank casing diameter 5 in. to ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 24 in., weight lbs./ft. Wall thickness or gauge No.
TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC X 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut X 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 65 ft. to 75 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 30 ft. to 80 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite ✓ 4 Other
Grout Intervals: From 0 ft. to 30 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines ✓ 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)
Direction from well? West How many feet? 500

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	8	Brown clay			
8	21	Tan shale + limestone			
21	40	Red shale			
40	66	Gray shale			
66	70	Tan shale + limestone			
70	80	gray shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 7-3-89 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 234 P This Water Well Record was completed on (mo/day/yr) 10/4/89 under the business name of Shader's Blue Valley Drilling by (signature) Eric Shader

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water Protection, Topeka, Kansas 66620-7320. Telephone: 913-296-5514. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

WATER WELL RECORD Form WWC-5 KSA 82a-1212

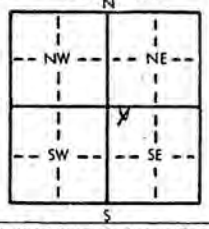
1 LOCATION OF WATER WELL:	Fraction	Section Number	Township Number	Range Number
County: Washington	NW ¼ NW ¼ SE ¼	9	T 2 S	R 5 (E)/W

Distance and direction from nearest town or city street address of well if located within city?
East edge of Town

2 WATER WELL OWNER: Alan Bruna
RR#, St. Address, Box # : 1075 Hollenberg
City, State, ZIP Code : Hanover, Kansas 66945

Board of Agriculture, Division of Water Resources
Application Number:

3 LOCATE WELL'S LOCATION WITH AN "X" IN SECTION BOX:



4 DEPTH OF COMPLETED WELL 80 ft. ELEVATION:
Depth(s) Groundwater Encountered 1. ft. 2. ft. 3. ft.
WELL'S STATIC WATER LEVEL 55 ft. below land surface measured on mo/day/yr 7-3-89
Pump test data: Well water was ft. after hours pumping gpm
Est. Yield 15 gpm: Well water was ft. after hours pumping gpm
Bore Hole Diameter 8 in. to 80 ft., and in. to ft.
WELL WATER TO BE USED AS: 1 Domestic X 2 Irrigation 3 Feedlot 4 Industrial 5 Public water supply 6 Oil field water supply 7 Lawn and garden only 8 Air conditioning 9 Dewatering 10 Monitoring well 11 Injection well 12 Other (Specify below)
Was a chemical/bacteriological sample submitted to Department? Yes No X; If yes, mo/day/yr sample was submitted
Water Well Disinfected? Yes X No

5 TYPE OF BLANK CASING USED: 1 Steel 2 PVC X 3 RMP (SR) 4 ABS 5 Wrought iron 6 Asbestos-Cement 7 Fiberglass 8 Concrete tile 9 Other (specify below)
CASING JOINTS: Glued X Clamped Welded Threaded
Blank casing diameter 5 in. to ft., Dia in. to ft., Dia in. to ft.
Casing height above land surface 24 in., weight 200 lbs./ft. Wall thickness or gauge No.
TYPE OF SCREEN OR PERFORATION MATERIAL: 1 Steel 2 Brass 3 Stainless steel 4 Galvanized steel 5 Fiberglass 6 Concrete tile 7 PVC X 8 RMP (SR) 9 ABS 10 Asbestos-cement 11 Other (specify) 12 None used (open hole)
SCREEN OR PERFORATION OPENINGS ARE: 1 Continuous slot 2 Louvered shutter 3 Mill slot 4 Key punched 5 Gauzed wrapped 6 Wire wrapped 7 Torch cut 8 Saw cut X 9 Drilled holes 10 Other (specify) 11 None (open hole)
SCREEN-PERFORATED INTERVALS: From 40 ft. to 60 ft., From ft. to ft.
From ft. to ft., From ft. to ft.
GRAVEL PACK INTERVALS: From 20 ft. to 80 ft., From ft. to ft.
From ft. to ft., From ft. to ft.

6 GROUT MATERIAL: 1 Neat cement 2 Cement grout 3 Bentonite X 4 Other
Grout Intervals: From 0 ft. to 20 ft., From ft. to ft., From ft. to ft.
What is the nearest source of possible contamination: 1 Septic tank 2 Sewer lines ✓ 3 Watertight sewer lines 4 Lateral lines 5 Cess pool 6 Seepage pit 7 Pit privy 8 Sewage lagoon 9 Feedyard 10 Livestock pens 11 Fuel storage 12 Fertilizer storage 13 Insecticide storage 14 Abandoned water well 15 Oil well/Gas well 16 Other (specify below)
Direction from well? West How many feet? 1000'

FROM	TO	LITHOLOGIC LOG	FROM	TO	PLUGGING INTERVALS
0	6	Brown Clay			
6	35	Tan shale + Limestone			
35	52	Red shale			
52	57	Tan shale + limestone			
57	80	Gray shale			

7 CONTRACTOR'S OR LANDOWNER'S CERTIFICATION: This water well was (1) constructed, (2) reconstructed, or (3) plugged under my jurisdiction and was completed on (mo/day/year) 7-3-89 and this record is true to the best of my knowledge and belief. Kansas Water Well Contractor's License No. 2340 This Water Well Record was completed on (mo/day/yr) 10/31/89 under the business name of Strader's Blue Valley Drilling by (signature) [signature]

INSTRUCTIONS: Use typewriter or ball point pen. *PLEASE PRESS FIRMLY* and *PRINT* clearly. Please fill in blanks, underline or circle the correct answers. Send top three copies to Kansas Department of Health and Environment, Bureau of Water Protection, Topeka, Kansas 66620-7320. Telephone: 913-296-5514. Send one to WATER WELL OWNER and retain one for your records.

OFFICE USE ONLY T R E/W SEC. ¼ ¼ ¼

Addendum 1 to *Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas,* for Slug Testing for Groundwater Zone 1 at Hanover, Kansas

Introduction

In January-March, 2009, Argonne initiated an investigation in five phases (Phases 1-5) at and near the former CCC/USDA grain storage facility at Hanover, on behalf of the CCC/USDA, according to a *Work Plan* (Argonne 2008)[1] approved by the KDHE. As proposed, the investigation included (1) site characterization for soil and groundwater (Phases 1-4) and (2) a vapor intrusion investigation including collection of soil vapor and indoor air samples (Phase 5). The preliminary results of the ongoing site characterization to date are summarized as follows:

- Carbon tetrachloride concentrations in soil did not exceed the KDHE Tier 2 risk-based standard (200 μg/kg). Soil sampling was conducted at 30 locations on and near the former CCC/USDA property, which is a potential source area, from the ground surface to the top of the uppermost groundwater zone. The highest carbon tetrachloride concentration found in soil was 35 μg/kg. (The highest chloroform concentration found in soil was 44 μg/kg; the Tier 2 standard for chloroform is 960 μg/kg.)
- Four water-bearing zones (groundwater Zones 1-4) were identified in the Hanover investigation area, in a bedrock unit consisting mainly of limestone, siltstone, and shale. The primary sources of groundwater are zones of limited thickness through the secondary pore spaces developed along bedding planes and fractures in the bedrock unit.
- Groundwater Zone 1 is the uppermost local water-bearing zone in the Permian Chase Group bedrock unit. Carbon tetrachloride concentrations in this zone ranged up to 617 μg/L. Contaminated groundwater Zone 1, a potential source of concern for vapor intrusion and downward leakage to the underlying groundwater zones, was investigated extensively. The extent of contamination in groundwater Zone 1 was delineated, and the zone's qualitative characteristics were identified through coring and groundwater sampling at 45 locations.
- Also identified were three additional water-bearing zones observed at two locations west of the former CCC/USDA facility. Carbon tetrachloride was found at 11-28 μg/L in groundwater Zone 2, but carbon tetrachloride concentrations above the maximum contaminant level (MCL) of 5.0 μg/L were not detected in any well with a screen interval and gravel pack located exclusively in groundwater Zone 3 or Zone 4. Further investigation will be conducted to delineate the extent of contamination in groundwater Zone 2, on

[1] Argonne, 2008, *Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas*, ANL/EVS/AGEM/TR-08-10, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, November.

the basis of discussions between the CCC/USDA and the KDHE. A work plan outlining the proposed scope of this further investigation for Zone 2 has been prepared and submitted for approval (Addendum 2 to the Hanover site investigation *Work Plan* [Argonne 2008]).

On the basis of the preliminary results from the recent investigation, groundwater Zone 1 was identified as a critical water-bearing unit with the potential to provide a migration pathway for both upward vapor intrusion and downward leakage to underlying groundwater Zone 2. During sampling and well purging, groundwater Zone 1 displayed a slow recharge rate and poor transmissivity at many locations. These characteristics were particularly evident along the western erosional limit of the zone. Further investigation of the hydraulic properties associated with groundwater Zone 1 will assist in the identification of the critical hydrogeologic factors that govern contaminant migration within the unit. Consequently, we propose in this Addendum 1 to conduct slug tests in some of the recently installed monitoring wells completed in groundwater Zone 1, as described in Section 3.2.4 and Table 3.1 of the approved site investigation *Work Plan* (Argonne 2008).

Objectives

The primary objectives of the slug tests proposed in this Addendum 1 are as follows:

- Determine the hydraulic properties of groundwater Zone 1 along and near the apparent contaminant migration pathways defined previously in the ongoing investigation.
- Determine the lateral distribution of hydraulic properties in groundwater Zone 1.
- Provide quantitative information for evaluation of potential options to be considered in a Corrective Action Study (CAS).

If the results of the proposed slug tests indicate that further hydraulic testing of groundwater Zone 1 is necessary, a pumping test will be recommended.

Proposed Slug Tests

Slug Testing Locations

In the recent ongoing site investigation, 45 groundwater monitoring wells were installed at depths of 19-36 ft BGL (below ground level) and screened to target groundwater Zone 1. Groundwater was recovered at 37 locations (Table 1). Carbon tetrachloride was detected at concentrations above the MCL at 22 locations (Figure 1 and Table 1). In order to characterize the hydraulic properties of groundwater Zone 1, 20 existing well locations have been identified for the performance of slug tests (Figure 1). These locations were selected to correspond with the interpreted contamination migration pathway in groundwater Zone 1. Table 1 summarizes information from the ongoing site characterization on well construction, groundwater levels, and contaminant concentrations and also identifies the wells proposed for use in slug testing for groundwater Zone 1.

Slug Testing Methods

The slug test procedures in Section 6.7 of the *Master Work Plan* (Argonne 2002)[2] will be followed. The test will be repeated a minimum of three times at each location. The two following methods are available for use:

1. *Pneumatic method.* If feasible, the slug tests will be performed by using the pneumatic method, in which gas pressure is used to create a condition equivalent to an instantaneous drop in water level in the well casing. The rise following the initial drop in water level is then recorded, along with the time required for subsequent recovery of the water column in the well to its pre-disturbance level.
2. *Solid rod/water slug method.* At locations where static water levels are within the screened section of the well or where water level responses are very slow, slug tests will have to be conducted by quickly lowering a solid rod or introducing a slug of water into the casing to perturb the static water column. The recovery response in the well will then be observed and recorded.

If the water column in the casing is insufficient for either method, the slug test will not be possible. On the basis of observed water recoveries during recent well purging for groundwater sampling, slow recovery response can be anticipated at nine of the proposed locations (Table 1), where extremely low hydraulic conductivity is projected. At these locations, an initial test will be conducted. The slug test will not be repeated if the response time for complete recovery is more than 24 hr.

Schedule of Field Implementation

Field implementation of the proposed slug tests is tentatively scheduled for middle to late July 2009. The expected time required to complete the 20 slug tests is approximately one week. Prolonged response times may extend the projected testing period.

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[2] Argonne, 2002, *Final Master Work Plan: Environmental Investigations at Former CCC/USDA Facilities in Kansas, 2002 Revision*, ANL/ER/TR-02/004, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, December.

TABLE 1 Summary of well construction, groundwater level, and contaminant data from the ongoing site characterization of Hanover, Kansas, with wells proposed for slug testing in groundwater Zone 1.

	Depth (ft BGL)		Concentration (μg/L)			
Location	Screen Interval[a]	Water Level[b]	Carbon Tetrachloride	Chloroform	Proposed Slug Test	Possible Slow Recovery
MW01	30-35	23.16	387	7.6	x	
MW02	31-36	27.80	548	11	x	
MW04	30-35	26.19	10	6.4	x	
MW05	24-29	24.18	488	6.1	x	
MW06	24-29	20.61	99	11	x	x
MW07	30-35	24.93	92	6.7	x	
MW08	30-35	26.44	4.2	0.7		
MW09	18-23	20.11	395	2.9	x	
MW10	26-31	23.54	31	3.9	x	
MW11	15-20	bailer in well	617	13		
MW12	25-35	22.40	111	18	x	x
MW13	15-20	15.29	376	8.7		
MW14	14-19	16.84	45	7.1	x	
MW15	14-19	17.14	0.6	0.3		x
MW16	15-25	16.36	5.8	2.1		x
MW17	13-23	13.18	11	3.3		x
MW18	15-25	16.62	3.4	4.2	x	
MW19	16-26	19.46	21	2.9		x
MW20	18-28	21.11	17	3	x	x
MW21	15-25	17.89	112	8.4	x	x
MW22	18-28	22.11	ND	5.5		x
MW23	19-29	19.89	3.4	0.3		x
MW24	13-18	13.73	0.5	9.5	x	
MW27	20-30	25.14	1	15		
MW28	19-29	22.18	173	8.8	x	
MW29	19-29	23.20	179	10	x	
MW30	9-19	11.24	4.2	2.7		x
MW31	10-20	12.79	0.9	1		
MW34	17-27	17.13	1.3	0.5	x	
MW35	15-25	15.31	ND	11		
MW36	14-24	15.98	ND	0.6		
MW37	15-30	21.60	19	2.5	x	x
MW38	18-28	23.62	37	6.7	x	x
MW39	12-22	20.5	–	–		x
MW40	20-30	23.86	130	14	x	x
MW46	20-30	25.66	ND	ND		
MW47	15-30	24.49	ND	2		

[a] Diameter of well screen and casing is 2 in.
[b] Water levels measured on April 15, 2009.

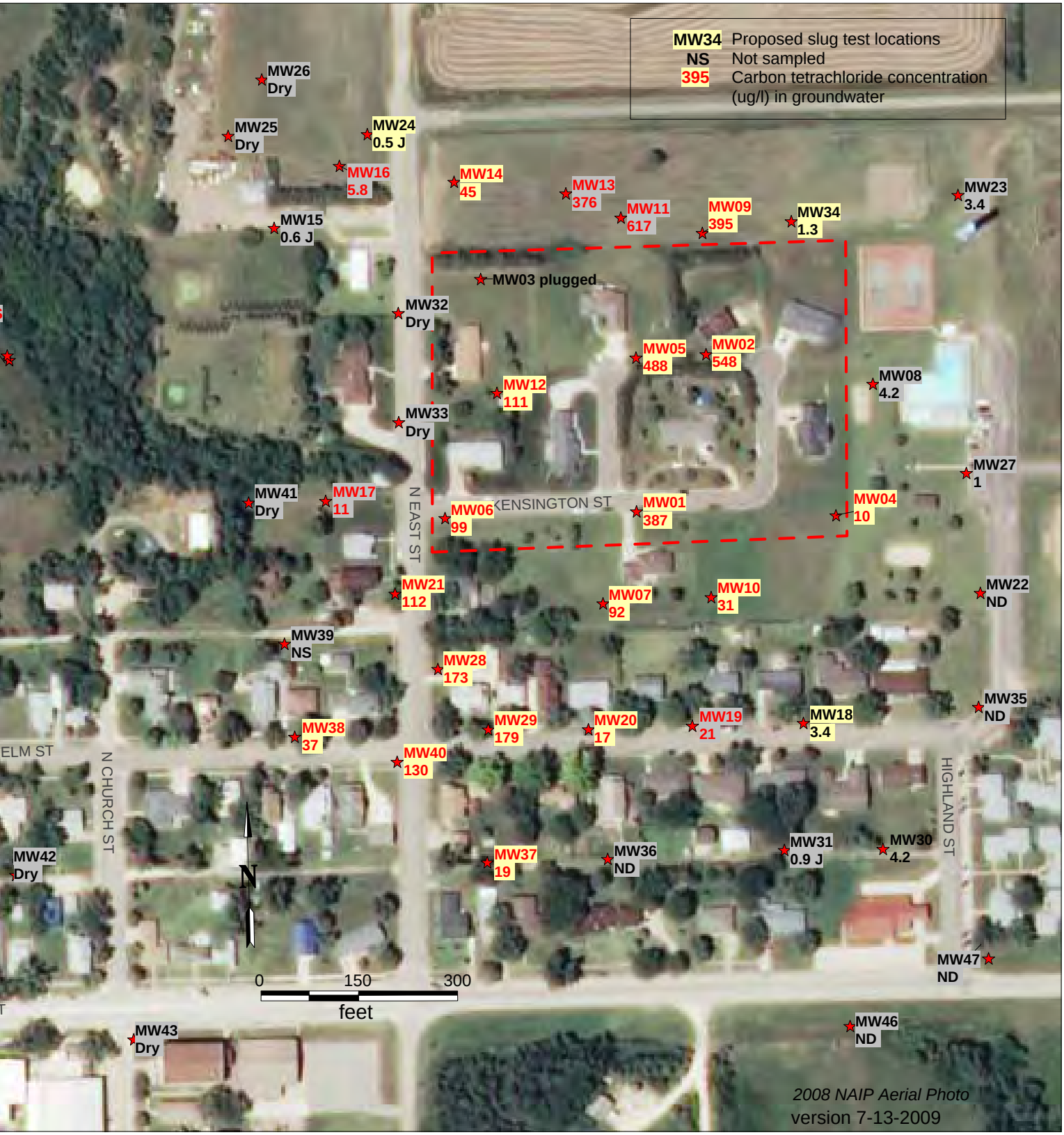

FIGURE 1 Carbon tetrachloride distribution in groundwater Zone 1.

Lorraine M. LaFreniere, Ph.D.
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September 8, 2009

Ms. Elizabeth Finzer
Kansas Department of Health and Environment
1000 SW Jackson St., Suite 410
Topeka, KS 66612-1367

Subject: Approved Figure 4 (dated 8/25/2009) for Addendum 2 (Revised) to *Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas*, for Further Investigation for Groundwater Zone 2 at Hanover, Kansas ANL/EVS/AGEM/CHRON-1293

Dear Ms. Finzer:

Attached, at the request of Caroline Roe of the Commodity Credit Corporation, U.S. Department of Agriculture, is the approved version (dated 8/25/2009) of Figure 4 in Addendum 2 (Revised) to our document *Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas* (ANL/EVS/AGEM/TR-08-10). We received your approval for this version of the figure in a letter dated August 28, 2009.

Please place this approved figure (8/25/2009), with this letter, at the front of the August 11, 2009, version of Addendum 2 (Revised) in the *Final Work Plan* notebook (ANL/EVS/AGEM/TR-08-10) in your possession. This figure differs from the earlier version (dated 8/11/2009) in the addition of one well location on East North Street, south of the former CCC/USDA facility. The change was made in response to your request in a letter dated August 18, 2009. The addition of the new location increases the number of deep borehole (and offset boring) locations in Step 1 of the groundwater investigation from three to four. All other particulars of the August 11, 2009, version of Addendum 2 (Revised) remain the same.

CONFUSION ALERT: The Hanover sub-slab sampling work plan also has addendums. The attached Addendum 2 (Revised) is for the Hanover site characterization work plan (ANL/EVS/AGEM/TR-08-10).

Please direct questions to Ms. Roe. As you know we will be conducting the work described in Addendum 2 (Revised) next week.

Sincerely,

Lorraine M. LaFreniere

LML:rs

Attachment: Figure 4 (8/25/2009) for Addendum 2 (Revised) for ANL/EVS/AGEM/TR-08-10

cc (with attachment):
C. Carey (KDHE)
J. Underwood (KDHE)
C. Roe (CCC/USDA)
S. Gilmore (CCC/USDA)
D. Steck (CCC/USDA)
G. Fremerman (CCC/USDA)
Chron 1293

HANOVER, KS
Figure 4. Proposed Investigation for Groundwater Zone 2-4
RON SCHLABACH (W)
1.5 (WZ: 2-4)
E FERREL ST
DON MARTIN
7.8 (WZ: 2-3)
BUTCH BRUNA
5.1 (WZ: 2-4)
MW45S
28 (WZ: 2)
MW45M
ND (WZ: 3)
MW45D
3.6 (WZ: 4)
MW44S
11 (WZ: 2)
MW44M
NS (WZ: 3)
MW44D
ND (WZ: 4)
N EAST ST
N HANOVER ST
N HOLLENBERG ST
E ELM ST
N CHURCH ST
HIGHLAND ST
E. NORTH ST
N
0
150
300
Feet
Proposed deep borehole locations in Step 1
NS Not sampled
ND Not detected at instrument detection limit of 0.1 µg/L
Red lettering Carbon tetrachloride > 5 µg/L
Note: exact borehole locations in Steps 2-3 will be placed based on results from Step 1.
2008 NAIP Aerial Photo
Draft version 8/25/2009

Addendum 2 (Revised) to *Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas,* for Further Investigation for Groundwater Zones 2-4 at Hanover, Kansas

Introduction

In January-March 2009, Argonne initiated an investigation in five phases (Phases 1-5) at and near the former CCC/USDA grain storage facility at Hanover, on behalf of the CCC/USDA, according to a site investigation *Work Plan* (Argonne 2008)[1] approved by the KDHE. As proposed, the investigation included (1) site characterization for soil and groundwater (Phases 1-4) and (2) a vapor intrusion investigation including collection of soil vapor and indoor air samples (Phase 5). The preliminary results of the ongoing site characterization to date are summarized as follows:

- Carbon tetrachloride concentrations in soil did not exceed the KDHE Tier 2 risk-based standard (200 µg/kg). Soil sampling was conducted at 30 locations on and near the former CCC/USDA property, which is a potential source area, from the ground surface to the top of the uppermost groundwater zone. The highest carbon tetrachloride concentration found in soil was 35 µg/kg. (The highest chloroform concentration found in soil was 44 µg/kg; the Tier 2 standard for chloroform is 960 µg/kg.)
- Four water-bearing zones (groundwater Zones 1-4) were identified in the Hanover investigation area, in a bedrock unit consisting mainly of limestone, siltstone, and shale. The primary sources of groundwater are zones of limited thickness through the secondary pore spaces developed along bedding planes and fractures in the bedrock unit.
- Groundwater Zone 1 is the uppermost local water-bearing zone in the Permian Chase Group bedrock unit. Carbon tetrachloride concentrations in this zone ranged up to 617 µg/L. Contaminated groundwater Zone 1, a potential source of concern for vapor intrusion and downward leakage to the underlying groundwater zones, was investigated extensively. The extent of contamination in groundwater Zone 1 was delineated, and the zone's qualitative characteristics were identified through coring and groundwater sampling at 45 locations. A quantitative characterization using slug tests has been proposed to generate data for determining the range and distribution of hydraulic properties in groundwater Zone 1. A work plan outlining the proposed slug tests has been prepared and submitted for approval (Addendum 1 to the Hanover site investigation *Work Plan* [Argonne 2008a]).
- Also identified were three additional water-bearing zones observed at two locations (MW44 and MW45) west of the former CCC/USDA facility. Carbon tetrachloride was found at 11-28 µg/L in groundwater Zone 2 at

[1] Argonne, 2008a, *Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas*, ANL/EVS/AGEM/TR-08-10, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, November.

MW44 and MW45, but carbon tetrachloride concentrations above the MCL (5.0 µg/L) were not detected in groundwater Zones 3 and 4 at these two locations.

- To obtain further information on groundwater flow, groundwater samples have been collected for tritium analysis from seven monitoring wells believed to cover all four groundwater zones. Samples are currently being analyzed by the analytical laboratory at the University of Miami. The results will be reported as they become available.

The preliminary results of the recent investigation suggest that carbon tetrachloride has migrated from groundwater Zone 1 to Zone 2. This Addendum 2 (Revised) proposes further investigation targeting groundwater Zones 2-4 to determine their contaminant concentrations and to delineate the extent of the contamination.

Preliminary Information on Groundwater Zone 2

In the initial investigation, groundwater Zone 2 was identified within the shale and limestone unit about 30-40 ft below groundwater Zone 1. The results from coring at a few deep wells, groundwater sampling, a survey of private wells, and soil vapor-indoor air sampling suggest the characteristics of groundwater Zone 2 discussed below.

Lithology and Saturated Layers. Groundwater Zone 2 is hosted by a bedrock unit consisting of brownish gray shale with a few limestone layers (Figure 1). The Zone 2 unit underlies a red shale unit (approximately 25 ft thick) and overlies a gray shale unit (also approximately 25 ft thick). Within the Zone 2 unit, three thin, saturated intervals were identified in the course of the preliminary investigation as forming a water-bearing zone that provided immediate water during coring at locations MW44 and MW45.

Vertical Extent and Thickness. Groundwater Zone 2 is vertically located at an elevation of 1,240-1,250 ft AMSL (above mean sea level), as identified in the preliminary investigation. The total thickness of 10 ft is postulated for the stratigraphic interval incorporating Zone 2, although the actual combined thickness of the multiple, thin saturated intervals observed to date in Zone 2 is less than 3 ft.

Lateral Extent. Groundwater Zone 2 was identified by coring at locations MW44 and MW45, west of the former CCC/USDA facility. Comparison of logging records for private wells suggests that Zone 2 extends through the area surrounding the former CCC/USDA facility and that Zone 1 is entirely eroded in many areas of the former facility. Evidence of the unit was found at five Bill's Service monitoring wells ("BSMW" wells) to the east and four private wells to the south and southeast (Figure 2). No immediate water recovery or evidence of saturation was identified, however, during coring at one deep well (MW03) on the former CCC/USDA facility. This well should have encountered potential water-bearing Zones 1 and 2. On the basis of local topography, groundwater Zone 2 is projected to be eroded farther to the east, south, and west, where the ground-surface elevation is near 1,250 ft AMSL.

Groundwater Flow. Water levels measured at MW44S and MW45S (about 260 ft apart and both screened in Zone 2) are at similar elevations, within 0.2 ft. The groundwater flow pattern cannot be determined on the basis of the limited data currently available.

Contamination. Carbon tetrachloride was found in groundwater from monitoring wells MW44S and MW45S at 11 µg/L and 28 µg/L, respectively, as well as at 5.1-7.8 µg/L in two private wells near MW45 (Figure 2). Information on well construction for these two private wells indicates that the gravel packs extend from groundwater Zones 3 and 4 to the overlying Zone 2. No contamination was detected in private wells east and south of the former CCC/USDA facility.

Vapor Intrusion. A limited vapor intrusion investigation (Figure 3) was conducted in the area where the depth to contaminated groundwater Zone 2 is less than 40 ft due to surface erosion resulting in the removal of the overlying sediments, including the identified groundwater Zone 1. This area is located north of W. Elm Street, from N. Hanover Street to the western erosion limit of Zone 2. Indoor air and sub-slab vapor were collected at all accessible residences in the area. Results to date (Figure 3) show no evidence of vapor intrusion from groundwater Zone 2 in this area. Further investigation of vapor intrusion is proposed in Step 4 below.

Objectives

The primary objectives of the groundwater Zone 2 investigation proposed here are as follows:

- Obtain additional data for characterizing groundwater Zone 2, to supplement the results of work already completed at locations MW44 and MW45.
- Delineate the extent of the contamination hosted by Zone 2.
- Determine the groundwater flow pattern in Zone 2.
- Identify and evaluate further the potential for vapor intrusion in the area where contaminated groundwater Zone 2 is shallower than 40 ft.

The objective of the limited investigation of groundwater Zones 3 and 4 proposed here is to obtain information on the groundwater flow pattern and the extent and magnitude of contamination.

Proposed Investigation for Groundwater Zones 2-4

The number and depths of the boreholes proposed are summarized in Table 1. The proposed work is as follows:

- *Step 1.* At the location along the northern border of the former CCC/USDA facility where the highest carbon tetrachloride concentrations were found in Zone 1, drill a deep borehole (to 145 ft BGL [below ground level]), with continuous coring, to determine whether Zones 2-4 are present and whether these zones have been affected by carbon tetrachloride migrating downward from Zone 1 (Figure 4). In addition, confirm the presence of groundwater Zones 2-4 at the anticipated depths at two locations to the west of the former CCC/USDA facility, and identify potential effects of the contamination delineated in groundwater Zone 1 on the deeper zones. In the area to the west, carbon tetrachloride has been found in Zone 2 monitoring wells MW44 and MW45 and in two deep private wells (Butch Bruna and Don Martin; Figure 2). This step would include a minimum of three deep boreholes

targeting Zone 2 (70-80 ft BGL) at locations along the inferred axis of the contamination in Zone 1 and/or the western edge of the contamination as currently constrained for Zone 1 (Figure 4). Offset from each of these three boreholes would be another deeper borehole (135–145 ft BGL) targeting Zones 3 and 4. Work would be as follows:

- Drill three deep boreholes to depths up to 80 ft BGL, with continuous coring, to identify the Zone 2 unit and individual saturated layers.
- Collect groundwater samples for analyses for volatile organic compounds (VOCs) from the identified Zone 2 unit.
- Install monitoring wells screened exclusively in groundwater Zone 2 at all three locations.
- Install recorders to determine groundwater flow in Zone 2 through measurement of water levels at all three deep borehole locations, plus existing wells MW44 and MW45.
- Drill three offset, deeper boreholes to depths up to 145 ft BGL, with continuous coring, to identify the Zone 3-4 units and individual saturated layers.
- Collect groundwater samples for analyses for VOCs from the identified Zone 3 and Zone 4 units.
- Install monitoring wells screened exclusively in groundwater Zones 3 and 4 at all three locations.
- Install recorders to determine groundwater flow in Zones 3 and 4 through measurement of water levels at all three locations.

• *Step 2.* Constrain the extent of the contamination in groundwater Zone 2 downgradient from MW44-MW45.

- Drill one borehole downgradient from wells MW45-MW44, as determined on the basis of the groundwater flow direction identified for groundwater Zone 2 in Step 1.
- Collect groundwater samples for VOCs analyses.
- Install the monitoring well in groundwater Zone 2.
- Identify the potential for vapor intrusion issues in the residential area where the depth to the contamination in groundwater Zone 2 is less than 40 ft BGL.
- If necessary, conduct slug tests to quantitatively characterize the hydraulic properties of groundwater Zone 2. (Slug tests for Zone 1 are discussed in Addendum 1 to the Hanover site investigation *Work Plan* [Argonne 2008a]).

• *Step 3.* As necessary, delineate the extent of the contamination identified in Zone 2.

- Drill one or two deep boreholes at locations to be proposed between the three wells drilled in Step 1 and existing wells MW44 and MW45. Locations will be selected on the basis of the presence of groundwater Zone 2 and the contamination location identified in Step 1.
- Collect groundwater samples for VOCs analyses.
- Install monitoring wells in groundwater Zone 2 at all locations.
- Further confirm groundwater flow directions in groundwater Zone 2 through measurement of water levels at all four or five of the Step 1-Step 2 deeper well locations, plus wells MW44 and MW45.

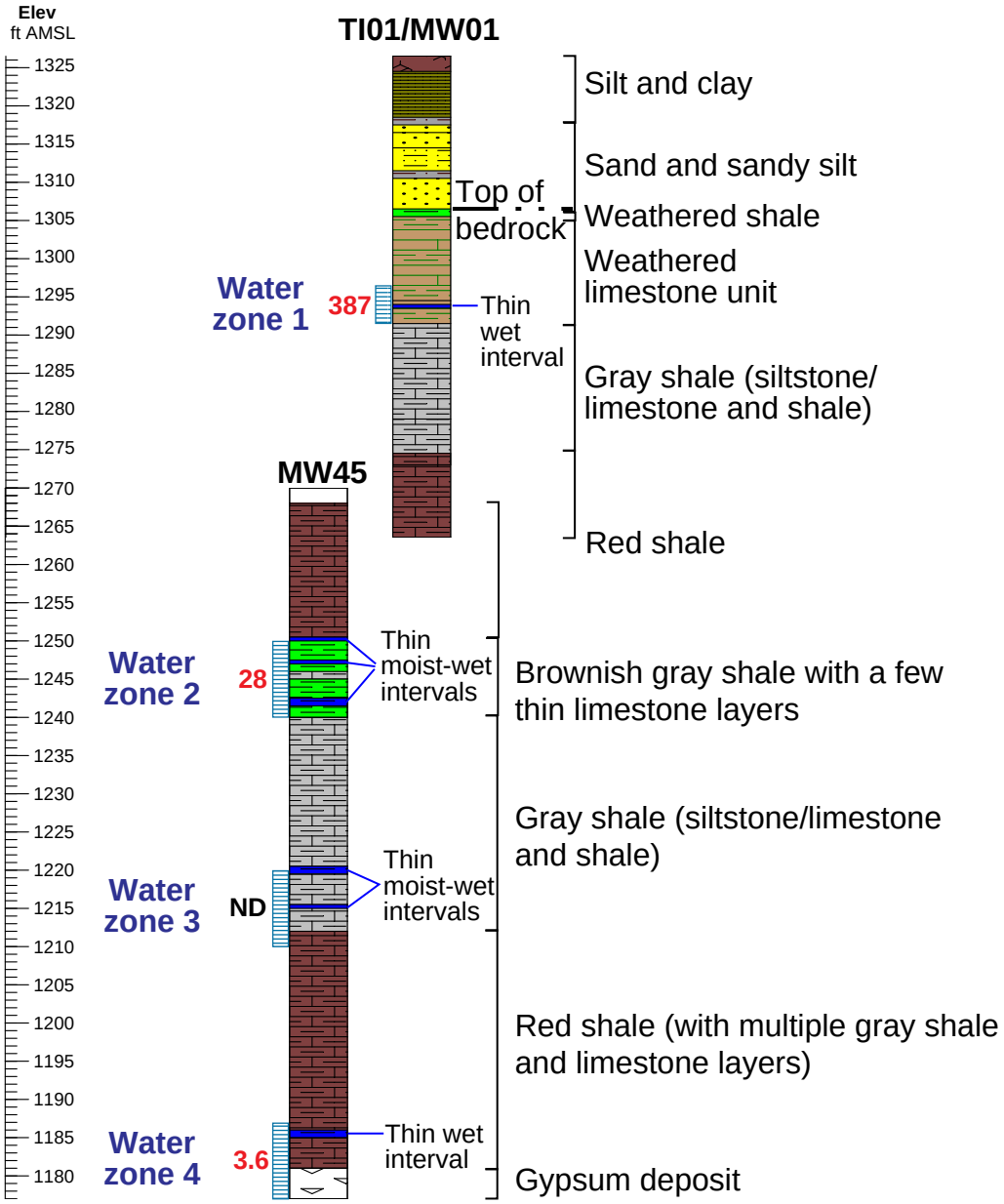
Table 1 Summary of proposed deep boreholes and anticipated depths.

Step	Drilling Tasks	Zones
1	1 borehole (< 80 ft BGL) and offset (< 145 ft BGL)	2-4
	2 boreholes (< 70 ft BGL) and offset (< 135 ft BGL)	2-4
2	1 borehole (< 40 ft BGL)	2
3	1-2 boreholes (< 70 ft BGL)	2

Schedule of Field Work

The field work proposed here will be scheduled upon approval. The proposed work is expected to require two mobilizations of approximately nine days each (including drilling and indoor air and sub-slab sampling). The various elements included in this work plan might not be accomplished consecutively as presented here, depending on the analytical results that will drive the investigation process. Further discussion may be required between the KDHE and the CCC/USDA as the investigation proceeds. In particular, the need for indoor air and sub-slab sampling will need to be determined and agreed upon by the KDHE and CCC/USDA project managers prior to implementation.

Hanover, KS
Figure 1. Stratigraphic Section



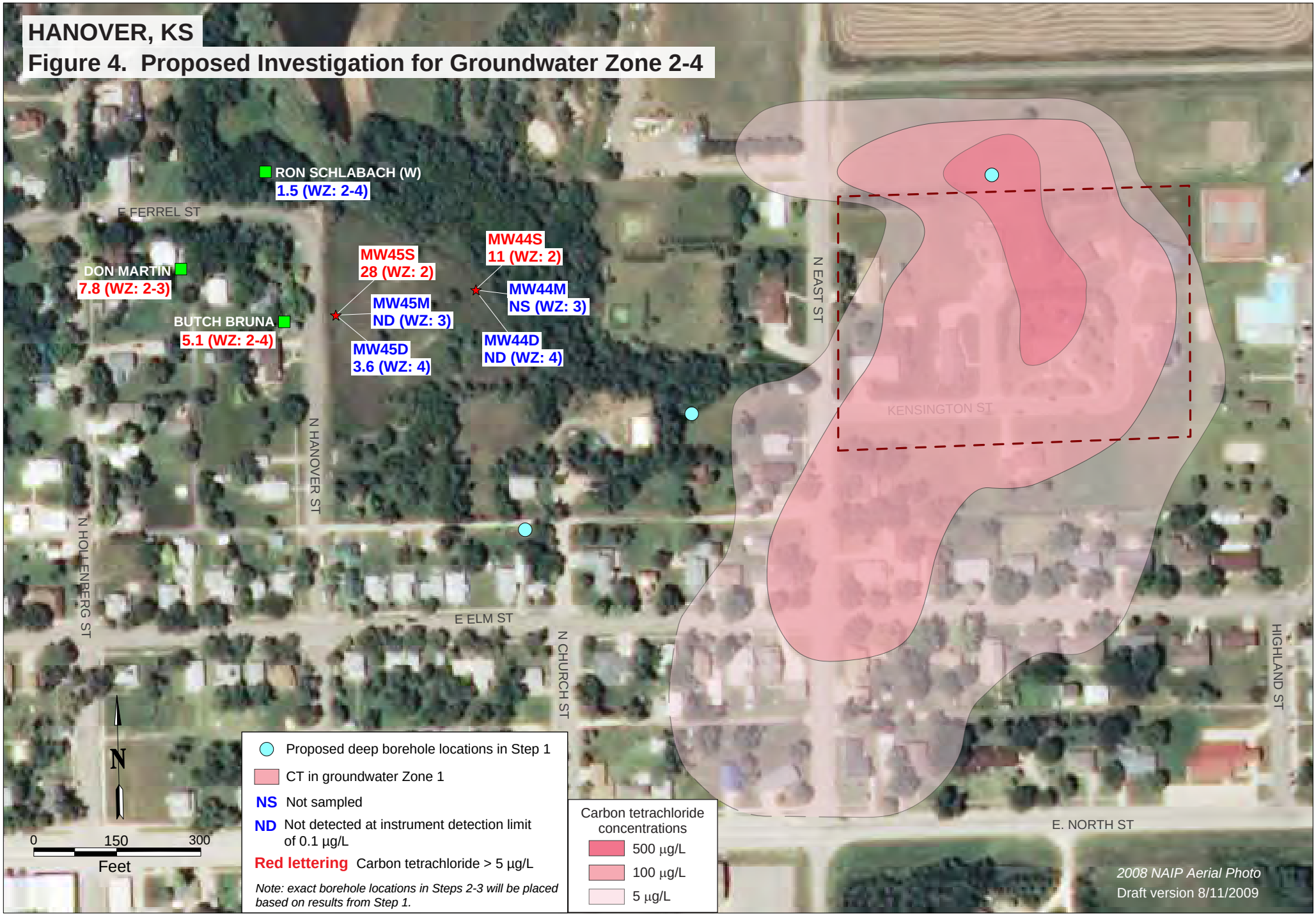
387	Carbon tetrachloride concentration in groundwater (µg/L)
ND	Not detected

HANOVER, KS

Figure 2. Results for carbon tetrachloride (ug/L); chloroform (ug/L) in private and deep monitoring wells.

HANOVER, KS

Figure 3. Indoor air results and sub-slab vapor results (ug/cubic meter) in the area where Zone 2 groundwater is within 40 ft of the surface. Results for carbon tetrachloride (ug/L); chloroform (ug/L) in private and deep monitoring wells.


HANOVER, KS
Figure 4. Proposed Investigation for Groundwater Zone 2-4
RON SCHLABACH (W)
1.5 (WZ: 2-4)
E FERREL ST
DON MARTIN
7.8 (WZ: 2-3)
BUTCH BRUNA
5.1 (WZ: 2-4)
MW45S
28 (WZ: 2)
MW45M
ND (WZ: 3)
MW45D
3.6 (WZ: 4)
MW44S
11 (WZ: 2)
MW44M
NS (WZ: 3)
MW44D
ND (WZ: 4)
N EAST ST
KENSINGTON ST
N HANOVER ST
N HOLLENBERG ST
E ELM ST
N CHURCH ST
HIGHLAND ST
E. NORTH ST
N
0
150
300
Feet
Proposed deep borehole locations in Step 1
CT in groundwater Zone 1
NS Not sampled
ND Not detected at instrument detection limit of 0.1 µg/L
Red lettering Carbon tetrachloride > 5 µg/L
Note: exact borehole locations in Steps 2-3 will be placed based on results from Step 1.
Carbon tetrachloride concentrations
500 µg/L
100 µg/L
5 µg/L
2008 NAIP Aerial Photo
Draft version 8/11/2009

Final Addendum 3 to *Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas,* for Performance Testing of Selected Zone 1 Monitoring Wells

1 Introduction

On behalf of the Commodity Credit Corporation of the U.S. Department of Agriculture (CCC/USDA), Argonne National Laboratory recently conducted site characterization and vapor intrusion studies at Hanover, Kansas, as specified in two independent work plans (Argonne 2008a,b) approved by the Kansas Department of Health and Environment (KDHE 2008a,b). On the basis of preliminary information obtained from these studies, groundwater Zone 1 was identified as a critical water-bearing unit with the potential to provide a migration pathway for both upward vapor intrusion and downward leakage of carbon tetrachloride contamination to underlying groundwater Zone 2.

During sampling and well purging, groundwater Zone 1 displayed slow recharge rates, particularly along the western erosional limit of the zone, implying poor transmissivity at many locations. Further hydrologic characterization of the Zone 1 interval was therefore considered necessary to identify the critical factors that govern groundwater flow and contaminant migration in this unit. Consequently, Addendum 1 (Argonne 2009a) to the site investigation *Work Plan* (Argonne 2008a) was issued, proposing aquifer slug testing at selected Zone 1 monitoring wells. The slug testing plan was approved by the KDHE (2009a).

The primary technical objectives of the slug tests outlined in Addendum 1 (Argonne 2009a) were as follows:

- Determine the hydraulic properties of groundwater Zone 1 along and near the apparent contaminant migration pathways defined previously in the ongoing investigation.
- Determine the lateral distribution of hydraulic properties in groundwater Zone 1.
- Provide quantitative information for evaluation of potential options to be considered in a Corrective Action Study (CAS).

With the approval of the CCC/USDA and the KDHE, Argonne conducted slug testing at the Hanover site on August 10-14, 2009 (Argonne 2009b).

The results of the Zone 1 slug tests are summarized in Table 1. The estimated hydraulic conductivity (K_h) values for the Zone 1 water-bearing materials at Hanover ranged over five orders of magnitude, from approximately 0.001 ft/day (at MW06) to approximately 100 ft/day (at MW09). The areal distribution of the calculated *average* K_h values (averaged for all of the individual tests and both calculation methods at each location; last column in Table 1) is illustrated in Figure 1.

Table 1 and Figure 1 indicate that the estimated hydraulic conductivities of the Zone 1 water-bearing interval are generally highest in the area corresponding to the main body of the identified carbon tetrachloride contamination in groundwater. The highest K_h values, ranging

from approximately 40 ft/day to 100 ft/day, were calculated for wells MW05, MW09, MW11, and MW13, which are located near the north central margin of the former CCC/USDA facility. Hydraulic conductivity values ranging from approximately 2 ft/day to 8 ft/day were identified within and near the eastern portion of the former facility (at wells MW02 and MW10), as well as near the intersection of N. East Street and Elm Street (wells MW28 and MW29; Figure 1). At all other tested locations, estimated K_h values that were consistently < 1 ft/day (and in most cases < 0.1 ft/day) were observed.

The CCC/USDA and Argonne have concluded that the expected capacity of the Zone 1 water-bearing interval to produce groundwater to wells is limited, even at the identified locations having higher K_h values. The factors upon which this interpretation is based include the following:

- The thickness of the Zone 1 water-bearing interval ranges only from 1 ft to 3 ft, resulting in limited transmissivity for the unit at even the most permeable locations tested.
- The observed K_h value for the unit decreases rapidly in all directions toward the margins of the contaminant distribution, thus restricting the lateral movement of groundwater into and out of the more permeable intervals.
- The low groundwater head levels (generally < 4-8 ft above total well depth) identified in wells in the portions of the study area having higher estimated K_h values physically constrain the drawdown conditions under which groundwater pumping would be logistically viable in these areas.

The K_h values obtained from the slug testing and the measured groundwater levels determined at Hanover at the time of the tests were used by Argonne to calculate pumping estimates for hypothetical groundwater extraction wells located at monitoring well locations MW09, MW10, and MW29, in the more permeable regions of Zone 1 (Figure 1). The calculations were based on the Theis equation for transient flow in a confined aquifer (Theis 1935; Kruseman and deRidder 1991). The results of the calculations (Argonne 2009b) indicate expected sustainable flow rates from wells in these areas in the range from < 0.2 gpm (at MW10 and MW29) to a maximum of < 1.5 gpm (at MW09). Argonne's previous experience in slug testing — with subsequent actual pump testing (at the KDHE's request) — at the former CCC/USDA facility in Everest, Kansas (Argonne 2006a,b), supports the interpretation that pumping estimates generated by using the Theis (1935) approach represent "best-case" approximations that are unlikely to be achieved by actual wells.

The results of the slug test analyses (Argonne 2009b) were reviewed and discussed with representatives of the CCC/USDA and the KDHE in a teleconference on October 1, 2009, as well as in a meeting held at the KDHE office in Topeka, Kansas, on October 13, 2009. On the basis of the findings presented, the CCC/USDA and Argonne proposed that the potential for use of pumping (or injection) as an effective mechanism for hydraulic control or restoration of the contaminated Zone 1 groundwater at Hanover is highly questionable. The KDHE expressed reservations regarding this interpretation, however, and requested that additional on-site testing be performed to evaluate the groundwater-producing capacity of the Zone 1 water-bearing interval. Specifically, the KDHE recommended that single-well specific-capacity testing, or

possibly constant-rate aquifer testing, be performed at one (or more) location(s) to investigate the viability of groundwater pumping from the Zone 1 unit.

2 Proposed Testing Program

To address the KDHE's concerns regarding the producing capacity of the Zone 1 water-bearing unit, the CCC/USDA proposes a phased program of investigation that will directly assess the technical and logistic feasibility of groundwater pumping from this interval. In keeping with the recent CCC/USDA-KDHE discussions in Topeka (Section 1), the program recommended in this section is designed to utilize the extensive network of Zone 1 monitoring wells that has already been installed at Hanover. The proposed elements of this program are, in sequential order, as follows:

1. Conduct single-well performance (step-drawdown) tests to determine the specific capacity of monitoring wells MW09 and MW05.
2. Conduct a step-drawdown test to determine the specific capacity of monitoring well MW10.
3. On the basis of the results of these tests, determine whether more rigorous constant-rate aquifer testing is technically warranted at one (or more) locations.
4. If warranted, conduct one (or more) constant-rate aquifer tests at location(s) to be approved by the CCC/USDA and KDHE project managers.

After each segment of the program, the CCC/USDA and KDHE will have the opportunity to evaluate whether the results merit progression to the next segment of the investigation. The CCC/USDA and KDHE project managers will be kept informed about all results and will participate in all decisions. The CCC/USDA anticipates that this investigation, in conjunction with the results of the slug testing previously undertaken (Argonne 2009b) will together serve as a conclusive indication of whether strategies requiring groundwater pumping from the Zone 1 water-bearing unit represent viable remedial alternatives for evaluation in the development of a CAS for the Hanover site.

2.1 Recommended Locations for Step-Drawdown Testing

Wells MW09 and MW05 are recommended as the initial locations for step-drawdown testing to determine the specific capacity of each well. Wells MW09 and MW05 are located near the north central boundary of the former CCC/USDA facility. They lie in the portion of the Zone 1 water-bearing unit exhibiting both the highest observed carbon tetrachloride concentrations in groundwater and the highest estimated hydraulic conductivity values determined by slug testing (Figures 2 and 3). The available data suggest that wells in this area (including MW09 and MW05) might have the greatest probability of sustaining pumping rates that are sufficient to induce significant groundwater drawdown in other nearby monitoring wells and hence might facilitate potential "hot-spot" groundwater extraction in this area as a remedial alternative.

Well MW10 is located near the southern boundary of the former CCC/USDA facility, as well as near the southern, downgradient limit of the highest carbon tetrachloride concentrations identified in the Zone 1 groundwater (Figure 3). Table 1 and Figure 2 indicate that slug testing at this location, as well as at more downgradient locations MW28 and MW29, identified relatively moderate hydraulic conductivity values; however, a substantially greater static water column was observed at MW10. Specific capacity testing at MW10 is therefore recommended to assess the potential for groundwater pumping in this area, as a possible means of hydraulically constraining further downgradient migration of the carbon tetrachloride in groundwater Zone 1.

2.2 Step-Drawdown Testing to Estimate Sustainable Pumping Rates

Calculations performed by Argonne on the basis of the slug testing data discussed in Section 1 (Argonne 2009b) suggest that the potential sustainable flow rates for wells completed in the Zone 1 water-bearing unit might be low. Step-drawdown testing of wells MW09, MW05, and MW10 is therefore recommended to estimate the wells' long-term production capacities. The step-drawdown tests will be performed in keeping with the procedures in the *Master Work Plan* (Argonne 2002), as well as with the KDHE's standard operating procedure for step-drawdown tests (KDHE 2000a).

At each well, pumping at an initial low rate (to be determined in the field) will be performed for approximately 30-60 min, or until the observed water level stabilizes at this rate. At intervals, the water level in the well will be measured manually. The water level will also be recorded continuously by using an automatic, downhole pressure transducer and data logger (Instrumentation Northwest, Inc., Model PT2X) programmed for a suitable measurement interval (approximately 1-5 sec between readings). The pumping rate will then be increased progressively in a series of at least two additional similar time steps, if possible, and the resulting changes in water level will be recorded. The exact number of steps to be performed, the length of the steps, and the incremental increase in flow rate to be used for each step will be determined in the field on the basis of the observed response of each well. At the end of the last time step, the pumping will be terminated, and the recovery of the water level will be monitored to estimate the approximate rate of groundwater recharge to the well bore.

The results of the step-drawdown tests will be interpreted through the use of standard procedures (Kruseman and deRidder 1991) to estimate the specific capacity and hence a potential sustainable flow rate for each well location.

If the water level does not stabilize at the initial pumping rate but instead appears to fall continuously, pumping will be maintained at this rate, and monitoring will continue until the water level reaches the minimum depth acceptable for operation of the pump. The pump will then be stopped, and the recovery of water levels will be monitored to estimate the approximate rate of groundwater recharge to the well.

During each of the step-drawdown tests proposed above, groundwater levels will also be recorded automatically in all existing monitoring wells adjacent to the well being pumped, to monitor for any possible indications of drawdown at these locations. The wells to be monitored for each proposed test are as follows:

Pumping Well	Monitored Wells
MW09	MW02, MW05, MW11, MW13, MW34
MW05	MW01, MW02, MW09, MW11, MW12
MW10	MW01, MW04, MW07, MW18, MW20

2.3 Constant-Discharge Pump Testing

The results of the proposed step-drawdown tests will be reviewed with the CCC/USDA and KDHE project managers to determine whether additional step-drawdown or constant-rate well testing is warranted at any of the proposed, or other, well locations. If constant-rate well testing is considered necessary, the following procedures will be employed:

- Pumping of the selected producing well will occur for a maximum period of 24 hr, at a constant target rate to be determined as described in Section 2.2. The aquifer testing will be performed in keeping with the procedures documented for this activity in the *Master Work Plan* (Argonne 2002), as well as the KDHE's standard operating procedure for constant-rate tests (KDHE 2000b).
- Changes in water levels at the pumping well and in all adjacent existing monitoring wells will be measured automatically by using individual pressure transducer and data logger units. Drawdown will be monitored at each location during the pumping, and water level recoveries will be recorded for an equivalent period after pumping ends.
- Barometric pressure readings will be recorded on-site during the water level measurements, to facilitate correction of the water level data for atmospheric pressure variations that might occur during the pumping and recovery periods. Barometric efficiencies required for these corrections will be calculated on the basis of atmospheric pressure data and water level measurements recorded automatically (every hour) in the pumping well and at each observation well for approximately two weeks following the testing period.
- Water levels will be monitored continuously, both before and after the testing period, in the pumping and observation wells. This will permit the identification of any extended rising or falling trends in water levels across the test area that might affect the drawdown and recovery results.

The Zone 1 water-bearing unit is expected to respond as a confined, or possibly a locally unconfined, interval. Under the proposed test conditions, boundary effects associated with the lateral variations in hydraulic conductivity indicated by the slug testing results might affect the observed drawdown levels at the pumping or observation wells. All of the Zone 1 monitoring wells that might be employed for either pumping or water level observation during the testing are constructed to fully penetrate the Zone 1 water bearing interval, so that corrections to the observed drawdown responses for partial penetration should not be required.

Under these conditions, Argonne anticipates that the drawdown data from any constant-rate tests will be interpreted by using standard methods (Kruseman and deRitter 1991). The final selection of the appropriate interpretation technique(s) must be based on the observed

characteristics of the drawdown profiles recorded, as well as the analysis of the pre- and post-test groundwater level trends. Recovery data will also be recorded and interpreted, if the water level responses indicate that such an analysis is appropriate for the Zone 1 unit.

2.4 Disposal of Produced Water

Groundwater withdrawn during the field program will be retained temporarily in one or more barrels or portable storage tanks and sampled for analyses of volatile organic compounds and nitrate. On the basis of the results, disposal of the wastewater will be conducted in accord with U.S. Environmental Protection Agency guidance (EPA 1992) provided by the KDHE (2009b).

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TABLE 1 Summary of interpreted results for slug tests in Zone 1 monitoring wells in August 2009.

	Calculated Hydraulic Conductivity[a] (ft/day)								
Well	Bouwer and Rice Method Result for Each Test				Hvorslev Method Result for Each Test				Average[b]
MW01	0.71	0.48	0.60	0.46	0.98	0.66	0.83	0.63	0.67
MW02	2.9	2.2	3.0	2.4	4.0	3.0	4.1	3.3	3.1
MW04	0.67	0.49	0.64	0.43	0.92	0.67	0.89	0.59	0.66
MW05	45	47	42	42	62	65	59	59	53
MW06	0.001	–	–	–	0.001	–	–	–	0.001
MW07	0.017	0.012	–	–	0.024	0.017	–	–	0.018
MW09	69	73	40	67	97	102	55	93	75
MW10	2.8	2.7	3.0	2.8	3.9	3.7	4.1	3.9	3.4
MW11	56	39	55	56	78	53	78	77	62
MW12	0.005	–	–	–	0.007	–	–	–	0.006
MW13	55	48	51	46	75	66	70	63	59
MW16	0.043	0.025	–	–	0.059	0.034	–	–	0.040
MW18	0.25	0.22	0.28	–	0.34	0.30	0.40	–	0.30
MW20	0.011	–	–	–	0.015	–	–	–	0.013
MW21	0.002	–	–	–	0.003	–	–	–	0.003
MW28	2.6	5.9	2.8	4.1	3.6	8.3	3.9	5.7	4.6
MW29	3.0	4.5	3.4	4.8	4.1	6.3	4.8	6.6	4.7
MW34	0.24	0.07	0.21	–	0.33	0.09	0.29	–	0.20
MW37	0.003	–	–	–	0.004	–	–	–	0.004
MW38	0.017	–	–	–	0.024	–	–	–	0.021

[a] Calculated with the assumption of a thickness of 2 ft for the water–bearing interval.

[b] Averaged for all tests and both calculation methods.

FIGURE 1 Areal distribution of average estimated hydraulic conductivity values for groundwater Zone 1, as determined by analysis of the data generated by the August 2009 slug testing.

FIGURE 2 Wells proposed for step-drawdown testing, with areal distribution of average estimated hydraulic conductivity values for groundwater Zone 1 as determined by analysis of the data generated by the August 2009 slug testing.

FIGURE 3 Wells proposed for step-drawdown testing, with carbon tetrachloride distribution in groundwater Zone 1 and locations of wells used for slug testing in August 2009.

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Supplement 2:

Final Work Plan: Supplemental Upward Vapor Intrusion Investigation at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas

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ANL/EVS/AGEM/TR-08-14

Final Work Plan: Supplemental Upward Vapor Intrusion Investigation at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas

Environmental Science Division

USDA United States Department of Agriculture

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ANL/EVS/AGEM/TR-08-14

Final Work Plan: Supplemental Upward Vapor Intrusion Investigation at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas

by
Applied Geosciences and Environmental Management Section
Environmental Science Division, Argonne National Laboratory

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United States Department of Agriculture

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Notation

BGL	below ground level
CCC	Commodity Credit Corporation
cm^3	cubic centimeter(s)
DFA	difluoroethane
DOE	U.S. Department of Energy
EPA	U.S. Environmental Protection Agency
ft	foot (feet)
in.	inch(es)
ITRC	Interstate Technology and Regulatory Council
KDHE	Kansas Department of Health and Environment
µg/kg	microgram(s) per kilogram
µg/L	microgram(s) per liter
$\mu g/m^3$	microgram(s) per cubic meter
MCL	maximum contaminant level
mi	mile(s)
NELAC	National Environmental Laboratory Accreditation Conference
SRE	site reconnaissance and evaluation
USDA	U.S. Department of Agriculture
VOC	volatile organic compound

Final Work Plan: Supplemental Upward Vapor Intrusion Investigation at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas

1 Introduction

The Commodity Credit Corporation (CCC), an agency of the U.S. Department of Agriculture (USDA), operated a grain storage facility at the northeastern edge of the city of Hanover, Kansas, from 1950 until the early 1970s. During this time, commercial grain fumigants containing carbon tetrachloride were in common use by the grain storage industry to preserve grain in their facilities. In February 1998, trace to low levels of carbon tetrachloride (below the maximum contaminant level [MCL] of 5.0 μg/L) were detected in two private wells near the former grain storage facility at Hanover, as part of a statewide USDA private well sampling program that was implemented by the Kansas Department of Health and Environment (KDHE) near former CCC/USDA facilities.

In 2007, the CCC/USDA conducted near-surface soil sampling at 61 locations and also sampled indoor air at nine residences on or adjacent to its former Hanover facility to address the residents' concerns regarding vapor intrusion. Low levels of carbon tetrachloride were detected at four of the nine homes. The results were submitted to the KDHE in October 2007 (Argonne 2007). On the basis of the results, the KDHE requested sub-slab sampling and/or indoor air sampling (KDHE 2007). This *Work Plan* describes, in detail, the proposed additional scope of work requested by the KDHE and has been developed as a supplement to the comprehensive site investigation work plan that is pending (Argonne 2008).

2 Project Technical Objective

Indoor air samples collected previously from four homes at Hanover were shown to contain the carbon tetrachloride at low concentrations (Table 2.1). It cannot be concluded from these previous data that the source of the detected carbon tetrachloride is vapor intrusion attributable to former grain storage operations of the CCC/USDA at Hanover.

TABLE 2.1 Carbon tetrachloride concentrations measured in indoor air at residences in Hanover, Kansas, July 2007.

Residence	Carbon Tetrachloride in Indoor Air (µg/m^3)
M. Goeckel	4.8
E. Meier	3.7
L. Jueneman	1.4
S. Jueneman	1.4
Bruna	ND[a]
Hagadorn	ND
J. Hyne,	ND
K. Hynek	ND
Poell	ND

[a] ND, carbon tetrachloride was not detected at the reporting limit of 1.3 µg/m^3 for U.S. Environmental Protection Agency Method TO-15.

The technical objective of the vapor intrusion investigation described here is to assess the risk to human health due to the potential for upward migration of carbon tetrachloride and chloroform into four homes located on or adjacent to the former CCC/USDA facility. The technical objective will be accomplished by collecting sub-slab vapor samples.

The preliminary data collected during the July 2007 investigation did not fully address the source of or migration pathway for the carbon tetrachloride detected in the four homes. The scope of work proposed here will generate additional data needed to help evaluate whether the source of the detected carbon tetrachloride is vapor intrusion attributable to activities of the CCC/USDA.

The additional vapor sampling at Hanover will be performed, on behalf of the CCC/USDA, by the Environmental Science Division of Argonne National Laboratory and H&P Mobile Geochemistry of San Diego (http://www.handpmg.com). Argonne is a nonprofit, multidisciplinary research center operated by UChicago Argonne, LLC, for the U.S. Department of Energy (DOE). The CCC/USDA has entered into an interagency agreement with DOE, under which Argonne provides technical assistance to the CCC/USDA with environmental site characterization and remediation at its former grain storage facilities. The professional staff members of H&P Mobile Geochemistry are nationally leading experts in soil gas sampling and vapor intrusion investigations.

3 Background and Previous Studies

Hanover, Kansas, is a rural city located in northeastern Washington County, in Section 9, Township 2 South, Range 5 East, approximately 78 mi northwest of Manhattan, Kansas, and 90 mi southwest of Lincoln, Nebraska (Figure 3.1). Hanover is a state historic site known for the Hollenberg Pony Express Station. The city has numerous small businesses, the Farmers Co-op Association, and a hospital. It also has a public school, a library, a weekly newspaper, a recreation facility, and churches.

The 2000 Census recorded 653 people in 329 housing units in the city of Hanover. The residents of the city are served by a public water supply system that obtains water from Washington County Rural Water District #1, which has wells outside the investigation area.

Additional information on the site background and previous studies was documented previously (Argonne 2008). A summary of that information is below.

The findings of a comprehensive review of data from previous investigations of the Hanover site are summarized as follows:

- The CCC/USDA operated a grain storage facility from 1950 to the early 1970s on approximately 6.5 acres in the northeast part of the city. The facility reached its maximum operational scale in the late 1960s with 223 grain bins and 1 storage building. Nine residences are located on or adjacent to the former CCC/USDA property.

- In 1998, five private wells were sampled as part of the USDA private well sampling program and the subsequent KDHE site reconnaissance and evaluation (SRE; KDHE 1998). Carbon tetrachloride was found in groundwater at a concentration (5.9 µg/L) exceeding the MCL at one private well (Meyn). This result was confirmed in 2006 at a lower level (4.3 µg/L). The Meyn well is used for lawn and garden purposes and is approximately 1,000 ft west of the former CCC/USDA facility. Trace levels (approximately 1 µg/L) to no contamination was detected in groundwater samples collected from five private wells surrounding the former CCC/USDA facility.

- In July 1998, the KDHE collected 11 soil samples above the bedrock (9 samples at 10.5-11.5 ft BGL [below ground level] and 2 samples at 19.5 ft BGL) in a pre-CERCLIS SRE investigation. All soil samples showed trace or no carbon tetrachloride contamination, except for one collected at the west edge of the former CCC/USDA facility. A low level of carbon tetrachloride (7.1 µg/kg) was detected at 11.5 ft BGL at this location (SP-9).

- In April 2007, Argonne collected near-surface soil samples at 1.8-2.0 ft BGL at 61 locations across the former CCC/USDA facility. Analysis of soil samples using the heated-headspace method as a screening tool indicated four areas with slightly higher carbon tetrachloride concentrations. No contamination was found in analysis of the samples by the more rigorous gas chromatograph-mass spectrometer analytical method (purge-and-trap method).

- In July 2007, indoor air samples were collected from the basement areas of nine residences on or adjacent to the former CCC/USDA property. Carbon tetrachloride was detected in air samples from four residences at concentrations ranging from 1.4 µg/kg to 4.8 µg/kg.

- A search of property records and other documentation is under way to determine whether the former CCC/USDA property was used by other entities for grain storage after the CCC/USDA's lease ended in the early 1970s.

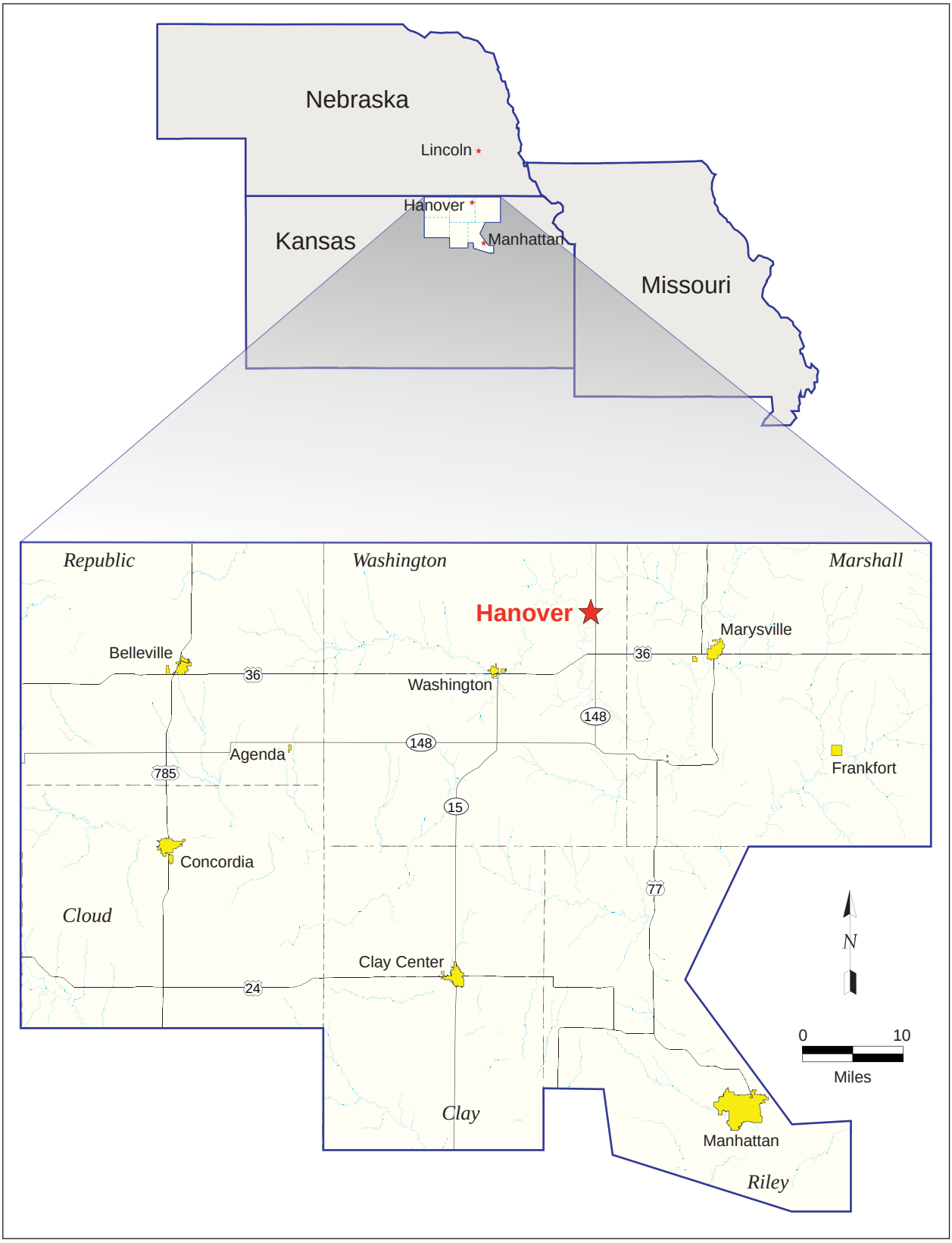

FIGURE 3.1 Location of Hanover, Kansas.

4 Proposed Scope of Work

Sub-slab soil vapor samples will be collected by an experienced sampling technician provided by H&P Mobile Geochemistry. H&P has been conducting soil gas sampling for over 20 years and is well known throughout the country for its expertise in vapor intrusion and soil gas sampling. Sub-sub samples will be collected at the following four homes in Hanover (Figure 4.1):

1. E. Meier, 400 N. East St.

2. S. Jueneman, 400 E. Kensington St.

3. L. Jueneman, 414 E. Kensington St.

4. M. Goeckel, 413 E. Kensington St.

One sub-slab sample will be collected at each residence, preferably in the center of the slab. The actual sampling location will depend on the floor covering and the preference of the residents.

Sampling will be conducted in accordance with procedures in Appendix A. Briefly, a small-diameter hole (< 1 in.) will be drilled through the slab, and a small-diameter tube will be inserted. The tubing will be sealed into the hole and purged of residual air. Then a soil gas sample will be withdrawn by a using small-volume canister (approximately 400 cm^3). After sampling is complete, the sub-slab sampling probe will be removed from the slab, and the hole will be sealed with cement.

Separate sub-slab samples and an indoor air sample will also be collected in Tedlar® bags for radon analysis as described by the U.S. Environmental Protection Agency (EPA 1992). The purpose of this analysis is to determine a foundation-specific attenuation factor, to aid in the interpretation of any detected levels of carbon tetrachloride in the sub-slab samples. The use of radon as a surrogate for determining a foundation-specific attenuation factor was described by the Interstate Technology and Regulatory Council (ITRC 2007) and in *Environmental Forensics* (McHugh et al. 2008).

The proposed order of sampling is as follows:

1. Radon sampling of indoor air will be conducted before the concrete slab is cut. This will ensure that an attenuation factor can be calculated that is representative of actual indoor conditions and has not been influenced by potential sub-slab exposure.

2. Drilling through the concrete slab will be conducted to permit installation of a temporary probe; vapor samples will be collected through the probe for carbon tetrachloride and chloroform analyses.

3. The final phase of sampling will include the collection of sub-slab vapor samples for radon analysis.

Soil vapor samples will be shipped to H&P Mobile Geochemistry and analyzed for carbon tetrachloride and chloroform by EPA Method TO-15 at a detection level of 5.0 $\mu g/m^3$. This value is below the most stringent risk-based screening level for these compounds in sub-slab samples. H&P holds National Environmental Laboratory Accreditation Conference (NELAC) certification for the TO-15 analysis.

To verify that the system is free from leaks, a tracer compound will be used to detect any leaks in the sampling train or procedure. H&P Mobile Geochemistry has selected difluoroethane (DFA) as the tracer. The KDHE has not established a standard for determining the concentration of DFA that would indicate the presence of a leak; however, the state of Missouri (2005) indicated that a concentration less than 100 µg/L indicates that the system is free from leaks. We propose to use the 100-µg/L criterion stated in the Missouri guidance (page 12 in Missouri 2005). Analyses will be conducted at the H&P laboratory. An equipment blank sample will be collected to verify that the equipment (probe, sample train, and canister) used for sub-slab sampling is free of contaminants.

FIGURE 4.1 Proposed sampling locations.

5 Schedule of Field Work and Reporting

Upon KDHE approval of this work plan, letters will be sent to the affected residents, describing the proposed work and requesting access for sampling. Once access is granted, the field work will be scheduled.

A report containing the data, relevant quality assurance/quality information information, and an interpretation of the vapor intrusion risk will be submitted to the KDHE within 30 days of completion of field work. Results of the sub-slab sampling will be provided to the owner of each individual household tested.

6 References

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Appendix A:

Sub-Slab Soil Vapor
Standard Operating Procedures
(For Vapor Intrusion Applications)

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Sub-Slab Soil Vapor Standard Operating Procedures

(For Vapor Intrusion Applications)

Revised January 2008

Prepared by:

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Soil Gas Probe/Implant Construction

Materials: Stainless steel tubing

Diameter: 1/8" OD or ¼" OD

Length: Cut to desired length within or just below base of slab

Tip: SS or plastic (typically no tip required for sub-slab)

Surface Termination: Swagelok fittings or 2-way valve

Refer to Photos 1 and 2.

Notes:

- Tips (aluminum, ceramic, SS) can be put on the end if desired to give a longer screen interval, but typically are not used for sub-slab samples.
- Various surface terminations are available and the selection often depends on whether the probes are temporary or permanent and whether they need to be installed flush with the surface.

Probe Installation Protocol

1. Ensure all sub-slab utilities (public and building specific) are marked prior to installation.
2. Drill a ½" to 1" OD hole through the slab with a drill and spline bit. Do not use water. If dust prevention necessary, cover the location with a towel/cloth and drill through a pre-cut hole in the cloth (Photo 3).
3. Measure slab thickness. Cut tubing to appropriate length to reach base of slab and to give required type of surface termination (flush, recessed, protruding). If a flush or recessed surface termination is required, a larger diameter hole (1") in the upper 1-inch of the slab may be useful to leave enough room for the fitting on the probe tubing (Photo 4).
4. Insert tubing. Add sand to cover tip with about 1 inch of sand.
5. Grout to the surface using bentonite (if temporary installation) or cement (if permanent installation).
6. Wait 15 to 30 minutes prior to sampling for bentonite to congeal.

Soil Gas Sample Collection

Since sub-slab sampling is from very shallow depths (typically 2" to 6" below surface), minimum purge volumes and low volume samples are preferred to minimize potential breakthrough from the surface. Tracer/leak gas is necessary to ensure breakthrough does not occur.

Materials: 1/8" or ¼" OD nylon or Teflon tubing.

Sample Canister: syringe, tedlar bag, SS canister, gas-tight glass.

Plastic 3-way valve.

Vacuum gauge and sampling train as necessary.

Notes: If canisters with flow chokes are used, ensure flow chokes are dedicated to the canister or cleaned before reuse on another canister.

1. If syringe samples only to be collected, connect syringe to probe tubing using a 3-way valve (Photo 5). Purge out 250 cc or 4 dead-volumes of the probe and connecting tubing (~ 4 cc/ft for 1/8"OD tubing and 20 cc/ft for ¼" OD tubing), whichever is larger. Leave syringe connected to implant tubing.
2. If canister samples are being collected, connect 60 cc syringe to sampling train and purge out 250 cc or 4 dead-volumes of the probe and sampling train, whichever is larger (Photo 6).
3. For canisters with valves (not mini-cans with quick-disconnects), connect canister to sampling train or connecting tubing. Do not connect mini-cans with quick-disconnects until step 6.
4. For canister samples, check canister vacuum immediately before use. Ensure any flow chokes & filters have been flushed between samples and all connections/fittings are tight.
5. Place tracer/leak compound, typically difluoroethane or a gas tracer such as helium around the implant at the ground surface and at connections in the sampling system. Liquid tracers are easily emplaced by wetting a paper towel and wrapping around the test locations. Gas tracers require a shroud to hold the gas tracer over the probe and sampling train.
6. Once leak compound in place, open 3-way valve and collect soil gas sample in syringe. For canister samples with valves, open valve. For mini-cans with quick-disconnects, remove purging syringe and connect mini-can to sampling train (Photos 7 & 8).

7. If measurements with a portable meter to be made (e.g. oxygen), conduct measurements after collection of the soil gas sample(s) for VOC analysis.

Notes:

- For larger canisters (>1 liter), sample flow rates are not to exceed 500 ml/min (200 ml/min for CA-EPA) to minimize potential for vacuum extraction of contaminants from the soil phase.
- The presence of the tracer compound in the analysis confirms a leak and another sample is collected until no leak is detected (if on-site analysis exists).
- If large volume canisters used (3 or more liters), a purge volume test may be required to ensure sample dilution from other zones is not occurring.

Field Records

The field technician maintains a log sheet summarizing:

- Sample identification
- Probe location
- Date and time of sample collection
- Sampling depth
- Identity of samplers
- Weather conditions
- Sampling methods and devices
- Soil gas purge volumes
- Volume of soil gas extracted
- Vacuum of canisters before and after samples collected.
- Apparent moisture content (dry, moist or saturated etc.) of the sampling zone

Chain of custody protocols and records used to track samples from sampling point to analysis.

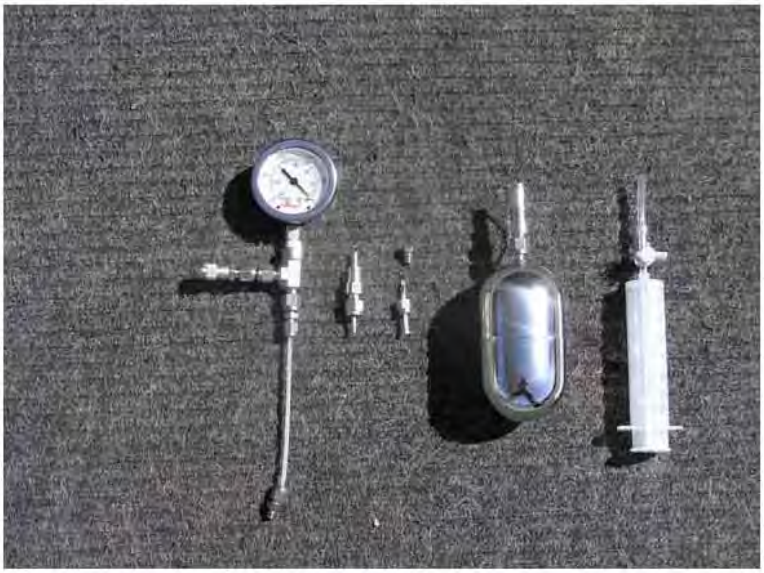

Photo 1 – Soil gas sampling materials: sample collection train, vapor implants, mini-can (400 cc), purging syringe.

Photo 2 – Sub-slab vapor implant (1/8" OD) and cap. Tubing can be cut to any length (nylon showed).

Photo 3 – Drilling hole through slab (1/2" OD).

Photo 4 – Surface completions. Left: tubing coiled in hole. Removable plug installed to make flush with surface. Right: cemented flush to surface (hole slightly recessed purposely to enable fitting to be visible in photo).

Photo 5 – Collecting sample with 60 cc syringe. Note small dead-volume of tubing connecting syringe to implant.

Photo 6 – Purging implant & sampling train with 60 cc syringe. Note small dead-volume of tubing connecting syringe to implant.

Photo 7 – Collecting soil gas sample in mini-can (400 cc).

Photo 8 – Collecting sample in larger canister (6 liter). No sampling train is required since the canister is already equipped with valve, vacuum gauge, and flow choke.

Addendum to *Final Work Plan: Supplemental Upward Vapor Risk Investigation at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas,* for Indoor Air and Ambient Air Sampling

This Addendum presents a plan for collecting indoor air samples in four homes located at the former CCC/USDA grain storage facility in Hanover, Kansas, as well as one ambient air sample to represent the Hanover site.

Project Objective

The purpose of the proposed work is to satisfy KDHE requirements and to collect additional data for assessing the risk to human health due to the potential upward migration of carbon tetrachloride and its primary degradation product (chloroform) into four houses located within or immediately next to the former grain storage facility. Indoor air data collected by the CCC/USDA in July 2007 showed low levels of carbon tetrachloride in four of the nine homes sampled. It cannot be concluded from these previous data whether the source of the detected carbon tetrachloride is vapor intrusion. Hence, the proposed work is designed to provide additional information to potentially resolve this uncertainty.

Proposed Work: Collection of Indoor Air and Ambient Air Samples

Sampling Procedure. Indoor air samples will be collected at the four homes designated for sub-slab sampling, by an experienced air sampling technician provided by Argonne National Laboratory (Argonne, Illinois) or Larsen and Associates, Inc. (Lawrence, Kansas). In addition, one ambient air sample will be collected to be representative of the site. All collection protocols will be in compliance with the KDHE vapor intrusion guidance (online at http://www.kdheks.gov/ber/download/Ks_VI_Guidance.pdf) and KDHE standard operating procedure (SOP) BER-33 (attached; online at http://www.kdheks.gov/environment/qmp_2000/download/BER_SOPs_Appendix_A.pdf).

Residence Survey Prior to Sampling. Approximately 2-5 days prior to sample collection, the four designated homes will be surveyed to identify any products known to potentially contain carbon tetrachloride or chloroform. The residents will be requested to remove these products from the premises at least 2 days prior to sample collection. Page 2 of the KDHE Field Data Air Sampling Form will be completed (in the attached SOP BER-33).

Sample Location. Indoor air samples will be collected immediately prior to the sub-slab sample collection to ensure that no interferences result from the sub-slab sampling effort. Samplers will be placed on the first floor of each residence, in a location of common occupancy (as allowed by the residents). Samples will be collected as close to the center of the room as possible, away from heating system registers, and at a height of 3-7 ft above the floor (in the breathing zone). Samples will be collected in Summa canisters, individually certified clean, for a

period of 24 hr. Meteorological conditions will be noted and recorded. Page 1 of the KDHE Field Data Air Sampling Form will be completed (in the attached SOP BER-33).

Ambient Air Sample. To be representative of the site, one ambient air sample will be collected in an upwind location, away from obvious sources of volatile organic compounds, and over the same collection period as the indoor air samples.

Sample Analysis. Air samples will be shipped to a laboratory certified for method TO-15 analysis and analyzed for carbon tetrachloride and chloroform by method TO-15, at a detection level at or below the allowable risk-based indoor air levels for each compound.

Report Deliverable

A report containing all of the data, all relevant quality assurance/quality control information, and an interpretation of the vapor intrusion risk will be submitted within 30 days of completion of the fieldwork.

Schedule of Field Work

Upon receipt of KDHE approval of this Addendum, Argonne will send follow-up letters to the residents of the four homes, describing the proposed work and requesting access. The work is tentatively scheduled for the end of January 2009.

APPENDIX A

BUREAU OF ENVIRONMENTAL REMEDIATION

STANDARD OPERATING PROCEDURES

BER-01	Collection of Groundwater Samples at Known or Suspected Groundwater Contamination Sites
BER-02	Collection of Surface Water Samples at Suspected or Known Contaminated Sites
BER-03	Collection of Soil Samples for Laboratory Analysis
BER-04	Collection of Sediment Samples
BER-05	Decontamination of Equipment
BER-06	Installation of Monitoring Wells
BER-07	KDHE Geoprobe Operations
BER-08	Characterization and Disposal of Investigative Derived Waste
BER-09	Conducting a Step-Drawdown Test
BER-10	Conducting a Constant-Rate Aquifer Test and Recovery Test
BER-11	Evaluation and Validation of Data
BER-12	Collection of Quality Control Measures for Water-Quality Data Samples
BER-13	Headspace Method for Screening Soil Samples for Volatile Organic Vapors
BER-14	Minimum Standards for Model Use **(RESCINDED)**
BER-15	Conducting Soil Vapor Extraction (SVE) Tests
BER-16	Horiba U-10 Water Quality Analyzer
BER-17	Implementing a Specialized Occupational Health Examination Program
BER-18	Field Safety Protocol
BER-19	Chain of Custody
BER-20	Guidelines for Sampling Hazardous Materials
BER-21	Levels of Protection for Field Work
BER-22	Half / Full-Mask Respirator
BER-23	Self Contained Breathing Apparatus (SCBA) **(RESCINDED)**
BER-24	Conducting On-site Reviews of Field Sampling Activities
BER-25	Mobile Laboratory
BER-26	YSI Model 63 Water Quality Analyzer
BER-27	Operation of Niton X-Ray Fluorescence (XRF) Analyzer
BER-28	Kabis Sampler
BER-29	Installation of Direct-push Monitoring Wells
BER-30	Operation of the 2020 Photoionization Air Monitor
BER-31	Field-based Colorimetric Analysis
BER-32	Garmin Model GPS III+
BER-33	Procedures for Sampling and Analysis of Indoor Air Samples
BER-34	Procedures for Sampling and Analysis of Sub-Slab Air Samples
BER-35	Installation of Vapor Monitoring Wells

APPENDIX A

STANDARD OPERATING PROCEDURE BER-33

PROCEDURES FOR SAMPLING AND ANALYSIS OF INDOOR AIR SAMPLES

TABLE OF CONTENTS

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3. BACKGROUND REVIEW 4

4. PRELIMINARY SCREENING 5

5. SAMPLING PROCEDURES 5

6. SAMPLING ANALYSIS 6

ATTACHMENT ONE - FIELD DATA AIR SAMPLING FORM

ATTACHMENT TWO - SAMPLING INSTRUCTIONS FOR CANISTERS
WITH PNEUMATIC FLOW CONTROLLERS

1. INTRODUCTION

This procedure describes field protocols for sampling and analytical methods to determine the presence of VOCs in ambient, indoor, or workplace atmospheres. This method establishes standard operating procedures for the collection of air samples in passivated (inert) stainless-steel canisters.

2. SAMPLING EQUIPMENT

Indoor air samples will be collected in specially prepared six liter stainless-steel spheres. The laboratory will provide either SUMMA canisters or SilcoCans for the sampling. Air flow into the canister is regulated by a sampling valve (fixed orifice) or a pneumatic flow controller, attached to an in-line particulate filter. The sampling valve is typically used for short duration grab samples; however, the valve can be set for longer duration sampling. A flow controller can be preset to regulate flow for sample collection times of 1-hour, 3-hours, 8-hours, 12-hours or 24 hours. Larger canisters are available for sampling periods in excess of 24-hours. The desired sampling rate is pre-set either by the canister manufacturer or the laboratory. Canisters will be cleaned and certified by the laboratory as per EPA Method TO-14A or TO-15 guidelines.

A pressure/vacuum gauge is utilized to measure and record the initial canister pressure. This item is not typically supplied by the laboratory but is available upon request. The canister pressure should be approximately 22 - 25 psig. If the initial pressure is less than 20 psig, the canister should be rejected and returned to the laboratory.

Stainless-steel or Teflon tubing can be attached to the inline filter to obtain samples from the breathing zone or a remote location. If only adults occupy the residence, the inlet manifold is placed in the breathing zone at approximately five feet above grade. The manifold may not be required for representative air sample in a residence with children. The laboratory will supply this material upon request.

3. BACKGROUND REVIEW

An adequate background review must be conducted to obtain information on each structure from which a sample is collected. Conduct a survey of each structure to ascertain basement, crawl space or slab on-grade building configuration. Determine if sumps, wells, or cisterns are associated with each structure. Evaluate the condition of the floors and walls, furnace use (fuel type) and building ventilation. These features may act as conduits that will facilitate the migration of VOCs from the soil and/or groundwater plume. An attached garage may store products that can contribute to contaminant impacts.

Interviews should be conducted to assess the use of potential contaminants, frequency of use, storage, as well as methods of handling and disposal. Additional information that is vital to adequately evaluate potential health risks include the following: the length of occupant residency; the ages of the adults and children that live in the structure; if the occupants smoke and how often. Any hobbies that use paints or solvents should be noted. The data referenced in this section should be entered on the Field Data Air Sampling Form in Attachment One.

4. PRELIMINARY SCREENING

Primary sampling areas will be in basements and/or the lowest potential living level, near sumps or other potential source areas. Preliminary screening of the sampling area may be conducted through use of photoionization detectors (PID) or colorimetric tubes. Screening, and subsequent sampling, will be conducted in the center of the room away from obstructions in the breathing zone, near potential sources, basements and crawl spaces. PIDs will be checked and calibrated according to manufacturers directions. Additional preliminary factors to be documented will include indoor and outdoor temperature, wind speed/ direction, and barometric pressure.

Preliminary screening and subsequent sampling can also be conducted in buildings or residences outside the area of concern to evaluate background levels of various constituents that may impact data interpretation. The data referenced in this section should be entered on the Field Data Air Sampling Form in Attachment One.

5. SAMPLING PROCEDURES

Laboratory prepared sampling apparatus configurations may vary. Specific instructions and/or diagrams for system assembly, if any, should be obtained from the laboratory suppling the canister(s). Canisters should not be placed in areas of high humidity (bathroom/laundry room), near windows, or heat registers. Record the local outdoor temperature, relative humidity and barometric pressure on the Field Data Air Sampling Form in Attachment One.

Sampling equipment apparatus may be assembled as follows: connect the flow controller, with attached in-line filter and vacuum/ pressure gauge, to the canister utilizing a compression fitting; connect a sampling tube to the sample inlet on the filter; place the canister in the predetermined location and begin sampling by turning the canister valve counter-clockwise one full turn or as specified; after sampling is complete, record the canister pressure and close the canister valve. Do not over-tighten the valves or compression fittings.

The final canister pressure should be less than atmospheric to ensure that a constant flow rate was used for the entire sampling period. Attach an identification tag that indicates the canister serial

number, sample number, location, and date to the canister for transport to the laboratory. The canisters will be shipped under proper chain-of-custody protocol. Canisters must be returned to the laboratory from which they were rented for analysis. A copy of sampling instructions for canisters with pneumatic flow controllers is in Attachment Two.

6. SAMPLE ANALYSIS

The canisters provide storage stability for many VOCs for a period of up to 30 days. Collected samples will be submitted for laboratory analysis by either EPA Method TO-14A (EPA, January, 1997) or EPA Method TO-15 (EPA, January, 1997). EPA Method TO-14A is the more recognized method for analysis of unknown trace VOCs and is more sensitive. This method can analyze up to 41 of 187 hazardous air pollutants listed in the Title III Clean Air Act Amendment (CAAA). EPA Method TO-14A uses single or multiple detectors which are generally less desirable than the mass spectrometry detector utilized by EPA Method TO-15.

The mass spectrometry utilized for EPA Method TO-15 is a more scientifically defensible detector scheme that has a more definitive identification technique for VOC analysis than TO-14A. Therefore, EPA Method TO-15 can be applied with a higher confidence which reduces uncertainty in risk assessments that evaluate VOCs. A larger number of Title III CAAA compounds can be analyzed (97 of 187) by EPA Method TO-15. Detection limits for the various analytes, with either EPA method, range from 0.2 ppbv - 25 ppbv.

A relatively limited number of laboratories conduct air sampling analysis. The referenced lab methods can be located on the world wide web at the following addresses: www.epa.gov/ttnamtil/files/ambient/airtox/to-14a.pdf or www.epa.gov/ttnamtil/files/ambient/airtox/to-15.pdf.

References:

Method TO-14A - Determination of Volatile Organic Compounds (VOCs) in Ambient Air Using Specially Prepared Canisters with Subsequent Analysis by Gas Chromatography, EPA, January, 1997

Method TO-15 - Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry, EPA, January, 1997

ATTACHMENT ONE

FIELD DATA AIR SAMPLING FORM

FIELD DATA AIR SAMPLING FORM

Site Name:_____

Sample Identification:_____/_____ Date Sampled:_____

Sample Location(s):_____
_____

Sampler:_____ Canister Serial #:_____/_____

Environmental Conditions

Outdoor Temperature:_____ Barometric Pressure:_____ Wind Speed/Direction:_____

Relative Humidity:_____ Comments:_____

Preliminary Screening

Instrumentation:_____ Calibration Date:_____ Time:_____ am/pm

Field Reading(s):_____(ppm)/_____(ppm)/_____(ppm)/_____(ppm)

Location(s):_____
_____
_____
_____

Air Sampling

	Time	Pressure	Controller Flow
Start:	_____am/pm	_____psig	_____
Stop:	_____am/pm	_____psig	_____

==========

Start:	_____am/pm	_____psig	_____
Stop:	_____am/pm	_____psig	_____

FIELD DATA AIR SAMPLING FORM

Residential Questionnaire

Tenant's Name(s):_____ Age:_____ Tenure:_____
_____ _____ _____
_____ _____ _____
_____ _____ _____
_____ _____ _____

Address:_____

Smoker(s): Y/N Product (Cigars, Pipe, Cigarettes):_____ Number Smoked/Day:_____

Basement/Crawl Space: Y/N Ventilated: Y/N Living Quarters: Y/N

Basement Activities:_____

Private Well: Y/N Sump: Y/N Cistern: Y/N In Use/Plugged: Y/N

Recent Remodeling: Y/N Activities (painting, new carpet, new cabinets): Y/N _____

VOC sources (hobbies, paints, solvents, gasoline, etc.):_____
_____

Cleaning Products and Storage:_____

Attached Garage: Y/N Garage Storage (cars, lawn mover, etc.):_____

Furnace Type (Oil, Natural Gas, Propane):_____ Furnace Intake: Inside/Outside

Additional Heating Sources (space heater, etc):_____ Fuel Type:_____

Comments:_____
_____
_____
_____
_____

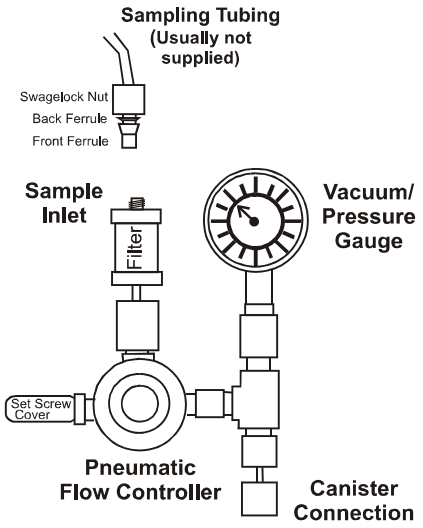
ATTACHMENT TWO

SAMPLING INSTRUCTIONS FOR CANISTERS WITH PNEUMATIC FLOW CONTROLLERS

Sampling Instructions for Canisters With Pneumatic Flow Controllers

1. Inspect your canister shipment upon arrival. Compare the contents with the packing slip and notify the lab of any discrepancy or damage.

2. Familiarize yourself with this diagram and the equipment that you received. The flow controller will be set for the appropriate sampling rate in the laboratory and should not require adjustment.

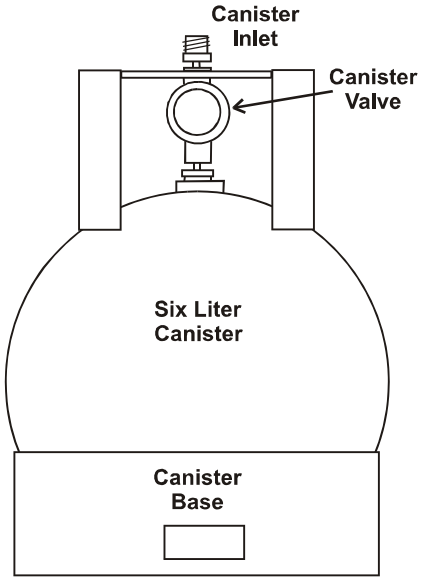


3. Remove the brass caps from the flow controller and canister. Connect the flow controller to the canister by inserting the "canister connection" into the "canister inlet" and hand tighten the swagelock nut being careful not to cross the threads. Using two open end wrenches (1/2" & 9/16") tighten the nut no more than 1/8 turn past finger tight. DO NOT use adjustable wrenches or pliers.

4. The fittings are swagelock compression fittings. Do not use teflon tape or other sealants, they are not necessary. DO NOT over-tighten any connection. Over-tightening causes leaks, not fixes them.

5. The canister and controller are now ready for ambient air sampling. If you intend to sample a remote location or source, you will need to attach a sampling line. This should be 1/4" O.D. tubing of virgin Teflon or cleaned stainless steel.

6. If arranged with your canister order, the lab will provide a swagelock nut and set of nylon ferrules for connecting line. Slide the nut, the back ferrule, then the front ferrule onto the tubing. Insert the tubing into the sample inlet and slide the ferrules into the fitting. Secure the nut being careful not to cross the threads. When using nylon ferrules, a snug finger tight should be sufficient for a leak free connection.



7. To begin sampling, simply open the canister valve by turning clockwise. One full turn is sufficient. Note the vacuum gauge reading. The vacuum gauge reading should be near the barometric pressure.

8. You can watch the decline in the vacuum to gauge the sampling rate. A one hour sample should drop in vacuum at a rate of 0.5" Hg per minute (i.e. 30"/60 min). Remember this is a rough estimate. The sampling rate is normally set in the laboratory. Occasionally the controller will lose calibration in shipment. If necessary contact the lab for assistance.

9. After sampling is complete, close the canister valve by turning clockwise until finger tight. DO NOT over-tighten as this WILL damage a very expensive valve.

10. Disassemble the components in reverse order of the above assembly instructions. Return all components to the original shipping containers and package them as received.

11. Verify that all parts are packed for return by referencing the packing slip. The project will be charged for all missing or damaged components.

12. Complete a Chain-of-Custody Record and return the sample to the laboratory for analyses.

Teflon will sometimes have very low level freon contamination.

Addendum 2 (Revised) to *Final Work Plan: Supplemental Upward Vapor Risk Investigation at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas,* for Indoor Air Sampling at 17 Residences and for Ambient Air Sampling

This Addendum 2 (Revised) presents a plan for collecting indoor air samples in 17 homes on and near the former CCC/USDA grain storage facility in Hanover, Kansas, as well as collecting three ambient air samples to represent background air conditions during the proposed sampling event. Table 1 identifies the 17 homes where sampling is proposed. (One of these homes was not sampled previously.) Figure 1 shows the locations of the 17 residences to be sampled. Table 1 and Figure 1 also identify and show the locations of 3 homes where mitigation systems are being installed (Eleanora Meier at 400 North East Street, Maurice Goeckel at 413 East Kensington Street, and Darrell Schlabach at 311 North East Street), on the basis of results of sampling earlier in 2009.

Project Objective

The purpose of the proposed work is to satisfy KDHE requirements and to collect additional data for assessing the risk to human health due to the potential upward migration of carbon tetrachloride and its primary degradation product (chloroform) into homes on or near the former grain storage facility. Sub-slab and indoor air screening data collected by the CCC/USDA in March-April 2009 showed low levels of carbon tetrachloride in 19 homes on and downgradient of the former CCC/USDA grain storage facility (Table 1). To eliminate potential risk via inhalation where relatively higher levels of carbon tetrachloride were detected during the March-April 2009 screening, the E. Meier, M. Goeckel, and D. Schlabach homes (Table 1 and Figure 1) have been designated for mitigation. The work proposed here is designed to provide additional information to assess the potential risk at the 16 homes where initial screening in March-April 2009 indicated lower contaminant concentrations (Table 1 and Figure 1).

In addition, the residence at 303 N. East Street, to which access was previously denied, is now expected to be accessible for sampling to assess risk to human health due to potential migration of carbon tetrachloride and chloroform vapors. This brings the total number of homes to be addressed under this Addendum 2 (Revised) to 17.

Proposed Work: Collection of Indoor Air and Ambient Air Samples

Sampling Procedure. Indoor air samples will be collected at the 17 homes identified in Figure 1, if approved by the owners, by experienced air sampling technicians provided by Argonne National Laboratory (Argonne, Illinois). In addition, 3 ambient air samples will be collected to be representative of site background ambient air conditions during the proposed sampling event. All collection protocols will be in compliance with the KDHE vapor intrusion guidance (online at http://www.kdheks.gov/ber/download/Ks_VI_Guidance.pdf) and KDHE

standard operating procedure (SOP) BER-33 (attached; online at http://www.kdheks.gov/environment/qmp_2000/download/BER_SOPs_Appendix_A.pdf).

Residence Survey Prior to Sampling. Prior to placement of the sample canisters, each home will be surveyed to verify that the windows and doors are closed and that air conditioning is in use, as well as to identify any products potentially containing volatile organic compounds. Page 2 of the KDHE Field Data Air Sampling Form will be completed (in the attached SOP BER-33).

Sample Location. Indoor air samples will be collected in the first-floor living area of each home and in the basement (or the crawl space of homes so constructed). Samplers will be placed on the first floor of each residence, in a location of common occupancy (as allowed by the residents). Samples will be collected as close to the center of the room as possible, away from heating/cooling system registers, and at a height of 3-7 ft above the floor (in the breathing zone). Samplers will also be placed in the basement (or the crawl space of the residences so constructed), away from heating-ventilation-air conditioning units, sumps, or storage areas for products potentially containing volatile organic compounds. Samples will be collected in Summa canisters, individually certified clean, for a period of 24 hr. Meteorological conditions will be noted and recorded. Page 1 of the KDHE Field Data Air Sampling Form will be completed (in the attached SOP BER-33).

Ambient Air Sample. To be representative of the background air conditions during the proposed sampling event, 3 ambient air sample will be collected at locations to be determined, across the investigation area, away from obvious sources of volatile organic compounds, and over the same collection period as the indoor air sample collection.

Sample Analysis. Air samples will be shipped to TestAmerica Laboratories, Inc., South Burlington, Vermont, which is certified for method TO-15 analysis. At the laboratory, the samples will be analyzed for carbon tetrachloride and chloroform by method TO-15, at a detection level at or below the allowable risk-based indoor air levels for each compound.

Sub-slab Sampling at 303 N. East Street. At the residence at 303 N. East Street, sub-slab sampling will be conducted in accordance with the procedures in *Final Work Plan: Supplemental Upward Vapor Risk Investigation at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas*, ANL/EVS/AGEM/TR-08-14.

Quality Control. Duplicate/replicate indoor air samples will be collected and analyzed at a frequency of 1 duplicate per 20 primary samples.

Report Deliverable

A report containing all of the data and all relevant quality assurance/quality control information will be submitted within 45 days of completion of the fieldwork. Subsequently, a discussion will be held with the KDHE concerning the potential risk for vapor intrusion into each home. On the basis of this discussion, a decision will be made regarding future actions.

Schedule of Field Work

Upon KDHE approval of this Addendum 2 (Revised), the KDHE will call the residents of the 17 homes to be sampled, describing the proposed work and requesting access. The work is *tentatively* scheduled for mid summer (July-August) 2009.

The KDHE will be notified of the dates scheduled for sampling, so that the state agency can determine whether to collect its own independent data set in conjunction with the proposed CCC/USDA-Argonne sampling.

TABLE 1 Actions following the spring 2009 vapor intrusion investigation at Hanover, KS.

	Resident	Residence Address	Sample Location	Sample Date	On-site screening analysis [a] Analysis Time	On-site screening analysis [a] Carbon Tetrachloride µg/m^3	Off-site laboratory analysis [b] Carbon Tetrachloride µg/m^3	Recommened Action	Comments
Homes selected for monitoring.									
[1]	S. Jueneman	400 E. Kensington St.	Basement	7/11/07	--	--	1.4		
			1st floor	2/4/09	--	--	ND	Monitor	
			Basement	2/4/09	--	--	1.8		
			Sub-slab	2/4/09	--	--	130		
[2]	M. Poell	301 N. Belgrave St.	Basement	7/11/07	--	--	ND		
			1st floor	3/13/09	--	--	2.9	Monitor	
			Basement	3/13/09	--	--	4.2		
[3]	L. Jueneman	414 E. Kensington St.	Basement	7/11/07	--	--	1.4		
			1st floor	3/13/09	--	--	2.6	Monitor	
			Basement	3/13/09	--	--	3.7		
[4]	R. Luehring	309 E. Elm	1st Floor	3/26/09	11:16	ND	--	Monitor	
			Basement	3/26/09	11:20	1.7	--		
			Subslab	3/27/09	13:10	290	--		
[5]	Vacant [a]	311 E. Elm	1st Floor	3/26/09	10:04	ND	--	Monitor	
			Basement	3/26/09	10:10	1.8	--		
			Basement	4/8/09	18:06	ND	--		
			Subslab	4/8/09	18:15	2200	--		
[6]	R. Hoover	400 E. Elm	1st Floor	3/26/09	9:19	ND	1.7	Monitor	
			Basement	3/26/09	9:23	ND	--		
			Subslab	--	--	2800	--		
[7]	F. Jueneman	401 E. Elm	1st Floor	3/26/09	18:48	ND	--	Monitor	
			Basement	3/26/09	18:52	ND	--		
			Subslab	4/8/09	11:31	400	--		
[8]	D. Kruse	405 E. Elm	1st Floor	3/26/09	19:14	ND	2.6	Monitor	High ethanol detected.
			1st Floor -Dup	3/26/09	19:39	ND	--		
			Basement	3/26/09	19:17	22	--		
			Basement -Dup	3/26/09	19:43	19	--		
			Subslab	3/27/09	13:58	2800	--		
[9]	S. Laue	406 E. Elm	1st Floor	3/26/09	12:13	ND	--	Monitor	Partial dirt basement.
			Basement	3/26/09	12:19	3.0	--		
			Basement	4/7/09	15:27	9.4	--		
			Subslab	4/7/09	15:24	410	--		
[10]	F. Jandera	408 E. Elm	1st Floor	3/26/09	12:37	2.6	7**	Monitor	
			Basement	3/26/09	12:40	2.3	--		
			Subslab	3/27/09	14:07	1600	--		
			1st Floor	4/8/09	16:04	2.7	--		
			Basement	4/8/09	16:00	6.0	--		
			Subslab	4/7/09	14:49	1900	--		
[11]	M. Gerdes	409 E. Elm	1st Floor	3/26/09	14:47	2.4*	1.5	Monitor	
			1st Floor -Dup	3/26/09	16:01	ND	--		
			Basement	3/26/09	14:52	6.2*	ND		
			Basement -Dup	3/26/09	16:05	2.7	--		
			Subslab	3/27/09	14:29	2400	--		
[12]	Vacant [b]	412 E. Elm	1st Floor	4/10/09	--	--	2.1	Monitor	
			Subslab	4/10/09	--	--	360		
[13]	V. Landoll	513 E. Elm	1st Floor	3/26/09	12:58	2.1	ND	Monitor	
			Basement	3/26/09	13:02	ND	--		
			Subslab	3/27/09	14:14	290	260		
[14]	C. Neiman	211 N. East	1st Floor	4/8/09	12:42	1.6	--	Monitor	
			Basement	4/8/09	12:45	2.7	--		
			Subslab	4/7/09	17:52	940	--		
[15]	P. Spencer	312 E. North	1st Floor	3/26/09	13:55	ND	--	Monitor	
			Basement	3/26/09	13:59	ND	--		
			Basement	4/7/09	18:28	ND	--		
			Subslab	4/7/09	18:32	300	--		
[16]	B. Schroeder	404 E. North	1st Floor	3/27/09	12:15	ND	--	Monitor	
			Basement	3/27/09	12:29	ND	--		
			Subslab	4/8/09	11:46	180	200		
[17]	E. Koehler	303 N. East St.						Monitor	Access for sampling denied previously.
Homes selected for mitigation.									
[1]	E. Meier	400 N. East St.	Basement	7/11/07	--	--	3.7		
			1st floor	2/4/09	--	--	17	Mitigate	
			Basement	2/4/09	--	--	26		
			Sub-slab	2/4/09	--	--	62000		
			Sub-slab	2/4/09	(KDHE split sample)		28500		
[2]	M. Goeckel	413 E. Kensington St.	Basement	7/11/07	--	--	4.8		
			1st floor	2/4/09	--	--	11	Mitigate	
			Kitchen	2/4/09	(KDHE split sample)		15.9		
			Basement	2/4/09	--	--	16		
			Basement	2/4/09	(KDHE split sample)		15.9		
			Sub-slab	2/4/09	--	--	350		
[3]	D. Schlabach	311 N. East	1st Floor	3/27/09	9:46	14	--	Mitigate	Trailer on top of basement. Many chemicals present in basement workshop.
			1st Floor	4/7/09	16:14	4.3	--		
			Basement	3/27/09	9:50	18	--		
			Basement	4/7/09	16:18	9.0	--		
			Subslab	4/7/09	16:28	4500	--		

Data contains results for July 2007 indoor air sampling at residences on former CCC/USDA facility.
* Possible interferences causing high bias in results.
** H&P reported problem with sample. Result questionable.

[a] The residence at 311 E. Elm is vacant. Owners Mr. & Mrs. E. Hynek no longer reside in the home. It is used periodically by the daughter and son-in-law when visiting Hanover.

[b] The residence at 412 E. Elm is vacant. Owner J. Poell lives at 5220 W. 102nd St. Apt 215; Bloomington, MN 55437.

HANOVER, KS

Approved Indoor Air Monitoring Locations and Mitigation Locations

APPENDIX A

BUREAU OF ENVIRONMENTAL REMEDIATION

STANDARD OPERATING PROCEDURES

BER-01	Collection of Groundwater Samples at Known or Suspected Groundwater Contamination Sites
BER-02	Collection of Surface Water Samples at Suspected or Known Contaminated Sites
BER-03	Collection of Soil Samples for Laboratory Analysis
BER-04	Collection of Sediment Samples
BER-05	Decontamination of Equipment
BER-06	Installation of Monitoring Wells
BER-07	KDHE Geoprobe Operations
BER-08	Characterization and Disposal of Investigative Derived Waste
BER-09	Conducting a Step-Drawdown Test
BER-10	Conducting a Constant-Rate Aquifer Test and Recovery Test
BER-11	Evaluation and Validation of Data
BER-12	Collection of Quality Control Measures for Water-Quality Data Samples
BER-13	Headspace Method for Screening Soil Samples for Volatile Organic Vapors
BER-14	Minimum Standards for Model Use **(RESCINDED)**
BER-15	Conducting Soil Vapor Extraction (SVE) Tests
BER-16	Horiba U-10 Water Quality Analyzer
BER-17	Implementing a Specialized Occupational Health Examination Program
BER-18	Field Safety Protocol
BER-19	Chain of Custody
BER-20	Guidelines for Sampling Hazardous Materials
BER-21	Levels of Protection for Field Work
BER-22	Half / Full-Mask Respirator
BER-23	Self Contained Breathing Apparatus (SCBA) **(RESCINDED)**
BER-24	Conducting On-site Reviews of Field Sampling Activities
BER-25	Mobile Laboratory
BER-26	YSI Model 63 Water Quality Analyzer
BER-27	Operation of Niton X-Ray Fluorescence (XRF) Analyzer
BER-28	Kabis Sampler
BER-29	Installation of Direct-push Monitoring Wells
BER-30	Operation of the 2020 Photoionization Air Monitor
BER-31	Field-based Colorimetric Analysis
BER-32	Garmin Model GPS III+
BER-33	Procedures for Sampling and Analysis of Indoor Air Samples
BER-34	Procedures for Sampling and Analysis of Sub-Slab Air Samples
BER-35	Installation of Vapor Monitoring Wells

APPENDIX A

STANDARD OPERATING PROCEDURE BER-33

PROCEDURES FOR SAMPLING AND ANALYSIS OF INDOOR AIR SAMPLES

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3. BACKGROUND REVIEW 4

4. PRELIMINARY SCREENING 5

5. SAMPLING PROCEDURES 5

6. SAMPLING ANALYSIS 6

ATTACHMENT ONE - FIELD DATA AIR SAMPLING FORM

ATTACHMENT TWO - SAMPLING INSTRUCTIONS FOR CANISTERS
WITH PNEUMATIC FLOW CONTROLLERS

1. INTRODUCTION

This procedure describes field protocols for sampling and analytical methods to determine the presence of VOCs in ambient, indoor, or workplace atmospheres. This method establishes standard operating procedures for the collection of air samples in passivated (inert) stainless-steel canisters.

2. SAMPLING EQUIPMENT

Indoor air samples will be collected in specially prepared six liter stainless-steel spheres. The laboratory will provide either SUMMA canisters or SilcoCans for the sampling. Air flow into the canister is regulated by a sampling valve (fixed orifice) or a pneumatic flow controller, attached to an in-line particulate filter. The sampling valve is typically used for short duration grab samples; however, the valve can be set for longer duration sampling. A flow controller can be preset to regulate flow for sample collection times of 1-hour, 3-hours, 8-hours, 12-hours or 24 hours. Larger canisters are available for sampling periods in excess of 24-hours. The desired sampling rate is pre-set either by the canister manufacturer or the laboratory. Canisters will be cleaned and certified by the laboratory as per EPA Method TO-14A or TO-15 guidelines.

A pressure/vacuum gauge is utilized to measure and record the initial canister pressure. This item is not typically supplied by the laboratory but is available upon request. The canister pressure should be approximately 22 - 25 psig. If the initial pressure is less than 20 psig, the canister should be rejected and returned to the laboratory.

Stainless-steel or Teflon tubing can be attached to the inline filter to obtain samples from the breathing zone or a remote location. If only adults occupy the residence, the inlet manifold is placed in the breathing zone at approximately five feet above grade. The manifold may not be required for representative air sample in a residence with children. The laboratory will supply this material upon request.

3. BACKGROUND REVIEW

An adequate background review must be conducted to obtain information on each structure from which a sample is collected. Conduct a survey of each structure to ascertain basement, crawl space or slab on-grade building configuration. Determine if sumps, wells, or cisterns are associated with each structure. Evaluate the condition of the floors and walls, furnace use (fuel type) and building ventilation. These features may act as conduits that will facilitate the migration of VOCs from the soil and/or groundwater plume. An attached garage may store products that can contribute to contaminant impacts.

Interviews should be conducted to assess the use of potential contaminants, frequency of use, storage, as well as methods of handling and disposal. Additional information that is vital to adequately evaluate potential health risks include the following: the length of occupant residency; the ages of the adults and children that live in the structure; if the occupants smoke and how often. Any hobbies that use paints or solvents should be noted. The data referenced in this section should be entered on the Field Data Air Sampling Form in Attachment One.

4. PRELIMINARY SCREENING

Primary sampling areas will be in basements and/or the lowest potential living level, near sumps or other potential source areas. Preliminary screening of the sampling area may be conducted through use of photoionization detectors (PID) or colorimetric tubes. Screening, and subsequent sampling, will be conducted in the center of the room away from obstructions in the breathing zone, near potential sources, basements and crawl spaces. PIDs will be checked and calibrated according to manufacturers directions. Additional preliminary factors to be documented will include indoor and outdoor temperature, wind speed/ direction, and barometric pressure.

Preliminary screening and subsequent sampling can also be conducted in buildings or residences outside the area of concern to evaluate background levels of various constituents that may impact data interpretation. The data referenced in this section should be entered on the Field Data Air Sampling Form in Attachment One.

5. SAMPLING PROCEDURES

Laboratory prepared sampling apparatus configurations may vary. Specific instructions and/or diagrams for system assembly, if any, should be obtained from the laboratory suppling the canister(s). Canisters should not be placed in areas of high humidity (bathroom/laundry room), near windows, or heat registers. Record the local outdoor temperature, relative humidity and barometric pressure on the Field Data Air Sampling Form in Attachment One.

Sampling equipment apparatus may be assembled as follows: connect the flow controller, with attached in-line filter and vacuum/ pressure gauge, to the canister utilizing a compression fitting; connect a sampling tube to the sample inlet on the filter; place the canister in the predetermined location and begin sampling by turning the canister valve counter-clockwise one full turn or as specified; after sampling is complete, record the canister pressure and close the canister valve. Do not over-tighten the valves or compression fittings.

The final canister pressure should be less than atmospheric to ensure that a constant flow rate was used for the entire sampling period. Attach an identification tag that indicates the canister serial

number, sample number, location, and date to the canister for transport to the laboratory. The canisters will be shipped under proper chain-of-custody protocol. Canisters must be returned to the laboratory from which they were rented for analysis. A copy of sampling instructions for canisters with pneumatic flow controllers is in Attachment Two.

6. SAMPLE ANALYSIS

The canisters provide storage stability for many VOCs for a period of up to 30 days. Collected samples will be submitted for laboratory analysis by either EPA Method TO-14A (EPA, January, 1997) or EPA Method TO-15 (EPA, January, 1997). EPA Method TO-14A is the more recognized method for analysis of unknown trace VOCs and is more sensitive. This method can analyze up to 41 of 187 hazardous air pollutants listed in the Title III Clean Air Act Amendment (CAAA). EPA Method TO-14A uses single or multiple detectors which are generally less desirable than the mass spectrometry detector utilized by EPA Method TO-15.

The mass spectrometry utilized for EPA Method TO-15 is a more scientifically defensible detector scheme that has a more definitive identification technique for VOC analysis than TO-14A. Therefore, EPA Method TO-15 can be applied with a higher confidence which reduces uncertainty in risk assessments that evaluate VOCs. A larger number of Title III CAAA compounds can be analyzed (97 of 187) by EPA Method TO-15. Detection limits for the various analytes, with either EPA method, range from 0.2 ppbv - 25 ppbv.

A relatively limited number of laboratories conduct air sampling analysis. The referenced lab methods can be located on the world wide web at the following addresses: www.epa.gov/ttnamtil/files/ambient/airtox/to-14a.pdf or www.epa.gov/ttnamtil/files/ambient/airtox/to-15.pdf.

References:

Method TO-14A - Determination of Volatile Organic Compounds (VOCs) in Ambient Air Using Specially Prepared Canisters with Subsequent Analysis by Gas Chromatography, EPA, January, 1997

Method TO-15 - Determination of Volatile Organic Compounds (VOCs) in Air Collected in Specially-Prepared Canisters and Analyzed by Gas Chromatography/Mass Spectrometry, EPA, January, 1997

ATTACHMENT ONE

FIELD DATA AIR SAMPLING FORM

FIELD DATA AIR SAMPLING FORM

Site Name:_____

Sample Identification:_____/_____ Date Sampled:_____

Sample Location(s):_____
_____

Sampler:_____ Canister Serial #:_____/_____

Environmental Conditions

Outdoor Temperature:_____ Barometric Pressure:_____ Wind Speed/Direction:_____

Relative Humidity:_____ Comments:_____

Preliminary Screening

Instrumentation:_____ Calibration Date:_____ Time:_____ am/pm

Field Reading(s):_____(ppm)/_____(ppm)/_____(ppm)/_____(ppm)

Location(s):_____
_____
_____
_____

Air Sampling

	Time	Pressure	Controller Flow
Start:	_____am/pm	_____psig	_____
Stop:	_____am/pm	_____psig	_____

==========

Start:	_____am/pm	_____psig	_____
Stop:	_____am/pm	_____psig	_____

FIELD DATA AIR SAMPLING FORM

Residential Questionnaire

Tenant's Name(s):_____ Age:_____ Tenure:_____
_____ _____ _____
_____ _____ _____
_____ _____ _____
_____ _____ _____

Address:_____

Smoker(s): Y/N Product (Cigars, Pipe, Cigarettes):_____ Number Smoked/Day:_____

Basement/Crawl Space: Y/N Ventilated: Y/N Living Quarters: Y/N

Basement Activities:_____

Private Well: Y/N Sump: Y/N Cistern: Y/N In Use/Plugged: Y/N

Recent Remodeling: Y/N Activities (painting, new carpet, new cabinets): Y/N _____

VOC sources (hobbies, paints, solvents, gasoline, etc.):_____
_____

Cleaning Products and Storage:_____

Attached Garage: Y/N Garage Storage (cars, lawn mover, etc.):_____

Furnace Type (Oil, Natural Gas, Propane):_____ Furnace Intake: Inside/Outside

Additional Heating Sources (space heater, etc):_____ Fuel Type:_____

Comments:_____
_____
_____
_____
_____

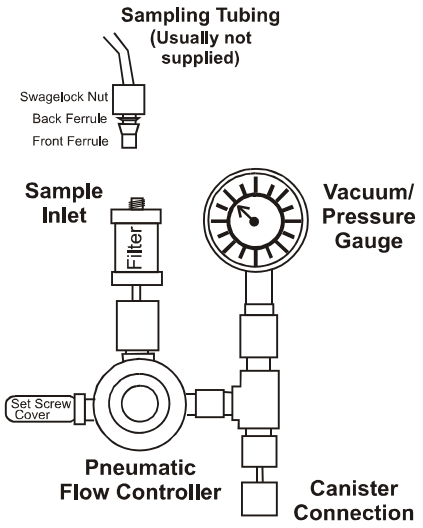
ATTACHMENT TWO

SAMPLING INSTRUCTIONS FOR CANISTERS WITH PNEUMATIC FLOW CONTROLLERS

Sampling Instructions for Canisters With Pneumatic Flow Controllers

1. Inspect your canister shipment upon arrival. Compare the contents with the packing slip and notify the lab of any discrepancy or damage.

2. Familiarize yourself with this diagram and the equipment that you received. The flow controller will be set for the appropriate sampling rate in the laboratory and should not require adjustment.

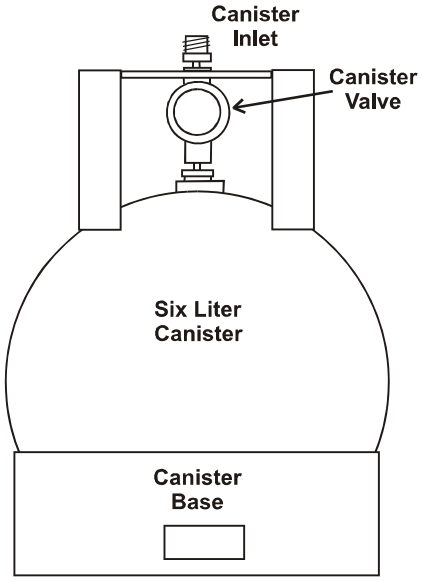


3. Remove the brass caps from the flow controller and canister. Connect the flow controller to the canister by inserting the "canister connection" into the "canister inlet" and hand tighten the swagelock nut being careful not to cross the threads. Using two open end wrenches (1/2" & 9/16") tighten the nut no more than 1/8 turn past finger tight. DO NOT use adjustable wrenches or pliers.

4. The fittings are swagelock compression fittings. Do not use teflon tape or other sealants, they are not necessary. DO NOT over-tighten any connection. Over-tightening causes leaks, not fixes them.

5. The canister and controller are now ready for ambient air sampling. If you intend to sample a remote location or source, you will need to attach a sampling line. This should be 1/4" O.D. tubing of virgin Teflon or cleaned stainless steel.

6. If arranged with your canister order, the lab will provide a swagelock nut and set of nylon ferrules for connecting line. Slide the nut, the back ferrule, then the front ferrule onto the tubing. Insert the tubing into the sample inlet and slide the ferrules into the fitting. Secure the nut being careful not to cross the threads. When using nylon ferrules, a snug finger tight should be sufficient for a leak free connection.



7. To begin sampling, simply open the canister valve by turning clockwise. One full turn is sufficient. Note the vacuum gauge reading. The vacuum gauge reading should be near the barometric pressure.

8. You can watch the decline in the vacuum to gauge the sampling rate. A one hour sample should drop in vacuum at a rate of 0.5" Hg per minute (i.e. 30"/60 min). Remember this is a rough estimate. The sampling rate is normally set in the laboratory. Occasionally the controller will lose calibration in shipment. If necessary contact the lab for assistance.

9. After sampling is complete, close the canister valve by turning clockwise until finger tight. DO NOT over-tighten as this WILL damage a very expensive valve.

10. Disassemble the components in reverse order of the above assembly instructions. Return all components to the original shipping containers and package them as received.

11. Verify that all parts are packed for return by referencing the packing slip. The project will be charged for all missing or damaged components.

12. Complete a Chain-of-Custody Record and return the sample to the laboratory for analyses.

Teflon will sometimes have very low level freon contamination.

Final Addendum 3 to *Final Work Plan: Supplemental Upward Vapor Risk Investigation at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas,* for Indoor Air Sampling in Homes in Midwinter 2010

This Addendum 3 expands the approved *Final Work Plan*[1] by providing for sampling and additional investigation of the potential risk associated with vapor intrusion at the Hanover site. Addendum 3 presents a plan for collecting indoor air samples in homes in Hanover, Kansas, plus ambient air samples to represent background air conditions. The homes to be sampled fall into three groups, as follows:

- The 17 homes (Table 1) identified during the investigation of groundwater Zone 1 in August 2009 under "Addendum 2 (Revised),"[2] at the locations shown in Figure 1.
- The 3 homes, at the locations shown in Figure 2, identified during the investigation of groundwater Zone 1 as being at risk, in which mitigation systems were installed in August 2009.[3,4,5]
- The 9 homes overlying carbon tetrachloride contamination at depths < 40 ft BGL (below ground level), as identified during subsequent investigation of groundwater Zone 2 in September-October 2009,[6] in the area indicated in Figure 3.

The purposes of the proposed work are to (1) collect additional information during the winter season for homes where the Kansas Department of Health and Environment (KDHE)

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[1] *Final Work Plan: Supplemental Upward Vapor Risk Investigation at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas*, ANL/EVS/AGEM/TR-08-14, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, December 2008.

[2] "Addendum 2 (Revised) to *Final Work Plan: Supplemental Upward Vapor Risk Investigation at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas*, for Indoor Air Sampling at 17 Residences and for Ambient Air Sampling," ANL/EVS/AGEM/CHRON-1273, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, July 1, 2009.

[3] *Vapor Mitigation Work Plan, Former USDA Grain Bin Site, Hanover, Kansas*, ANL/EVS/AGEM/CHRON-1285, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, August 5, 2009.

[4] "Responses to KDHE Comments of August 10, 2009, on *Vapor Mitigation Work Plan, Former USDA Grain Bin Site, Hanover, Kansas*," ANL/EVS/AGEM/CHRON-1296, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, September 15, 2009.

[5] *Technical Memorandum: Vapor Intrusion Mitigation System Installations, Former USDA Grain Bin Site, Hanover, Kansas*, prepared for Argonne National Laboratory, Argonne, Illinois, by EnviroGroup, Limited, Topeka, Kansas, October 19, 2009.

[6] *Summary of Preliminary Results of the Groundwater Zones 2-4 Investigation at Hanover, Kansas, in September-October 2009*, ANL/EVS/AGEM/CHRON-1314, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, November 24, 2009.

recommended additional sampling,[7] (2) verify the performance of the mitigation systems installed in three homes in August 2009, (3) perform initial screening for homes located in the area where the carbon tetrachloride contamination in groundwater Zone 2 is shallower than 40 ft BGL, and (4) perform radon testing, in accordance with homeowners' preferences, by using short-term monitoring kits obtained from the Washington County offices.

Sampling in the Seventeen Groundwater Zone 1 Homes Sampled in August 2009

The results of the August 2009 indoor air sampling in the 17 approved homes are summarized in Table 1. The August samples were collected in 24-hr canisters and were analyzed by TestAmerica Laboratories, Inc., South Burlington, Vermont, with Method TO-15.

The midwinter 2010 sampling in 16 of the 17 homes will be conducted according to the procedures described in "Addendum 2 (Revised),"[2] including the provisions specified in KDHE standard operating procedure (SOP) BER-33. Samples will again be collected in Summa canisters for 24 hr, from the basement (or crawl space) and in the first-floor living area of each home. Meteorological conditions will be recorded, and two or more ambient (background) air samples will be collected. The samples will be shipped to TestAmerica for analysis by Method TO-15. Duplicate/replicate indoor air samples will be collected and analyzed at a frequency of 1 duplicate per 20 primary samples.

Resampling of the 17th home (Leo and Ellie Jueneman) is being deferred at the request of the family, with KDHE approval.[8]

Radon testing will be offered to the homeowners. The radon kits used, with KDHE approval,[8] will be obtained from the Washington County offices. The kits (charcoal canisters or pouches) will be used as directed and will be left in place for 3-4 days, to be returned by the homeowners (after exposure) to National Radon Program Services at Kansas State University (133 Ward Hall, Manhattan, KS 66506-2508). The results will be reported to the KDHE when available.

Sampling in the Three Mitigated Homes

Mitigation systems were installed in 3 homes (E. Meier at 400 North East Street, M. Goeckel at 413 East Kensington Street, and D. Schlabach at 311 North East Street) on August 25-27, 2009, by EnviroGroup.[5] A 30-day baseline monitoring event in these homes occurred on September 28, 2009 (Table 2). The purpose of the midwinter 2010 indoor air sampling is to verify that the systems are maintaining performance criteria during cold-weather, closed-house conditions. The sampling and analysis procedures will be the same as for the 17 homes discussed above.[2]

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[7] Electronic mail message from E. Finzer (Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas) to C. Roe (Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C.), regarding a recent discussion of Hanover vapor intrusion issues, September 15, 2009.

[8] Electronic mail message from C. Carey (Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas) to L. LaFreniere (Argonne National Laboratory, Argonne, Illinois), January 21, 2010.

In conjunction with the midwinter 2010 indoor air sampling, the second monitoring event described by EnviroGroup[5] will be conducted, and the vacuum and flow measurements recommended by the KDHE[9] for individual suction points in the Meier home will be made, as a one-time event. In addition, radon sampling will be offered for the E. Meier and M. Goeckel homes, where radon was detected in previous sampling.

Sampling in the Nine Homes overlying the Zone 2 Contamination

As discussed previously,[6] carbon tetrachloride contamination was identified in groundwater Zone 2 at depths of less than 40 ft BGL (Figure 3). A vapor intrusion investigation in this area is warranted to address 9 homes inferred to overlie the groundwater Zone 2 contamination. Approximately 12 homes were previously estimated in that area on the basis of the 2008 aerial photograph (Figure 3). The physical presence of 9 homes and their addresses were verified in a site visit during the week of January 4; the 3 additional buildings in the area proved not to be residential structures. Testing of these 9 homes will be consistent with procedures outlined for the groundwater Zone 1 homes.[2]

Report Deliverable

A report containing all of the data and all relevant quality assurance/quality control information will be submitted within 45 days of completion of the fieldwork. Subsequently, a discussion will be held with the KDHE concerning potential risks for vapor intrusion. On the basis of this discussion, decisions will be made regarding future actions and time frames for implementation.

Schedule of Field Work

Upon KDHE approval of this Addendum 3 and provision of homeowner contact information by Argonne, the KDHE will contact the owners of homes overlying the shallow portion of groundwater Zone 2 to notify them of KDHE's recommendations for testing and Argonne's pending attempts to schedule the sampling event. Owners of homes overlying groundwater Zone 1 have previously been notified by the KDHE, via letter, of the KDHE's recommendations for resampling. Owners of the mitigated homes were notified by Argonne in September 2009 of the need to resample.

The implementation of this plan is scheduled for midwinter 2010. The KDHE will be notified of the dates scheduled for sampling to allow the agency to schedule oversight and independent sampling activities.

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[9] Letter from E. Finzer (Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas) to C. Roe (Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C.), regarding the EnviroGroup Technical Memorandum, December 8, 2009.

TABLE 1 The 17 homes overlying groundwater Zone 1 at Hanover in which indoor air sampling is scheduled in midwinter 2010.

No.	Resident	Residence Address	Sample Location	Sample Date	Concentration[a] (µg/m^3) Carbon Tetrachloride	Chloroform
1	Scott and Julia Jueneman	400 E. Kensington St.	First floor	8/12/09	1.5	1.2
			Basement	8/12/09	1.8	1.1
2	Mary Esther Poell	301 N. Belgrave St.	First floor	8/12/09	ND	ND
			Basement	8/12/09	ND	ND
3	Leo and Ellie Jueneman	414 E. Kensington St.	First floor	8/12/09	1.4	1.7
			Basement	8/12/09	1.5	1.6
4	Russell and Bonnie Luehring	309 E. Elm	First floor	8/12/09	3.0	18
			Basement	8/12/09	ND	9.3
5	Vacant	311 E. Elm	First floor	8/12/09	1.6	1.4
	(Larry and Linda Thomas out-of-town owners)		Basement	8/12/09	2.3	ND
6	Robert and Amanda Hoover	400 E. Elm	First floor	8/12/09	ND	ND
			Basement	8/12/09	ND	ND
7	Frank and Melony Jueneman	401 E. Elm	First floor	8/12/09	ND	3.5
			Basement	8/12/09	1.6	4.6
8	Denise Kruse	405 E. Elm	First floor	8/12/09	2.3	3.3
			Basement	8/12/09	2.9	2.6
9	Shirley Laue (also 404 Elm)	406 E. Elm	First floor	8/12/09	1.5	ND
			Basement	8/12/09	4.5	ND
10	Frank Jandera	408 E. Elm	First floor	8/12/09	11	ND
			Basement	8/12/09	17	ND
11	Martha Gerdes	409 E. Elm	First floor	8/12/09	ND	ND
			Basement	8/12/09	1.4	ND
12	Vacant (Joseph Poell out-of-town owner)	412 E. Elm	First floor	8/12/09	1.9	ND
			Basement	8/12/09	2.8	ND
13	Charles and Bobbi Neiman	211 N. East	First floor	8/12/09	1.8	ND
			Basement	8/12/09	2.5	ND

TABLE 1 (Cont.)

No.	Resident	Residence Address	Sample Location	Sample Date	Concentration[a] (µg/m^3) Carbon Tetrachloride	Chloroform
14	Edward and Shirley Koehler	303 N. East	First floor	8/12/09	1.4	3.4
			Basement	8/12/09	1.9	3.3
			Subslab	8/12/09	ND	19
15	Don and Patty Spencer	312 E. North	First floor	8/12/09	2.0	ND
			Basement	8/12/09	3.2	ND
16	Bernita Schroeder	404 E. North	First floor	8/12/09	1.6	ND
			Basement	8/12/09	1.8	ND
17	Vera Landoll	513 E. Elm	First floor	8/13/09	ND	ND
			Basement	8/13/09	ND	ND
Ambient		East of CCC/USDA	Water tower	8/12/09	ND	ND

[a] Samples were collected in August 2009 and were analyzed by TestAmerica according to Method TO-15.

TABLE 2 Performance ranges for the three homes having installed mitigation systems, with baseline measurements reported by EnviroGroup.[5]

Schlabach (Suction Point 1)		Meier (Combined)		Goeckel (Suction Point 1)	
Vacuum (in. water)	Flow (cfm)	Vacuum (in. water)	Flow (cfm)	Vacuum (in. water)	Flow (cfm)
Day 1					
-3.69	23.6	-2.69	51.5	-3.72	20.1
Day 30					
-3.82	38.5	-2.50	52.9	-3.75	39.2
Performance range					
± 0.5 (-4.32 to -3.32)	± 20% (46.2 to 30.8)	± 0.5 (-2.0 to -3.0)	± 20% (63.5 to 42.3)	± 0.5 (-4.25 to -3.25)	± 20% (47.0 to 31.4)

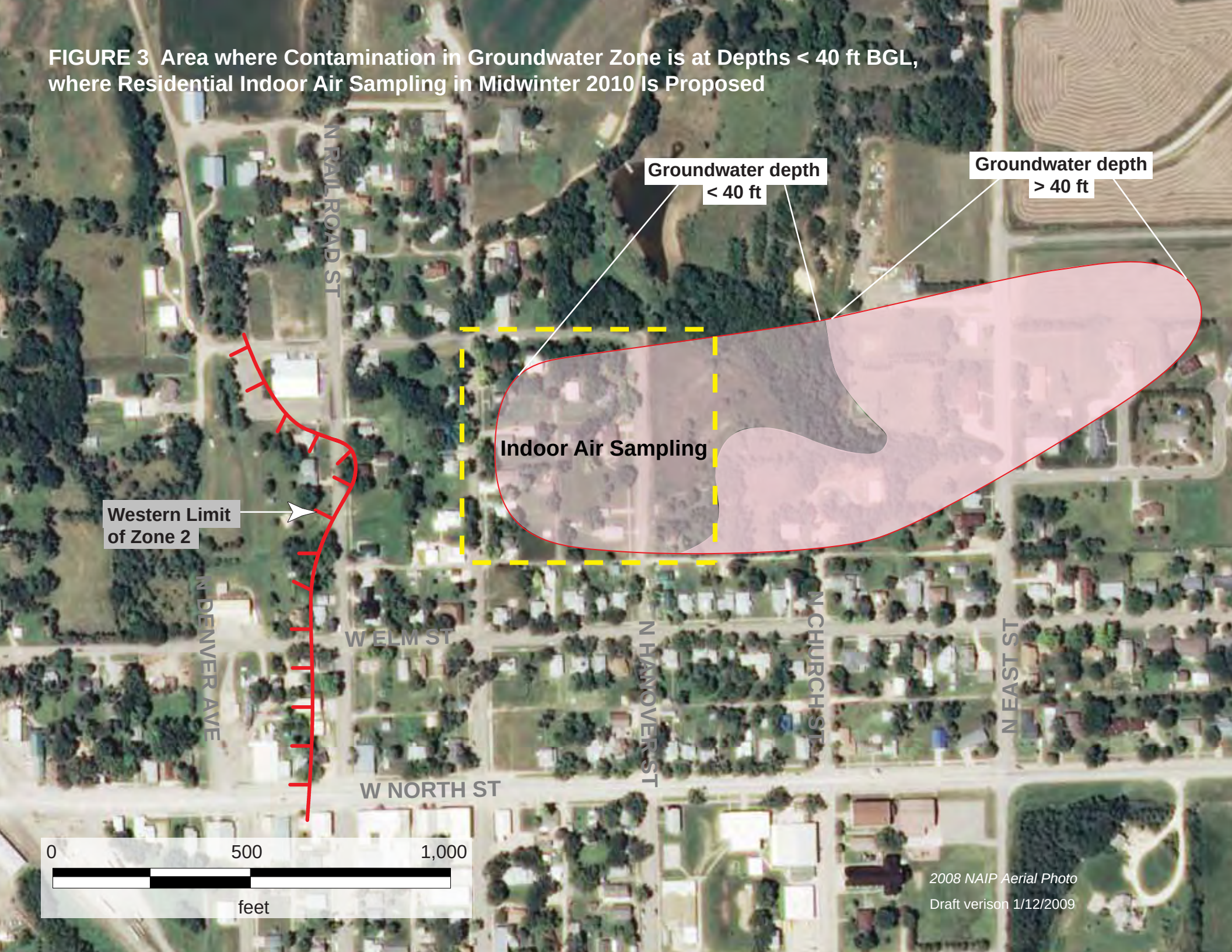
HANOVER, KS

FIGURE 1 Approved Indoor Air Monitoring Locations and Mitigation Locations (8/17/09 version)

HANOVER, KS

FIGURE 2 Homes with Mitigation Systems Installed in August 2009

FIGURE 3 Area where Contamination in Groundwater Zone is at Depths < 40 ft BGL, where Residential Indoor Air Sampling in Midwinter 2010 Is Proposed



Final Addendum 4 to *Final Work Plan: Supplemental Upward Vapor Risk Investigation at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas,* for Indoor Air Sampling in Schools in Winter 2010

Addendum 4 to the approved *Final Work Plan*[1] expands the investigation of potential risk associated with vapor intrusion potentially originating from the former CCC/USDA grain storage site area in Hanover, Kansas. Specifically, Addendum 4 is focused on testing and assessing the presence of carbon tetrachloride in indoor air in the facilities of the Hanover Public Schools (kindergarten through grade 12) and St. John's School (preschool and grades 1-8).

This expansion of the original vapor intrusion investigation[1] was prompted by concerns expressed by several Hanover residents and by the principal of the Hanover Public Schools, Ms. Valeria Converse, at a meeting of the Chamber of Commerce on October 22, 2009. This meeting was attended by representatives of both Argonne National Laboratory, on behalf of the Commodity Credit Corporation of the U.S. Department of Agriculture (CCC/USDA), and the Kansas Department of Health and Environment (KDHE).

The CCC/USDA, which is conducting the work at Hanover, directed Argonne to proceed with vapor intrusion testing in the schools. This action is in keeping with the ongoing commitment of the CCC/USDA to the health and safety of all Hanover residents. The development of Addendum 4 and the subsequent testing is being performed in consultation with vapor intrusion specialist Dr. Blayne Hartman (Hartman Environmental Geoscience, Solana Beach, California), and with the approval of the KDHE.[2]

Radon was previously detected in area homes at levels posing a significant health hazard. The CCC/USDA opted to offer radon testing in the schools, and the respective administrators are agreeable. The radon testing is not required by the KDHE, and if radon contamination is detected, the CCC/USDA is not liable and will not be held responsible for mitigation. Radon is a naturally occurring radioactive gas resulting from the decay of uranium.

Preliminary On-site Visit

At the CCC/USDA's direction, Argonne technical staff and Dr. Hartman visited the schools and conferred with the principals regarding the vapor intrusion testing on January 13, 2010. Inspections of both Hanover schools were conducted at that time. Both schools are older masonry buildings with lower basement floors that are below or partially below grade. Further, the Hanover Public Schools facility consists of multiple buildings, some more than 100 years old.

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1 *Final Work Plan: Supplemental Upward Vapor Risk Investigation at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas,* ANL/EVS/AGEM/TR-08-14, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, December 2008.

2 Letter from E. Finzer (Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas) to C. Roe (Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C.), regarding vapor intrusion assessment of the schools at Hanover, October 29, 2009.

The below-grade construction of the school buildings and the complex arrangement of the rooms in the public school facilities prevented ready identification of preferential entry points into the structures and the most appropriate rooms for collection of time-integrated indoor air samples in canisters. Consequently, we propose a two-step strategy of preliminary screening in a large number of rooms, followed by time-integrated sampling with canisters in a smaller number of targeted locations.

Procedures for Preliminary Screening for Carbon Tetrachloride and Chloroform in Air

To identify the most appropriate rooms for time-integrated sampling with canisters, we propose initially to conduct preliminary screening of the air in most of the rooms in each school facility for carbon tetrachloride and chloroform. The preliminary screening will involve the collection of grab samples in glass syringes, with real-time analysis by the EPA SW-846 Method 8021 on a gas chromatograph with an ultra-sensitive electron capture detector. The procedure will be the same as that used during the spring 2009 assessment of the neighboring homes.

Locations for the subsequent collection of time-integrated canister samples will be determined on the basis of the preliminary screening results from the Method 8021 analyses. In general, the rooms showing the highest concentrations in the screening evaluation will be selected for time-integrated sampling with canisters. More specific plans for selecting rooms for canister sampling — in the event that the contaminants of concern are not detected in the screening evaluation — are discussed below for the two school facilities.

Procedures for Canister Sampling for Carbon Tetrachloride and Chloroform

Sample collection in canisters will be in accordance with KDHE standard operating procedure BER-33[3] and in compliance with KDHE vapor intrusion guidance.[4] Samples will be collected in evacuated Summa canisters, individually certified clean, for a period of 8-10 hr during the normal school day (to provide an accurate assessment of indoor air concentrations to which students and staff are exposed, per the 1989 *Risk Assessment Guidance for Superfund* [RAGS]).[5,6] Sampling canisters will be placed at a distance from heating system registers and at a height of 3-7 ft above the floor (in the breathing zone). Meteorological conditions will be noted

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[3] "Procedures for Sampling and Analysis of Indoor Air Samples," BER-33 in *Appendix A: Bureau of Environmental Remediation Standard Operating Procedures*, December 2000 (http://www.kdheks.gov/environment/qmp_2000/download/BER_SOPs_Appendix_A.pdf).

[4] *Kansas Vapor Intrusion Guidance: Chemical Vapor Intrusion and Residential Indoor Air*, Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas, June 2007 (http://www.kdheks.gov/ber/download/Ks_VI_ Guidance.pdf).

[5] *Risk Assessment Guidance for Superfund: Volume I. Human Health Evaluation Manual (Part A)*, EPA/540/1-89/002, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, D.C., December 1989 (http://www.epa.gov/oswer/riskassessment/ragsa/pdf/rags-vol1-pta_complete.pdf).

[6] *Calculating Upper Confidence Limits for Exposure Point Concentrations at Hazardous Waste Sites*, OSWER 9285.6-10, Office of Emergency and Remedial Response, U.S. Environmental Protection Agency, Washington, D.C., December 2002 (http://www.epa.gov/oswer/riskassessment/pdf/ucl.pdf).

and recorded. The first page of the field data air sampling form in KDHE procedure BER-33 (included in this addendum) will be completed. Sampling locations are discussed further below.

After completion of the school-day sampling, at least one overnight sample will be collected in each school to represent worst-case conditions. The locations will be selected in consultation with the KDHE.

Hanover Public Schools Facilities

The public school facilities consist of several different buildings. Floor plans are included in this attachment. The proposed sample locations for each building are as follows:

- The *main (oldest) building* of the public school consists of a basement level plus two upper floors. All rooms will be subjected to the preliminary screening with analysis by Method 8021. Rooms will be selected for indoor air sampling with canisters on the basis of the screening data. We propose to collect a total of four indoor air canister samples in this building. If carbon tetrachloride is not detected in any room, we will place the sampling canisters as follows: two on the basement floor and two on the main floor.
- The *gymnasium and cafeteria building* houses a large gymnasium and attached cafeteria. The air exchange between the gym and cafeteria is clearly rapid, and the air is expected to be well mixed. The high gymnasium ceilings suggest very high dilution of any volatile organic compounds (VOCs) that might enter via vapor intrusion. One or two canister samples are proposed for this building. Location(s) for the canister sampling will be based on the screening data (Method 8021).
- The *new building* consists of one floor, of slab-on-grade construction, with science laboratories that could contain carbon tetrachloride sources. Any carbon tetrachloride detections in this building would be extremely difficult to interpret. For this reason, we do not propose to sample this building.
- Activities conducted in the *wood and machine shop building* use numerous products that were observed during the inspection — glues, paints, oils, solvents, etc. These products could possibly be a source of carbon tetrachloride and certainly are a source of other VOCs. Any carbon tetrachloride detections in this building would be extremely difficult to interpret. For this reason, we do not propose to sample this building.
- Activities conducted in the *art building* use numerous products that were observed during the inspection — glues, paints, oils, paint cleaners, etc. These products could possibly be a source of carbon tetrachloride and certainly are a source of other VOCs. Any carbon tetrachloride detections in this building would be extremely difficult to interpret. For this reason, we do not propose to sample this building.
- Any modifications to the proposed locations and number of samples will be made in consultation with the KDHE.

St. John's School Facility

The St. John's School consists of one large building with a lower level (partially below grade), plus two upper floors. Floor plans are included in this attachment. The lowest floor consists of a gymnasium on the eastern end (at grade) with a locker room, a boiler room, a preschool classroom, and storage rooms on the western end. The boiler room connects directly to the preschool classroom; the indoor air in these two rooms is assumed to be similar.

We propose to collect a total of four indoor air canister samples in the St. John's School building. All rooms will be subjected to the preliminary screening with analysis by Method 8021, and rooms will be selected for canister sampling on the basis of the Method 8021 screening data. If carbon tetrachloride is not detected in any room, we will place the sampling canisters as follows: two on the lowest floor (one in the preschool room and one in the gymnasium) and two on the main floor.

Any modifications to the proposed locations and number of samples will be made in consultation with the KDHE.

Collection of Ambient Air Samples

Two ambient (outside) air samples will be collected, one on the northern side of each school facility (toward the location of the former CCC/USDA facility), over the same collection period as the indoor air sampling.

Analysis of Canister Samples

After sampling, the canisters will be shipped to TestAmerica, a certified independent laboratory, for analysis for carbon tetrachloride and chloroform by method TO-15, at a detection level at or below the allowable risk-based indoor air level.

Data Interpretation

Interpretation of analytical results for the canister samples will be done with full consideration for the prevalence of sources of chloroform (especially) and carbon tetrachloride (to a lesser extent) that are unrelated to vapor intrusion from the subsurface.

Radon Analysis

Kits will be used for radon analysis in every room of the of the St. John's School building. Radon kits will also be placed in the public school facilities, as follows: in every room of the main (oldest) building; in the gym and cafeteria; and in selected rooms of the new building, the wood and machine shop building, and the art building.

The kits to be used were approved by the KDHE for the January 2010 residential indoor air sampling at Hanover.[7] The kits will be obtained from the Washington County offices. The

[7] Electronic mail message from C. Carey (Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas) to L. LaFreniere (Argonne National Laboratory, Argonne, Illinois), January 21, 2010.

kits (charcoal canisters or pouches) will be used as directed and will be left in place for 3-4 days, to be returned by Argonne personnel (after exposure) to National Radon Program Services at Kansas State University (133 Ward Hall, Manhattan, KS 66506-2508). The results will be reported to the KDHE when available.

Report Deliverables

A report containing all of the results of the analyses and all relevant quality assurance/quality control information will be submitted within 45 days of the receipt of the data package from TestAmerica.

Schedule of Sampling Event

Implementation of the plan presented here for the testing of the indoor air and potential for vapor intrusion is scheduled to begin before the school day on Tuesday, February 23, 2010, with the preliminary screening of both school facilities. Canister deployment will follow on Wednesday, February 24, 2010, commencing prior to the arrival of the students and ending with retrieval of the canisters at the end of the day. Confirmation sampling in canisters will occur overnight on Wednesday evening, February 24, to Thursday morning, February 25. After sampling, the canisters will be shipped to TestAmerica for delivery on Friday, February 26, 2010. The dates of the sampling event were determined in discussion with personnel of the Hanover schools. The KDHE will be notified of any changes to the schedule for sampling to allow the agency to perform oversight and independent sampling activities.

FIELD DATA AIR SAMPLING FORM

Site Name:_____

Sample Identification:_____/_____ Date Sampled:_____

Sample Location(s):_____
_____

Sampler:_____ Canister Serial #:_____/_____

Environmental Conditions

Outdoor Temperature:_____ Barometric Pressure:_____ Wind Speed/Direction:_____

Relative Humidity:_____ Comments:_____

Preliminary Screening

Instrumentation:_____ Calibration Date:_____ Time:_____ am/pm

Field Reading(s):_____(ppm)/_____(ppm)/_____(ppm)/_____(ppm)

Location(s):_____
_____
_____
_____

Air Sampling

	Time	Pressure	Controller Flow
Start:	_____am/pm	_____psig	_____
Stop:	_____am/pm	_____psig	_____

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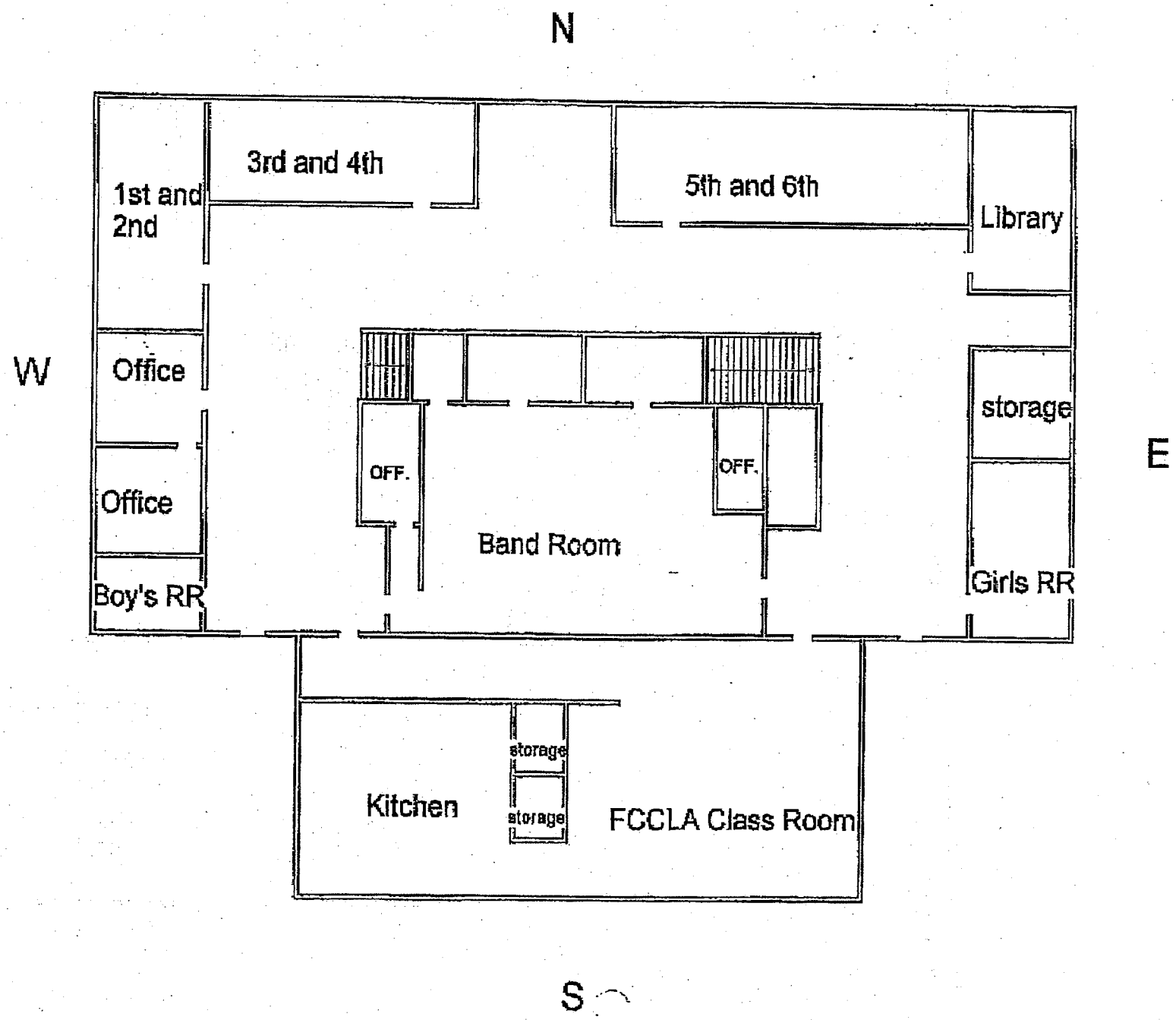
Start:	_____am/pm	_____psig	_____
Stop:	_____am/pm	_____psig	_____

Hanover Public Schools

Main Floor

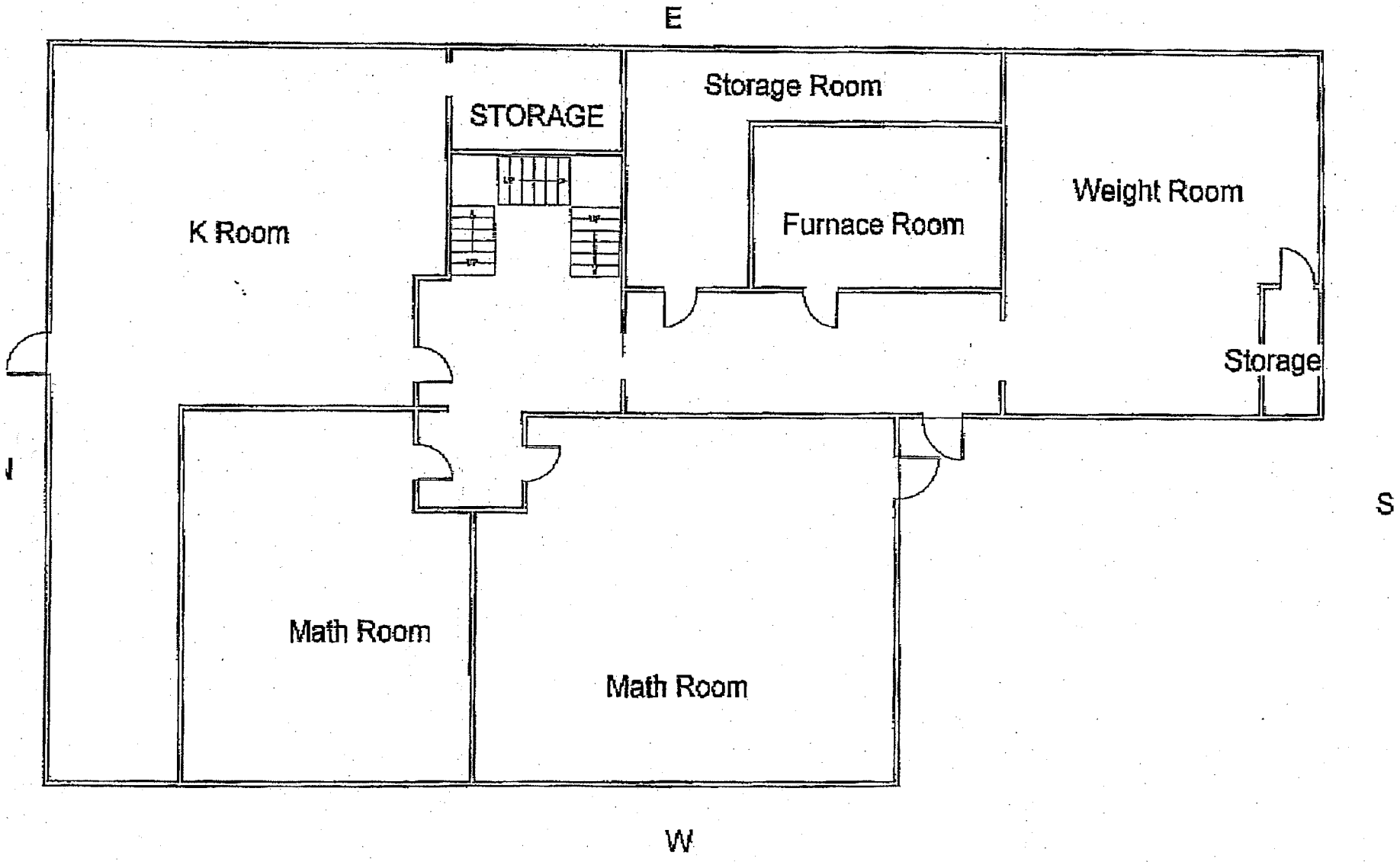
Hanover Attendance Ctr.



Hanover Public Schools

Hanover Attendance Ctr.

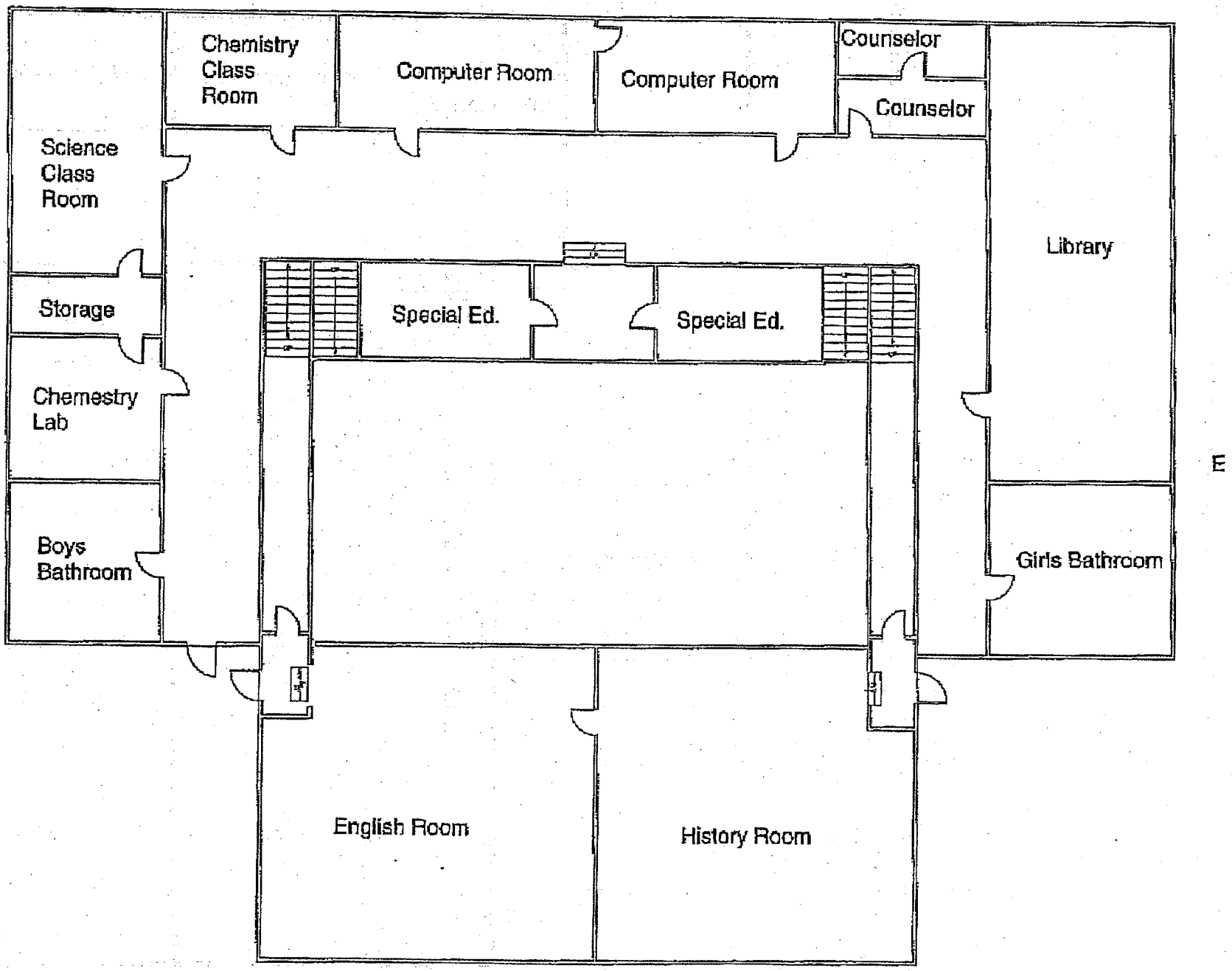
Basement



Hanover Public Schools

N Top Floor

Hanover Attendance Ctr



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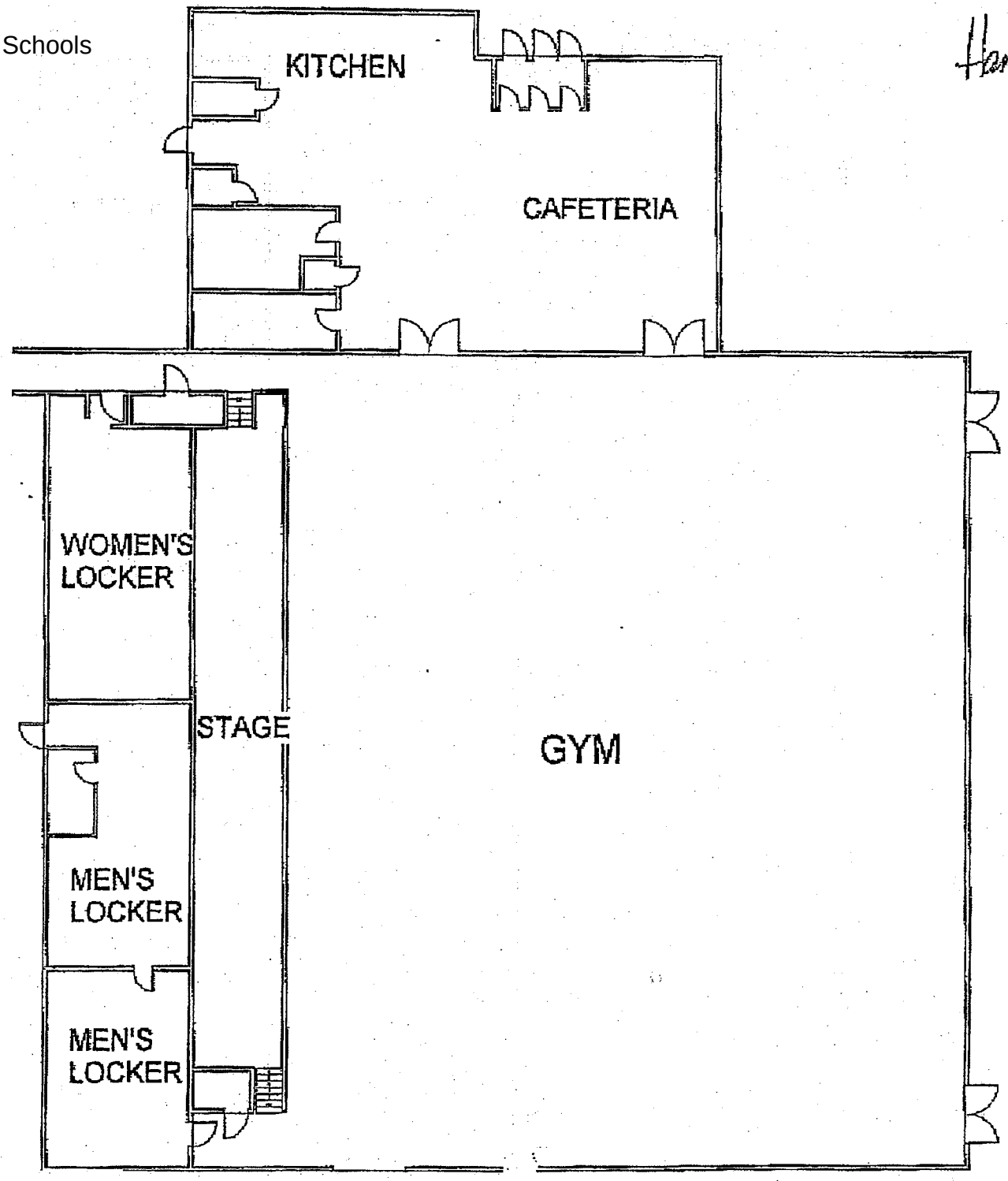
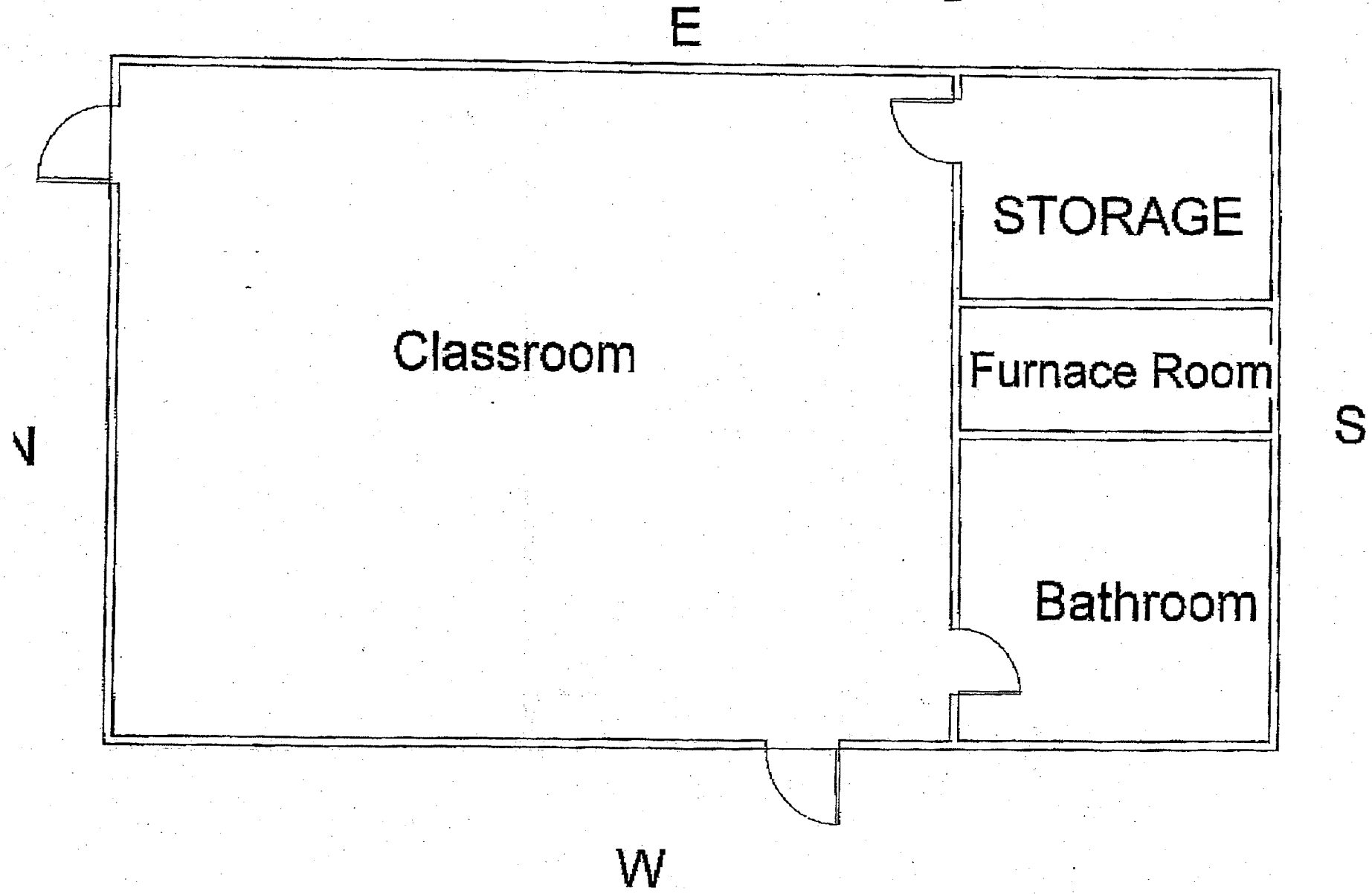
Hanover Public Schools

Hanover Attendance Ctr



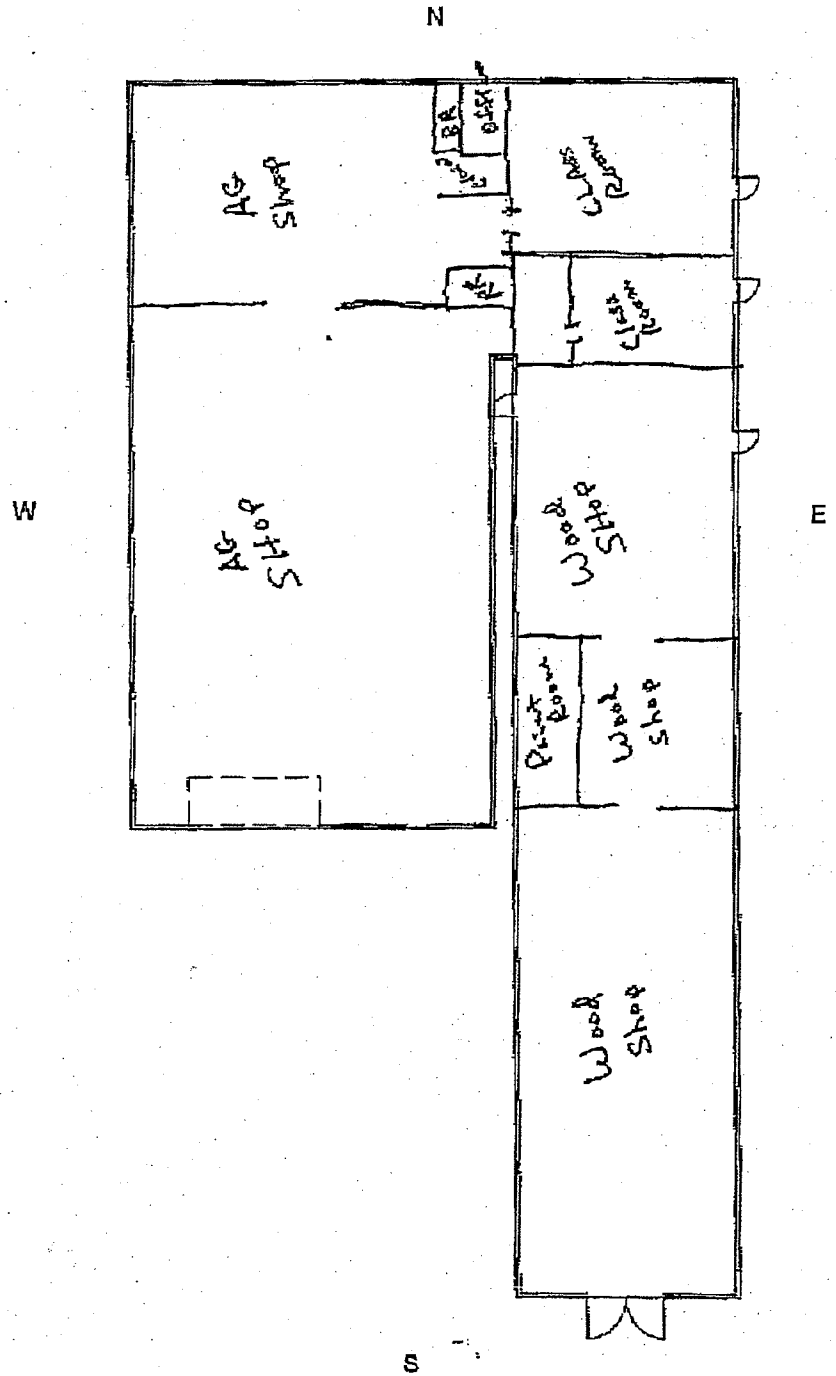
Hanover Public Schools

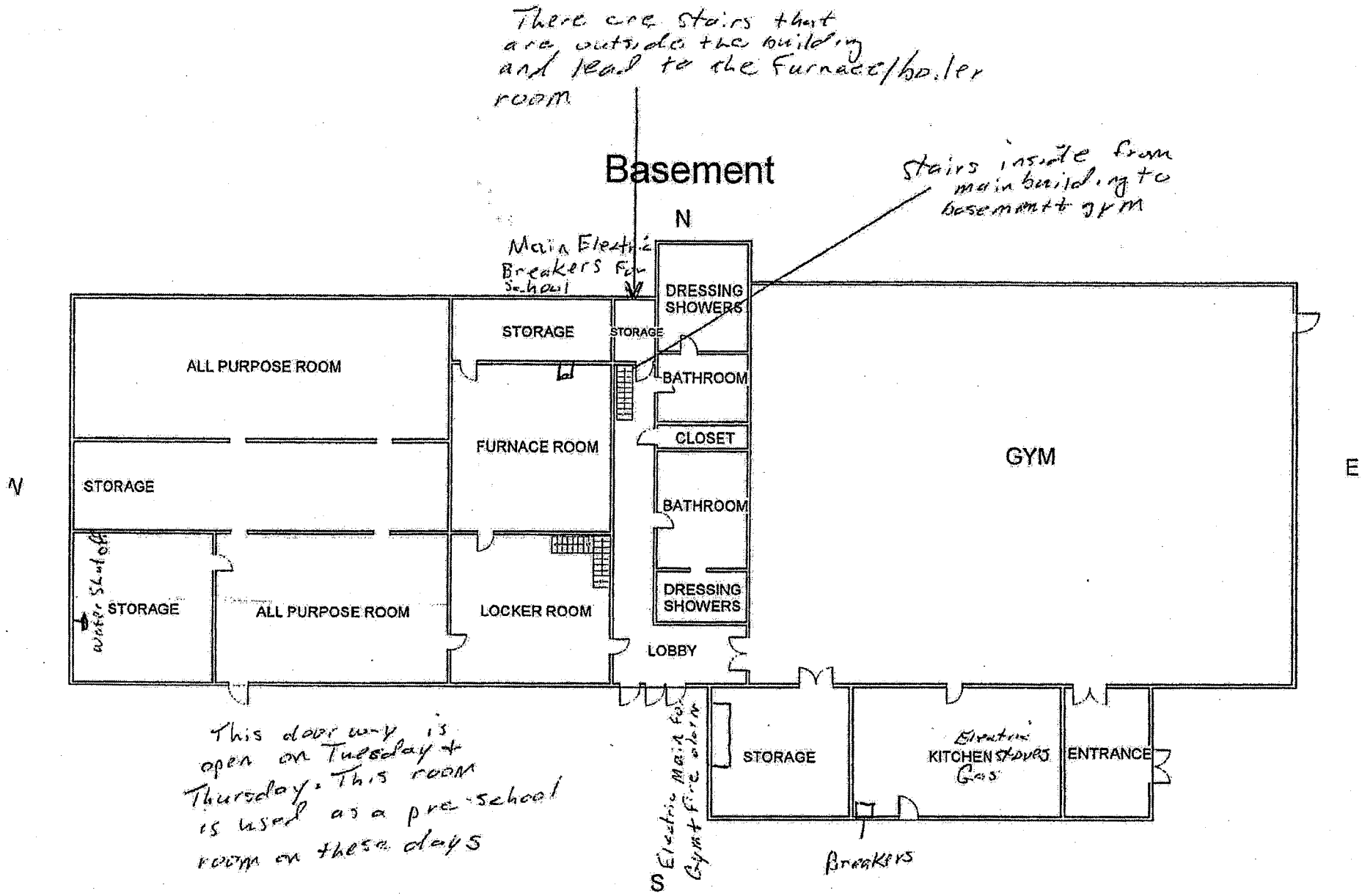
Art Building



Wood/Ag Shops

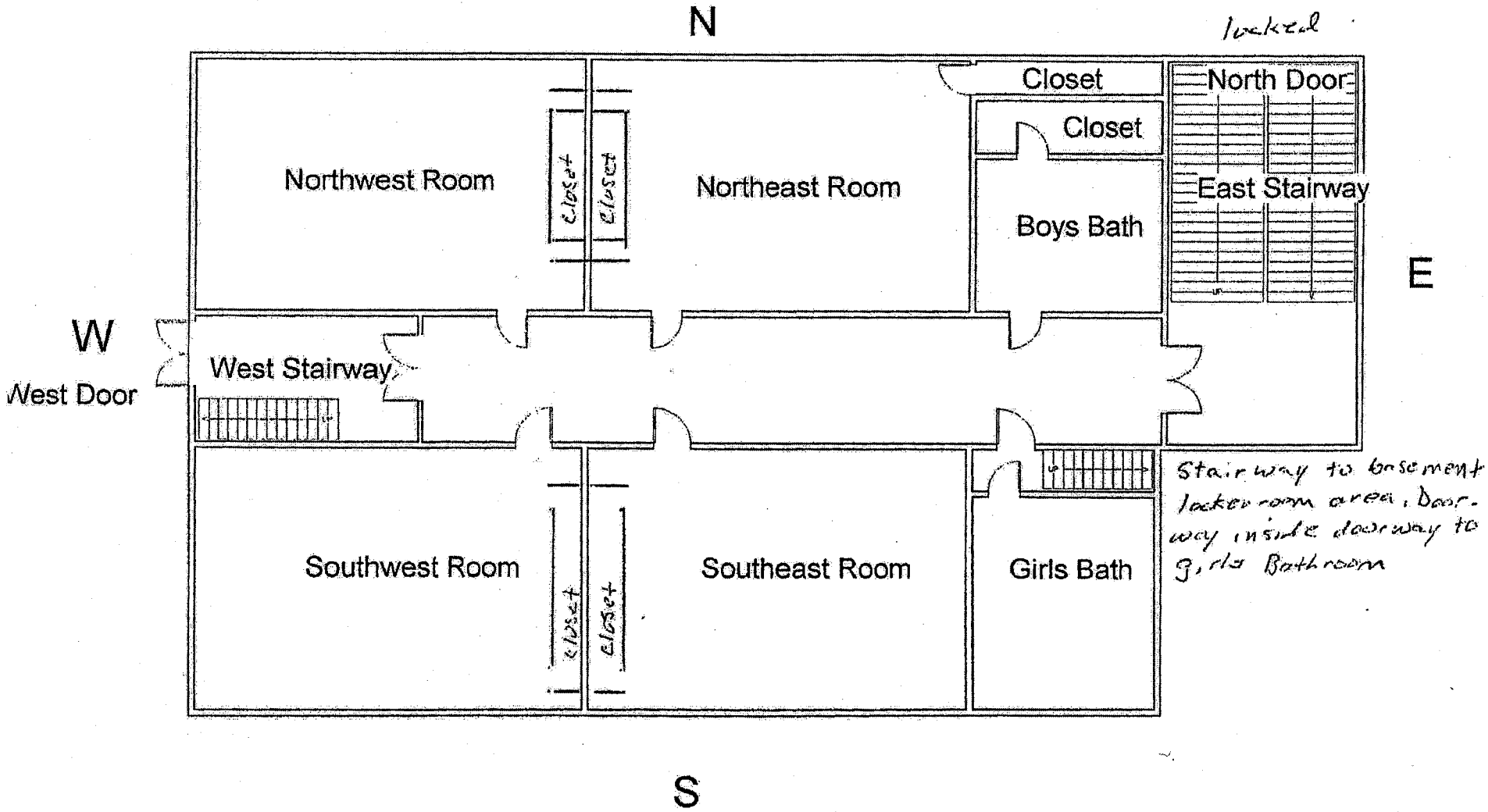
Hanover Public Schools





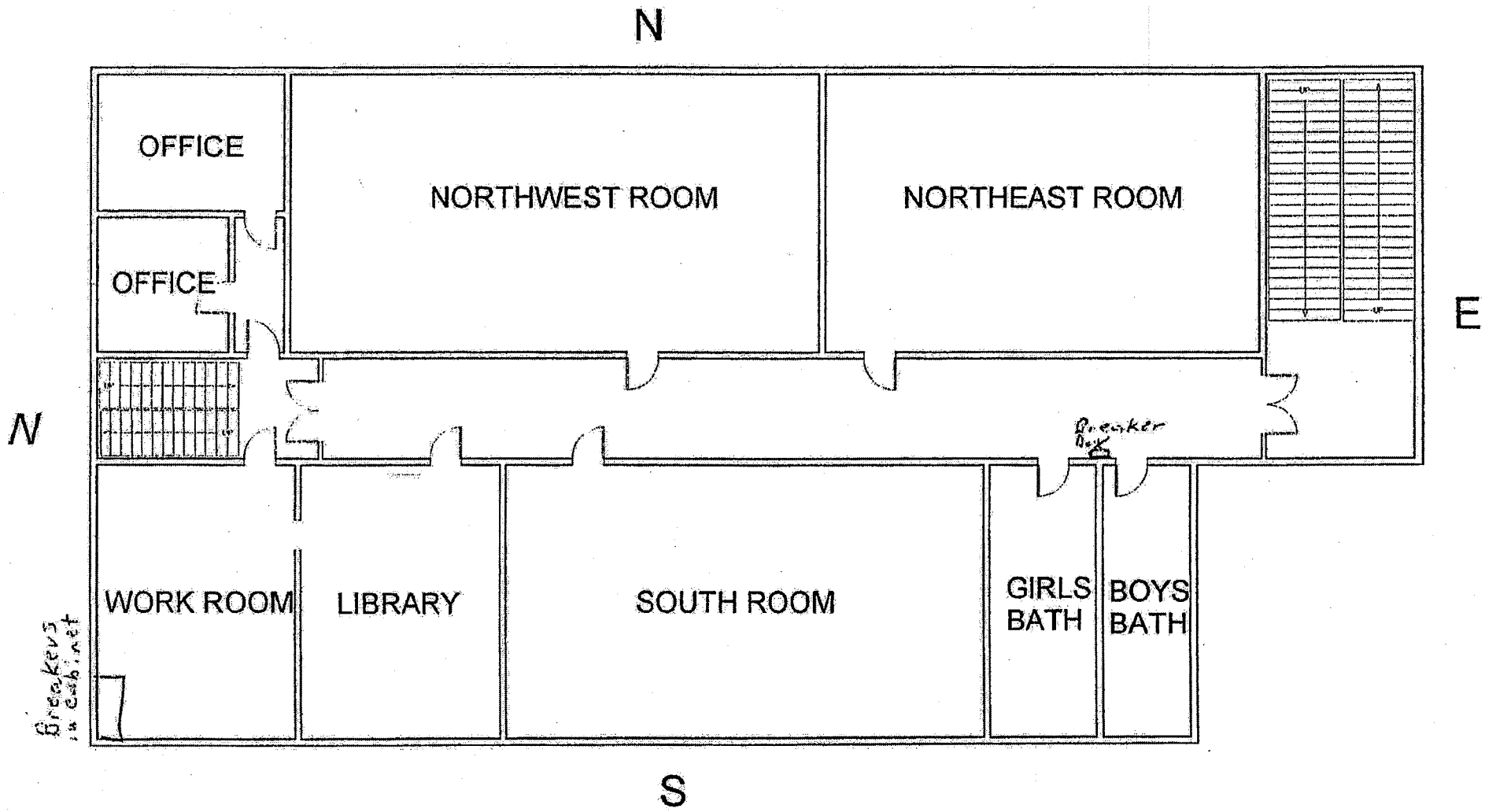
St. John's School, Hanover, Kansas

First Floor Fire Exits



St. John's School, Hanover, Kansas

Second Floor Fire Exits



St. John's School, Hanover, Kansas

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Supplement 3:

Automatically Recorded Water Level Data

Supplement 3 Contents

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TABLE S3.4 Ambient water levels in Zone 4 monitoring wells from April 1, 2009, to June 10, 2010 ..... S3-147

TABLE S3.1 Ambient water levels in Zone 1 monitoring wells from February 10, 2009, to June 10, 2010.

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
2/10/09 12:00	21.674		24.559		25.698	23.363					
2/10/09 16:00	21.605	26.806	24.501	23.111	25.621	23.434	25.701	18.017	22.085		14.805
2/10/09 20:00	21.607	26.822	24.506	23.118	25.564	23.468	25.673	18.027	22.069		14.795
2/11/09 0:00	21.646	26.855	24.532	23.151	25.519	23.506	25.647	18.064	22.106		14.798
2/11/09 4:00	21.732	26.901	24.604	23.182	25.479	23.555	25.635	18.087	22.179		14.809
2/11/09 8:00	21.801	26.939	24.660	23.211	25.402	23.617	25.631	18.113	22.243		14.819
2/11/09 12:00	21.871	26.957	24.708	23.218	25.373	23.681	25.640	18.136	22.308	32.676	14.833
2/11/09 16:00	21.935	26.983	24.747	23.230	25.305	23.741	25.645	18.143	22.353	32.467	14.844
2/11/09 20:00	22.043	27.042	24.829	23.261	25.288	23.817	25.666	18.180	22.438	32.249	14.861
2/12/09 0:00	22.076	27.037	24.831	23.261	25.246	23.879	25.678	18.185	22.445	32.007	14.866
2/12/09 4:00	22.129	27.039	24.872	23.278	25.175	23.936	25.692	18.206	22.485	31.800	14.873
2/12/09 8:00	22.210	27.086	24.927	23.309	25.131	23.997	25.715	18.229	22.548	31.591	14.887
2/12/09 12:00	22.258	27.081	24.937	23.302	25.086	24.061	25.739	18.231	22.553	31.380	14.891
2/12/09 16:00	22.208	27.056	24.901	23.285	25.036	24.083	25.743	18.234	22.510	31.171	14.884
2/12/09 20:00	22.196	27.051	24.894	23.283	24.977	24.095	25.746	18.241	22.496	30.967	14.880
2/13/09 0:00	22.210	27.065	24.903	23.292	24.923	24.102	25.753	18.257	22.508	30.758	14.882
2/13/09 4:00	22.148	27.018	24.848	23.263	24.862	24.095	25.746	18.245	22.447	30.553	14.873
2/13/09 8:00	22.117	27.007	24.829	23.252	24.813	24.071	25.734	18.238	22.416	30.347	14.868
2/13/09 12:00	22.093	27.011	24.814	23.247	24.761	24.045	25.720	18.238	22.400	30.159	14.861
2/13/09 16:00	22.162	27.032	24.869	23.292	24.721	24.047	25.725	18.280	22.473	29.974	14.873
2/13/09 20:00	22.294	27.121	24.978	23.338	24.678	24.095	25.753	18.325	22.590	29.779	14.901
2/14/09 0:00	22.313	27.102	24.975	23.328	24.634	24.140	25.769	18.336	22.586	29.595	14.905
2/14/09 4:00	22.330	27.105	24.985	23.328	24.591	24.175	25.783	18.348	22.588	29.408	14.908
2/14/09 8:00	22.332	27.105	24.983	23.328	24.542	24.190	25.795	18.364	22.583	29.220	14.910
2/14/09 12:00	22.359	27.086	25.002	23.333	24.495	24.211	25.807	18.378	22.604	29.030	14.915
2/14/09 16:00	22.294	27.051	24.959	23.311	24.445	24.204	25.800	18.378	22.550	28.844	14.903
2/14/09 20:00	22.306	27.067	24.971	23.323	24.393	24.202	25.807	18.390	22.567	28.652	14.905
2/15/09 0:00	22.359	27.112	25.016	23.350	24.344	24.216	25.816	18.408	22.616	28.464	14.917
2/15/09 4:00	22.411	27.133	25.050	23.362	24.297	24.242	25.833	18.427	22.658	28.278	14.927
2/15/09 8:00	22.469	27.158	25.091	23.376	24.247	24.278	25.856	18.441	22.701	28.090	14.936
2/15/09 12:00	22.507	27.156	25.110	23.376	24.200	24.311	25.877	18.443	22.715	27.907	14.943
2/15/09 16:00	22.454	27.116	25.067	23.359	24.148	24.318	25.880	18.443	22.663	27.722	14.934
2/15/09 20:00	22.478	27.144	25.089	23.376	24.101	24.325	25.889	18.459	22.689	27.546	14.938
2/16/09 0:00	22.462	27.123	25.072	23.364	24.054	24.327	25.894	18.459	22.665	27.362	14.936
2/16/09 4:00	22.416	27.095	25.040	23.350	24.005	24.311	25.892	18.457	22.623	27.182	14.931
2/16/09 8:00	22.411	27.102	25.040	23.352	23.957	24.297	25.889	18.457	22.628	26.994	14.931
2/16/09 12:00	22.332	27.039	24.978	23.314	23.906	24.275	25.875	18.443	22.546	26.813	14.917
2/16/09 16:00	22.139	26.946	24.836	23.256	23.851	24.190	25.826	18.422	22.388	26.621	14.880
2/16/09 20:00	22.074	26.946	24.807	23.256	23.797	24.106	25.788	18.411	22.358	26.433	14.870
2/17/09 0:00	21.997	26.915	24.744	23.235	23.745	24.030	25.746	18.390	22.297	26.243	14.858
2/17/09 4:00	21.861	26.864	24.655	23.206	23.694	23.940	25.689	18.359	22.193	26.045	14.837
2/17/09 8:00	21.739	26.824	24.571	23.175	23.639	23.843	25.626	18.306	22.106	25.843	14.819
2/17/09 12:00	21.593	26.775	24.470	23.141	23.588	23.729	25.551	18.252	21.998	25.637	14.798
2/17/09 16:00	21.421	26.738	24.356	23.115	23.531	23.594	25.459	18.194	21.879	25.430	14.769
2/17/09 20:00	21.423	26.815	24.402	23.146	23.477	23.496	25.396	18.196	21.933	25.233	14.772
2/18/09 0:00	21.564	26.922	24.532	23.208	23.432	23.487	25.377	18.231	22.090	25.054	14.793
2/18/09 4:00	21.698	26.981	24.636	23.247	23.390	23.536	25.379	18.257	22.214	24.902	14.816
2/18/09 8:00	21.873	27.065	24.761	23.304	23.347	23.634	25.403	18.311	22.365	24.763	14.842
2/18/09 12:00	22.009	27.105	24.860	23.335	23.310	23.748	25.440	18.350	22.463	24.632	14.866
2/18/09 16:00	22.115	27.137	24.925	23.371	23.267	23.852	25.475	18.390	22.543	24.507	14.882
2/18/09 20:00	22.239	27.175	25.007	23.386	23.213	23.966	25.527	18.406	22.626	24.395	14.903
2/19/09 0:00	22.301	27.170	25.036	23.388	23.117	24.059	25.572	18.434	22.654	24.294	14.912
2/19/09 4:00	22.339	27.170	25.050	23.393	23.025	24.126	25.609	18.448	22.670	24.190	14.917
2/19/09 8:00	22.378	27.172	25.074	23.397	22.935	24.180	25.645	18.459	22.687	24.099	14.924
2/19/09 12:00	22.385	27.154	25.072	23.390	22.853	24.221	25.675	18.469	22.673	24.002	14.924
2/19/09 16:00	22.292	27.091	24.988	23.354	22.758	24.209	25.682	18.459	22.576	23.913	14.905
2/19/09 20:00	22.258	27.088	24.966	23.347	22.671	24.187	25.680	18.462	22.555	23.822	14.896
2/20/09 0:00	22.241	27.088	24.959	23.345	22.589	24.171	25.682	18.469	22.546	23.732	14.894
2/20/09 4:00	22.191	27.051	24.918	23.321	22.504	24.149	25.680	18.455	22.492	23.641	14.887
2/20/09 8:00	22.124	27.032	24.879	23.307	22.422	24.109	25.666	18.452	22.440	23.554	14.875
2/20/09 12:00	22.052	26.993	24.816	23.280	22.339	24.059	25.642	18.436	22.379	23.460	14.861
2/20/09 16:00	21.868	26.915	24.684	23.230	22.247	23.973	25.591	18.408	22.229	23.359	14.833
2/20/09 20:00	22.036	27.095	24.848	23.342	22.188	23.945	25.593	18.452	22.445	23.284	14.861

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
2/21/09 0:00	22.225	27.172	24.997	23.393	22.144	24.014	25.631	18.473	22.600	23.232	14.898
2/21/09 4:00	22.294	27.168	25.028	23.393	22.092	24.083	25.664	18.490	22.635	23.171	14.910
2/21/09 8:00	22.392	27.217	25.103	23.426	22.038	24.156	25.694	18.632	22.715	23.127	14.926
2/21/09 12:00	22.447	27.210	25.127	23.426	21.991	24.221	25.732	18.860	22.738	23.082	14.938
2/21/09 16:00	22.433	27.184	25.110	23.414	21.939	24.261	25.751	18.876	22.708	23.028	14.934
2/21/09 20:00	22.452	27.196	25.127	23.421	21.889	24.285	25.772	18.953	22.729	22.979	14.938
2/22/09 0:00	22.509	27.217	25.171	23.431	21.849	24.327	25.800	19.072	22.769	22.934	14.948
2/22/09 4:00	22.548	27.226	25.197	23.443	21.807	24.365	25.830	19.134	22.799	22.889	14.957
2/22/09 8:00	22.631	27.266	25.257	23.462	21.771	24.411	25.866	19.281	22.867	22.861	14.971
2/22/09 12:00	22.672	27.261	25.286	23.472	21.734	24.458	25.901	19.335	22.891	22.821	14.980
2/22/09 16:00	22.603	27.215	25.224	23.450	21.689	24.470	25.913	19.225	22.816	22.779	14.969
2/22/09 20:00	22.607	27.222	25.238	23.448	21.651	24.470	25.925	19.260	22.818	22.739	14.969
2/23/09 0:00	22.631	27.233	25.248	23.462	21.616	24.479	25.943	19.300	22.842	22.709	14.973
2/23/09 4:00	22.612	27.217	25.233	23.453	21.581	24.484	25.955	19.283	22.818	22.681	14.973
2/23/09 8:00	22.591	27.217	25.216	23.450	21.545	24.479	25.962	19.290	22.811	22.645	14.973
2/23/09 12:00	22.495	27.156	25.154	23.419	21.503	24.453	25.953	19.141	22.719	22.610	14.957
2/23/09 16:00	32.017	34.009	33.041	27.530	27.572	32.068	33.026	21.502	29.117	33.676	18.561
2/23/09 20:00	22.799	27.130	25.016	23.388	26.362	30.848	31.665	18.853	22.578	32.169	14.924
2/24/09 0:00	22.502	27.119	24.971	23.378	26.337	28.764	31.270	18.755	22.543	31.868	14.915
2/24/09 4:00	22.330	27.086	24.903	23.357	26.292	26.952	30.883	18.604	22.473	31.568	14.898
2/24/09 8:00	22.265	27.109	24.908	23.364	26.233	25.940	30.513	18.627	22.482	31.288	14.898
2/24/09 12:00	22.210	27.093	24.889	23.350	26.172	27.282	30.979	18.580	22.459	31.016	14.894
2/24/09 16:00	22.098	27.053	24.821	23.326	26.777	26.401	30.626	18.539	22.388	31.420	14.879
2/24/09 20:00	22.093	27.086	24.836	23.338	26.706	25.563	30.292	18.534	22.412	31.148	14.877
2/25/09 0:00	22.098	27.112	24.862	23.357	26.645	25.092	29.984	18.539	22.442	30.882	14.879
2/25/09 4:00	22.088	27.098	24.857	23.352	26.584	25.159	29.686	18.536	22.445	30.633	14.882
2/25/09 8:00	22.165	27.182	24.944	23.400	26.530	24.957	29.350	18.567	22.539	30.375	14.896
2/25/09 12:00	22.217	27.175	24.966	23.400	26.468	24.705	28.912	18.629	22.567	30.131	14.905
2/25/09 16:00	22.169	27.133	24.925	23.376	26.412	24.513	28.527	18.601	22.517	29.889	14.898
2/25/09 20:00	22.131	27.123	24.906	23.371	26.351	24.370	28.191	18.594	22.499	29.652	14.891
2/26/09 0:00	22.100	27.112	24.894	23.359	26.289	24.268	27.902	18.583	22.477	29.417	14.886
2/26/09 4:00	21.940	27.018	24.761	23.304	26.219	24.149	27.620	18.527	22.341	29.170	14.863
2/26/09 8:00	21.835	26.986	24.701	23.275	26.153	24.038	27.363	18.504	22.261	28.936	14.844
2/26/09 12:00	21.835	27.037	24.727	23.304	26.099	23.950	27.152	18.501	22.297	28.689	14.844
2/26/09 16:00	21.959	27.151	24.850	23.386	26.044	23.924	26.994	18.522	22.445	28.452	14.865
2/26/09 20:00	22.136	27.226	24.983	23.431	25.993	23.978	26.902	18.543	22.597	28.229	14.901
2/27/09 0:00	22.236	27.238	25.036	23.436	25.946	24.057	26.823	18.662	22.656	28.003	14.915
2/27/09 4:00	22.253	27.205	25.036	23.424	25.894	24.111	26.747	18.783	22.651	27.802	14.917
2/27/09 8:00	22.356	27.285	25.130	23.462	25.847	24.166	26.696	19.046	22.755	27.597	14.931
2/27/09 12:00	22.337	27.219	25.091	23.438	25.792	24.211	26.637	18.904	22.703	27.386	14.933
2/27/09 16:00	22.337	27.219	25.093	23.443	25.743	24.235	26.580	18.946	22.705	27.177	14.933
2/27/09 20:00	22.423	27.259	25.159	23.457	25.698	24.273	26.545	19.106	22.773	26.973	14.945
2/28/09 0:00	22.521	27.320	25.240	23.502	25.653	24.327	26.529	19.304	22.870	26.771	14.962
2/28/09 4:00	22.550	27.296	25.248	23.498	25.604	24.380	26.508	19.304	22.872	26.576	14.971
2/28/09 8:00	22.646	27.338	25.327	23.522	25.557	24.432	26.503	19.439	22.954	26.383	14.987
2/28/09 12:00	22.729	27.352	25.387	23.541	25.512	24.503	26.503	19.660	23.013	26.207	15.006
2/28/09 16:00	22.717	27.320	25.366	23.522	25.465	24.544	26.493	19.542	22.985	26.024	15.004
2/28/09 20:00	22.772	27.362	25.419	23.548	25.423	24.579	26.491	19.686	23.039	25.853	15.013
3/1/09 0:00	22.799	27.343	25.424	23.536	25.380	24.615	26.491	19.649	23.039	25.684	15.018
3/1/09 4:00	22.801	27.338	25.428	23.543	25.343	24.643	26.482	19.649	23.037	25.517	15.022
3/1/09 8:00	22.835	27.364	25.464	23.563	25.302	24.667	26.482	19.702	23.074	25.364	15.030
3/1/09 12:00	22.873	27.348	25.481	23.555	25.262	24.700	26.486	19.723	23.088	25.216	15.037
3/1/09 16:00	22.732	27.280	25.366	23.512	25.218	24.677	26.451	19.558	22.952	25.061	15.015
3/1/09 20:00	22.655	27.273	25.318	23.502	25.173	24.631	26.418	19.511	22.905	24.904	14.997
3/2/09 0:00	22.617	27.257	25.293	23.493	25.126	24.589	26.390	19.488	22.872	24.759	14.992
3/2/09 4:00	22.562	27.245	25.257	23.486	25.072	24.541	26.355	19.453	22.837	24.615	14.985
3/2/09 8:00	22.545	27.261	25.255	23.493	25.022	24.498	26.322	19.463	22.837	24.479	14.983
3/2/09 12:00	22.509	27.238	25.221	23.476	24.973	24.468	26.291	19.428	22.804	24.348	14.978
3/2/09 16:00	22.437	27.222	25.168	23.469	24.921	24.422	26.247	19.360	22.748	24.221	14.966
3/2/09 20:00	22.452	27.254	25.202	23.481	24.871	24.394	26.223	19.418	22.785	24.099	14.971
3/3/09 0:00	22.461	27.250	25.209	23.481	24.829	24.389	26.202	19.423	22.790	23.988	14.976
3/3/09 4:00	22.406	27.226	25.163	23.469	24.784	24.363	26.174	19.369	22.750	23.885	14.966

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
3/3/09 8:00	22.344	27.205	25.122	23.455	24.744	24.323	26.131	19.314	22.698	23.779	14.957
3/3/09 12:00	22.260	27.151	25.048	23.426	24.704	24.278	26.089	19.204	22.621	23.683	14.947
3/3/09 16:00	22.129	27.119	24.966	23.402	24.659	24.199	26.028	19.074	22.487	23.577	14.926
3/3/09 20:00	22.160	27.177	25.007	23.421	24.615	24.149	25.993	19.167	22.539	23.484	14.929
3/4/09 0:00	22.129	27.158	24.983	23.417	24.570	24.121	25.957	19.118	22.520	23.387	14.926
3/4/09 4:00	22.093	27.142	24.959	23.402	24.523	24.087	25.922	19.069	22.492	23.296	14.919
3/4/09 8:00	22.091	27.158	24.968	23.412	24.473	24.066	25.892	19.079	22.508	23.211	14.922
3/4/09 12:00	22.047	27.123	24.935	23.390	24.424	24.049	25.856	18.999	22.461	23.127	14.915
3/4/09 16:00	21.928	27.067	24.841	23.357	24.370	23.992	25.802	18.843	22.360	23.042	14.896
3/4/09 20:00	21.904	27.093	24.843	23.361	24.318	23.940	25.762	18.860	22.365	22.955	14.889
3/5/09 0:00	21.827	27.049	24.783	23.333	24.264	23.895	25.715	18.718	22.306	22.861	14.879
3/5/09 4:00	21.753	27.032	24.739	23.318	24.207	23.833	25.664	18.643	22.257	22.732	14.868
3/5/09 8:00	21.775	27.077	24.776	23.342	24.162	23.802	25.633	18.692	22.304	22.627	14.870
3/5/09 12:00	21.753	27.056	24.756	23.328	24.110	23.786	25.600	18.613	22.285	22.537	14.865
3/5/09 16:00	21.732	27.063	24.751	23.330	24.061	23.760	25.565	18.601	22.280	22.455	14.861
3/5/09 20:00	21.784	27.112	24.807	23.361	24.014	23.762	25.548	18.688	22.344	22.389	14.868
3/6/09 0:00	21.959	27.210	24.942	23.421	23.964	23.819	25.565	18.941	22.508	22.359	14.896
3/6/09 4:00	22.047	27.224	24.997	23.428	23.908	23.893	25.584	18.978	22.567	22.326	14.910
3/6/09 8:00	22.158	27.266	25.077	23.457	23.861	23.981	25.612	19.130	22.658	22.319	14.929
3/6/09 12:00	22.155	27.210	25.055	23.435	23.809	24.045	25.628	19.072	22.621	22.295	14.929
3/6/09 16:00	22.067	27.161	24.983	23.412	23.759	24.047	25.621	18.988	22.539	22.253	14.910
3/6/09 20:00	22.038	27.163	24.963	23.416	23.710	24.040	25.614	18.990	22.524	22.220	14.905
3/7/09 0:00	21.976	27.112	24.908	23.378	23.665	24.023	25.598	18.897	22.454	22.180	14.891
3/7/09 4:00	21.899	27.098	24.857	23.366	23.618	23.976	25.570	18.843	22.402	22.136	14.882
3/7/09 8:00	21.978	27.170	24.937	23.388	23.571	23.964	25.572	18.974	22.482	22.112	14.889
3/7/09 12:00	21.985	27.154	24.930	23.395	23.524	23.969	25.567	18.932	22.487	22.096	14.891
3/7/09 16:00	21.971	27.144	24.920	23.388	23.474	23.971	25.562	18.918	22.473	22.075	14.889
3/7/09 20:00	21.973	27.137	24.915	23.378	23.439	23.973	25.558	18.911	22.466	22.049	14.889
3/8/09 0:00	21.909	27.102	24.884	23.388	23.397	23.962	25.544	18.802	22.428	22.023	14.893
3/8/09 4:00	21.875	27.102	24.850	23.376	23.352	23.935	25.527	18.820	22.402	21.997	14.863
3/8/09 8:00	22.012	27.208	24.975	23.419	23.319	23.952	25.541	19.041	22.536	22.000	14.718
3/8/09 12:00	22.124	27.247	25.053	23.443	23.270	24.009	25.567	19.151	22.628	22.009	14.772
3/8/09 16:00	22.146	27.233	25.060	23.443	23.173	24.057	25.586	19.158	22.632	22.009	14.917
3/8/09 20:00	22.201	27.247	25.096	23.450	23.083	24.102	25.609	19.230	22.670	22.018	14.926
3/9/09 0:00	22.208	27.226	25.096	23.450	22.992	24.137	25.626	19.211	22.663	22.021	14.929
3/9/09 4:00	22.122	27.165	25.019	23.416	22.890	24.137	25.621	19.097	22.571	22.002	14.910
3/9/09 8:00	22.100	27.177	25.009	23.419	22.803	24.121	25.619	19.123	22.564	21.990	14.908
3/9/09 12:00	22.045	27.142	24.963	23.400	22.714	24.099	25.607	19.046	22.515	21.969	14.898
3/9/09 16:00	21.978	27.123	24.920	23.383	22.622	24.057	25.586	18.990	22.461	21.948	14.886
3/9/09 20:00	22.021	27.170	24.966	23.407	22.546	24.042	25.584	19.067	22.520	21.938	14.896
3/10/09 0:00	22.031	27.154	24.954	23.397	22.471	24.040	25.581	19.020	22.510	21.927	14.893
3/10/09 4:00	22.026	27.156	24.959	23.402	22.396	24.033	25.574	19.016	22.510	21.920	14.893
3/10/09 8:00	22.095	27.208	25.019	23.431	22.332	24.047	25.586	19.118	22.578	21.922	14.903
3/10/09 12:00	22.181	27.250	25.086	23.452	22.275	24.085	25.605	19.221	22.658	21.934	14.922
3/10/09 16:00	22.325	27.320	25.199	23.502	22.228	24.159	25.645	19.390	22.790	21.955	14.945
3/10/09 20:00	22.533	27.387	25.354	23.543	22.191	24.270	25.711	19.602	22.954	22.004	14.976
3/11/09 0:00	22.655	27.390	25.426	23.548	22.148	24.394	25.774	19.693	23.027	22.047	14.999
3/11/09 4:00	22.698	27.380	25.450	23.562	22.103	24.484	25.826	19.709	23.046	22.077	15.011
3/11/09 8:00	22.894	27.460	25.599	23.608	22.075	24.601	25.901	19.916	23.208	22.126	15.039
3/11/09 12:00	23.002	27.455	25.664	23.620	22.042	24.715	25.976	19.979	23.269	22.171	15.058
3/11/09 16:00	22.945	27.392	25.599	23.596	21.990	24.774	26.016	19.877	23.185	22.194	15.051
3/11/09 20:00	22.942	27.406	25.609	23.605	21.948	24.805	26.051	19.888	23.187	22.213	15.053
3/12/09 0:00	22.940	27.399	25.609	23.605	21.906	24.824	26.084	19.888	23.182	22.227	15.055
3/12/09 4:00	22.916	27.373	25.583	23.593	21.861	24.829	26.108	19.856	23.142	22.237	15.051
3/12/09 8:00	22.880	27.376	25.561	23.593	21.816	24.812	26.122	19.837	23.119	22.239	15.048
3/12/09 12:00	22.842	27.357	25.530	23.581	21.774	24.798	26.131	19.802	23.084	22.234	15.046
3/12/09 16:00	22.732	27.313	25.452	23.555	21.724	24.750	26.120	19.714	22.989	22.220	15.029
3/12/09 20:00	22.686	27.322	25.424	23.555	21.677	24.700	26.110	19.702	22.968	22.204	15.022
3/13/09 0:00	22.696	27.331	25.440	23.555	21.642	24.669	26.110	19.726	22.985	22.197	15.025
3/13/09 4:00	22.669	27.317	25.419	23.548	21.599	24.646	26.103	19.707	22.961	22.187	15.025
3/13/09 8:00	22.655	27.331	25.416	23.557	21.564	24.622	26.098	19.714	22.964	22.180	15.022
3/13/09 12:00	22.648	27.313	25.404	23.548	21.524	24.608	26.094	19.705	22.947	22.171	15.025

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
3/13/09 16:00	22.523	27.268	25.320	23.519	21.479	24.560	26.063	19.605	22.851	22.152	15.008
3/13/09 20:00	22.514	27.282	25.318	23.522	21.442	24.517	26.049	19.616	22.853	22.133	15.006
3/14/09 0:00	22.495	27.275	25.305	23.519	21.406	24.487	26.033	19.609	22.842	22.119	15.004
3/14/09 4:00	22.430	27.247	25.262	23.502	21.368	24.449	26.007	19.560	22.785	22.101	14.994
3/14/09 8:00	22.399	27.259	25.243	23.505	21.331	24.411	25.986	19.553	22.776	22.082	14.992
3/14/09 12:00	22.366	27.233	25.216	23.488	21.295	24.380	25.964	19.528	22.748	22.065	14.987
3/14/09 16:00	22.251	27.196	25.134	23.467	21.251	24.323	25.924	19.439	22.656	22.035	14.971
3/14/09 20:00	22.227	27.212	25.137	23.469	21.215	24.270	25.894	19.446	22.663	22.016	14.966
3/15/09 0:00	22.239	27.226	25.142	23.476	21.185	24.249	25.873	19.472	22.682	22.000	14.971
3/15/09 4:00	22.196	27.198	25.113	23.459	21.152	24.221	25.847	19.430	22.642	21.983	14.964
3/15/09 8:00	22.208	27.224	25.130	23.469	21.124	24.202	25.830	19.458	22.668	21.969	14.966
3/15/09 12:00	22.203	27.212	25.127	23.464	21.095	24.194	25.814	19.449	22.663	21.960	14.966
3/15/09 16:00	22.157	27.196	25.091	23.455	21.060	24.178	25.791	19.407	22.625	21.939	14.959
3/15/09 20:00	22.186	27.229	25.122	23.469	21.039	24.166	25.776	19.451	22.665	21.934	14.964
3/16/09 0:00	22.253	27.259	25.175	23.481	21.015	24.187	25.779	19.514	22.724	21.934	14.973
3/16/09 4:00	22.270	27.259	25.190	23.486	20.996	24.204	25.779	19.521	22.738	21.941	14.975
3/16/09 8:00	22.344	27.296	25.250	23.505	20.982	24.240	25.790	19.591	22.806	21.950	14.990
3/16/09 12:00	22.368	27.282	25.265	23.507	20.963	24.278	25.800	19.595	22.818	21.957	14.997
3/16/09 16:00	22.303	27.243	25.209	23.491	20.937	24.280	25.790	19.521	22.752	21.948	14.987
3/16/09 20:00	22.322	27.261	25.226	23.495	20.916	24.282	25.790	19.544	22.773	21.948	14.987
3/17/09 0:00	22.337	27.273	25.243	23.505	20.900	24.292	25.793	19.565	22.795	21.953	14.992
3/17/09 4:00	22.320	27.254	25.224	23.490	20.878	24.299	25.793	19.539	22.771	21.950	14.990
3/17/09 8:00	22.332	27.271	25.248	23.502	20.862	24.299	25.793	19.558	22.795	21.955	14.992
3/17/09 12:00	22.303	27.245	25.214	23.493	20.841	24.301	25.788	19.525	22.764	21.950	14.987
3/17/09 16:00	22.253	27.233	25.185	23.485	20.820	24.280	25.774	19.486	22.722	21.939	14.980
3/17/09 20:00	22.330	27.294	25.252	23.507	20.810	24.282	25.781	19.572	22.804	21.943	14.990
3/18/09 0:00	22.380	27.301	25.291	23.517	20.801	24.304	25.793	19.607	22.844	21.953	14.999
3/18/09 4:00	22.399	27.313	25.308	23.531	20.789	24.335	25.802	19.621	22.870	21.957	15.006
3/18/09 8:00	22.490	27.341	25.375	23.548	20.784	24.375	25.828	19.702	22.940	21.978	15.018
3/18/09 12:00	22.552	27.350	25.411	23.550	20.777	24.430	25.852	19.742	22.978	21.997	15.027
3/18/09 16:00	22.547	27.336	25.411	23.550	20.770	24.460	25.868	19.728	22.971	22.014	15.032
3/18/09 20:00	22.612	27.369	25.462	23.572	20.768	24.496	25.894	19.784	23.025	22.030	15.041
3/19/09 0:00	22.638	27.369	25.486	23.576	20.765	24.534	25.917	19.798	23.044	22.042	15.048
3/19/09 4:00	22.684	27.376	25.517	23.588	20.763	24.572	25.941	19.828	23.076	22.058	15.058
3/19/09 8:00	22.736	27.392	25.554	23.598	20.761	24.612	25.974	19.865	23.119	22.079	15.067
3/19/09 12:00	22.691	27.343	25.554	23.579	20.732	24.636	25.990	19.833	23.112	22.072	15.057
3/19/09 16:00	22.595	27.301	25.481	23.560	20.718	24.629	25.988	19.742	23.025	22.068	15.046
3/19/09 20:00	22.581	27.310	25.479	23.560	20.711	24.605	25.990	19.740	23.020	22.063	15.041
3/20/09 0:00	22.581	27.303	25.472	23.555	20.707	24.601	25.995	19.742	23.018	22.068	15.041
3/20/09 4:00	22.545	27.292	25.452	23.550	20.695	24.584	25.993	19.716	22.992	22.065	15.039
3/20/09 8:00	22.528	27.294	25.440	23.550	20.685	24.563	25.990	19.712	22.985	22.058	15.036
3/20/09 12:00	22.480	27.268	25.407	23.531	20.676	24.541	25.979	19.667	22.938	22.051	15.032
3/20/09 16:00	22.380	27.226	25.330	23.509	20.659	24.496	25.953	19.581	22.856	22.028	15.020
3/20/09 20:00	22.387	27.257	25.346	23.521	20.650	24.463	25.941	19.614	22.881	22.018	15.015
3/21/09 0:00	22.401	27.266	25.356	23.526	20.641	24.451	25.934	19.632	22.896	22.016	15.020
3/21/09 4:00	22.385	27.261	25.351	23.526	20.633	24.432	25.924	19.630	22.888	22.011	15.018
3/21/09 8:00	22.445	27.294	25.402	23.540	20.631	24.441	25.932	19.691	22.945	22.014	15.029
3/21/09 12:00	22.437	27.280	25.395	23.533	20.624	24.453	25.929	19.677	22.935	22.016	15.029
3/21/09 16:00	22.354	27.238	25.327	23.509	20.610	24.427	25.908	19.600	22.856	21.997	15.015
3/21/09 20:00	22.366	27.268	25.344	23.526	20.601	24.411	25.901	19.630	22.881	21.993	15.018
3/22/09 0:00	22.380	27.264	25.354	23.521	20.596	24.411	25.899	19.639	22.891	21.993	15.020
3/22/09 4:00	22.327	27.233	25.305	23.507	20.582	24.399	25.884	19.586	22.839	21.985	15.013
3/22/09 8:00	22.282	27.229	25.284	23.500	20.570	24.370	25.868	19.560	22.811	21.971	15.006
3/22/09 12:00	22.196	27.186	25.207	23.476	20.553	24.337	25.835	19.484	22.733	21.948	14.994
3/22/09 16:00	22.069	27.144	25.122	23.450	20.532	24.261	25.788	19.390	22.635	21.915	14.973
3/22/09 20:00	22.033	27.156	25.106	23.452	20.516	24.204	25.755	19.388	22.628	21.887	14.968
3/23/09 0:00	21.961	27.130	25.057	23.430	20.497	24.142	25.715	19.339	22.571	21.863	14.957
3/23/09 4:00	21.877	27.091	24.990	23.406	20.476	24.087	25.671	19.272	22.503	21.833	14.943
3/23/09 8:00	21.808	27.086	24.951	23.397	20.459	24.021	25.626	19.232	22.463	21.800	14.933
3/23/09 12:00	21.720	27.044	24.879	23.371	20.433	23.950	25.572	19.158	22.386	21.762	14.917
3/23/09 16:00	21.578	27.044	24.802	23.387	20.407	23.857	25.506	19.088	22.315	21.720	14.905
3/23/09 20:00	21.772	27.172	24.975	23.426	20.412	23.857	25.501	19.297	22.506	21.727	14.926

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
3/24/09 0:00	21.863	27.177	25.031	23.440	20.410	23.900	25.508	19.362	22.574	21.737	14.940
3/24/09 4:00	21.904	27.172	25.048	23.435	20.403	23.940	25.508	19.367	22.588	21.739	14.943
3/24/09 8:00	21.935	27.191	25.069	23.447	20.396	23.971	25.508	19.390	22.621	21.746	14.947
3/24/09 12:00	21.949	27.186	25.077	23.447	20.386	24.000	25.513	19.374	22.625	21.748	14.945
3/24/09 16:00	22.014	27.229	25.127	23.466	20.388	24.035	25.520	19.437	22.684	21.758	14.952
3/24/09 20:00	22.102	27.257	25.192	23.485	20.386	24.087	25.544	19.511	22.755	21.776	14.966
3/25/09 0:00	22.145	27.247	25.207	23.488	20.384	24.147	25.565	19.528	22.773	21.793	14.973
3/25/09 4:00	22.186	27.252	25.236	23.493	20.386	24.190	25.586	19.553	22.799	21.805	14.978
3/25/09 8:00	22.224	27.268	25.262	23.505	20.381	24.228	25.605	19.584	22.825	21.821	14.980
3/25/09 12:00	22.191	27.231	25.236	23.490	20.374	24.247	25.614	19.542	22.787	21.828	14.978
3/25/09 16:00	22.109	27.193	25.168	23.469	20.363	24.240	25.607	19.460	22.715	21.819	14.961
3/25/09 20:00	22.172	27.250	25.233	23.493	20.365	24.247	25.619	19.542	22.790	21.828	14.971
3/26/09 0:00	22.148	27.212	25.202	23.473	20.353	24.254	25.624	19.502	22.752	21.830	14.966
3/26/09 4:00	22.112	27.201	25.175	23.466	20.348	24.240	25.621	19.470	22.724	21.828	14.961
3/26/09 8:00	22.198	27.266	25.257	23.502	20.351	24.254	25.638	19.572	22.813	21.840	14.973
3/26/09 12:00	22.229	27.252	25.272	23.497	20.348	24.280	25.654	19.581	22.825	21.849	14.980
3/26/09 16:00	22.222	27.261	25.274	23.505	20.346	24.294	25.659	19.588	22.832	21.852	14.978
3/26/09 20:00	22.363	27.329	25.383	23.538	20.358	24.344	25.696	19.719	22.959	21.880	14.999
3/27/09 0:00	22.435	27.327	25.431	23.557	20.365	24.408	25.736	19.767	23.006	21.908	15.013
3/27/09 4:00	22.447	27.303	25.426	23.540	20.362	24.458	25.762	19.749	22.989	21.922	15.018
3/27/09 8:00	22.473	27.327	25.455	23.559	20.365	24.489	25.786	19.777	23.020	21.941	15.020
3/27/09 12:00	22.444	27.296	25.421	23.545	20.365	24.510	25.800	19.730	22.982	21.948	15.020
3/27/09 16:00	22.322	27.250	25.332	23.516	20.353	24.479	25.790	19.621	22.877	21.936	14.999
3/27/09 20:00	22.315	27.252	25.325	23.509	20.346	24.456	25.790	19.621	22.870	21.931	14.994
3/28/09 0:00	22.289	27.238	25.313	23.505	20.341	24.432	25.786	19.600	22.851	21.929	14.992
3/28/09 4:00	22.217	27.214	25.257	23.488	20.332	24.399	25.772	19.539	22.792	21.915	14.978
3/28/09 8:00	22.191	27.203	25.240	23.490	20.327	24.368	25.760	19.530	22.780	21.908	14.978
3/28/09 12:00	22.157	27.186	25.212	23.476	20.318	24.339	25.743	19.502	22.743	21.899	14.971
3/28/09 16:00	22.095	27.186	25.175	23.473	20.311	24.287	25.722	19.463	22.712	21.877	14.961
3/28/09 20:00	22.138	27.231	25.226	23.487	20.308	24.268	25.715	19.518	22.764	21.873	14.966
3/29/09 0:00	22.181	27.238	25.250	23.492	20.308	24.273	25.720	19.549	22.797	21.877	14.975
3/29/09 4:00	22.215	27.252	25.284	23.502	20.306	24.292	25.722	19.579	22.827	21.880	14.978
3/29/09 8:00	22.224	27.247	25.284	23.502	20.303	24.306	25.729	19.581	22.834	21.882	14.982
3/29/09 12:00	22.212	27.233	25.274	23.497	20.299	24.311	25.727	19.565	22.818	21.884	14.980
3/29/09 16:00	22.129	27.184	25.202	23.466	20.287	24.294	25.711	19.474	22.736	21.870	14.968
3/29/09 20:00	22.066	27.186	25.171	23.471	20.278	24.256	25.692	19.439	22.708	21.856	14.959
3/30/09 0:00	22.033	27.161	25.132	23.449	20.268	24.230	25.673	19.400	22.670	21.845	14.950
3/30/09 4:00	21.925	27.116	25.060	23.425	20.252	24.173	25.638	19.307	22.583	21.821	14.938
3/30/09 8:00	21.875	27.119	25.026	23.416	20.242	24.116	25.605	19.276	22.550	21.795	14.926
3/30/09 12:00	21.820	27.107	25.002	23.411	20.228	24.068	25.569	19.244	22.522	21.774	14.921
3/30/09 16:00	21.794	27.102	24.985	23.399	20.219	24.023	25.544	19.218	22.501	21.753	14.917
3/30/09 20:00	21.858	27.163	25.045	23.435	20.219	24.014	25.534	19.300	22.588	21.748	14.924
3/31/09 0:00	21.942	27.182	25.101	23.435	20.219	24.042	25.539	19.360	22.642	21.758	14.935
3/31/09 4:00	21.908	27.158	25.072	23.432	20.212	24.049	25.530	19.314	22.616	21.751	14.933
3/31/09 8:00	21.966	27.191	25.125	23.449	20.209	24.071	25.537	19.365	22.670	21.755	14.935
3/31/09 12:00	22.009	27.210	25.151	23.466	20.209	24.095	25.537	19.397	22.710	21.760	14.947
3/31/09 16:00	22.038	27.214	25.173	23.468	20.209	24.133	25.548	19.414	22.726	21.772	14.949
3/31/09 20:00	22.105	27.250	25.231	23.485	20.214	24.168	25.567	19.476	22.790	21.788	14.957
4/1/09 0:00	22.133	27.233	25.238	23.483	20.209	24.216	25.584	19.479	22.797	21.800	14.961
4/1/09 4:00	22.143	27.231	25.243	23.483	20.207	24.239	25.598	19.479	22.799	21.807	14.964
4/1/09 8:00	22.148	27.240	25.250	23.490	20.205	24.254	25.605	19.483	22.806	21.814	14.961
4/1/09 12:00	22.126	27.207	25.216	23.471	20.197	24.268	25.614	19.479	22.762	21.995	14.959
4/1/09 16:00	22.059	27.186	25.168	23.459	20.188	24.239	25.600	19.418	22.708	21.985	14.947
4/1/09 20:00	22.117	27.240	25.228	23.480	20.190	24.244	25.607	19.493	22.773	21.992	14.952
4/2/09 0:00	22.172	27.266	25.284	23.497	20.193	24.268	25.624	19.556	22.830	22.002	14.961
4/2/09 4:00	22.208	27.259	25.298	23.502	20.193	24.299	25.642	19.577	22.848	22.016	14.968
4/2/09 8:00	22.241	27.271	25.322	23.507	20.197	24.327	25.661	19.600	22.874	22.028	14.973
4/2/09 12:00	22.215	27.231	25.286	23.490	20.190	24.349	25.668	19.558	22.832	22.030	14.971
4/2/09 16:00	22.176	27.228	25.269	23.485	20.188	24.339	25.666	19.530	22.809	22.025	14.964
4/2/09 20:00	22.215	27.257	25.303	23.499	20.190	24.344	25.678	19.570	22.846	22.035	14.968
4/3/09 0:00	22.236	27.257	25.318	23.499	20.190	24.353	25.687	19.579	22.860	22.037	14.973
4/3/09 4:00	22.229	27.257	25.310	23.509	20.188	24.361	25.694	19.581	22.860	22.042	14.973

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
4/3/09 8:00	22.248	27.268	25.334	23.511	20.190	24.370	25.703	19.602	22.879	22.051	14.978
4/3/09 12:00	22.248	27.250	25.325	23.502	20.188	24.384	25.713	19.584	22.863	22.051	14.978
4/3/09 16:00	22.150	27.193	25.243	23.471	20.179	24.356	25.699	19.483	22.769	22.044	14.961
4/3/09 20:00	22.215	27.266	25.313	23.504	20.181	24.346	25.706	19.577	22.853	22.044	14.971
4/4/09 0:00	22.208	27.243	25.305	23.499	20.183	24.358	25.713	19.567	22.844	22.051	14.973
4/4/09 4:00	22.143	27.191	25.240	23.471	20.174	24.344	25.703	19.488	22.776	22.044	14.964
4/4/09 8:00	22.102	27.193	25.216	23.471	20.167	24.320	25.692	19.463	22.747	22.035	14.959
4/4/09 12:00	21.973	27.128	25.122	23.428	20.155	24.258	25.656	19.339	22.630	22.004	14.935
4/4/09 16:00	21.817	27.086	25.012	23.401	20.131	24.166	25.605	19.225	22.515	21.971	14.917
4/4/09 20:00	21.915	27.189	25.115	23.447	20.139	24.125	25.598	19.381	22.639	21.964	14.928
4/5/09 0:00	21.992	27.214	25.163	23.461	20.139	24.140	25.598	19.458	22.705	21.969	14.938
4/5/09 4:00	22.167	27.301	25.310	23.519	20.150	24.199	25.628	19.637	22.867	21.988	14.968
4/5/09 8:00	22.363	27.371	25.452	23.564	20.169	24.301	25.678	19.802	23.027	22.032	14.996
4/5/09 12:00	22.550	27.399	25.580	23.600	20.190	24.432	25.746	19.933	23.166	22.082	15.024
4/5/09 16:00	22.655	27.413	25.643	23.619	20.205	24.548	25.805	19.982	23.231	22.122	15.041
4/5/09 20:00	22.779	27.451	25.734	23.640	20.223	24.669	25.870	20.063	23.325	22.173	15.062
4/6/09 0:00	22.822	27.422	25.761	23.633	20.233	24.764	25.927	20.051	23.328	22.211	15.071
4/6/09 4:00	22.806	27.401	25.744	23.628	20.237	24.821	25.967	20.012	23.302	22.237	15.071
4/6/09 8:00	22.851	27.422	25.780	23.645	20.249	24.864	26.007	20.054	23.342	22.253	15.081
4/6/09 12:00	22.861	27.404	25.778	23.636	20.254	24.905	26.042	20.033	23.335	22.286	15.085
4/6/09 16:00	22.822	27.390	25.749	23.636	20.261	24.905	26.066	19.993	23.299	22.295	15.083
4/6/09 20:00	22.851	27.413	25.775	23.640	20.266	24.919	26.091	20.014	23.323	22.312	15.085
4/7/09 0:00	22.825	27.392	25.758	23.633	20.268	24.919	26.110	19.979	23.292	22.319	15.085
4/7/09 4:00	22.779	27.380	25.720	23.624	20.270	24.907	26.120	19.942	23.255	22.317	15.078
4/7/09 8:00	22.705	27.350	25.664	23.609	20.268	24.874	26.115	19.881	23.191	22.307	15.071
4/7/09 12:00	22.542	27.261	25.522	23.557	20.252	24.802	26.087	19.723	23.025	22.284	15.046
4/7/09 16:00	22.370	27.233	25.411	23.533	20.237	24.695	26.040	19.614	22.910	22.248	15.022
4/7/09 20:00	22.368	27.280	25.428	23.545	20.237	24.615	26.014	19.665	22.942	22.227	15.020
4/8/09 0:00	22.394	27.299	25.455	23.559	20.240	24.577	26.002	19.712	22.975	22.218	15.024
4/8/09 4:00	22.406	27.303	25.460	23.559	20.240	24.555	25.993	19.730	22.987	22.208	15.029
4/8/09 8:00	22.459	27.336	25.508	23.573	20.244	24.560	25.990	19.791	23.041	22.211	15.036
4/8/09 12:00	22.442	27.301	25.489	23.557	20.242	24.560	25.986	19.758	23.013	22.206	15.036
4/8/09 16:00	22.332	27.254	25.399	23.530	20.233	24.529	25.960	19.660	22.917	22.185	15.022
4/8/09 20:00	22.294	27.266	25.383	23.530	20.226	24.486	25.934	19.649	22.898	22.166	15.013
4/9/09 0:00	22.289	27.252	25.373	23.523	20.221	24.470	25.917	19.646	22.893	22.157	15.013
4/9/09 4:00	22.217	27.233	25.320	23.511	20.214	24.425	25.889	19.595	22.837	22.136	15.001
4/9/09 8:00	22.200	27.224	25.308	23.494	20.204	24.394	25.866	19.586	22.823	22.122	14.999
4/9/09 12:00	22.160	27.226	25.293	23.497	20.200	24.356	25.840	19.572	22.804	22.100	14.996
4/9/09 16:00	22.124	27.226	25.269	23.497	20.193	24.327	25.816	19.560	22.792	22.089	14.989
4/9/09 20:00	22.277	27.317	25.387	23.533	20.200	24.344	25.823	19.716	22.935	22.093	15.006
4/10/09 0:00	22.310	27.301	25.411	23.547	20.202	24.380	25.830	19.735	22.961	22.103	15.013
4/10/09 4:00	22.428	27.350	25.460	23.573	20.209	24.434	25.854	19.828	23.060	22.124	15.029
4/10/09 8:00	22.550	27.390	25.602	23.602	20.226	24.510	25.887	19.921	23.158	22.152	15.050
4/10/09 12:00	22.650	27.394	25.664	23.609	20.233	24.600	25.929	19.972	23.220	22.178	15.067
4/10/09 16:00	22.657	27.397	25.672	23.619	20.237	24.657	25.955	19.961	23.227	22.199	15.071
4/10/09 20:00	22.707	27.408	25.708	23.626	20.247	24.714	25.986	19.984	23.259	22.223	15.078
4/11/09 0:00	22.755	27.415	25.746	23.633	20.254	24.760	26.016	20.007	23.295	22.244	15.088
4/11/09 4:00	22.782	27.415	25.766	23.640	20.259	24.805	26.047	20.009	23.311	22.263	15.092
4/11/09 8:00	22.813	27.427	25.792	23.650	20.263	24.843	26.072	20.028	23.335	22.279	15.099
4/11/09 12:00	22.808	27.399	25.778	23.638	20.266	24.871	26.094	20.002	23.316	22.293	15.102
4/11/09 16:00	22.700	27.345	25.691	23.612	20.261	24.852	26.091	19.891	23.215	22.288	15.083
4/11/09 20:00	22.669	27.369	25.681	23.616	20.261	24.824	26.089	19.881	23.208	22.286	15.081
4/12/09 0:00	22.650	27.359	25.669	23.614	20.259	24.802	26.089	19.865	23.191	22.281	15.078
4/12/09 4:00	22.629	27.357	25.652	23.607	20.259	24.783	26.087	19.851	23.175	22.279	15.076
4/12/09 8:00	22.619	27.362	25.652	23.612	20.259	24.760	26.082	19.851	23.170	22.272	15.074
4/12/09 12:00	22.571	27.338	25.611	23.600	20.254	24.736	26.070	19.809	23.130	22.265	15.069
4/12/09 16:00	22.528	27.322	25.585	23.592	20.249	24.707	26.058	19.774	23.097	22.258	15.064
4/12/09 20:00	22.526	27.341	25.602	23.590	20.249	24.676	26.049	19.784	23.102	22.251	15.064
4/13/09 0:00	22.504	27.359	25.604	23.590	20.247	24.657	26.040	19.770	23.088	22.239	15.062
4/13/09 4:00	22.423	27.369	25.599	23.571	20.235	24.615	26.014	19.700	23.011	22.223	15.045
4/13/09 8:00	22.418	27.373	25.597	23.576	20.235	24.589	26.000	19.712	23.022	22.211	15.046
4/13/09 12:00	22.425	27.336	25.522	23.576	20.233	24.567	25.988	19.725	23.036	22.204	15.095

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
4/13/09 16:00	22.418	27.322	25.517	23.578	20.230	24.560	25.976	19.725	23.039	22.199	15.041
4/13/09 20:00	22.439	27.336	25.539	23.583	20.230	24.558	25.971	19.749	23.062	22.192	15.041
4/14/09 0:00	22.480	27.343	25.566	23.590	20.230	24.579	25.976	19.777	23.095	22.199	15.048
4/14/09 4:00	22.526	27.364	25.604	23.597	20.235	24.600	25.983	19.809	23.135	22.204	15.050
4/14/09 8:00	22.578	27.390	25.655	23.616	20.240	24.634	25.997	19.851	23.189	22.216	15.055
4/14/09 12:00	22.592	27.378	25.662	23.612	20.240	24.660	26.007	19.844	23.187	22.223	15.057
4/14/09 16:00	22.535	27.343	25.609	23.595	20.235	24.662	26.002	19.777	23.130	22.220	15.045
4/14/09 20:00	22.552	27.373	25.633	23.612	20.237	24.662	26.002	19.800	23.158	22.218	15.048
4/15/09 0:00	22.590	27.380	25.662	23.618	20.237	24.679	26.014	19.828	23.191	22.225	15.050
4/15/09 4:00	22.621	27.397	25.691	23.630	20.242	24.698	26.025	19.849	23.222	22.234	15.053
4/15/09 8:00	22.667	27.408	25.729	23.631	20.247	24.724	26.042	19.881	23.259	22.248	15.060
4/15/09 12:00	22.659	27.376	25.715	23.619	20.242	24.750	26.051	19.853	23.238	22.246	15.062
4/15/09 16:00	22.607	27.362	25.674	23.618	20.240	24.738	26.047	19.802	23.196	22.241	15.048
4/15/09 20:00	22.602	27.373	25.674	23.618	20.240	24.731	26.047	19.802	23.196	22.246	15.045
4/16/09 0:00	22.643	27.385	25.713	23.631	20.242	24.741	26.056	19.837	23.234	22.253	15.050
4/16/09 4:00	22.729	27.422	25.775	23.638	20.252	24.771	26.077	19.905	23.304	22.265	15.057
4/16/09 8:00	22.753	27.434	25.802	23.657	20.254	24.795	26.094	19.923	23.335	22.274	15.064
4/16/09 12:00	22.750	27.397	25.787	23.638	20.254	24.826	26.108	19.891	23.306	22.284	15.062
4/16/09 16:00	22.729	27.397	25.770	23.635	20.251	24.826	26.110	19.863	23.288	22.286	15.057
4/16/09 20:00	22.729	27.408	25.787	23.652	20.256	24.826	26.117	19.870	23.302	22.288	15.055
4/17/09 0:00	22.767	27.415	25.811	23.652	20.259	24.843	26.131	19.898	23.335	22.300	15.060
4/17/09 4:00	22.779	27.411	25.816	23.652	20.261	24.859	26.143	19.900	23.337	22.307	15.062
4/17/09 8:00	22.808	27.432	25.840	23.662	20.266	24.871	26.157	19.923	23.367	22.317	15.062
4/17/09 12:00	22.772	27.387	25.797	23.638	20.261	24.878	26.157	19.863	23.311	22.312	15.053
4/17/09 16:00	22.659	27.359	25.725	23.628	20.254	24.845	26.143	19.777	23.234	22.302	15.041
4/17/09 20:00	22.657	27.373	25.732	23.630	20.254	24.817	26.136	19.786	23.238	22.298	15.036
4/18/09 0:00	22.631	27.371	25.708	23.630	20.251	24.790	26.127	19.767	23.220	22.288	15.029
4/18/09 4:00	22.592	27.387	25.737	23.618	20.249	24.757	26.112	19.739	23.189	22.279	15.017
4/18/09 8:00	22.581	27.436	25.768	23.621	20.244	24.738	26.101	19.739	23.187	22.270	15.015
4/18/09 12:00	22.557	27.345	25.652	23.611	20.240	24.714	26.089	19.712	23.156	22.263	15.008
4/18/09 16:00	22.492	27.320	25.602	23.597	20.233	24.684	26.068	19.660	23.104	22.248	14.994
4/18/09 20:00	22.504	27.357	25.623	23.611	20.233	24.655	26.051	19.695	23.140	22.232	14.994
4/19/09 0:00	22.569	27.378	25.679	23.623	20.235	24.667	26.056	19.758	23.194	22.239	15.001
4/19/09 4:00	22.576	27.373	25.686	23.626	20.235	24.669	26.054	19.765	23.201	22.237	14.996
4/19/09 8:00	22.657	27.413	25.756	23.642	20.242	24.703	26.068	19.840	23.276	22.248	15.010
4/19/09 12:00	22.667	27.390	25.746	23.635	20.242	24.731	26.077	19.823	23.264	22.258	15.006
4/19/09 16:00	22.609	27.359	25.703	23.623	20.237	24.733	26.070	19.760	23.212	22.251	14.996
4/19/09 20:00	22.645	27.404	25.744	23.640	20.240	24.733	26.072	19.800	23.259	22.260	14.999
4/20/09 0:00	22.607	27.362	25.703	23.626	20.235	24.743	26.070	19.749	23.215	22.255	14.992
4/20/09 4:00	22.571	27.364	25.679	23.616	20.228	24.724	26.061	19.721	23.191	22.244	14.980
4/20/09 8:00	22.621	27.390	25.727	23.630	20.235	24.724	26.065	19.772	23.243	22.248	14.984
4/20/09 12:00	22.614	27.373	25.713	23.628	20.233	24.729	26.063	19.753	23.227	22.241	14.980
4/20/09 16:00	22.557	27.352	25.672	23.618	20.225	24.712	26.051	19.698	23.180	22.239	14.970
4/20/09 20:00	22.566	27.378	25.688	23.623	20.225	24.700	26.049	19.718	23.198	22.234	14.966
4/21/09 0:00	22.609	27.390	25.722	23.630	20.228	24.707	26.054	19.753	23.236	22.239	14.968
4/21/09 4:00	22.628	27.394	25.732	23.633	20.228	24.724	26.058	19.765	23.250	22.241	14.968
4/21/09 8:00	22.633	27.394	25.741	23.638	20.228	24.731	26.063	19.763	23.257	22.248	14.966
4/21/09 12:00	22.571	27.348	25.686	23.614	20.223	24.726	26.054	19.693	23.191	22.237	14.954
4/21/09 16:00	22.432	27.289	25.570	23.583	20.207	24.674	26.021	19.560	23.062	22.208	14.928
4/21/09 20:00	22.437	27.338	25.592	23.597	20.204	24.622	26.000	19.597	23.090	22.192	14.921
4/22/09 0:00	22.456	27.341	25.604	23.595	20.202	24.605	25.993	19.623	23.109	22.190	14.919
4/22/09 4:00	22.456	27.343	25.607	23.597	20.200	24.598	25.986	19.630	23.114	22.183	14.916
4/22/09 8:00	22.492	27.359	25.638	23.602	20.200	24.603	25.986	19.663	23.147	22.187	14.916
4/22/09 12:00	22.461	27.336	25.607	23.592	20.195	24.608	25.976	19.628	23.114	22.180	14.909
4/22/09 16:00	22.365	27.296	25.534	23.573	20.183	24.574	25.950	19.544	23.032	22.159	14.891
4/22/09 20:00	22.346	27.308	25.527	23.573	20.176	24.536	25.931	19.542	23.029	22.145	14.884
4/23/09 0:00	22.368	27.315	25.541	23.573	20.174	24.529	25.922	19.565	23.048	22.140	14.879
4/23/09 4:00	22.329	27.303	25.515	23.568	20.167	24.510	25.906	19.539	23.018	22.129	14.870
4/23/09 8:00	22.348	27.324	25.539	23.575	20.167	24.503	25.899	19.570	23.041	22.122	14.867
4/23/09 12:00	22.308	27.287	25.496	23.559	20.157	24.494	25.884	19.525	22.999	22.115	14.858
4/23/09 16:00	22.246	27.270	25.443	23.544	20.148	24.460	25.859	19.469	22.945	22.096	14.844
4/23/09 20:00	22.248	27.292	25.460	23.551	20.141	24.437	25.844	19.497	22.968	22.091	14.839

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
4/24/09 0:00	22.262	27.294	25.474	23.551	20.141	24.439	25.837	19.514	22.980	22.082	14.839
4/24/09 4:00	22.219	27.268	25.435	23.534	20.131	24.422	25.819	19.476	22.938	22.068	14.827
4/24/09 8:00	22.241	27.292	25.455	23.544	20.129	24.410	25.809	19.507	22.963	22.058	14.825
4/24/09 12:00	22.233	27.275	25.450	23.534	20.124	24.408	25.802	19.500	22.954	22.056	14.820
4/24/09 16:00	22.214	27.277	25.443	23.540	20.119	24.399	25.790	19.490	22.949	22.039	14.813
4/24/09 20:00	22.322	27.357	25.541	23.582	20.122	24.420	25.800	19.611	23.064	22.061	14.827
4/25/09 0:00	22.351	27.327	25.541	23.566	20.119	24.460	25.809	19.607	23.060	22.065	14.832
4/25/09 4:00	22.394	27.359	25.582	23.589	20.122	24.489	25.821	19.651	23.109	22.072	14.834
4/25/09 8:00	22.518	27.401	25.676	23.616	20.131	24.551	25.854	19.753	23.217	22.096	14.853
4/25/09 12:00	22.583	27.394	25.717	23.613	20.138	24.617	25.884	19.781	23.248	22.119	14.862
4/25/09 16:00	22.556	27.364	25.688	23.604	20.134	24.653	25.899	19.728	23.210	22.129	14.853
4/25/09 20:00	22.542	27.369	25.681	23.606	20.134	24.665	25.908	19.711	23.201	22.136	14.846
4/26/09 0:00	22.492	27.315	25.626	23.580	20.129	24.660	25.908	19.644	23.133	22.133	14.837
4/26/09 4:00	22.379	27.275	25.534	23.558	20.115	24.622	25.889	19.539	23.032	22.115	14.811
4/26/09 8:00	22.377	27.336	25.580	23.542	20.110	24.577	25.880	19.549	23.034	22.110	14.865
4/26/09 12:00	22.300	27.308	25.655	23.532	20.103	24.548	25.861	19.490	22.973	22.093	14.811
4/26/09 16:00	22.346	27.313	25.609	23.566	20.103	24.517	25.854	19.570	23.048	22.093	14.888
4/26/09 20:00	22.284	27.341	25.599	23.577	20.098	24.494	25.842	19.556	23.039	22.091	14.891
4/27/09 0:00	22.473	27.310	25.645	23.589	20.110	24.534	25.870	19.691	23.163	22.117	14.823
4/27/09 4:00	22.554	27.350	25.703	23.611	20.115	24.593	25.896	19.746	23.236	22.133	14.773
4/27/09 8:00	22.681	27.434	25.802	23.640	20.126	24.676	25.941	19.840	23.342	22.161	14.764
4/27/09 12:00	22.817	27.457	25.879	23.659	20.141	24.774	25.990	19.916	23.438	22.197	14.755
4/27/09 16:00	22.812	27.427	25.879	23.652	20.143	24.843	26.025	19.860	23.410	22.213	14.722
4/27/09 20:00	22.891	27.457	25.937	23.671	20.150	24.897	26.065	19.905	23.478	22.237	14.705
4/28/09 0:00	22.961	27.464	25.982	23.678	20.162	24.961	26.110	19.935	23.520	22.265	14.689
4/28/09 4:00	22.961	27.443	25.975	23.671	20.164	25.002	26.141	19.891	23.499	22.281	14.661
4/28/09 8:00	23.006	27.464	26.011	23.683	20.174	25.042	26.176	19.923	23.541	22.302	14.647
4/28/09 12:00	22.973	27.427	25.973	23.668	20.171	25.052	26.199	19.851	23.490	22.312	14.618
4/28/09 16:00	22.872	27.392	25.898	23.654	20.164	25.023	26.195	19.742	23.403	22.302	14.576
4/28/09 20:00	22.820	27.394	25.864	23.649	20.159	24.978	26.192	19.693	23.370	22.293	14.546
4/29/09 0:00	22.810	27.397	25.862	23.649	20.159	24.952	26.192	19.679	23.365	22.288	14.532
4/29/09 4:00	22.767	27.401	25.835	23.640	20.155	24.907	26.183	19.642	23.332	22.277	14.506
4/29/09 8:00	22.710	27.380	25.790	23.635	20.148	24.862	26.169	19.595	23.290	22.258	14.487
4/29/09 12:00	22.647	27.362	25.746	23.621	20.138	24.812	26.150	19.535	23.238	22.241	14.459
4/29/09 16:00	22.549	27.315	25.667	23.597	20.124	24.752	26.117	19.444	23.147	22.215	14.431
4/29/09 20:00	22.528	27.338	25.662	23.604	20.117	24.700	26.094	19.451	23.149	22.194	14.417
4/30/09 0:00	22.509	27.315	25.638	23.582	20.110	24.674	26.077	19.430	23.123	22.176	14.405
4/30/09 4:00	22.509	27.348	25.650	23.597	20.103	24.641	26.061	19.455	23.144	22.159	14.400
4/30/09 8:00	22.602	27.413	25.737	23.611	20.108	24.650	26.063	19.537	23.224	22.164	14.487
4/30/09 12:00	22.554	27.453	25.804	23.609	20.098	24.648	26.054	19.500	23.191	22.157	14.482
4/30/09 16:00	22.595	27.366	25.720	23.606	20.098	24.662	26.056	19.525	23.217	22.154	14.382
4/30/09 20:00	22.611	27.378	25.737	23.613	20.093	24.676	26.058	19.530	23.236	22.152	14.360
5/1/09 0:00	22.662	27.392	25.773	23.625	20.093	24.707	26.070	19.565	23.278	22.154	14.351
5/1/09 4:00	22.741	27.432	25.831	23.644	20.096	24.748	26.089	19.628	23.349	22.166	14.339
5/1/09 8:00	22.801	27.408	25.862	23.637	20.098	24.805	26.115	19.639	23.370	22.180	14.335
5/1/09 12:00	22.848	27.432	25.903	23.654	20.098	24.852	26.138	19.670	23.414	22.190	14.318
5/1/09 16:00	22.774	27.383	25.838	23.625	20.091	24.862	26.136	19.570	23.332	22.190	14.283
5/1/09 20:00	22.745	27.401	25.823	23.637	20.086	24.843	26.136	19.553	23.327	22.183	14.262
5/2/09 0:00	22.769	27.399	25.843	23.633	20.084	24.843	26.145	19.565	23.337	22.183	14.257
5/2/09 4:00	22.745	27.397	25.826	23.630	20.077	24.836	26.145	19.539	23.318	22.178	14.241
5/2/09 8:00	22.710	27.383	25.797	23.620	20.070	24.817	26.138	19.502	23.283	22.169	14.222
5/2/09 12:00	22.664	27.352	25.751	23.606	20.058	24.795	26.127	19.451	23.236	22.152	14.205
5/2/09 16:00	22.576	27.329	25.686	23.592	20.046	24.743	26.101	19.376	23.163	22.129	14.182
5/2/09 20:00	22.535	27.343	25.664	23.597	20.035	24.691	26.077	19.367	23.147	22.105	14.173
5/3/09 0:00	22.568	27.357	25.688	23.597	20.030	24.679	26.072	19.402	23.172	22.098	14.173
5/3/09 4:00	22.580	27.369	25.700	23.604	20.023	24.669	26.063	19.423	23.191	22.089	14.175
5/3/09 8:00	22.602	27.366	25.715	23.601	20.020	24.674	26.065	19.439	23.203	22.082	14.175
5/3/09 12:00	22.602	27.364	25.710	23.599	20.013	24.676	26.061	19.437	23.198	22.075	14.173
5/3/09 16:00	22.568	27.343	25.679	23.594	20.004	24.669	26.049	19.404	23.163	22.065	14.166
5/3/09 20:00	22.578	27.355	25.686	23.596	19.999	24.664	26.044	19.416	23.175	22.056	14.166
5/4/09 0:00	22.616	27.369	25.717	23.604	19.997	24.679	26.049	19.448	23.203	22.053	14.173
5/4/09 4:00	22.623	27.362	25.713	23.599	19.992	24.681	26.049	19.441	23.201	22.051	14.173

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
5/4/09 8:00	22.650	27.378	25.729	23.606	19.987	24.693	26.051	19.465	23.222	22.051	14.177
5/4/09 12:00	22.614	27.341	25.693	23.589	19.978	24.688	26.044	19.421	23.175	22.042	14.168
5/4/09 16:00	22.535	27.315	25.633	23.577	19.966	24.662	26.025	19.355	23.104	22.025	14.152
5/4/09 20:00	22.544	27.336	25.645	23.580	19.959	24.638	26.016	19.379	23.123	22.014	14.156
5/5/09 0:00	22.552	27.329	25.643	23.577	19.952	24.636	26.011	19.390	23.125	22.007	14.159
5/5/09 4:00	22.540	27.334	25.635	23.577	19.945	24.622	26.002	19.386	23.118	21.995	14.156
5/5/09 8:00	22.525	27.331	25.626	23.575	19.938	24.607	25.993	19.379	23.107	21.983	14.156
5/5/09 12:00	22.489	27.306	25.592	23.560	19.929	24.593	25.978	19.341	23.064	21.969	14.149
5/5/09 16:00	22.406	27.270	25.522	23.541	19.912	24.553	25.953	19.279	22.994	21.945	14.133
5/5/09 20:00	22.406	27.296	25.532	23.546	19.905	24.520	25.934	19.304	23.008	21.931	14.137
5/6/09 0:00	22.386	27.280	25.510	23.536	19.893	24.503	25.920	19.290	22.987	21.915	14.133
5/6/09 4:00	22.353	27.285	25.491	23.539	19.884	24.474	25.898	19.283	22.970	21.899	14.130
5/6/09 8:00	22.329	27.263	25.464	23.522	19.870	24.451	25.877	19.260	22.938	21.877	14.128
5/6/09 12:00	22.319	27.263	25.455	23.520	19.863	24.432	25.861	19.265	22.930	21.861	14.128
5/6/09 16:00	22.334	27.273	25.469	23.525	19.855	24.425	25.849	19.290	22.952	21.854	14.135
5/6/09 20:00	22.363	27.294	25.491	23.536	19.848	24.429	25.844	19.325	22.980	21.844	14.144
5/7/09 0:00	22.398	27.301	25.517	23.541	19.844	24.448	25.847	19.358	23.008	21.847	14.154
5/7/09 4:00	22.427	27.315	25.541	23.553	19.841	24.472	25.851	19.386	23.031	21.847	14.166
5/7/09 8:00	22.367	27.263	25.481	23.525	19.830	24.472	25.840	19.318	22.961	21.835	14.152
5/7/09 12:00	22.363	27.263	25.464	23.517	19.820	24.465	25.830	19.313	22.952	21.823	14.152
5/7/09 16:00	22.267	27.217	25.387	23.496	19.804	24.425	25.804	19.230	22.865	21.802	14.130
5/7/09 20:00	22.274	27.259	25.409	23.513	19.797	24.398	25.793	19.269	22.893	21.786	14.142
5/8/09 0:00	22.307	27.263	25.431	23.513	19.792	24.396	25.788	19.302	22.919	21.783	14.152
5/8/09 4:00	22.274	27.214	25.387	23.493	19.780	24.396	25.779	19.260	22.872	21.772	14.147
5/8/09 8:00	22.298	27.249	25.428	23.510	19.775	24.396	25.774	19.300	22.905	21.765	14.159
5/8/09 12:00	22.327	27.261	25.435	23.513	19.768	24.401	25.774	19.327	22.926	21.760	14.168
5/8/09 16:00	22.360	27.287	25.462	23.532	19.768	24.410	25.776	19.365	22.961	21.762	14.180
5/8/09 20:00	22.494	27.352	25.575	23.568	19.773	24.467	25.804	19.490	23.086	21.779	14.215
5/9/09 0:00	22.616	27.378	25.657	23.592	19.778	24.550	25.844	19.576	23.170	21.805	14.245
5/9/09 4:00	22.669	27.378	25.688	23.601	19.780	24.622	25.877	19.604	23.205	21.830	14.262
5/9/09 8:00	22.774	27.406	25.758	23.615	19.787	24.695	25.922	19.674	23.285	21.854	14.288
5/9/09 12:00	22.779	27.378	25.753	23.606	19.789	24.748	25.950	19.649	23.259	21.873	14.295
5/9/09 16:00	22.729	27.341	25.703	23.592	19.787	24.762	25.964	19.581	23.203	21.877	14.281
5/9/09 20:00	22.733	27.362	25.712	23.596	19.787	24.762	25.978	19.588	23.208	21.882	14.288
5/10/09 0:00	22.774	27.366	25.734	23.603	19.792	24.783	26.002	19.614	23.238	21.891	14.304
5/10/09 4:00	22.767	27.362	25.729	23.598	19.792	24.786	26.014	19.602	23.226	21.894	14.306
5/10/09 8:00	22.815	27.371	25.763	23.608	19.794	24.807	26.040	19.639	23.259	21.908	14.323
5/10/09 12:00	22.803	27.362	25.751	23.606	19.794	24.814	26.051	19.621	23.245	21.908	14.325
5/10/09 16:00	22.798	27.366	25.746	23.610	19.792	24.812	26.061	19.616	23.245	21.910	14.327
5/10/09 20:00	22.812	27.371	25.758	23.610	19.797	24.817	26.072	19.628	23.252	21.910	14.334
5/11/09 0:00	22.829	27.369	25.768	23.613	19.797	24.824	26.089	19.635	23.264	21.915	14.344
5/11/09 4:00	22.822	27.362	25.756	23.608	19.801	24.826	26.098	19.621	23.250	21.920	14.346
5/11/09 8:00	22.839	27.378	25.775	23.615	19.799	24.828	26.108	19.642	23.269	21.920	14.353
5/11/09 12:00	22.784	27.329	25.717	23.594	19.794	24.821	26.105	19.574	23.201	21.913	14.344
5/11/09 16:00	22.676	27.284	25.633	23.572	19.782	24.771	26.087	19.479	23.107	21.887	14.318
5/11/09 20:00	22.626	27.291	25.594	23.565	19.778	24.719	26.065	19.455	23.076	21.868	14.311
5/12/09 0:00	22.609	27.284	25.585	23.558	19.771	24.683	26.051	19.451	23.062	21.851	14.313
5/12/09 4:00	22.542	27.266	25.534	23.548	19.761	24.641	26.028	19.402	23.010	21.833	14.304
5/12/09 8:00	22.489	27.233	25.486	23.515	19.752	24.588	26.002	19.355	22.947	21.800	14.292
5/12/09 12:00	22.374	27.191	25.409	23.493	19.735	24.520	25.957	19.269	22.853	21.762	14.334
5/12/09 16:00	22.255	27.151	25.421	23.472	19.716	24.434	25.908	19.202	22.761	21.729	14.325
5/12/09 20:00	22.169	27.149	25.414	23.457	19.698	24.349	25.854	19.176	22.707	21.692	14.285
5/13/09 0:00	22.109	27.121	25.407	23.440	19.679	24.282	25.809	19.153	22.658	21.657	14.283
5/13/09 4:00	22.042	27.133	25.409	23.450	19.662	24.213	25.757	19.169	22.632	21.610	14.243
5/13/09 8:00	22.059	27.135	25.428	23.438	19.650	24.185	25.729	19.202	22.644	21.574	14.248
5/13/09 12:00	22.126	27.198	25.235	23.469	19.643	24.180	25.713	19.297	22.726	21.551	14.241
5/13/09 16:00	22.224	27.235	25.310	23.488	19.641	24.218	25.715	19.393	22.808	21.546	14.269
5/13/09 20:00	22.377	27.301	25.428	23.522	19.646	24.294	25.739	19.528	22.938	21.558	14.306
5/14/09 0:00	22.542	27.364	25.551	23.560	19.653	24.401	25.781	19.656	23.071	21.584	14.351
5/14/09 4:00	22.630	27.376	25.609	23.582	19.655	24.498	25.821	19.704	23.135	21.605	14.377
5/14/09 8:00	22.712	27.364	25.645	23.589	19.660	24.591	25.863	19.739	23.175	21.635	14.400
5/14/09 12:00	22.709	27.322	25.628	23.570	19.660	24.648	25.889	19.697	23.137	21.650	14.398

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
5/14/09 16:00	22.575	27.233	25.505	23.529	19.646	24.638	25.884	19.553	23.001	21.643	14.360
5/14/09 20:00	22.506	27.231	25.457	23.517	19.636	24.596	25.873	19.504	22.945	21.621	14.344
5/15/09 0:00	22.492	27.238	25.445	23.515	19.629	24.567	25.868	19.507	22.945	21.610	14.346
5/15/09 4:00	22.394	27.189	25.366	23.491	19.615	24.520	25.847	19.423	22.853	21.581	14.325
5/15/09 8:00	22.327	27.168	25.373	23.481	19.603	24.465	25.826	19.376	22.799	21.565	14.388
5/15/09 12:00	22.293	27.170	25.421	23.467	19.589	24.408	25.802	19.369	22.775	21.546	14.384
5/15/09 16:00	22.295	27.189	25.301	23.481	19.577	24.377	25.788	19.397	22.792	21.523	14.309
5/15/09 20:00	22.458	27.284	25.435	23.517	19.584	24.410	25.804	19.551	22.942	21.525	14.353
5/16/09 0:00	22.597	27.336	25.541	23.553	19.589	24.484	25.842	19.658	23.062	21.544	14.395
5/16/09 4:00	22.755	27.401	25.664	23.598	19.601	24.584	25.891	19.779	23.193	21.577	14.438
5/16/09 8:00	22.889	27.411	25.753	23.620	19.610	24.695	25.950	19.865	23.290	21.614	14.473
5/16/09 12:00	22.922	27.376	25.756	23.606	19.617	24.788	25.992	19.835	23.280	21.645	14.482
5/16/09 16:00	22.853	27.319	25.691	23.589	19.613	24.809	26.011	19.737	23.198	21.650	14.459
5/16/09 20:00	22.829	27.331	25.674	23.591	19.610	24.807	26.025	19.716	23.186	21.657	14.452
5/17/09 0:00	22.882	27.355	25.720	23.603	19.615	24.821	26.051	19.758	23.231	21.668	14.466
5/17/09 4:00	22.872	27.331	25.703	23.594	19.615	24.831	26.068	19.728	23.208	21.678	14.466
5/17/09 8:00	22.860	27.322	25.693	23.589	19.613	24.828	26.079	19.711	23.184	21.673	14.463
5/17/09 12:00	22.795	27.282	25.631	23.572	19.606	24.807	26.079	19.639	23.123	21.664	14.447
5/17/09 16:00	22.688	27.242	25.549	23.548	19.594	24.748	26.058	19.549	23.029	21.635	14.421
5/17/09 20:00	22.673	27.273	25.551	23.555	19.589	24.702	26.047	19.560	23.038	21.624	14.419
5/18/09 0:00	22.669	27.263	25.541	23.543	19.584	24.674	26.042	19.558	23.027	21.612	14.421
5/18/09 4:00	22.647	27.259	25.522	23.543	19.577	24.648	26.032	19.546	23.010	21.591	14.419
5/18/09 8:00	22.640	27.256	25.515	23.539	19.573	24.636	26.025	19.544	23.008	21.577	14.421
5/18/09 12:00	22.571	27.214	25.455	23.517	19.559	24.600	26.007	19.479	22.937	21.556	14.407
5/18/09 16:00	22.511	27.198	25.407	23.503	19.547	24.555	25.981	19.434	22.888	21.530	14.391
5/18/09 20:00	22.518	27.221	25.419	23.507	19.540	24.527	25.967	19.465	22.907	21.509	14.398
5/19/09 0:00	22.551	27.238	25.445	23.515	19.533	24.522	25.962	19.500	22.937	21.499	14.409
5/19/09 4:00	22.570	27.247	25.460	23.519	19.528	24.524	25.957	19.518	22.952	21.488	14.417
5/19/09 8:00	22.609	27.261	25.484	23.529	19.526	24.541	25.964	19.551	22.982	21.485	14.428
5/19/09 12:00	22.558	27.214	25.438	23.507	19.514	24.536	25.950	19.495	22.926	21.473	14.417
5/19/09 16:00	22.496	27.189	25.382	23.496	19.500	24.512	25.934	19.441	22.869	21.450	14.398
5/19/09 20:00	22.489	27.207	25.387	23.498	19.495	24.484	25.917	19.453	22.874	21.434	14.398
5/20/09 0:00	22.525	27.219	25.404	23.500	19.488	24.484	25.917	19.486	22.900	21.426	14.412
5/20/09 4:00	22.506	27.203	25.385	23.491	19.478	24.477	25.908	19.465	22.876	21.410	14.409
5/20/09 8:00	22.508	27.207	25.390	23.496	19.469	24.474	25.901	19.474	22.883	21.403	14.414
5/20/09 12:00	22.441	27.158	25.325	23.469	19.457	24.448	25.880	19.404	22.808	21.382	14.395
5/20/09 16:00	22.389	27.154	25.288	23.464	19.441	24.410	25.858	19.372	22.773	21.354	14.381
5/20/09 20:00	22.372	27.163	25.276	23.467	19.431	24.382	25.840	19.376	22.771	21.335	14.379
5/21/09 0:00	22.429	27.203	25.327	23.479	19.424	24.379	25.837	19.434	22.825	21.328	14.398
5/21/09 4:00	22.484	27.224	25.368	23.491	19.422	24.401	25.844	19.486	22.869	21.328	14.412
5/21/09 8:00	22.530	27.235	25.402	23.503	19.417	24.434	25.851	19.518	22.907	21.328	14.426
5/21/09 12:00	22.527	27.210	25.380	23.493	19.410	24.455	25.856	19.497	22.888	21.328	14.426
5/21/09 16:00	22.496	27.191	25.356	23.481	19.403	24.453	25.851	19.465	22.855	21.316	14.419
5/21/09 20:00	22.513	27.214	25.368	23.496	19.394	24.453	25.851	19.486	22.874	21.309	14.421
5/22/09 0:00	22.558	27.226	25.404	23.500	19.391	24.470	25.861	19.521	22.909	21.311	14.435
5/22/09 4:00	22.561	27.214	25.399	23.498	19.384	24.486	25.868	19.511	22.902	21.314	14.438
5/22/09 8:00	22.592	27.228	25.423	23.505	19.384	24.501	25.877	19.535	22.923	21.311	14.447
5/22/09 12:00	22.554	27.191	25.378	23.490	19.375	24.498	25.875	19.486	22.879	21.304	14.435
5/22/09 16:00	22.494	27.161	25.320	23.469	19.363	24.474	25.863	19.423	22.815	21.286	14.421
5/22/09 20:00	22.470	27.168	25.310	23.471	19.354	24.444	25.851	19.416	22.806	21.271	14.417
5/23/09 0:00	22.496	27.179	25.325	23.474	19.349	24.436	25.849	19.437	22.825	21.264	14.426
5/23/09 4:00	22.487	27.177	25.317	23.474	19.339	24.425	25.844	19.430	22.815	21.253	14.426
5/23/09 8:00	22.513	27.193	25.337	23.481	19.335	24.434	25.849	19.458	22.841	21.248	14.438
5/23/09 12:00	22.487	27.163	25.308	23.464	19.325	24.429	25.842	19.418	22.806	21.239	14.433
5/23/09 16:00	22.403	27.118	25.235	23.445	19.309	24.396	25.823	19.337	22.728	21.220	14.410
5/23/09 20:00	22.405	27.156	25.250	23.455	19.302	24.368	25.809	19.360	22.749	21.201	14.414
5/24/09 0:00	22.494	27.196	25.329	23.471	19.302	24.387	25.818	19.441	22.825	21.203	14.496
5/24/09 4:00	22.446	27.151	25.269	23.455	19.288	24.384	25.811	19.379	22.768	21.189	14.428
5/24/09 8:00	22.468	27.170	25.286	23.466	19.281	24.384	25.811	19.400	22.792	21.185	14.435
5/24/09 12:00	22.432	27.140	25.250	23.448	19.269	24.379	25.802	19.351	22.752	21.175	14.428
5/24/09 16:00	22.377	27.118	25.202	23.433	19.250	24.351	25.786	19.288	22.700	21.154	14.412
5/24/09 20:00	22.331	27.104	25.168	23.426	19.236	24.315	25.767	19.253	22.663	21.131	14.403

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
5/25/09 0:00	22.355	27.126	25.187	23.431	19.222	24.301	25.760	19.278	22.688	21.116	14.412
5/25/09 4:00	22.305	27.090	25.132	23.414	19.210	24.277	25.741	19.213	22.634	21.095	14.400
5/25/09 8:00	22.293	27.097	25.134	23.414	19.193	24.258	25.724	19.209	22.634	21.079	14.400
5/25/09 12:00	22.262	27.079	25.101	23.402	19.179	24.234	25.708	19.162	22.599	21.058	14.396
5/25/09 16:00	22.142	27.018	25.009	23.373	19.153	24.177	25.670	19.048	22.498	21.023	14.370
5/25/09 20:00	22.128	27.046	25.007	23.380	19.137	24.135	25.644	19.060	22.505	20.994	14.367
5/26/09 0:00	22.154	27.060	25.031	23.380	19.123	24.120	25.628	19.064	22.526	20.978	14.379
5/26/09 4:00	22.125	27.048	25.007	23.371	19.106	24.104	25.612	19.018	22.508	20.959	14.372
5/26/09 8:00	22.137	27.065	25.019	23.383	19.090	24.099	25.600	19.032	22.526	20.943	14.379
5/26/09 12:00	22.178	27.083	25.050	23.388	19.080	24.109	25.595	19.057	22.559	20.931	14.391
5/26/09 16:00	22.185	27.081	25.055	23.393	19.071	24.118	25.590	19.048	22.564	20.917	14.396
5/26/09 20:00	22.221	27.102	25.081	23.404	19.059	24.132	25.593	19.078	22.597	20.915	14.407
5/27/09 0:00	22.250	27.104	25.098	23.404	19.052	24.158	25.597	19.083	22.613	20.915	14.414
5/27/09 4:00	22.243	27.088	25.088	23.399	19.040	24.170	25.600	19.055	22.601	20.908	14.426
5/27/09 8:00	22.283	27.114	25.120	23.409	19.033	24.192	25.607	19.106	22.632	20.908	14.426
5/27/09 12:00	22.293	27.097	25.108	23.404	19.024	24.208	25.614	19.083	22.630	20.903	14.426
5/27/09 16:00	22.276	27.081	25.091	23.397	19.017	24.211	25.614	19.057	22.609	20.898	14.421
5/27/09 20:00	22.276	27.093	25.093	23.402	19.007	24.213	25.614	19.069	22.616	20.889	14.424
5/28/09 0:00	22.302	27.100	25.108	23.404	18.998	24.220	25.621	19.083	22.630	20.886	14.431
5/28/09 4:00	22.312	27.104	25.113	23.407	18.993	24.227	25.626	19.088	22.632	20.879	14.435
5/28/09 8:00	22.362	27.135	25.149	23.421	18.991	24.244	25.637	19.153	22.681	20.886	14.449
5/28/09 12:00	22.367	27.114	25.141	23.414	18.986	24.265	25.647	19.118	22.663	20.889	14.452
5/28/09 16:00	22.310	27.076	25.088	23.397	18.972	24.253	25.642	19.050	22.606	20.879	14.435
5/28/09 20:00	22.324	27.097	25.101	23.402	18.965	24.246	25.642	19.085	22.623	20.870	14.440
5/29/09 0:00	22.374	27.118	25.137	23.414	18.962	24.261	25.656	19.120	22.667	20.870	14.457
5/29/09 4:00	22.384	27.121	25.141	23.416	18.958	24.272	25.663	19.127	22.670	20.870	14.461
5/29/09 8:00	22.432	27.144	25.173	23.431	18.955	24.294	25.680	19.174	22.705	20.877	14.473
5/29/09 12:00	22.420	27.114	25.156	23.416	18.948	24.310	25.687	19.134	22.681	20.879	14.471
5/29/09 16:00	22.367	27.074	25.103	23.399	18.937	24.296	25.682	19.067	22.623	20.865	14.454
5/29/09 20:00	22.329	27.065	25.069	23.388	18.930	24.270	25.673	19.036	22.587	20.854	14.443
5/30/09 0:00	22.307	27.053	25.050	23.380	18.920	24.246	25.668	18.999	22.571	20.842	14.440
5/30/09 4:00	22.298	27.086	25.057	23.392	18.911	24.218	25.656	19.053	22.576	20.825	14.438
5/30/09 8:00	22.317	27.088	25.072	23.392	18.901	24.218	25.659	19.041	22.592	20.821	14.450
5/30/09 12:00	22.331	27.086	25.074	23.388	18.894	24.223	25.659	19.039	22.597	20.816	14.457
5/30/09 16:00	22.307	27.065	25.048	23.383	18.887	24.218	25.654	18.992	22.573	20.804	14.454
5/30/09 20:00	22.317	27.081	25.057	23.390	18.878	24.211	25.654	19.011	22.585	20.797	14.457
5/31/09 0:00	22.367	27.107	25.093	23.404	18.875	24.232	25.663	19.057	22.627	20.799	14.473
5/31/09 4:00	22.357	27.086	25.081	23.394	18.868	24.239	25.666	19.018	22.606	20.802	14.471
5/31/09 8:00	22.341	27.074	25.062	23.382	18.856	24.237	25.663	18.997	22.587	20.792	14.466
5/31/09 12:00	22.262	27.018	24.987	23.354	18.845	24.211	25.644	18.876	22.507	20.774	14.447
5/31/09 16:00	22.149	26.969	24.903	23.323	18.826	24.151	25.614	18.771	22.409	20.741	14.419
5/31/09 20:00	22.097	26.967	24.872	23.316	18.812	24.087	25.586	18.752	22.381	20.710	14.410
6/1/09 0:00	22.147	27.020	24.927	23.342	18.802	24.068	25.576	18.832	22.442	20.701	14.426
6/1/09 4:00	22.202	27.048	24.966	23.354	18.795	24.080	25.574	18.855	22.489	20.691	14.445
6/1/09 8:00	22.231	27.051	24.985	23.359	18.791	24.101	25.581	18.873	22.507	20.694	14.459
6/1/09 12:00	22.228	27.051	24.980	23.364	18.781	24.111	25.576	18.880	22.507	20.687	14.459
6/1/09 16:00	22.118	26.971	24.881	23.328	18.765	24.090	25.555	18.701	22.402	20.668	14.433
6/1/09 20:00	22.228	27.079	24.992	23.385	18.765	24.104	25.567	18.908	22.533	20.670	14.464
6/2/09 0:00	22.305	27.079	25.033	23.378	18.765	24.154	25.588	18.911	22.569	20.684	14.520
6/2/09 4:00	22.381	27.121	25.067	23.411	18.767	24.189	25.607	19.069	22.641	20.696	14.564
6/2/09 8:00	22.412	27.109	25.084	23.425	18.765	24.215	25.623	19.116	22.672	20.710	14.536
6/2/09 12:00	22.451	27.137	25.129	23.423	18.767	24.263	25.644	19.120	22.681	20.724	14.522
6/2/09 16:00	22.458	27.121	25.127	23.416	18.762	24.291	25.661	19.118	22.672	20.734	14.522
6/2/09 20:00	22.510	27.153	25.166	23.428	18.765	24.325	25.684	19.185	22.714	20.748	14.534
6/3/09 0:00	22.544	27.153	25.180	23.437	18.765	24.353	25.706	19.211	22.735	20.762	14.541
6/3/09 4:00	22.561	27.149	25.187	23.442	18.765	24.377	25.727	19.227	22.738	20.774	14.546
6/3/09 8:00	22.628	27.191	25.243	23.466	18.772	24.413	25.755	19.330	22.801	20.795	14.564
6/3/09 12:00	22.608	27.144	25.206	23.447	18.767	24.432	25.769	19.271	22.752	20.804	14.557
6/3/09 16:00	22.556	27.107	25.149	23.423	18.760	24.417	25.774	19.199	22.693	20.797	14.541
6/3/09 20:00	22.527	27.111	25.132	23.421	18.755	24.394	25.771	19.197	22.672	20.792	14.534
6/4/09 0:00	22.556	27.121	25.146	23.425	18.755	24.391	25.783	19.206	22.693	20.795	14.546
6/4/09 4:00	22.522	27.100	25.117	23.416	18.750	24.377	25.783	19.164	22.655	20.788	14.536

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
6/4/09 8:00	22.549	27.128	25.144	23.428	18.748	24.375	25.788	19.225	22.686	20.785	14.546
6/4/09 12:00	22.532	27.107	25.122	23.416	18.743	24.372	25.790	19.178	22.663	20.781	14.546
6/4/09 16:00	22.443	27.051	25.043	23.389	18.734	24.337	25.776	19.057	22.576	20.762	14.522
6/4/09 20:00	22.400	27.055	25.023	23.387	18.722	24.289	25.757	19.039	22.554	20.743	14.513
6/5/09 0:00	22.405	27.060	25.021	23.387	18.720	24.272	25.750	19.025	22.554	20.731	14.518
6/5/09 4:00	22.395	27.069	25.019	23.385	18.713	24.251	25.741	19.027	22.554	20.720	14.518
6/5/09 8:00	22.388	27.065	25.011	23.382	18.703	24.246	25.731	19.006	22.547	20.710	14.520
6/5/09 12:00	22.331	27.023	24.958	23.363	18.696	24.218	25.715	18.906	22.489	20.691	14.506
6/5/09 16:00	22.245	26.976	24.888	23.329	18.680	24.170	25.687	18.804	22.411	20.661	14.485
6/5/09 20:00	22.192	26.981	24.857	23.323	18.666	24.116	25.656	18.773	22.381	20.633	14.473
6/6/09 0:00	22.163	26.971	24.840	23.310	18.656	24.078	25.630	18.713	22.357	20.607	14.471
6/6/09 4:00	22.070	26.967	24.782	23.311	18.637	24.016	25.588	18.692	22.310	20.562	14.450
6/6/09 8:00	22.056	26.943	24.763	23.282	18.626	23.980	25.557	18.592	22.280	20.536	14.450
6/6/09 12:00	22.001	26.920	24.722	23.270	18.609	23.940	25.527	18.552	22.240	20.504	14.440
6/6/09 16:00	21.962	26.920	24.708	23.267	18.593	23.897	25.489	18.538	22.221	20.468	14.435
6/6/09 20:00	21.974	26.953	24.732	23.287	18.581	23.876	25.468	18.541	22.247	20.447	14.440
6/7/09 0:00	22.027	26.997	24.780	23.310	18.576	23.883	25.459	18.555	22.308	20.435	14.457
6/7/09 4:00	22.003	26.964	24.751	23.291	18.564	23.888	25.442	18.548	22.280	20.419	14.454
6/7/09 8:00	22.046	26.995	24.787	23.306	18.555	23.892	25.438	18.559	22.317	20.412	14.464
6/7/09 12:00	22.025	26.976	24.763	23.298	18.548	23.904	25.426	18.555	22.296	20.400	14.459
6/7/09 16:00	21.977	26.915	24.703	23.258	18.534	23.897	25.412	18.531	22.233	20.386	14.445
6/7/09 20:00	22.029	26.990	24.763	23.291	18.527	23.892	25.400	18.552	22.291	20.377	14.454
6/8/09 0:00	22.099	27.034	24.734	23.329	18.527	23.911	25.407	18.585	22.366	20.381	14.480
6/8/09 4:00	22.168	27.067	24.881	23.358	18.524	23.952	25.421	18.724	22.432	20.393	14.499
6/8/09 8:00	22.273	27.097	24.951	23.375	18.529	24.023	25.454	18.834	22.507	20.419	14.527
6/8/09 12:00	22.345	27.107	24.997	23.385	18.536	24.101	25.485	18.908	22.554	20.447	14.546
6/8/09 16:00	22.345	27.079	24.973	23.375	18.536	24.149	25.506	18.906	22.536	20.461	14.543
6/8/09 20:00	22.338	27.062	24.954	23.368	18.534	24.163	25.517	18.913	22.510	20.471	14.536
6/9/09 0:00	22.374	27.076	24.973	23.373	18.536	24.187	25.539	18.957	22.533	20.485	14.543
6/9/09 4:00	22.343	27.055	24.941	23.366	18.534	24.189	25.548	18.936	22.505	20.492	14.534
6/9/09 8:00	22.340	27.058	24.937	23.373	18.534	24.192	25.557	18.948	22.503	20.496	14.532
6/9/09 12:00	22.309	27.034	24.970	23.349	18.527	24.161	25.550	18.950	22.449	20.492	14.520
6/9/09 16:00	22.211	26.969	24.814	23.303	18.515	24.125	25.534	18.748	22.359	20.475	14.499
6/9/09 20:00	22.201	26.985	24.816	23.313	18.510	24.092	25.529	18.759	22.366	20.468	14.496
6/10/09 0:00	22.259	27.023	24.862	23.332	18.510	24.094	25.536	18.843	22.411	20.471	14.513
6/10/09 4:00	22.252	27.011	24.848	23.325	18.505	24.089	25.532	18.804	22.399	20.468	14.511
6/10/09 8:00	22.254	27.020	24.852	23.330	18.501	24.097	25.534	18.820	22.406	20.468	14.515
6/10/09 12:00	22.235	27.004	24.828	23.323	18.496	24.087	25.529	18.771	22.385	20.466	14.511
6/10/09 16:00	22.233	26.997	24.826	23.318	18.491	24.082	25.527	18.741	22.376	20.461	14.513
6/10/09 20:00	22.175	26.974	24.780	23.301	18.482	24.047	25.510	18.680	22.327	20.447	14.494
6/11/09 0:00	22.209	26.995	24.821	23.310	18.482	24.051	25.510	18.687	22.359	20.445	14.506
6/11/09 4:00	22.206	26.992	24.797	23.313	18.475	24.047	25.508	18.694	22.355	20.442	14.506
6/11/09 8:00	22.254	27.030	24.845	23.337	18.475	24.061	25.515	18.766	22.402	20.445	14.520
6/11/09 12:00	22.290	27.037	24.864	23.339	18.477	24.087	25.525	18.783	22.428	20.454	14.534
6/11/09 16:00	22.290	27.016	24.852	23.329	18.472	24.101	25.529	18.757	22.409	20.457	14.534
6/11/09 20:00	22.292	27.030	24.857	23.339	18.472	24.106	25.532	18.804	22.416	20.457	14.532
6/12/09 0:00	22.331	27.041	24.886	23.347	18.472	24.127	25.543	18.820	22.446	20.468	14.546
6/12/09 4:00	22.280	26.997	24.828	23.322	18.468	24.127	25.543	18.745	22.388	20.466	14.529
6/12/09 8:00	22.278	26.999	24.828	23.322	18.465	24.113	25.543	18.750	22.385	20.464	14.527
6/12/09 12:00	22.257	26.992	24.804	23.315	18.463	24.097	25.536	18.741	22.359	20.459	14.522
6/12/09 16:00	22.233	26.976	24.780	23.301	18.456	24.080	25.527	18.690	22.336	20.449	14.515
6/12/09 20:00	22.292	27.037	24.840	23.339	18.456	24.089	25.534	18.799	22.406	20.454	14.536
6/13/09 0:00	22.379	27.067	24.903	23.358	18.465	24.123	25.555	18.862	22.470	20.473	14.562
6/13/09 4:00	22.386	27.058	24.898	23.363	18.463	24.154	25.567	18.876	22.475	20.485	14.565
6/13/09 8:00	22.474	27.104	24.970	23.387	18.472	24.196	25.593	18.992	22.547	20.506	14.588
6/13/09 12:00	22.481	27.076	24.963	23.380	18.477	24.234	25.611	18.950	22.533	20.522	14.590
6/13/09 16:00	22.419	27.025	24.891	23.351	18.475	24.232	25.614	18.880	22.460	20.527	14.569
6/13/09 20:00	22.381	27.013	24.860	23.337	18.470	24.201	25.607	18.852	22.420	20.522	14.557
6/14/09 0:00	22.405	27.034	24.876	23.349	18.472	24.201	25.614	18.880	22.449	20.529	14.565
6/14/09 4:00	22.369	27.046	24.867	23.365	18.472	24.184	25.609	18.899	22.446	20.525	14.560
6/14/09 8:00	22.379	27.032	24.874	23.349	18.470	24.182	25.611	18.859	22.432	20.529	14.562
6/14/09 12:00	22.364	27.009	24.843	23.332	18.468	24.173	25.609	18.808	22.402	20.529	14.560

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
6/14/09 16:00	22.323	26.985	24.804	23.313	18.463	24.154	25.600	18.759	22.364	20.522	14.550
6/14/09 20:00	22.283	26.969	24.773	23.301	18.458	24.116	25.583	18.729	22.329	20.508	14.541
6/15/09 0:00	22.292	27.004	24.792	23.325	18.458	24.104	25.581	18.783	22.359	20.506	14.546
6/15/09 4:00	22.256	26.992	24.766	23.315	18.451	24.080	25.564	18.750	22.327	20.494	14.536
6/15/09 8:00	22.197	26.943	24.807	23.282	18.444	24.054	25.546	18.592	22.263	20.480	14.525
6/15/09 12:00	22.199	26.952	24.710	23.284	18.442	24.035	25.532	18.582	22.268	20.468	14.527
6/15/09 16:00	22.137	26.910	24.655	23.258	18.432	23.999	25.508	18.548	22.209	20.447	14.511
6/15/09 20:00	22.094	26.941	24.640	23.277	18.421	23.945	25.480	18.552	22.197	20.421	14.588
6/16/09 0:00	22.127	26.952	24.674	23.272	18.416	23.935	25.466	18.534	22.218	20.409	14.511
6/16/09 4:00	22.077	26.903	24.616	23.246	18.407	23.923	25.447	18.520	22.169	20.395	14.501
6/16/09 8:00	22.125	26.969	24.676	23.284	18.404	23.921	25.440	18.531	22.233	20.393	14.515
6/16/09 12:00	22.189	26.990	24.720	23.301	18.407	23.952	25.447	18.541	22.289	20.402	14.534
6/16/09 16:00	22.173	26.962	24.691	23.284	18.402	23.968	25.445	18.536	22.263	20.398	14.529
6/16/09 20:00	22.175	26.966	24.691	23.286	18.397	23.975	25.440	18.541	22.261	20.395	14.527
6/17/09 0:00	22.225	26.997	24.737	23.308	18.397	23.997	25.447	18.559	22.308	20.402	14.541
6/17/09 4:00	22.206	26.969	24.705	23.291	18.395	24.006	25.445	18.555	22.277	20.400	14.536
6/17/09 8:00	22.230	26.985	24.727	23.303	18.395	24.018	25.449	18.573	22.298	20.402	14.541
6/17/09 12:00	22.170	26.922	24.657	23.258	18.385	24.009	25.440	18.541	22.221	20.395	14.525
6/17/09 16:00	22.113	26.899	24.609	23.248	18.378	23.983	25.423	18.524	22.174	20.379	14.506
6/17/09 20:00	22.055	26.894	24.570	23.243	18.369	23.933	25.400	18.513	22.136	20.360	14.492
6/18/09 0:00	22.039	26.868	24.551	23.219	18.362	23.909	25.383	18.496	22.108	20.348	14.489
6/18/09 4:00	22.048	26.901	24.568	23.241	18.357	23.890	25.372	18.501	22.139	20.339	14.492
6/18/09 8:00	22.111	26.959	24.631	23.274	18.357	23.897	25.374	18.510	22.204	20.341	14.511
6/18/09 12:00	22.044	26.887	24.558	23.231	18.345	23.890	25.355	18.492	22.122	20.327	14.494
6/18/09 16:00	22.012	26.882	24.534	23.229	18.338	23.869	25.343	18.482	22.099	20.318	14.487
6/18/09 20:00	21.986	26.882	24.520	23.226	18.331	23.842	25.325	18.475	22.087	20.304	14.480
6/19/09 0:00	22.029	26.901	24.546	23.231	18.329	23.852	25.320	18.468	22.117	20.306	14.492
6/19/09 4:00	22.039	26.924	24.561	23.241	18.324	23.850	25.311	18.471	22.134	20.299	14.494
6/19/09 8:00	22.072	26.924	24.573	23.248	18.324	23.876	25.318	18.475	22.157	20.308	14.506
6/19/09 12:00	22.079	26.936	24.587	23.260	18.322	23.890	25.318	18.485	22.169	20.313	14.508
6/19/09 16:00	22.065	26.913	24.563	23.248	18.319	23.892	25.315	18.478	22.139	20.311	14.504
6/19/09 20:00	22.154	26.980	24.645	23.286	18.324	23.921	25.329	18.489	22.230	20.325	14.525
6/20/09 0:00	22.209	26.990	24.669	23.298	18.329	23.966	25.348	18.499	22.263	20.344	14.541
6/20/09 4:00	22.223	26.978	24.667	23.289	18.326	23.997	25.360	18.503	22.261	20.353	14.541
6/20/09 8:00	22.249	26.985	24.676	23.298	18.322	24.023	25.374	18.510	22.277	20.365	14.546
6/20/09 12:00	22.240	26.973	24.664	23.294	18.317	24.037	25.383	18.517	22.263	20.367	14.543
6/20/09 16:00	22.211	26.931	24.621	23.265	18.303	24.032	25.383	18.510	22.211	20.362	14.532
6/20/09 20:00	22.149	26.906	24.568	23.239	18.284	23.994	25.369	18.499	22.150	20.341	14.513
6/21/09 0:00	22.115	26.901	24.549	23.239	18.263	23.963	25.360	18.496	22.127	20.323	14.560
6/21/09 4:00	22.063	26.882	24.501	23.224	18.244	23.923	25.341	18.485	22.082	20.294	14.494
6/21/09 8:00	22.075	26.903	24.522	23.239	18.225	23.904	25.336	18.489	22.108	20.276	14.492
6/21/09 12:00	22.077	26.901	24.517	23.236	18.206	23.899	25.327	18.485	22.108	20.261	14.499
6/21/09 16:00	22.060	26.887	24.498	23.226	18.187	23.890	25.318	18.475	22.087	20.240	14.494
6/21/09 20:00	22.051	26.892	24.489	23.229	18.171	23.880	25.308	18.473	22.082	20.224	14.492
6/22/09 0:00	22.089	26.920	24.525	23.241	18.157	23.887	25.311	18.475	22.115	20.219	14.504
6/22/09 4:00	22.118	26.927	24.537	23.251	18.145	23.902	25.313	18.475	22.132	20.215	14.511
6/22/09 8:00	22.165	26.957	24.578	23.267	18.138	23.925	25.322	18.482	22.176	20.219	14.522
6/22/09 12:00	22.137	26.922	24.534	23.251	18.126	23.935	25.318	18.478	22.139	20.207	14.513
6/22/09 16:00	22.108	26.896	24.505	23.236	18.114	23.930	25.315	18.471	22.101	20.207	14.504
6/22/09 20:00	22.120	26.920	24.517	23.248	18.107	23.923	25.311	18.475	22.120	20.203	14.506
6/23/09 0:00	22.182	26.952	24.566	23.265	18.103	23.949	25.325	18.482	22.169	20.212	14.525
6/23/09 4:00	22.206	26.957	24.578	23.274	18.098	23.973	25.334	18.489	22.188	20.219	14.532
6/23/09 8:00	22.252	26.976	24.609	23.286	18.098	24.004	25.351	18.496	22.221	20.229	14.543
6/23/09 12:00	22.271	26.973	24.616	23.289	18.098	24.030	25.362	18.499	22.225	20.238	14.543
6/23/09 16:00	22.230	26.929	24.563	23.262	18.091	24.030	25.365	18.494	22.169	20.238	14.532
6/23/09 20:00	22.252	26.971	24.592	23.286	18.088	24.025	25.369	18.506	22.204	20.240	14.536
6/24/09 0:00	22.304	27.002	24.628	23.308	18.091	24.051	25.388	18.522	22.254	20.250	14.553
6/24/09 4:00	22.357	27.006	24.652	23.313	18.093	24.085	25.405	18.522	22.275	20.264	14.562
6/24/09 8:00	22.362	26.980	24.633	23.298	18.096	24.116	25.421	18.536	22.258	20.273	14.565
6/24/09 12:00	22.302	26.936	24.580	23.270	18.093	24.099	25.419	18.527	22.193	20.271	14.546
6/24/09 16:00	22.266	26.922	24.544	23.257	18.084	24.068	25.409	18.520	22.150	20.259	14.534
6/24/09 20:00	22.278	26.950	24.561	23.272	18.086	24.054	25.409	18.524	22.176	20.259	14.539

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
6/25/09 0:00	22.259	26.936	24.532	23.274	18.086	24.059	25.414	18.529	22.162	20.252	14.539
6/25/09 4:00	22.287	26.943	24.549	23.267	18.086	24.054	25.412	18.524	22.164	20.259	14.543
6/25/09 8:00	22.319	26.973	24.570	23.288	18.086	24.059	25.416	18.534	22.195	20.261	14.551
6/25/09 12:00	22.302	26.943	24.544	23.269	18.088	24.063	25.419	18.531	22.169	20.264	14.548
6/25/09 16:00	22.266	26.945	24.503	23.255	18.084	24.047	25.412	18.522	22.127	20.252	14.536
6/25/09 20:00	22.237	26.929	24.481	23.250	18.081	24.025	25.397	18.515	22.103	20.247	14.527
6/26/09 0:00	22.261	26.913	24.496	23.253	18.084	24.025	25.400	18.510	22.117	20.250	14.536
6/26/09 4:00	22.247	26.913	24.481	23.255	18.081	24.018	25.393	18.510	22.103	20.245	14.532
6/26/09 8:00	22.285	26.924	24.513	23.269	18.086	24.025	25.397	18.517	22.136	20.254	14.543
6/26/09 12:00	22.256	26.943	24.474	23.250	18.084	24.023	25.388	18.503	22.103	20.250	14.534
6/26/09 16:00	22.197	26.934	24.419	23.229	18.079	23.997	25.372	18.492	22.040	20.240	14.522
6/26/09 20:00	22.146	26.899	24.378	23.214	18.074	23.959	25.350	18.480	21.995	20.224	14.506
6/27/09 0:00	22.149	26.882	24.390	23.219	18.070	23.933	25.336	18.473	22.005	20.219	14.506
6/27/09 4:00	22.139	26.875	24.380	23.226	18.067	23.918	25.325	18.475	22.000	20.212	14.508
6/27/09 8:00	22.180	26.882	24.426	23.248	18.072	23.930	25.322	18.485	22.054	20.219	14.525
6/27/09 12:00	22.264	26.957	24.481	23.274	18.079	23.961	25.334	18.489	22.120	20.231	14.546
6/27/09 16:00	22.335	26.962	24.532	23.274	18.084	24.009	25.350	18.485	22.160	20.257	14.560
6/27/09 20:00	22.338	26.941	24.529	23.291	18.091	24.037	25.360	18.506	22.169	20.269	14.565
6/28/09 0:00	22.409	27.011	24.582	23.312	18.100	24.082	25.381	18.520	22.225	20.290	14.581
6/28/09 4:00	22.450	27.027	24.609	23.327	18.110	24.123	25.400	18.552	22.261	20.308	14.590
6/28/09 8:00	22.486	27.022	24.623	23.327	18.119	24.165	25.423	18.678	22.272	20.327	14.597
6/28/09 12:00	22.438	26.971	24.573	23.296	18.124	24.173	25.430	18.631	22.211	20.339	14.583
6/28/09 16:00	22.347	26.906	24.486	23.257	18.121	24.139	25.419	18.559	22.115	20.330	14.558
6/28/09 20:00	22.275	26.917	24.431	23.241	18.119	24.078	25.397	18.531	22.056	20.313	14.536
6/29/09 0:00	22.278	26.903	24.433	23.248	18.117	24.047	25.388	18.527	22.068	20.304	14.539
6/29/09 4:00	22.240	26.903	24.399	23.233	18.114	24.016	25.374	18.513	22.030	20.292	14.529
6/29/09 8:00	22.254	26.901	24.416	23.245	18.114	24.002	25.365	18.510	22.052	20.285	14.536
6/29/09 12:00	22.232	26.922	24.399	23.238	18.112	23.990	25.355	18.501	22.030	20.278	14.532
6/29/09 16:00	22.192	26.924	24.358	23.221	18.103	23.963	25.336	18.489	21.986	20.261	14.522
6/29/09 20:00	22.170	26.894	24.354	23.221	18.098	23.937	25.320	18.482	21.981	20.247	14.518
6/30/09 0:00	22.180	26.871	24.354	23.229	18.093	23.930	25.308	18.478	21.993	20.238	14.522
6/30/09 4:00	22.192	26.896	24.368	23.229	18.091	23.933	25.301	18.473	22.005	20.240	14.529
6/30/09 8:00	22.206	26.917	24.385	23.245	18.091	23.933	25.294	18.480	22.026	20.233	14.532
6/30/09 12:00	22.225	26.920	24.392	23.236	18.088	23.954	25.296	18.475	22.033	20.238	14.541
6/30/09 16:00	22.204	26.922	24.373	23.233	18.086	23.954	25.287	18.475	22.014	20.231	14.534
6/30/09 20:00	22.189	26.896	24.358	23.229	18.081	23.947	25.280	18.471	22.000	20.229	14.527
7/1/09 0:00	22.247	26.929	24.416	23.245	18.084	23.963	25.285	18.475	22.056	20.238	14.544
7/1/09 4:00	22.247	26.927	24.416	23.250	18.084	23.978	25.287	18.480	22.054	20.243	14.546
7/1/09 8:00	22.292	26.936	24.452	23.267	18.088	23.999	25.294	18.489	22.099	20.254	14.558
7/1/09 12:00	22.287	26.948	24.428	23.250	18.086	24.016	25.299	18.482	22.075	20.259	14.558
7/1/09 16:00	22.240	26.943	24.392	23.236	18.086	24.004	25.289	18.480	22.035	20.257	14.544
7/1/09 20:00	22.249	26.913	24.402	23.243	18.086	23.999	25.287	18.478	22.047	20.254	14.546
7/2/09 0:00	22.283	26.896	24.433	23.255	18.089	24.011	25.294	18.482	22.077	20.264	14.555
7/2/09 4:00	22.350	26.973	24.486	23.281	18.093	24.035	25.306	18.494	22.134	20.273	14.572
7/2/09 8:00	22.369	26.959	24.491	23.279	18.098	24.066	25.320	18.496	22.143	20.290	14.579
7/2/09 12:00	22.398	26.973	24.508	23.291	18.105	24.094	25.334	18.510	22.169	20.301	14.586
7/2/09 16:00	22.383	26.964	24.491	23.279	18.105	24.104	25.341	18.513	22.146	20.306	14.581
7/2/09 20:00	22.369	26.948	24.476	23.274	18.110	24.097	25.341	18.517	22.129	20.308	14.574
7/3/09 0:00	22.407	26.931	24.510	23.291	18.114	24.111	25.353	18.545	22.169	20.325	14.586
7/3/09 4:00	22.400	26.934	24.496	23.286	18.119	24.118	25.357	18.564	22.155	20.323	14.586
7/3/09 8:00	22.431	26.966	24.515	23.293	18.124	24.135	25.372	18.629	22.178	20.334	14.595
7/3/09 12:00	22.354	26.936	24.443	23.255	18.124	24.118	25.362	18.543	22.091	20.330	14.572
7/3/09 16:00	22.264	26.915	24.363	23.224	18.117	24.068	25.343	18.508	22.000	20.318	14.548
7/3/09 20:00	22.223	26.896	24.344	23.224	18.112	24.016	25.322	18.501	21.983	20.301	14.539
7/4/09 0:00	22.220	26.889	24.334	23.224	18.112	23.987	25.303	18.492	21.983	20.287	14.539
7/4/09 4:00	22.161	26.882	24.293	23.205	18.105	23.947	25.280	18.473	21.939	20.271	14.527
7/4/09 8:00	22.187	26.875	24.329	23.226	18.105	23.935	25.271	18.478	21.979	20.266	14.537
7/4/09 12:00	22.230	26.885	24.373	23.241	18.110	23.952	25.271	18.478	22.021	20.271	14.551
7/4/09 16:00	22.247	26.896	24.380	23.245	18.110	23.966	25.266	18.482	22.033	20.273	14.558
7/4/09 20:00	22.278	26.894	24.414	23.262	18.112	23.982	25.271	18.485	22.073	20.278	14.567
7/5/09 0:00	22.347	26.903	24.460	23.274	18.119	24.030	25.287	18.489	22.122	20.297	14.588
7/5/09 4:00	22.340	26.917	24.450	23.267	18.119	24.054	25.292	18.492	22.108	20.306	14.583

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
7/5/09 8:00	22.393	26.931	24.493	23.288	18.126	24.080	25.308	18.508	22.160	20.320	14.600
7/5/09 12:00	22.393	26.959	24.481	23.277	18.129	24.106	25.315	18.508	22.145	20.332	14.598
7/5/09 16:00	22.352	26.964	24.438	23.257	18.131	24.097	25.313	18.503	22.099	20.330	14.588
7/5/09 20:00	22.309	26.938	24.404	23.248	18.131	24.070	25.303	18.503	22.063	20.327	14.572
7/6/09 0:00	22.338	26.915	24.438	23.259	18.133	24.070	25.306	18.508	22.094	20.327	14.583
7/6/09 4:00	22.323	26.915	24.423	23.257	18.131	24.066	25.306	18.506	22.077	20.332	14.579
7/6/09 8:00	22.335	26.922	24.438	23.259	18.133	24.068	25.306	18.510	22.089	20.334	14.583
7/6/09 12:00	22.304	26.945	24.397	23.245	18.129	24.059	25.301	18.501	22.059	20.325	14.576
7/6/09 16:00	22.242	26.945	24.346	23.224	18.121	24.025	25.282	18.487	21.997	20.311	14.558
7/6/09 20:00	22.197	26.903	24.317	23.214	18.114	23.985	25.261	18.482	21.967	20.294	14.548
7/7/09 0:00	22.232	26.878	24.354	23.231	18.110	23.978	25.256	18.482	22.005	20.292	14.560
7/7/09 4:00	22.189	26.873	24.313	23.219	18.098	23.963	25.242	18.473	21.962	20.278	14.551
7/7/09 8:00	22.197	26.880	24.332	23.228	18.093	23.954	25.235	18.473	21.983	20.268	14.558
7/7/09 12:00	22.158	26.901	24.291	23.209	18.077	23.940	25.219	18.464	21.943	20.254	14.548
7/7/09 16:00	22.115	26.901	24.262	23.197	18.058	23.911	25.198	18.450	21.911	20.236	14.539
7/7/09 20:00	22.091	26.868	24.252	23.195	18.044	23.883	25.176	18.445	21.896	20.217	14.532
7/8/09 0:00	22.132	26.843	24.296	23.217	18.030	23.883	25.169	18.448	21.953	20.215	14.546
7/8/09 4:00	22.144	26.847	24.305	23.221	18.020	23.895	25.165	18.448	21.967	20.203	14.553
7/8/09 8:00	22.165	26.861	24.317	23.224	18.006	23.916	25.162	18.443	21.979	20.205	14.558
7/8/09 12:00	22.125	26.889	24.284	23.205	17.983	23.906	25.153	18.436	21.934	20.189	14.546
7/8/09 16:00	22.084	26.892	24.252	23.195	17.964	23.890	25.136	18.429	21.904	20.177	14.537
7/8/09 20:00	22.108	26.861	24.281	23.212	17.947	23.890	25.132	18.434	21.936	20.168	14.539
7/9/09 0:00	22.134	26.850	24.298	23.216	17.938	23.904	25.132	18.434	21.960	20.163	14.551
7/9/09 4:00	22.120	26.857	24.281	23.202	17.921	23.911	25.127	18.420	21.941	20.158	14.548
7/9/09 8:00	22.165	26.861	24.327	23.219	17.917	23.923	25.132	18.431	21.986	20.161	14.558
7/9/09 12:00	22.187	26.896	24.344	23.231	17.907	23.949	25.139	18.436	22.009	20.167	14.565
7/9/09 16:00	22.146	26.908	24.293	23.204	17.898	23.949	25.134	18.417	21.958	20.163	14.553
7/9/09 20:00	22.153	26.880	24.317	23.219	17.891	23.944	25.132	18.429	21.979	20.158	14.558
7/10/09 0:00	22.185	26.871	24.334	23.226	17.884	23.963	25.139	18.429	22.005	20.165	14.565
7/10/09 4:00	22.137	26.866	24.291	23.209	17.872	23.954	25.129	18.420	21.955	20.160	14.553
7/10/09 8:00	22.199	26.871	24.368	23.250	17.874	23.968	25.141	18.452	22.040	20.165	14.572
7/10/09 12:00	22.192	26.899	24.339	23.226	17.865	23.973	25.141	18.429	22.009	20.168	14.567
7/10/09 16:00	22.211	26.908	24.354	23.231	17.862	23.990	25.148	18.431	22.026	20.172	14.574
7/10/09 20:00	22.218	26.894	24.363	23.238	17.860	23.999	25.153	18.438	22.035	20.177	14.574
7/11/09 0:00	22.280	26.887	24.416	23.257	17.860	24.032	25.169	18.445	22.087	20.186	14.593
7/11/09 4:00	22.287	26.899	24.416	23.259	17.860	24.056	25.181	18.455	22.089	20.196	14.595
7/11/09 8:00	22.340	26.915	24.457	23.274	17.862	24.092	25.200	18.466	22.136	20.207	14.607
7/11/09 12:00	22.366	26.934	24.469	23.286	17.865	24.125	25.221	18.480	22.155	20.219	14.614
7/11/09 16:00	22.414	26.955	24.501	23.288	17.865	24.158	25.240	18.485	22.183	20.231	14.623
7/11/09 20:00	22.369	26.950	24.462	23.271	17.862	24.153	25.245	18.487	22.138	20.226	14.609
7/12/09 0:00	22.378	26.938	24.467	23.281	17.860	24.151	25.256	18.492	22.148	20.229	14.612
7/12/09 4:00	22.333	26.941	24.409	23.250	17.853	24.139	25.254	18.480	22.089	20.217	14.602
7/12/09 8:00	22.297	26.899	24.373	23.228	17.844	24.111	25.245	18.466	22.035	20.203	14.591
7/12/09 12:00	22.316	26.924	24.409	23.262	17.836	24.099	25.249	18.487	22.087	20.193	14.598
7/12/09 16:00	22.299	26.941	24.387	23.245	17.825	24.096	25.247	18.482	22.063	20.184	14.598
7/12/09 20:00	22.273	26.922	24.373	23.245	17.815	24.073	25.240	18.482	22.044	20.165	14.591
7/13/09 0:00	22.299	26.913	24.385	23.240	17.808	24.085	25.245	18.475	22.063	20.163	14.600
7/13/09 4:00	22.299	26.915	24.392	23.252	17.801	24.087	25.242	18.485	22.073	20.158	14.602
7/13/09 8:00	22.290	26.913	24.387	23.257	17.794	24.077	25.238	18.487	22.070	20.151	14.600
7/13/09 12:00	22.283	26.931	24.378	23.240	17.785	24.080	25.235	18.478	22.084	20.144	14.598
7/13/09 16:00	22.225	26.934	24.329	23.228	17.773	24.051	25.221	18.473	22.054	20.135	14.581
7/13/09 20:00	22.192	26.903	24.310	23.226	17.763	24.020	25.205	18.466	22.000	20.118	14.574
7/14/09 0:00	22.134	26.885	24.255	23.200	17.754	23.997	25.191	18.448	21.976	20.104	14.565
7/14/09 4:00	22.137	26.901	24.260	23.192	17.747	23.973	25.174	18.438	21.974	20.090	14.565
7/14/09 8:00	22.118	26.875	24.269	23.209	17.738	23.944	25.155	18.443	21.929	20.081	14.562
7/14/09 12:00	22.055	26.882	24.214	23.185	17.726	23.918	25.129	18.431	21.929	20.064	14.551
7/14/09 16:00	22.017	26.878	24.187	23.180	17.714	23.885	25.106	18.422	21.908	20.050	14.541
7/14/09 20:00	22.050	26.850	24.243	23.206	17.707	23.878	25.092	18.431	21.887	20.045	14.551
7/15/09 0:00	22.141	26.899	24.325	23.238	17.707	23.918	25.099	18.448	21.943	20.062	14.579
7/15/09 4:00	22.266	27.011	24.445	23.286	17.714	23.990	25.125	18.466	22.127	20.092	14.609
7/15/09 8:00	22.328	26.959	24.472	23.288	17.721	24.066	25.151	18.473	22.155	20.125	14.623
7/15/09 12:00	22.347	26.971	24.464	23.286	17.726	24.123	25.172	18.487	22.155	20.158	14.628

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
7/15/09 16:00	22.323	26.973	24.438	23.271	17.730	24.139	25.183	18.489	22.127	20.170	14.621
7/15/09 20:00	22.326	26.948	24.435	23.274	17.733	24.142	25.193	18.496	22.122	20.182	14.616
7/16/09 0:00	22.335	26.934	24.445	23.271	17.738	24.144	25.200	18.503	22.124	20.191	14.619
7/16/09 4:00	22.287	26.931	24.397	23.250	17.740	24.134	25.202	18.496	22.075	20.191	14.607
7/16/09 8:00	22.347	26.927	24.457	23.293	17.749	24.139	25.212	18.524	22.148	20.205	14.623
7/16/09 12:00	22.318	26.934	24.421	23.271	17.756	24.146	25.216	18.520	22.108	20.210	14.616
7/16/09 16:00	22.311	26.952	24.414	23.267	17.763	24.137	25.216	18.524	22.096	20.210	14.607
7/16/09 20:00	22.319	26.936	24.421	23.271	17.771	24.132	25.221	18.538	22.106	20.217	14.612
7/17/09 0:00	22.376	26.929	24.467	23.291	17.782	24.158	25.233	18.624	22.153	20.229	14.630
7/17/09 4:00	22.376	26.938	24.455	23.291	17.794	24.175	25.242	18.622	22.153	20.238	14.630
7/17/09 8:00	22.431	26.952	24.505	23.312	17.806	24.203	25.259	18.748	22.185	20.257	14.645
7/17/09 12:00	22.426	26.980	24.486	23.298	17.813	24.222	25.273	18.711	22.199	20.268	14.645
7/17/09 16:00	22.369	26.990	24.433	23.273	17.815	24.201	25.270	18.641	22.181	20.264	14.628
7/17/09 20:00	22.366	26.955	24.438	23.283	17.825	24.184	25.268	18.673	22.162	20.264	14.626
7/18/09 0:00	22.397	26.941	24.457	23.297	17.834	24.196	25.277	18.713	22.115	20.273	14.638
7/18/09 4:00	22.426	26.945	24.479	23.307	17.846	24.213	25.285	18.748	22.174	20.283	14.647
7/18/09 8:00	22.452	26.962	24.498	23.314	17.855	24.234	25.296	18.785	22.197	20.294	14.652
7/18/09 12:00	22.436	26.994	24.479	23.295	17.860	24.239	25.299	18.734	22.167	20.297	14.649
7/18/09 16:00	22.383	26.994	24.428	23.281	17.867	24.218	25.296	18.690	22.134	20.294	14.638
7/18/09 20:00	22.381	26.962	24.431	23.285	17.872	24.199	25.289	18.711	22.174	20.294	14.635
7/19/09 0:00	22.398	26.943	24.447	23.293	17.881	24.199	25.294	18.718	22.122	20.299	14.642
7/19/09 4:00	22.390	26.945	24.440	23.293	17.891	24.196	25.292	18.711	22.110	20.299	14.640
7/19/09 8:00	22.409	26.955	24.452	23.295	17.900	24.203	25.296	18.713	22.101	20.304	14.647
7/19/09 12:00	22.359	26.983	24.399	23.266	17.905	24.191	25.287	18.620	22.129	20.301	14.635
7/19/09 16:00	22.268	26.978	24.320	23.238	17.907	24.144	25.263	18.552	22.075	20.285	14.614
7/19/09 20:00	22.228	26.934	24.303	23.238	17.907	24.094	25.240	18.531	22.047	20.271	14.602
7/20/09 0:00	22.194	26.901	24.284	23.235	17.907	24.066	25.221	18.517	22.012	20.261	14.598
7/20/09 4:00	22.187	26.894	24.276	23.223	17.905	24.042	25.205	18.503	21.972	20.247	14.595
7/20/09 8:00	22.158	26.889	24.262	23.221	17.905	24.018	25.181	18.494	21.934	20.236	14.591
7/20/09 12:00	22.115	26.889	24.214	23.192	17.898	23.987	25.155	18.462	21.918	20.224	14.581
7/20/09 16:00	22.082	26.882	24.209	23.204	17.893	23.966	25.132	18.466	21.906	20.210	14.577
7/20/09 20:00	22.091	26.868	24.233	23.218	17.891	23.954	25.118	18.469	21.901	20.203	14.581
7/21/09 0:00	22.144	26.873	24.284	23.230	17.891	23.978	25.115	18.469	21.934	20.207	14.600
7/21/09 4:00	22.146	26.882	24.291	23.238	17.888	23.994	25.111	18.475	21.932	20.210	14.600
7/21/09 8:00	22.199	26.892	24.332	23.250	17.891	24.025	25.115	18.482	21.969	20.219	14.614
7/21/09 12:00	22.225	26.910	24.354	23.254	17.893	24.054	25.122	18.482	21.983	20.229	14.621
7/21/09 16:00	22.216	26.931	24.346	23.250	17.895	24.068	25.125	18.485	22.040	20.233	14.619
7/21/09 20:00	22.196	26.915	24.332	23.247	17.893	24.061	25.118	18.485	22.059	20.233	14.612
7/22/09 0:00	22.237	26.903	24.368	23.259	17.895	24.077	25.127	18.492	22.019	20.238	14.623
7/22/09 4:00	22.230	26.906	24.356	23.257	17.895	24.089	25.129	18.494	21.990	20.245	14.621
7/22/09 8:00	22.261	26.917	24.382	23.264	17.900	24.104	25.136	18.501	22.023	20.254	14.631
7/22/09 12:00	22.259	26.945	24.375	23.259	17.902	24.115	25.141	18.503	22.066	20.261	14.631
7/22/09 16:00	22.192	26.945	24.313	23.230	17.900	24.096	25.132	18.489	22.063	20.247	14.612
7/22/09 20:00	22.184	26.910	24.315	23.233	17.900	24.070	25.125	18.487	22.054	20.243	14.607
7/23/09 0:00	22.201	26.892	24.334	23.250	17.902	24.063	25.122	18.492	22.019	20.243	14.614
7/23/09 4:00	22.216	26.894	24.351	23.252	17.902	24.077	25.125	18.489	22.004	20.247	14.619
7/23/09 8:00	22.228	26.906	24.356	23.252	17.907	24.089	25.127	18.492	22.000	20.254	14.624
7/23/09 12:00	22.213	26.934	24.341	23.242	17.910	24.089	25.127	18.492	22.047	20.254	14.624
7/23/09 16:00	22.146	26.929	24.288	23.226	17.905	24.061	25.118	18.482	22.080	20.261	14.607
7/23/09 20:00	22.113	26.899	24.269	23.216	17.902	24.025	25.104	18.466	21.934	20.247	14.598
7/24/09 0:00	22.105	26.873	24.269	23.216	17.902	24.011	25.092	18.462	21.906	20.243	14.598
7/24/09 4:00	22.038	26.868	24.219	23.197	17.900	23.978	25.073	18.445	21.882	20.226	14.584
7/24/09 8:00	22.050	26.856	24.245	23.202	17.898	23.959	25.059	18.445	21.873	20.222	14.588
7/24/09 12:00	22.015	26.880	24.214	23.192	17.893	23.947	25.042	18.434	21.889	20.212	14.581
7/24/09 16:00	21.969	26.875	24.182	23.178	17.888	23.913	25.024	18.424	21.859	20.200	14.572
7/24/09 20:00	21.933	26.838	24.163	23.171	17.884	23.887	25.000	18.413	21.814	20.189	14.563
7/25/09 0:00	22.027	26.821	24.255	23.209	17.891	23.913	25.007	18.436	21.850	20.200	14.588
7/25/09 4:00	22.127	26.845	24.337	23.233	17.900	23.982	25.028	18.450	21.974	20.226	14.617
7/25/09 8:00	22.149	26.866	24.351	23.242	17.905	24.018	25.035	18.466	21.962	20.243	14.621
7/25/09 12:00	22.182	26.903	24.375	23.247	17.912	24.058	25.052	18.469	22.000	20.261	14.628
7/25/09 16:00	22.168	26.920	24.356	23.235	17.917	24.073	25.057	18.471	22.009	20.271	14.624
7/25/09 20:00	22.156	26.901	24.346	23.235	17.921	24.065	25.059	18.475	21.979	20.278	14.617

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
7/26/09 0:00	22.206	26.887	24.387	23.252	17.928	24.089	25.073	18.487	21.974	20.287	14.631
7/26/09 4:00	22.220	26.894	24.394	23.250	17.935	24.108	25.087	18.487	21.993	20.301	14.635
7/26/09 8:00	22.228	26.906	24.399	23.257	17.943	24.123	25.096	18.496	22.012	20.308	14.635
7/26/09 12:00	22.228	26.934	24.397	23.247	17.947	24.130	25.103	18.496	22.042	20.320	14.635
7/26/09 16:00	22.175	26.936	24.344	23.226	17.945	24.111	25.099	18.489	22.037	20.318	14.621
7/26/09 20:00	22.165	26.901	24.351	23.238	17.947	24.089	25.096	18.496	21.986	20.315	14.619
7/27/09 0:00	22.187	26.885	24.363	23.240	17.950	24.096	25.101	18.494	21.976	20.320	14.624
7/27/09 4:00	22.146	26.882	24.325	23.224	17.947	24.080	25.096	18.489	21.962	20.315	14.614
7/27/09 8:00	22.163	26.885	24.344	23.228	17.950	24.077	25.096	18.487	21.969	20.315	14.619
7/27/09 12:00	22.139	26.906	24.322	23.221	17.945	24.070	25.092	18.482	21.983	20.311	14.614
7/27/09 16:00	22.079	26.906	24.272	23.199	17.940	24.042	25.078	18.466	21.974	20.292	14.598
7/27/09 20:00	22.082	26.868	24.286	23.212	17.938	24.016	25.068	18.471	21.920	20.287	14.600
7/28/09 0:00	22.103	26.856	24.301	23.209	17.938	24.020	25.066	18.464	21.915	20.287	14.607
7/28/09 4:00	22.062	26.856	24.269	23.202	17.933	24.013	25.056	18.459	21.906	20.283	14.598
7/28/09 8:00	22.082	26.849	24.293	23.209	17.933	24.008	25.052	18.459	21.903	20.278	14.605
7/28/09 12:00	22.120	26.859	24.332	23.231	17.935	24.032	25.057	18.471	21.950	20.283	14.617
7/28/09 16:00	22.117	26.868	24.317	23.211	17.935	24.044	25.059	18.459	21.957	20.285	14.614
7/28/09 20:00	22.108	26.870	24.320	23.221	17.935	24.044	25.056	18.466	21.946	20.280	14.612
7/29/09 0:00	22.141	26.868	24.349	23.226	17.935	24.061	25.061	18.466	21.950	20.287	14.621
7/29/09 4:00	22.117	26.873	24.320	23.212	17.933	24.063	25.061	18.459	21.955	20.285	14.617
7/29/09 8:00	22.151	26.875	24.354	23.230	17.935	24.070	25.068	18.473	21.960	20.292	14.624
7/29/09 12:00	22.122	26.894	24.325	23.216	17.935	24.070	25.063	18.462	21.988	20.290	14.617
7/29/09 16:00	22.084	26.887	24.293	23.202	17.931	24.049	25.054	18.455	21.967	20.283	14.605
7/29/09 20:00	22.074	26.866	24.296	23.206	17.931	24.032	25.049	18.452	21.934	20.278	14.603
7/30/09 0:00	22.079	26.861	24.298	23.206	17.931	24.037	25.049	18.455	21.929	20.278	14.605
7/30/09 4:00	22.139	26.854	24.356	23.231	17.933	24.051	25.054	18.466	21.939	20.280	14.621
7/30/09 8:00	22.187	26.868	24.390	23.242	17.940	24.089	25.068	18.476	21.974	20.297	14.635
7/30/09 12:00	22.196	26.903	24.385	23.238	17.943	24.115	25.080	18.476	22.019	20.308	14.638
7/30/09 16:00	22.165	26.912	24.358	23.223	17.945	24.118	25.080	18.473	22.056	20.311	14.628
7/30/09 20:00	22.180	26.889	24.375	23.233	17.945	24.113	25.085	18.480	22.016	20.313	14.631
7/31/09 0:00	22.237	26.880	24.421	23.252	17.954	24.146	25.101	18.492	22.012	20.327	14.645
7/31/09 4:00	22.220	26.889	24.399	23.242	17.957	24.153	25.108	18.492	22.012	20.334	14.642
7/31/09 8:00	22.249	26.899	24.426	23.250	17.964	24.170	25.120	18.496	22.033	20.341	14.647
7/31/09 12:00	22.194	26.927	24.365	23.218	17.966	24.158	25.115	18.482	22.084	20.339	14.633
7/31/09 16:00	22.115	26.920	24.301	23.202	17.959	24.115	25.101	18.469	22.030	20.325	14.614
7/31/09 20:00	22.074	26.880	24.276	23.197	17.957	24.063	25.082	18.462	21.946	20.313	14.603
8/1/09 0:00	22.189	26.849	24.380	23.223	17.966	24.077	25.092	18.466	21.957	20.320	14.631
8/1/09 4:00	22.137	26.854	24.344	23.226	17.964	24.073	25.085	18.476	21.948	20.318	14.621
8/1/09 8:00	22.218	26.866	24.411	23.250	17.971	24.115	25.096	18.487	21.983	20.334	14.645
8/1/09 12:00	22.239	26.901	24.416	23.247	17.978	24.156	25.111	18.494	22.037	20.351	14.649
8/1/09 16:00	22.218	26.922	24.394	23.236	17.980	24.163	25.115	18.492	22.059	20.351	14.642
8/1/09 20:00	22.187	26.901	24.361	23.223	17.980	24.151	25.113	18.487	22.023	20.353	14.635
8/2/09 0:00	22.216	26.884	24.390	23.238	17.985	24.158	25.120	18.496	22.012	20.365	14.642
8/2/09 4:00	22.184	26.885	24.361	23.221	17.987	24.151	25.118	18.489	22.004	20.362	14.633
8/2/09 8:00	22.161	26.887	24.341	23.214	17.987	24.130	25.111	18.482	21.997	20.358	14.626
8/2/09 12:00	22.105	26.903	24.291	23.192	17.983	24.103	25.094	18.464	22.002	20.346	14.617
8/2/09 16:00	22.019	26.894	24.226	23.173	17.976	24.044	25.071	18.448	21.948	20.327	14.596
8/2/09 20:00	22.010	26.854	24.233	23.175	17.973	24.011	25.052	18.438	21.899	20.311	14.591
8/3/09 0:00	22.000	26.828	24.228	23.171	17.968	23.997	25.038	18.427	21.873	20.301	14.593
8/3/09 4:00	21.969	26.821	24.211	23.166	17.964	23.975	25.019	18.417	21.856	20.290	14.586
8/3/09 8:00	22.012	26.819	24.262	23.187	17.966	23.978	25.014	18.431	21.864	20.292	14.598
8/3/09 12:00	21.991	26.847	24.238	23.176	17.964	23.982	25.005	18.415	21.899	20.287	14.593
8/3/09 16:00	21.943	26.852	24.206	23.164	17.957	23.961	24.986	18.403	21.896	20.276	14.581
8/3/09 20:00	21.938	26.824	24.211	23.166	17.954	23.949	24.972	18.401	21.856	20.271	14.581
8/4/09 0:00	21.964	26.810	24.235	23.168	17.954	23.956	24.969	18.399	21.845	20.271	14.586
8/4/09 4:00	22.101	26.800	24.399	23.271	17.968	23.978	24.981	18.501	21.997	20.280	14.614
8/4/09 8:00	22.086	26.812	24.365	23.238	17.961	24.004	24.981	18.455	21.922	20.290	14.614
8/4/09 12:00	22.146	26.856	24.387	23.223	17.968	24.075	25.005	18.434	21.988	20.315	14.633
8/4/09 16:00	22.146	26.887	24.387	23.218	17.973	24.108	25.016	18.441	22.019	20.332	14.633
8/4/09 20:00	22.168	26.875	24.402	23.228	17.978	24.132	25.005	18.452	22.004	20.341	14.635
8/5/09 0:00	22.213	26.873	24.426	23.233	17.985	24.165	25.021	18.457	22.016	20.360	14.647
8/5/09 4:00	22.235	26.877	24.455	23.257	17.992	24.189	25.019	18.483	22.030	20.379	14.652

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
8/5/09 8:00	22.302	26.894	24.503	23.276	18.006	24.246	25.078	18.501	22.127	20.412	14.666
8/5/09 12:00	22.275	26.927	24.462	23.247	18.008	24.251	25.136	18.492	22.131	20.416	14.654
8/5/09 16:00	22.271	26.936	24.443	23.235	18.016	24.246	25.155	18.487	22.136	20.424	14.649
8/5/09 20:00	22.261	26.912	24.443	23.240	18.020	24.232	25.132	18.499	22.094	20.433	14.647
8/6/09 0:00	22.321	26.896	24.491	23.262	18.032	24.255	25.101	18.517	22.089	20.449	14.664
8/6/09 4:00	22.278	26.903	24.445	23.240	18.032	24.248	25.155	18.515	22.084	20.475	14.654
8/6/09 8:00	22.299	26.905	24.469	23.252	18.041	24.253	25.143	18.548	22.089	20.452	14.659
8/6/09 12:00	22.275	26.927	24.414	23.209	18.041	24.251	25.223	18.527	22.113	20.527	14.652
8/6/09 16:00	22.168	26.919	24.349	23.211	18.041	24.184	25.165	18.513	22.066	20.473	14.626
8/6/09 20:00	22.115	26.882	24.312	23.204	18.039	24.137	25.148	18.503	22.007	20.454	14.617
8/7/09 0:00	22.110	26.859	24.296	23.183	18.039	24.115	25.146	18.476	21.974	20.459	14.614
8/7/09 4:00	22.022	26.847	24.231	23.159	18.032	24.068	25.148	18.455	21.936	20.466	14.596
8/7/09 8:00	22.031	26.833	24.250	23.173	18.032	24.039	25.094	18.455	21.915	20.414	14.600
8/7/09 12:00	21.979	26.849	24.204	23.151	18.025	24.006	25.108	18.436	21.918	20.438	14.591
8/7/09 16:00	21.902	26.840	24.151	23.130	18.020	23.959	25.075	18.406	21.889	20.409	14.570
8/7/09 20:00	21.883	26.803	24.156	23.140	18.013	23.925	25.014	18.403	21.826	20.362	14.570
8/8/09 0:00	21.943	26.777	24.216	23.159	18.016	23.937	24.958	18.415	21.810	20.301	14.586
8/8/09 4:00	21.943	26.786	24.214	23.154	18.013	23.947	24.958	18.410	21.821	20.313	14.586
8/8/09 8:00	21.950	26.798	24.226	23.154	18.011	23.959	24.960	18.406	21.842	20.315	14.586
8/8/09 12:00	21.921	26.821	24.199	23.135	18.011	23.959	24.984	18.389	21.873	20.358	14.584
8/8/09 16:00	21.897	26.819	24.192	23.142	18.006	23.944	24.969	18.392	21.866	20.344	14.574
8/8/09 20:00	21.928	26.793	24.233	23.159	18.006	23.944	24.915	18.355	21.835	20.283	14.582
8/9/09 0:00	22.038	26.791	24.325	23.190	18.016	24.004	24.918	18.420	21.866	20.332	14.607
8/9/09 4:00	22.072	26.810	24.341	23.187	18.023	24.051	24.929	18.420	21.906	20.353	14.617
8/9/09 8:00	22.105	26.831	24.368	23.199	18.030	24.087	24.969	18.431	21.941	20.367	14.624
8/9/09 12:00	22.079	26.861	24.334	23.180	18.030	24.106	25.019	18.424	21.988	20.376	14.617
8/9/09 16:00	22.003	26.861	24.245	23.137	18.025	24.080	25.033	18.392	21.979	20.369	14.593
8/9/09 20:00	22.105	26.821	24.361	23.195	18.039	24.096	24.955	18.389	21.939	20.388	14.619
8/10/09 0:00	22.161	26.833	24.397	23.209	18.046	24.137	24.981	18.420	21.974	20.407	14.633
8/10/09 4:00	22.187	26.852	24.414	23.214	18.053	24.170	25.000	18.429	22.007	20.426	14.640
8/10/09 8:00	22.244	26.868	24.457	23.233	18.065	24.213	25.009	18.431	22.040	20.452	14.652
8/10/09 12:00	22.321	26.870	24.433	23.183	18.067	24.251	25.103	18.457	22.096	20.473	14.659
8/10/09 16:00	22.220	26.898	24.418	23.216	18.072	24.229	25.085		22.094	20.473	
8/10/09 20:00	22.220	26.880	24.421	23.223	18.074	24.222	25.075	18.380	22.066	20.480	14.623
8/11/09 0:00	22.285	26.875	24.464	23.238	18.086	24.253	25.061	18.369	22.070	20.501	14.640
8/11/09 4:00	22.275	26.884	24.447	23.228	18.091	24.265	25.108	18.408	22.077	20.517	14.637
8/11/09 8:00	22.340	26.889	24.505	23.254		24.289	25.099	18.401	22.098	20.538	14.651
8/11/09 12:00	22.338	26.919	24.486			24.305	25.165	18.494	22.145		14.654
8/11/09 16:00	22.280	26.931	24.431	23.228		24.293	25.216	18.532	22.148		14.640
8/11/09 20:00	22.249	26.898	24.414	23.231		24.260	25.179	18.476	22.089		14.630
8/12/09 0:00	22.275	26.877	24.426	23.235		24.260	25.153	18.464	22.066		14.640
8/12/09 4:00	22.271	26.875	24.423	23.235		24.260	25.155	18.466	22.059		14.637
8/12/09 8:00	22.297	26.882		23.242		24.267	25.150	18.494	22.070		14.647
8/12/09 12:00		26.908		23.228		24.265	25.202	18.532			14.642
8/12/09 16:00				23.209			25.223	18.515			14.626
8/12/09 20:00				23.206			25.179	18.450			14.621
8/13/09 0:00				23.223			25.125	18.411			14.630
8/13/09 4:00				23.209			25.139	18.422			14.623
8/13/09 8:00				23.226			25.111	18.406			14.635
8/13/09 12:00				23.216			25.148	18.462		21.379	14.633
8/13/09 16:00				23.195			25.183	18.478		21.198	14.621
8/13/09 20:00				23.202			25.127	18.413		20.994	14.616
8/14/09 0:00				23.214			25.082	18.373		20.851	14.628
8/14/09 4:00				23.211			25.092	18.385		20.782	14.628
8/14/09 8:00				23.216			25.087	18.394		20.719	14.635
8/14/09 12:00				23.199			25.139	18.457	22.052	20.724	14.628
8/14/09 16:00			24.257	23.183			25.148	18.446	21.974	20.703	14.614
8/14/09 20:00	22.104	26.845	24.235	23.178			25.087	18.392	21.923	20.621	14.604
8/15/09 0:00	22.085	26.859	24.235	23.173			25.068	18.373	21.944	20.588	14.602
8/15/09 4:00	22.030	26.828	24.184	23.151			25.082	18.394	21.906	20.590	14.590
8/15/09 8:00	22.023	26.854	24.189	23.156			25.038	18.364	21.906	20.529	14.593
8/15/09 12:00	21.994	26.847	24.177	23.151			25.033	18.373	21.894	20.510	14.586

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
8/15/09 16:00	21.951	26.828	24.148	23.142			25.031	18.383	21.850	20.503	14.579
8/15/09 20:00	21.956	26.854	24.165	23.154			24.967	18.327	21.857	20.440	14.579
8/16/09 0:00	21.929	26.821	24.139	23.132			24.974	18.329	21.852	20.447	14.574
8/16/09 4:00	22.016	26.901	24.228	23.168			24.955	18.306	21.955	20.412	14.595
8/16/09 8:00	22.051	26.903	24.252	23.171			24.932	18.306	21.960	20.395	14.602
8/16/09 12:00	22.118	26.936	24.310	23.197			24.948	18.329	22.042	20.477	14.621
8/16/09 16:00	22.090	26.903	24.281	23.183			24.991	18.366	21.998	20.482	14.614
8/16/09 20:00	22.118	26.926	24.307	23.195			24.960	18.329	22.009	20.440	14.619
8/17/09 0:00	22.149	26.950	24.339	23.214			24.972	18.325	22.031	20.414	14.626
8/17/09 4:00	22.157	26.915	24.319	23.187			25.007	18.352	22.056	20.466	14.626
8/17/09 8:00	22.228	26.908	24.334	23.192			25.061	18.364	22.146	20.496	14.630
8/17/09 12:00	22.228	26.976	24.389	23.233			25.007	18.371	22.096	20.529	14.640
8/17/09 16:00	22.217	26.945	24.365	23.216			25.049	18.404	22.075	20.545	14.635
8/17/09 20:00	22.204	26.941	24.348	23.211			25.045	18.383	22.066	20.522	14.630
8/18/09 0:00	22.142	26.980	24.404	23.233			25.019	18.357	22.125	20.489	14.649
8/18/09 4:00	22.142	26.950	24.384	23.218			25.063	18.390	22.125	20.538	14.647
8/18/09 8:00	22.185	26.964	24.394	23.230			25.068	18.399	22.120	20.545	14.647
8/18/09 12:00	22.348	26.955	24.365	23.216			25.106	18.439	22.108	20.585	14.644
8/18/09 16:00	22.142	26.924	24.266	23.175			25.136	18.455	22.007	20.644	14.616
8/18/09 20:00	22.109	26.898	24.249	23.185			25.075	18.399	21.953	20.569	14.609
8/19/09 0:00	22.066	26.889	24.204	23.159			25.085	18.399	21.925	20.576	14.600
8/19/09 4:00	21.936	26.814	24.107	23.130			25.028	18.369	21.782	20.567	14.574
8/19/09 8:00	21.929	26.828	24.129	23.140			24.984	18.339	21.836	20.491	14.574
8/19/09 12:00	21.910	26.845	24.112	23.125	19.289	24.022	24.988	18.362	21.822	20.489	14.567
8/19/09 16:00	21.862	26.845	24.076	23.104	19.209	23.988	24.983	18.352	21.791	20.487	14.560
8/19/09 20:00	21.834	26.796	24.093	23.130	19.139	23.950	24.871	18.276	21.746	20.374	14.560
8/20/09 0:00	21.934	26.842	24.170	23.140	19.080	23.988	24.878	18.259	21.887	20.339	14.581
8/20/09 4:00	21.886	26.852	24.221	23.171	19.026	24.029	24.880	18.252	21.911	20.320	14.595
8/20/09 8:00	21.920	26.854	24.262	23.183	18.976	24.074	24.864	18.269	21.967	20.336	14.604
8/20/09 12:00	22.147	26.884	24.271	23.175	18.927	24.112	24.901	18.327	21.988	20.390	14.609
8/20/09 16:00	22.035	26.894	24.254	23.171	18.877	24.129	24.934	18.343	21.974	20.433	14.602
8/20/09 20:00	22.099	26.880	24.324	23.197	18.840	24.157	24.922	18.292	22.019	20.386	14.616
8/21/09 0:00	22.145	26.882	24.341	23.197	18.804	24.200	24.920	18.301	22.073	20.414	14.626
8/21/09 4:00	22.111	26.894	24.348	23.204	18.769	24.224	24.929	18.325	22.061	20.435	14.628
8/21/09 8:00	22.133	26.943	24.396	23.221	18.741	24.259	24.984	18.325	22.113	20.440	14.640
8/21/09 12:00	22.336	26.955	24.401	23.221	18.710	24.292	25.012	18.390	22.136	20.505	14.644
8/21/09 16:00	22.374	26.957	24.387	23.216	18.682	24.304	25.035	18.404	22.117	20.536	14.642
8/21/09 20:00	22.202	26.938	24.411	23.228	18.658	24.316	25.012	18.373	22.122	20.520	14.647
8/22/09 0:00	22.123	26.943	24.442	23.238	18.639	24.349	25.047	18.369	22.174	20.527	14.656
8/22/09 4:00	22.147	26.952	24.457	23.247	18.620	24.371	25.052	18.380	22.190	20.550	14.663
8/22/09 8:00	22.221	26.966	24.478	23.254	18.606	24.402	25.071	18.411	22.211	20.581	14.668
8/22/09 12:00	22.458	26.987	24.452	23.238	18.587	24.406	25.139	18.508	22.197	20.649	14.666
8/22/09 16:00	22.262	26.971	24.368	23.206	18.564	24.368	25.172	18.534	22.113	20.705	14.642
8/22/09 20:00	22.233	26.943	24.353	23.209	18.543	24.321	25.134	18.462	22.071	20.649	14.635
8/23/09 0:00	22.259	26.926	24.377	23.218	18.526	24.321	25.101	18.434	22.103	20.613	14.642
8/23/09 4:00	22.260	26.924	24.372	23.218	18.510	24.311	25.101	18.441	22.096	20.609	14.644
8/23/09 8:00	22.274	26.934	24.370	23.214	18.493	24.316	25.113	18.455	22.101	20.621	14.644
8/23/09 12:00	22.224	26.952	24.331	23.200	18.474	24.302	25.150	18.508	22.075	20.660	14.640
8/23/09 16:00	22.159	26.941	24.286	23.185	18.456	24.259	25.150	18.501	22.007	20.672	14.626
8/23/09 20:00	22.135	26.912	24.271	23.185	18.434	24.226	25.106	18.432	21.991	20.618	14.621
8/24/09 0:00	22.161	26.898	24.302	23.197	18.420	24.224	25.061	18.392	22.016	20.576	14.628
8/24/09 4:00	22.142	26.898	24.286	23.187	18.401	24.221	25.066	18.404	22.009	20.585	14.626
8/24/09 8:00	22.150	26.901	24.276	23.185	18.390	24.212	25.066	18.411	22.000	20.583	14.623
8/24/09 12:00	22.109	26.917	24.254	23.171	18.373	24.200	25.085	18.443	21.988	20.611	14.619
8/24/09 16:00	22.063	26.915	24.221	23.166	18.352	24.167	25.080	18.436	21.939	20.606	14.609
8/24/09 20:00	22.071	26.889	24.240	23.178	18.340	24.152	25.016	18.364	21.944	20.548	14.612
8/25/09 0:00	22.087	26.877	24.259	23.178	18.328	24.162	25.002	18.353	21.984	20.531	14.619
8/25/09 4:00	22.123	26.891	24.286	23.185	18.321	24.190	24.995	18.353	22.026	20.524	14.628
8/25/09 8:00	22.121	26.894	24.293	23.195	18.310	24.195	24.986	18.360	22.000	20.524	14.628
8/25/09 12:00	22.130	26.910	24.298	23.185	18.305	24.212	25.014	18.392	22.021	20.552	14.630
8/25/09 16:00	22.121	26.917	24.283	23.183	18.293	24.205	25.024	18.401	22.007	20.571	14.628
8/25/09 20:00	22.142	26.901	24.312	23.197	18.288	24.212	24.986	18.359	22.019	20.541	14.635

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
8/26/09 0:00	22.178	26.896	24.319	23.178	18.281	24.235	25.009	18.364	22.061	20.564	14.640
8/26/09 4:00	22.147	26.896	24.314	23.197	18.279	24.226	24.993	18.366	22.009	20.548	14.635
8/26/09 8:00	22.123	26.908	24.288	23.195	18.269	24.231	25.016	18.397	22.002	20.574	14.633
8/26/09 12:00	22.181	26.915	24.341	23.197	18.267	24.247	25.002	18.380	22.073	20.599	14.642
8/26/09 16:00	22.137	26.922	24.298	23.190	18.255	24.243	25.035	18.413	22.024	20.611	14.635
8/26/09 20:00	22.164	26.908	24.334	23.202	18.255	24.243	25.000	18.369	22.031	20.564	14.640
8/27/09 0:00	22.183	26.910	24.334	23.195	18.253	24.266	25.021	18.387	22.082	20.590	14.663
8/27/09 4:00	22.185	26.912	24.343	23.207	18.246	24.264	25.009	18.380	22.059	20.574	14.628
8/27/09 8:00	22.181	26.915	24.363	23.216	18.244	24.278	25.002	18.371	22.080	20.559	14.616
8/27/09 12:00	22.245	26.926	24.375	23.216	18.244	24.295	25.026	18.397	22.108	20.588	14.642
8/27/09 16:00	22.286	26.936	24.358	23.209	18.239	24.304	25.052	18.418	22.092	20.613	14.666
8/27/09 20:00	22.190	26.929	24.355	23.211	18.237	24.297	25.045	18.399	22.070	20.599	14.642
8/28/09 0:00	22.121	26.924	24.360	23.211	18.232	24.309	25.045	18.397	22.101	20.602	14.635
8/28/09 4:00	22.094	26.926	24.351	23.216	18.229	24.304	25.054	18.411	22.078	20.611	14.637
8/28/09 8:00	22.133	26.929	24.363	23.214	18.229	24.311	25.059	18.406	22.099	20.611	14.642
8/28/09 12:00	22.355	26.952	24.334	23.202	18.227	24.309	25.101	18.462	22.087	20.675	14.705
8/28/09 16:00	22.181	26.950	24.310	23.197	18.220	24.283	25.101	18.455	22.038	20.663	14.701
8/28/09 20:00	22.193	26.922	24.317	23.204	18.218	24.273	25.059	18.399	22.049	20.609	14.642
8/29/09 0:00	22.219	26.912	24.348	23.214	18.220	24.290	25.040	18.390	22.071	20.592	14.623
8/29/09 4:00	22.240	26.919	24.358	23.216	18.220	24.309	25.042	18.399	22.092	20.599	14.626
8/29/09 8:00	22.262	26.926	24.392	23.233	18.220	24.323	25.035	18.401	22.110	20.585	14.619
8/29/09 12:00	22.272	26.950	24.368	23.216	18.222	24.345	25.092	18.460	22.127	20.649	14.684
8/29/09 16:00	22.226	26.955	24.341	23.209	18.220	24.321	25.115	18.471	22.073	20.663	14.712
8/29/09 20:00	22.264	26.934	24.380	23.230	18.220	24.326	25.056	18.408	22.092	20.599	14.633
8/30/09 0:00	22.329	26.929	24.433	23.250	18.225	24.366	25.038	18.434	22.157	20.583	14.602
8/30/09 4:00	22.291	26.945	24.445	23.250	18.229	24.395	25.070	18.525	22.183	20.621	14.644
8/30/09 8:00	22.307	26.962	24.478	23.264	18.236	24.430	25.085	18.602	22.223	20.630	14.659
8/30/09 12:00	22.523	26.997	24.457	23.254	18.239	24.444	25.155	18.641	22.218	20.698	14.727
8/30/09 16:00	22.336	26.997	24.411	23.235	18.237	24.421	25.193	18.618	22.153	20.731	14.741
8/30/09 20:00	22.351	26.964	24.430	23.252	18.239	24.406	25.141	18.611	22.148	20.677	14.668
8/31/09 0:00	22.403	26.957	24.469	23.262	18.248	24.435	25.129	18.627	22.211	20.667	14.659
8/31/09 4:00	22.358	26.969	24.461	23.259	18.251	24.442	25.153	18.648	22.202	20.693	14.666
8/31/09 8:00	22.367	26.980	24.493	23.276	18.258	24.466	25.146	18.690	22.242	20.684	14.670
8/31/09 12:00	22.573	27.006	24.459	23.252	18.260	24.471	25.221	18.676	22.218	20.754	14.748
8/31/09 16:00	22.336	27.008	24.387	23.228	18.255	24.425	25.259	18.636	22.141	20.783	14.750
8/31/09 20:00	22.343	26.969	24.408	23.242	18.255	24.399	25.188	18.627	22.129	20.712	14.680
9/1/09 0:00	22.374	26.959	24.425	23.250	18.258	24.406	25.169	18.616	22.169	20.698	14.661
9/1/09 4:00	22.322	26.962	24.418	23.245	18.258	24.402	25.176	18.634	22.148	20.707	14.673
9/1/09 8:00	22.351	26.966	24.440	23.254	18.260	24.409	25.165	18.646	22.169	20.691	14.670
9/1/09 12:00	22.353	26.983	24.406	23.235	18.260	24.404	25.209	18.616	22.153	20.738	14.734
9/1/09 16:00	22.255	26.983	24.322	23.206	18.251	24.352	25.245	18.574	22.068	20.771	14.738
9/1/09 20:00	22.252	26.952	24.343	23.226	18.248	24.321	25.162	18.492	22.054	20.691	14.675
9/2/09 0:00	22.264	26.941	24.348	23.223	18.248	24.316	25.141	18.471	22.071	20.672	14.666
9/2/09 4:00	22.226	26.941	24.315	23.204	18.241	24.304	25.160	18.481	22.054	20.698	14.696
9/2/09 8:00	22.209	26.931	24.351	23.226	18.241	24.295	25.096	18.446	22.059	20.637	14.649
9/2/09 12:00	22.228	26.943	24.322	23.200	18.237	24.304	25.141	18.499	22.071	20.686	14.715
9/2/09 16:00	22.166	26.945	24.286	23.197	18.229	24.273	25.141	18.495	22.016	20.684	14.713
9/2/09 20:00	22.169	26.924	24.298	23.204	18.227	24.250	25.085	18.441	21.998	20.635	14.666
9/3/09 0:00	22.190	26.912	24.317	23.209	18.222	24.264	25.061	18.427	22.042	20.616	14.652
9/3/09 4:00	22.173	26.917	24.295	23.199	18.220	24.266	25.075	18.446	22.031	20.632	14.670
9/3/09 8:00	22.173	26.915	24.302	23.202	18.218	24.257	25.056	18.432	22.023	20.616	14.659
9/3/09 12:00	22.164	26.926	24.283	23.195	18.211	24.259	25.070	18.460	22.031	20.635	14.694
9/3/09 16:00	22.099	26.924	24.235	23.169	18.204	24.224	25.087	18.464	21.965	20.656	14.713
9/3/09 20:00	22.106	26.901	24.269	23.202	18.201	24.205	24.998	18.397	21.960	20.571	14.635
9/4/09 0:00	22.147	26.896	24.288	23.197	18.199	24.231	24.995	18.390	22.021	20.574	14.640
9/4/09 4:00	22.130	26.901	24.274	23.192	18.194	24.228	25.002	18.404	22.005	20.585	14.652
9/4/09 8:00	22.128	26.905	24.312	23.204	18.199	24.247	24.979	18.387	22.040	20.569	14.633
9/4/09 12:00	22.202	26.919	24.307	23.199	18.197	24.266	25.009	18.422	22.054	20.602	14.673
9/4/09 16:00	22.142	26.931	24.281	23.192	18.194	24.254	25.028	18.443	22.014	20.623	14.706
9/4/09 20:00	22.173	26.917	24.317	23.206	18.194	24.264	24.991	18.399	22.038	20.583	14.649
9/5/09 0:00	22.150	26.915	24.353	23.219	18.194	24.292	24.974	18.387	22.085	20.574	14.626
9/5/09 4:00	22.133	26.924	24.358	23.218	18.199	24.311	24.998	18.408	22.089	20.599	14.640

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
9/5/09 8:00	22.161	26.938	24.384	23.228	18.199	24.338	25.000	18.425	22.127	20.602	14.649
9/5/09 12:00	22.343	26.959	24.380	23.226	18.201	24.352	25.045	18.492	22.129	20.644	14.703
9/5/09 16:00	22.212	26.966	24.324	23.204	18.199	24.333	25.087	18.513	22.073	20.686	14.745
9/5/09 20:00	22.217	26.941	24.343	23.219	18.199	24.321	25.040	18.460	22.061	20.637	14.677
9/6/09 0:00	22.260	26.931	24.375	23.228	18.204	24.342	25.021	18.467	22.110	20.621	14.649
9/6/09 4:00	22.262	26.936	24.377	23.228	18.204	24.349	25.035	18.492	22.108	20.639	14.656
9/6/09 8:00	22.276	26.943	24.392	23.228	18.211	24.361	25.040	18.513	22.134	20.642	14.663
9/6/09 12:00	22.274	26.969	24.375	23.221	18.208	24.364	25.085	18.541	22.132	20.689	14.729
9/6/09 16:00	22.190	26.971	24.298	23.192	18.204	24.333	25.134	18.543	22.052	20.731	14.776
9/6/09 20:00	22.173	26.936	24.305	23.207	18.204	24.295	25.061	18.460	22.021	20.667	14.684
9/7/09 0:00	22.207	26.919	24.331	23.212	18.204	24.300	25.030	18.439	22.061	20.635	14.649
9/7/09 4:00	22.161	26.919	24.288	23.192	18.199	24.288	25.059	18.460	22.031	20.663	14.680
9/7/09 8:00	22.164	26.917	24.300	23.195	18.199	24.278	25.038	18.448	22.031	20.642	14.673
9/7/09 12:00	22.128	26.934	24.264	23.183	18.194	24.262	25.059	18.481	22.002	20.663	14.720
9/7/09 16:00	22.049	26.926	24.201	23.157	18.187	24.212	25.078	18.483	21.937	20.689	14.750
9/7/09 20:00	22.039	26.891	24.209	23.166	18.180	24.181	25.002	18.408	21.923	20.616	14.673
9/8/09 0:00	22.049	26.875	24.235	23.178	18.180	24.174	24.955	18.380	21.941	20.574	14.630
9/8/09 4:00	22.037	26.877	24.223	23.173	18.175	24.171	24.951	18.387	21.939	20.571	14.635
9/8/09 8:00	22.042	26.877	24.245	23.175	18.173	24.176	24.929	18.378	21.960	20.555	14.630
9/8/09 12:00	22.063	26.901	24.254	23.176	18.173	24.190	24.946	18.413	21.988	20.571	14.673
9/8/09 16:00	22.020	26.903	24.216	23.159	18.166	24.174	24.969	18.425	21.944	20.602	14.708
9/8/09 20:00	22.037	26.877	24.252	23.183	18.166	24.169	24.901	18.362	21.946	20.536	14.630
9/9/09 0:00	22.114	26.877	24.315	23.200	18.171	24.214	24.878	18.341	22.031	20.522	14.598
9/9/09 4:00	22.104	26.891	24.298	23.188	18.168	24.235	24.918	18.380	22.028	20.562	14.633
9/9/09 8:00	22.157	26.898	24.346	23.207	18.175	24.262	24.896	18.364	22.066	20.548	14.616
9/9/09 12:00	22.185	26.919	24.360	23.207	18.180	24.297	24.934	18.399	22.103	20.583	14.652
9/9/09 16:00	22.159	26.931	24.331	23.195	18.180	24.297	24.981	18.439	22.068	20.632	14.694
9/9/09 20:00	22.183	26.924	24.367	23.218	18.185	24.302	24.944	18.401	22.071	20.590	14.645
9/10/09 0:00	22.219	26.924	24.382	23.216	18.189	24.333	24.962	18.415	22.127	20.611	14.668
9/10/09 4:00	22.178	26.929	24.372	23.209	18.192	24.338	24.991	18.448	22.113	20.637	14.675
9/10/09 8:00	22.197	26.936	24.411	23.228	18.201	24.361	24.979	18.502	22.143	20.628	14.656
9/10/09 12:00	22.410	26.964	24.406	23.219	18.204	24.378	25.030	18.567	22.155	20.677	14.717
9/10/09 16:00	22.205	26.969	24.351	23.202	18.204	24.357	25.075	18.546	22.092	20.721	14.745
9/10/09 20:00	22.224	26.938	24.382	23.219	18.208	24.342	25.016	18.509	22.101	20.658	14.673
9/11/09 0:00	22.240	26.934	24.382	23.216	18.213	24.364	25.026	18.509	22.136	20.670	14.663
9/11/09 4:00	22.205	26.931	24.363	23.209	18.213	24.345	25.042	18.499	22.092	20.686	14.673
9/11/09 8:00	22.212	26.931	24.380	23.216	18.213	24.338	25.021	18.506	22.106	20.665	14.659
9/11/09 12:00	22.217	26.952	24.360	23.202	18.215	24.347	25.070	18.536	22.110	20.710	14.727
9/11/09 16:00	22.126	26.955	24.281	23.176	18.211	24.302	25.106	18.529	22.024	20.743	14.727
9/11/09 20:00	22.188	26.912	24.377	23.233	18.218	24.295	24.958	18.425	22.038	20.602	14.638
9/12/09 0:00	22.197	26.912	24.358	23.209	18.218	24.321	25.009	18.464	22.110	20.660	14.663
9/12/09 4:00	22.176	26.922	24.331	23.197	18.215	24.307	25.033	18.476	22.082	20.644	14.680
9/12/09 8:00	22.200	26.922	24.370	23.214	18.218	24.316	25.005	18.471	22.101	20.618	14.654
9/12/09 12:00	22.193	26.936	24.358	23.207	18.215	24.321	25.035	18.504	22.103	20.672	14.691
9/12/09 16:00	22.135	26.941	24.307	23.188	18.208	24.295	25.061	18.502	22.035	20.717	14.720
9/12/09 20:00	22.157	26.917	24.336	23.204	18.206	24.285	25.002	18.443	22.049	20.656	14.647
9/13/09 0:00	22.183	26.915	24.360	23.209	18.204	24.300	24.993	18.441	22.089	20.653	14.635
9/13/09 4:00	22.178	26.919	24.353	23.204	18.201	24.309	25.007	18.453	22.085	20.667	14.645
9/13/09 8:00	22.164	26.924	24.377	23.216	18.199	24.311	24.993	18.448	22.094	20.644	14.631
9/13/09 12:00	22.319	26.943	24.363	23.207	18.199	24.330	25.038	18.504	22.117	20.686	14.687
9/13/09 16:00	22.121	26.945	24.290	23.178	18.201	24.288	25.075	18.506	22.028	20.729	14.729
9/13/09 20:00	22.116	26.912	24.310	23.195	18.204	24.264	25.007	18.432	22.019	20.660	14.649
9/14/09 0:00	22.147	26.903	24.336	23.202	18.211	24.271	24.981	18.415	22.056	20.637	14.626
9/14/09 4:00	22.130	26.908	24.314	23.190	18.213	24.271	24.998	18.432	22.042	20.651	14.642
9/14/09 8:00	22.145	26.908	24.331	23.202	18.218	24.271	24.981	18.422	22.052	20.630	14.631
9/14/09 12:00	22.130	26.924	24.307	23.185	18.220	24.273	25.019	18.467	22.054	20.665	14.687
9/14/09 16:00	22.073	26.922	24.264	23.173	18.220	24.238	25.033	18.467	21.995	20.682	14.701
9/14/09 20:00	22.073	26.896	24.281	23.180	18.222	24.216	24.979	18.413	21.988	20.628	14.640
9/15/09 0:00	22.099	26.889	24.300	23.185	18.227	24.224	24.953	18.399	22.021	20.606	14.621
9/15/09 4:00	22.109	26.894	24.310	23.188	18.232	24.235	24.951	18.406	22.028	20.604	14.623
9/15/09 8:00	22.138	26.896	24.329	23.195	18.234	24.252	24.941	18.401	22.047	20.597	14.621
9/15/09 12:00	22.140	26.915	24.329	23.190	18.239	24.266	24.972	18.443	22.063	20.623	14.661

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
9/15/09 16:00	22.128	26.919	24.319	23.188	18.244	24.264	24.983	18.450	22.040	20.635	14.673
9/15/09 20:00	22.164	26.908	24.353	23.207	18.246	24.278	24.948	18.415	22.063	20.599	14.626
9/16/09 0:00	22.185	26.908	24.360	23.204	18.255	24.300	24.958	18.434	22.087	20.606	14.626
9/16/09 4:00	22.209	26.912	24.380	23.212	18.263	24.311	24.960	18.469	22.103	20.609	14.621
9/16/09 8:00	22.255	26.922	24.416	23.221	18.270	24.347	24.967	18.548	22.143	20.613	14.626
9/16/09 12:00	22.255	26.947	24.404	23.214	18.279	24.364	25.023	18.590	22.150	20.670	14.687
9/16/09 16:00	22.195	26.950	24.346	23.195	18.279	24.335	25.061	18.567	22.075	20.703	14.722
9/16/09 20:00	22.217	26.926	24.372	23.212	18.281	24.323	25.009	18.564	22.085	20.649	14.649
9/17/09 0:00	22.233	26.919	24.377	23.207	18.288	24.333	25.012	18.543	22.113	20.653	14.642
9/17/09 4:00	22.243	26.922	24.384	23.214	18.291	24.335	25.014	18.569	22.110	20.651	14.638
9/17/09 8:00	22.276	26.926	24.418	23.224	18.300	24.354	25.009	18.597	22.141	20.644	14.633
9/17/09 12:00	22.264	26.950	24.387	23.207	18.305	24.359	25.068	18.618	22.134	20.700	14.706
9/17/09 16:00	22.195	26.948	24.331	23.185	18.303	24.321	25.099	18.560	22.061	20.729	14.729
9/17/09 20:00	22.190	26.919	24.327	23.190	18.303	24.292	25.054	18.495	22.052	20.682	14.668
9/18/09 0:00	22.209	26.908	24.353	23.200	18.305	24.300	25.023	18.485	22.075	20.649	14.633
9/18/09 4:00	22.219	26.908	24.358	23.204	18.307	24.302	25.019	18.506	22.080	20.646	14.633
9/18/09 8:00	22.248	26.915	24.380	23.212	18.310	24.314	25.014	18.541	22.106	20.639	14.635
9/18/09 12:00	22.257	26.934	24.375	23.202	18.314	24.328	25.059	18.564	22.115	20.670	14.682
9/18/09 16:00	22.195	26.934	24.317	23.183	18.312	24.292	25.134	18.534	22.052	20.705	14.720
9/18/09 20:00	22.221	26.912	24.358	23.202	18.314	24.292	25.082	18.485	22.073	20.646	14.649
9/19/09 0:00	22.248	26.905	24.372	23.204	18.319	24.307	25.045	18.502	22.101	20.646	14.635
9/19/09 4:00	22.243	26.912	24.365	23.197	18.321	24.311	25.040	18.525	22.099	20.658	14.647
9/19/09 8:00	22.255	26.915	24.372	23.204	18.321	24.314	25.023	18.541	22.103	20.653	14.647
9/19/09 12:00	22.228	26.931	24.339	23.185	18.321	24.311	25.089	18.548	22.085	20.700	14.710
9/19/09 16:00	22.133	26.929	24.257	23.161	18.314	24.247	25.167	18.534	21.993	20.729	14.750
9/19/09 20:00	22.116	26.896	24.266	23.166	18.310	24.207	25.115	18.450	21.965	20.660	14.670
9/20/09 0:00	22.097	26.880	24.242	23.157	18.305	24.186	25.080	18.441	21.967	20.651	14.659
9/20/09 4:00	22.049	26.873	24.206	23.140	18.296	24.157	25.068	18.446	21.932	20.649	14.673
9/20/09 8:00	22.032	26.861	24.204	23.145	18.291	24.129	25.019	18.415	21.923	20.606	14.642
9/20/09 12:00	21.975	26.870	24.153	23.113	18.279	24.102	25.066	18.467	21.880	20.639	14.708
9/20/09 16:00	21.858	26.856	24.069	23.085	18.260	24.017	25.070	18.450	21.777	20.635	14.656
9/20/09 20:00	21.841	26.817	24.083	23.094	18.251	23.974	25.005	18.364	21.772	20.534	14.602
9/21/09 0:00	21.839	26.798	24.083	23.090	18.239	23.962	24.941	18.336	21.784	20.491	14.595
9/21/09 4:00	21.829	26.789	24.098	23.099	18.227	23.941	24.866	18.318	21.746	20.435	14.574
9/21/09 8:00	21.863	26.784	24.129	23.099	18.223	23.969	24.824	18.313	21.878	20.409	14.609
9/21/09 12:00	21.946	26.796	24.218	23.140	18.223	24.015	24.746	18.280	21.885	20.358	14.572
9/21/09 16:00	21.941	26.817	24.199	23.123	18.218	24.053	24.802	18.336	21.918	20.409	14.614
9/21/09 20:00	22.028	26.821	24.288	23.161	18.223	24.105	24.748	18.304	21.981	20.372	14.584
9/22/09 0:00	22.056	26.842	24.295	23.157	18.225	24.157	24.774	18.343	22.026	20.421	14.612
9/22/09 4:00	22.064	26.856	24.295	23.154	18.230	24.181	24.791	18.371	22.035	20.461	14.621
9/22/09 8:00	22.123	26.868	24.334	23.159	18.232	24.205	24.784	18.369	22.056	20.480	14.617
9/22/09 12:00	22.128	26.877	24.348	23.183	18.237	24.221	24.795	18.385	22.061	20.468	14.617
9/22/09 16:00	22.099	26.866	24.300	23.157	18.225	24.209	24.878	18.439	22.019	20.541	14.668
9/22/09 20:00	22.123	26.866	24.327	23.166	18.230	24.207	24.868	18.399	22.035	20.513	14.619
9/23/09 0:00	22.135	26.868	24.329	23.166	18.232	24.216	24.861	18.406	22.049	20.524	14.614
9/23/09 4:00	22.135	26.873	24.324	23.164	18.232	24.219	24.866	18.415	22.052	20.538	14.619
9/23/09 8:00	22.190	26.877	24.372	23.185	18.239	24.243	24.833	18.404	22.092	20.515	14.609
9/23/09 12:00	22.207	26.901	24.370	23.176	18.241	24.273	24.904	18.476	22.110	20.576	14.668
9/23/09 16:00	22.178	26.905	24.343	23.166	18.244	24.259	24.983	18.490	22.068	20.597	14.682
9/23/09 20:00	22.200	26.894	24.358	23.178	18.246	24.259	24.974	18.471	22.082	20.581	14.638
9/24/09 0:00	22.209	26.891	24.365	23.178	18.248	24.264	24.972	18.499	22.094	20.588	14.633
9/24/09 4:00	22.193	26.891	24.348	23.169	18.249	24.259	24.984	18.513	22.080	20.616	14.647
9/24/09 8:00	22.205	26.889	24.358	23.178	18.253	24.257	24.953	18.511	22.075	20.595	14.624
9/24/09 12:00	22.176	26.903	24.324	23.159	18.253	24.250	25.021	18.532	22.066	20.642	14.692
9/24/09 16:00	22.133	26.894	24.283	23.149	18.251	24.209	25.078	18.499	22.009	20.637	14.689
9/24/09 20:00	22.138	26.877	24.307	23.162	18.249	24.195	25.038	18.448	22.009	20.592	14.631
9/25/09 0:00	22.126	26.866	24.286	23.149	18.249	24.188	25.016	18.448	22.009	20.599	14.628
9/25/09 4:00	22.109	26.861	24.278	23.145	18.246	24.174	24.988	18.439	21.984	20.592	14.621
9/25/09 8:00	22.116	26.861	24.286	23.150	18.246	24.169	24.960	18.427	22.007	20.581	14.619
9/25/09 12:00	22.085	26.870	24.254	23.133	18.241	24.157	25.002	18.464	21.988	20.606	14.673
9/25/09 16:00	22.061	26.863	24.247	23.138	18.239	24.131	25.023	18.429	21.948	20.581	14.647
9/25/09 20:00	22.056	26.847	24.245	23.135	18.234	24.124	25.005	18.411	21.953	20.562	14.624

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
9/26/09 0:00	22.013	26.840	24.206	23.116	18.230	24.102	25.000	18.420	21.925	20.578	14.631
9/26/09 4:00	21.987	26.833	24.194	23.109	18.223	24.076	24.974	18.408	21.901	20.562	14.626
9/26/09 8:00	21.985	26.821	24.199	23.113	18.218	24.057	24.925	18.378	21.897	20.524	14.602
9/26/09 12:00	21.973	26.831	24.192	23.102	18.216	24.055	24.953	18.408	21.915	20.545	14.649
9/26/09 16:00	21.884	26.824	24.127	23.071	18.204	24.003	25.021	18.420	21.826	20.567	14.654
9/26/09 20:00	21.860	26.798	24.115	23.066	18.194	23.969	24.988	18.362	21.807	20.515	14.610
9/27/09 0:00	21.793	26.779	24.069	23.037	18.180	23.922	24.962	18.360	21.761	20.503	14.612
9/27/09 4:00	21.690	26.758	23.987	22.989	18.164	23.855	24.936	18.362	21.702	20.503	14.621
9/27/09 8:00	21.575	26.730	23.915	22.939	18.143	23.768	24.894	18.336	21.608	20.475	14.586
9/27/09 12:00	21.573	26.709	23.953	22.977	18.128	23.725	24.814	18.271	21.603	20.358	14.558
9/27/09 16:00	21.700	26.707	24.093	23.052	18.126	23.775	24.730	18.192	21.735	20.243	14.506
9/27/09 20:00	21.877	26.730	24.252	23.133	18.128	23.903	24.626	18.255	21.911	20.189	14.556
9/28/09 0:00	22.025	26.821	24.353	23.161	18.135	24.043	24.605	18.348	22.056	20.280	14.591
9/28/09 4:00	22.071	26.838	24.370	23.166	18.140	24.131	24.760	18.329	22.078	20.344	14.595
9/28/09 8:00	22.147	26.859	24.423	23.190	18.150	24.202	24.760	18.390	22.132	20.367	14.607
9/28/09 12:00	22.162	26.887	24.406	23.174	18.150	24.240	24.791	18.397	22.136	20.452	14.666
9/28/09 16:00	22.111	26.896	24.360	23.159	18.150	24.216	24.868	18.402	22.073	20.508	14.685
9/28/09 20:00	22.133	26.877	24.375	23.171	18.152	24.212	24.840	18.376	22.073	20.477	14.610
9/29/09 0:00	22.178	26.873	24.406	23.178	18.154	24.235	24.807	18.422	22.125	20.484	14.600
9/29/09 4:00	22.205	26.877	24.406	23.188	18.161	24.257	24.840	18.425	22.134	20.494	14.603
9/29/09 8:00	22.250	26.889	24.408	23.193	18.166	24.288	24.857	18.411	22.172	20.517	14.619
9/29/09 12:00	22.214	26.912	24.442	23.164	18.166	24.285	24.941	18.499	22.141	20.611	14.701
9/29/09 16:00	22.092	26.912	24.341	23.131	18.161	24.205	25.056	18.483	22.021	20.663	14.687
9/29/09 20:00	22.083	26.877	24.305	23.143	18.157	24.157	25.014	18.420	22.000	20.581	14.617
9/30/09 0:00	22.059	26.859	24.286	23.126	18.154	24.138	24.993	18.425	21.991	20.581	14.621
9/30/09 4:00	22.008	26.849	24.266	23.109	18.147	24.102	24.974	18.425	21.944	20.576	14.626
9/30/09 8:00	21.982	26.835	24.252	23.102	18.140	24.069	24.948	18.415	21.930	20.562	14.624
9/30/09 12:00	21.872	26.835	24.175	23.047	18.126	24.003	24.998	18.455	21.847	20.609	14.654
9/30/09 16:00	21.731	26.814	24.071	22.997	18.107	23.893	24.946	18.415	21.706	20.599	14.621
9/30/09 20:00	21.669	26.763	24.040	22.982	18.093	23.822	24.896	18.353	21.681	20.501	14.593
10/1/09 0:00	21.566	26.726	23.919	22.922	18.072	23.753	24.845	18.336	21.603	20.491	14.598
10/1/09 4:00	21.496	26.690	23.905	22.918	18.053	23.677	24.793	18.278	21.561	20.407	14.570
10/1/09 8:00	21.516	26.667	23.951	22.956	18.044	23.658	24.718	18.220	21.582	20.301	14.518
10/1/09 12:00	21.630	26.674	24.081	23.035	18.037	23.725	24.619	18.185	21.723	20.214	14.499
10/1/09 16:00	21.731	26.704	24.175	23.087	18.041	23.810	24.589	18.197	21.807	20.186	14.520
10/1/09 20:00	21.836	26.735	24.240	23.099	18.053	23.915	24.603	18.222	21.937	20.226	14.553
10/2/09 0:00	21.808	26.763	24.201	23.073	18.062	23.948	24.661	18.274	21.904	20.322	14.577
10/2/09 4:00	21.750	26.765	24.139	23.035	18.062	23.924	24.685	18.290	21.840	20.369	14.598
10/2/09 8:00	21.741	26.758	24.148	23.042	18.065	23.903	24.647	18.262	21.824	20.341	14.567
10/2/09 12:00	21.733	26.758	24.139	23.042	18.067	23.893	24.673	18.280	21.826	20.353	14.598
10/2/09 16:00	21.752	26.756	24.182	23.068	18.070	23.896	24.652	18.246	21.833	20.304	14.546
10/2/09 20:00	21.846	26.758	24.249	23.090	18.081	23.953	24.614	18.229	21.925	20.297	14.544
10/3/09 0:00	21.875	26.775	24.266	23.099	18.086	23.996	24.610	18.262	21.953	20.320	14.549
10/3/09 4:00	21.906	26.789	24.286	23.107	18.095	24.026	24.612	18.283	21.974	20.344	14.558
10/3/09 8:00	21.961	26.805	24.329	23.131	18.107	24.072	24.718	18.290	22.017	20.353	14.558
10/3/09 12:00	21.999	26.828	24.346	23.128	18.117	24.112	24.746	18.332	22.054	20.398	14.603
10/3/09 16:00	21.956	26.840	24.293	23.102	18.119	24.098	24.814	18.378	22.002	20.466	14.652
10/3/09 20:00	22.013	26.831	24.353	23.143	18.131	24.110	24.786	18.315	22.035	20.409	14.563
10/4/09 0:00	22.080	26.840	24.401	23.157	18.140	24.164	24.840	18.327	22.103	20.430	14.581
10/4/09 4:00	22.092	26.854	24.401	23.152	18.150	24.188	24.807	18.364	22.106	20.475	14.591
10/4/09 8:00	22.128	26.866	24.428	23.166	18.164	24.212	24.838	18.371	22.125	20.491	14.591
10/4/09 12:00	22.128	26.887	24.404	23.145	18.173	24.228	24.882	18.443	22.134	20.564	14.663
10/4/09 16:00	22.071	26.884	24.348	23.133	18.176	24.190	24.955	18.448	22.061	20.604	14.673
10/4/09 20:00	22.080	26.863	24.368	23.150	18.180	24.174	24.922	18.399	22.066	20.557	14.610
10/5/09 0:00	22.090	26.863	24.365	23.135	18.187	24.183	24.920	18.413	22.078	20.578	14.617
10/5/09 4:00	22.016	26.866	24.295	23.114	18.185	24.140	24.953	18.443	22.000	20.625	14.649
10/5/09 8:00	22.016	26.852	24.302	23.111	18.190	24.119	24.927	18.415	22.010	20.595	14.628
10/5/09 12:00	21.918	26.852	24.211	23.066	18.183	24.067	25.000	18.464	21.932	20.651	14.666
10/5/09 16:00	21.798	26.828	24.119	23.023	18.173	23.967	24.976	18.432	21.817	20.639	14.638
10/5/09 20:00	21.772	26.786	24.124	23.030	18.168	23.912	24.920	18.364	21.800	20.545	14.591
10/6/09 0:00	21.745	26.765	24.117	23.020	18.161	23.889	24.897	18.339	21.777	20.513	14.586
10/6/09 4:00	21.817	26.756	24.204	23.078	18.164	23.915	24.788	18.281	21.871	20.419	14.537

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
10/6/09 8:00	21.879	26.763	24.249	23.099	18.166	23.965	24.739	18.276	21.927	20.414	14.553
10/6/09 12:00	21.939	26.791	24.298	23.119	18.173	24.026	24.746	18.397	21.988	20.447	14.588
10/6/09 16:00	21.951	26.810	24.317	23.131	18.176	24.053	24.784	18.413	21.986	20.466	14.596
10/6/09 20:00	22.042	26.824	24.380	23.145	18.185	24.117	24.751	18.378	22.078	20.463	14.591
10/7/09 0:00	22.061	26.845	24.382	23.140	18.192	24.157	24.798	18.534	22.096	20.520	14.610
10/7/09 4:00	22.071	26.859	24.382	23.147	18.197	24.176	24.838	18.713	22.092	20.529	14.605
10/7/09 8:00	22.068	26.868	24.382	23.152	18.201	24.176	24.871	18.811	22.080	20.538	14.612
10/7/09 12:00	22.023	26.880	24.324	23.116	18.201	24.157	24.960	19.733	22.040	20.653	14.692
10/7/09 16:00	21.958	26.866	24.274	23.102	18.197	24.098	24.969	19.772	21.970	20.686	14.652
10/7/09 20:00	21.949	26.849	24.274	23.104	18.197	24.069	24.929	19.658	21.955	20.663	14.614
10/8/09 0:00	21.961	26.840	24.293	23.116	18.199	24.072	24.892	19.782	21.984	20.618	14.593
10/8/09 4:00	21.932	26.838	24.269	23.097	18.194	24.062	24.908	19.828	21.955	20.618	14.617
10/8/09 8:00	21.992	26.833	24.327	23.131	18.199	24.069	24.840	19.889	21.988	20.555	14.581
10/8/09 12:00	22.037	26.842	24.370	23.150	18.204	24.110	24.831	19.570	22.052	20.517	14.591
10/8/09 16:00	22.045	26.861	24.353	23.128	18.206	24.140	24.885	19.665	22.087	20.564	14.621
10/8/09 20:00	22.064	26.866	24.377	23.162	18.211	24.157	24.875	19.586	22.075	20.534	14.600
10/9/09 0:00	22.109	26.875	24.406	23.167	18.218	24.193	24.892	19.630	22.113	20.552	14.617
10/9/09 4:00	22.116	26.882	24.411	23.169	18.223	24.207	24.918	19.626	22.125	20.581	14.626
10/9/09 8:00	22.157	26.891	24.447	23.181	18.234	24.231	24.920	19.700	22.153	20.569	14.617
10/9/09 12:00	22.181	26.910	24.452	23.174	18.244	24.259	24.974	19.737	22.176	20.642	14.668
10/9/09 16:00	22.155	26.917	24.423	23.169	18.246	24.243	25.012	19.751	22.139	20.726	14.682
10/9/09 20:00	22.195	26.908	24.471	23.193	18.256	24.262	24.969	19.756	22.169	20.668	14.614
10/10/09 0:00	22.243	26.915	24.505	23.205	18.265	24.297	24.974	19.777	22.207	20.639	14.628
10/10/09 4:00	22.360	26.926	24.604	23.257	18.284	24.373	24.941	19.886	22.296	20.595	14.642
10/10/09 8:00	22.461	26.955	24.673	23.277	18.305	24.461	25.038	19.949	22.388	20.630	14.661
10/10/09 12:00	22.494	26.985	24.666	23.257	18.317	24.520	25.143	19.975	22.423	20.738	14.713
10/10/09 16:00	22.435	27.006	24.611	23.236	18.326	24.490	25.212	19.993	22.336	20.867	14.743
10/10/09 20:00	22.430	26.992	24.608	23.243	18.336	24.463	25.200	19.987	22.322	20.869	14.696
10/11/09 0:00	22.442	26.992	24.606	23.238	18.345	24.466	25.214	19.996	22.343	20.869	14.696
10/11/09 4:00	22.427	26.994	24.594	23.243	18.352	24.459	25.226	20.007	22.315	20.877	14.696
10/11/09 8:00	22.430	26.992	24.589	23.241	18.362	24.452	25.237	20.012	22.315	20.888	14.699
10/11/09 12:00	22.375	26.999	24.534	23.214	18.364	24.421	25.292	20.003	22.266	20.961	14.746
10/11/09 16:00	22.255	26.987	24.442	23.188	18.359	24.333	25.320	19.947	22.157	20.996	14.732
10/11/09 20:00	22.229	26.962	24.437	23.193	18.359	24.281	25.254	19.914	22.134	20.942	14.687
10/12/09 0:00	22.181	26.950	24.392	23.174	18.357	24.245	25.249	19.859	22.120	20.940	14.703
10/12/09 4:00	22.135	26.936	24.365	23.169	18.352	24.202	25.212	19.840	22.071	20.914	14.685
10/12/09 8:00	22.169	26.924	24.416	23.193	18.352	24.207	25.134	19.845	22.096	20.839	14.633
10/12/09 12:00	22.176	26.931	24.418	23.195	18.352	24.221	25.129	19.842	22.120	20.846	14.657
10/12/09 16:00	22.186	26.931	24.430	23.207	18.355	24.231	25.108	19.852	22.127	20.827	14.645
10/12/09 20:00	22.269	26.931	24.505	23.226	18.362	24.281	25.063	19.875	22.197	20.757	14.633
10/13/09 0:00	22.334	26.950	24.555	23.251	18.369	24.347	25.063	19.914	22.270	20.724	14.645
10/13/09 4:00	22.348	26.969	24.558	23.243	18.376	24.378	25.115	19.942	22.277	20.752	14.664
10/13/09 8:00	22.341	26.980	24.546	23.241	18.371	24.380	25.141	19.966	22.249	20.771	14.668
10/13/09 12:00	22.301	26.994	24.498	23.219	18.336	24.364	25.209	19.961	22.237	20.874	14.729
10/13/09 16:00	22.246	26.985	24.423	23.167	18.300	24.304	25.252	19.886	22.146	20.961	14.717
10/13/09 20:00	22.219	26.962	24.447	23.212	18.277	24.278	25.165	19.907	22.162	20.862	14.649
10/14/09 0:00	22.222	26.957	24.447	23.205	18.251	24.285	25.162	19.903	22.162	20.832	14.666
10/14/09 4:00	22.176	26.957	24.423	23.207	18.223	24.252	25.160	19.889	22.125	20.846	14.671
10/14/09 8:00	22.150	26.955	24.396	23.188	18.197	24.231	25.162	19.865	22.115	20.869	14.680
10/14/09 12:00	22.071	26.952	24.334	23.164	18.171	24.181	25.181	19.826	22.052	20.916	14.701
10/14/09 16:00	21.992	26.934	24.286	23.162	18.138	24.105	25.136	19.786	21.955	20.874	14.652
10/14/09 20:00	21.946	26.910	24.271	23.160	18.110	24.064	25.085	19.733	21.939	20.834	14.626
10/15/09 0:00	21.961	26.896	24.283	23.160	18.088	24.055	25.031	19.682	21.960	20.783	14.614
10/15/09 4:00	21.934	26.889	24.264	23.155	18.063	24.043	25.012	19.642	21.958	20.776	14.621
10/15/09 8:00	21.994	26.887	24.336	23.181	18.048	24.069	24.939	19.670	22.000	20.703	14.584
10/15/09 12:00	22.023	26.903	24.351	23.176	18.032	24.112	24.955	19.686	22.059	20.731	14.621
10/15/09 16:00	22.016	26.917	24.355	23.176	18.018	24.121	24.972	19.719	22.038	20.769	14.642
10/15/09 20:00	22.102	26.910	24.437	23.215	18.008	24.164	24.906	19.756	22.115	20.672	14.603
10/16/09 0:00	22.162	26.924	24.481	23.229	18.004	24.224	24.911	19.796	22.174	20.649	14.617
10/16/09 4:00	22.207	26.945	24.502	23.236	17.997	24.276	24.948	19.835	22.212	20.670	14.626
10/16/09 8:00	22.269	26.959	24.553	23.258	17.997	24.326	24.960	19.896	22.256	20.675	14.631
10/16/09 12:00	22.286	26.990	24.546	23.246	17.992	24.364	25.049	19.933	22.277	20.783	14.694

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
10/16/09 16:00	22.229	27.001	24.500	23.229	17.982	24.328	25.108	19.938	22.202	20.886	14.713
10/16/09 20:00	22.265	26.985	24.539	23.251	17.982	24.331	25.066	19.935	22.233	20.846	14.642
10/17/09 0:00	22.365	26.985	24.618	23.279	17.985	24.387	25.033	19.977	22.327	20.769	14.647
10/17/09 4:00	22.432	27.004	24.664	23.296	17.990	24.454	25.061	20.019	22.374	20.773	14.664
10/17/09 8:00	22.514	27.018	24.729	23.332	17.997	24.516	25.080	20.068	22.442	20.776	14.675
10/17/09 12:00	22.538	27.053	24.722	23.313	18.001	24.558	25.195	20.112	22.454	20.893	14.729
10/17/09 16:00	22.442	27.067	24.633	23.274	17.999	24.513	25.296	20.108	22.357	21.041	14.774
10/17/09 20:00	22.377	27.046	24.587	23.265	17.994	24.444	25.292	20.061	22.294	21.027	14.720
10/18/09 0:00	22.332	27.027	24.546	23.248	17.990	24.402	25.299	20.021	22.270	21.006	14.722
10/18/09 4:00	22.277	27.015	24.507	23.234	17.982	24.347	25.289	19.998	22.209	20.996	14.713
10/18/09 8:00	22.198	27.006	24.447	23.215	17.971	24.278	25.284	19.956	22.143	21.013	14.717
10/18/09 12:00	22.092	26.994	24.353	23.172	17.954	24.202	25.317	19.896	22.075	21.055	14.715
10/18/09 16:00	21.949	26.971	24.257	23.155	17.933	24.079	25.282	19.814	21.944	21.020	14.675
10/18/09 20:00	21.923	26.931	24.249	23.155	17.917	24.026	25.176	19.733	21.934	20.926	14.642
10/19/09 0:00	21.872	26.910	24.223	23.143	17.900	23.991	25.122	19.670	21.913	20.888	14.645
10/19/09 4:00	21.844	26.891	24.221	23.145	17.884	23.950	25.049	19.630	21.883	20.830	14.621
10/19/09 8:00	21.858	26.880	24.249	23.160	17.872	23.958	24.976	19.609	21.913	20.764	14.593
10/19/09 12:00	21.851	26.887	24.240	23.145	17.862	23.962	24.984	19.593	21.925	20.785	14.647
10/19/09 16:00	21.779	26.889	24.192	23.133	17.846	23.931	24.988	19.563	21.862	20.801	14.657
10/19/09 20:00	21.817	26.877	24.245	23.150	17.836	23.931	24.901	19.547	21.890	20.715	14.584
10/20/09 0:00	21.810	26.877	24.237	23.138	17.825	23.946	24.897	19.521	21.913	20.698	14.603
10/20/09 4:00	21.774	26.875	24.209	23.131	17.813	23.931	24.894	19.514	21.887	20.691	14.610
10/20/09 8:00	21.786	26.870	24.237	23.143	17.803	23.927	24.850	19.521	21.894	20.653	14.584
10/20/09 12:00	21.791	26.877	24.237	23.133	17.796	23.943	24.857	19.512	21.920	20.686	14.614
10/20/09 16:00	21.755	26.880	24.223	23.131	17.787	23.922	24.859	19.512	21.880	20.710	14.624
10/20/09 20:00	21.815	26.870	24.235	23.155	17.785	23.948	24.795	19.523	21.949	20.651	14.567
10/21/09 0:00	21.863	26.877	24.276	23.164	17.780	23.996	24.791	19.558	21.993	20.618	14.577
10/21/09 4:00	21.868	26.889	24.298	23.157	17.778	24.019	24.824	19.577	22.003	20.628	14.600
10/21/09 8:00	21.882	26.896	24.300	23.172	17.775	24.031	24.817	19.600	22.005	20.597	14.586
10/21/09 12:00	21.918	26.903	24.331	23.167	17.775	24.062	24.833	19.621	22.042	20.599	14.600
10/21/09 16:00	21.901	26.905	24.324	23.176	17.770	24.053	24.840	19.644	22.017	20.602	14.591
10/21/09 20:00	21.903	26.903	24.329	23.174	17.773	24.057	24.845	19.647	22.024	20.604	14.591
10/22/09 0:00	21.865	26.905	24.327	23.136	17.766	24.034	24.901	19.619	21.984	20.670	14.584
10/22/09 4:00	21.803	26.898	24.293	23.128	17.756	23.991	24.908	19.575	21.941	20.693	14.565
10/22/09 8:00	21.827	26.880	24.281	23.155	17.749	23.986	24.847	19.582	21.963	20.621	14.539
10/22/09 12:00	21.825	26.884	24.293	23.140	17.749	23.991	24.864	19.568	21.963	20.651	14.565
10/22/09 16:00	21.791	26.877	24.269	23.138	17.740	23.962	24.857	19.544	21.923	20.668	14.567
10/22/09 20:00	21.789	26.870	24.269	23.128	17.735	23.953	24.850	19.493	21.934	20.651	14.570
10/23/09 0:00	21.767	26.866	24.257	23.126	17.726	23.941	24.840	19.484	21.918	20.635	14.565
10/23/09 4:00	21.743	26.861	24.249	23.126	17.721	23.924	24.835	19.468	21.899	20.623	14.563
10/23/09 8:00	21.789	26.856	24.252	23.150	17.716	23.941	24.781	19.479	21.939	20.557	14.528
10/23/09 12:00	21.832	26.868	24.286	23.155	17.719	23.981	24.786	19.502	21.993	20.550	14.546
10/23/09 16:00	21.820	26.877	24.302	23.145	17.712	23.988	24.824	19.514	21.970	20.625	14.577
10/23/09 20:00	21.860	26.875	24.302	23.157	17.712	24.010	24.805	19.519	22.014	20.602	14.546
10/24/09 0:00	21.848	26.884	24.312	23.145	17.709	24.012	24.833	19.519	21.998	20.602	14.560
10/24/09 4:00	21.841	26.887	24.319	23.133	17.707	24.012	24.861	19.502	22.003	20.616	14.579
10/24/09 8:00	21.820	26.882	24.302	23.138	17.702	23.988	24.857	19.493	21.965	20.606	14.567
10/24/09 12:00	21.777	26.889	24.295	23.102	17.695	23.962	24.913	19.461	21.939	20.700	14.631
10/24/09 16:00	21.681	26.877	24.225	23.091	17.686	23.898	24.911	19.426	21.855	20.729	14.598
10/24/09 20:00	21.736	26.849	24.228	23.119	17.681	23.898	24.824	19.402	21.904	20.642	14.535
10/25/09 0:00	21.774	26.845	24.245	23.131	17.681	23.929	24.791	19.414	21.941	20.588	14.518
10/25/09 4:00	21.808	26.852	24.312	23.146	17.681	23.962	24.784	19.444	21.977	20.541	14.532
10/25/09 8:00	21.908	26.859	24.404	23.181	17.690	24.024	24.744	19.509	22.057	20.489	14.544
10/25/09 12:00	21.970	26.896	24.418	23.167	17.693	24.086	24.824	19.544	22.132	20.576	14.605
10/25/09 16:00	22.028	26.910	24.486	23.205	17.705	24.138	24.817	19.640	22.153	20.588	14.567
10/25/09 20:00	22.167	26.919	24.587	23.246	17.721	24.231	24.805	19.714	22.261	20.555	14.593
10/26/09 0:00	22.224	26.950	24.601	23.239	17.733	24.309	24.901	19.756	22.313	20.642	14.621
10/26/09 4:00	22.267	26.964	24.628	23.253	17.745	24.345	24.946	19.810	22.327	20.675	14.612
10/26/09 8:00	22.313	26.978	24.654	23.263	17.759	24.373	24.988	19.861	22.331	20.700	14.617
10/26/09 12:00	22.265	26.999	24.592	23.227	17.766	24.361	25.120	19.863	22.315	20.858	14.696
10/26/09 16:00	22.179	26.997	24.519	23.201	17.766	24.290	25.183	19.838	22.205	20.956	14.685
10/26/09 20:00	22.129	26.971	24.481	23.188	17.768	24.233	25.169	19.791	22.160	20.919	14.645

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
10/27/09 0:00	22.073	26.957	24.423	23.172	17.766	24.181	25.176	19.740	22.125	20.893	14.647
10/27/09 4:00	21.980	26.938	24.351	23.146	17.759	24.110	25.183	19.682	22.043	20.907	14.647
10/27/09 8:00	21.930	26.915	24.331	23.143	17.754	24.043	25.132	19.635	21.986	20.865	14.612
10/27/09 12:00	21.822	26.903	24.228	23.091	17.740	23.972	25.179	19.544	21.918	20.928	14.626
10/27/09 16:00	21.681	26.873	24.127	23.062	17.723	23.853	25.148	19.440	21.794	20.886	14.593
10/27/09 20:00	21.693	26.835	24.165	23.079	17.716	23.815	25.012	19.344	21.817	20.736	14.542
10/28/09 0:00	21.693	26.817	24.165	23.076	17.707	23.810	24.953	19.314	21.843	20.649	14.542
10/28/09 4:00	21.669	26.814	24.163	23.062	17.700	23.801	24.934	19.272	21.817	20.628	14.558
10/28/09 8:00	21.683	26.807	24.192	23.079	17.693	23.803	24.873	19.274	21.824	20.590	14.535
10/28/09 12:00	21.698	26.805	24.204	23.079	17.688	23.827	24.868	19.246	21.869	20.590	14.558
10/28/09 16:00	21.698	26.810	24.211	23.081	17.679	23.822	24.845	19.258	21.862	20.618	14.551
10/28/09 20:00	21.743	26.812	24.259	23.102	17.679	23.855	24.805	19.298	21.911	20.581	14.523
10/29/09 0:00	21.753	26.821	24.257	23.091	17.676	23.882	24.833	19.312	21.932	20.623	14.563
10/29/09 4:00	21.674	26.821	24.180	23.045	17.667	23.848	24.897	19.251	21.859	20.689	14.558
10/29/09 8:00	21.674	26.812	24.206	23.067	17.660	23.822	24.835	19.281	21.836	20.649	14.495
10/29/09 12:00	21.638	26.803	24.158	23.038	17.653	23.803	24.861	19.191	21.826	20.670	14.565
10/29/09 16:00	21.523	26.793	24.093	22.992	17.636	23.734	24.875	19.156	21.728	20.700	14.605
10/29/09 20:00	21.490	26.761	24.062	22.980	17.620	23.687	24.835	19.009	21.704	20.635	14.497
10/30/09 0:00	21.499	26.735	24.095	22.992	17.608	23.673	24.758	18.981	21.716	20.557	14.427
10/30/09 4:00	21.490	26.726	24.100	23.004	17.596	23.665	24.711	18.979	21.730	20.498	14.324
10/30/09 8:00	21.535	26.723	24.143	23.031	17.589	23.680	24.657	18.953	21.763	20.400	14.345
10/30/09 12:00	21.602	26.742	24.204	23.067	17.582	23.734	24.633	19.039	21.843	20.355	14.335
10/30/09 16:00	21.691	26.763	24.281	23.095	17.587	23.813	24.626	19.102	21.916	20.346	14.347
10/30/09 20:00	21.789	26.786	24.355	23.126	17.587	23.898	24.629	19.195	22.003	20.390	14.359
10/31/09 0:00	21.839	26.812	24.387	23.141	17.594	23.960	24.673	19.279	22.033	20.395	14.366
10/31/09 4:00	21.939	26.835	24.457	23.172	17.599	24.034	24.692	19.358	22.111	20.395	14.385
10/31/09 8:00	22.076	26.861	24.558	23.208	17.613	24.138	24.708	19.468	22.212	20.470	14.415
10/31/09 12:00	22.136	26.901	24.575	23.201	17.627	24.209	24.826	19.526	22.254	20.590	14.457
10/31/09 16:00	22.095	26.924	24.517	23.208	17.632	24.198	24.944	19.551	22.193	20.710	14.495
10/31/09 20:00	22.114	26.919	24.524	23.177	17.639	24.190	24.955	19.558	22.193	20.689	14.445
11/1/09 0:00	22.114	26.917	24.510	23.174	17.643	24.186	24.995	19.554	22.186	20.668	14.443
11/1/09 4:00	22.073	26.915	24.464	23.186	17.646	24.157	25.042	19.544	22.136	20.684	14.460
11/1/09 8:00	22.073	26.905	24.471	23.169	17.648	24.138	25.035	19.549	22.122	20.653	14.443
11/1/09 12:00	22.071	26.903	24.445	23.177	17.651	24.129	25.080	19.526	22.118	20.719	14.490
11/1/09 16:00	22.050	26.896	24.430	23.177	17.653	24.095	25.075	19.528	22.090	20.743	14.481
11/1/09 20:00	22.112	26.884	24.486	23.134	17.660	24.119	25.024	19.528	22.146	20.658	14.420
11/2/09 0:00	22.196	26.891	24.539	23.148	17.669	24.169	25.009	19.570	22.207	20.607	14.448
11/2/09 4:00	22.265	26.910	24.608	23.174	17.683	24.231	25.012	19.635	22.254	20.590	14.462
11/2/09 8:00	22.408	26.929	24.707	23.210	17.700	24.333	25.080	19.714	22.381	20.632	14.499
11/2/09 12:00	22.497	26.969	24.755	23.239	17.719	24.423	25.129	19.791	22.449	20.729	14.530
11/2/09 16:00	22.511	26.990	24.741	23.244	17.733	24.445	25.212	19.819	22.418	20.771	14.539
11/2/09 20:00	22.550	26.997	24.763	23.229	17.747	24.466	25.242	19.842	22.442	20.780	14.523
11/3/09 0:00	22.559	27.001	24.755	23.239	17.761	24.468	25.299	19.856	22.437	20.823	14.535
11/3/09 4:00	22.516	27.006	24.698	23.263	17.768	24.435	25.376	19.849	22.390	20.872	14.567
11/3/09 8:00	22.490	26.994	24.676	23.256	17.775	24.397	25.395	19.838	22.360	20.865	14.563
11/3/09 12:00	22.396	26.999	24.577	23.256	17.778	24.326	25.475	19.793	22.266	20.977	14.596
11/3/09 16:00	22.234	26.980	24.462	23.210	17.768	24.198	25.491	19.719	22.108	21.013	14.546
11/3/09 20:00	22.246	26.936	24.488	23.179	17.771	24.152	25.376	19.672	22.120	20.909	14.492
11/4/09 0:00	22.291	26.908	24.536	23.155	17.773	24.160	25.294	19.661	22.176	20.794	14.476
11/4/09 4:00	22.344	26.908	24.572	23.167	17.778	24.198	25.256	19.679	22.226	20.738	14.495
11/4/09 8:00	22.423	26.917	24.635	23.193	17.787	24.259	25.235	19.721	22.284	20.717	14.516
11/4/09 12:00	22.497	26.941	24.666	23.215	17.799	24.319	25.275	19.770	22.355	20.780	14.560
11/4/09 16:00	22.463	26.964	24.642	23.244	17.806	24.321	25.350	19.782	22.310	20.900	14.589
11/4/09 20:00	22.471	26.959	24.640	23.225	17.811	24.319	25.353	19.775	22.310	20.881	14.551
11/5/09 0:00	22.478	26.959	24.637	23.217	17.818	24.321	25.362	19.775	22.317	20.855	14.542
11/5/09 4:00	22.435	26.959	24.594	23.234	17.818	24.293	25.400	19.758	22.270	20.872	14.567
11/5/09 8:00	22.389	26.950	24.558	23.230	17.815	24.247	25.404	19.726	22.221	20.872	14.567
11/5/09 12:00	22.282	26.945	24.449	23.203	17.808	24.179	25.480	19.651	22.144	20.989	14.600
11/5/09 16:00	22.124	26.926	24.339	23.182	17.792	24.043	25.465	19.577	21.981	20.987	14.556
11/5/09 20:00	22.083	26.887	24.341	23.165	17.782	23.972	25.369	19.488	21.965	20.905	14.528
11/6/09 0:00	22.007	26.861	24.312	23.148	17.771	23.908	25.322	19.405	21.902	20.870	14.532
11/6/09 4:00	21.930	26.833	24.257	23.122	17.754	23.846	25.275	19.302	21.852	20.841	14.528

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
11/6/09 8:00	21.892	26.807	24.230	23.100	17.740	23.806	25.186	19.221	21.822	20.764	14.490
11/6/09 12:00	21.851	26.791	24.213	23.091	17.724	23.768	25.158	19.123	21.803	20.757	14.521
11/6/09 16:00	21.748	26.772	24.143	23.047	17.705	23.699	25.132	19.039	21.716	20.736	14.499
11/6/09 20:00	21.748	26.740	24.124	23.014	17.693	23.682	25.031	18.969	21.742	20.616	14.450
11/7/09 0:00	21.767	26.728	24.122	23.005	17.681	23.696	24.955	18.965	21.772	20.510	14.429
11/7/09 4:00	21.801	26.721	24.148	23.002	17.674	23.718	24.901	18.979	21.794	20.433	14.429
11/7/09 8:00	21.861	26.728	24.242	23.052	17.669	23.768	24.859	19.018	21.869	20.388	14.441
11/7/09 12:00	21.920	26.754	24.274	23.048	17.667	23.827	24.885	19.063	21.930	20.435	14.488
11/7/09 16:00	21.882	26.768	24.242	23.071	17.660	23.825	24.927	19.088	21.887	20.529	14.511
11/7/09 20:00	21.916	26.770	24.276	23.050	17.658	23.844	24.899	19.097	21.918	20.489	14.464
11/8/09 0:00	21.889	26.770	24.259	23.057	17.651	23.839	24.930	19.095	21.892	20.487	14.481
11/8/09 4:00	21.885	26.765	24.247	23.050	17.646	23.827	24.920	19.084	21.883	20.461	14.471
11/8/09 8:00	21.892	26.763	24.240	23.038	17.641	23.827	24.901	19.088	21.878	20.437	14.460
11/8/09 12:00	21.880	26.768	24.250	23.055	17.636	23.825	24.934	19.079	21.880	20.496	14.504
11/8/09 16:00	21.901	26.765	24.250	23.045	17.634	23.820	24.897	19.086	21.883	20.501	14.478
11/8/09 20:00	22.043	26.763	24.346	23.079	17.643	23.910	24.819	19.188	22.021	20.407	14.483
11/9/09 0:00	22.162	26.784	24.478	23.108	17.655	24.008	24.875	19.298	22.115	20.398	14.509
11/9/09 4:00	22.246	26.817	24.531	23.127	17.665	24.093	24.892	19.398	22.174	20.435	14.528
11/9/09 8:00	22.318	26.845	24.572	23.141	17.676	24.160	24.941	19.475	22.226	20.487	14.535
11/9/09 12:00	22.344	26.877	24.546	23.167	17.686	24.202	25.052	19.505	22.247	20.607	14.589
11/9/09 16:00	22.320	26.896	24.534	23.179	17.707	24.179	25.106	19.537	22.188	20.689	14.584
11/9/09 20:00	22.361	26.894	24.553	23.160	17.731	24.193	25.118	19.544	22.226	20.679	14.551
11/10/09 0:00	22.377	26.889	24.531	23.151	17.757	24.198	25.129	19.565	22.228	20.649	14.539
11/10/09 4:00	22.404	26.896	24.536	23.151	17.775	24.209	25.155	19.584	22.238	20.665	14.549
11/10/09 8:00	22.425	26.901	24.553	23.155	17.799	24.221	25.155	19.623	22.233	20.651	14.549
11/10/09 12:00	22.442	26.915	24.587	23.191	17.818	24.238	25.242	19.607	22.273	20.757	14.617
11/10/09 16:00	22.389	26.922	24.565	23.210	17.832	24.198	25.282	19.614	22.202	20.825	14.626
11/10/09 20:00	22.411	26.903	24.543	23.170	17.848	24.188	25.245	19.610	22.209	20.771	14.558
11/11/09 0:00	22.409	26.903	24.529	23.172	17.865	24.186	25.266	19.596	22.214	20.747	14.560
11/11/09 4:00	22.387	26.901	24.527	23.175	17.874	24.169	25.277	19.589	22.186	20.743	14.563
11/11/09 8:00	22.394	26.896	24.517	23.167	17.886	24.162	25.273	19.579	22.186	20.724	14.558
11/11/09 12:00	22.342	26.901	24.512	23.201	17.893	24.131	25.350	19.528	22.153	20.834	14.643
11/11/09 16:00	22.224	26.894	24.425	23.177	17.891	24.041	25.360	19.479	22.036	20.865	14.610
11/11/09 20:00	22.184	26.866	24.399	23.160	17.893	23.986	25.315	19.393	22.014	20.825	14.584
11/12/09 0:00	22.112	26.842	24.331	23.139	17.886	23.936	25.292	19.305	21.960	20.808	14.584
11/12/09 4:00	22.019	26.824	24.262	23.093	17.879	23.856	25.292	19.177	21.876	20.820	14.582
11/12/09 8:00	21.925	26.793	24.206	23.062	17.867	23.770	25.230	19.060	21.794	20.773	14.553
11/12/09 12:00	21.803	26.765	24.054	22.995	17.851	23.675	25.226	18.886	21.718	20.769	14.539
11/12/09 16:00	21.645	26.723	23.982	22.933	17.827	23.549	25.167	18.727	21.577	20.712	14.511
11/12/09 20:00	21.653	26.679	24.004	22.923	17.816	23.516	24.998	18.639	21.615	20.548	14.455
11/13/09 0:00	21.593	26.655	24.009	22.933	17.797	23.485	24.958	18.558	21.587	20.522	14.483
11/13/09 4:00	21.519	26.637	23.982	22.914	17.778	23.440	24.911	18.518	21.545	20.491	14.492
11/13/09 8:00	21.511	26.618	23.975	22.899	17.766	23.418	24.807	18.462	21.545	20.407	14.450
11/13/09 12:00	21.502	26.613	23.982	22.907	17.752	23.418	24.786	18.460	21.566	20.398	14.474
11/13/09 16:00	21.519	26.611	23.994	22.895	17.745	23.435	24.685	18.416	21.596	20.308	14.415
11/13/09 20:00	21.621	26.616	24.062	22.959	17.740	23.499	24.629	18.406	21.688	20.212	14.431
11/14/09 0:00	21.686	26.639	24.110	22.976	17.740	23.578	24.624	18.609	21.765	20.189	14.441
11/14/09 4:00	21.758	26.665	24.172	22.969	17.742	23.644	24.643	18.672	21.822	20.200	14.471
11/14/09 8:00	21.842	26.693	24.233	23.005	17.752	23.718	24.633	18.821	21.902	20.189	14.469
11/14/09 12:00	21.887	26.723	24.266	23.031	17.757	23.784	24.697	18.918	21.949	20.252	14.502
11/14/09 16:00	21.880	26.740	24.276	23.038	17.759	23.794	24.753	18.967	21.906	20.339	14.511
11/14/09 20:00	21.978	26.747	24.356	23.041	17.768	23.846	24.730	19.014	21.989	20.299	14.492
11/15/09 0:00	22.012	26.765	24.368	23.055	17.778	23.889	24.779	19.084	22.026	20.325	14.504
11/15/09 4:00	22.031	26.779	24.377	23.055	17.787	23.903	24.812	19.158	22.021	20.329	14.497
11/15/09 8:00	22.055	26.796	24.387	23.084	17.797	23.927	24.857	19.181	22.019	20.381	14.528
11/15/09 12:00	22.102	26.805	24.401	23.103	17.806	23.962	24.901	19.158	22.092	20.409	14.560
11/15/09 16:00	22.098	26.814	24.397	23.093	17.813	23.955	24.930	19.226	22.040	20.456	14.539
11/15/09 20:00	22.172	26.814	24.416	23.086	17.827	23.986	24.904	19.265	22.097	20.412	14.523
11/16/09 0:00	22.184	26.828	24.445	23.103	17.837	24.012	24.967	19.298	22.106	20.470	14.544
11/16/09 4:00	22.167	26.835	24.435	23.112	17.844	24.000	25.021	19.277	22.090	20.520	14.556
11/16/09 8:00	22.167	26.828	24.411	23.100	17.851	23.984	25.017	19.295	22.066	20.501	14.530
11/16/09 12:00	22.124	26.828	24.409	23.120	17.853	23.955	25.068	19.251	22.033	20.553	14.563

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
11/16/09 16:00	22.102	26.819	24.377	23.103	17.853	23.924	25.059	19.249	22.007	20.555	14.544
11/16/09 20:00	22.114	26.812	24.363	23.088	17.860	23.922	25.042	19.232	22.007	20.538	14.528
11/17/09 0:00	22.122	26.817	24.360	23.091	17.863	23.932	25.054	19.221	22.028	20.538	14.544
11/17/09 4:00	22.093	26.812	24.358	23.093	17.865	23.910	25.064	19.223	21.993	20.550	14.485
11/17/09 8:00	22.088	26.807	24.348	23.088	17.867	23.903	25.064	19.193	22.000	20.555	14.481
11/17/09 12:00	22.095	26.812	24.360	23.096	17.867	23.908	25.085	19.177	22.007	20.597	14.497
11/17/09 16:00	22.040	26.807	24.339	23.100	17.860	23.865	25.101	19.158	21.937	20.649	14.532
11/17/09 20:00	22.052	26.796	24.319	23.074	17.858	23.853	25.059	19.114	21.951	20.590	14.483
11/18/09 0:00	22.033	26.791	24.312	23.069	17.853	23.841	25.059	19.077	21.942	20.571	14.471
11/18/09 4:00	22.014	26.784	24.298	23.062	17.846	23.827	25.052	19.056	21.930	20.548	14.429
11/18/09 8:00	21.997	26.777	24.283	23.057	17.839	23.808	25.035	19.035	21.897	20.529	14.427
11/18/09 12:00	21.976	26.779	24.276	23.069	17.830	23.801	25.057	18.997	21.904	20.576	14.455
11/18/09 16:00	21.913	26.772	24.259	23.055	17.820	23.753	25.066	18.949	21.838	20.621	14.460
11/18/09 20:00	21.928	26.754	24.235	23.027	17.811	23.742	25.000	18.911	21.857	20.560	14.422
11/19/09 0:00	21.961	26.751	24.240	23.019	17.806	23.763	24.960	18.928	21.883	20.510	14.382
11/19/09 4:00	21.959	26.751	24.245	23.022	17.799	23.765	24.967	18.914	21.890	20.496	14.335
11/19/09 8:00	22.012	26.756	24.264	23.017	17.797	23.801	24.927	18.951	21.932	20.437	14.385
11/19/09 12:00	22.040	26.775	24.295	23.046	17.794	23.834	24.965	18.974	21.970	20.482	14.417
11/19/09 16:00	22.000	26.779	24.303	23.058	17.787	23.815	24.995	18.990	21.913	20.546	14.429
11/19/09 20:00	22.086	26.782	24.310	23.043	17.792	23.860	24.927	19.039	21.996	20.459	14.387
11/20/09 0:00	22.129	26.796	24.336	23.058	17.794	23.903	24.958	19.079	22.031	20.470	14.396
11/20/09 4:00	22.129	26.807	24.351	23.067	17.794	23.915	24.995	19.091	22.031	20.491	14.403
11/20/09 8:00	22.165	26.812	24.368	23.067	17.797	23.929	25.000	19.137	22.050	20.487	14.399
11/20/09 12:00	22.167	26.826	24.401	23.086	17.797	23.943	25.054	19.123	22.047	20.567	14.443
11/20/09 16:00	22.119	26.824	24.389	23.105	17.792	23.903	25.099	19.109	21.984	20.644	14.467
11/20/09 20:00	22.095	26.807	24.353	23.082	17.790	23.879	25.087	19.058	21.972	20.621	14.429
11/21/09 0:00	22.059	26.791	24.317	23.070	17.785	23.846	25.089	19.002	21.942	20.600	14.427
11/21/09 4:00	22.014	26.777	24.295	23.053	17.778	23.803	25.085	18.963	21.897	20.585	14.420
11/21/09 8:00	22.002	26.763	24.274	23.036	17.773	23.780	25.059	18.914	21.883	20.557	14.403
11/21/09 12:00	21.942	26.761	24.266	23.027	17.764	23.742	25.096	18.853	21.848	20.623	14.455
11/21/09 16:00	21.849	26.742	24.213	22.979	17.750	23.658	25.073	18.762	21.737	20.602	14.406
11/21/09 20:00	21.856	26.714	24.180	22.960	17.743	23.647	24.993	18.725	21.770	20.527	14.363
11/22/09 0:00	21.880	26.705	24.172	22.957	17.735	23.654	24.953	18.709	21.796	20.487	14.352
11/22/09 4:00	21.868	26.700	24.182	22.960	17.728	23.661	24.951	18.700	21.803	20.470	14.361
11/22/09 8:00	21.906	26.698	24.185	22.948	17.728	23.677	24.901	18.718	21.829	20.388	14.340
11/22/09 12:00	21.894	26.709	24.206	22.974	17.724	23.687	24.941	18.725	21.838	20.430	14.382
11/22/09 16:00	21.861	26.704	24.194	22.971	17.714	23.658	24.939	18.700	21.782	20.445	14.382
11/22/09 20:00	21.861	26.695	24.189	22.957	17.710	23.654	24.922	18.672	21.808	20.433	14.361
11/23/09 0:00	21.870	26.691	24.187	22.948	17.707	23.658	24.899	18.665	21.810	20.395	14.347
11/23/09 4:00	21.846	26.683	24.175	22.948	17.702	23.644	24.899	18.655	21.789	20.391	14.345
11/23/09 8:00	21.861	26.684	24.180	22.940	17.700	23.654	24.883	18.648	21.805	20.362	14.340
11/23/09 12:00	21.861	26.691	24.187	22.955	17.698	23.661	24.904	18.637	21.819	20.400	14.373
11/23/09 16:00					17.691		24.897				
11/23/09 20:00					17.686		24.883				
11/24/09 0:00					17.686		24.868				
11/24/09 4:00					17.681		24.864				
11/24/09 8:00					17.684		24.824				
11/24/09 12:00					17.686		24.845				
11/24/09 16:00					17.684		24.847				
11/24/09 20:00					17.686		24.845				
11/25/09 0:00					17.688		24.880				
11/25/09 4:00					17.688		24.899				
11/25/09 8:00					17.695		24.887				
11/25/09 12:00					17.702		24.939				
11/25/09 16:00					17.702		24.955				
11/25/09 20:00					17.712		24.946				
11/26/09 0:00					17.712		24.963				
11/26/09 4:00					17.719		24.993				
11/26/09 8:00					17.724		25.002				
11/26/09 12:00					17.728		25.075				
11/26/09 16:00					17.724		25.137				
11/26/09 20:00					17.721		25.113				

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
11/27/09 0:00					17.714		25.108				
11/27/09 4:00					17.702		25.085				
11/27/09 8:00					17.693		25.040				
11/27/09 12:00					17.681		25.045				
11/27/09 16:00					17.667		25.019				
11/27/09 20:00					17.655		24.944				
11/28/09 0:00					17.644		24.883				
11/28/09 4:00					17.634		24.866				
11/28/09 8:00					17.627		24.817				
11/28/09 12:00					17.615		24.836				
11/28/09 16:00					17.604		24.817				
11/28/09 20:00					17.601		24.718				
11/29/09 0:00					17.606		24.687				
11/29/09 4:00					17.611		24.680				
11/29/09 8:00					17.618		24.687				
11/29/09 12:00					17.627		24.751				
11/29/09 16:00					17.634		24.821				
11/29/09 20:00					17.660		24.814				
11/30/09 0:00					17.681		24.871				
11/30/09 4:00					17.693		24.927				
11/30/09 8:00					17.705		24.930				
11/30/09 12:00					17.714		24.998				
11/30/09 16:00					17.714		25.031				
11/30/09 20:00					17.714		25.019				
12/1/09 0:00					17.707		25.002				
12/1/09 4:00					17.703		24.984				
12/1/09 8:00					17.693		24.932				
12/1/09 12:00	21.620		24.012		17.686	23.385	24.927		21.440	20.176	
12/1/09 16:00	21.575	26.405	23.969	22.761	17.677	23.326	24.724	18.356	21.360	20.119	14.117
12/1/09 20:00	21.678	26.398	23.952	22.837	17.681	23.364	24.592	18.274	21.426	20.009	14.065
12/2/09 0:00	21.740	26.416	23.993	22.859	17.686	23.440	24.573	18.305	21.477	20.016	14.079
12/2/09 4:00	21.783	26.444	24.043	22.864	17.686	23.499	24.606	18.316	21.529	20.053	14.108
12/2/09 8:00	21.850	26.463	24.075	22.902	17.695	23.549	24.592	18.307	21.567	20.042	14.108
12/2/09 12:00	21.833	26.479	24.116	22.874	17.703	23.566	24.684	18.360	21.586	20.129	14.161
12/2/09 16:00	21.824	26.477	24.104	22.873	17.705	23.542	24.679	18.356	21.588	20.126	14.154
12/2/09 20:00	21.900	26.484	24.113	22.914	17.712	23.580	24.639	18.325	21.597	20.086	14.124
12/3/09 0:00	21.958	26.498	24.142	22.931	17.721	23.625	24.656	18.337	21.642	20.103	14.140
12/3/09 4:00	22.006	26.517	24.173	22.950	17.733	23.673	24.677	18.358	21.670	20.124	14.157
12/3/09 8:00	22.037	26.533	24.198	22.953	17.745	23.699	24.714	18.381	21.694	20.154	14.166
12/3/09 12:00	22.087	26.557	24.246	22.962	17.757	23.739	24.764	18.409	21.736	20.185	14.211
12/3/09 16:00	22.097	26.561	24.258	22.967	17.766	23.742	24.799	18.430	21.743	20.211	14.213
12/3/09 20:00	22.154	26.568	24.265	22.991	17.778	23.772	24.797	18.435	21.759	20.208	14.204
12/4/09 0:00	22.168	26.580	24.279	22.984	17.790	23.794	24.846	18.595	21.766	20.251	14.218
12/4/09 4:00	22.156	26.585	24.289	22.965	17.797	23.784	24.898	18.616	21.766	20.293	14.236
12/4/09 8:00	22.130	26.578	24.272	22.948	17.804	23.751	24.926	18.619	21.757	20.312	14.239
12/4/09 12:00	22.068	26.573	24.272	22.898	17.804	23.715	24.999	18.563	21.734	20.368	14.307
12/4/09 16:00	21.974	26.542	24.214	22.864	17.801	23.628	24.999	18.523	21.595	20.356	14.286
12/4/09 20:00	21.905	26.510	24.157	22.831	17.794	23.559	24.975	18.481	21.532	20.333	14.244
12/5/09 0:00	21.850	26.479	24.099	22.819	17.790	23.497	24.933	18.442	21.499	20.284	14.206
12/5/09 4:00	21.778	26.456	24.063	22.788	17.780	23.435	24.912	18.416	21.440	20.267	14.218
12/5/09 8:00	21.776	26.433	24.027	22.802	17.773	23.409	24.834	18.370	21.449	20.197	14.180
12/5/09 12:00	21.747	26.430	24.031	22.780	17.766	23.402	24.839	18.374	21.475	20.199	14.241
12/5/09 16:00	21.692	26.414	24.000	22.771	17.757	23.352	24.797	18.358	21.431	20.173	14.194
12/5/09 20:00	21.783	26.412	23.993	22.831	17.759	23.395	24.693	18.286	21.463	20.082	14.133
12/6/09 0:00	21.848	26.428	24.027	22.869	17.764	23.454	24.660	18.279	21.515	20.070	14.150
12/6/09 4:00	21.891	26.454	24.070	22.874	17.766	23.511	24.679	18.302	21.555	20.103	14.173
12/6/09 8:00	21.905	26.472	24.104	22.871	17.771	23.537	24.712	18.321	21.564	20.136	14.187
12/6/09 12:00	21.903	26.491	24.128	22.859	17.778	23.556	24.768	18.358	21.602	20.187	14.236
12/6/09 16:00	21.843	26.472	24.092	22.843	17.771	23.495	24.773	18.358	21.564	20.185	14.220
12/6/09 20:00	21.912	26.470	24.096	22.883	17.776	23.518	24.719	18.318	21.579	20.131	14.180
12/7/09 0:00	22.013	26.489	24.125	22.941	17.787	23.585	24.684	18.302	21.649	20.103	14.204
12/7/09 4:00	22.108	26.519	24.183	22.974	17.801	23.666	24.689	18.358	21.729	20.117	14.232

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
12/7/09 8:00	22.142	26.540	24.217	22.981	17.813	23.706	24.733	18.372	21.741	20.164	14.239
12/7/09 12:00	22.168	26.568	24.272	22.967	17.823	23.751	24.820	18.409	21.769	20.239	14.279
12/7/09 16:00	22.106	26.571	24.267	22.929	17.832	23.711	24.891	18.458	21.762	20.305	14.304
12/7/09 20:00	22.068	26.559	24.241	22.907	17.832	23.678	24.921	18.467	21.736	20.321	14.307
12/8/09 0:00	22.006	26.542	24.210	22.874	17.830	23.620	24.949	18.472	21.673	20.338	14.316
12/8/09 4:00	21.898	26.517	24.157	22.821	17.820	23.533	24.973	18.467	21.569	20.347	14.295
12/8/09 8:00	21.676	26.468	24.065	22.711	17.799	23.366	25.011	18.423	21.320	20.377	14.246
12/8/09 12:00	21.479	26.398	23.952	22.618	17.773	23.205	24.938	18.349	21.158	20.356	14.208
12/8/09 16:00	21.281	26.313	23.786	22.551	17.740	23.015	24.804	18.237	21.038	20.225	14.159
12/8/09 20:00	21.257	26.250	23.733	22.582	17.719	22.948	24.642	18.174	21.076	20.077	14.124
12/9/09 0:00	21.357	26.236	23.728	22.687	17.710	22.989	24.453	18.125	21.142	19.922	14.065
12/9/09 4:00	21.534	26.276	23.846	22.797	17.712	23.129	24.343	18.156	21.327	19.856	14.100
12/9/09 8:00	21.685	26.341	23.923	22.867	17.717	23.286	24.371	18.184	21.532	19.882	14.140
12/9/09 12:00	21.771	26.405	24.014	22.883	17.724	23.411	24.493	18.211	21.588	19.976	14.171
12/9/09 16:00	21.814	26.442	24.065	22.895	17.733	23.457	24.510	18.228	21.616	20.032	14.166
12/9/09 20:00	21.845	26.472	24.108	22.886	17.740	23.497	24.562	18.249	21.614	20.098	14.199
12/10/09 0:00	21.867	26.489	24.128	22.895	17.750	23.523	24.597	18.263	21.604	20.131	14.197
12/10/09 4:00	21.898	26.498	24.145	22.902	17.757	23.542	24.620	18.277	21.609	20.147	14.206
12/10/09 8:00	21.941	26.507	24.152	22.929	17.766	23.568	24.620	18.291	21.626	20.143	14.206
12/10/09 12:00	21.987	26.526	24.186	22.934	17.776	23.604	24.677	18.325	21.673	20.178	14.234
12/10/09 16:00	21.979	26.533	24.193	22.926	17.783	23.602	24.717	18.339	21.668	20.213	14.246
12/10/09 20:00	21.991	26.535	24.198	22.924	17.792	23.604	24.731	18.351	21.661	20.232	14.246
12/11/09 0:00	22.018	26.542	24.205	22.936	17.802	23.618	24.745	18.356	21.661	20.230	14.239
12/11/09 4:00	22.037	26.549	24.217	22.934	17.811	23.630	24.773	18.372	21.673	20.260	14.260
12/11/09 8:00	22.044	26.552	24.217	22.938	17.816	23.630	24.790	18.379	21.668	20.265	14.260
12/11/09 12:00	22.032	26.557	24.224	22.919	17.823	23.628	24.848	18.400	21.673	20.305	14.288
12/11/09 16:00	21.991	26.540	24.198	22.907	17.823	23.578	24.848	18.405	21.675	20.305	14.293
12/11/09 20:00	21.965	26.531	24.178	22.890	17.820	23.556	24.860	18.407	21.668	20.309	14.300
12/12/09 0:00	21.927	26.519	24.152	22.871	17.820	23.526	24.855	18.400	21.644	20.307	14.297
12/12/09 4:00	21.867	26.503	24.128	22.843	17.818	23.476	24.877	18.402	21.586	20.321	14.316
12/12/09 8:00	21.795	26.482	24.087	22.814	17.811	23.419	24.872	18.388	21.525	20.314	14.307
12/12/09 12:00	21.728	26.461	24.051	22.780	17.802	23.362	24.863	18.365	21.475	20.300	14.304
12/12/09 16:00	21.630	26.426	23.988	22.749	17.790	23.274	24.825	18.325	21.412	20.262	14.262
12/12/09 20:00	21.640	26.402	23.962	22.768	17.780	23.259	24.743	18.265	21.412	20.185	14.227
12/13/09 0:00	21.652	26.395	23.957	22.783	17.778	23.264	24.682	18.242	21.414	20.140	14.208
12/13/09 4:00	21.683	26.402	23.964	22.807	17.773	23.290	24.639	18.228	21.419	20.107	14.201
12/13/09 8:00	21.707	26.416	23.988	22.821	17.771	23.316	24.623	18.235	21.431	20.110	14.199
12/13/09 12:00	21.709	26.433	24.017	22.809	17.769	23.350	24.667	18.253	21.447	20.154	14.248
12/13/09 16:00	21.575	26.416	23.998	22.725	17.754	23.271	24.729	18.284	21.442	20.225	14.274
12/13/09 20:00	21.508	26.388	23.947	22.704	17.743	23.205	24.696	18.263	21.344	20.190	14.258
12/14/09 0:00	21.451	26.356	23.896	22.692	17.729	23.138	24.646	18.239	21.299	20.138	14.225
12/14/09 4:00	21.601	26.353	23.906	22.811	17.733	23.205	24.470	18.165	21.393	19.988	14.173
12/14/09 8:00	21.814	26.405	24.065	22.926	17.747	23.364	24.465	18.265	21.536	19.943	14.227
12/14/09 12:00	21.977	26.477	24.284	22.986	17.764	23.545	24.512	18.274	21.710	20.011	14.272
12/14/09 16:00	22.066	26.531	24.260	23.012	17.780	23.640	24.566	18.302	21.766	20.093	14.288
12/14/09 20:00	22.142	26.575	24.296	23.025	17.802	23.718	24.632	18.344	21.809	20.168	14.309
12/15/09 0:00	22.276	26.613	24.337	23.087	17.827	23.806	24.656	18.423	21.914	20.190	14.330
12/15/09 4:00	22.319	26.648	24.393	23.077	17.849	23.863	24.830	18.426	21.924	20.293	14.365
12/15/09 8:00	22.403	26.669	24.429	23.104	17.875	23.906	24.848	18.640	21.976	20.328	14.342
12/15/09 12:00	22.425	26.692	24.472	23.087	17.896	23.939	24.957	18.807	21.992	20.434	14.405
12/15/09 16:00	22.377	26.697	24.458	23.065	17.908	23.894	25.039	18.886	21.966	20.500	14.391
12/15/09 20:00	22.338	26.690	24.441	23.044	17.919	23.851	25.069	18.872	21.936	20.525	14.382
12/16/09 0:00	22.298	26.676	24.410	23.022	17.926	23.801	25.100	18.858	21.903	20.542	14.375
12/16/09 4:00	22.204	26.655	24.364	22.970	17.929	23.727	25.140	18.751	21.806	20.572	14.354
12/16/09 8:00	22.154	26.627	24.301	22.958	17.931	23.651	25.114	18.721	21.762	20.530	14.344
12/16/09 12:00	22.106	26.606	24.272	22.931	17.931	23.616	25.112	18.609	21.727	20.530	14.342
12/16/09 16:00	22.032	26.580	24.217	22.907	17.929	23.537	25.077	18.542	21.689	20.495	14.326
12/16/09 20:00	22.011	26.561	24.183	22.903	17.924	23.504	25.039	18.514	21.654	20.460	14.323
12/17/09 0:00	21.927	26.545	24.147	22.867	17.917	23.457	25.032	18.498	21.581	20.462	14.307
12/17/09 4:00	21.891	26.528	24.111	22.857	17.912	23.421	24.990	18.463	21.562	20.429	14.300
12/17/09 8:00	21.865	26.515	24.087	22.862	17.903	23.388	24.933	18.435	21.555	20.387	14.295
12/17/09 12:00	21.843	26.505	24.077	22.852	17.896	23.383	24.917	18.419	21.550	20.382	14.297

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
12/17/09 16:00	21.829	26.496	24.055	22.867	17.889	23.359	24.865	18.393	21.534	20.335	14.295
12/17/09 20:00	21.848	26.496	24.055	22.879	17.886	23.385	24.827	18.381	21.532	20.312	14.304
12/18/09 0:00	21.838	26.503	24.068	22.871	17.882	23.390	24.823	18.388	21.534	20.321	14.304
12/18/09 4:00	21.829	26.503	24.068	22.867	17.877	23.388	24.818	18.393	21.534	20.323	14.304
12/18/09 8:00	21.841	26.505	24.072	22.884	17.875	23.390	24.792	18.381	21.536	20.305	14.307
12/18/09 12:00	21.810	26.510	24.080	22.855	17.870	23.388	24.823	18.398	21.534	20.338	14.300
12/18/09 16:00	21.793	26.500	24.055	22.867	17.865	23.364	24.787	18.384	21.529	20.312	14.300
12/18/09 20:00	21.826	26.503	24.060	22.888	17.865	23.383	24.747	18.365	21.529	20.281	14.311
12/19/09 0:00	21.867	26.512	24.080	22.910	17.867	23.416	24.729	18.363	21.539	20.269	14.326
12/19/09 4:00	21.888	26.526	24.104	22.917	17.870	23.447	24.740	18.377	21.557	20.288	14.330
12/19/09 8:00	21.963	26.543	24.133	22.958	17.875	23.497	24.717	18.372	21.623	20.274	14.351
12/19/09 12:00	21.984	26.564	24.174	22.953	17.882	23.537	24.764	18.409	21.647	20.328	14.358
12/19/09 16:00	21.939	26.571	24.166	22.922	17.882	23.514	24.818	18.451	21.644	20.387	14.347
12/19/09 20:00	21.927	26.568	24.174	22.912	17.882	23.499	24.841	18.456	21.637	20.403	14.344
12/20/09 0:00	21.874	26.559	24.149	22.886	17.877	23.457	24.863	18.463	21.612	20.422	14.330
12/20/09 4:00	21.826	26.542	24.121	22.867	17.872	23.416	24.858	18.449	21.581	20.417	14.323
12/20/09 8:00	21.783	26.526	24.080	22.857	17.867	23.371	24.837	18.423	21.536	20.392	14.314
12/20/09 12:00	21.824	26.521	24.075	22.891	17.868	23.385	24.783	18.384	21.539	20.345	14.328
12/20/09 16:00	21.867	26.524	24.080	22.924	17.870	23.411	24.731	18.374	21.546	20.307	14.344
12/20/09 20:00	21.903	26.542	24.118	22.934	17.870	23.457	24.750	18.391	21.555	20.333	14.356
12/21/09 0:00	21.913	26.554	24.137	22.931	17.872	23.476	24.759	18.409	21.564	20.356	14.361
12/21/09 4:00	21.874	26.559	24.135	22.905	17.870	23.454	24.808	18.440	21.574	20.401	14.349
12/21/09 8:00	21.838	26.552	24.116	22.893	17.870	23.423	24.808	18.440	21.572	20.406	14.342
12/21/09 12:00	21.781	26.542	24.101	22.860	17.863	23.385	24.848	18.451	21.574	20.434	14.330
12/21/09 16:00	21.678	26.524	24.070	22.809	17.853	23.316	24.870	18.442	21.511	20.450	14.307
12/21/09 20:00	21.666	26.496	24.017	22.833	17.846	23.267	24.773	18.386	21.468	20.354	14.309
12/22/09 0:00	21.635	26.482	23.998	22.821	17.839	23.245	24.740	18.374	21.454	20.331	14.304
12/22/09 4:00	21.645	26.472	23.983	22.838	17.832	23.245	24.689	18.349	21.438	20.281	14.309
12/22/09 8:00	21.673	26.477	23.990	22.862	17.830	23.269	24.653	18.337	21.445	20.251	14.319
12/22/09 12:00	21.695	26.489	24.024	22.857	17.825	23.305	24.667	18.346	21.461	20.274	14.326
12/22/09 16:00	21.685	26.496	24.024	22.864	17.823	23.305	24.663	18.363	21.468	20.272	14.323
12/22/09 20:00	21.709	26.503	24.034	22.874	17.825	23.321	24.656	18.349	21.478	20.262	14.333
12/23/09 0:00	21.680	26.510	24.051	22.845	17.823	23.326	24.691	18.372	21.487	20.309	14.323
12/23/09 4:00	21.599	26.496	24.022	22.809	17.813	23.269	24.717	18.388	21.478	20.328	14.304
12/23/09 8:00	21.587	26.479	24.000	22.819	17.809	23.238	24.670	18.349	21.466	20.281	14.382
12/23/09 12:00	21.546	26.470	23.988	22.795	17.799	23.217	24.679	18.346	21.454	20.288	14.281
12/23/09 16:00	21.515	26.456	23.959	22.800	17.790	23.174	24.642	18.330	21.431	20.248	14.276
12/23/09 20:00	21.561	26.454	23.959	22.829	17.790	23.200	24.578	18.286	21.424	20.194	14.293
12/24/09 0:00	21.580	26.461	23.976	22.838	17.787	23.233	24.566	18.286	21.426	20.194	14.307
12/24/09 4:00	21.637	26.479	24.010	22.869	17.790	23.283	24.552	18.284	21.461	20.192	14.321
12/24/09 8:00	21.709	26.498	24.046	22.903	17.795	23.338	24.543	18.298	21.525	20.185	14.335
12/24/09 12:00	21.700	26.517	24.075	22.884	17.792	23.364	24.602	18.339	21.534	20.251	14.328
12/24/09 16:00	21.618	26.512	24.060	22.831	17.785	23.309	24.672	18.367	21.515	20.302	14.309
12/24/09 20:00	21.546	26.491	24.029	22.800	17.780	23.248	24.674	18.358	21.478	20.316	14.290
12/25/09 0:00	21.422	26.461	23.966	22.747	17.766	23.150	24.703	18.353	21.337	20.316	14.265
12/25/09 4:00	21.338	26.423	23.913	22.716	17.752	23.065	24.649	18.300	21.292	20.274	14.239
12/25/09 8:00	21.286	26.393	23.868	22.699	17.738	23.015	24.592	18.265	21.287	20.225	14.232
12/25/09 12:00	21.243	26.374	23.843	22.683	17.724	22.989	24.566	18.242	21.273	20.194	14.218
12/25/09 16:00	21.231	26.349	23.812	22.706	17.712	22.955	24.472	18.209	21.259	20.115	14.218
12/25/09 20:00	21.271	26.351	23.827	22.733	17.705	22.991	24.418	18.183	21.262	20.070	14.225
12/26/09 0:00	21.314	26.360	23.843	22.769	17.700	23.029	24.369	18.174	21.271	20.044	14.234
12/26/09 4:00	21.384	26.384	23.882	22.805	17.703	23.096	24.343	18.174	21.294	20.030	14.246
12/26/09 8:00	21.482	26.414	23.933	22.860	17.707	23.181	24.327	18.179	21.346	20.018	14.267
12/26/09 12:00	21.582	26.454	24.005	22.893	17.717	23.274	24.348	18.200	21.459	20.056	14.283
12/26/09 16:00	21.673	26.489	24.055	22.934	17.729	23.350	24.378	18.221	21.572	20.084	14.300
12/26/09 20:00	21.726	26.524	24.116	22.936	17.740	23.421	24.465	18.270	21.600	20.154	14.309
12/27/09 0:00	21.745	26.545	24.147	22.931	17.750	23.447	24.526	18.316	21.609	20.213	14.311
12/27/09 4:00	21.762	26.552	24.157	22.931	17.759	23.450	24.569	18.339	21.607	20.241	14.309
12/27/09 8:00	21.860	26.564	24.174	22.991	17.776	23.499	24.540	18.335	21.694	20.208	14.333
12/27/09 12:00	21.984	26.594	24.241	23.027	17.797	23.599	24.611	18.351	21.790	20.246	14.361
12/27/09 16:00	22.013	26.620	24.287	23.030	17.813	23.635	24.672	18.409	21.783	20.312	14.363
12/27/09 20:00	22.063	26.638	24.313	23.046	17.832	23.670	24.712	18.435	21.811	20.356	14.377

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
12/28/09 0:00	22.094	26.657	24.337	23.046	17.849	23.694	24.778	18.656	21.821	20.410	14.382
12/28/09 4:00	22.092	26.664	24.345	23.030	17.863	23.687	24.839	18.730	21.804	20.469	14.377
12/28/09 8:00	22.133	26.666	24.342	23.056	17.879	23.697	24.839	18.844	21.825	20.455	14.391
12/28/09 12:00	22.202	26.676	24.373	23.075	17.896	23.742	24.867	18.898	21.870	20.481	14.408
12/28/09 16:00	22.233	26.687	24.393	23.082	17.912	23.758	24.907	18.984	21.882	20.514	14.415
12/28/09 20:00	22.286	26.701	24.417	23.094	17.931	23.799	24.945	19.014	21.917	20.551	14.426
12/29/09 0:00	22.307	26.718	24.439	23.099	17.948	23.811	24.999	19.131	21.917	20.594	14.429
12/29/09 4:00	22.283	26.725	24.441	23.077	17.959	23.792	25.065	19.103	21.877	20.647	14.419
12/29/09 8:00	22.240	26.718	24.422	23.051	17.969	23.749	25.105	19.052	21.842	20.676	14.408
12/29/09 12:00	22.185	26.708	24.410	23.010	17.974	23.706	25.166	18.912	21.849	20.718	14.389
12/29/09 16:00	22.044	26.683	24.337	22.946	17.966	23.590	25.192	18.791	21.734	20.734	14.356
12/29/09 20:00	21.968	26.641	24.258	22.924	17.964	23.499	25.149	18.709	21.677	20.678	14.337
12/30/09 0:00	21.884	26.603	24.200	22.886	17.957	23.423	25.126	18.572	21.647	20.652	14.321
12/30/09 4:00	21.779	26.571	24.137	22.840	17.945	23.338	25.093	18.528	21.569	20.622	14.297
12/30/09 8:00	21.728	26.538	24.077	22.845	17.938	23.274	25.004	18.472	21.550	20.544	14.288
12/30/09 12:00	21.697	26.522	24.051	22.833	17.929	23.255	24.959	18.444	21.567	20.502	14.281
12/30/09 16:00	21.649	26.505	24.015	22.829	17.919	23.219	24.900	18.416	21.534	20.462	14.269
12/30/09 20:00	21.769	26.501	24.029	22.910	17.922	23.288	24.783	18.351	21.508	20.356	14.302
12/31/09 0:00	21.846	26.522	24.072	22.946	17.926	23.369	24.759	18.360	21.560	20.359	14.321
12/31/09 4:00	21.946	26.554	24.135	22.986	17.933	23.464	24.766	18.402	21.644	20.373	14.344
12/31/09 8:00	22.023	26.587	24.193	23.020	17.945	23.537	24.799	18.658	21.705	20.406	14.358
12/31/09 12:00	22.161	26.629	24.280	23.068	17.959	23.656	24.874	18.784	21.868	20.448	14.393
12/31/09 16:00	22.185	26.664	24.325	23.070	17.974	23.694	24.914	18.935	21.872	20.528	14.398
12/31/09 20:00	22.216	26.685	24.357	23.077	17.985	23.718	24.950	18.998	21.830	20.577	14.403
1/1/10 0:00	22.243	26.701	24.381	23.075	17.997	23.739	24.990	19.007	21.837	20.622	14.410
1/1/10 4:00	22.248	26.708	24.390	23.075	18.004	23.737	25.025	19.068	21.788	20.650	14.410
1/1/10 8:00	22.267	26.713	24.393	23.077	18.016	23.742	25.044	19.045	21.830	20.666	14.415
1/1/10 12:00	22.348	26.720	24.426	23.104	18.035	23.789	25.053	19.084	21.870	20.666	14.436
1/1/10 16:00	22.338	26.730	24.439	23.101	18.047	23.787	25.100	19.159	21.825	20.706	14.436
1/1/10 20:00	22.381	26.739	24.446	23.116	18.061	23.811	25.107	19.177	21.828	20.713	14.447
1/2/10 0:00	22.408	26.751	24.472	23.113	18.075	23.834	25.157	19.229	21.806	20.751	14.450
1/2/10 4:00	22.374	26.760	24.472	23.094	18.084	23.818	25.220	19.194	21.776	20.803	14.443
1/2/10 8:00	22.327	26.751	24.453	23.078	18.089	23.768	25.246	19.163	21.727	20.812	14.429
1/2/10 12:00	22.279	26.741	24.431	23.049	18.091	23.718	25.274	19.103	21.731	20.831	14.415
1/2/10 16:00	22.176	26.718	24.371	23.018	18.089	23.628	25.274	19.059	21.741	20.824	14.391
1/2/10 20:00	22.178	26.692	24.328	23.025	18.089	23.597	25.215	19.017	21.722	20.756	14.396
1/3/10 0:00	22.183	26.680	24.318	23.025	18.091	23.599	25.182	18.947	21.717	20.732	14.401
1/3/10 4:00	22.183	26.680	24.318	23.025	18.091	23.604	25.173	18.938	21.720	20.730	14.401
1/3/10 8:00	22.202	26.676	24.308	23.046	18.098	23.611	25.133	18.977	21.717	20.692	14.412
1/3/10 12:00	22.236	26.685	24.333	23.051	18.103	23.651	25.140	18.991	21.713	20.709	14.422
1/3/10 16:00	22.238	26.692	24.337	23.061	18.105	23.651	25.138	19.033	21.717	20.713	14.424
1/3/10 20:00	22.288	26.701	24.354	23.082	18.113	23.689	25.126	19.075	21.703	20.709	14.440
1/4/10 0:00	22.300	26.716	24.383	23.080	18.120	23.713	25.156	19.087	21.689	20.741	14.443
1/4/10 4:00	22.305	26.727	24.395	23.085	18.124	23.716	25.175	19.131	21.677	20.758	14.445
1/4/10 8:00	22.307	26.730	24.393	23.085	18.129	23.716	25.185	19.149	21.663	20.774	14.445
1/4/10 12:00	22.303	26.734	24.405	23.073	18.136	23.718	25.220	19.117	21.663	20.803	14.443
1/4/10 16:00	22.243	26.730	24.378	23.053	18.136	23.668	25.243	19.103	21.687	20.819	14.424
1/4/10 20:00	22.231	26.716	24.357	23.056	18.138	23.642	25.215	19.087	21.687	20.786	14.424
1/5/10 0:00	22.214	26.708	24.345	23.046	18.141	23.630	25.211	19.038	21.689	20.786	14.422
1/5/10 4:00	22.202	26.701	24.337	23.041	18.138	23.618	25.204	18.991	21.689	20.781	14.422
1/5/10 8:00	22.202	26.697	24.323	23.049	18.141	23.618	25.182	19.010	21.680	20.763	14.424
1/5/10 12:00	22.169	26.701	24.333	23.018	18.138	23.606	25.215	18.938	21.689	20.800	14.415
1/5/10 16:00	22.075	26.687	24.294	22.984	18.131	23.535	25.232	18.872	21.720	20.810	14.391
1/5/10 20:00	22.020	26.664	24.251	22.967	18.124	23.478	25.194	18.805	21.731	20.772	14.382
1/6/10 0:00	21.965	26.643	24.212	22.943	18.115	23.440	25.173	18.747	21.745	20.751	14.370
1/6/10 4:00	21.891	26.622	24.176	22.915	18.101	23.383	25.147	18.642	21.764	20.730	14.354
1/6/10 8:00	21.834	26.599	24.121	22.905	18.089	23.326	25.088	18.565	21.774	20.676	14.342
1/6/10 12:00	21.850	26.585	24.116	22.919	18.082	23.336	25.025	18.544	21.795	20.629	14.349
1/6/10 16:00	21.872	26.578	24.101	22.963	18.080	23.343	24.940	18.607	21.795	20.554	14.358
1/6/10 20:00	21.989	26.587	24.140	23.018	18.082	23.438	24.874	18.672	21.783	20.518	14.391
1/7/10 0:00	22.035	26.622	24.207	23.025	18.087	23.516	24.917	18.786	21.760	20.582	14.403
1/7/10 4:00	22.032	26.643	24.224	23.023	18.084	23.530	24.957	18.826	21.722	20.626	14.403

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
1/7/10 8:00	22.087	26.655	24.246	23.059	18.089	23.559	24.933	18.914	21.701	20.605	14.415
1/7/10 12:00	22.173	26.676	24.304	23.078	18.101	23.635	24.959	18.970	21.684	20.638	14.436
1/7/10 16:00	22.181	26.697	24.323	23.087	18.105	23.647	24.990	19.077	21.689	20.669	14.436
1/7/10 20:00	22.236	26.711	24.349	23.104	18.115	23.687	25.006	19.124	21.656	20.685	14.450
1/8/10 0:00	22.272	26.727	24.383	23.106	18.124	23.723	25.051	19.154	21.621	20.727	14.461
1/8/10 4:00	22.281	26.739	24.407	23.104	18.131	23.735	25.091	19.187	21.630	20.760	14.459
1/8/10 8:00	22.305	26.746	24.412	23.116	18.143	23.739	25.109	19.231	21.614	20.767	14.464
1/8/10 12:00	22.312	26.758	24.431	23.104	18.153	23.754	25.159	19.212	21.623	20.810	14.464
1/8/10 16:00	22.245	26.755	24.412	23.085	18.153	23.697	25.196	19.201	21.656	20.835	14.445
1/8/10 20:00	22.252	26.746	24.393	23.082	18.153	23.685	25.189	19.177	21.630	20.819	14.447
1/9/10 0:00	22.264	26.744	24.386	23.092	18.157	23.685	25.175	19.194	21.614	20.800	14.454
1/9/10 4:00	22.250	26.744	24.400	23.082	18.162	23.687	25.201	19.154	21.619	20.824	14.452
1/9/10 8:00	22.276	26.744	24.388	23.106	18.169	23.694	25.175	19.203	21.609	20.800	14.461
1/9/10 12:00	22.312	26.748	24.419	23.104	18.176	23.725	25.194	19.205	21.626	20.817	14.471
1/9/10 16:00	22.272	26.758	24.405	23.094	18.176	23.694	25.227	19.226	21.673	20.845	14.459
1/9/10 20:00	22.240	26.748	24.395	23.082	18.178	23.670	25.229	19.184	21.647	20.840	14.454
1/10/10 0:00	22.202	26.744	24.378	23.063	18.181	23.642	25.248	19.126	21.628	20.859	14.445
1/10/10 4:00	22.133	26.732	24.352	23.035	18.176	23.592	25.262	19.061	21.628	20.868	14.429
1/10/10 8:00	22.037	26.713	24.299	22.996	18.169	23.516	25.265	18.963	21.642	20.868	14.405
1/10/10 12:00	21.977	26.685	24.258	22.970	18.157	23.461	25.243	18.858	21.696	20.838	14.396
1/10/10 16:00	21.894	26.655	24.202	22.944	18.145	23.381	25.189	18.786	21.776	20.788	14.377
1/10/10 20:00	21.908	26.631	24.171	22.965	18.136	23.378	25.102	18.733	21.792	20.711	14.389
1/11/10 0:00	21.898	26.624	24.159	22.970	18.131	23.388	25.065	18.714	21.790	20.690	14.389
1/11/10 4:00	21.908	26.624	24.159	22.984	18.124	23.400	25.027	18.723	21.797	20.664	14.398
1/11/10 8:00	21.977	26.631	24.176	23.027	18.124	23.447	24.961	18.798	21.799	20.617	14.419
1/11/10 12:00	22.078	26.657	24.231	23.068	18.129	23.535	24.950	18.893	21.818	20.617	14.443
1/11/10 16:00	22.090	26.683	24.275	23.073	18.131	23.566	24.990	18.982	21.844	20.669	14.445
1/11/10 20:00	22.140	26.699	24.306	23.082	18.136	23.616	25.008	19.028	21.818	20.695	14.457
1/12/10 0:00	22.166	26.718	24.335	23.090	18.143	23.647	25.044	19.094	21.785	20.725	14.464
1/12/10 4:00	22.142	26.732	24.342	23.073	18.145	23.644	25.109	19.100	21.745	20.786	14.457
1/12/10 8:00	22.121	26.732	24.340	23.068	18.148	23.616	25.121	19.103	21.750	20.788	14.447
1/12/10 12:00	22.066	26.727	24.337	23.030	18.143	23.585	25.173	18.998	21.776	20.835	14.433
1/12/10 16:00	21.920	26.706	24.270	22.967	18.134	23.469	25.192	18.879	21.825	20.852	14.393
1/12/10 20:00	21.858	26.669	24.205	22.946	18.122	23.393	25.142	18.784	21.823	20.795	14.382
1/13/10 0:00	21.793	26.638	24.157	22.924	18.113	23.340	25.100	18.709	21.828	20.749	14.372
1/13/10 4:00	21.721	26.610	24.121	22.896	18.098	23.290	25.074	18.598	21.839	20.725	14.356
1/13/10 8:00	21.673	26.587	24.072	22.893	18.087	23.238	25.008	18.542	21.832	20.666	14.349
1/13/10 12:00	21.633	26.573	24.056	22.870	18.072	23.224	24.987	18.521	21.738	20.659	14.344
1/13/10 16:00	21.527	26.552	24.005	22.838	18.054	23.141	24.947	18.495	21.593	20.655	14.321
1/13/10 20:00	21.544	26.531	23.978	22.879	18.042	23.136	24.837	18.426	21.527	20.540	14.330
1/14/10 0:00	21.542	26.526	23.978	22.872	18.030	23.157	24.804	18.426	21.492	20.518	14.330
1/14/10 4:00	21.575	26.531	23.993	22.903	18.023	23.184	24.752	18.405	21.478	20.474	14.339
1/14/10 8:00	21.647	26.540	24.019	22.944	18.023	23.248	24.712	18.393	21.464	20.448	14.356
1/14/10 12:00	21.740	26.568	24.089	22.977	18.023	23.343	24.736	18.547	21.461	20.462	14.379
1/14/10 16:00	21.764	26.594	24.121	22.987	18.023	23.376	24.752	18.670	21.513	20.504	14.384
1/14/10 20:00	21.836	26.617	24.166	23.020	18.028	23.435	24.778	18.770	21.562	20.509	14.403
1/15/10 0:00	21.886	26.641	24.205	23.035	18.035	23.485	24.790	18.851	21.609	20.551	14.415
1/15/10 4:00	21.920	26.662	24.236	23.039	18.037	23.518	24.830	18.898	21.652	20.594	14.422
1/15/10 8:00	21.927	26.671	24.246	23.047	18.040	23.528	24.856	18.949	21.673	20.615	14.422
1/15/10 12:00	21.965	26.687	24.287	23.042	18.047	23.571	24.933	18.968	21.706	20.664	14.431
1/15/10 16:00	21.910	26.694	24.284	23.013	18.047	23.526	24.978	18.970	21.713	20.706	14.410
1/15/10 20:00	21.882	26.683	24.253	23.006	18.049	23.490	24.971	18.935	21.698	20.699	14.405
1/16/10 0:00	21.882	26.673	24.229	23.006	18.051	23.473	24.957	18.907	21.687	20.678	14.405
1/16/10 4:00	21.829	26.664	24.210	22.982	18.047	23.440	24.980	18.882	21.673	20.695	14.393
1/16/10 8:00	21.795	26.650	24.181	22.972	18.042	23.397	24.959	18.831	21.644	20.669	14.386
1/16/10 12:00	21.779	26.641	24.183	22.948	18.037	23.400	24.978	18.756	21.640	20.685	14.384
1/16/10 16:00	21.661	26.624	24.145	22.893	18.025	23.314	25.004	18.651	21.605	20.704	14.356
1/16/10 20:00	21.645	26.599	24.101	22.905	18.021	23.274	24.931	18.584	21.567	20.633	14.356
1/17/10 0:00	21.592	26.582	24.075	22.889	18.009	23.236	24.912	18.542	21.536	20.615	14.344
1/17/10 4:00	21.566	26.568	24.051	22.879	17.999	23.219	24.879	18.512	21.508	20.587	14.342
1/17/10 8:00	21.520	26.554	24.027	22.870	17.990	23.193	24.851	18.491	21.487	20.565	14.335
1/17/10 12:00	21.532	26.547	24.029	22.879	17.985	23.195	24.816	18.467	21.473	20.535	14.339

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
1/17/10 16:00	21.499	26.543	24.024	22.876	17.974	23.174	24.778	18.460	21.459	20.516	14.330
1/17/10 20:00	21.568	26.543	24.022	22.922	17.974	23.214	24.717	18.423	21.459	20.460	14.351
1/18/10 0:00	21.616	26.559	24.056	22.939	17.974	23.276	24.719	18.474	21.482	20.471	14.363
1/18/10 4:00	21.604	26.571	24.077	22.927	17.974	23.288	24.745	18.521	21.501	20.504	14.361
1/18/10 8:00	21.623	26.578	24.082	22.937	17.969	23.295	24.747	18.563	21.513	20.507	14.363
1/18/10 12:00	21.618	26.585	24.099	22.927	17.969	23.307	24.773	18.570	21.527	20.535	14.361
1/18/10 16:00	21.582	26.582	24.087	22.910	17.964	23.279	24.783	18.542	21.522	20.542	14.351
1/18/10 20:00	21.599	26.580	24.084	22.924	17.962	23.288	24.762	18.544	21.520	20.525	14.356
1/19/10 0:00	21.611	26.582	24.092	22.929	17.962	23.300	24.766	18.565	21.527	20.528	14.361
1/19/10 4:00	21.563	26.582	24.089	22.901	17.957	23.276	24.797	18.533	21.525	20.561	14.349
1/19/10 8:00	21.530	26.573	24.070	22.889	17.950	23.245	24.792	18.526	21.511	20.554	14.342
1/19/10 12:00	21.520	26.566	24.065	22.874	17.945	23.236	24.799	18.509	21.506	20.554	14.337
1/19/10 16:00	21.403	26.550	24.019	22.836	17.933	23.153	24.804	18.507	21.468	20.558	14.311
1/19/10 20:00	21.362	26.526	23.988	22.822	17.924	23.115	24.776	18.470	21.440	20.525	14.304
1/20/10 0:00	21.279	26.510	23.952	22.788	17.910	23.053	24.769	18.465	21.405	20.518	14.285
1/20/10 4:00	21.212	26.477	23.894	22.781	17.893	22.982	24.696	18.423	21.358	20.453	14.274
1/20/10 8:00	21.257	26.461	23.884	22.817	17.886	23.001	24.604	18.365	21.313	20.368	14.285
1/20/10 12:00	21.314	26.470	23.916	22.848	17.882	23.062	24.566	18.358	21.334	20.349	14.297
1/20/10 16:00	21.312	26.484	23.940	22.838	17.877	23.079	24.566	18.374	21.363	20.368	14.295
1/20/10 20:00	21.370	26.491	23.959	22.867	17.877	23.129	24.545	18.365	21.400	20.352	14.309
1/21/10 0:00	21.367	26.503	23.974	22.858	17.877	23.138	24.569	18.388	21.419	20.373	14.302
1/21/10 4:00	21.401	26.508	23.990	22.870	17.875	23.157	24.555	18.370	21.431	20.361	14.311
1/21/10 8:00	21.427	26.522	24.017	22.889	17.875	23.198	24.564	18.386	21.442	20.382	14.316
1/21/10 12:00	21.477	26.538	24.053	22.915	17.879	23.238	24.583	18.395	21.456	20.401	14.323
1/21/10 16:00	21.458	26.543	24.051	22.891	17.877	23.233	24.604	18.421	21.468	20.420	14.269
1/21/10 20:00	21.530	26.554	24.077	22.925	17.884	23.286	24.599	18.414	21.478	20.422	14.356
1/22/10 0:00	21.570	26.573	24.113	22.941	17.889	23.328	24.632	18.533	21.492	20.455	14.368
1/22/10 4:00	21.520	26.582	24.123	22.903	17.889	23.309	24.707	18.528	21.489	20.523	14.433
1/22/10 8:00	21.499	26.573	24.099	22.896	17.889	23.279	24.707	18.526	21.482	20.509	14.445
1/22/10 12:00	21.437	26.568	24.092	22.889	17.882	23.238	24.759	18.516	21.478	20.554	14.454
1/22/10 16:00	21.305	26.543	24.027	22.817	17.870	23.124	24.783	18.498	21.468	20.561	14.572
1/22/10 20:00	21.250	26.505	23.971	22.800	17.858	23.131	24.729	18.446	21.447	20.500	14.536
1/23/10 0:00	21.212	26.484	23.947	22.805	17.851	23.281	24.684	18.421	21.428	20.455	14.553
1/23/10 4:00	21.106	26.459	23.945	22.743	17.832	23.245	24.693	18.409	21.407	20.460	14.635
1/23/10 8:00	21.078	26.430	23.923	22.738	17.820	23.091	24.602	18.365	21.384	20.378	14.654
1/23/10 12:00	21.102	26.423	23.921	22.769	17.813	22.970	24.555	18.335	21.377	20.326	14.743
1/23/10 16:00	21.140	26.423	23.906	22.791	17.806	22.939	24.487	18.300	21.370	20.267	14.853
1/23/10 20:00	21.243	26.435	23.911	22.848	17.809	23.039	24.432	18.272	21.365	20.220	14.607
1/24/10 0:00	21.288	26.463	23.937	22.870	17.806	23.100	24.447	18.300	21.370	20.244	14.461
1/24/10 4:00	21.324	26.480	23.969	22.874	17.806	23.138	24.468	18.318	21.374	20.270	14.349
1/24/10 8:00	21.403	26.501	24.003	22.905	17.809	23.195	24.472	18.321	21.379	20.277	14.161
1/24/10 12:00	21.413	26.522	24.043	22.893	17.809	23.229	24.541	18.360	21.393	20.340	14.318
1/24/10 16:00	21.396	26.529	24.039	22.886	17.811	23.214	24.564	18.384	21.393	20.354	14.304
1/24/10 20:00	21.439	26.533	24.046	22.905	17.816	23.245	24.566	18.379	21.395	20.352	14.175
1/25/10 0:00	21.432	26.536	24.053	22.896	17.811	23.245	24.599	18.398	21.400	20.385	14.133
1/25/10 4:00	21.446	26.540	24.051	22.898	17.813	23.248	24.618	18.405	21.400	20.399	14.110
1/25/10 8:00	21.520	26.543	24.058	22.946	17.816	23.281	24.581	18.374	21.403	20.352	13.999
1/25/10 12:00	21.628	26.568	24.113	22.989	17.827	23.376	24.585	18.398	21.504	20.373	14.032
1/25/10 16:00	21.666	26.589	24.147	23.001	17.835	23.416	24.632	18.640	21.496	20.424	14.098
1/25/10 20:00	21.762	26.608	24.181	23.037	17.849	23.483	24.693	18.758	21.588	20.420	13.929
1/26/10 0:00	21.846	26.634	24.231	23.059	17.865	23.554	24.731	18.833	21.551	20.453	13.854
1/26/10 4:00	21.941	26.662	24.280	23.097	17.877	23.623	24.748	18.961	21.647	20.476	13.779
1/26/10 8:00	22.001	26.690	24.330	23.102	17.896	23.678	24.813	19.054	21.680	20.554	13.837
1/26/10 12:00	22.083	26.713	24.388	23.111	17.915	23.739	24.888	19.119	21.701	20.622	14.020
1/26/10 16:00	22.020	26.732	24.393	23.073	17.924	23.697	25.008	19.119	21.691	20.720	14.222
1/26/10 20:00	22.042	26.723	24.366	23.087	17.938	23.673	25.004	19.142	21.656	20.699	13.976
1/27/10 0:00	22.006	26.716	24.349	23.063	17.948	23.642	25.055	19.077	21.630	20.730	14.006
1/27/10 4:00	21.975	26.706	24.330	23.042	17.952	23.609	25.088	19.061	21.588	20.746	14.060
1/27/10 8:00	21.972	26.690	24.296	23.051	17.959	23.576	25.074	19.077	21.553	20.713	14.100
1/27/10 12:00	22.025	26.687	24.308	23.068	17.971	23.614	25.063	19.082	21.555	20.697	14.267
1/27/10 16:00	22.092	26.692	24.316	23.102	17.985	23.647	25.041	19.173	21.595	20.676	14.253
1/27/10 20:00	22.224	26.704	24.364	23.145	18.007	23.742	25.084	19.233	21.698	20.650	13.924

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
1/28/10 0:00	22.322	26.732	24.422	23.166	18.025	23.830	25.105	19.322	21.755	20.687	14.299
1/28/10 4:00	22.382	26.758	24.477	23.178	18.047	23.880	25.154	19.394	21.760	20.749	14.316
1/28/10 8:00	22.439	26.776	24.504	23.190	18.068	23.913	25.189	19.471	21.889	20.781	14.332
1/28/10 12:00	22.453	26.802	24.561	23.159	18.084	23.932	25.316	19.480	21.879	20.892	14.330
1/28/10 16:00	22.365	26.804	24.520	23.149	18.091	23.849	25.371	19.468	21.809	20.927	14.306
1/28/10 20:00	22.358	26.783	24.508	23.128	18.103	23.827	25.394	19.419	21.738	20.939	14.306
1/29/10 0:00	22.360	26.772	24.484	23.133	18.115	23.806	25.392	19.401	21.738	20.925	14.309
1/29/10 4:00	22.288	26.762	24.460	23.097	18.120	23.751	25.446	19.349	21.684	20.967	14.290
1/29/10 8:00	22.228	26.739	24.410	23.087	18.124	23.678	25.420	19.298	21.654	20.941	14.274
1/29/10 12:00	22.233	26.725	24.390	23.085	18.129	23.671	25.410	19.273	21.644	20.920	14.276
1/29/10 16:00	22.118	26.709	24.340	23.039	18.124	23.578	25.422	19.182	21.640	20.932	14.243
1/29/10 20:00	22.090	26.674	24.284	23.032	18.127	23.540	25.363	19.112	21.621	20.866	14.238
1/30/10 0:00	22.068	26.655	24.258	23.027	18.122	23.523	25.331	19.047	21.588	20.819	14.234
1/30/10 4:00	22.059	26.645	24.239	23.018	18.122	23.514	25.309	18.996	21.576	20.803	14.229
1/30/10 8:00	22.059	26.634	24.227	23.027	18.120	23.509	25.262	18.972	21.565	20.781	14.231
1/30/10 12:00	22.071	26.641	24.248	23.015	18.122	23.528	25.279	18.968	21.609	20.824	14.229
1/30/10 16:00	21.996	26.631	24.219	22.987	18.115	23.473	25.286	18.898	21.644	20.845	14.210
1/30/10 20:00	22.016	26.613	24.188	22.999	18.115	23.466	25.225	18.863	21.623	20.774	14.213
1/31/10 0:00	22.042	26.606	24.188	23.018	18.117	23.490	25.189	18.879	21.630	20.744	14.224
1/31/10 4:00	22.047	26.610	24.200	23.015	18.113	23.504	25.187	18.891	21.621	20.744	14.224
1/31/10 8:00	22.064	26.610	24.207	23.025	18.117	23.521	25.175	18.910	21.614	20.739	14.229
1/31/10 12:00	22.090	26.624	24.243	23.020	18.117	23.545	25.201	18.914	21.647	20.772	14.234
1/31/10 16:00	22.023	26.622	24.219	22.992	18.113	23.492	25.227	18.884	21.661	20.800	14.217
1/31/10 20:00	21.987	26.603	24.190	22.970	18.110	23.459	25.213	18.803	21.633	20.789	14.208
2/1/10 0:00	21.963	26.589	24.171	22.956	18.105	23.438	25.206	18.749	21.647	20.779	14.199
2/1/10 4:00	21.913	26.578	24.149	22.934	18.098	23.400	25.215	18.698	21.668	20.781	14.187
2/1/10 8:00	21.874	26.559	24.116	22.915	18.094	23.355	25.178	18.609	21.677	20.749	14.180
2/1/10 12:00	21.843	26.543	24.099	22.903	18.084	23.333	25.152	18.556	21.696	20.727	14.168
2/1/10 16:00	21.795	26.524	24.058	22.893	18.075	23.293	25.119	18.514	21.677	20.699	14.159
2/1/10 20:00	21.841	26.515	24.065	22.920	18.070	23.317	25.051	18.488	21.642	20.641	14.168
2/2/10 0:00	21.872	26.519	24.077	22.934	18.068	23.350	25.025	18.523	21.630	20.622	14.175
2/2/10 4:00	21.910	26.526	24.094	22.960	18.070	23.383	24.997	18.586	21.628	20.603	14.187
2/2/10 8:00	21.972	26.538	24.123	22.975	18.072	23.440	24.992	18.644	21.621	20.610	14.203
2/2/10 12:00	22.001	26.559	24.171	22.972	18.072	23.481	25.044	18.684	21.637	20.662	14.210
2/2/10 16:00	21.956	26.566	24.174	22.953	18.072	23.450	25.084	18.684	21.663	20.697	14.196
2/2/10 20:00	21.987	26.559	24.162	22.972	18.075	23.459	25.053	18.684	21.644	20.662	14.206
2/3/10 0:00	22.018	26.564	24.176	22.980	18.077	23.483	25.055	18.698	21.642	20.666	14.213
2/3/10 4:00	21.994	26.566	24.176	22.958	18.077	23.466	25.091	18.686	21.633	20.699	14.206
2/3/10 8:00	22.004	26.564	24.178	22.963	18.075	23.464	25.086	18.665	21.644	20.695	14.208
2/3/10 12:00	21.982	26.566	24.178	22.948	18.075	23.450	25.114	18.668	21.666	20.711	14.201
2/3/10 16:00	21.953	26.557	24.169	22.927	18.075	23.424	25.124	18.619	21.673	20.723	14.194
2/3/10 20:00	21.968	26.547	24.147	22.939	18.075	23.419	25.086	18.593	21.654	20.680	14.196
2/4/10 0:00	21.970	26.543	24.154	22.932	18.072	23.428	25.095	18.560	21.642	20.688	14.201
2/4/10 4:00	21.982	26.543	24.147	22.944	18.072	23.435	25.086	18.598	21.628	20.673	14.203
2/4/10 8:00	21.939	26.538	24.147	22.927	18.068	23.407	25.107	18.547	21.626	20.695	14.191
2/4/10 12:00	21.889	26.529	24.128	22.937	18.063	23.374	25.128	18.523	21.621	20.716	14.177
2/4/10 16:00	21.784	26.508	24.094	22.903	18.051	23.393	25.140	18.507	21.621	20.720	14.152
2/4/10 20:00	21.762	26.482	24.162	22.870	18.039	23.424	25.084	18.449	21.607	20.662	14.208
2/5/10 0:00	21.731	26.466	24.166	22.855	18.030	23.400	25.051	18.425	21.597	20.631	14.248
2/5/10 4:00	21.690	26.452	24.137	22.841	18.018	23.345	25.034	18.419	21.588	20.612	14.285
2/5/10 8:00	21.676	26.435	24.094	22.817	18.009	23.276	24.980	18.388	21.579	20.565	14.297
2/5/10 12:00	21.707	26.430	24.046	22.838	18.002	23.212	24.931	18.358	21.572	20.523	14.269
2/5/10 16:00	21.728	26.435	24.012	22.850	17.999	23.172	24.898	18.349	21.565	20.500	14.248
2/5/10 20:00	21.822	26.449	24.034	22.903	18.002	23.174	24.853	18.330	21.565	20.457	14.206
2/6/10 0:00	21.896	26.475	24.077	22.929	18.007	23.195	24.865	18.349	21.560	20.474	14.177
2/6/10 4:00	21.917	26.501	24.116	22.927	18.011	23.250	24.907	18.386	21.560	20.526	14.180
2/6/10 8:00	21.970	26.515	24.140	22.946	18.014	23.352	24.919	18.398	21.562	20.533	14.156
2/6/10 12:00	21.996	26.533	24.174	22.953	18.016	23.426	24.966	18.421	21.567	20.577	14.159
2/6/10 16:00	21.961	26.536	24.166	22.922	18.016	23.428	25.023	18.460	21.562	20.622	14.201
2/6/10 20:00	21.961	26.526	24.164	22.925	18.016	23.419	25.020	18.451	21.562	20.617	14.203
2/7/10 0:00	21.946	26.526	24.154	22.910	18.016	23.412	25.039	18.458	21.555	20.629	14.222
2/7/10 4:00	21.901	26.517	24.140	22.881	18.014	23.376	25.067	18.470	21.548	20.650	14.257

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
2/7/10 8:00	21.891	26.505	24.109	22.884	18.011	23.350	25.044	18.444	21.534	20.617	14.259
2/7/10 12:00	21.865	26.496	24.104	22.870	18.007	23.333	25.060	18.442	21.527	20.629	14.285
2/7/10 16:00	21.786	26.480	24.072	22.831	17.995	23.279	25.067	18.437	21.525	20.626	14.285
2/7/10 20:00	21.803	26.461	24.046	22.853	17.992	23.267	25.008	18.384	21.522	20.563	14.283
2/8/10 0:00	21.781	26.456	24.041	22.838	17.985	23.264	25.004	18.384	21.518	20.563	14.313
2/8/10 4:00	21.783	26.449	24.027	22.846	17.981	23.274	24.978	18.363	21.513	20.537	14.297
2/8/10 8:00	21.843	26.452	24.044	22.879	17.981	23.288	24.926	18.337	21.508	20.483	14.238
2/8/10 12:00	21.970	26.473	24.089	22.946	17.990	23.321	24.889	18.323	21.511	20.439	14.149
2/8/10 16:00	21.963	26.501	24.135	22.922	17.992	23.390	24.966	18.381	21.513	20.528	14.187
2/8/10 20:00	21.968	26.512	24.150	22.913	17.995	23.405	25.004	18.405	21.506	20.565	14.112
2/9/10 0:00	21.946	26.512	24.147	22.898	17.992	23.390	25.034	18.416	21.506	20.587	14.093
2/9/10 4:00	21.905	26.501	24.125	22.877	17.990	23.362	25.060	18.423	21.494	20.601	14.116
2/9/10 8:00	21.922	26.491	24.111	22.898	17.992	23.348	25.011	18.393	21.489	20.556	14.114
2/9/10 12:00	22.035	26.503	24.145	22.953	17.999	23.421	24.978	18.363	21.475	20.523	14.109
2/9/10 16:00	22.054	26.519	24.176	22.948	18.009	23.459	25.018	18.400	21.457	20.561	14.116
2/9/10 20:00	22.080	26.536	24.190	22.953	18.014	23.481	25.044	18.423	21.452	20.582	14.060
2/10/10 0:00	22.135	26.547	24.219	22.977	18.023	23.514	25.055	18.428	21.419	20.584	13.943
2/10/10 4:00	22.123	26.557	24.234	22.958	18.025	23.514	25.107	18.540	21.393	20.634	13.922
2/10/10 8:00	22.116	26.557	24.227	22.951	18.032	23.497	25.121	18.540	21.367	20.641	13.905
2/10/10 12:00	22.121	26.557	24.241	22.944	18.035	23.497	25.161	18.523	21.452	20.673	14.034
2/10/10 16:00	22.018	26.543	24.200	22.889	18.030	23.419	25.213	18.512	21.450	20.716	14.175
2/10/10 20:00	21.984	26.519	24.162	22.881	18.025	23.369	25.182	18.465	21.440	20.669	14.180
2/11/10 0:00	21.949	26.503	24.133	22.865	18.023	23.340	25.171	18.446	21.431	20.652	14.203
2/11/10 4:00	21.910	26.484	24.099	22.846	18.016	23.295	25.157	18.430	21.431	20.634	14.245
2/11/10 8:00	21.913	26.463	24.068	22.834	18.006	23.255	25.126	18.407	21.428	20.601	14.243
2/11/10 12:00	21.917	26.452	24.056	22.817	17.999	23.243	25.114	18.386	21.435	20.591	14.323
2/11/10 16:00	21.843	26.437	24.017	22.793	17.988	23.188	25.100	18.386	21.433	20.570	14.384
2/11/10 20:00	21.841	26.423	24.015	22.829	17.985	23.210	25.020	18.330	21.464	20.497	14.306
2/12/10 0:00	21.848	26.426	24.017	22.824	17.976	23.222	25.011	18.330	21.452	20.493	14.257
2/12/10 4:00	21.848	26.426	24.019	22.822	17.971	23.224	25.001	18.323	21.450	20.474	14.166
2/12/10 8:00	21.843	26.426	24.019	22.846	17.969	23.236	24.964	18.304	21.452	20.429	14.123
2/12/10 12:00	21.879	26.442	24.053	22.860	17.969	23.281	24.973	18.304	21.452	20.425	14.241
2/12/10 16:00	21.877	26.444	24.058	22.822	17.959	23.250	25.018	18.335	21.431	20.497	14.320
2/12/10 20:00	21.879	26.435	24.043	22.824	17.957	23.241	24.997	18.314	21.435	20.493	14.264
2/13/10 0:00	21.867	26.430	24.039	22.803	17.952	23.224	25.016	18.311	21.440	20.521	14.276
2/13/10 4:00	21.819	26.419	24.012	22.774	17.943	23.179	25.027	18.302	21.440	20.570	14.318
2/13/10 8:00	21.786	26.400	23.983	22.771	17.933	23.138	24.978	18.272	21.450	20.558	14.292
2/13/10 12:00	21.805	26.391	23.978	22.771	17.926	23.136	24.959	18.258	21.454	20.575	14.468
2/13/10 16:00	21.757	26.379	23.959	22.767	17.919	23.117	24.929	18.249	21.440	20.551	14.414
2/13/10 20:00	21.762	26.379	23.969	22.805	17.917	23.153	24.874	18.221	21.428	20.427	14.241
2/14/10 0:00	21.803	26.395	24.005	22.858	17.919	23.231	24.827	18.211	21.428	20.342	14.142
2/14/10 4:00	21.898	26.430	24.056	22.874	17.924	23.310	24.870	18.239	21.431	20.361	14.034
2/14/10 8:00	21.891	26.449	24.094	22.858	17.926	23.321	24.929	18.279	21.407	20.422	13.957
2/14/10 12:00	21.903	26.456	24.099	22.884	17.929	23.324	24.924	18.274	21.412	20.410	14.069
2/14/10 16:00	21.946	26.468	24.123	22.908	17.933	23.359	24.924	18.283	21.405	20.406	14.112
2/14/10 20:00	21.972	26.484	24.145	22.901	17.938	23.388	24.968	18.316	21.360	20.450	13.940
2/15/10 0:00	21.951	26.487	24.145	22.862	17.938	23.362	25.034	18.349	21.332	20.509	13.896
2/15/10 4:00	21.929	26.475	24.128	22.848	17.936	23.324	25.041	18.346	21.330	20.511	13.943
2/15/10 8:00	21.951	26.466	24.116	22.877	17.941	23.329	25.006	18.316	21.320	20.472	13.924
2/15/10 12:00	21.992	26.477	24.142	22.891	17.945	23.362	25.013	18.318	21.367	20.479	14.093
2/15/10 16:00	21.977	26.482	24.137	22.877	17.943	23.352	25.048	18.346	21.395	20.511	14.241
2/15/10 20:00	21.980	26.480	24.142	22.879	17.945	23.350	25.044	18.342	21.431	20.488	14.083
2/16/10 0:00	21.970	26.482	24.135	22.889	17.950	23.364	25.037	18.339	21.405	20.432	13.990
2/16/10 4:00	22.004	26.489	24.152	22.893	17.957	23.383	25.058	18.351	21.381	20.415	14.015
2/16/10 8:00	22.023	26.498	24.169	22.920	17.962	23.405	25.048	18.349	21.365	20.387	14.013
2/16/10 13:00	22.075	26.510	24.205	22.908	17.969	23.443	25.107	18.393	21.635	20.493	14.201
2/16/10 14:00	22.083	26.515	24.210	22.896	17.969	23.435	25.126	18.407	21.637	20.533	14.236
2/16/10 15:00	22.085	26.515	24.203	22.889	17.969	23.426	25.138	18.414	21.628	20.570	14.273
2/16/10 16:00	22.083	26.515	24.198	22.891	17.966	23.414	25.138	18.414	21.621	20.584	14.269
2/16/10 17:00	22.080	26.512	24.193	22.886	17.966	23.402	25.142	18.411	21.612	20.587	14.243
2/16/10 18:00	22.075	26.508	24.188	22.886	17.971	23.400	25.138	18.407	21.602	20.587	14.196
2/16/10 19:00	22.063	26.505	24.186	22.884	17.966	23.397	25.140	18.402	21.597	20.584	14.175

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
2/16/10 20:00	22.059	26.503	24.176	22.884	17.971	23.395	25.138	18.400	21.593	20.580	14.151
2/16/10 21:00	22.049	26.501	24.169	22.891	17.971	23.388	25.131	18.393	21.593	20.565	14.102
2/16/10 22:00	22.047	26.496	24.166	22.891	17.973	23.390	25.126	18.388	21.586	20.549	14.074
2/16/10 23:00	22.042	26.498	24.171	22.891	17.971	23.388	25.128	18.386	21.579	20.540	14.055
2/17/10 0:00	22.037	26.496	24.169	22.889	17.973	23.388	25.131	18.386	21.567	20.535	14.044
2/17/10 1:00	22.035	26.496	24.171	22.889	17.971	23.388	25.128	18.384	21.560	20.528	14.030
2/17/10 2:00	22.032	26.496	24.164	22.884	17.973	23.386	25.138	18.388	21.546	20.523	14.025
2/17/10 3:00	22.032	26.494	24.164	22.881	17.971	23.381	25.142	18.388	21.541	20.526	14.020
2/17/10 4:00	22.028	26.494	24.159	22.874	17.973	23.376	25.150	18.393	21.529	20.533	14.018
2/17/10 5:00	22.020	26.494	24.157	22.881	17.973	23.371	25.140	18.386	21.518	20.514	14.001
2/17/10 6:00	22.018	26.489	24.157	22.884	17.971	23.369	25.133	18.384	21.508	20.504	13.987
2/17/10 7:00	22.018	26.491	24.152	22.886	17.973	23.371	25.131	18.377	21.501	20.497	13.978
2/17/10 8:00	22.016	26.491	24.154	22.886	17.976	23.374	25.128	18.377	21.494	20.493	13.978
2/17/10 9:00	22.023	26.494	24.157	22.896	17.976	23.378	25.124	18.374	21.492	20.481	14.018
2/17/10 10:00	22.042	26.494	24.162	22.889	17.976	23.378	25.138	18.379	21.508	20.490	14.135
2/17/10 11:00	22.059	26.496	24.171	22.881	17.973	23.376	25.150	18.388	21.532	20.516	14.248
2/17/10 12:00	22.071	26.498	24.171	22.872	17.976	23.371	25.166	18.400	21.548	20.551	14.348
2/17/10 13:00	22.083	26.498	24.171	22.855	17.973	23.357	25.185	18.414	21.560	20.598	14.445
2/17/10 14:00	22.075	26.496	24.166	22.841	17.971	23.345	25.199	18.425	21.553	20.615	14.527
2/17/10 15:00	22.039	26.494	24.154	22.843	17.971	23.336	25.192	18.425	21.560	20.603	14.545
2/17/10 16:00	22.023	26.489	24.150	22.843	17.971	23.317	25.192	18.418	21.551	20.605	14.536
2/17/10 17:00	22.020	26.484	24.135	22.862	17.971	23.312	25.175	18.407	21.548	20.584	14.463
2/17/10 18:00	22.016	26.477	24.125	22.848	17.969	23.307	25.159	18.391	21.543	20.563	14.358
2/17/10 19:00	22.011	26.475	24.121	22.848	17.969	23.307	25.147	18.379	21.539	20.549	14.255
2/17/10 20:00	22.006	26.473	24.121	22.853	17.969	23.302	25.142	18.374	21.532	20.542	14.217
2/17/10 21:00	22.006	26.470	24.116	22.853	17.966	23.305	25.135	18.365	21.534	20.537	14.201
2/17/10 22:00	22.001	26.470	24.113	22.846	17.966	23.305	25.140	18.367	21.539	20.537	14.189
2/17/10 23:00	22.001	26.468	24.111	22.850	17.966	23.298	25.133	18.360	21.536	20.533	14.168
2/18/10 0:00	22.013	26.468	24.109	22.862	17.966	23.305	25.119	18.351	21.539	20.516	14.154
2/18/10 1:00	22.011	26.468	24.111	22.860	17.966	23.310	25.119	18.353	21.529	20.518	14.161
2/18/10 2:00	22.008	26.463	24.106	22.855	17.966	23.312	25.117	18.353	21.527	20.514	14.166
2/18/10 3:00	22.006	26.466	24.113	22.853	17.966	23.310	25.128	18.356	21.529	20.526	14.170
2/18/10 4:00	21.994	26.466	24.106	22.843	17.964	23.305	25.131	18.360	21.525	20.526	14.170
2/18/10 5:00	21.992	26.466	24.111	22.843	17.962	23.300	25.133	18.358	21.522	20.530	14.177
2/18/10 6:00	21.992	26.463	24.106	22.836	17.962	23.293	25.138	18.360	21.520	20.537	14.196
2/18/10 7:00	21.989	26.463	24.104	22.836	17.962	23.291	25.138	18.363	21.520	20.533	14.198
2/18/10 8:00	21.987	26.461	24.094	22.843	17.962	23.288	25.119	18.351	21.518	20.509	14.170
2/18/10 9:00	21.994	26.461	24.099	22.848	17.962	23.286	25.117	18.346	21.513	20.507	14.198
2/18/10 10:00	22.008	26.459	24.106	22.848	17.962	23.288	25.121	18.346	21.529	20.514	14.273
2/18/10 11:00	21.999	26.461	24.104	22.836	17.962	23.281	25.131	18.358	21.532	20.521	14.337
2/18/10 12:00	21.982	26.461	24.106	22.826	17.959	23.274	25.142	18.363	21.539	20.542	14.431
2/18/10 13:00	21.953	26.461	24.101	22.810	17.957	23.262	25.161	18.377	21.546	20.563	14.524
2/18/10 14:00	21.941	26.459	24.099	22.795	17.955	23.243	25.175	18.386	21.551	20.580	14.567
2/18/10 15:00	21.925	26.454	24.084	22.783	17.952	23.219	25.178	18.386	21.546	20.587	14.550
2/18/10 16:00	21.915	26.449	24.070	22.783	17.950	23.205	25.164	18.379	21.543	20.572	14.503
2/18/10 17:00	21.908	26.440	24.056	22.783	17.948	23.195	25.145	18.360	21.532	20.551	14.438
2/18/10 18:00	21.905	26.437	24.046	22.795	17.945	23.191	25.117	18.342	21.522	20.518	14.358
2/18/10 19:00	21.903	26.430	24.034	22.805	17.945	23.193	25.095	18.323	21.511	20.490	14.294
2/18/10 20:00	21.903	26.428	24.036	22.812	17.945	23.198	25.079	18.311	21.506	20.472	14.255
2/18/10 21:00	21.905	26.426	24.039	22.817	17.943	23.200	25.070	18.302	21.504	20.464	14.238
2/18/10 22:00	21.908	26.426	24.034	22.814	17.943	23.210	25.063	18.297	21.499	20.455	14.234
2/18/10 23:00	21.913	26.426	24.041	22.817	17.943	23.214	25.060	18.293	21.494	20.457	14.238
2/19/10 0:00	21.915	26.428	24.044	22.814	17.940	23.219	25.060	18.293	21.492	20.455	14.245
2/19/10 1:00	21.913	26.426	24.039	22.814	17.941	23.271	25.067	18.300	21.489	20.464	14.269
2/19/10 2:00	21.920	26.426	24.044	22.805	17.936	23.324	25.063	18.302	21.485	20.479	14.292
2/19/10 3:00	21.915	26.426	24.044	22.795	17.933	23.348	25.053	18.307	21.487	20.497	14.316
2/19/10 4:00	21.867	26.423	24.034	22.776	17.931	23.359	25.055	18.311	21.478	20.502	14.344
2/19/10 5:00	21.865	26.416	24.027	22.776	17.929	23.362	25.051	18.297	21.480	20.474	14.337
2/19/10 6:00	21.867	26.412	24.017	22.776	17.929	23.364	25.053	18.288	21.475	20.464	14.346
2/19/10 7:00	21.867	26.409	24.019	22.781	17.926	23.350	25.086	18.279	21.473	20.460	14.351
2/19/10 8:00	21.867	26.409	24.015	22.783	17.926	23.336	25.088	18.270	21.471	20.446	14.351
2/19/10 9:00	21.870	26.407	24.007	22.788	17.924	23.321	25.074	18.265	21.471	20.432	14.339

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
2/19/10 10:00	21.872	26.405	24.007	22.793	17.922	23.310	25.063	18.260	21.466	20.429	14.339
2/19/10 11:00	21.874	26.405	24.010	22.793	17.919	23.305	25.053	18.260	21.466	20.429	14.341
2/19/10 12:00	21.874	26.407	24.010	22.793	17.919	23.302	25.046	18.258	21.464	20.422	14.327
2/19/10 13:00	21.877	26.405	24.015	22.793	17.919	23.307	25.044	18.258	21.461	20.429	14.341
2/19/10 14:00	21.872	26.402	24.010	22.788	17.917	23.307	25.046	18.260	21.461	20.429	14.353
2/19/10 15:00	21.870	26.405	24.010	22.788	17.915	23.307	25.039	18.258	21.457	20.413	14.348
2/19/10 16:00	21.872	26.405	24.007	22.791	17.912	23.298	25.027	18.253	21.459	20.410	14.351
2/19/10 17:00	21.872	26.402	24.012	22.795	17.915	23.288	25.020	18.249	21.452	20.394	14.348
2/19/10 18:00	21.872	26.405	24.007	22.807	17.912	23.269	25.004	18.242	21.452	20.380	14.341
2/19/10 19:00	21.877	26.405	24.015	22.822	17.915	23.252	24.980	18.232	21.450	20.361	14.327
2/19/10 20:00	21.877	26.409	24.022	22.829	17.915	23.238	24.973	18.232	21.447	20.359	14.327
2/19/10 21:00	21.882	26.414	24.039	22.836	17.915	23.219	24.968	18.235	21.450	20.371	14.330
2/19/10 22:00	21.879	26.416	24.039	22.838	17.915	23.193	24.968	18.239	21.450	20.366	14.320
2/19/10 23:00	21.882	26.423	24.044	22.843	17.917	23.169	24.968	18.244	21.454	20.371	14.320
2/20/10 0:00	21.891	26.428	24.056	22.843	17.915	23.155	24.978	18.253	21.457	20.392	14.330
2/20/10 1:00	21.889	26.430	24.058	22.843	17.915	23.146	24.983	18.256	21.459	20.385	14.320
2/20/10 2:00	21.889	26.433	24.060	22.845	17.915	23.141	24.987	18.260	21.464	20.389	14.318
2/20/10 3:00	21.894	26.440	24.072	22.852	17.917	23.143	24.980	18.256	21.461	20.389	14.306
2/20/10 4:00	21.896	26.442	24.080	22.848	17.917	23.150	24.992	18.263	21.459	20.406	14.311
2/20/10 5:00	21.894	26.442	24.077	22.843	17.917	23.146	25.004	18.272	21.454	20.413	14.309
2/20/10 6:00	21.894	26.447	24.087	22.855	17.917	23.153	24.997	18.267	21.452	20.399	14.287
2/20/10 7:00	21.898	26.449	24.084	22.867	17.919	23.165	24.987	18.265	21.450	20.392	14.269
2/20/10 8:00	21.905	26.454	24.094	22.864	17.917	23.181	24.992	18.267	21.442	20.408	14.276
2/20/10 9:00	21.910	26.456	24.101	22.864	17.917	23.191	24.997	18.274	21.438	20.418	14.273
2/20/10 10:00	21.913	26.459	24.104	22.860	17.919	23.200	25.008	18.286	21.433	20.427	14.278
2/20/10 11:00	21.917	26.463	24.106	22.858	17.919	23.207	25.018	18.288	21.433	20.441	14.283
2/20/10 12:00	21.917	26.463	24.111	22.860	17.917	23.212	25.020	18.293	21.428	20.434	14.278
2/20/10 13:00	21.929	26.468	24.111	22.850	17.917	23.217	25.039	18.302	21.428	20.464	14.299
2/20/10 14:00	21.932	26.466	24.113	22.840	17.917	23.214	25.053	18.307	21.424	20.474	14.304
2/20/10 15:00	21.932	26.466	24.101	22.831	17.915	23.207	25.063	18.311	21.421	20.479	14.304
2/20/10 16:00	21.934	26.461	24.104	22.829	17.915	23.198	25.070	18.311	21.417	20.479	14.304
2/20/10 17:00	21.934	26.461	24.094	22.829	17.915	23.193	25.067	18.309	21.412	20.476	14.299
2/20/10 18:00	21.932	26.461	24.089	22.826	17.912	23.191	25.065	18.304	21.407	20.469	14.292
2/20/10 19:00	21.934	26.456	24.092	22.831	17.915	23.184	25.058	18.297	21.400	20.462	14.283
2/20/10 20:00	21.934	26.454	24.087	22.836	17.915	23.186	25.053	18.290	21.391	20.460	14.276
2/20/10 21:00	21.934	26.454	24.089	22.833	17.912	23.188	25.051	18.290	21.391	20.460	14.266
2/20/10 22:00	21.937	26.452	24.084	22.836	17.912	23.186	25.046	18.286	21.384	20.455	14.262
2/20/10 23:00	21.932	26.452	24.089	22.831	17.912	23.191	25.051	18.290	21.379	20.462	14.264
2/21/10 0:00	21.929	26.452	24.080	22.819	17.910	23.184	25.065	18.300	21.377	20.481	14.276
2/21/10 1:00	21.922	26.447	24.077	22.803	17.910	23.176	25.079	18.307	21.377	20.488	14.285
2/21/10 2:00	21.925	26.444	24.070	22.807	17.907	23.172	25.074	18.302	21.379	20.476	14.276
2/21/10 3:00	21.927	26.442	24.065	22.797	17.907	23.162	25.077	18.300	21.377	20.483	14.283
2/21/10 4:00	21.925	26.437	24.058	22.783	17.903	23.150	25.088	18.304	21.379	20.504	14.306
2/21/10 5:00	21.915	26.435	24.046	22.798	17.905	23.141	25.070	18.290	21.377	20.462	14.278
2/21/10 6:00	21.917	26.430	24.046	22.805	17.903	23.141	25.048	18.279	21.374	20.453	14.266
2/21/10 7:00	21.917	26.428	24.046	22.805	17.905	23.143	25.041	18.272	21.374	20.446	14.266
2/21/10 8:00	21.915	26.428	24.046	22.809	17.903	23.146	25.032	18.265	21.374	20.427	14.255
2/21/10 9:00	21.920	26.426	24.041	22.803	17.900	23.148	25.032	18.270	21.377	20.446	14.269
2/21/10 10:00	21.922	26.426	24.046	22.805	17.900	23.148	25.030	18.270	21.374	20.446	14.278
2/21/10 11:00	21.917	26.426	24.041	22.810	17.898	23.148	25.025	18.265	21.374	20.427	14.271
2/21/10 12:00	21.920	26.423	24.036	22.805	17.900	23.150	25.027	18.267	21.372	20.434	14.280
2/21/10 13:00	21.929	26.426	24.048	22.793	17.896	23.148	25.039	18.274	21.374	20.460	14.316
2/21/10 14:00	21.922	26.421	24.024	22.781	17.893	23.131	25.051	18.279	21.372	20.455	14.320
2/21/10 15:00	21.917	26.419	24.024	22.783	17.893	23.096	25.041	18.279	21.365	20.441	14.323
2/21/10 16:00	21.913	26.416	24.022	22.793	17.896	23.065	25.025	18.267	21.360	20.415	14.309
2/21/10 17:00	21.915	26.414	24.024	22.805	17.896	23.034	25.011	18.258	21.353	20.413	14.306
2/21/10 18:00	21.915	26.414	24.024	22.810	17.893	23.077	24.994	18.253	21.349	20.399	14.294
2/21/10 19:00	21.872	26.414	24.027	22.817	17.893	23.115	24.987	18.249	21.346	20.389	14.287
2/21/10 20:00	21.872	26.416	24.029	22.817	17.893	23.138	24.985	18.249	21.341	20.387	14.283
2/21/10 21:00	21.874	26.419	24.029	22.826	17.896	23.162	24.976	18.246	21.339	20.378	14.266
2/21/10 22:00	21.886	26.421	24.036	22.836	17.896	23.181	24.968	18.242	21.334	20.373	14.255
2/21/10 23:00	21.901	26.423	24.044	22.843	17.896	23.198	24.964	18.239	21.332	20.366	14.236

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
2/22/10 0:00	21.898	26.428	24.046	22.850	17.898	23.217	24.961	18.242	21.330	20.364	14.224
2/22/10 1:00	21.901	26.433	24.058	22.845	17.896	23.226	24.973	18.251	21.332	20.382	14.224
2/22/10 2:00	21.903	26.435	24.060	22.833	17.896	23.226	24.990	18.260	21.330	20.401	14.231
2/22/10 3:00	21.903	26.437	24.065	22.833	17.898	23.229	24.999	18.267	21.334	20.406	14.231
2/22/10 4:00	21.908	26.440	24.070	22.819	17.896	23.226	25.018	18.274	21.334	20.429	14.245
2/22/10 5:00	21.896	26.440	24.065	22.829	17.896	23.222	25.001	18.272	21.332	20.408	14.215
2/22/10 6:00	21.896	26.440	24.068	22.831	17.896	23.224	25.004	18.272	21.332	20.413	14.205
2/22/10 7:00	21.894	26.442	24.058	22.831	17.898	23.226	25.001	18.267	21.334	20.408	14.196
2/22/10 8:00	21.889	26.440	24.068	22.843	17.900	23.231	24.985	18.265	21.327	20.394	14.175
2/22/10 9:00	21.898	26.444	24.077	22.850	17.898	23.241	24.983	18.263	21.325	20.396	14.182
2/22/10 10:00	21.908	26.447	24.080	22.852	17.900	23.248	24.985	18.265	21.327	20.403	14.191
2/22/10 11:00	21.910	26.447	24.080		17.900	23.257	24.997	18.272	21.327	20.408	14.208
2/22/10 12:00	21.917	26.452	24.084		17.900	23.262	24.997	18.276	21.330	20.408	14.217
2/24/10 12:00		26.787		23.118	17.963			18.491		20.617	14.383
2/24/10 16:00	22.072	26.790	24.186	23.059	17.963	23.319	25.242	18.524	21.755	20.725	14.533
2/24/10 20:00	22.039	26.766	24.138	23.042	17.961	23.281	25.198	18.482	21.738	20.662	14.278
2/25/10 0:00	22.020	26.747	24.116	23.018	17.961	23.272	25.181	18.461	21.736	20.617	14.186
2/25/10 4:00	22.012	26.733	24.104	22.982	17.959	23.251	25.193	18.466	21.734	20.615	14.191
2/25/10 8:00	21.974	26.719	24.087	22.987	17.956	23.243	25.144	18.443	21.727	20.559	14.134
2/25/10 12:00	21.996	26.715	24.097	22.953	17.954	23.234	25.172	18.471	21.734	20.587	14.505
2/25/10 16:00	21.926	26.703	24.078	22.929	17.949	23.198	25.167	18.471	21.734	20.594	14.589
2/25/10 20:00	21.957	26.687	24.068	22.958	17.952	23.227	25.094	18.417	21.726	20.509	14.280
2/26/10 0:00	21.984	26.694	24.090	22.963	17.954	23.270	25.094	18.431	21.717	20.505	14.224
2/26/10 4:00	21.981	26.698	24.106	22.946	17.952	23.277	25.118	18.452	21.724	20.528	14.207
2/26/10 8:00	21.984	26.701	24.111	22.946	17.954	23.281	25.120	18.464	21.738	20.535	14.186
2/26/10 12:00	22.001	26.705	24.131	22.934	17.956	23.286	25.148	18.491	21.745	20.568	14.540
2/26/10 16:00	21.972	26.698	24.119	22.915	17.952	23.246	25.158	18.503	21.736	20.591	14.235
2/26/10 20:00	21.977	26.687	24.099	22.920	17.954	23.260	25.130	18.475	21.729	20.554	14.242
2/27/10 0:00	21.984	26.682	24.107	22.922	17.956	23.265	25.123	18.475	21.729	20.544	14.247
2/27/10 4:00	21.991	26.684	24.114	22.920	17.954	23.272	25.127	18.480	21.736	20.552	14.252
2/27/10 8:00	22.003	26.689	24.114	22.939	17.959	23.286	25.113	18.482	21.743	20.537	14.261
2/27/10 12:00	22.032	26.701	24.140	22.949	17.961	23.312	25.123	18.489	21.752	20.549	14.268
2/27/10 16:00	21.998	26.703	24.138	22.903	17.959	23.281	25.177	18.522	21.757	20.610	14.254
2/27/10 20:00	21.989	26.687	24.119	22.903	17.959	23.270	25.158	18.501	21.743	20.582	14.256
2/28/10 0:00	21.986	26.680	24.116	22.896	17.956	23.262	25.155	18.494	21.729	20.582	14.252
2/28/10 4:00	21.986	26.677	24.111	22.906	17.959	23.260	25.141	18.489	21.719	20.563	14.256
2/28/10 8:00	21.991	26.677	24.111	22.913	17.959	23.272	25.139	18.489	21.715	20.563	14.266
2/28/10 12:00	22.003	26.687	24.131	22.906	17.959	23.279	25.151	18.496	21.719	20.582	14.268
2/28/10 16:00	21.981	26.682	24.114	22.879	17.954	23.236	25.172	18.512	21.722	20.603	14.252
2/28/10 20:00	21.984	26.670	24.092	22.910	17.956	23.248	25.115	18.471	21.712	20.547	14.263
3/1/10 0:00	22.044	26.682	24.126	22.949	17.963	23.312	25.085	18.461	21.719	20.516	14.287
3/1/10 4:00	22.056	26.698	24.157	22.939	17.966	23.334	25.132	18.498	21.724	20.563	14.289
3/1/10 8:00	22.094	26.710	24.172	22.968	17.973	23.367	25.127	18.494	21.734	20.556	14.308
3/1/10 12:00	22.132	26.729	24.215	22.977	17.982	23.405	25.160	18.636	21.755	20.594	14.317
3/1/10 16:00	22.125	26.736	24.210	22.961	17.985	23.388	25.198	18.678	21.776	20.629	14.310
3/1/10 20:00	22.111	26.731	24.205	22.961	17.992	23.386	25.205	18.666	21.771	20.636	14.315
3/2/10 0:00	22.101	26.729	24.205	22.949	17.992	23.374	25.221	18.654	21.745	20.648	14.317
3/2/10 4:00	22.094	26.722	24.191	22.932	17.989	23.346	25.245	18.619	21.726	20.664	14.308
3/2/10 8:00	22.082	26.715	24.186	22.913	17.992	23.329	25.257	18.594	21.731	20.678	14.303
3/2/10 12:00	22.089	26.712	24.176	22.903	17.989	23.305	25.264	18.589	21.752	20.690	14.299
3/2/10 16:00	22.015	26.698	24.147	22.872	17.985	23.243	25.275	18.571	21.802	20.699	14.280
3/2/10 20:00	21.998	26.680	24.102	22.889	17.982	23.232	25.210	18.522	21.781	20.631	14.282
3/3/10 0:00	21.996	26.673	24.094	22.906	17.982	23.243	25.174	18.508	21.762	20.596	14.291
3/3/10 4:00	21.993	26.675	24.092	22.903	17.980	23.260	25.172	18.512	21.748	20.594	14.294
3/3/10 8:00	22.017	26.677	24.114	22.927	17.982	23.274	25.146	18.503	21.738	20.570	14.306
3/3/10 12:00	22.053	26.694	24.143	22.929	17.985	23.303	25.167	18.531	21.762	20.596	14.313
3/3/10 16:00	22.044	26.698	24.145	22.894	17.980	23.272	25.214	18.557	21.785	20.652	14.299
3/3/10 20:00	22.022	26.687	24.114	22.896	17.977	23.253	25.188	18.529	21.783	20.622	14.296
3/4/10 0:00	22.012	26.684	24.116	22.913	17.980	23.272	25.162	18.519	21.764	20.594	14.306
3/4/10 4:00	22.003	26.687	24.114	22.903	17.980	23.267	25.177	18.531	21.752	20.613	14.306
3/4/10 8:00	22.012	26.687	24.123	22.927	17.982	23.277	25.151	18.519	21.748	20.589	14.315
3/4/10 12:00	22.048	26.703	24.152	22.901	17.980	23.289	25.200	18.550	21.771	20.643	14.313

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
3/4/10 16:00	22.017	26.689	24.121	22.858	17.973	23.215	25.238	18.561	21.795	20.685	14.287
3/4/10 20:00	21.979	26.673	24.082	22.884	17.970	23.203	25.167	18.505	21.788	20.610	14.291
3/5/10 0:00	21.972	26.670	24.087	22.908	17.973	23.241	25.130	18.489	21.778	20.573	14.308
3/5/10 4:00	21.974	26.680	24.102	22.894	17.973	23.251	25.153	18.524	21.771	20.598	14.306
3/5/10 8:00	21.977	26.682	24.104	22.896	17.973	23.248	25.155	18.522	21.766	20.601	14.308
3/5/10 12:00	22.012	26.684	24.114	22.870	17.968	23.234	25.188	18.545	21.781	20.641	14.299
3/5/10 16:00	21.962	26.673	24.075	22.834	17.959	23.160	25.217	18.552	21.792	20.671	14.277
3/5/10 20:00	21.924	26.649	24.044	22.867	17.954	23.146	25.130	18.482	21.776	20.589	14.282
3/6/10 0:00	21.926	26.649	24.046	22.891	17.956	23.186	25.094	18.445	21.773	20.549	14.298
3/6/10 4:00	21.936	26.656	24.056	22.874	17.954	23.194	25.113	18.466	21.771	20.573	14.294
3/6/10 8:00	21.938	26.661	24.061	22.906	17.954	23.205	25.073	18.450	21.769	20.535	14.306
3/6/10 12:00	21.981	26.675	24.092	22.896	17.956	23.227	25.123	18.473	21.783	20.587	14.303
3/6/10 16:00	21.943	26.673	24.080	22.848	17.952	23.177	25.158	18.512	21.802	20.629	14.282
3/6/10 20:00	21.943	26.659	24.058	22.894	17.952	23.186	25.085	18.456	21.795	20.552	14.296
3/7/10 0:00	21.965	26.666	24.073	22.927	17.952	23.239	25.054	18.443	21.792	20.523	14.315
3/7/10 4:00	21.969	26.682	24.094	22.927	17.947	23.267	25.083	18.470	21.790	20.549	14.322
3/7/10 8:00	21.972	26.696	24.111	22.944	17.949	23.284	25.090	18.480	21.788	20.561	14.329
3/7/10 12:00	22.015	26.712	24.143	22.932	17.947	23.293	25.127	18.503	21.804	20.598	14.331
3/7/10 16:00	22.031	26.712	24.140	22.879	17.942	23.243	25.202	18.552	21.823	20.678	14.308
3/7/10 20:00	22.031	26.689	24.097	22.879	17.935	23.203	25.179	18.529	21.811	20.650	14.301
3/8/10 0:00	22.008	26.677	24.070	22.872	17.928	23.177	25.167	18.512	21.795	20.636	14.294
3/8/10 4:00	22.012	26.668	24.044	22.853	17.923	23.141	25.172	18.510	21.778	20.638	14.282
3/8/10 8:00	21.807	26.654	24.027	22.834	17.916	23.099	25.162	18.498	21.757	20.631	14.266
3/8/10 12:00	21.701	26.642	23.998	22.772	17.902	23.030	25.193	18.503	21.745	20.669	14.242
3/8/10 16:00	21.553	26.605	23.923	22.709	17.881	22.899	25.184	18.496	21.715	20.664	14.205
3/8/10 20:00	21.527	26.560	23.863	22.908	17.862	22.875	25.097	18.363	21.684	20.582	14.228
3/9/10 0:00	21.464	26.521	23.822	22.877	17.841	22.811	25.033	18.387	21.649	20.516	14.317
3/9/10 4:00	21.381	26.493	23.776	22.817	17.820	22.754	24.993	18.347	21.614	20.476	14.378
3/9/10 8:00	21.357	26.465	23.743	22.760	17.798	22.716	24.892	18.291	21.588	20.375	14.369
3/9/10 12:00	21.352	26.458	23.743	22.750	17.777	22.711	24.859	18.275	21.583	20.352	14.111
3/9/10 16:00	21.251	26.441	23.719	22.728	17.761	22.692	24.810	18.259	21.579	20.310	14.092
3/9/10 20:00	21.299	26.437	23.723	22.697	17.749	22.714	24.718	18.226	21.569	20.223	14.092
3/10/10 0:00	21.323	26.446	23.748	22.685	17.742	22.749	24.695	18.217	21.571	20.202	14.080
3/10/10 4:00	21.333	26.455	23.769	22.757	17.735	22.723	24.690	18.217	21.574	20.209	14.064
3/10/10 8:00	21.388	26.467	23.791	22.719	17.732	22.700	24.652	18.210	21.574	20.173	14.057
3/10/10 12:00	21.383	26.488	23.825	22.743	17.725	22.714	24.690	18.226	21.588	20.218	14.038
3/10/10 16:00	21.378	26.488	23.817	22.726	17.723	22.790	24.676	18.228	21.593	20.209	14.019
3/10/10 20:00	21.357	26.483	23.822	22.693	17.716	22.811	24.692	18.226	21.588	20.223	13.991
3/11/10 0:00	21.345	26.479	23.820	22.891	17.709	22.830	24.652	18.212	21.579	20.192	13.961
3/11/10 4:00	21.362	26.469	23.817	22.920	17.704	22.878	24.666	18.149	21.564	20.213	13.787
3/11/10 8:00	21.385	26.472	23.822	22.944	17.702	22.833	24.387	18.186	21.557	20.258	13.766
3/11/10 12:00	21.436	26.488	23.851	22.920	17.697	22.842	24.516	18.193	21.560	20.218	13.778
3/11/10 16:00	21.460	26.500	23.870	22.810	17.699	22.814	24.490	18.203	21.567	20.216	13.743
3/11/10 20:00	21.507	26.511	23.890	22.707	17.699	22.804	24.500	18.198	21.571	20.206	13.639
3/12/10 0:00	21.512	26.523	23.909	22.666	17.699	22.778	24.551	18.214	21.574	20.242	13.602
3/12/10 4:00	21.476	26.521	23.904	22.654	17.695	22.768	24.608	18.219	21.569	20.279	13.609
3/12/10 8:00	21.510	26.516	23.902	22.673	17.695	22.761	24.591	18.198	21.557	20.244	13.560
3/12/10 12:00	21.601	26.528	23.921	22.726	17.699	22.814	24.570	18.200	21.569	20.209	13.553
3/12/10 16:00	21.675	26.551	23.962	22.728	17.706	22.825	24.594	18.212	21.588	20.216	13.531
3/12/10 20:00	21.742	26.575	23.991	22.872	17.716	22.804	24.626	18.233	21.611	20.232	13.679
3/13/10 0:00	21.759	26.591	24.025	22.855	17.723	22.780	24.711	18.249	21.625	20.298	13.672
3/13/10 4:00	21.723	26.596	24.025	22.819	17.723	22.766	24.789	18.268	21.625	20.357	13.656
3/13/10 8:00	21.783	26.591	24.025	22.862	17.730	22.754	24.765	18.247	21.628	20.321	13.670
3/13/10 12:00	21.795	26.600	24.039	22.848	17.735	22.821	24.817	18.261	21.637	20.361	13.731
3/13/10 16:00	21.744	26.600	24.034	22.807	17.737	22.909	24.887	18.282	21.647	20.422	13.684
3/13/10 20:00	21.756	26.584	24.010	22.848	17.742	23.034	24.840	18.245	21.651	20.364	13.689
3/14/10 0:00	21.835	26.591	24.032	22.857	17.746	23.139	24.862	18.245	21.656	20.368	13.691
3/14/10 4:00	21.840	26.600	24.046	22.881	17.754	23.182	24.871	18.254	21.665	20.366	13.696
3/14/10 8:00	21.907	26.614	24.078	22.915	17.763	23.243	24.876	18.254	21.680	20.361	13.710
3/14/10 12:00	21.984	26.640	24.126	22.939	17.775	23.303	24.918	18.275	21.708	20.392	13.714
3/14/10 16:00	22.005	26.659	24.152	22.929	17.784	23.322	24.989	18.308	21.731	20.458	13.712
3/14/10 20:00	22.101	26.666	24.179	22.967	17.798	23.367	24.996	18.291	21.755	20.453	13.724

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
3/15/10 0:00	22.163	26.684	24.210	22.994	17.815	23.429	25.031	18.321	21.816	20.479	13.735
3/15/10 4:00	22.197	26.705	24.251	22.979	17.829	23.455	25.146	18.363	21.863	20.554	13.733
3/15/10 8:00	22.261	26.715	24.261	23.004	17.841	23.467	25.162	18.384	21.853	20.568	13.738
3/15/10 12:00	22.314	26.729	24.292	23.011	17.855	23.495	25.207	18.408	21.856	20.608	13.742
3/15/10 16:00	22.331	26.733	24.297	22.965	17.862	23.464	25.301	18.450	21.879	20.697	13.726
3/15/10 20:00	22.321	26.722	24.280	22.999	17.876	23.467	25.280	18.422	21.877	20.660	13.735
3/16/10 0:00	22.340	26.724	24.290	22.996	17.885	23.486	25.315	18.429	21.879	20.681	13.733
3/16/10 4:00	22.338	26.724	24.290	22.975	17.895	23.474	25.367	18.445	21.874	20.718	13.731
3/16/10 8:00	22.321	26.712	24.273	22.975	17.904	23.457	25.379	18.438	21.863	20.716	13.728
3/16/10 12:00	22.323	26.708	24.270	22.953	17.909	23.443	25.416	18.445	21.853	20.742	13.721
3/16/10 16:00	22.314	26.691	24.239	22.900	17.909	23.367	25.473	18.459	21.853	20.789	13.700
3/16/10 20:00	22.292	26.661	24.203	22.896	17.911	23.329	25.438	18.408	21.830	20.742	13.696
3/17/10 0:00	22.276	26.642	24.179	22.881	17.911	23.308	25.433	18.380	21.813	20.725	13.686
3/17/10 4:00	22.256	26.626	24.152	22.874	17.911	23.281	25.421	18.354	21.792	20.699	13.684
3/17/10 8:00	22.249	26.612	24.147	22.896	17.914	23.289	25.379	18.317	21.780	20.650	13.691
3/17/10 12:00	22.259	26.614	24.145	22.872	17.914	23.286	25.405	18.317	21.783	20.671	13.686
3/17/10 16:00	22.244	26.605	24.135	22.829	17.907	23.229	25.440	18.317	21.792	20.706	13.667
3/17/10 20:00	22.221	26.574	24.087	22.807	17.902	23.175	25.414	18.277	21.778	20.671	13.663
3/18/10 0:00	22.187	26.546	24.058	22.788	17.892	23.151	25.388	18.238	21.743	20.636	13.656
3/18/10 4:00	22.144	26.523	24.025	22.757	17.883	23.108	25.379	18.210	21.710	20.622	13.644
3/18/10 8:00	22.115	26.500	24.000	22.750	17.874	23.080	25.334	18.177	21.679	20.573	13.646
3/18/10 12:00	22.084	26.488	23.993	22.699	17.859	23.025	25.355	18.170	21.691	20.584	13.630
3/18/10 16:00	21.912	26.446	23.938	22.630	17.841	22.923	25.355	18.110	21.703	20.580	13.602
3/18/10 20:00	21.835	26.395	23.873	22.642	17.827	22.873	25.238	18.028	21.684	20.446	13.599
3/19/10 0:00	21.835	26.364	23.846	22.647	17.812	22.878	25.155	17.991	21.654	20.361	13.583
3/19/10 4:00	21.840	26.357	23.849	22.661	17.801	22.878	25.101	17.984	21.632	20.300	13.498
3/19/10 8:00	21.859	26.366	23.868	22.707	17.796	22.882	25.038	17.993	21.618	20.232	13.480
3/19/10 12:00	21.886	26.390	23.911	22.733	17.789	22.954	25.019	18.024	21.632	20.204	13.477
3/19/10 16:00	21.886	26.413	23.943	22.759	17.789	23.011	25.026	18.042	21.635	20.199	13.365
3/19/10 20:00	21.890	26.437	23.986	22.802	17.794	23.070	25.012	18.075	21.642	20.176	13.649
3/20/10 0:00	22.034	26.469	24.029	22.819	17.798	23.132	25.050	18.114	21.656	20.204	13.552
3/20/10 4:00	22.048	26.488	24.066	22.821	17.803	23.158	25.097	18.124	21.670	20.242	13.517
3/20/10 8:00	22.060	26.502	24.078	22.841	17.808	23.189	25.111	18.131	21.677	20.246	13.480
3/20/10 12:00	22.070	26.530	24.119	22.826	17.808	23.220	25.162	18.154	21.694	20.289	13.531
3/20/10 16:00	22.089	26.572	24.109	22.798	17.810	23.229	25.217	18.142	21.691	20.328	13.660
3/20/10 20:00	22.051	26.530	24.092	22.783	17.808	23.205	25.224	18.100	21.686	20.328	13.552
3/21/10 0:00	22.027	26.493	24.080	22.750	17.808	23.205	25.252	18.082	21.679	20.350	13.496
3/21/10 4:00	22.005	26.460	24.046	22.723	17.801	23.172	25.259	18.045	21.656	20.343	13.520
3/21/10 8:00	21.974	26.434	24.020	22.731	17.798	23.122	25.219	18.019	21.642	20.296	13.473
3/21/10 12:00	22.031	26.434	24.032	22.714	17.793	23.134	25.238	18.031	21.644	20.298	13.888
3/21/10 16:00	22.062	26.411	24.000	22.647	17.782	23.034	25.275	17.998	21.663	20.338	14.172
3/21/10 20:00	22.048	26.371	23.960	22.652	17.775	22.992	25.212	17.935	21.649	20.263	13.864
3/22/10 0:00	22.000	26.350	23.931	22.649	17.765	22.973	25.165	17.907	21.616	20.220	13.649
3/22/10 4:00	21.969	26.334	23.909	22.609	17.753	22.977	25.181	17.879	21.585	20.232	13.583
3/22/10 8:00	21.950	26.317	23.899	22.618	17.742	22.949	25.132	17.868	21.562	20.183	13.562
3/22/10 12:00	21.995	26.308	23.894	22.561	17.730	22.880	25.172	17.856	21.571	20.227	14.061
3/22/10 16:00	21.838	26.266	23.846	22.496	17.706	22.780	25.172	17.784	21.571	20.239	14.322
3/22/10 20:00	21.723	26.219	23.781	22.520	17.687	22.735	25.059	17.712	21.557	20.127	14.080
3/23/10 0:00	21.725	26.201	23.776	22.539	17.673	22.759	24.979	17.698	21.536	20.049	13.869
3/23/10 4:00	21.723	26.203	23.779	22.539	17.662	22.780	24.953	17.702	21.517	20.030	13.742
3/23/10 8:00	21.718	26.210	23.798	22.594	17.654	22.825	24.883	17.726	21.506	19.960	13.632
3/23/10 12:00	21.790	26.250	23.849	22.580	17.647	22.863	24.927	17.781	21.546	20.021	14.097
3/23/10 16:00	21.826	26.240	23.837	22.537	17.633	22.811	24.960	17.749	21.581	20.063	14.179
3/23/10 20:00	21.826	26.240	23.841	22.623	17.633	22.821	24.866	17.749	21.592	19.964	13.853
3/24/10 0:00	21.859	26.264	23.880	22.623	17.633	22.892	24.887	17.784	21.600	19.995	13.740
3/24/10 4:00	21.861	26.271	23.892	22.620	17.626	22.901	24.909	17.793	21.597	20.019	13.663
3/24/10 8:00	21.861	26.287	23.904	22.644	17.629	22.911	24.897	17.798	21.590	20.007	13.581
3/24/10 12:00	21.881	26.350	23.923	22.620	17.624	22.963	24.946	17.816	21.593	20.058	13.649
3/24/10 16:00	21.883	26.374	23.928	22.623	17.624	22.949	24.951	17.805	21.588	20.061	13.653
3/24/10 20:00	21.885	26.378	23.931	22.632	17.624	22.944	24.942	17.802	21.583	20.049	13.627
3/25/10 0:00	21.885	26.366	23.935	22.623	17.621	22.966	24.967	17.805	21.581	20.070	13.611
3/25/10 4:00	21.854	26.336	23.923	22.613	17.619	22.944	24.970	17.781	21.560	20.070	13.520

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
3/25/10 8:00	21.842	26.306	23.928	22.646	17.624	22.947	24.944	17.795	21.548	20.042	13.468
3/25/10 12:00	21.895	26.317	23.969	22.647	17.621	22.994	24.970	17.835	21.578	20.068	13.824
3/25/10 16:00	21.943	26.310	23.972	22.609	17.619	23.027	25.026	17.821	21.618	20.127	14.113
3/25/10 20:00	21.938	26.287	23.945	22.618	17.617	22.982	25.003	17.775	21.616	20.084	13.817
3/26/10 0:00	21.914	26.275	23.935	22.615	17.617	22.973	24.996	17.765	21.597	20.080	13.616
3/26/10 4:00	21.897	26.264	23.931	22.580	17.614	22.980	25.031	17.742	21.571	20.108	13.552
3/26/10 8:00	21.885	26.252	23.914	22.584	17.612	22.944	25.010	17.721	21.553	20.080	13.534
3/26/10 12:00	21.928	26.245	23.916	22.510	17.600	22.954	25.078	17.714	21.560	20.152	14.031
3/26/10 16:00	21.677	26.187	23.841	22.417	17.579	22.737	25.106	17.602	21.560	20.185	13.609
3/26/10 20:00	21.665	26.126	23.772	22.455	17.567	22.697	24.970	17.516	21.531	20.040	13.609
3/27/10 0:00	21.677	26.107	23.757	22.462	17.556	22.716	24.913	17.511	21.506	19.979	13.609
3/27/10 4:00	21.682	26.105	23.748	22.443	17.544	22.692	24.899	17.493	21.482	19.962	13.599
3/27/10 8:00	21.684	26.128	23.738	22.443	17.532	22.697	24.826	17.484	21.459	19.899	13.592
3/27/10 12:00	21.682	26.198	23.735	22.675	17.525	22.657	24.878	17.498	21.447	19.882	13.416
3/27/10 16:00	21.699	26.266	23.803	22.623	17.520	22.678	24.963	17.511	21.447	19.922	13.569
3/27/10 20:00	21.718	26.231	23.813	22.585	17.525	22.692	24.838	17.574	21.459	19.856	13.444
3/28/10 0:00	21.711	26.201	23.873	22.623	17.527	22.669	24.838	17.653	21.477	19.866	13.344
3/28/10 4:00	21.716	26.224	23.911	22.615	17.527	22.737	24.869	17.686	21.487	19.925	13.306
3/28/10 8:00	21.711	26.245	23.940	22.666	17.534	22.737	24.838	17.714	21.494	19.908	13.226
3/28/10 12:00	21.773	26.282	23.988	22.646	17.537	22.835	24.913	17.754	21.529	19.997	13.510
3/28/10 16:00	21.826	26.275	23.991	22.603	17.534	22.956	24.984	17.726	21.564	20.070	13.763
3/28/10 20:00	21.830	26.247	23.960	22.596	17.534	22.970	24.979	17.677	21.562	20.047	13.503
3/29/10 0:00	21.809	26.226	23.940	22.584	17.530	22.970	24.984	17.642	21.536	20.037	13.329
3/29/10 4:00	21.792	26.208	23.923	22.551	17.522	22.947	25.005	17.607	21.508	20.047	13.247
3/29/10 8:00	21.787	26.184	23.904	22.534	17.518	22.916	25.005	17.567	21.480	20.033	13.252
3/29/10 12:00	21.850	26.168	23.887	22.455	17.501	22.852	25.068	17.528	21.489	20.091	13.756
3/29/10 16:00	21.823	26.112	23.837	22.383	17.482	22.742	25.078	17.428	21.499	20.091	14.073
3/29/10 20:00	21.763	26.042	23.757	22.381	17.464	22.676	24.984	17.321	21.477	19.967	13.780
3/30/10 0:00	21.766	26.002	23.719	22.378	17.447	22.661	24.923	17.279	21.444	19.892	13.571
3/30/10 4:00	21.653	25.974	23.702	22.340	17.428	22.631	24.911	17.244	21.409	19.871	13.491
3/30/10 8:00	21.665	25.955	23.680	22.347	17.409	22.621	24.850	17.218	21.383	19.802	13.433
3/30/10 12:00	21.649	25.948	23.682	22.314	17.388	22.595	24.854	17.214	21.388	19.805	13.810
3/30/10 16:00	21.388	25.911	23.644	22.230	17.360	22.502	24.873	17.146	21.400	19.828	13.217
3/30/10 20:00	21.369	25.857	23.584	22.256	17.334	22.462	24.758	17.065	21.381	19.706	13.198
3/31/10 0:00	21.337	25.831	23.560	22.240	17.308	22.448	24.716	17.039	21.353	19.666	13.186
3/31/10 4:00	21.321	25.810	23.540	22.244	17.287	22.433	24.659	17.011	21.325	19.612	13.177
3/31/10 8:00	21.369	25.824	23.560	22.350	17.273	22.509	24.532	17.055	21.311	19.492	13.212
3/31/10 12:00	21.467	25.892	23.644	22.383	17.268	22.621	24.546	17.174	21.358	19.528	13.236
3/31/10 16:00	21.531	25.911	23.675	22.335	17.254	22.616	24.626	17.197	21.407	19.624	13.217
3/31/10 20:00	21.543	25.897	23.663	22.350	17.244	22.619	24.601	17.179	21.414	19.605	13.224
4/1/10 0:00	21.531	25.887	23.661	22.314	17.230	22.609	24.631	17.167	21.398	19.638	13.214
4/1/10 4:00	21.531	25.864	23.649	22.268	17.214	22.569	24.657	17.134	21.372	19.664	13.193
4/1/10 8:00	21.538	25.850	23.634	22.295	17.202	22.564	24.605	17.127	21.351	19.608	13.203
4/1/10 12:00	21.488	25.859	23.651	22.273	17.190	22.569	24.629	17.155	21.365	19.638	13.196
4/1/10 16:00	21.390	25.827	23.622	22.197	17.171	22.490	24.678	17.102	21.386	19.690	13.165
4/1/10 20:00	21.421	25.792	23.576	22.228	17.155	22.476	24.591	17.051	21.372	19.594	13.170
4/2/10 0:00	21.402	25.778	23.562	22.295	17.146	22.490	24.488	17.039	21.348	19.488	13.189
4/2/10 4:00	21.404	25.780	23.574	22.256	17.131	22.498	24.521	17.053	21.339	19.528	13.182
4/2/10 8:00	21.440	25.799	23.598	22.314	17.127	22.559	24.469	17.095	21.320	19.478	13.212
4/2/10 12:00	21.502	25.838	23.646	22.326	17.127	22.619	24.502	17.169	21.341	19.532	13.228
4/2/10 16:00	21.555	25.859	23.678	22.309	17.120	22.626	24.554	17.197	21.379	19.589	13.228
4/2/10 20:00	21.577	25.873	23.731	22.417	17.127	22.702	24.530	17.221	21.388	19.495	13.273
4/3/10 0:00	21.591	25.929	23.808	22.455	17.141	22.809	24.601	17.311	21.386	19.542	13.304
4/3/10 4:00	21.794	25.965	23.825	22.436	17.146	22.842	24.641	17.365	21.376	19.636	13.308
4/3/10 8:00	21.835	25.983	23.839	22.448	17.155	22.863	24.657	17.397	21.367	19.678	13.325
4/3/10 12:00	21.809	26.000	23.863	22.393	17.155	22.844	24.751	17.425	21.397	19.774	13.315
4/3/10 16:00	21.737	25.967	23.837	22.314	17.150	22.761	24.824	17.362	21.419	19.840	13.289
4/3/10 20:00	21.730	25.915	23.781	22.326	17.145	22.723	24.767	17.290	21.414	19.772	13.292
4/4/10 0:00	21.715	25.894	23.757	22.321	17.148	22.716	24.751	17.262	21.383	19.741	13.299
4/4/10 4:00	21.703	25.887	23.752	22.347	17.146	22.733	24.720	17.262	21.355	19.699	13.313
4/4/10 8:00	21.711	25.904	23.769	22.376	17.150	22.768	24.706	17.295	21.343	19.680	13.334
4/4/10 12:00	21.754	25.915	23.796	22.343	17.148	22.759	24.765	17.318	21.358	19.734	13.329

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
4/4/10 16:00	21.787	25.913	23.793	22.335	17.145	22.740	24.779	17.314	21.405	19.744	13.334
4/4/10 20:00	21.792	25.913	23.793	22.402	17.153	22.787	24.718	17.311	21.419	19.671	13.360
4/5/10 0:00	21.773	25.941	23.827	22.393	17.160	22.844	24.767	17.358	21.407	19.720	13.376
4/5/10 4:00	21.926	25.951	23.844	22.388	17.164	22.847	24.807	17.374	21.390	19.753	13.383
4/5/10 8:00	21.885	25.939	23.839	22.328	17.164	22.797	24.873	17.353	21.383	19.812	13.369
4/5/10 12:00	21.866	25.899	23.801	22.230	17.155	22.695	24.946	17.288	21.367	19.875	13.339
4/5/10 16:00	21.603	25.831	23.721	22.161	17.136	22.552	24.946	17.181	21.362	19.859	13.301
4/5/10 20:00	21.574	25.764	23.637	22.163	17.122	22.488	24.840	17.079	21.339	19.744	13.294
4/6/10 0:00	21.531	25.726	23.603	22.089	17.101	22.431	24.843	17.027	21.315	19.744	13.268
4/6/10 4:00	21.340	25.665	23.536	22.038	17.075	22.331	24.791	16.939	21.278	19.690	13.247
4/6/10 8:00	21.366	25.637	23.499	22.096	17.063	22.324	24.652	16.911	21.247	19.556	13.259
4/6/10 12:00	21.407	25.644	23.509	22.132	17.049	22.355	24.575	16.941	21.254	19.497	13.273
4/6/10 16:00	21.445	25.663	23.533	22.168	17.039	22.403	24.537	16.978	21.287	19.481	13.289
4/6/10 20:00	21.483	25.682	23.545	22.235	17.039	22.471	24.469	17.018	21.287	19.429	13.318
4/7/10 0:00	21.514	25.733	23.615	22.235	17.037	22.540	24.509	17.090	21.278	19.490	13.332
4/7/10 4:00	21.512	25.752	23.637	22.237	17.037	22.555	24.537	17.123	21.268	19.532	13.339
4/7/10 8:00	21.562	25.775	23.666	22.297	17.042	22.604	24.502	17.160	21.257	19.518	13.369
4/7/10 12:00	21.811	25.834	23.723	22.398	17.056	22.726	24.556	17.258	21.268	19.492	13.416
4/7/10 16:00	21.876	25.908	23.810	22.412	17.072	22.828	24.624	17.374	21.294	19.600	13.440
4/7/10 20:00	21.940	25.939	23.854	22.431	17.087	22.861	24.643	17.411	21.311	19.654	13.456
4/8/10 0:00	21.924	25.972	23.890	22.436	17.101	22.904	24.744	17.453	21.318	19.725	13.470
4/8/10 4:00	21.957	25.974	23.899	22.405	17.110	22.885	24.789	17.449	21.313	19.798	13.470
4/8/10 8:00	22.038	25.979	23.902	22.416	17.122	22.885	24.796	17.453	21.311	19.809	13.479
4/8/10 12:00	22.046	25.993	23.931	22.376	17.129	22.875	24.871	17.474	21.353	19.885	13.477
4/8/10 16:00	22.007	25.962	23.897	22.321	17.131	22.799	24.918	17.421	21.390	19.922	13.456
4/8/10 20:00	21.945	25.911	23.844	22.318	17.131	22.761	24.880	17.344	21.388	19.863	13.454
4/9/10 0:00	21.928	25.890	23.820	22.316	17.136	22.759	24.859	17.321	21.360	19.831	13.458
4/9/10 4:00	21.911	25.876	23.810	22.309	17.136	22.745	24.854	17.302	21.334	19.812	13.458
4/9/10 8:00	21.911	25.876	23.803	22.316	17.138	22.747	24.843	17.304	21.320	19.793	13.465
4/9/10 12:00	21.957	25.890	23.834	22.290	17.138	22.742	24.890	17.335	21.350	19.833	13.463
4/9/10 16:00	21.933	25.876	23.810	22.249	17.136	22.690	24.916	17.300	21.402	19.859	13.449
4/9/10 20:00	21.916	25.841	23.776	22.278	17.134	22.680	24.852	17.246	21.407	19.786	13.456
4/10/10 0:00	21.936	25.843	23.784	22.314	17.138	22.723	24.812	17.260	21.388	19.746	13.475
4/10/10 4:00	21.919	25.859	23.791	22.314	17.138	22.742	24.824	17.281	21.369	19.758	13.484
4/10/10 8:00	21.926	25.885	23.825	22.361	17.145	22.792	24.803	17.330	21.367	19.741	13.508
4/10/10 12:00	21.978	25.918	23.866	22.345	17.152	22.804	24.869	17.381	21.407	19.807	13.512
4/10/10 16:00	22.012	25.913	23.863	22.306	17.152	22.766	24.920	17.360	21.456	19.861	13.505
4/10/10 20:00	22.000	25.892	23.837	22.349	17.160	22.778	24.862	17.332	21.461	19.798	13.522
4/11/10 0:00	21.978	25.911	23.858	22.381	17.167	22.828	24.852	17.362	21.444	19.784	13.540
4/11/10 4:00	21.998	25.922	23.868	22.383	17.171	22.840	24.876	17.381	21.428	19.812	13.550
4/11/10 8:00	22.024	25.946	23.899	22.405	17.183	22.873	24.887	17.416	21.428	19.824	13.566
4/11/10 12:00	22.079	25.972	23.928	22.366	17.190	22.868	24.970	17.453	21.466	19.908	13.566
4/11/10 16:00	22.108	25.951	23.904	22.314	17.188	22.802	25.017	17.402	21.503	19.946	13.547
4/11/10 20:00	22.079	25.911	23.856	22.321	17.190	22.773	24.970	17.348	21.501	19.892	13.550
4/12/10 0:00	22.081	25.897	23.854	22.344	17.193	22.783	24.937	17.342	21.475	19.849	13.561
4/12/10 4:00	22.067	25.890	23.844	22.299	17.195	22.761	24.974	17.330	21.459	19.885	13.552
4/12/10 8:00	22.055	25.885	23.841	22.330	17.197	22.766	24.932	17.325	21.433	19.838	13.566
4/12/10 12:00	22.077	25.894	23.856	22.271	17.192	22.737	24.996	17.342	21.461	19.908	13.557
4/12/10 16:00	22.077	25.862	23.813	22.232	17.185	22.666	24.998	17.286	21.498	19.913	13.540
4/12/10 20:00	22.057	25.827	23.774	22.259	17.185	22.652	24.918	17.232	21.494	19.824	13.547
4/13/10 0:00	22.041	25.817	23.764	22.254	17.183	22.659	24.901	17.225	21.466	19.805	13.552
4/13/10 4:00	22.014	25.810	23.760	22.251	17.178	22.652	24.880	17.218	21.433	19.793	13.552
4/13/10 8:00	22.007	25.820	23.767	22.271	17.178	22.669	24.854	17.239	21.409	19.774	13.566
4/13/10 12:00	22.045	25.836	23.786	22.247	17.176	22.661	24.887	17.267	21.430	19.817	13.561
4/13/10 16:00	22.024	25.820	23.769	22.199	17.167	22.616	24.913	17.244	21.459	19.849	13.552
4/13/10 20:00	21.995	25.787	23.733	22.194	17.162	22.578	24.869	17.188	21.456	19.812	13.545
4/14/10 0:00	21.947	25.789	23.726	22.273	17.164	22.628	24.770	17.202	21.428	19.718	13.573
4/14/10 4:00	21.971	25.817	23.760	22.294	17.167	22.676	24.767	17.253	21.412	19.725	13.587
4/14/10 8:00	21.993	25.850	23.786	22.330	17.174	22.721	24.763	17.302	21.407	19.732	13.606
4/14/10 12:00	22.019	25.883	23.832	22.326	17.176	22.752	24.812	17.353	21.419	19.795	13.615
4/14/10 16:00	22.017	25.883	23.832	22.258	17.178	22.707	24.894	17.346	21.440	19.882	13.601
4/14/10 20:00	22.002	25.857	23.808	22.280	17.176	22.685	24.845	17.302	21.437	19.833	13.606

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
4/15/10 0:00	22.014	25.857	23.808	22.299	17.181	22.709	24.824	17.311	21.426	19.819	13.620
4/15/10 4:00	21.995	25.859	23.803	22.297	17.183	22.704	24.824	17.316	21.404	19.819	13.625
4/15/10 8:00	22.007	25.871	23.820	22.318	17.185	22.723	24.814	17.339	21.390	19.817	13.636
4/15/10 12:00	22.055	25.894	23.846	22.299	17.188	22.735	24.862	17.376	21.430	19.861	13.641
4/15/10 16:00	22.038	25.883	23.834	22.282	17.190	22.714	24.871	17.346	21.444	19.878	13.641
4/15/10 20:00	22.031	25.876	23.820	22.330	17.195	22.730	24.819	17.346	21.435	19.779	13.653
4/16/10 0:00	22.036	25.894	23.841	22.349	17.200	22.766	24.817	17.376	21.426	19.842	13.674
4/16/10 4:00	22.069	25.943	23.858	22.399	17.209	22.806	24.967	17.418	21.416	19.863	13.672
4/16/10 8:00	22.129	25.953	23.829	22.421	17.218	22.866	24.974	17.465	21.409	19.899	13.561
4/16/10 12:00	22.175	25.983	23.909	22.399	17.225	22.885	24.979	17.493	21.423	19.953	13.702
4/16/10 16:00	22.189	25.976	23.921	22.354	17.225	22.842	25.000	17.460	21.423	19.990	13.754
4/16/10 20:00	22.158	25.939	23.885	22.340	17.228	22.794	24.977	17.400	21.395	19.960	13.594
4/17/10 0:00	22.124	25.920	23.878	22.340	17.225	22.792	24.958	17.374	21.355	19.932	13.442
4/17/10 4:00	22.098	25.904	23.866	22.330	17.225	22.778	24.948	17.348	21.327	19.917	13.350
4/17/10 8:00	22.115	25.901	23.868	22.349	17.228	22.790	24.920	17.346	21.329	19.885	13.339
4/17/10 12:00	22.175	25.915	23.892	22.315	17.223	22.780	24.965	17.355	21.372	19.934	13.794
4/17/10 16:00	22.143	25.885	23.858	22.234	17.211	22.699	25.021	17.293	21.407	19.983	13.974
4/17/10 20:00	22.096	25.827	23.800	22.253	17.204	22.654	24.939	17.209	21.379	19.880	13.573
4/18/10 0:00	22.057	25.808	23.779	22.258	17.199	22.669	24.899	17.190	21.334	19.828	13.360
4/18/10 4:00	22.038	25.796	23.772	22.253	17.192	22.664	24.880	17.176	21.296	19.807	13.256
4/18/10 8:00	22.053	25.806	23.784	22.277	17.190	22.690	24.850	17.195	21.275	19.779	13.268
4/18/10 12:00	22.088	25.822	23.813	22.249	17.183	22.695	24.894	17.225	21.289	19.833	13.620
4/18/10 16:00	22.084	25.801	23.788	22.196	17.174	22.631	24.923	17.183	21.310	19.861	13.836
4/18/10 20:00	22.048	25.759	23.745	22.210	17.166	22.604	24.859	17.118	21.294	19.786	13.514
4/19/10 0:00	22.007	25.749	23.735	22.217	17.162	22.621	24.826	17.111	21.261	19.753	13.299
4/19/10 4:00	21.988	25.745	23.735	22.213	17.155	22.619	24.817	17.106	21.231	19.741	13.207
4/19/10 8:00	22.002	25.752	23.740	22.230	17.150	22.631	24.793	17.123	21.214	19.727	13.249
4/19/10 12:00	22.029	25.766	23.762	22.182	17.143	22.612	24.843	17.141	21.245	19.788	13.761
4/19/10 16:00	22.050	25.735	23.731	22.131	17.131	22.543	24.864	17.095	21.282	19.812	13.946
4/19/10 20:00	21.981	25.689	23.678	22.136	17.122	22.502	24.796	17.016	21.266	19.730	13.550
4/20/10 0:00	21.930	25.670	23.666	22.134	17.110	22.509	24.758	17.002	21.233	19.697	13.317
4/20/10 4:00	21.890	25.656	23.644	22.119	17.100	22.488	24.737	16.985	21.200	19.685	13.252
4/20/10 8:00	21.878	25.654	23.646	22.136	17.093	22.481	24.699	16.992	21.177	19.654	13.282
4/20/10 12:00	21.923	25.665	23.658	22.107	17.084	22.483	24.718	17.016	21.195	19.687	13.690
4/20/10 16:00	21.859	25.644	23.637	22.066	17.072	22.426	24.725	16.974	21.219	19.701	13.744
4/20/10 20:00	21.828	25.609	23.593	22.072	17.063	22.400	24.669	16.925	21.209	19.647	13.512
4/21/10 0:00	21.806	25.598	23.586	22.069	17.051	22.391	24.633	16.918	21.188	19.622	13.407
4/21/10 4:00	21.777	25.584	23.567	22.050	17.039	22.369	24.615	16.902	21.165	19.617	13.353
4/21/10 8:00	21.753	25.576	23.562	22.069	17.032	22.374	24.565	16.902	21.146	19.577	13.336
4/21/10 12:00	21.739	25.588	23.579	22.043	17.025	22.369	24.577	16.925	21.162	19.610	13.632
4/21/10 16:00	21.729	25.569	23.562	22.004	17.009	22.322	24.586	16.895	21.186	19.626	13.737
4/21/10 20:00	21.686	25.542	23.521	22.024	16.999	22.296	24.516	16.853	21.174	19.565	13.482
4/22/10 0:00	21.655	25.537	23.521	22.026	16.992	22.317	24.485	16.857	21.146	19.546	13.306
4/22/10 4:00	21.629	25.532	23.516	22.007	16.985	22.300	24.481	16.855	21.123	19.558	13.275
4/22/10 8:00	21.605	25.528	23.511	22.012	16.976	22.293	24.448	16.848	21.101	19.535	13.280
4/22/10 12:00	21.605	25.530	23.523	21.981	16.969	22.296	24.471	16.867	21.094	19.577	13.355
4/22/10 16:00	21.579	25.520	23.507	21.961	16.957	22.253	24.462	16.850	21.094	19.579	13.514
4/22/10 20:00	21.524	25.492	23.470	21.949	16.945	22.208	24.424	16.811	21.076	19.554	13.435
4/23/10 0:00	21.409	25.471	23.456	21.899	16.936	22.184	24.434	16.783	21.054	19.535	13.428
4/23/10 4:00	21.313	25.446	23.425	21.916	16.919	22.174	24.514	16.741	21.026	19.539	13.430
4/23/10 8:00	21.263	25.413	23.386	21.873	16.903	22.091	24.412	16.694	20.998	19.561	13.463
4/23/10 12:00	21.265	25.401	23.374	21.880	16.893	22.068	24.325	16.680	20.986	19.504	13.533
4/23/10 16:00	21.258	25.392	23.360	21.839	16.874	22.039	24.304	16.666	21.003	19.509	13.733
4/23/10 20:00	21.201	25.366	23.333	21.885	16.865	22.039	24.194	16.636	20.942	19.410	13.475
4/24/10 0:00	21.213	25.378	23.343	21.911	16.858	22.084	24.149	16.664	20.897	19.387	13.294
4/24/10 4:00	21.174	25.371	23.338	21.892	16.846	22.075	24.149	16.660	20.855	19.401	13.177
4/24/10 8:00	21.189	25.378	23.345	21.911	16.841	22.091	24.119	16.676	20.829	19.399	13.148
4/24/10 12:00	21.229	25.408	23.381	21.911	16.839	22.125	24.130	16.725	20.848	19.427	13.423
4/24/10 16:00	21.225	25.404	23.376	21.883	16.830	22.103	24.149	16.718	20.871	19.464	13.500
4/24/10 20:00	21.239	25.404	23.374	21.957	16.830	22.146	24.069	16.722	20.874	19.389	13.224
4/25/10 0:00	21.248	25.453	23.405	21.995	16.832	22.212	24.067	16.776	20.883	19.398	13.069
4/25/10 4:00	21.280	25.474	23.437	22.026	16.839	22.262	24.076	16.827	20.953	19.422	13.015

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
4/25/10 8:00	21.311	25.520	23.475	22.052	16.844	22.303	24.100	16.876	21.000	19.448	13.017
4/25/10 12:00	21.361	25.539	23.514	22.057	16.853	22.353	24.144	16.932	21.059	19.502	13.111
4/25/10 16:00	21.390	25.553	23.543	22.069	16.860	22.379	24.173	16.960	21.092	19.539	13.174
4/25/10 20:00	21.428	25.572	23.555	22.117	16.874	22.426	24.170	16.992	21.120	19.532	13.069
4/26/10 0:00	21.526	25.602	23.598	22.133	16.886	22.476	24.262	17.037	21.155	19.582	12.982
4/26/10 4:00	21.691	25.628	23.625	22.138	16.898	22.509	24.288	17.071	21.195	19.626	13.357
4/26/10 8:00	21.722	25.651	23.656	22.153	16.914	22.543	24.323	17.109	21.223	19.664	13.371
4/26/10 12:00	21.727	25.658	23.675	22.107	16.921	22.528	24.405	17.120	21.254	19.746	13.362
4/26/10 16:00	21.703	25.630	23.646	22.055	16.924	22.471	24.457	17.069	21.240	19.784	13.343
4/26/10 20:00	21.686	25.598	23.617	22.086	16.933	22.469	24.417	17.030	21.214	19.727	13.355
4/27/10 0:00	21.686	25.598	23.617	22.090	16.943	22.474	24.424	17.034	21.207	19.713	13.362
4/27/10 4:00	21.693	25.607	23.627	22.124	16.952	22.505	24.408	17.048	21.214	19.690	13.378
4/27/10 8:00	21.737	25.661	23.658	22.172	16.969	22.559	24.410	17.092	21.240	19.676	13.402
4/27/10 12:00	21.816	25.693	23.711	22.145	16.978	22.595	24.497	17.158	21.294	19.772	13.406
4/27/10 16:00	21.823	25.677	23.709	22.081	16.983	22.538	24.584	17.134	21.308	19.845	13.388
4/27/10 20:00	21.792	25.623	23.661	22.059	16.985	22.481	24.575	17.053	21.256	19.809	13.378
4/28/10 0:00	21.751	25.593	23.625	22.035	16.987	22.460	24.572	17.011	21.228	19.798	13.376
4/28/10 4:00	21.720	25.560	23.598	21.997	16.985	22.407	24.582	16.967	21.193	19.791	13.360
4/28/10 8:00	21.698	25.527	23.560	21.949	16.980	22.348	24.586	16.922	21.162	19.791	13.343
4/28/10 12:00	21.631	25.488	23.523	21.856	16.971	22.241	24.619	16.867	21.125	19.826	13.310
4/28/10 16:00	21.368	25.418	23.446	21.784	16.950	22.115	24.586	16.760	21.059	19.786	13.275
4/28/10 20:00	21.306	25.338	23.357	21.755	16.931	22.037	24.492	16.641	20.960	19.683	13.254
4/29/10 0:00	21.189	25.287	23.302	21.720	16.914	21.975	24.427	16.571	20.888	19.622	13.235
4/29/10 4:00	21.064	25.238	23.244	21.679	16.888	21.896	24.361	16.504	20.822	19.568	13.214
4/29/10 8:00	21.047	25.212	23.201	21.720	16.874	21.877	24.229	16.476	20.772	19.460	13.219
4/29/10 12:00	21.081	25.233	23.208	21.739	16.862	21.906	24.170	16.522	20.784	19.429	13.224
4/29/10 16:00	21.064	25.235	23.208	21.722	16.846	21.904	24.151	16.529	20.784	19.445	13.219
4/29/10 20:00	20.954	25.196	23.164	21.653	16.827	21.847	24.154	16.473	20.730	19.452	13.193
4/30/10 0:00	21.019	25.210	23.157	21.822	16.827	21.930	24.100	16.506	20.723	19.272	13.219
4/30/10 4:00	21.117	25.268	23.309	21.921	16.832	22.070	24.032	16.632	20.782	19.305	13.059
4/30/10 8:00	21.136	25.336	23.331	21.885	16.832	22.103	24.055	16.704	20.836	19.406	13.118
4/30/10 12:00	21.172	25.366	23.338	21.885	16.829	22.110	24.053	16.746	20.878	19.455	13.367
4/30/10 16:00	21.201	25.380	23.355	21.887	16.829	22.125	24.057	16.757	20.902	19.478	13.233
4/30/10 20:00	21.213	25.387	23.398	21.949	16.834	22.179	24.025	16.778	20.913	19.436	13.306
5/1/10 0:00	21.301	25.436	23.444	21.997	16.846	22.265	24.057	16.850	20.953	19.464	13.329
5/1/10 4:00	21.361	25.474	23.470	22.021	16.855	22.315	24.079	16.904	21.000	19.502	13.348
5/1/10 8:00	21.411	25.511	23.545	22.045	16.865	22.360	24.104	16.960	21.047	19.544	13.367
5/1/10 12:00	21.485	25.546	23.560	22.011	16.874	22.374	24.194	17.013	21.101	19.647	13.364
5/1/10 16:00	21.485	25.520	23.531	21.940	16.874	22.307	24.269	16.967	21.101	19.715	13.329
5/1/10 20:00	21.461	25.476	23.487	21.942	16.877	22.279	24.243	16.904	21.064	19.669	13.327
5/2/10 0:00	21.433	25.455	23.458	21.933	16.879	22.272	24.243	16.878	21.040	19.652	13.322
5/2/10 4:00	21.406	25.441	23.446	21.940	16.881	22.262	24.229	16.857	21.026	19.631	13.320
5/2/10 8:00	21.435	25.460	23.461	21.980	16.888	22.305	24.206	16.890	21.040	19.600	13.338
5/2/10 12:00	21.488	25.488	23.492	21.968	16.891	22.315	24.255	16.932	21.076	19.657	13.341
5/2/10 16:00	21.507	25.485	23.492	21.956	16.895	22.300	24.278	16.922	21.085	19.671	13.334
5/2/10 20:00	21.514	25.485	23.497	22.030	16.905	22.357	24.220	16.925	21.080	19.593	13.362
5/3/10 0:00	21.531	25.525	23.533	22.066	16.917	22.433	24.288	16.985	21.113	19.610	13.383
5/3/10 4:00	21.562	25.560	23.598	22.085	16.928	22.483	24.323	17.044	21.153	19.652	13.399
5/3/10 8:00	21.724	25.630	23.627	22.150	16.945	22.552	24.309	17.109	21.198	19.650	13.430
5/3/10 12:00	21.806	25.665	23.682	22.114	16.959	22.585	24.424	17.183	21.263	19.769	13.435
5/3/10 16:00	21.806	25.647	23.678	22.037	16.966	22.524	24.523	17.151	21.275	19.866	13.413
5/3/10 20:00	21.775	25.595	23.629	22.028	16.971	22.488	24.506	17.076	21.233	19.826	13.409
5/4/10 0:00	21.739	25.565	23.603	22.006	16.976	22.455	24.516	17.037	21.205	19.816	13.404
5/4/10 4:00	21.712	25.532	23.572	21.970	16.976	22.407	24.528	16.990	21.174	19.809	13.392
5/4/10 8:00	21.705	25.516	23.557	21.961	16.976	22.381	24.516	16.971	21.153	19.784	13.390
5/4/10 12:00	21.703	25.504	23.543	21.913	16.973	22.334	24.546	16.957	21.151	19.805	13.371
5/4/10 16:00	21.600	25.457	23.497	21.853	16.961	22.243	24.542	16.883	21.108	19.802	13.345
5/4/10 20:00	21.547	25.408	23.432	21.944	16.961	22.241	24.396	16.813	21.040	19.624	13.369
5/5/10 0:00	21.612	25.520	23.547	22.045	16.968	22.369	24.394	16.899	21.061	19.558	13.409
5/5/10 4:00	21.650	25.537	23.557	22.045	16.975	22.424	24.405	16.967	21.106	19.617	13.423
5/5/10 8:00	21.715	25.567	23.603	22.085	16.987	22.488	24.405	17.041	21.158	19.643	13.449
5/5/10 12:00	21.820	25.614	23.644	22.097	16.997	22.531	24.457	17.123	21.228	19.718	13.465

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
5/5/10 16:00	21.851	25.616	23.658	22.047	17.004	22.512	24.537	17.120	21.249	19.800	13.458
5/5/10 20:00	21.835	25.595	23.634	22.078	17.009	22.516	24.509	17.092	21.230	19.760	13.472
5/6/10 0:00	21.835	25.607	23.646	22.097	17.020	22.554	24.518	17.111	21.238	19.765	13.486
5/6/10 4:00	21.820	25.602	23.649	22.025	17.025	22.521	24.603	17.104	21.240	19.838	13.474
5/6/10 8:00	21.820	25.588	23.627	22.040	17.032	22.493	24.584	17.083	21.233	19.814	13.477
5/6/10 12:00	21.830	25.572	23.622	21.942	17.030	22.426	24.671	17.060	21.223	19.896	13.451
5/6/10 16:00	21.763	25.511	23.560	21.870	17.018	22.307	24.669	16.957	21.172	19.885	13.418
5/6/10 20:00	21.679	25.446	23.490	21.863	17.011	22.250	24.593	16.874	21.097	19.795	13.409
5/7/10 0:00	21.581	25.408	23.454	21.884	17.004	22.231	24.499	16.825	21.040	19.676	13.411
5/7/10 4:00	21.621	25.441	23.451	21.992	17.006	22.307	24.457	16.871	21.047	19.610	13.449
5/7/10 8:00	21.643	25.546	23.598	22.061	17.013	22.412	24.450	16.969	21.090	19.582	13.481
5/7/10 12:00	21.770	25.698	23.656	22.116	17.023	22.519	24.504	17.097	21.174	19.640	13.514
5/7/10 16:00	21.822	25.745	23.687	22.152	17.034	22.578	24.518	17.167	21.242	19.692	13.538
5/7/10 20:00	21.904	25.813	23.755	22.202	17.051	22.647	24.572	17.206	21.277	19.697	13.564
5/8/10 0:00	22.124	25.864	23.772	22.231	17.067	22.725	24.598	17.279	21.334	19.751	13.594
5/8/10 4:00	22.172	25.866	23.798	22.233	17.081	22.766	24.629	17.325	21.376	19.816	13.608
5/8/10 8:00	22.210	25.841	23.863	22.267	17.098	22.809	24.697	17.376	21.425	19.854	13.634
5/8/10 12:00	22.277	25.838	23.892	22.224	17.114	22.818	24.784	17.416	21.479	19.964	13.641
5/8/10 16:00	22.260	25.796	23.858	22.145	17.117	22.733	24.861	17.355	21.475	20.040	13.615
5/8/10 20:00	22.232	25.735	23.798	22.133	17.124	22.680	24.838	17.265	21.423	19.993	13.606
5/9/10 0:00	22.200	25.714	23.776	22.152	17.133	22.683	24.803	17.246	21.400	19.941	13.610
5/9/10 4:00	22.181	25.696	23.757	22.101	17.133	22.649	24.845	17.223	21.383	19.960	13.601
5/9/10 8:00	22.169	25.682	23.743	22.109	17.136	22.630	24.824	17.204	21.362	19.929	13.599
5/9/10 12:00	22.155	25.661	23.726	22.054	17.133	22.578	24.859	17.171	21.346	19.948	13.582
5/9/10 16:00	22.124	25.614	23.680	21.970	17.124	22.485	24.890	17.099	21.303	19.974	13.549
5/9/10 20:00	22.074	25.560	23.613	21.975	17.119	22.426	24.810	17.020	21.242	19.877	13.538
5/10/10 0:00	22.033	25.532	23.584	21.967	17.110	22.405	24.760	16.983	21.200	19.821	13.528
5/10/10 4:00	21.952	25.499	23.550	21.915	17.098	22.341	24.749	16.934	21.160	19.809	13.505
5/10/10 8:00	21.708	25.441	23.497	21.843	17.079	22.241	24.713	16.850	21.097	19.727	13.542
5/10/10 12:00	21.621	25.392	23.441	21.755	17.055	22.148	24.699	16.780	21.045	19.802	13.430
5/10/10 16:00	21.411	25.312	23.340	21.688	17.027	22.018	24.582	16.666	20.956	19.805	13.395
5/10/10 20:00	21.337	25.249	23.215	21.671	16.999	21.932	24.485	16.580	20.876	19.683	13.371
5/11/10 0:00	21.396	25.275	23.266	21.824	16.990	22.044	24.299	16.636	20.871	19.483	13.406
5/11/10 4:00	21.444	25.331	23.362	21.939	16.987	22.160	24.248	16.729	20.906	19.394	13.442
5/11/10 8:00	21.619	25.422	23.509	21.989	16.990	22.291	24.290	16.876	20.984	19.443	13.465
5/11/10 12:00	21.652	25.492	23.538	22.027	16.994	22.369	24.314	16.974	21.059	19.502	13.486
5/11/10 16:00	21.700	25.513	23.545	21.953	16.987	22.345	24.405	16.997	21.104	19.638	13.467
5/11/10 20:00	21.686	25.502	23.528	22.011	16.992	22.360	24.342	16.976	21.101	19.589	13.474
5/12/10 0:00	21.705	25.513	23.557	21.905	16.990	22.348	24.462	16.988	21.118	19.725	13.449
5/12/10 4:00	21.643	25.464	23.494	21.882	16.982	22.267	24.443	16.915	21.080	19.706	13.423
5/12/10 8:00	21.631	25.446	23.473	21.908	16.978	22.269	24.389	16.897	21.064	19.650	13.425
5/12/10 12:00	21.631	25.432	23.461	21.874	16.973	22.248	24.403	16.885	21.052	19.669	13.409
5/12/10 16:00	21.609	25.413	23.437	21.888	16.968	22.215	24.358	16.853	21.031	19.617	13.404
5/12/10 20:00	21.612	25.411	23.434	21.936	16.968	22.243	24.297	16.853	21.017	19.565	13.413
5/13/10 0:00	21.628	25.436	23.463	21.939	16.968	22.286	24.311	16.895	21.045	19.586	13.418
5/13/10 4:00	21.614	25.455	23.478	21.946	16.968	22.307	24.323	16.913	21.057	19.607	13.418
5/13/10 8:00	21.645	25.492	23.552	22.049	16.978	22.386	24.307	16.971	21.092	19.549	13.451
5/13/10 12:00	21.760	25.555	23.598	22.063	16.987	22.459	24.347	17.067	21.160	19.626	13.467
5/13/10 16:00	21.818	25.593	23.637	22.049	16.994	22.485	24.412	17.116	21.214	19.708	13.474
5/13/10 20:00	21.846	25.595	23.625	22.101	17.006	22.519	24.386	17.109	21.216	19.675	13.493
5/14/10 0:00	21.927	25.626	23.673	22.113	17.020	22.578	24.469	17.155	21.249	19.718	13.510
5/14/10 4:00	21.923	25.637	23.675	22.106	17.027	22.580	24.502	17.169	21.270	19.767	13.514
5/14/10 8:00	22.069	25.665	23.738	22.135	17.041	22.633	24.563	17.216	21.303	19.791	13.531
5/14/10 12:00	22.114	25.696	23.755	22.135	17.053	22.640	24.593	17.258	21.348	19.842	13.538
5/14/10 16:00	22.078	25.679	23.743	22.056	17.055	22.583	24.683	17.225	21.353	19.927	13.517
5/14/10 20:00	22.040	25.626	23.678	22.061	17.058	22.526	24.638	17.139	21.301	19.861	13.510
5/15/10 0:00	22.021	25.611	23.661	22.056	17.058	22.540	24.633	17.123	21.280	19.845	13.512
5/15/10 4:00	21.997	25.595	23.646	22.013	17.058	22.502	24.664	17.102	21.259	19.859	13.500
5/15/10 8:00	21.999	25.584	23.637	22.027	17.055	22.490	24.633	17.088	21.242	19.826	13.505
5/15/10 12:00	22.009	25.584	23.634	21.996	17.053	22.474	24.662	17.088	21.252	19.847	13.498
5/15/10 16:00	21.985	25.553	23.605	21.950	17.048	22.417	24.678	17.041	21.223	19.854	13.479
5/15/10 20:00	21.956	25.523	23.569	21.972	17.044	22.393	24.612	16.997	21.186	19.774	13.479

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
5/16/10 0:00	21.942	25.525	23.576	21.972	17.041	22.412	24.605	17.006	21.179	19.767	13.484
5/16/10 4:00	21.918	25.509	23.557	21.941	17.034	22.369	24.605	16.976	21.162	19.767	13.470
5/16/10 8:00	21.901	25.502	23.545	21.948	17.030	22.367	24.575	16.971	21.148	19.737	13.472
5/16/10 12:00	21.906	25.497	23.545	21.927	17.025	22.355	24.577	16.969	21.143	19.746	13.467
5/16/10 16:00	21.887	25.481	23.519	21.915	17.018	22.322	24.565	16.946	21.129	19.739	13.460
5/16/10 20:00	21.860	25.467	23.511	21.927	17.015	22.317	24.525	16.929	21.106	19.704	13.465
5/17/10 0:00	21.841	25.478	23.519	21.946	17.013	22.338	24.495	16.950	21.113	19.683	13.472
5/17/10 4:00	21.834	25.485	23.528	21.960	17.013	22.357	24.483	16.967	21.118	19.678	13.484
5/17/10 8:00	21.844	25.506	23.540	21.979	17.013	22.379	24.473	16.997	21.136	19.675	13.496
5/17/10 12:00	21.872	25.530	23.564	21.986	17.015	22.407	24.492	17.034	21.160	19.706	13.505
5/17/10 16:00	21.877	25.534	23.576	21.962	17.015	22.395	24.525	17.039	21.172	19.741	13.503
5/17/10 20:00	21.860	25.518	23.562	21.946	17.015	22.369	24.525	17.011	21.153	19.751	13.500
5/18/10 0:00	21.844	25.509	23.545	21.970	17.018	22.371	24.490	16.999	21.143	19.718	13.507
5/18/10 4:00	21.827	25.509	23.547	21.948	17.018	22.371	24.506	17.004	21.141	19.739	13.505
5/18/10 8:00	21.832	25.504	23.543	21.972	17.018	22.362	24.471	17.006	21.136	19.708	13.512
5/18/10 12:00	21.865	25.523	23.569	21.917	17.015	22.348	24.537	17.032	21.162	19.781	13.503
5/18/10 16:00	21.851	25.490	23.535	21.855	17.008	22.267	24.565	16.978	21.141	19.812	13.479
5/18/10 20:00	21.803	25.439	23.480	21.867	17.004	22.234	24.485	16.908	21.082	19.727	13.474
5/19/10 0:00	21.757	25.420	23.451	21.874	16.997	22.226	24.436	16.888	21.050	19.683	13.474
5/19/10 4:00	21.729	25.410	23.437	21.836	16.989	22.210	24.443	16.883	21.035	19.704	13.463
5/19/10 8:00	21.698	25.403	23.429	21.881	16.989	22.210	24.370	16.878	21.014	19.638	13.477
5/19/10 12:00	21.690	25.411	23.437	21.845	16.985	22.198	24.391	16.890	21.021	19.673	13.472
5/19/10 16:00	21.667	25.399	23.422	21.831	16.978	22.179	24.377	16.871	21.010	19.666	13.467
5/19/10 20:00	21.621	25.387	23.405	21.855	16.973	22.172	24.321	16.853	20.993	19.624	13.472
5/20/10 0:00	21.602	25.387	23.408	21.838	16.968	22.174	24.323	16.862	20.988	19.640	13.472
5/20/10 4:00	21.583	25.375	23.386	21.812	16.961	22.134	24.318	16.836	20.970	19.664	13.463
5/20/10 8:00	21.564	25.368	23.388	21.828	16.954	22.136	24.276	16.834	20.958	19.643	13.465
5/20/10 12:00	21.561	25.373	23.391	21.833	16.952	22.141	24.259	16.846	20.965	19.640	13.470
5/20/10 16:00	21.552	25.378	23.393	21.836	16.947	22.150	24.245	16.855	20.967	19.668	13.474
5/20/10 20:00	21.537	25.387	23.398	21.869	16.945	22.169	24.212	16.867	20.972	19.666	13.486
5/21/10 0:00	21.542	25.408	23.427	21.893	16.947	22.207	24.201	16.899	20.991	19.652	13.503
5/21/10 4:00	21.540	25.429	23.441	21.915	16.949	22.226	24.198	16.922	21.010	19.638	13.512
5/21/10 8:00	21.568	25.462	23.475	21.965	16.954	22.291	24.187	16.978	21.042	19.624	13.535
5/21/10 12:00	21.614	25.495	23.509	21.946	16.959	22.312	24.250	17.030	21.087	19.692	13.540
5/21/10 16:00	21.633	25.495	23.511	21.893	16.957	22.281	24.318	17.025	21.103	19.760	13.531
5/21/10 20:00	21.609	25.453	23.480	21.867	16.957	22.236	24.316	16.960	21.066	19.748	13.519
5/22/10 0:00	21.585	25.427	23.453	21.848	16.954	22.212	24.304	16.927	21.038	19.737	13.512
5/22/10 4:00	21.552	25.392	23.417	21.797	16.945	22.150	24.318	16.885	21.005	19.744	13.493
5/22/10 8:00	21.537	25.368	23.393	21.785	16.940	22.115	24.290	16.848	20.984	19.718	13.482
5/22/10 12:00	21.480	25.345	23.379	21.747	16.931	22.067	24.285	16.820	20.960	19.711	13.463
5/22/10 16:00	21.458	25.315	23.338	21.735	16.921	22.027	24.243	16.780	20.927	19.673	13.456
5/22/10 20:00	21.420	25.294	23.314	21.783	16.916	22.032	24.154	16.755	20.890	19.584	13.460
5/23/10 0:00	21.403	25.310	23.333	21.792	16.914	22.070	24.133	16.780	20.901	19.577	13.472
5/23/10 4:00	21.384	25.322	23.338	21.821	16.912	22.084	24.102	16.804	20.904	19.556	13.479
5/23/10 8:00	21.387	25.357	23.374	21.881	16.916	22.155	24.067	16.862	20.937	19.539	13.503
5/23/10 12:00	21.432	25.410	23.429	21.898	16.921	22.210	24.135	16.941	20.991	19.589	13.519
5/23/10 16:00	21.480	25.436	23.461	21.895	16.926	22.229	24.158	16.978	21.033	19.645	13.526
5/23/10 20:00	21.470	25.434	23.456	21.905	16.931	22.241	24.156	16.976	21.035	19.650	13.531
5/24/10 0:00	21.489	25.450	23.475	21.948	16.938	22.291	24.140	17.004	21.049	19.638	13.554
5/24/10 4:00	21.497	25.474	23.485	21.931	16.947	22.305	24.187	17.039	21.071	19.692	13.559
5/24/10 8:00	21.516	25.485	23.511	21.948	16.952	22.319	24.198	17.060	21.092	19.706	13.571
5/24/10 12:00	21.576	25.504	23.533	21.924	16.959	22.317	24.257	17.088	21.122	19.767	13.568
5/24/10 16:00	21.578	25.492	23.518	21.888	16.961	22.281	24.292	17.062	21.118	19.798	13.561
5/24/10 20:00	21.552	25.457	23.487	21.883	16.961	22.264	24.278	17.016	21.087	19.765	13.561
5/25/10 0:00	21.576	25.483	23.588	21.946	16.973	22.345	24.306	17.062	21.101	19.732	13.587
5/25/10 4:00	21.556	25.492	23.550	21.993	16.985	22.362	24.250	17.078	21.113	19.706	13.601
5/25/10 8:00	21.578	25.534	23.579	22.029	16.996	22.419	24.255	17.134	21.153	19.725	13.622
5/25/10 12:00	21.633	25.572	23.615	22.003	17.006	22.445	24.330	17.183	21.197	19.809	13.632
5/25/10 16:00	21.671	25.576	23.617	21.970	17.013	22.424	24.391	17.185	21.209	19.866	13.629
5/25/10 20:00	21.674	25.558	23.600	21.984	17.022	22.412	24.377	17.155	21.197	19.842	13.634
5/26/10 0:00	21.659	25.558	23.600	22.010	17.032	22.431	24.365	17.160	21.195	19.826	13.648
5/26/10 4:00	21.669	25.567	23.610	22.041	17.044	22.454	24.356	17.176	21.207	19.812	13.662

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
5/26/10 8:00	21.705	25.583	23.632	22.022	17.051	22.464	24.408	17.199	21.226	19.800	13.667
5/26/10 12:00	21.767	25.607	23.656	22.015	17.058	22.481	24.452	17.232	21.256	19.863	13.676
5/26/10 16:00	21.798	25.590	23.632	21.948	17.060	22.426	24.523	17.204	21.249	19.931	13.660
5/26/10 20:00	21.769	25.553	23.603	21.979	17.067	22.409	24.464	17.153	21.207	19.868	13.662
5/27/10 0:00	21.764	25.560	23.605	22.008	17.077	22.445	24.443	17.164	21.207	19.845	13.679
5/27/10 4:00	21.757	25.567	23.610	22.001	17.079	22.447	24.466	17.178	21.212	19.870	13.683
5/27/10 8:00	21.776	25.586	23.627	22.027	17.088	22.476	24.466	17.202	21.233	19.868	13.697
5/27/10 12:00	21.829	25.604	23.651	21.991	17.093	22.459	24.525	17.225	21.259	19.929	13.695
5/27/10 16:00	21.848	25.581	23.622	21.943	17.095	22.409	24.563	17.188	21.244	19.957	13.679
5/27/10 20:00	21.808	25.532	23.583	21.934	17.093	22.371	24.520	17.127	21.193	19.906	13.672
5/28/10 0:00	21.762	25.523	23.569	21.962	17.095	22.386	24.473	17.118	21.169	19.856	13.681
5/28/10 4:00	21.741	25.530	23.569	21.960	17.098	22.390	24.473	17.127	21.169	19.859	13.683
5/28/10 8:00	21.745	25.537	23.574	21.953	17.098	22.388	24.485	17.137	21.176	19.866	13.683
5/28/10 12:00	21.798	25.551	23.596	21.926	17.098	22.371	24.516	17.158	21.197	19.901	13.679
5/28/10 16:00	21.805	25.520	23.567	21.869	17.093	22.310	24.539	17.113	21.174	19.924	13.660
5/28/10 20:00	21.743	25.469	23.514	21.859	17.086	22.269	24.487	17.039	21.115	19.861	13.648
5/29/10 0:00	21.681	25.453	23.492	21.883	17.086	22.276	24.424	17.023	21.087	19.807	13.650
5/29/10 4:00	21.640	25.448	23.473	21.881	17.081	22.269	24.400	17.022	21.073	19.790	13.648
5/29/10 8:00	21.633	25.460	23.494	21.897	17.081	22.283	24.382	17.043	21.082	19.781	13.655
5/29/10 12:00	21.683	25.481	23.511	21.866	17.077	22.269	24.415	17.071	21.108	19.819	13.648
5/29/10 16:00	21.657	25.457	23.487	21.826	17.067	22.217	24.424	17.034	21.087	19.835	13.629
5/29/10 20:00	21.561	25.415	23.444	21.838	17.062	22.193	24.356	16.971	21.035	19.769	13.620
5/30/10 0:00	21.513	25.408	23.432	21.871	17.060	22.212	24.292	16.971	21.019	19.718	13.629
5/30/10 4:00	21.480	25.410	23.432	21.850	17.053	22.207	24.302	16.981	21.021	19.741	13.622
5/30/10 8:00	21.501	25.448	23.477	21.917	17.058	22.272	24.257	17.039	21.052	19.711	13.650
5/30/10 12:00	21.535	25.483	23.506	21.941	17.060	22.302	24.264	17.088	21.089	19.734	13.662
5/30/10 16:00	21.547	25.502	23.521	21.952	17.062	22.326	24.278	17.118	21.113	19.760	13.679
5/30/10 20:00	21.528	25.516	23.535	21.967	17.067	22.359	24.273	17.132	21.120	19.769	13.693
5/31/10 0:00	21.549	25.544	23.562	21.996	17.072	22.400	24.285	17.171	21.148	19.783	13.711
5/31/10 4:00	21.544	25.555	23.581	21.988	17.077	22.409	24.321	17.188	21.164	19.826	13.718
5/31/10 8:00	21.585	25.574	23.593	21.998	17.081	22.428	24.337	17.211	21.186	19.842	13.733
5/31/10 12:00	21.664	25.593	23.622	21.969	17.084	22.424	24.403	17.244	21.221	19.908	13.733
5/31/10 16:00	21.695	25.576	23.591	21.919	17.086	22.369	24.443	17.211	21.211	19.934	13.718
5/31/10 20:00	21.650	25.527	23.552	21.914	17.081	22.328	24.405	17.141	21.157	19.887	13.716
6/1/10 0:00	21.611	25.516	23.533	21.941	17.084	22.345	24.363	17.139	21.136	19.847	13.728
6/1/10 4:00	21.590	25.509	23.526	21.907	17.079	22.328	24.382	17.132	21.125	19.870	13.721
6/1/10 8:00	21.590	25.504	23.521	21.902	17.079	22.317	24.375	17.125	21.122	19.861	13.718
6/1/10 12:00	21.609	25.490	23.514	21.821	17.072	22.252	24.433	17.111	21.117	19.917	13.700
6/1/10 16:00	21.542	25.441	23.461	21.740	17.060	22.143	24.447	17.030	21.068	19.922	13.667
6/1/10 20:00	21.271	25.361	23.359	21.833	17.051	22.077	24.245	16.918	20.970	19.708	13.655
6/2/10 0:00	21.276	25.382	23.386	21.833	17.048	22.165	24.231	16.976	20.972	19.725	13.672
6/2/10 4:00	21.291	25.425	23.441	21.888	17.048	22.229	24.184	17.034	21.000	19.678	13.690
6/2/10 8:00	21.329	25.464	23.451	21.952	17.055	22.283	24.154	17.088	21.031	19.727	13.714
6/2/10 12:00	21.425	25.520	23.511	21.952	17.055	22.333	24.212	17.167	21.096	19.788	13.726
6/2/10 16:00	21.477	25.534	23.530	21.926	17.055	22.319	24.266	17.171	21.120	19.840	13.723
6/2/10 20:00	21.465	25.513	23.504	21.929	17.053	22.312	24.250	17.134	21.101	19.819	13.728
6/3/10 0:00	21.449	25.523	23.511	21.945	17.055	22.345	24.248	17.153	21.103	19.826	13.740
6/3/10 4:00	21.434	25.520	23.497	21.952	17.055	22.340	24.243	17.155	21.101	19.823	13.742
6/3/10 8:00	21.465	25.544	23.530	21.974	17.055	22.371	24.250	17.190	21.129	19.830	13.756
6/3/10 12:00	21.535	25.558	23.550	21.917	17.053	22.350	24.330	17.211	21.155	19.901	13.747
6/3/10 16:00	21.532	25.523	23.514	21.847	17.041	22.271	24.372	17.151	21.129	19.929	13.723
6/3/10 20:00	21.484	25.462	23.449	21.854	17.029	22.229	24.297	17.071	21.059	19.835	13.716
6/4/10 0:00	21.451	25.448	23.432	21.861	17.022	22.231	24.259	17.060	21.038	19.800	13.718
6/4/10 4:00	21.432	25.460	23.444	21.895	17.018	22.267	24.229	17.083	21.042	19.776	13.730
6/4/10 8:00	21.427	25.467	23.446	21.888	17.013	22.262	24.231	17.088	21.052	19.774	13.728
6/4/10 12:00	21.465	25.488	23.465	21.890	17.011	22.269	24.245	17.113	21.070	19.795	13.730
6/4/10 16:00	21.494	25.478	23.453	21.852	17.001	22.238	24.273	17.095	21.063	19.816	13.718
6/4/10 20:00	21.456	25.443	23.417	21.857	16.994	22.222	24.229	17.055	21.023	19.767	13.714
6/5/10 0:00	21.422	25.439	23.412	21.837	16.987	22.226	24.229	17.050	21.009	19.776	13.711
6/5/10 4:00	21.372	25.429	23.398	21.885	16.985	22.224	24.158	17.039	20.995	19.708	13.714
6/5/10 8:00	21.396	25.462	23.417	21.900	16.985	22.276	24.168	17.090	21.026	19.736	13.723
6/5/10 12:00	21.413	25.483	23.444	21.900	16.982	22.286	24.189	17.120	21.049	19.765	13.728

TABLE S3.1 (Cont.)

	Water Level, ft from Top of Casing[a]										
Date and Time	MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW12	MW13
6/5/10 16:00	21.439	25.499	23.441	21.931	16.985	22.300	24.179	17.146	21.066	19.751	13.735
6/5/10 20:00	21.439	25.527	23.482	22.031	16.994	22.397	24.109	17.192	21.096	19.694	13.775
6/6/10 0:00	21.456	25.583	23.550	22.065	17.006	22.485	24.151	17.276	21.155	19.746	13.798
6/6/10 4:00	21.520	25.637	23.595	22.112	17.020	22.571	24.283	17.355	21.216	19.793	13.831
6/6/10 8:00	21.616	25.693	23.658	22.141	17.039	22.635	24.299	17.434	21.284	19.859	13.855
6/6/10 12:00	21.705	25.735	23.709	22.117	17.051	22.644	24.382	17.481	21.343	19.957	13.864
6/6/10 16:00	21.772	25.726	23.702	22.060	17.060	22.606	24.462	17.453	21.345	20.025	13.855
6/6/10 20:00	21.740	25.677	23.649	22.058	17.065	22.564	24.440	17.383	21.294	19.990	13.852
6/7/10 0:00	21.724	25.670	23.649	22.060	17.077	22.580	24.445	17.383	21.282	19.988	13.862
6/7/10 4:00	21.700	25.651	23.617	22.031	17.079	22.540	24.466	17.358	21.258	19.999	13.852
6/7/10 8:00	21.690	25.642	23.598	22.069	17.086	22.530	24.419	17.344	21.247	19.941	13.864
6/7/10 12:00	21.719	25.670	23.656	21.995	17.091	22.559	24.523	17.374	21.275	20.058	13.855
6/7/10 16:00	21.717	25.625	23.596	21.945	17.088	22.457	24.539	17.320	21.228	20.037	13.831
6/7/10 20:00	21.700	25.586	23.547	21.926	17.086	22.400	24.513	17.253	21.179	19.995	13.822
6/8/10 0:00	21.654	25.558	23.514	21.914	17.081	22.331	24.483	17.216	21.143	19.967	13.815
6/8/10 4:00	21.587	25.525	23.461	21.935	17.084	22.257	24.407	17.174	21.101	19.847	13.808
6/8/10 8:00	21.578	25.513	23.456	21.914	17.074	22.300	24.398	17.162	21.080	19.877	13.796
6/8/10 12:00	21.597	25.546	23.482	21.976	17.079	22.438	24.342	17.213	21.108	19.884	13.815
6/8/10 16:00	21.609	25.565	23.499	21.940	17.077	22.504	24.391	17.230	21.122	19.920	13.808
6/8/10 20:00	21.592	25.558	23.482	21.995	17.077	22.395	24.327	17.223	21.113	19.849	13.817
6/9/10 0:00	21.604	25.595	23.526	22.017	17.081	22.362	24.335	17.281	21.150	19.866	13.836
6/9/10 4:00	21.604	25.618	23.543	22.024	17.084	22.509	24.360	17.311	21.174	19.894	13.845
6/9/10 8:00	21.621	25.653	23.569	22.096	17.093	22.559	24.330	17.358	21.207	19.868	13.871
6/9/10 12:00	21.695	25.689	23.610	22.065	17.100	22.573	24.417	17.400	21.254	19.959	13.871
6/9/10 16:00	21.726	25.667	23.588	21.998	17.100	22.511	24.483	17.360	21.240	20.009	13.850
6/9/10 20:00	21.702	25.618	23.540	21.986	17.095	22.469	24.454	17.293	21.190	19.966	13.840
6/10/10 0:00	21.678	25.602	23.523	21.981	17.098	22.464	24.436	17.276	21.164	19.945	13.838
6/10/10 4:00	21.645	25.567	23.489	21.923	17.088	22.400	24.452	17.232	21.127	19.955	13.812
6/10/10 8:00	21.626	25.539	23.458	21.873	17.081	22.350	24.459	17.195	21.094	19.964	13.791

[a] Values measured by using PT2X absolute-pressure and water level recorders.

TABLE S3.2 Ambient water levels in Zone 2 monitoring wells from April 1, 2009, to June 10, 2010.

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
4/1/09 20:00	32.828	23.587				
4/2/09 0:00	32.842	23.615				
4/2/09 4:00	32.865	23.645				
4/2/09 8:00	32.868	23.650				
4/2/09 12:00	32.842	23.622				
4/2/09 16:00	32.802	23.570				
4/2/09 20:00	32.832	23.612				
4/3/09 0:00	32.837	23.622				
4/3/09 4:00	32.825	23.601				
4/3/09 8:00	32.847	23.624				
4/3/09 12:00	32.849	23.626				
4/3/09 16:00	32.778	23.540				
4/3/09 20:00	32.839	23.615				
4/4/09 0:00	32.835	23.619				
4/4/09 4:00	32.811	23.587				
4/4/09 8:00	32.792	23.561				
4/4/09 12:00	32.721	23.472				
4/4/09 16:00	32.629	23.353				
4/4/09 20:00	32.773	23.521				
4/5/09 0:00	32.825	23.603				
4/5/09 4:00	32.908	23.722				
4/5/09 8:00	32.983	23.825				
4/5/09 12:00	33.035	23.902				
4/5/09 16:00	33.021	23.870				
4/5/09 20:00	33.021	23.888				
4/6/09 0:00	33.005	23.867				
4/6/09 4:00	32.957	23.802				
4/6/09 8:00	32.972	23.811				
4/6/09 12:00	32.955	23.788				
4/6/09 16:00	32.917	23.741				
4/6/09 20:00	32.931	23.755				
4/7/09 0:00	32.915	23.727				
4/7/09 4:00	32.882	23.687				
4/7/09 8:00	32.861	23.661				
4/7/09 12:00	32.795	23.573				
4/7/09 16:00	32.733	23.489				
4/7/09 20:00	32.778	23.547				
4/8/09 0:00	32.828	23.615				
4/8/09 4:00	32.837	23.626				
4/8/09 8:00	32.875	23.666				
4/8/09 12:00	32.875	23.673				
4/8/09 16:00	32.804	23.580				
4/8/09 20:00	32.809	23.573				
4/9/09 0:00	32.839	23.619				
4/9/09 4:00	32.797	23.575				
4/9/09 8:00	32.851	23.631				
4/9/09 12:00	32.776	23.549				
4/9/09 16:00	32.809	23.582				
4/9/09 20:00	32.865	23.661				
4/10/09 0:00	32.901	23.713				
4/10/09 4:00	32.917	23.757				
4/10/09 8:00	32.839	23.806				
4/10/09 12:00	32.799	23.827				
4/10/09 16:00	32.771	23.774				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
4/10/09 20:00	32.804	23.778				
4/11/09 0:00	32.835	23.785				
4/11/09 4:00	32.844	23.776				
4/11/09 8:00	32.856	23.774				
4/11/09 12:00	32.847	23.753				
4/11/09 16:00	32.797	23.666				
4/11/09 20:00	32.778	23.636				
4/12/09 0:00	32.792	23.654				
4/12/09 4:00	32.785	23.645				
4/12/09 8:00	32.806	23.645				
4/12/09 12:00	32.804	23.636				
4/12/09 16:00	32.797	23.622				
4/12/09 20:00	32.811	23.636				
4/13/09 0:00	32.745	23.631				
4/13/09 4:00	32.457	23.554				
4/13/09 8:00	32.441	23.568				
4/13/09 12:00	32.476	23.575				
4/13/09 16:00	32.523	23.577				
4/13/09 20:00	32.578	23.591				
4/14/09 0:00	32.639	23.624				
4/14/09 4:00	32.696	23.657				
4/14/09 8:00	32.719	23.666				
4/14/09 12:00	32.733	23.666				
4/14/09 16:00	32.710	23.615				
4/14/09 20:00	32.726	23.622				
4/15/09 0:00	32.755	23.647				
4/15/09 4:00	32.780	23.673				
4/15/09 8:00	32.799	23.694				
4/15/09 12:00	32.799	23.692				
4/15/09 16:00	32.752	23.615				
4/15/09 20:00	32.764	23.622				
4/16/09 0:00	32.811	23.673				
4/16/09 4:00	32.847	23.713				
4/16/09 8:00	32.837	23.708				
4/16/09 12:00	32.830	23.685				
4/16/09 16:00	32.813	23.659				
4/16/09 20:00	32.806	23.652				
4/17/09 0:00	32.825	23.680				
4/17/09 4:00	32.849	23.701				
4/17/09 8:00	32.837	23.696				
4/17/09 12:00	32.821	23.666				
4/17/09 16:00	32.762	23.587				
4/17/09 20:00	32.776	23.608				
4/18/09 0:00	32.773	23.596				
4/18/09 4:00	32.752	23.580				
4/18/09 8:00	32.783	23.617				
4/18/09 12:00	32.780	23.608				
4/18/09 16:00	32.752	23.570				
4/18/09 20:00	32.764	23.589				
4/19/09 0:00	32.804	23.643				
4/19/09 4:00	32.788	23.645				
4/19/09 8:00	32.606	23.692				
4/19/09 12:00	32.561	23.664				
4/19/09 16:00	32.540	23.596				
4/19/09 20:00	32.587	23.622				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
4/20/09 0:00	32.594	23.594				
4/20/09 4:00	32.594	23.563				
4/20/09 8:00	32.660	23.624				
4/20/09 12:00	32.667	23.610				
4/20/09 16:00	32.637	23.563				
4/20/09 20:00	32.665	23.575				
4/21/09 0:00	32.707	23.624				
4/21/09 4:00	32.719	23.629				
4/21/09 8:00	32.736	23.631				
4/21/09 12:00	32.710	23.596				
4/21/09 16:00	32.637	23.500				
4/21/09 20:00	32.665	23.523				
4/22/09 0:00	32.707	23.580				
4/22/09 4:00	32.717	23.582				
4/22/09 8:00	32.747	23.629				
4/22/09 12:00	32.731	23.598				
4/22/09 16:00	32.681	23.533				
4/22/09 20:00	32.688	23.540				
4/23/09 0:00	32.717	23.575				
4/23/09 4:00	32.707	23.561				
4/23/09 8:00	32.733	23.598				
4/23/09 12:00	32.726	23.582				
4/23/09 16:00	32.693	23.531				
4/23/09 20:00	32.717	23.566				
4/24/09 0:00	32.733	23.598				
4/24/09 4:00	32.721	23.568				
4/24/09 8:00	32.740	23.596				
4/24/09 12:00	32.757	23.603				
4/24/09 16:00	32.736	23.584				
4/24/09 20:00	32.804	23.664				
4/25/09 0:00	32.806	23.680				
4/25/09 4:00	32.809	23.687				
4/25/09 8:00	32.880	23.767				
4/25/09 12:00	32.882	23.778				
4/25/09 16:00	32.851	23.725				
4/25/09 20:00	32.823	23.689				
4/26/09 0:00	32.813	23.631				
4/26/09 4:00	32.729	23.617				
4/26/09 8:00	32.738	23.640				
4/26/09 12:00	32.762	23.596				
4/26/09 16:00	32.776	23.615				
4/26/09 20:00	31.924	23.547				
4/27/09 0:00	31.457	23.531				
4/27/09 4:00	31.282	23.465				
4/27/09 8:00	31.556	23.477				
4/27/09 12:00	31.839	23.514				
4/27/09 16:00	31.943	23.451				
4/27/09 20:00	32.035	23.456				
4/28/09 0:00	32.106	23.400				
4/28/09 4:00	32.108	23.395				
4/28/09 8:00	32.167	23.430				
4/28/09 12:00	32.158	23.350				
4/28/09 16:00	32.136	23.294				
4/28/09 20:00	32.101	23.222				
4/29/09 0:00	32.125	23.238				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
4/29/09 4:00	32.082	23.173				
4/29/09 8:00	32.087	23.182				
4/29/09 12:00	32.056	23.135				
4/29/09 16:00	32.023	23.096				
4/29/09 20:00	32.018	23.093				
4/30/09 0:00	32.042	23.126				
4/30/09 4:00	32.035	23.121				
4/30/09 8:00	32.087	23.199				
4/30/09 12:00	31.516	23.079				
4/30/09 16:00	30.888	23.000				
4/30/09 20:00	30.907	22.890				
5/1/09 0:00	31.023	22.888				
5/1/09 4:00	31.096	22.897				
5/1/09 8:00	31.134	22.913				
5/1/09 12:00	31.122	22.881				
5/1/09 16:00	31.034	22.773				
5/1/09 20:00	30.980	22.710				
5/2/09 0:00	30.983	22.726				
5/2/09 4:00	30.924	22.675				
5/2/09 8:00	30.886	22.624				
5/2/09 12:00	30.860	22.600				
5/2/09 16:00	30.787	22.516				
5/2/09 20:00	30.756	22.483				
5/3/09 0:00	30.782	22.525				
5/3/09 4:00	30.791	22.532				
5/3/09 8:00	30.810	22.551				
5/3/09 12:00	30.803	22.532				
5/3/09 16:00	30.772	22.488				
5/3/09 20:00	30.787	22.497				
5/4/09 0:00	30.808	22.511				
5/4/09 4:00	30.806	22.495				
5/4/09 8:00	30.813	22.493				
5/4/09 12:00	30.803	22.474				
5/4/09 16:00	30.744	22.388				
5/4/09 20:00	30.758	22.397				
5/5/09 0:00	30.787	22.420				
5/5/09 4:00	30.756	22.383				
5/5/09 8:00	30.763	22.373				
5/5/09 12:00	30.756	22.355				
5/5/09 16:00	30.704	22.280				
5/5/09 20:00	30.716	22.282				
5/6/09 0:00	30.725	22.289				
5/6/09 4:00	30.704	22.257				
5/6/09 8:00	30.706	22.254				
5/6/09 12:00	30.732	22.266				
5/6/09 16:00	30.747	22.271				
5/6/09 20:00	30.768	22.287				
5/7/09 0:00	30.794	22.310				
5/7/09 4:00	30.803	22.308				
5/7/09 8:00	30.772	22.259				
5/7/09 12:00	30.791	22.264				
5/7/09 16:00	30.739	22.186				
5/7/09 20:00	30.749	22.191				
5/8/09 0:00	30.794	22.231				
5/8/09 4:00	30.784	22.229				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
5/8/09 8:00	30.824	22.233				
5/8/09 12:00	30.841	22.250				
5/8/09 16:00	30.857	22.254				
5/8/09 20:00	30.952	22.352				
5/9/09 0:00	31.030	22.425				
5/9/09 4:00	31.034	22.434				
5/9/09 8:00	31.084	22.469				
5/9/09 12:00	31.075	22.434				
5/9/09 16:00	31.027	22.362				
5/9/09 20:00	31.018	22.334				
5/10/09 0:00	31.058	22.373				
5/10/09 4:00	31.030	22.308				
5/10/09 8:00	31.096	22.278				
5/10/09 12:00	31.060	22.392				
5/10/09 16:00	31.065	22.364				
5/10/09 20:00	31.070	22.285				
5/11/09 0:00	31.089	22.334				
5/11/09 4:00	31.082	22.315				
5/11/09 8:00	31.079	22.306				
5/11/09 12:00	31.060	22.268				
5/11/09 16:00	30.997	22.182				
5/11/09 20:00	30.980	22.156				
5/12/09 0:00	30.999	22.175				
5/12/09 4:00	30.964	22.126				
5/12/09 8:00	30.959	22.121				
5/12/09 12:00	30.905	22.042				
5/12/09 16:00	30.865	22.004				
5/12/09 20:00	30.815	21.948				
5/13/09 0:00	30.824	21.960				
5/13/09 4:00	30.810	21.929				
5/13/09 8:00	30.841	21.974				
5/13/09 12:00	30.895	22.030				
5/13/09 16:00	30.987	22.135				
5/13/09 20:00	31.079	22.229				
5/14/09 0:00	31.167	22.334				
5/14/09 4:00	31.174	22.327				
5/14/09 8:00	31.230	22.380				
5/14/09 12:00	31.211	22.331				
5/14/09 16:00	31.100	22.184				
5/14/09 20:00	31.051	22.119				
5/15/09 0:00	31.058	22.135				
5/15/09 4:00	31.008	22.067				
5/15/09 8:00	30.982	22.032				
5/15/09 12:00	30.692	21.999				
5/15/09 16:00	30.378	21.939				
5/15/09 20:00	30.565	22.063				
5/16/09 0:00	30.706	22.133				
5/16/09 4:00	30.853	22.228				
5/16/09 8:00	30.964	22.310				
5/16/09 12:00	30.990	22.280				
5/16/09 16:00	30.947	22.179				
5/16/09 20:00	30.942	22.140				
5/17/09 0:00	30.994	22.179				
5/17/09 4:00	30.975	22.147				
5/17/09 8:00	30.987	22.084				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
5/17/09 12:00	30.952	22.074				
5/17/09 16:00	30.888	21.974				
5/17/09 20:00	30.905	21.983				
5/18/09 0:00	30.924	22.002				
5/18/09 4:00	30.919	21.985				
5/18/09 8:00	30.931	21.992				
5/18/09 12:00	30.893	21.934				
5/18/09 16:00	30.876	21.892				
5/18/09 20:00	30.909	21.932				
5/19/09 0:00	30.942	21.969				
5/19/09 4:00	30.961	21.985				
5/19/09 8:00	30.994	22.025				
5/19/09 12:00	30.973	21.978				
5/19/09 16:00	30.952	21.932				
5/19/09 20:00	30.971	21.950				
5/20/09 0:00	31.018	22.009				
5/20/09 4:00	30.997	21.985				
5/20/09 8:00	31.004	21.988				
5/20/09 12:00	30.975	21.936				
5/20/09 16:00	30.964	21.904				
5/20/09 20:00	30.975	21.913				
5/21/09 0:00	31.025	21.971				
5/21/09 4:00	31.067	22.027				
5/21/09 8:00	31.089	22.051				
5/21/09 12:00	31.091	22.049				
5/21/09 16:00	31.075	22.006				
5/21/09 20:00	31.096	22.020				
5/22/09 0:00	31.129	22.058				
5/22/09 4:00	31.126	22.060				
5/22/09 8:00	31.143	22.077				
5/22/09 12:00	31.126	22.044				
5/22/09 16:00	31.100	21.999				
5/22/09 20:00	31.112	21.999				
5/23/09 0:00	31.145	22.051				
5/23/09 4:00	31.141	22.051				
5/23/09 8:00	31.171	22.086				
5/23/09 12:00	31.167	22.063				
5/23/09 16:00	31.124	21.997				
5/23/09 20:00	31.148	22.013				
5/24/09 0:00	31.233	22.119				
5/24/09 4:00	31.181	22.067				
5/24/09 8:00	31.207	22.105				
5/24/09 12:00	31.197	22.081				
5/24/09 16:00	31.157	22.020				
5/24/09 20:00	31.167	22.030				
5/25/09 0:00	31.195	22.074				
5/25/09 4:00	31.176	22.051				
5/25/09 8:00	31.167	22.048				
5/25/09 12:00	31.181	22.053				
5/25/09 16:00	31.136	21.988				
5/25/09 20:00	31.169	22.011				
5/26/09 0:00	31.211	22.074				
5/26/09 4:00	31.183	22.053				
5/26/09 8:00	31.202	22.079				
5/26/09 12:00	31.251	22.137				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
5/26/09 16:00	31.266	22.154				
5/26/09 20:00	31.287	22.179				
5/27/09 0:00	31.308	22.196				
5/27/09 4:00	31.310	22.184				
5/27/09 8:00	31.341	22.221				
5/27/09 12:00	31.339	22.256				
5/27/09 16:00	31.334	22.205				
5/27/09 20:00	31.329	22.196				
5/28/09 0:00	31.355	22.228				
5/28/09 4:00	31.360	22.203				
5/28/09 8:00	31.386	22.172				
5/28/09 12:00	31.393	22.273				
5/28/09 16:00	31.372	22.221				
5/28/09 20:00	31.391	22.231				
5/29/09 0:00	31.431	22.289				
5/29/09 4:00	31.433	22.294				
5/29/09 8:00	31.457	22.336				
5/29/09 12:00	31.459	22.320				
5/29/09 16:00	31.443	22.278				
5/29/09 20:00	31.443	22.268				
5/30/09 0:00	31.450	22.278				
5/30/09 4:00	31.412	22.233				
5/30/09 8:00	31.461	22.299				
5/30/09 12:00	31.478	22.315				
5/30/09 16:00	31.483	22.301				
5/30/09 20:00	31.506	22.315				
5/31/09 0:00	31.537	22.362				
5/31/09 4:00	31.532	22.357				
5/31/09 8:00	31.525	22.341				
5/31/09 12:00	31.490	22.289				
5/31/09 16:00	31.447	22.210				
5/31/09 20:00	31.461	22.214				
6/1/09 0:00	31.509	22.294				
6/1/09 4:00	31.568	22.385				
6/1/09 8:00	31.575	22.394				
6/1/09 12:00	31.589	22.399				
6/1/09 16:00	31.556	22.331				
6/1/09 20:00	31.643	22.432				
6/2/09 0:00	31.657	22.488				
6/2/09 4:00	31.700	22.528				
6/2/09 8:00	31.704	22.523				
6/2/09 12:00	31.709	22.539				
6/2/09 16:00	31.700	22.514				
6/2/09 20:00	31.719	22.537				
6/3/09 0:00	31.730	22.546				
6/3/09 4:00	31.726	22.539				
6/3/09 8:00	31.749	22.565				
6/3/09 12:00	31.730	22.537				
6/3/09 16:00	31.714	22.495				
6/3/09 20:00	31.700	22.467				
6/4/09 0:00	31.737	22.516				
6/4/09 4:00	31.707	22.488				
6/4/09 8:00	31.730	22.514				
6/4/09 12:00	31.733	22.507				
6/4/09 16:00	31.688	22.436				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
6/4/09 20:00	31.683	22.415				
6/5/09 0:00	31.702	22.446				
6/5/09 4:00	31.695	22.448				
6/5/09 8:00	31.707	22.471				
6/5/09 12:00	31.700	22.448				
6/5/09 16:00	31.674	22.404				
6/5/09 20:00	31.676	22.397				
6/6/09 0:00	31.688	22.422				
6/6/09 4:00	31.624	22.350				
6/6/09 8:00	31.660	22.404				
6/6/09 12:00	31.648	22.376				
6/6/09 16:00	31.655	22.366				
6/6/09 20:00	31.693	22.399				
6/7/09 0:00	31.719	22.455				
6/7/09 4:00	31.733	22.462				
6/7/09 8:00	31.740	22.488				
6/7/09 12:00	31.733	22.476				
6/7/09 16:00	31.752	22.478				
6/7/09 20:00	31.745	22.448				
6/8/09 0:00	31.801	22.588				
6/8/09 4:00	31.841	22.607				
6/8/09 8:00	31.888	22.684				
6/8/09 12:00	31.912	22.710				
6/8/09 16:00	31.896	22.679				
6/8/09 20:00	31.889	22.654				
6/9/09 0:00	31.912	22.684				
6/9/09 4:00	31.872	22.633				
6/9/09 8:00	31.865	22.605				
6/9/09 12:00	31.811	22.546				
6/9/09 16:00	31.804	22.542				
6/9/09 20:00	31.792	22.537				
6/10/09 0:00	31.813	22.572				
6/10/09 4:00	31.820	22.572				
6/10/09 8:00	31.815	22.556				
6/10/09 12:00	31.815	22.544				
6/10/09 16:00	31.822	22.542				
6/10/09 20:00	31.789	22.497				
6/11/09 0:00	31.822	22.551				
6/11/09 4:00	31.820	22.542				
6/11/09 8:00	31.848	22.584				
6/11/09 12:00	31.858	22.600				
6/11/09 16:00	31.860	22.584				
6/11/09 20:00	31.865	22.584				
6/12/09 0:00	31.898	22.633				
6/12/09 4:00	31.851	22.581				
6/12/09 8:00	31.860	22.586				
6/12/09 12:00	31.837	22.556				
6/12/09 16:00	31.858	22.560				
6/12/09 20:00	31.905	22.619				
6/13/09 0:00	31.957	22.693				
6/13/09 4:00	31.940	22.682				
6/13/09 8:00	31.983	22.731				
6/13/09 12:00	31.980	22.724				
6/13/09 16:00	31.933	22.640				
6/13/09 20:00	31.917	22.619				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
6/14/09 0:00	31.940	22.656				
6/14/09 4:00	31.926	22.640				
6/14/09 8:00	31.940	22.663				
6/14/09 12:00	31.945	22.665				
6/14/09 16:00	31.933	22.633				
6/14/09 20:00	31.917	22.607				
6/15/09 0:00	31.912	22.626				
6/15/09 4:00	31.893	22.598				
6/15/09 8:00	31.896	22.605				
6/15/09 12:00	31.936	22.642				
6/15/09 16:00	31.924	22.614				
6/15/09 20:00	31.877	22.542				
6/16/09 0:00	31.905	22.607				
6/16/09 4:00	31.898	22.640				
6/16/09 8:00	31.905	22.654				
6/16/09 12:00	31.957	22.717				
6/16/09 16:00	31.950	22.679				
6/16/09 20:00	31.959	22.670				
6/17/09 0:00	31.988	22.712				
6/17/09 4:00	31.964	22.684				
6/17/09 8:00	31.990	22.717				
6/17/09 12:00	31.957	22.665				
6/17/09 16:00	31.922	22.616				
6/17/09 20:00	31.914	22.584				
6/18/09 0:00	31.950	22.633				
6/18/09 4:00	31.940	22.630				
6/18/09 8:00	31.978	22.684				
6/18/09 12:00	31.966	22.656				
6/18/09 16:00	31.959	22.635				
6/18/09 20:00	31.976	22.637				
6/19/09 0:00	32.018	22.693				
6/19/09 4:00	32.002	22.684				
6/19/09 8:00	32.039	22.750				
6/19/09 12:00	32.056	22.747				
6/19/09 16:00	32.035	22.712				
6/19/09 20:00	32.106	22.799				
6/20/09 0:00	32.127	22.834				
6/20/09 4:00	32.120	22.824				
6/20/09 8:00	32.136	22.848				
6/20/09 12:00	32.124	22.824				
6/20/09 16:00	32.108	22.822				
6/20/09 20:00	32.073	22.750				
6/21/09 0:00	32.063	22.792				
6/21/09 4:00	31.933	22.698				
6/21/09 8:00	31.931	22.707				
6/21/09 12:00	31.957	22.717				
6/21/09 16:00	31.983	22.703				
6/21/09 20:00	32.006	22.696				
6/22/09 0:00	32.035	22.735				
6/22/09 4:00	32.047	22.750				
6/22/09 8:00	32.063	22.773				
6/22/09 12:00	32.065	22.759				
6/22/09 16:00	32.068	22.740				
6/22/09 20:00	32.084	22.747				
6/23/09 0:00	32.122	22.803				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
6/23/09 4:00	32.127	22.813				
6/23/09 8:00	32.150	22.845				
6/23/09 12:00	32.160	22.850				
6/23/09 16:00	32.141	22.803				
6/23/09 20:00	32.172	22.820				
6/24/09 0:00	32.190	22.862				
6/24/09 4:00	32.188	22.878				
6/24/09 8:00	32.207	22.901				
6/24/09 12:00	32.176	22.843				
6/24/09 16:00	32.176	22.817				
6/24/09 20:00	32.202	22.843				
6/25/09 0:00	32.285	22.932				
6/25/09 4:00	32.219	22.885				
6/25/09 8:00	32.221	22.901				
6/25/09 12:00	32.231	22.901				
6/25/09 16:00	32.235	22.885				
6/25/09 20:00	32.231	22.864				
6/26/09 0:00	32.271	22.925				
6/26/09 4:00	32.254	22.915				
6/26/09 8:00	32.285	22.955				
6/26/09 12:00	32.271	22.939				
6/26/09 16:00	32.266	22.911				
6/26/09 20:00	32.266	22.894				
6/27/09 0:00	32.273	22.913				
6/27/09 4:00	32.278	22.925				
6/27/09 8:00	32.294	22.958				
6/27/09 12:00	32.346	23.030				
6/27/09 16:00	32.410	23.105				
6/27/09 20:00	32.384	23.070				
6/28/09 0:00	32.417	23.109				
6/28/09 4:00	32.419	23.042				
6/28/09 8:00	32.424	23.123				
6/28/09 12:00	32.391	23.072				
6/28/09 16:00	32.360	23.007				
6/28/09 20:00	32.334	22.960				
6/29/09 0:00	32.358	23.000				
6/29/09 4:00	32.339	22.946				
6/29/09 8:00	32.360	22.913				
6/29/09 12:00	32.367	23.025				
6/29/09 16:00	32.379	23.014				
6/29/09 20:00	32.386	23.011				
6/30/09 0:00	32.405	23.049				
6/30/09 4:00	32.405	23.065				
6/30/09 8:00	32.426	23.095				
6/30/09 12:00	32.457	23.135				
6/30/09 16:00	32.450	23.105				
6/30/09 20:00	32.459	23.109				
7/1/09 0:00	32.504	23.166				
7/1/09 4:00	32.490	23.161				
7/1/09 8:00	32.509	23.187				
7/1/09 12:00	32.500	23.166				
7/1/09 16:00	32.495	23.135				
7/1/09 20:00	32.518	23.142				
7/2/09 0:00	32.535	23.189				
7/2/09 4:00	32.549	23.233				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
7/2/09 8:00	32.547	23.231				
7/2/09 12:00	32.561	23.245				
7/2/09 16:00	32.559	23.222				
7/2/09 20:00	32.561	23.208				
7/3/09 0:00	32.577	23.236				
7/3/09 4:00	32.547	23.217				
7/3/09 8:00	32.573	23.250				
7/3/09 12:00	32.521	23.198				
7/3/09 16:00	32.490	23.147				
7/3/09 20:00	32.490	23.112				
7/4/09 0:00	32.471	23.114				
7/4/09 4:00	32.478	23.116				
7/4/09 8:00	32.504	23.158				
7/4/09 12:00	32.530	23.205				
7/4/09 16:00	32.537	23.210				
7/4/09 20:00	32.554	23.215				
7/5/09 0:00	32.599	23.280				
7/5/09 4:00	32.568	23.240				
7/5/09 8:00	32.599	23.287				
7/5/09 12:00	32.589	23.275				
7/5/09 16:00	32.573	23.238				
7/5/09 20:00	32.568	23.215				
7/6/09 0:00	32.601	23.264				
7/6/09 4:00	32.582	23.252				
7/6/09 8:00	32.592	23.268				
7/6/09 12:00	32.580	23.247				
7/6/09 16:00	32.566	23.205				
7/6/09 20:00	32.568	23.191				
7/7/09 0:00	32.606	23.254				
7/7/09 4:00	32.577	23.233				
7/7/09 8:00	32.582	23.250				
7/7/09 12:00	32.577	23.233				
7/7/09 16:00	32.589	23.231				
7/7/09 20:00	32.601	23.231				
7/8/09 0:00	32.627	23.280				
7/8/09 4:00	32.622	23.285				
7/8/09 8:00	32.651	23.322				
7/8/09 12:00	32.634	23.301				
7/8/09 16:00	32.639	23.292				
7/8/09 20:00	32.676	23.329				
7/9/09 0:00	32.686	23.362				
7/9/09 4:00	32.681	23.362				
7/9/09 8:00	32.686	23.374				
7/9/09 12:00	32.710	23.402				
7/9/09 16:00	32.705	23.367				
7/9/09 20:00	32.707	23.369				
7/10/09 0:00	32.738	23.402				
7/10/09 4:00	32.686	23.357				
7/10/09 8:00	32.738	23.423				
7/10/09 12:00	32.728	23.406				
7/10/09 16:00	32.754	23.432				
7/10/09 20:00	32.759	23.427				
7/11/09 0:00	32.794	23.486				
7/11/09 4:00	32.778	23.474				
7/11/09 8:00	32.797	23.511				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
7/11/09 12:00	32.792	23.518				
7/11/09 16:00	32.816	23.525				
7/11/09 20:00	32.785	23.467				
7/12/09 0:00	32.780	23.465				
7/12/09 4:00	32.769	23.451				
7/12/09 8:00	32.724	23.357				
7/12/09 12:00	32.761	23.451				
7/12/09 16:00	32.773	23.446				
7/12/09 20:00	32.759	23.420				
7/13/09 0:00	32.799	23.472				
7/13/09 4:00	32.797	23.469				
7/13/09 8:00	32.761	23.434				
7/13/09 12:00	32.780	23.465				
7/13/09 16:00	32.759	23.409				
7/13/09 20:00	32.766	23.404				
7/14/09 0:00	32.778	23.420				
7/14/09 4:00	32.783	23.427				
7/14/09 8:00	32.738	23.411				
7/14/09 12:00	32.719	23.374				
7/14/09 16:00	32.735	23.378				
7/14/09 20:00	32.773	23.413				
7/15/09 0:00	32.823	23.483				
7/15/09 4:00	32.863	23.561				
7/15/09 8:00	32.877	23.591				
7/15/09 12:00	32.877	23.591				
7/15/09 16:00	32.856	23.535				
7/15/09 20:00	32.861	23.525				
7/16/09 0:00	32.853	23.525				
7/16/09 4:00	32.820	23.493				
7/16/09 8:00	32.865	23.568				
7/16/09 12:00	32.839	23.518				
7/16/09 16:00	32.839	23.525				
7/16/09 20:00	32.853	23.532				
7/17/09 0:00	32.889	23.581				
7/17/09 4:00	32.889	23.584				
7/17/09 8:00	32.901	23.617				
7/17/09 12:00	32.886	23.593				
7/17/09 16:00	32.865	23.542				
7/17/09 20:00	32.879	23.549				
7/18/09 0:00	32.891	23.574				
7/18/09 4:00	32.896	23.593				
7/18/09 8:00	32.908	23.607				
7/18/09 12:00	32.894	23.593				
7/18/09 16:00	32.879	23.560				
7/18/09 20:00	32.898	23.565				
7/19/09 0:00	32.910	23.593				
7/19/09 4:00	32.901	23.591				
7/19/09 8:00	32.905	23.610				
7/19/09 12:00	32.884	23.570				
7/19/09 16:00	32.858	23.523				
7/19/09 20:00	32.865	23.516				
7/20/09 0:00	32.870	23.532				
7/20/09 4:00	32.849	23.537				
7/20/09 8:00	32.872	23.539				
7/20/09 12:00	32.865	23.537				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
7/20/09 16:00	32.858	23.528				
7/20/09 20:00	32.858	23.551				
7/21/09 0:00	32.908	23.614				
7/21/09 4:00	32.886	23.596				
7/21/09 8:00	32.915	23.635				
7/21/09 12:00	32.915	23.640				
7/21/09 16:00	32.905	23.610				
7/21/09 20:00	32.898	23.586				
7/22/09 0:00	32.922	23.621				
7/22/09 4:00	32.905	23.607				
7/22/09 8:00	32.922	23.631				
7/22/09 12:00	32.917	23.626				
7/22/09 16:00	32.901	23.577				
7/22/09 20:00	32.910	23.574				
7/23/09 0:00	32.915	23.596				
7/23/09 4:00	32.920	23.612				
7/23/09 8:00	32.922	23.624				
7/23/09 12:00	32.917	23.617				
7/23/09 16:00	32.905	23.577				
7/23/09 20:00	32.901	23.570				
7/24/09 0:00	32.924	23.593				
7/24/09 4:00	32.886	23.551				
7/24/09 8:00	32.908	23.591				
7/24/09 12:00	32.905	23.589				
7/24/09 16:00	32.910	23.577				
7/24/09 20:00	32.927	23.589				
7/25/09 0:00	32.986	23.675				
7/25/09 4:00	33.019	23.731				
7/25/09 8:00	33.009	23.729				
7/25/09 12:00	33.016	23.740				
7/25/09 16:00	33.007	23.710				
7/25/09 20:00	33.004	23.691				
7/26/09 0:00	33.033	23.736				
7/26/09 4:00	33.023	23.736				
7/26/09 8:00	33.019	23.733				
7/26/09 12:00	33.021	23.733				
7/26/09 16:00	33.007	23.698				
7/26/09 20:00	33.016	23.694				
7/27/09 0:00	33.028	23.731				
7/27/09 4:00	32.997	23.691				
7/27/09 8:00	33.014	23.715				
7/27/09 12:00	33.007	23.712				
7/27/09 16:00	32.997	23.677				
7/27/09 20:00	33.021	23.698				
7/28/09 0:00	33.040	23.752				
7/28/09 4:00	33.014	23.710				
7/28/09 8:00	33.014	23.722				
7/28/09 12:00	33.028	23.745				
7/28/09 16:00	33.030	23.752				
7/28/09 20:00	33.004	23.719				
7/29/09 0:00	33.042	23.768				
7/29/09 4:00	33.016	23.747				
7/29/09 8:00	33.037	23.778				
7/29/09 12:00	33.021	23.747				
7/29/09 16:00	33.007	23.724				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
7/29/09 20:00	33.019	23.729				
7/30/09 0:00	33.023	23.745				
7/30/09 4:00	33.049	23.785				
7/30/09 8:00	33.075	23.818				
7/30/09 12:00	33.070	23.808				
7/30/09 16:00	33.059	23.783				
7/30/09 20:00	33.073	23.790				
7/31/09 0:00	33.104	23.836				
7/31/09 4:00	33.073	23.806				
7/31/09 8:00	33.089	23.829				
7/31/09 12:00	33.061	23.787				
7/31/09 16:00	33.030	23.726				
7/31/09 20:00	33.019	23.708				
8/1/09 0:00	33.148	23.876				
8/1/09 4:00	33.070	23.792				
8/1/09 8:00	33.113	23.862				
8/1/09 12:00	33.111	23.862				
8/1/09 16:00	33.092	23.822				
8/1/09 20:00	33.087	23.794				
8/2/09 0:00	33.101	23.818				
8/2/09 4:00	33.075	23.789				
8/2/09 8:00	33.056	23.773				
8/2/09 12:00	33.042	23.747				
8/2/09 16:00	33.023	23.705				
8/2/09 20:00	33.049	23.726				
8/3/09 0:00	33.063	23.757				
8/3/09 4:00	33.042	23.740				
8/3/09 8:00	33.073	23.787				
8/3/09 12:00	33.075	23.783				
8/3/09 16:00	33.061	23.747				
8/3/09 20:00	33.082	23.768				
8/4/09 0:00	33.089	23.792				
8/4/09 4:00	33.080	23.775				
8/4/09 8:00	33.089	23.846				
8/4/09 12:00	33.170	23.923				
8/4/09 16:00	33.146	23.885				
8/4/09 20:00	33.148	23.867				
8/5/09 0:00	33.170	23.904				
8/5/09 4:00	33.165	23.892				
8/5/09 8:00	33.170	23.909				
8/5/09 12:00	33.096	23.834				
8/5/09 16:00	33.137	23.853				
8/5/09 20:00	33.139	23.846				
8/6/09 0:00	33.170	23.890				
8/6/09 4:00	33.127	23.841				
8/6/09 8:00	33.144	23.876				
8/6/09 12:00	33.141	23.850				
8/6/09 16:00	33.061	23.740				
8/6/09 20:00	33.085	23.759				
8/7/09 0:00	33.096	23.789				
8/7/09 4:00	33.056	23.743				
8/7/09 8:00	33.080	23.778				
8/7/09 12:00	33.066	23.761				
8/7/09 16:00	33.061	23.733				
8/7/09 20:00	33.078	23.747				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
8/8/09 0:00	33.125	23.820				
8/8/09 4:00	33.125	23.822				
8/8/09 8:00	33.129	23.832				
8/8/09 12:00	33.122	23.815				
8/8/09 16:00	33.125	23.806				
8/8/09 20:00	33.151	23.839				
8/9/09 0:00	33.203	23.923				
8/9/09 4:00	33.196	23.918				
8/9/09 8:00	33.198	23.930				
8/9/09 12:00	33.167	23.890				
8/9/09 16:00	33.155	23.841				
8/9/09 20:00	33.193	23.916				
8/10/09 0:00	33.205	23.939				
8/10/09 4:00	33.203	23.951				
8/10/09 8:00	33.219	23.965				
8/10/09 12:00	33.245	24.007				
8/10/09 16:00	33.167	23.913				
8/10/09 20:00	33.174	23.909				
8/11/09 0:00	33.207	23.951				
8/11/09 4:00	33.186	23.927				
8/11/09 8:00	33.217	23.969				
8/11/09 12:00	33.200	23.948				
8/11/09 16:00	33.167					
8/11/09 20:00	33.167	23.906				
8/12/09 0:00	33.193	23.946				
8/12/09 4:00	33.181	23.946				
8/12/09 8:00	33.196	23.960				
8/12/09 12:00	33.186	23.948				
8/12/09 16:00	33.165	23.899				
8/12/09 20:00	33.174	23.897				
8/13/09 0:00	33.200	23.941				
8/13/09 4:00	33.179	23.929				
8/13/09 8:00	33.207	23.972				
8/13/09 12:00	33.207	23.969				
8/13/09 16:00	33.184	23.918				
8/13/09 20:00	33.217	23.922				
8/14/09 0:00	33.236	23.962				
8/14/09 4:00	33.239	23.972				
8/14/09 8:00	33.246	23.993				
8/14/09 12:00	33.234	23.972				
8/14/09 16:00	33.213	23.922				
8/14/09 20:00	33.208	23.906				
8/15/09 0:00	33.227	23.943				
8/15/09 4:00	33.201	23.918				
8/15/09 8:00	33.217	23.943				
8/15/09 12:00	33.215	23.946				
8/15/09 16:00	33.196	23.911				
8/15/09 20:00	33.229	23.943				
8/16/09 0:00	33.217	23.946				
8/16/09 4:00	33.300	24.044				
8/16/09 8:00	33.267	24.028				
8/16/09 12:00	33.300	24.081				
8/16/09 16:00	33.262	24.016				
8/16/09 20:00	33.283	24.032				
8/17/09 0:00	33.274	24.030				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
8/17/09 4:00	33.283	24.046				
8/17/09 8:00	33.331	24.107				
8/17/09 12:00	33.288	24.060				
8/17/09 16:00	33.265	24.023				
8/17/09 20:00	33.276	24.018				
8/18/09 0:00	33.312	24.070				
8/18/09 4:00	33.290	24.049				
8/18/09 8:00	33.286	24.051				
8/18/09 12:00	33.269	24.023				
8/18/09 16:00	33.217	23.943				
8/18/09 20:00	33.224	23.939				
8/19/09 0:00	33.210	23.932				
8/19/09 4:00	33.123	23.829				
8/19/09 8:00	33.201	23.925				
8/19/09 12:00	33.198	23.925				
8/19/09 16:00	33.201	23.922				
8/19/09 20:00	33.196	23.915				
8/20/09 0:00	33.290	24.037				
8/20/09 4:00	33.274	24.042				
8/20/09 8:00	33.293	24.063				
8/20/09 12:00	33.293	24.065				
8/20/09 16:00	33.283	24.042				
8/20/09 20:00	33.328	24.084				
8/21/09 0:00	33.338	24.107				
8/21/09 4:00	33.324	24.088				
8/21/09 8:00	33.340	24.116				
8/21/09 12:00	33.335	24.116				
8/21/09 16:00	33.328	24.091				
8/21/09 20:00	33.342	24.098				
8/22/09 0:00	33.357	24.130				
8/22/09 4:00	33.352	24.135				
8/22/09 8:00	33.349	24.135				
8/22/09 12:00	33.326	24.109				
8/22/09 16:00	33.295	24.042				
8/22/09 20:00	33.300	24.037				
8/23/09 0:00	33.326	24.086				
8/23/09 4:00	33.316	24.081				
8/23/09 8:00	33.316	24.088				
8/23/09 12:00	33.295	24.063				
8/23/09 16:00	33.281	24.025				
8/23/09 20:00	33.295	24.032				
8/24/09 0:00	33.319	24.070				
8/24/09 4:00	33.307	24.070				
8/24/09 8:00	33.302	24.067				
8/24/09 12:00	33.298	24.063				
8/24/09 16:00	33.288	24.037				
8/24/09 20:00	33.319	24.058				
8/25/09 0:00	33.340	24.098				
8/25/09 4:00	33.359	24.128				
8/25/09 8:00	33.333	24.102				
8/25/09 12:00	33.335	24.116				
8/25/09 16:00	33.333	24.098				
8/25/09 20:00	33.356	24.123				
8/26/09 0:00	33.364	24.145				
8/26/09 4:00	33.331	24.107				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
8/26/09 8:00	33.293	24.074				
8/26/09 12:00	33.361	24.152				
8/26/09 16:00	33.323	24.098				
8/26/09 20:00	33.338	24.114				
8/27/09 0:00	33.359	24.149				
8/27/09 4:00	33.342	24.123				
8/27/09 8:00	33.354	24.145				
8/27/09 12:00	33.359	24.161				
8/27/09 16:00	33.345	24.140				
8/27/09 20:00	33.345	24.126				
8/28/09 0:00	33.359	24.149				
8/28/09 4:00	33.338	24.126				
8/28/09 8:00	33.352	24.152				
8/28/09 12:00	33.340	24.135				
8/28/09 16:00	33.328	24.100				
8/28/09 20:00	33.356	24.128				
8/29/09 0:00	33.366	24.147				
8/29/09 4:00	33.368	24.159				
8/29/09 8:00	33.378	24.170				
8/29/09 12:00	33.366	24.166				
8/29/09 16:00	33.347	24.121				
8/29/09 20:00	33.378	24.152				
8/30/09 0:00	33.406	24.201				
8/30/09 4:00	33.399	24.205				
8/30/09 8:00	33.415	24.224				
8/30/09 12:00	33.392	24.196				
8/30/09 16:00	33.359	24.135				
8/30/09 20:00	33.382	24.147				
8/31/09 0:00	33.411	24.201				
8/31/09 4:00	33.392	24.180				
8/31/09 8:00	33.411	24.215				
8/31/09 12:00	33.380	24.177				
8/31/09 16:00	33.345	24.119				
8/31/09 20:00	33.368	24.137				
9/1/09 0:00	33.385	24.170				
9/1/09 4:00	33.368	24.149				
9/1/09 8:00	33.382	24.173				
9/1/09 12:00	33.368	24.156				
9/1/09 16:00	33.323	24.086				
9/1/09 20:00	33.349	24.105				
9/2/09 0:00	33.354	24.126				
9/2/09 4:00	33.347	24.123				
9/2/09 8:00	33.361	24.142				
9/2/09 12:00	33.354	24.145				
9/2/09 16:00	33.331	24.107				
9/2/09 20:00	33.342	24.105				
9/3/09 0:00	33.366	24.142				
9/3/09 4:00	33.352	24.133				
9/3/09 8:00	33.354	24.137				
9/3/09 12:00	33.352	24.137				
9/3/09 16:00	33.321	24.088				
9/3/09 20:00	33.345	24.109				
9/4/09 0:00	33.368	24.159				
9/4/09 4:00	33.349	24.133				
9/4/09 8:00	33.371	24.168				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
9/4/09 12:00	33.373	24.163				
9/4/09 16:00	33.340	24.133				
9/4/09 20:00	33.366	24.154				
9/5/09 0:00	33.385	24.182				
9/5/09 4:00	33.373	24.175				
9/5/09 8:00	33.394	24.198				
9/5/09 12:00	33.373	24.182				
9/5/09 16:00	33.345	24.128				
9/5/09 20:00	33.359	24.135				
9/6/09 0:00	33.387	24.177				
9/6/09 4:00	33.368	24.168				
9/6/09 8:00	33.380	24.180				
9/6/09 12:00	33.380	24.170				
9/6/09 16:00	33.331	24.105				
9/6/09 20:00	33.342	24.102				
9/7/09 0:00	33.371	24.154				
9/7/09 4:00	33.345	24.123				
9/7/09 8:00	33.345	24.130				
9/7/09 12:00	33.326	24.105				
9/7/09 16:00	33.307	24.065				
9/7/09 20:00	33.335	24.086				
9/8/09 0:00	33.342	24.107				
9/8/09 4:00	33.335	24.109				
9/8/09 8:00	33.349	24.130				
9/8/09 12:00	33.364	24.147				
9/8/09 16:00	33.345	24.109				
9/8/09 20:00	33.361	24.121				
9/9/09 0:00	33.401	24.189				
9/9/09 4:00	33.382	24.166				
9/9/09 8:00	33.401	24.196				
9/9/09 12:00	33.401	24.205				
9/9/09 16:00	33.373	24.159				
9/9/09 20:00	33.385	24.168				
9/10/09 0:00	33.406	24.203				
9/10/09 4:00	33.387	24.187				
9/10/09 8:00	33.399	24.210				
9/10/09 12:00	33.392	24.196				
9/10/09 16:00	33.361	24.145				
9/10/09 20:00	33.397	24.170				
9/11/09 0:00	33.404	24.198				
9/11/09 4:00	33.373	24.152				
9/11/09 8:00	33.382	24.173				
9/11/09 12:00	33.375	24.170				
9/11/09 16:00	33.340	24.102				
9/11/09 20:00	33.382	24.154				
9/12/09 0:00	33.394	24.145				
9/12/09 4:00	33.371	24.147				
9/12/09 8:00	33.361	24.149				
9/12/09 12:00	33.333	24.128				
9/12/09 16:00	33.295	24.063				
9/12/09 20:00	33.321	24.084				
9/13/09 0:00	33.333	24.100				
9/13/09 4:00	33.326	24.074				
9/13/09 8:00	33.331	24.079				
9/13/09 12:00	33.331	24.072				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
9/13/09 16:00	33.281	23.995				
9/13/09 20:00	33.298	24.007				
9/14/09 0:00	33.319	24.042				
9/14/09 4:00	33.300	24.021				
9/14/09 8:00	33.312	24.039				
9/14/09 12:00	33.302	24.032				
9/14/09 16:00	33.276	23.988				
9/14/09 20:00	33.293	24.007				
9/15/09 0:00	33.307	24.039				
9/15/09 4:00	33.300	24.042				
9/15/09 8:00	33.309	24.060				
9/15/09 12:00	33.305	24.060				
9/15/09 16:00	33.293	24.039				
9/15/09 20:00	33.314	24.060				
9/16/09 0:00	33.316	24.074				
9/16/09 4:00	33.316	24.081				
9/16/09 8:00	33.331	24.105				
9/16/09 12:00	33.319	24.093				
9/16/09 16:00	33.281	24.035				
9/16/09 20:00	33.305	24.056				
9/17/09 0:00	33.319	24.079				
9/17/09 4:00	33.309	24.072				
9/17/09 8:00	33.326	24.095				
9/17/09 12:00	33.300	24.077				
9/17/09 16:00	33.269	24.018				
9/17/09 20:00	33.288	24.032				
9/18/09 0:00	33.305	24.063				
9/18/09 4:00	33.298	24.063				
9/18/09 8:00	33.312	24.086				
9/18/09 12:00	33.305	24.084				
9/18/09 16:00	33.279	24.035				
9/18/09 20:00	33.307	24.070				
9/19/09 0:00	33.321	24.095				
9/19/09 4:00	33.312	24.088				
9/19/09 8:00	33.316	24.095				
9/19/09 12:00	33.300	24.079				
9/19/09 16:00	33.253	24.016				
9/19/09 20:00	33.269	24.025				
9/20/09 0:00	33.276	24.039				
9/20/09 4:00	33.260	24.023				
9/20/09 8:00	33.267	24.035				
9/20/09 12:00	33.241	24.009				
9/20/09 16:00	33.210	23.953				
9/20/09 20:00	33.241	23.986				
9/21/09 0:00	33.253	24.009				
9/21/09 4:00	33.239	23.997				
9/21/09 8:00	33.333	24.119				
9/21/09 12:00	33.312	24.121				
9/21/09 16:00	33.312	24.119				
9/21/09 20:00	33.347	24.163				
9/22/09 0:00	33.349	24.168				
9/22/09 4:00	33.345	24.163				
9/22/09 8:00	33.354	24.173				
9/22/09 12:00	33.345	24.163				
9/22/09 16:00	33.305	24.107				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
9/22/09 20:00	33.323	24.128				
9/23/09 0:00	33.323	24.133				
9/23/09 4:00	33.321	24.138				
9/23/09 8:00	33.342	24.168				
9/23/09 12:00	33.338	24.163				
9/23/09 16:00	33.316	24.124				
9/23/09 20:00	33.331	24.142				
9/24/09 0:00	33.335	24.149				
9/24/09 4:00	33.321	24.135				
9/24/09 8:00	33.323	24.133				
9/24/09 12:00	33.307	24.114				
9/24/09 16:00	33.290	24.088				
9/24/09 20:00	33.302	24.102				
9/25/09 0:00	33.305	24.105				
9/25/09 4:00	33.295	24.088				
9/25/09 8:00	33.312	24.121				
9/25/09 12:00	33.293	24.095				
9/25/09 16:00	33.286	24.079				
9/25/09 20:00	33.290	24.091				
9/26/09 0:00	33.276	24.072				
9/26/09 4:00	33.269	24.056				
9/26/09 8:00	33.276	24.074				
9/26/09 12:00	33.281	24.088				
9/26/09 16:00	33.241	24.023				
9/26/09 20:00	33.253	24.032				
9/27/09 0:00	33.229	24.007				
9/27/09 4:00	33.210	23.974				
9/27/09 8:00	33.177	23.934				
9/27/09 12:00	33.196	23.965				
9/27/09 16:00	33.293	24.086				
9/27/09 20:00	33.373	24.205				
9/28/09 0:00	33.413	24.273				
9/28/09 4:00	33.385	24.233				
9/28/09 8:00	33.399	24.247				
9/28/09 12:00	33.378	24.208				
9/28/09 16:00	33.342	24.147				
9/28/09 20:00	33.356	24.154				
9/29/09 0:00	33.338	24.187				
9/29/09 4:00	33.316	24.175				
9/29/09 8:00	33.328	24.196				
9/29/09 12:00	33.321	24.154				
9/29/09 16:00	33.356	24.060				
9/29/09 20:00	33.359	24.081				
9/30/09 0:00	33.335	24.088				
9/30/09 4:00	33.333	24.058				
9/30/09 8:00	33.323	24.065				
9/30/09 12:00	33.305	24.011				
9/30/09 16:00	33.253	23.932				
9/30/09 20:00	33.269	23.962				
10/1/09 0:00	33.238	23.920				
10/1/09 4:00	33.238	23.918				
10/1/09 8:00	33.257	23.967				
10/1/09 12:00	33.253	24.091				
10/1/09 16:00	33.293	24.138				
10/1/09 20:00	33.385	24.208				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
10/2/09 0:00	33.333	24.142				
10/2/09 4:00	33.293	24.077				
10/2/09 8:00	33.300	24.088				
10/2/09 12:00	33.290	24.079				
10/2/09 16:00	33.309	24.102				
10/2/09 20:00	33.359	24.166				
10/3/09 0:00	33.356	24.163				
10/3/09 4:00	33.354	24.163				
10/3/09 8:00	33.368	24.187				
10/3/09 12:00	33.375	24.196				
10/3/09 16:00	33.338	24.135				
10/3/09 20:00	33.375	24.173				
10/4/09 0:00	33.392	24.212				
10/4/09 4:00	33.375	24.189				
10/4/09 8:00	33.380	24.196				
10/4/09 12:00	33.366	24.182				
10/4/09 16:00	33.387	24.124				
10/4/09 20:00	33.382	24.147				
10/5/09 0:00	33.356	24.154				
10/5/09 4:00	33.364	24.091				
10/5/09 8:00	33.342	24.119				
10/5/09 12:00	33.335	24.060				
10/5/09 16:00	33.295	24.007				
10/5/09 20:00	33.314	24.037				
10/6/09 0:00	33.300	24.049				
10/6/09 4:00	33.286	24.138				
10/6/09 8:00	33.342	24.177				
10/6/09 12:00	33.356	24.189				
10/6/09 16:00	33.352	24.175				
10/6/09 20:00	33.335	24.243				
10/7/09 0:00	33.328	24.224				
10/7/09 4:00	33.373	24.210				
10/7/09 8:00	33.359	24.191				
10/7/09 12:00	33.354	24.152				
10/7/09 16:00	33.373	24.109				
10/7/09 20:00	33.378	24.121				
10/8/09 0:00	33.349	24.159				
10/8/09 4:00	33.347	24.133				
10/8/09 8:00	33.335	24.170				
10/8/09 12:00	33.321	24.205				
10/8/09 16:00	33.328	24.219				
10/8/09 20:00	33.340	24.198				
10/9/09 0:00	33.338	24.215				
10/9/09 4:00	33.347	24.215				
10/9/09 8:00	33.345	24.240				
10/9/09 12:00	33.347	24.240				
10/9/09 16:00	33.392	24.205				
10/9/09 20:00	33.380	24.236				
10/10/09 0:00	33.354	24.257				
10/10/09 4:00	33.382	24.294				
10/10/09 8:00	33.401	24.339				
10/10/09 12:00	33.408	24.332				
10/10/09 16:00	33.423	24.238				
10/10/09 20:00	33.408	24.233				
10/11/09 0:00	33.385	24.250				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
10/11/09 4:00	33.385	24.224				
10/11/09 8:00	33.378	24.222				
10/11/09 12:00	33.385	24.180				
10/11/09 16:00	33.366	24.117				
10/11/09 20:00	33.364	24.135				
10/12/09 0:00	33.352	24.138				
10/12/09 4:00	33.356	24.124				
10/12/09 8:00	33.338	24.175				
10/12/09 12:00	33.312	24.180				
10/12/09 16:00	33.340	24.187				
10/12/09 20:00	33.319	24.247				
10/13/09 0:00	33.342	24.275				
10/13/09 4:00	33.330	24.261				
10/13/09 8:00	33.333	24.229				
10/13/09 12:00	33.340	24.201				
10/13/09 16:00	33.354	24.159				
10/13/09 20:00	33.340	24.187				
10/14/09 0:00	33.338	24.194				
10/14/09 4:00	33.349	24.161				
10/14/09 8:00	33.347	24.168				
10/14/09 12:00	33.364	24.114				
10/14/09 16:00	33.333	24.079				
10/14/09 20:00	33.293	24.084				
10/15/09 0:00	33.352	24.121				
10/15/09 4:00	33.354	24.124				
10/15/09 8:00	33.359	24.173				
10/15/09 12:00	33.361	24.203				
10/15/09 16:00	33.382	24.166				
10/15/09 20:00	33.382	24.231				
10/16/09 0:00	33.349	24.250				
10/16/09 4:00	33.371	24.257				
10/16/09 8:00	33.366	24.268				
10/16/09 12:00	33.389	24.257				
10/16/09 16:00	33.397	24.187				
10/16/09 20:00	33.382	24.224				
10/17/09 0:00	33.411	24.294				
10/17/09 4:00	33.364	24.301				
10/17/09 8:00	33.389	24.329				
10/17/09 12:00	33.380	24.301				
10/17/09 16:00	33.387	24.212				
10/17/09 20:00	33.408	24.180				
10/18/09 0:00	33.382	24.177				
10/18/09 4:00	33.378	24.147				
10/18/09 8:00	33.364	24.117				
10/18/09 12:00	33.345	24.089				
10/18/09 16:00	33.286	24.023				
10/18/09 20:00	33.323	24.074				
10/19/09 0:00	33.328	24.084				
10/19/09 4:00	33.326	24.089				
10/19/09 8:00	33.349	24.126				
10/19/09 12:00	33.359	24.131				
10/19/09 16:00	33.330	24.091				
10/19/09 20:00	33.364	24.138				
10/20/09 0:00	33.375	24.149				
10/20/09 4:00	33.361	24.128				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
10/20/09 8:00	33.366	24.142				
10/20/09 12:00	33.385	24.163				
10/20/09 16:00	33.368	24.135				
10/20/09 20:00	33.399	24.198				
10/21/09 0:00	33.397	24.217				
10/21/09 4:00	33.397	24.198				
10/21/09 8:00	33.394	24.201				
10/21/09 12:00	33.373	24.226				
10/21/09 16:00	33.375	24.196				
10/21/09 20:00	33.349	24.196				
10/22/09 0:00	33.338	24.154				
10/22/09 4:00	33.340	24.135				
10/22/09 8:00	33.312	24.168				
10/22/09 12:00	33.276	24.152				
10/22/09 16:00	33.293	24.121				
10/22/09 20:00	33.274	24.133				
10/23/09 0:00	33.260	24.119				
10/23/09 4:00	33.293	24.103				
10/23/09 8:00	33.300	24.142				
10/23/09 12:00	33.302	24.166				
10/23/09 16:00	33.267	24.131				
10/23/09 20:00	33.335	24.156				
10/24/09 0:00	33.269	24.133				
10/24/09 4:00	33.283	24.133				
10/24/09 8:00	33.307	24.110				
10/24/09 12:00	33.264	24.084				
10/24/09 16:00	33.300	24.028				
10/24/09 20:00	33.288	24.091				
10/25/09 0:00	33.297	24.121				
10/25/09 4:00	33.316	24.142				
10/25/09 8:00	33.373	24.126				
10/25/09 12:00	33.385	24.173				
10/25/09 16:00	33.385	24.262				
10/25/09 20:00	33.432	24.180				
10/26/09 0:00	33.425	24.093				
10/26/09 4:00	33.420	24.117				
10/26/09 8:00	33.408	24.145				
10/26/09 12:00	33.387	24.243				
10/26/09 16:00	33.319	24.117				
10/26/09 20:00	33.316	24.100				
10/27/09 0:00	33.302	24.084				
10/27/09 4:00	33.271	24.049				
10/27/09 8:00	33.262	24.021				
10/27/09 12:00	33.229	24.070				
10/27/09 16:00	33.191	23.941				
10/27/09 20:00	33.243	24.016				
10/28/09 0:00	33.257	24.053				
10/28/09 4:00	33.246	24.042				
10/28/09 8:00	33.260	24.046				
10/28/09 12:00	33.286	24.121				
10/28/09 16:00	33.286	24.184				
10/28/09 20:00	33.309	24.159				
10/29/09 0:00	33.309	24.145				
10/29/09 4:00	33.250	24.138				
10/29/09 8:00	33.208	24.135				

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
10/29/09 12:00	33.102	24.131				
10/29/09 16:00	33.000	23.960				
10/29/09 20:00	32.925	23.918				
10/30/09 0:00	32.844	23.888				
10/30/09 4:00	32.849	23.850				
10/30/09 8:00	32.936	23.887				
10/30/09 12:00	33.017	23.925				
10/30/09 16:00	33.078	23.902				
10/30/09 20:00	33.135	23.993				
10/31/09 0:00	33.139	23.981				
10/31/09 4:00	33.187	24.021				
10/31/09 8:00	33.229	24.068				
10/31/09 12:00	33.231	24.065				
10/31/09 16:00	33.177	23.972				
10/31/09 20:00	33.187	23.969				
11/1/09 0:00	33.177	23.951				
11/1/09 4:00	33.146	23.909				
11/1/09 8:00	33.149	23.904				
11/1/09 12:00	33.142	23.904				
11/1/09 16:00	33.130	23.885				
11/1/09 20:00	33.177	23.948				
11/2/09 0:00	33.201	23.990				
11/2/09 4:00	33.208	24.002				
11/2/09 8:00	33.269	24.084				
11/2/09 12:00	33.279	24.098	50.744			
11/2/09 16:00	33.236	24.035	50.691		58.126	52.414
11/2/09 20:00	33.236	24.042	50.683	56.506	58.119	52.433
11/3/09 0:00	33.224	24.016	50.646	56.520	58.094	52.431
11/3/09 4:00	33.184	23.969	50.564	56.471	58.036	52.403
11/3/09 8:00	33.175	23.948	50.519	56.445	58.019	52.393
11/3/09 12:00	33.116	23.867	50.409	56.387	57.945	52.340
11/3/09 16:00	33.050	23.771	50.285	56.289	57.887	52.289
11/3/09 20:00	33.085	23.824	50.330	56.307	57.938	52.328
11/4/09 0:00	33.135	23.899	50.395	56.368	57.984	52.370
11/4/09 4:00	33.158	23.941	50.459	56.412	58.017	52.400
11/4/09 8:00	33.187	23.981	50.534	56.461	58.054	52.438
11/4/09 12:00	33.208	24.014	50.571	56.510	58.057	52.454
11/4/09 16:00	33.165	23.953	50.522	56.473	58.012	52.445
11/4/09 20:00	33.168	23.958	50.515	56.466	58.008	52.449
11/5/09 0:00	33.170	23.955	50.510	56.461	57.996	52.456
11/5/09 4:00	33.137	23.913	50.456	56.429	57.963	52.433
11/5/09 8:00	33.116	23.883	50.414	56.398	57.942	52.421
11/5/09 12:00	33.071	23.827	50.302	56.345	57.861	52.359
11/5/09 16:00	33.007	23.731	50.201	56.251	57.812	52.321
11/5/09 20:00	33.028	23.766	50.206	56.247	57.828	52.340
11/6/09 0:00	33.005	23.743	50.175	56.235	57.805	52.340
11/6/09 4:00	33.005	23.738	50.142	56.223	57.779	52.331
11/6/09 8:00	33.000	23.743	50.173	56.235	57.805	52.352
11/6/09 12:00	33.003	23.754	50.159	56.244	57.782	52.352
11/6/09 16:00	32.958	23.696	50.116	56.209	57.751	52.335
11/6/09 20:00	33.003	23.752	50.166	56.249	57.784	52.361
11/7/09 0:00	33.026	23.789	50.224	56.293	57.812	52.386
11/7/09 4:00	33.043	23.813	50.292	56.333	57.849	52.419
11/7/09 8:00	33.085	23.867	50.360	56.387	57.875	52.449
11/7/09 12:00	33.097	23.888	50.395	56.429	57.868	52.461

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
11/7/09 16:00	33.059	23.831	50.365	56.405	57.840	52.452
11/7/09 20:00	33.080	23.857	50.395	56.429	57.856	52.468
11/8/09 0:00	33.050	23.827	50.365	56.401	57.824	52.459
11/8/09 4:00	33.047	23.824	50.365	56.401	57.821	52.468
11/8/09 8:00	33.050	23.827	50.381	56.408	57.826	52.480
11/8/09 12:00	33.040	23.813	50.360	56.398	57.800	52.470
11/8/09 16:00	33.047	23.829	50.391	56.412	57.826	52.491
11/8/09 20:00	33.130	23.932	50.522	56.489	57.907	52.552
11/9/09 0:00	33.154	23.972	50.606	56.550	57.938	52.587
11/9/09 4:00	33.151	23.976	50.653	56.585	57.949	52.603
11/9/09 8:00	33.156	23.979	50.679	56.604	57.952	52.612
11/9/09 12:00	33.151	23.967	50.639	56.583	57.903	52.596
11/9/09 16:00	33.109	23.904	50.592	56.534	57.877	52.575
11/9/09 20:00	33.123	23.925	50.597	56.536	57.880	52.584
11/10/09 0:00	33.123	23.918	50.597	56.529	57.877	52.587
11/10/09 4:00	33.113	23.911	50.590	56.522	57.872	52.587
11/10/09 8:00	33.102	23.902	50.608	56.527	57.893	52.596
11/10/09 12:00	33.120	23.916			57.845	
11/10/09 16:00	33.071	23.857		56.528	57.870	
11/10/09 20:00	33.092	23.878	50.578	56.516	57.903	
11/11/09 0:00	33.085	23.869	50.559	56.509	57.884	
11/11/09 4:00	33.066	23.850	50.541	56.493	57.873	
11/11/09 8:00	33.066	23.855	50.545	56.493	57.870	
11/11/09 12:00	33.043	23.822	50.466	56.463	57.812	
11/11/09 16:00	32.988	23.745	50.384	56.397	57.777	
11/11/09 20:00	33.000	23.754	50.365	56.386	57.773	
11/12/09 0:00	32.977	23.738	50.328	56.362	57.747	
11/12/09 4:00	32.948	23.691	50.260	56.325	57.703	
11/12/09 8:00	32.927	23.666	50.231	56.292	57.698	
11/12/09 12:00	32.906	23.640	50.145	56.255	57.635	
11/12/09 16:00	32.847	23.565	50.072	56.190	57.596	
11/12/09 20:00	32.906	23.656	50.156	56.243	57.663	
11/13/09 0:00	32.889	23.645	50.145	56.248	57.647	
11/13/09 4:00	32.887	23.623	50.131	56.241	57.626	
11/13/09 8:00	32.901	23.654	50.187	56.274	57.670	
11/13/09 12:00	32.920	23.687	50.194	56.299	57.658	
11/13/09 16:00	32.946	23.715	50.288	56.344	57.724	
11/13/09 20:00	32.984	23.780	50.384	56.418	57.763	
11/14/09 0:00	33.010	23.820	50.454	56.469	57.786	
11/14/09 4:00	33.028	23.836	50.494	56.500	57.793	
11/14/09 8:00	33.059	23.869	50.578	56.542	57.838	
11/14/09 12:00	33.059	23.874	50.583	56.558	57.821	
11/14/09 16:00	33.021	23.820	50.557	56.539	57.798	
11/14/09 20:00	33.069	23.878	50.623	56.567	57.842	
11/15/09 0:00	33.066	23.878	50.625	56.574	57.831	
11/15/09 4:00	33.050	23.855	50.620	56.565	57.826	
11/15/09 8:00	33.024	23.829	50.613	56.558	57.812	
11/15/09 12:00	33.076	23.888	50.604	56.565	57.794	
11/15/09 16:00	33.026	23.822	50.602	56.544	57.800	
11/15/09 20:00	33.069	23.871	50.658	56.574	57.849	
11/16/09 0:00	33.057	23.857	50.634	56.544	57.819	
11/16/09 4:00	33.043	23.836	50.592	56.511	57.786	
11/16/09 8:00	33.031	23.824	50.588	56.497	57.800	
11/16/09 12:00	32.998	23.789	50.531	56.490	57.752	
11/16/09 16:00	32.991	23.778	50.515	56.488	57.756	

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
11/16/09 20:00	32.998	23.803	50.529	56.476	57.766	
11/17/09 0:00	33.010	23.839	50.517	56.474	57.754	
11/17/09 4:00	32.979	23.803	50.489	56.474	57.745	
11/17/09 8:00	32.932	23.773	50.470	56.476	57.745	
11/17/09 12:00	32.875	23.771	50.461	56.504	57.733	
11/17/09 16:00	32.800	23.696	50.395	56.488	57.710	
11/17/09 20:00	32.696	23.701	50.384	56.483	57.712	
11/18/09 0:00	32.604	23.675	50.337	56.483	57.693	
11/18/09 4:00	32.608	23.647	50.295	56.476	57.672	
11/18/09 8:00	32.618	23.614	50.255	56.469	57.665	
11/18/09 12:00	32.653	23.614	50.208	56.469	57.633	
11/18/09 16:00	32.642	23.553	50.135	56.427	57.598	
11/18/09 20:00	32.684	23.581	50.147	56.437	57.628	
11/19/09 0:00	32.719	23.595	50.164	56.467	57.640	
11/19/09 4:00	32.726	23.588	50.135	56.469	57.619	
11/19/09 8:00	32.762	23.614	50.163	56.497	57.644	
11/19/09 12:00	32.778	23.621	50.154	56.514	57.635	
11/19/09 16:00	32.734	23.556	50.096	56.486	57.607	
11/19/09 20:00	32.793	23.626	50.161	56.532	57.658	
11/20/09 0:00	32.795	23.623	50.159	56.549	57.644	
11/20/09 4:00	32.790	23.609	50.126	56.539	57.624	
11/20/09 8:00	32.797	23.602	50.128	56.546	57.624	
11/20/09 12:00	32.783	23.581	50.093	56.535	57.600	
11/20/09 16:00	32.738	23.523	50.023	56.497	57.561	
11/20/09 20:00	32.738	23.516	49.988	56.486	57.542	
11/21/09 0:00	32.724	23.497	49.943	56.472	57.514	
11/21/09 4:00	32.708	23.467	49.899	56.448	57.488	
11/21/09 8:00	32.705	23.469	49.894	56.451	57.495	
11/21/09 12:00	32.682	23.437	49.826	56.430	57.433	
11/21/09 16:00	32.632	23.364	49.775	56.388	57.402	
11/21/09 20:00	32.672	23.418	49.805	56.406	57.428	
11/22/09 0:00	32.686	23.446	49.838	56.432	57.444	
11/22/09 4:00	32.686	23.444	49.831	56.437	57.423	
11/22/09 8:00	32.703	23.467	49.882	56.467	57.456	
11/22/09 12:00	32.698	23.458	49.864	56.467	57.419	
11/22/09 16:00	32.656	23.411	49.838	56.446	57.405	
11/22/09 20:00	32.637	23.430	49.845	56.458	57.402	
11/23/09 0:00	32.639	23.432	49.864	56.467	57.405	
11/23/09 4:00	32.611	23.413	49.842	56.458	57.388	
11/23/09 8:00	32.618	23.425	49.861	56.472	57.388	
11/23/09 12:00	32.613	23.430	49.850	56.474	57.367	
11/23/09 16:00	32.611	23.373	49.838	56.458	57.358	
11/23/09 20:00	32.611	23.434	49.847	56.474	57.353	
11/24/09 0:00	32.592	23.401	49.847	56.490	57.344	
11/24/09 4:00	32.302	23.439	49.831	56.490	57.330	
11/24/09 8:00	31.830	23.320	49.840	56.493	57.349	
11/24/09 12:00	31.802	23.303	49.819	56.495	57.330	
11/24/09 16:00	31.884	23.259	49.800	56.502	57.321	
11/24/09 20:00	32.000	23.278	49.798	56.518	57.316	
11/25/09 0:00	32.059	23.250	49.756	56.523	57.286	
11/25/09 4:00	32.094	23.207	49.711	56.516	57.265	
11/25/09 8:00	32.132	23.257	49.739	56.509	57.284	
11/25/09 12:00	32.137	23.245	49.709	56.507	57.253	
11/25/09 16:00	32.120	23.189	49.681	56.518	57.239	52.895
11/25/09 20:00	32.104	23.193	49.681	56.430	57.237	52.907

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
11/26/09 0:00	32.092	23.186	49.664	56.376	57.228	52.911
11/26/09 4:00	32.073	23.175	49.646	56.462	57.207	52.911
11/26/09 8:00	32.042	23.154	49.646	56.411	57.209	52.925
11/26/09 12:00	32.021	23.140	49.592	56.486	57.151	52.904
11/26/09 16:00	32.009	23.020	49.479	56.495	57.072	52.849
11/26/09 20:00	31.995	22.990	49.432	56.430	57.044	52.842
11/27/09 0:00	31.962	22.941	49.372	56.439	57.002	52.821
11/27/09 4:00	31.924	22.908	49.327	56.455	56.965	52.807
11/27/09 8:00	31.894	22.887	49.304	56.474	56.944	52.804
11/27/09 12:00	31.877	22.873	49.266	56.584	56.904	52.795
11/27/09 16:00	31.827	22.796	49.208	56.439	56.862	52.772
11/27/09 20:00	31.844	22.829	49.222	56.427	56.864	52.781
11/28/09 0:00	31.837	22.841	49.247	56.432	56.867	52.795
11/28/09 4:00	31.827	22.845	49.238	56.437	56.841	52.793
11/28/09 8:00	31.804	22.829	49.261	56.444	56.841	52.807
11/28/09 12:00	31.790	22.834	49.245	56.451	56.820	52.802
11/28/09 16:00	31.776	22.782	49.231	56.444	56.802	52.802
11/28/09 20:00	31.783	22.869	49.332	56.469	56.858	52.846
11/29/09 0:00	31.761	22.908	49.404	56.495	56.881	52.874
11/29/09 4:00	31.773	22.953	49.475	56.521	56.916	52.909
11/29/09 8:00	31.797	22.971	49.536	56.546	56.941	52.930
11/29/09 12:00	31.827	23.002	49.573	56.579	56.941	52.944
11/29/09 16:00	31.787	22.941	49.543	56.581	56.909	52.932
11/29/09 20:00	31.794	22.976	49.582	56.600	56.925	52.956
11/30/09 0:00	31.773	22.948	49.559	56.600	56.892	52.949
11/30/09 4:00	31.745	22.906	49.514	56.574	56.853	52.932
11/30/09 8:00	31.728	22.892	49.512	56.567	56.850	52.939
11/30/09 12:00	31.721	22.866	49.456	56.544	56.799	52.914
11/30/09 16:00	31.738	22.782	49.383	56.502	56.746	52.883
11/30/09 20:00	31.743	22.747	49.329	56.472	56.695	52.865
12/1/09 0:00	31.721	22.717	49.285	56.451	56.667	52.846
12/1/09 4:00	31.688	22.675	49.238	56.427	56.622	52.828
12/1/09 8:00	31.660	22.649	49.226	56.418	56.611	52.825
12/1/09 12:00	31.669	22.649	49.205	56.416	56.573	52.818
12/1/09 16:00	31.622	22.607	49.198	56.399	56.566	52.811
12/1/09 20:00	31.655	22.717	49.339	56.460	56.655	52.874
12/2/09 0:00	31.648	22.782	49.409	56.495	56.676	52.893
12/2/09 4:00	31.667	22.798	49.435	56.516	56.671	52.902
12/2/09 8:00	31.686	22.817	49.498	56.542	56.709	52.928
12/2/09 12:00	31.679	22.794	49.461	56.542	56.657	52.907
12/2/09 16:00	31.686	22.745	49.458	56.528	56.655	52.914
12/2/09 20:00	31.686	22.801	49.524	56.560	56.690	52.939
12/3/09 0:00	31.705	22.822	49.559	56.581	56.704	52.951
12/3/09 4:00	31.728	22.845	49.592	56.602	56.715	52.960
12/3/09 8:00	31.728	22.841	49.599	56.609	56.709	52.965
12/3/09 12:00	31.759	22.857	49.618	56.623	56.706	52.974
12/3/09 16:00	31.738	22.822	49.608	56.612	56.701	52.974
12/3/09 20:00	31.771	22.850	49.639	56.630	56.720	52.990
12/4/09 0:00	31.776	22.841	49.629	56.623	56.697	52.986
12/4/09 4:00	31.769	22.817	49.594	56.600	56.662	52.972
12/4/09 8:00	31.747	22.775	49.561	56.574	56.643	52.965
12/4/09 12:00	31.740	22.740	49.482	56.544	56.578	52.925
12/4/09 16:00	31.754	22.647	49.404	56.488	56.527	52.893
12/4/09 20:00	31.759	22.628	49.355	56.462	56.487	52.874
12/5/09 0:00	31.750	22.607	49.334	56.446	56.476	52.874

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
12/5/09 4:00	31.733	22.579	49.292	56.427	56.429	52.853
12/5/09 8:00	31.731	22.604	49.325	56.437	56.455	52.869
12/5/09 12:00	31.724	22.621	49.320	56.439	56.434	52.869
12/5/09 16:00	31.719	22.567	49.306	56.420	56.424	52.860
12/5/09 20:00	31.714	22.661	49.416	56.481	56.492	52.909
12/6/09 0:00	31.735	22.707	49.498	56.507	56.532	52.935
12/6/09 4:00	31.769	22.735	49.529	56.521	56.543	52.944
12/6/09 8:00	31.769	22.728	49.536	56.532	56.534	52.944
12/6/09 12:00	31.780	22.714	49.524	56.532	56.510	52.937
12/6/09 16:00	31.797	22.637	49.479	56.507	56.485	52.923
12/6/09 20:00	31.764	22.705	49.540	56.530	56.531	52.956
12/7/09 0:00	31.827	22.787	49.634	56.558	56.592	52.995
12/7/09 4:00	31.856	22.806	49.707	56.593	56.629	53.023
12/7/09 8:00	31.858	22.803	49.716	56.605	56.632	53.023
12/7/09 12:00	31.882	22.831	49.702	56.614	56.608	53.018
12/7/09 16:00	31.846	22.733	49.627	56.577	56.550	52.986
12/7/09 20:00	31.825	22.703	49.580	56.556	56.520	52.972
12/8/09 0:00	31.813	22.665	49.512	56.528	56.476	52.944
12/8/09 4:00	31.823	22.588	49.411	56.488	56.413	52.900
12/8/09 8:00	31.714	22.429	49.231	56.420	56.278	52.802
12/8/09 12:00	31.679	22.375	49.083	56.376	56.168	52.737
12/8/09 16:00	31.556	22.249	48.980	56.413	56.098	52.686
12/8/09 20:00	31.620	22.357	49.044	56.462	56.136	52.723
12/9/09 0:00	31.651	22.460	49.222	56.481	56.257	52.825
12/9/09 4:00	31.717	22.635	49.432	56.488	56.378	52.928
12/9/09 8:00	31.790	22.717	49.582	56.497	56.473	52.986
12/9/09 12:00	31.830	22.766	49.646	56.507	56.499	52.997
12/9/09 16:00	31.820	22.735	49.676	56.511	56.510	53.002
12/9/09 20:00	31.839	22.752	49.671	56.516	56.497	52.997
12/10/09 0:00	31.830	22.724	49.671	56.523	56.497	52.995
12/10/09 4:00	31.846	22.745	49.676	56.525	56.492	53.000
12/10/09 8:00	31.846	22.745	49.709	56.530	56.522	53.016
12/10/09 12:00	31.870	22.768	49.721	56.532	56.527	53.018
12/10/09 16:00	31.849	22.731	49.693	56.537	56.506	53.014
12/10/09 20:00	31.849	22.728	49.688	56.537	56.503	53.011
12/11/09 0:00	31.861	22.735	49.700	56.539	56.517	53.021
12/11/09 4:00	31.868	22.738	49.695	56.539	56.515	53.021
12/11/09 8:00	31.851	22.731	49.690	56.542	56.510	53.018
12/11/09 12:00	31.870	22.738	49.657	56.542	56.480	53.002
12/11/09 16:00	31.849	22.661	49.625	56.537	56.469	52.988
12/11/09 20:00	31.820	22.656	49.592	56.535	56.441	52.981
12/12/09 0:00	31.804	22.640	49.568	56.528	56.422	52.970
12/12/09 4:00	31.799	22.602	49.517	56.523	56.385	52.946
12/12/09 8:00	31.809	22.551	49.468	56.514	56.348	52.923
12/12/09 12:00	31.813	22.534	49.418	56.507	56.310	52.902
12/12/09 16:00	31.780	22.462	49.369	56.493	56.280	52.879
12/12/09 20:00	31.785	22.516	49.414	56.497	56.301	52.900
12/13/09 0:00	31.773	22.565	49.456	56.500	56.327	52.916
12/13/09 4:00	31.761	22.602	49.514	56.507	56.359	52.937
12/13/09 8:00	31.769	22.593	49.543	56.511	56.371	52.951
12/13/09 12:00	31.792	22.626	49.547	56.514	56.361	52.949
12/13/09 16:00	31.797	22.504	49.432	56.500	56.273	52.897
12/13/09 20:00	31.783	22.478	49.393	56.488	56.247	52.888
12/14/09 0:00	31.761	22.446	49.379	56.483	56.240	52.886
12/14/09 4:00	31.792	22.602	49.561	56.507	56.366	52.970

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
12/14/09 8:00	31.886	22.747	49.760	56.532	56.499	53.063
12/14/09 12:00	31.960	22.850	49.882	56.553	56.557	53.107
12/14/09 16:00	31.957	22.848	49.932	56.567	56.590	53.116
12/14/09 20:00	31.976	22.869	49.953	56.577	56.606	53.118
12/15/09 0:00	32.021	22.918	50.037	56.588	56.666	53.153
12/15/09 4:00	32.019	22.904	50.018	56.593	56.657	53.142
12/15/09 8:00	32.040	22.920	50.046	56.595	56.680	53.158
12/15/09 12:00	32.040	22.906	50.006	56.595	56.650	53.137
12/15/09 16:00	31.997	22.810	49.917	56.586	56.601	53.100
12/15/09 20:00	31.964	22.784	49.854	56.581	56.564	53.077
12/16/09 0:00	31.945	22.752	49.793	56.572	56.529	53.051
12/16/09 4:00	31.943	22.679	49.695	56.553	56.469	53.007
12/16/09 8:00	31.948	22.658	49.657	56.539	56.452	53.002
12/16/09 12:00	31.931	22.663	49.627	56.535	56.420	52.993
12/16/09 16:00	31.927	22.597	49.585	56.525	56.408	52.967
12/16/09 20:00	31.915	22.621	49.585	56.525	56.401	52.974
12/17/09 0:00	31.922	22.579	49.536	56.518	56.368	52.956
12/17/09 4:00	31.915	22.579	49.529	56.514	56.352	52.958
12/17/09 8:00	31.905	22.581	49.538	56.511	56.366	52.963
12/17/09 12:00	31.898	22.595	49.547	56.511	56.361	52.965
12/17/09 16:00	31.894	22.588	49.568	56.514	56.382	52.974
12/17/09 20:00	31.877	22.619	49.611	56.521	56.403	52.988
12/18/09 0:00	31.863	22.626	49.615	56.521	56.396	52.986
12/18/09 4:00	31.865	22.623	49.618	56.521	56.394	52.986
12/18/09 8:00	31.858	22.637	49.646	56.523	56.408	53.000
12/18/09 12:00	31.856	22.619	49.622	56.523	56.387	52.986
12/18/09 16:00	31.868	22.595	49.627	56.521	56.396	52.993
12/18/09 20:00	31.861	22.644	49.674	56.525	56.422	53.011
12/19/09 0:00	31.882	22.672	49.716	56.532	56.445	53.025
12/19/09 4:00	31.896	22.691	49.737	56.535	56.464	53.030
12/19/09 8:00	31.927	22.733	49.803	56.542	56.506	53.058
12/19/09 12:00	31.941	22.749	49.805	56.549	56.503	53.056
12/19/09 16:00	31.915	22.677	49.751	56.544	56.466	53.032
12/19/09 20:00	31.905	22.677	49.725	56.542	56.452	53.030
12/20/09 0:00	31.908	22.637	49.676	56.535	56.422	53.014
12/20/09 4:00	31.912	22.628	49.639	56.532	56.396	53.004
12/20/09 8:00	31.920	22.604	49.613	56.528	56.387	52.993
12/20/09 12:00	31.894	22.649	49.669	56.532	56.424	53.016
12/20/09 16:00	31.889	22.677	49.730	56.535	56.466	53.039
12/20/09 20:00	31.924	22.705	49.751	56.542	56.471	53.046
12/21/09 0:00	31.927	22.714	49.763	56.544	56.478	53.044
12/21/09 4:00	31.934	22.665	49.716	56.542	56.443	53.030
12/21/09 8:00	31.946	22.640	49.690	56.537	56.434	53.023
12/21/09 12:00	31.955	22.605	49.636	56.530	56.392	53.004
12/21/09 16:00	31.936	22.560	49.550	56.523	56.329	52.958
12/21/09 20:00	31.894	22.569	49.575	56.516	56.359	52.967
12/22/09 0:00	31.901	22.567	49.575	56.516	56.352	52.970
12/22/09 4:00	31.894	22.600	49.608	56.518	56.375	52.986
12/22/09 8:00	31.884	22.619	49.657	56.521	56.403	53.002
12/22/09 12:00	31.894	22.661	49.676	56.530	56.403	53.007
12/22/09 16:00	31.908	22.626	49.678	56.525	56.410	53.009
12/22/09 20:00	31.905	22.675	49.697	56.530	56.422	53.018
12/23/09 0:00	31.905	22.642	49.667	56.528	56.394	53.002
12/23/09 4:00	31.929	22.572	49.601	56.521	56.357	52.979
12/23/09 8:00	31.927	22.579	49.608	56.523	56.361	52.997

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
12/23/09 12:00	31.945	22.572	49.573	56.521	56.327	53.016
12/23/09 16:00	31.901	22.527	49.559	56.523	56.331	53.016
12/23/09 20:00	31.915	22.584	49.608	56.525	56.368	53.011
12/24/09 0:00	31.910	22.609	49.627	56.528	56.380	53.002
12/24/09 4:00	31.891	22.647	49.660	56.530	56.403	53.032
12/24/09 8:00	31.901	22.675	49.693	56.532	56.438	53.056
12/24/09 12:00	31.894	22.663	49.639	56.532	56.403	53.044
12/24/09 16:00	31.891	22.572	49.526	56.528	56.343	53.011
12/24/09 20:00	31.882	22.520	49.444	56.514	56.294	52.990
12/25/09 0:00	31.818	22.425	49.320	56.493	56.222	52.939
12/25/09 4:00	31.787	22.387	49.252	56.476	56.182	52.925
12/25/09 8:00	31.792	22.397	49.217	56.472	56.161	52.918
12/25/09 12:00	31.778	22.385	49.186	56.474	56.147	52.921
12/25/09 16:00	31.759	22.387	49.210	56.465	56.171	52.935
12/25/09 20:00	31.757	22.446	49.254	56.472	56.196	52.958
12/26/09 0:00	31.747	22.471	49.304	56.483	56.229	52.983
12/26/09 4:00	31.738	22.520	49.365	56.509	56.268	53.014
12/26/09 8:00	31.785	22.584	49.449	56.544	56.331	53.056
12/26/09 12:00	31.828	22.637	49.505	56.567	56.366	53.079
12/26/09 16:00	31.839	22.649	49.554	56.570	56.403	53.107
12/26/09 20:00	31.851	22.656	49.554	56.574	56.403	53.104
12/27/09 0:00	31.835	22.633	49.526	56.574	56.385	53.097
12/27/09 4:00	31.818	22.614	49.496	56.574	56.375	53.093
12/27/09 8:00	31.861	22.661	49.561	56.586	56.434	53.130
12/27/09 12:00	31.922	22.754	49.620	56.609	56.466	53.156
12/27/09 16:00	31.882	22.696	49.594	56.614	56.459	53.149
12/27/09 20:00	31.898	22.705	49.599	56.618	56.466	53.156
12/28/09 0:00	31.898	22.703	49.575	56.621	56.455	53.153
12/28/09 4:00	31.875	22.672	49.529	56.614	56.422	53.139
12/28/09 8:00	31.882	22.677	49.540	56.616	56.443	53.151
12/28/09 12:00	31.910	22.717	49.564	56.628	56.452	53.167
12/28/09 16:00	31.889	22.693	49.557	56.630	56.459	53.170
12/28/09 20:00	31.920	22.731	49.568	56.637	56.464	53.179
12/29/09 0:00	31.896	22.693	49.552	56.635	56.457	53.174
12/29/09 4:00	31.868	22.658	49.491	56.625	56.417	53.151
12/29/09 8:00	31.835	22.614	49.428	56.602	56.380	53.121
12/29/09 12:00	31.828	22.581	49.339	56.581	56.308	53.079
12/29/09 16:00	31.823	22.457	49.215	56.542	56.231	53.021
12/29/09 20:00	31.806	22.429	49.161	56.518	56.196	53.014
12/30/09 0:00	31.778	22.397	49.109	56.502	56.152	52.995
12/30/09 4:00	31.738	22.343	49.037	56.486	56.096	52.965
12/30/09 8:00	31.714	22.326	49.037	56.481	56.096	52.967
12/30/09 12:00	31.714	22.352	49.041	56.486	56.087	52.974
12/30/09 16:00	31.705	22.319	49.044	56.490	56.082	52.972
12/30/09 20:00	31.695	22.450	49.193	56.530	56.180	53.042
12/31/09 0:00	31.721	22.497	49.280	56.539	56.226	53.072
12/31/09 4:00	31.759	22.551	49.369	56.551	56.285	53.109
12/31/09 8:00	31.769	22.572	49.432	56.567	56.317	53.130
12/31/09 12:00	31.835	22.661	49.514	56.597	56.373	53.174
12/31/09 16:00	31.806	22.612	49.512	56.609	56.361	53.165
12/31/09 20:00	31.818	22.612	49.510	56.618	56.368	53.167
1/1/10 0:00	31.804	22.616	49.496	56.621	56.354	53.163
1/1/10 4:00	31.783	22.598	49.475	56.621	56.343	53.160
1/1/10 8:00	31.778	22.591	49.470	56.618	56.338	53.160
1/1/10 12:00	31.837	22.658	49.510	56.632	56.361	53.181

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
1/1/10 16:00	31.785	22.602	49.484	56.628	56.348	53.174
1/1/10 20:00	31.832	22.649	49.505	56.635	56.366	53.184
1/2/10 0:00	31.842	22.612	49.493	56.635	56.352	53.184
1/2/10 4:00	31.825	22.579	49.442	56.618	56.310	53.156
1/2/10 8:00	31.785	22.527	49.388	56.600	56.280	53.137
1/2/10 12:00	31.757	22.495	49.322	56.581	56.226	53.109
1/2/10 16:00	31.698	22.415	49.250	56.555	56.185	53.067
1/2/10 20:00	31.714	22.441	49.261	56.553	56.194	53.086
1/3/10 0:00	31.731	22.469	49.285	56.558	56.196	53.093
1/3/10 4:00	31.726	22.464	49.285	56.560	56.194	53.097
1/3/10 8:00	31.733	22.481	49.327	56.565	56.219	53.116
1/3/10 12:00	31.771	22.516	49.355	56.584	56.229	53.123
1/3/10 16:00	31.740	22.492	49.367	56.584	56.236	53.128
1/3/10 20:00	31.776	22.530	49.409	56.600	56.261	53.146
1/4/10 0:00	31.778	22.527	49.414	56.602	56.250	53.144
1/4/10 4:00	31.764	22.516	49.409	56.600	56.252	53.146
1/4/10 8:00	31.759	22.502	49.404	56.600	56.243	53.146
1/4/10 12:00	31.761	22.506	49.386	56.595	56.224	53.142
1/4/10 16:00	31.700	22.427	49.332	56.572	56.185	53.125
1/4/10 20:00	31.702	22.436	49.329	56.567	56.189	53.128
1/5/10 0:00	31.705	22.439	49.320	56.569	56.173	53.130
1/5/10 4:00	31.707	22.439	49.318	56.565	56.166	53.130
1/5/10 8:00	31.705	22.436	49.329	56.567	56.178	53.135
1/5/10 12:00	31.702	22.434	49.290	56.562	56.138	53.111
1/5/10 16:00	31.644	22.345	49.217	56.546	56.082	53.079
1/5/10 20:00	31.618	22.322	49.191	56.528	56.068	53.072
1/6/10 0:00	31.610	22.322	49.163	56.511	56.043	53.058
1/6/10 4:00	31.573	22.273	49.123	56.506	56.012	53.044
1/6/10 8:00	31.561	22.252	49.111	56.495	55.996	53.035
1/6/10 12:00	31.606	22.319	49.154	56.504	56.012	53.049
1/6/10 16:00	31.606	22.329	49.224	56.516	56.066	53.081
1/6/10 20:00	31.684	22.434	49.357	56.563	56.145	53.135
1/7/10 0:00	31.710	22.460	49.381	56.579	56.147	53.135
1/7/10 4:00	31.679	22.413	49.376	56.579	56.142	53.130
1/7/10 8:00	31.705	22.448	49.432	56.588	56.184	53.153
1/7/10 12:00	31.761	22.520	49.482	56.609	56.208	53.172
1/7/10 16:00	31.724	22.474	49.484	56.609	56.212	53.172
1/7/10 20:00	31.752	22.506	49.510	56.618	56.231	53.184
1/8/10 0:00	31.766	22.513	49.519	56.628	56.231	53.188
1/8/10 4:00	31.757	22.502	49.500	56.628	56.217	53.184
1/8/10 8:00	31.754	22.490	49.503	56.628	56.226	53.188
1/8/10 12:00	31.754	22.495	49.479	56.623	56.205	53.179
1/8/10 16:00	31.700	22.425	49.409	56.597	56.168	53.158
1/8/10 20:00	31.712	22.439	49.404	56.595	56.161	53.163
1/9/10 0:00	31.719	22.448	49.421	56.600	56.173	53.172
1/9/10 4:00	31.721	22.446	49.397	56.595	56.159	53.165
1/9/10 8:00	31.719	22.450	49.430	56.602	56.180	53.177
1/9/10 12:00	31.750	22.485	49.440	56.614	56.184	53.184
1/9/10 16:00	31.693	22.418	49.404	56.593	56.156	53.167
1/9/10 20:00	31.691	22.411	49.381	56.584	56.150	53.160
1/10/10 0:00	31.684	22.401	49.339	56.574	56.117	53.149
1/10/10 4:00	31.641	22.352	49.275	56.562	56.073	53.118
1/10/10 8:00	31.594	22.294	49.205	56.551	56.024	53.083
1/10/10 12:00	31.589	22.275	49.165	56.546	55.994	53.070
1/10/10 16:00	31.537	22.217	49.130	56.532	55.975	53.049

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
1/10/10 20:00	31.587	22.287	49.182	56.534	56.003	53.072
1/11/10 0:00	31.587	22.291	49.201	56.534	56.007	53.079
1/11/10 4:00	31.601	22.308	49.236	56.541	56.026	53.093
1/11/10 8:00	31.651	22.364	49.327	56.558	56.089	53.135
1/11/10 12:00	31.702	22.441	49.416	56.588	56.138	53.172
1/11/10 16:00	31.674	22.413	49.421	56.593	56.145	53.167
1/11/10 20:00	31.712	22.448	49.456	56.607	56.159	53.177
1/12/10 0:00	31.719	22.450	49.468	56.614	56.168	53.181
1/12/10 4:00	31.691	22.415	49.428	56.602	56.140	53.163
1/12/10 8:00	31.669	22.380	49.402	56.588	56.129	53.158
1/12/10 12:00	31.658	22.364	49.329	56.572	56.075	53.132
1/12/10 16:00	31.566	22.247	49.205	56.544	55.986	53.077
1/12/10 20:00	31.554	22.238	49.175	56.530	55.973	53.077
1/13/10 0:00	31.537	22.217	49.147	56.523	55.949	53.070
1/13/10 4:00	31.526	22.198	49.111	56.511	55.919	53.056
1/13/10 8:00	31.509	22.186	49.107	56.502	55.910	53.053
1/13/10 12:00	31.511	22.196	49.095	56.497	55.886	53.046
1/13/10 16:00	31.445	22.118	49.048	56.462	55.852	53.018
1/13/10 20:00	31.495	22.175	49.119	56.478	55.905	53.051
1/14/10 0:00	31.514	22.205	49.142	56.481	55.905	53.053
1/14/10 4:00	31.530	22.231	49.203	56.504	55.945	53.081
1/14/10 8:00	31.580	22.291	49.287	56.530	55.996	53.116
1/14/10 12:00	31.636	22.364	49.369	56.560	56.042	53.151
1/14/10 16:00	31.625	22.347	49.388	56.567	56.059	53.142
1/14/10 20:00	31.658	22.390	49.442	56.583	56.094	53.137
1/15/10 0:00	31.674	22.404	49.470	56.597	56.112	53.135
1/15/10 4:00	31.684	22.408	49.468	56.602	56.103	53.123
1/15/10 8:00	31.655	22.390	49.461	56.604	56.112	53.121
1/15/10 12:00	31.693	22.427	49.458	56.609	56.103	53.111
1/15/10 16:00	31.636	22.345	49.383	56.586	56.059	53.118
1/15/10 20:00	31.606	22.319	49.348	56.574	56.042	53.125
1/16/10 0:00	31.615	22.326	49.341	56.569	56.038	53.132
1/16/10 4:00	31.587	22.280	49.285	56.555	55.998	53.139
1/16/10 8:00	31.561	22.252	49.264	56.546	55.993	53.146
1/16/10 12:00	31.592	22.289	49.233	56.548	55.963	53.149
1/16/10 16:00	31.511	22.189	49.137	56.518	55.896	53.167
1/16/10 20:00	31.528	22.210	49.149	56.511	55.905	53.177
1/17/10 0:00	31.492	22.161	49.121	56.504	55.882	53.156
1/17/10 4:00	31.500	22.182	49.119	56.502	55.875	53.135
1/17/10 8:00	31.476	22.149	49.102	56.499	55.861	53.125
1/17/10 12:00	31.511	22.196	49.128	56.509	55.870	53.125
1/17/10 16:00	31.474	22.156	49.126	56.506	55.868	53.130
1/17/10 20:00	31.535	22.226	49.203	56.525	55.926	53.130
1/18/10 0:00	31.561	22.256	49.236	56.544	55.945	53.132
1/18/10 4:00	31.542	22.238	49.222	56.548	55.940	53.135
1/18/10 8:00	31.551	22.247	49.224	56.551	55.945	53.137
1/18/10 12:00	31.551	22.249	49.203	56.551	55.928	53.130
1/18/10 16:00	31.507	22.198	49.168	56.544	55.907	53.118
1/18/10 20:00	31.528	22.214	49.177	56.548	55.919	53.128
1/19/10 0:00	31.537	22.224	49.179	56.553	55.921	53.130
1/19/10 4:00	31.514	22.196	49.121	56.546	55.882	53.121
1/19/10 8:00	31.488	22.177	49.095	56.541	55.865	53.111
1/19/10 12:00	31.488	22.172	49.069	56.539	55.844	53.102
1/19/10 16:00	31.417	22.076	48.983	56.516	55.786	53.090
1/19/10 20:00	31.424	22.086	48.950	56.506	55.761	53.107

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
1/20/10 0:00	31.379	22.032	48.887	56.488	55.709	53.077
1/20/10 4:00	31.351	21.997	48.865	56.474	55.695	53.053
1/20/10 8:00	31.405	22.076	48.929	56.499	55.742	53.067
1/20/10 12:00	31.441	22.123	48.983	56.525	55.779	53.121
1/20/10 16:00	31.462	22.104	48.983	56.532	55.775	53.130
1/20/10 20:00	31.457	22.153	49.027	56.537	55.814	53.125
1/21/10 0:00	31.464	22.109	49.001	56.539	55.800	53.125
1/21/10 4:00	31.464	22.139	49.013	56.544	55.817	53.121
1/21/10 8:00	31.443	22.153	49.015	56.548	55.814	53.121
1/21/10 12:00	31.422	22.179	49.027	56.551	55.821	53.156
1/21/10 16:00	31.419	22.125	48.999	56.551	55.807	53.184
1/21/10 20:00	31.396	22.170	49.034	56.551	55.828	53.191
1/22/10 0:00	31.379	22.172	49.029	56.555	55.831	53.179
1/22/10 4:00	31.363	22.121	48.940	56.555	55.763	53.142
1/22/10 8:00	31.356	22.060	48.901	56.555	55.735	53.132
1/22/10 12:00	31.311	22.004	48.807	56.553	55.658	53.104
1/22/10 16:00	31.205	21.889	48.676	56.513	55.565	53.111
1/22/10 20:00	31.179	21.906	48.629	56.495	55.532	53.097
1/23/10 0:00	31.131	21.927	48.601	56.488	55.505	53.090
1/23/10 4:00	30.992	21.878	48.486	56.444	55.397	53.051
1/23/10 8:00	30.820	21.840	48.465	56.439	55.360	53.051
1/23/10 12:00	30.452	21.740	48.451	56.434	55.330	53.081
1/23/10 16:00	30.039	21.618	48.472	56.432	55.330	53.088
1/23/10 20:00	29.610	21.454	48.523	56.492	55.351	53.102
1/24/10 0:00	29.350	21.342	48.526	56.516	55.323	53.109
1/24/10 4:00	29.201	21.265	48.505	56.530	55.279	53.114
1/24/10 8:00	29.091	21.221	48.521	56.555	55.255	53.139
1/24/10 12:00	28.989	21.134	48.472	56.565	55.190	53.128
1/24/10 16:00	28.918	21.029	48.427	56.548	55.125	53.123
1/24/10 20:00	28.845	20.985	48.418	56.565	55.088	53.132
1/25/10 0:00	28.793	20.912	48.380	56.558	55.027	53.125
1/25/10 4:00	28.748	20.859	48.350	56.553	54.971	53.123
1/25/10 8:00	28.708	20.849	48.399	56.583	54.985	53.158
1/25/10 12:00	28.791	20.896	48.469	56.632	55.002	53.198
1/25/10 16:00	28.744	20.835	48.467	56.658	54.971	53.204
1/25/10 20:00	28.758	20.847	48.509	56.695	54.983	53.232
1/26/10 0:00	28.763	20.863	48.537	56.719	54.976	53.256
1/26/10 4:00	28.774	20.866	48.580	56.740	54.981	53.284
1/26/10 8:00	28.760	20.840	48.575	56.768	54.950	53.284
1/26/10 12:00	28.772	20.856	48.589		54.908	53.298
1/26/10 16:00	28.668	20.721	48.477	56.791	54.815	
1/26/10 20:00	28.654	20.693	48.460	56.749	54.778	53.184
1/27/10 0:00	28.595	20.622	48.395	56.719	54.704	53.156
1/27/10 4:00	28.569	20.566	48.338	56.686	54.620	53.139
1/27/10 8:00	28.536	20.524	48.322	56.656	54.590	53.142
1/27/10 12:00	28.569		48.350	56.670	54.573	53.160
1/27/10 16:00	28.560	20.562	48.399	56.686	54.594	53.188
1/27/10 20:00	28.642	20.658	48.495	56.733	54.643	53.249
1/28/10 0:00	28.645	20.667	48.547	56.777	54.664	53.272
1/28/10 4:00	28.645	20.669	48.556	56.807	54.652	53.279
1/28/10 8:00	28.633	20.651	48.568	56.819	54.648	53.288
1/28/10 12:00	28.621	20.623	48.505	56.824	54.571	53.265
1/28/10 16:00	28.515	20.492	48.409	56.747	54.487	53.223
1/28/10 20:00	28.524	20.487	48.366	56.728	54.431	53.216
1/29/10 0:00	28.520	20.475	48.355	56.712	54.392	53.214

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
1/29/10 4:00	28.461	20.393	48.266	56.681	54.294	53.170
1/29/10 8:00	28.404	20.326	48.219	56.635	54.240	53.142
1/29/10 12:00	28.423	20.333	48.212	56.621	54.217	53.149
1/29/10 16:00	28.326	20.216	48.116	56.558	54.110	53.095
1/29/10 20:00	28.338	20.214	48.111	56.530	54.094	53.097
1/30/10 0:00	28.336	20.204	48.104	56.518	54.059	53.100
1/30/10 4:00	28.331	20.199	48.104	56.511	54.038	53.102
1/30/10 8:00	28.338	20.197	48.127	56.516	54.040	53.116
1/30/10 12:00	28.371	20.218	48.125	56.532	54.017	53.118
1/30/10 16:00	28.302	20.139	48.071	56.495	53.956	53.097
1/30/10 20:00	28.333	20.162	48.106	56.506	53.966	53.116
1/31/10 0:00	28.359	20.185	48.151	56.530	53.989	53.132
1/31/10 4:00	28.359	20.188	48.160	56.544	53.980	53.135
1/31/10 8:00	28.371	20.195	48.181	56.560	53.991	53.146
1/31/10 12:00	28.392	20.218	48.191	56.569	53.975	53.153
1/31/10 16:00	28.324	20.129	48.134	56.537	53.917	53.132
1/31/10 20:00	28.312	20.106	48.104	56.520	53.877	53.123
2/1/10 0:00	28.310	20.092	48.085	56.511	53.849	53.118
2/1/10 4:00	28.338	20.055	48.045	56.495	53.796	53.102
2/1/10 8:00	28.314	20.015	48.024	56.478	53.768	53.088
2/1/10 12:00	28.326	20.015	48.015	56.474	53.740	53.086
2/1/10 16:00	28.298	19.977	47.994	56.455	53.707	53.077
2/1/10 20:00	28.336	20.029	48.055	56.476	53.747	53.104
2/2/10 0:00	28.357	20.059	48.092	56.504	53.765	53.121
2/2/10 4:00	28.376	20.087	48.146	56.537	53.803	53.144
2/2/10 8:00	28.385	20.139	48.193	56.572	53.840	53.165
2/2/10 12:00	28.399	20.157	48.202	56.595	53.840	53.170
2/2/10 16:00	28.406	20.087	48.160	56.574	53.805	51.003
2/2/10 20:00	28.418	20.113	48.191	56.588	53.819	50.208
2/3/10 0:00	28.423	20.141	48.209	56.604	53.830	50.375
2/3/10 4:00	28.423	20.092	48.177	56.590	53.791	50.459
2/3/10 8:00	28.418	20.115	48.177	56.593	53.789	50.564
2/3/10 12:00	28.411	20.076	48.160	56.579	53.763	49.249
2/3/10 16:00	28.404	20.052	48.134	56.560	53.733	48.977
2/3/10 20:00	28.406	20.078	48.148	56.567	53.737	49.552
2/4/10 0:00	28.418	20.076	48.146	56.574	53.726	49.770
2/4/10 4:00	28.413	20.078	48.160	56.579	53.723	49.959
2/4/10 8:00	28.387	20.029	48.120	56.579	53.686	49.703
2/4/10 12:00	28.378	20.115	48.066	56.576	53.637	48.081
2/4/10 16:00	28.293	20.015	47.984	56.527	53.546	46.266
2/4/10 20:00	28.293	19.973	47.984	56.492	53.535	48.400
2/5/10 0:00	28.232	19.893	47.973	56.483	53.507	48.325
2/5/10 4:00	28.194	19.870	47.954	56.476	53.467	48.498
2/5/10 8:00	28.177	19.826	47.963	56.474	53.474	48.605
2/5/10 12:00	28.210	19.868	48.010	56.502	53.505	48.644
2/5/10 16:00	28.222	19.868	48.045	56.527	53.532	48.614
2/5/10 20:00	28.243	19.947	48.144	56.555	53.609	48.821
2/6/10 0:00	28.253	20.013	48.202	56.579	53.656	48.979
2/6/10 4:00	28.272	20.027	48.209	56.595	53.661	49.177
2/6/10 8:00	28.286	20.055	48.245	56.618	53.686	49.431
2/6/10 12:00	28.295	20.059	48.242	56.630	53.684	49.535
2/6/10 16:00	28.319	19.994	48.188	56.600	53.630	49.186
2/6/10 20:00	28.336	19.987	48.181	56.600	53.626	49.321
2/7/10 0:00	28.338	19.952	48.151	56.597	53.602	49.484
2/7/10 4:00	28.314	19.935	48.097	56.576	53.553	49.542

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
2/7/10 8:00	28.298	19.924	48.095	56.567	53.539	49.642
2/7/10 12:00	28.293	19.914	48.057	56.574	53.498	49.635
2/7/10 16:00	28.236	19.844	47.994	56.541	53.428	49.396
2/7/10 20:00	28.246	19.882	48.020	56.553	53.449	49.331
2/8/10 0:00	28.241	19.863	48.010	56.546	53.432	49.331
2/8/10 4:00	28.234	19.835	48.017	56.555	53.435	49.447
2/8/10 8:00	28.243	19.893	48.085	56.569	53.488	49.603
2/8/10 12:00	28.246	20.001	48.207	56.597	53.595	49.614
2/8/10 16:00	28.260	19.968	48.172	56.621	53.563	49.701
2/8/10 20:00	28.267	19.961	48.158	56.625	53.546	49.815
2/9/10 0:00	28.277	19.928	48.130	56.607	53.514	49.922
2/9/10 4:00	28.279	19.896	48.085	56.586	53.472	50.001
2/9/10 8:00	28.277	19.886	48.111	56.586	53.498	50.119
2/9/10 12:00	28.265	19.991	48.198	56.639	53.570	50.261
2/9/10 16:00	28.267	19.996	48.205	56.651	53.574	50.329
2/9/10 20:00	28.269	20.005	48.216	56.660	53.584	50.399
2/10/10 0:00	28.295	20.036	48.245	56.677	53.609	50.478
2/10/10 4:00	28.302	20.015	48.219	56.674	53.588	50.508
2/10/10 8:00	28.312	19.989	48.202	56.663	53.563	50.550
2/10/10 12:00	28.317	20.001	48.179	56.660	53.539	50.585
2/10/10 16:00	28.314	19.896	48.078	56.609	53.451	50.575
2/10/10 20:00	28.310	19.877	48.059	56.586	53.425	50.624
2/11/10 0:00	28.305	19.856	48.031	56.576	53.395	50.652
2/11/10 4:00	28.279	19.828	47.999	56.569	53.353	50.671
2/11/10 8:00	28.272	19.814	47.987	56.565	53.328	50.706
2/11/10 12:00	28.279	19.814	47.968	56.560	53.300	50.734
2/11/10 16:00	28.229	19.772	47.926	56.541	53.258	50.422
2/11/10 20:00	28.246	19.865	47.992	56.516	53.307	50.194
2/12/10 0:00	28.253	19.847	48.003	56.525	53.307	50.133
2/12/10 4:00	28.260	19.830	48.006	56.555	53.300	49.849
2/12/10 8:00	28.262	19.804	48.045	56.562	53.332	49.938
2/12/10 12:00	28.267	19.804	48.074	56.572	53.349	50.063
2/12/10 16:00	28.258	19.772	48.020	56.562	53.300	50.098
2/12/10 20:00	28.267	19.776	48.024	56.562	53.300	50.168
2/13/10 0:00	28.265	19.781	47.996	56.555	53.267	50.210
2/13/10 4:00	28.229	19.774	47.940	56.551	53.216	50.243
2/13/10 8:00	28.206	19.744	47.940	56.548	53.211	50.308
2/13/10 12:00	28.225	19.760	47.938	56.551	53.204	50.361
2/13/10 16:00	28.210	19.804	47.942	56.560	53.204	46.939
2/13/10 20:00	28.227	19.858	48.003	56.567	53.255	48.756
2/14/10 0:00	28.220	19.872	48.106	56.569	53.342	49.037
2/14/10 4:00	28.248	19.865	48.141	56.574	53.372	49.249
2/14/10 8:00	28.253	19.823	48.120	56.579	53.356	49.314
2/14/10 12:00	28.272	19.830	48.148	56.579	53.374	49.389
2/14/10 16:00	28.277	19.858	48.186	56.581	53.414	49.845
2/14/10 20:00	28.274	19.858	48.177	56.581	53.409	49.947
2/15/10 0:00	28.288	19.917	48.118	56.586	53.353	49.994
2/15/10 4:00	28.310	19.889	48.090	56.586	53.328	50.050
2/15/10 8:00	28.317	19.907	48.127	56.588	53.358	50.154
2/15/10 12:00	28.310	19.947	48.148	56.588	53.376	50.231
2/15/10 16:00	28.326	19.917	48.123	56.590	53.353	50.273
2/15/10 20:00	28.336	19.919	48.127	56.590	53.356	50.329
2/16/10 0:00	28.338	19.935	48.148	56.593	53.372	50.399
2/16/10 4:00	28.338	19.942	48.156	56.595	53.379	50.454
2/16/10 8:00	28.340	19.970	48.191	56.597	53.409	50.531

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
2/16/10 12:00	28.340	20.001	48.202	56.600	53.423	50.587
2/16/10 16:00	28.359	19.949	48.151	56.597	53.376	50.599
2/16/10 20:00	28.373	19.935	48.132	56.597	53.363	50.638
2/17/10 0:00	28.378	19.942	48.144	56.600	53.369	50.694
2/17/10 4:00	28.385	19.931	48.118	56.597	53.339	50.722
2/17/10 8:00	28.392	19.938	48.132	56.595	53.353	50.778
2/17/10 12:00	28.399	19.940	48.109	56.595	53.332	50.799
2/17/10 16:00	28.383	19.875	48.043	56.583	53.274	47.809
2/17/10 20:00	28.385	19.889	48.066	56.588	53.290	48.891
2/18/10 0:00	28.392	19.900	48.076	56.588	53.300	49.256
2/18/10 4:00	28.397	19.896	48.062	56.590	53.283	49.547
2/18/10 8:00	28.380	19.877	48.064	56.588	53.281	49.682
2/18/10 12:00	28.380	19.877	48.034	56.588	53.251	47.946
2/18/10 16:00	28.312	19.788	47.959	56.553	53.179	48.923
2/18/10 20:00	28.267	19.828	48.010	56.565	53.218	49.400
2/19/10 0:00	28.253	19.849	48.022	56.574	53.223	49.587
2/19/10 4:00	28.173	19.870	47.954	56.583	53.160	49.587
2/19/10 8:00	28.159	19.793	47.980	56.586	53.181	49.652
2/19/10 12:00	28.144	19.830	47.994	56.581	53.188	49.670
2/19/10 16:00	28.142	19.823	48.006	56.586	53.188	49.777
2/19/10 20:00	28.187	19.861	48.085	56.586	53.260	49.917
2/20/10 0:00	28.199	19.877	48.097	56.588	53.267	49.991
2/20/10 4:00	28.210	19.879	48.104	56.588	53.279	50.077
2/20/10 8:00	28.196	19.903	48.132	56.588	53.304	50.164
2/20/10 12:00	28.208	19.884	48.127	56.593	53.300	50.222
2/20/10 16:00	28.229	19.875	48.074	56.588	53.253	50.245
2/20/10 20:00	28.243	19.795	48.074	56.588	53.253	50.305
2/21/10 0:00	28.248	19.730	48.041	56.590	53.223	50.331
2/21/10 4:00	28.225	19.688	47.980	56.588	53.165	50.338
2/21/10 8:00	28.208	19.669	48.038	56.586	53.216	50.424
2/21/10 12:00	28.227	19.702	48.029	56.586	53.197	50.459
2/21/10 16:00	28.210	19.678	48.024	56.576	53.193	50.496
2/21/10 20:00	28.225	19.606	48.059	56.583	53.223	50.559
2/22/10 0:00	28.229	19.554	48.106	56.595	53.274	50.627
2/22/10 4:00	28.244	19.508	48.069	56.588	53.232	50.631
2/22/10 8:00	28.258	19.463	48.113	56.595	53.267	50.706
2/22/10 12:00	28.262	19.512	48.130	56.602	53.279	50.750
2/22/10 16:00	28.284	19.833	48.074	56.593	53.230	50.741
2/22/10 20:00	28.288	19.870	48.095	56.590	53.248	50.789
2/23/10 0:00	28.288	19.734	48.074	56.583	53.230	50.803
2/23/10 4:00	28.293	19.641	48.045	56.579	53.202	50.815
2/23/10 8:00	28.281	19.573	48.106	56.588	53.251	50.889
2/23/10 12:00	28.274	19.734	48.184	56.623	53.314	50.973
2/23/10 16:00	28.324	19.984	48.186	56.637	53.323	50.994
2/23/10 20:00	28.319	19.942	48.214	56.656	53.353	51.038
2/24/10 0:00	28.364	19.963	48.223	56.667	53.358	51.064
2/24/10 4:00	28.359	19.961	48.209	56.667	53.349	51.078
2/24/10 8:00	28.361	19.961	48.216	56.670	53.358	51.110
2/24/10 12:00	28.366	19.973	48.200	56.665	53.349	51.120
2/24/10 16:00	28.293	19.877	48.111	56.616	53.267	51.087
2/24/10 20:00	28.295	19.872	48.111	56.593	53.258	51.120
2/25/10 0:00	28.300	19.875	48.104	56.586	53.255	51.143
2/25/10 4:00	28.298	19.861	48.074	56.579	53.220	51.143
2/25/10 8:00	28.310	19.882	48.106	56.581	53.253	51.192
2/25/10 12:00	28.291	19.851	48.081	56.567	53.223	51.194

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
2/25/10 16:00	28.262	19.821	48.055	56.562	53.202	51.220
2/25/10 20:00	28.333	19.896	48.130	56.579	53.262	50.752
2/26/10 0:00	28.354	19.926	48.158	56.600	53.286	50.836
2/26/10 4:00	28.347	19.914	48.151	56.602	53.279	50.880
2/26/10 8:00	28.357	19.921	48.158	56.607	53.290	50.927
2/26/10 12:00	28.352	19.917	48.151	56.604	53.279	50.950
2/26/10 16:00	28.321	19.879	48.120	56.579	53.260	50.852
2/26/10 20:00	28.319	19.907	48.139	56.590	53.272	50.885
2/27/10 0:00	28.272	19.903	48.153	56.595	53.281	50.955
2/27/10 4:00	28.253	19.898	48.158	56.600	53.283	50.989
2/27/10 8:00	28.269	19.912	48.181	56.611	53.309	51.034
2/27/10 12:00	28.291	19.940	48.195	56.625	53.323	51.073
2/27/10 16:00	28.253	19.889	48.134	56.597	53.267	51.048
2/27/10 20:00	28.262	19.893	48.134	56.590	53.267	51.078
2/28/10 0:00	28.253	19.889	48.134	56.590	53.262	51.101
2/28/10 4:00	28.232	19.884	48.144	56.590	53.281	51.138
2/28/10 8:00	28.251	19.898	48.160	56.600	53.281	51.166
2/28/10 12:00	28.265	19.910	48.148	56.602	53.279	51.192
2/28/10 16:00	28.211	19.844	48.104	56.569	53.239	51.183
2/28/10 20:00	28.253	19.891	48.148	56.586	53.279	51.238
3/1/10 0:00	28.312	19.963	48.223	56.635	53.342	51.308
3/1/10 4:00	28.293	19.947	48.219	56.644	53.346	51.320
3/1/10 8:00	28.331	19.991	48.259	56.660	53.381	51.366
3/1/10 12:00	28.350	20.003	48.277	56.679	53.402	51.394
3/1/10 16:00	28.312	19.961	48.242	56.663	53.376	51.387
3/1/10 20:00	28.321	19.975	48.238	56.663	53.376	51.401
3/2/10 0:00	28.307	19.963	48.212	56.651	53.351	51.406
3/2/10 4:00	28.272	19.931	48.186	56.628	53.332	51.411
3/2/10 8:00	28.265	19.914	48.156	56.616	53.307	51.408
3/2/10 12:00	28.251	19.896	48.137	56.600	53.283	51.413
3/2/10 16:00	28.189	19.828	48.083	56.562	53.227	51.397
3/2/10 20:00	28.211	19.851	48.099	56.555	53.239	51.434
3/3/10 0:00	28.225	19.875	48.130	56.567	53.267	51.471
3/3/10 4:00	28.234	19.877	48.132	56.579	53.267	51.490
3/3/10 8:00	28.241	19.898	48.170	56.595	53.304	51.534
3/3/10 12:00	28.265	19.917	48.181	56.611	53.316	51.557
3/3/10 16:00	28.222	19.868	48.125	56.583	53.267	51.527
3/3/10 20:00	28.218	19.865	48.125	56.576	53.265	51.546
3/4/10 0:00	28.244	19.896	48.151	56.593	53.286	51.578
3/4/10 4:00	28.227	19.879	48.146	56.588	53.276	51.585
3/4/10 8:00	28.246	19.905	48.177	56.604	53.307	51.625
3/4/10 12:00	28.248	19.900	48.144	56.600	53.274	51.611
3/4/10 16:00	28.175	19.819	48.071	56.548	53.213	51.576
3/4/10 20:00	28.192	19.840	48.102	56.551	53.237	51.618
3/5/10 0:00	28.229	19.886	48.144	56.581	53.279	51.664
3/5/10 4:00	28.213	19.872	48.132	56.583	53.260	51.662
3/5/10 8:00	28.213	19.877	48.127	56.581	53.258	51.676
3/5/10 12:00	28.196	19.854	48.092	56.567	53.225	51.660
3/5/10 16:00	28.133	19.774	48.020	56.527	53.160	51.629
3/5/10 20:00	28.149	19.802	48.052	56.525	53.190	51.676
3/6/10 0:00	28.185	19.849	48.095	56.558	53.234	51.725
3/6/10 4:00	28.177	19.842	48.078	56.579	53.225	51.722
3/6/10 8:00	28.194	19.868	48.120	56.590	53.262	51.769
3/6/10 12:00	28.203	19.868	48.095	56.586	53.241	51.760
3/6/10 16:00	28.140	19.797	48.031	56.548	53.186	51.734

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/6/10 20:00	28.180	19.851	48.088	56.574	53.244	51.795
3/7/10 0:00	28.225	19.912	48.144	56.614	53.293	51.846
3/7/10 4:00	28.225	19.907	48.146	56.625	53.300	51.857
3/7/10 8:00	28.229	19.912	48.158	56.632	53.314	51.878
3/7/10 12:00	28.236	19.924	48.144	56.639	53.316	51.883
3/7/10 16:00	28.185	19.858	48.057	56.602	53.237	51.832
3/7/10 20:00	28.170	19.839	48.038	56.579	53.218	51.839
3/8/10 0:00	28.154	19.821	48.027	56.567	53.204	51.846
3/8/10 4:00	28.130	19.788	47.984	56.546	53.160	51.829
3/8/10 8:00	28.100	19.753	47.949	56.525	53.132	51.820
3/8/10 12:00	28.057	19.697	47.858	56.483	53.041	51.769
3/8/10 16:00	27.953	19.580	47.753	56.401	52.943	51.715
3/8/10 20:00	27.951	19.578	47.734	56.394	52.906	51.725
3/9/10 0:00	27.573	19.510	47.706	56.376	52.860	51.711
3/9/10 4:00	27.231	19.379	47.647	56.341	52.776	51.671
3/9/10 8:00	27.177	19.316	47.675	56.345	52.783	51.685
3/9/10 12:00	27.208	19.300	47.664	56.320	52.752	51.683
3/9/10 16:00	27.220	19.262	47.656	56.341	52.732	51.685
3/9/10 20:00	27.309	19.321	47.727	56.399	52.787	51.729
3/10/10 0:00	27.359	19.346	47.746	56.439	52.792	51.743
3/10/10 4:00	27.392	19.363	47.757	56.462	52.797	51.734
3/10/10 8:00	27.411	19.391	47.811	56.490	52.839	51.776
3/10/10 12:00	27.406	19.384	47.792	56.474	52.818	51.778
3/10/10 16:00	27.378	19.346	47.788	56.464	52.813	51.799
3/10/10 20:00	27.422	19.328	47.760	56.488	52.790	51.804
3/11/10 0:00	27.448	19.330	47.738	56.516	52.762	51.694
3/11/10 4:00	27.137	19.323	47.734	56.534	52.752	51.564
3/11/10 8:00	26.757	19.192	47.736	56.541	52.739	51.543
3/11/10 12:00	26.554	19.094	47.743	56.558	52.725	51.576
3/11/10 16:00	26.500	19.010	47.722	56.565	52.692	51.599
3/11/10 20:00	26.509	18.975	47.724	56.572	52.687	51.641
3/12/10 0:00	26.557	18.958	47.675	56.574	52.634	51.655
3/12/10 4:00	26.590	18.884	47.598	56.579	52.566	51.648
3/12/10 8:00	26.601	18.891	47.598	56.579	52.557	51.676
3/12/10 12:00	26.606	18.940	47.638	56.579	52.596	51.715
3/12/10 16:00	26.573	18.958	47.652	56.595	52.610	51.748
3/12/10 20:00	26.582	18.968	47.666	56.618	52.622	51.778
3/13/10 0:00	26.597	18.942	47.617	56.621	52.580	51.788
3/13/10 4:00	26.578	18.865	47.528	56.604	52.496	51.767
3/13/10 8:00	26.557	18.881	47.549	56.623	52.515	51.811
3/13/10 12:00	26.566	18.860		56.639	52.475	51.815
3/20/10 16:00	26.391	18.376		56.705	51.764	52.320
3/20/10 20:00	26.372	18.341	46.943	56.674	51.729	52.304
3/21/10 0:00	26.328	18.325	46.927	56.665	51.704	52.306
3/21/10 4:00	26.290	18.269	46.870	56.635	51.636	52.276
3/21/10 8:00	26.297	18.266	46.870	56.618	51.622	52.287
3/21/10 12:00	26.269	18.254	46.866	56.614	51.615	52.292
3/21/10 16:00	26.196	18.159	46.774	56.583	51.522	52.231
3/21/10 20:00	26.203	18.168	46.770	56.558	51.520	52.248
3/22/10 0:00	26.205	18.161	46.765	56.551	51.496	52.259
3/22/10 4:00	26.155	18.124	46.725	56.539	51.450	52.241
3/22/10 8:00	26.172	18.138	46.739	56.555	51.462	52.257
3/22/10 12:00	26.106	18.072	46.678	56.523	51.392	52.227
3/22/10 16:00	26.035	17.969	46.570	56.469	51.280	52.162
3/22/10 20:00	26.066	17.976	46.559	56.436	51.259	52.171

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/23/10 0:00	26.094	18.030	46.613	56.434	51.306	52.211
3/23/10 4:00	26.094	18.058	46.650	56.460	51.331	52.241
3/23/10 8:00	26.162	18.100	46.697	56.488	51.373	52.278
3/23/10 12:00	26.144	18.128	46.732	56.523	51.401	52.306
3/23/10 16:00	26.099	18.035	46.652	56.499	51.315	52.271
3/23/10 20:00	26.200	18.152	46.770	56.532	51.422	52.338
3/24/10 0:00	26.203	18.189	46.819	56.567	51.468	52.371
3/24/10 4:00	26.205	18.173	46.814	56.581	51.462	52.378
3/24/10 8:00	26.231	18.191	46.838	56.590	51.480	52.399
3/24/10 12:00	26.177	18.187	46.840	56.597	51.471	52.411
3/24/10 16:00	26.075	18.161	46.826	56.602	51.455	52.411
3/24/10 20:00	25.846	18.138	46.840	56.604	51.459	52.427
3/25/10 0:00	25.787	18.086	46.840	56.604	51.450	52.432
3/25/10 4:00	25.818	18.035	46.805	56.604	51.406	52.420
3/25/10 8:00	25.896	18.075	46.845	56.609	51.438	52.452
3/25/10 12:00	25.931	18.091	46.861	56.611	51.455	52.476
3/25/10 16:00	25.910	18.037	46.807	56.616	51.396	52.448
3/25/10 20:00	25.941	18.035	46.795	56.611	51.385	52.452
3/26/10 0:00	25.962	18.053	46.809	56.616	51.394	52.471
3/26/10 4:00	25.934	18.016	46.765	56.607	51.345	52.450
3/26/10 8:00	25.950	18.007	46.746	56.597	51.324	52.448
3/26/10 12:00	25.875	17.955	46.690	56.590	51.270	52.418
3/26/10 16:00	25.773	17.785	46.507	56.530	51.087	52.304
3/26/10 20:00	25.827	17.817	46.514	56.492	51.091	52.322
3/27/10 0:00	25.846	17.866	46.554	56.502	51.122	52.357
3/27/10 4:00	25.827	17.820	46.510	56.534	51.077	52.350
3/27/10 8:00	25.603	17.829	46.521	56.553	51.059	52.371
3/27/10 12:00	25.150	17.778	46.531	56.567	51.040	52.394
3/27/10 16:00	24.754	17.516	46.517	56.574	51.024	52.415
3/27/10 20:00	24.584	17.394	46.587	56.590	51.087	52.483
3/28/10 0:00	24.428	17.310	46.603	56.597	51.093	52.525
3/28/10 4:00	24.362	17.224	46.561	56.611	51.045	52.534
3/28/10 8:00	24.412	17.193	46.549	56.625	51.028	52.566
3/28/10 12:00	24.383	17.144	46.519	56.644	51.001	52.583
3/28/10 16:00	24.322	17.018	46.395	56.642	50.875	52.560
3/28/10 20:00	24.308	16.957	46.331	56.635	50.812	52.557
3/29/10 0:00	24.280	16.906	46.278	56.632	50.763	52.560
3/29/10 4:00	24.225	16.838	46.207	56.621	50.686	52.546
3/29/10 8:00	24.192	16.761	46.139	56.604	50.614	52.527
3/29/10 12:00	24.091	16.649	46.034	56.583	50.497	52.480
3/29/10 16:00	24.006	16.508	45.889	56.544	50.353	52.408
3/29/10 20:00	24.004	16.457	45.821	56.509	50.279	52.397
3/30/10 0:00	23.992	16.434	45.795	56.492	50.248	52.408
3/30/10 4:00	23.942	16.380	45.746	56.481	50.193	52.406
3/30/10 8:00	23.949	16.366	45.734	56.476	50.172	52.415
3/30/10 12:00	23.900	16.319	45.696	56.467	50.125	52.415
3/30/10 16:00	23.812	16.193	45.570	56.436	49.992	52.348
3/30/10 20:00	23.834	16.167	45.533	56.404	49.948	52.341
3/31/10 0:00	23.812	16.146	45.511	56.397	49.916	52.348
3/31/10 4:00	23.810	16.130	45.500	56.390	49.897	52.359
3/31/10 8:00	23.916	16.228	45.600	56.429	49.983	52.427
3/31/10 12:00	23.937	16.310	45.701	56.495	50.074	52.499
3/31/10 16:00	23.876	16.242	45.652	56.504	50.018	52.478
3/31/10 20:00	23.893	16.228	45.654	56.504	50.009	52.490
4/1/10 0:00	23.855	16.202	45.633	56.504	49.974	52.492

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
4/1/10 4:00	23.801	16.148	45.579	56.485	49.906	52.473
4/1/10 8:00	23.831	16.162	45.596	56.481	49.913	52.490
4/1/10 12:00	23.801	16.155	45.589	56.492	49.894	52.499
4/1/10 16:00	23.716	16.039	45.472	56.462	49.767	52.434
4/1/10 20:00	23.751	16.064	45.490	56.448	49.769	52.455
4/2/10 0:00	23.827	16.062	45.483	56.448	49.757	52.459
4/2/10 4:00	23.779	16.064	45.493	56.464	49.746	52.473
4/2/10 8:00	23.831	16.130	45.558	56.495	49.804	52.520
4/2/10 12:00	23.841	16.195	45.640	56.534	49.871	52.569
4/2/10 16:00	23.815	16.167	45.626	56.544	49.846	52.569
4/2/10 20:00	23.933	16.258	45.722	56.567	49.927	52.625
4/3/10 0:00	23.961	16.345	45.825	56.623	50.023	52.690
4/3/10 4:00	23.933	16.335	45.837	56.649	50.025	52.694
4/3/10 8:00	23.940	16.340	45.856	56.663	50.030	52.706
4/3/10 12:00	23.881	16.298	45.828	56.660	49.985	52.694
4/3/10 16:00	23.801	16.186	45.715	56.625	49.867	52.632
4/3/10 20:00	23.817	16.181	45.703	56.602	49.836	52.636
4/4/10 0:00	23.817	16.186	45.701	56.597	49.825	52.648
4/4/10 4:00	23.845	16.209	45.720	56.609	49.829	52.664
4/4/10 8:00	23.874	16.254	45.771	56.625	49.867	52.694
4/4/10 12:00	23.836	16.219	45.741	56.625	49.829	52.687
4/4/10 16:00	23.831	16.202	45.729	56.618	49.808	52.683
4/4/10 20:00	23.902	16.265	45.788	56.639	49.859	52.715
4/5/10 0:00	23.888	16.298	45.835	56.665	49.885	52.739
4/5/10 4:00	23.876	16.298	45.844	56.672	49.892	52.753
4/5/10 8:00	23.820	16.240	45.788	56.651	49.822	52.718
4/5/10 12:00	23.711	16.125	45.664	56.623	49.692	52.632
4/5/10 16:00	23.640	15.992	45.518	56.572	49.538	52.541
4/5/10 20:00	23.676	15.980	45.486	56.530	49.496	52.541
4/6/10 0:00	23.359	15.915	45.441	56.548	49.438	52.529
4/6/10 4:00	23.206	15.732	45.333	56.527	49.296	52.473
4/6/10 8:00	23.220	15.737	45.352	56.520	49.299	52.492
4/6/10 12:00	23.241	15.779	45.392	56.513	49.331	52.529
4/6/10 16:00	23.282	15.809	45.420	56.511	49.345	52.555
4/6/10 20:00	23.416	15.912	45.518	56.534	49.441	52.629
4/7/10 0:00	23.437	15.919	45.528	56.565	49.445	52.648
4/7/10 4:00	23.447	15.940	45.551	56.574	49.466	52.664
4/7/10 8:00	23.520	15.999	45.607	56.593	49.513	52.697
4/7/10 12:00	23.635	16.127	45.734	56.618	49.634	52.783
4/7/10 16:00	23.647	16.188	45.809	56.642	49.713	52.829
4/7/10 20:00	23.673	16.186	45.821	56.656	49.724	52.832
4/8/10 0:00	23.676	16.214	45.851	56.674	49.755	52.853
4/8/10 4:00	23.645	16.169	45.809	56.679	49.708	52.836
4/8/10 8:00	23.661	16.183	45.818	56.681	49.708	52.846
4/8/10 12:00	23.617	16.160	45.795	56.686	49.683	52.839
4/8/10 16:00	23.565	16.071	45.697	56.665	49.587	52.781
4/8/10 20:00	23.567	16.057	45.668	56.649	49.552	52.776
4/9/10 0:00	23.572	16.071	45.666	56.649	49.552	52.790
4/9/10 4:00	23.567	16.060	45.645	56.646	49.529	52.785
4/9/10 8:00	23.579	16.069	45.654	56.646	49.529	52.792
4/9/10 12:00	23.548	16.074	45.661	56.651	49.522	52.801
4/9/10 16:00	23.508	16.001	45.593	56.635	49.438	52.757
4/9/10 20:00	23.543	16.015	45.598	56.625	49.443	52.767
4/10/10 0:00	23.584	16.081	45.652	56.639	49.496	52.801
4/10/10 4:00	23.581	16.097	45.661	56.651	49.510	52.813

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
4/10/10 8:00	23.635	16.155	45.725	56.670	49.569	52.848
4/10/10 12:00	23.614	16.141	45.720	56.677	49.562	52.848
4/10/10 16:00	23.574	16.088	45.671	56.663	49.508	52.827
4/10/10 20:00	23.626	16.127	45.706	56.663	49.534	52.848
4/11/10 0:00	23.659	16.176	45.760	56.684	49.578	52.876
4/11/10 4:00	23.664	16.183	45.771	56.688	49.575	52.883
4/11/10 8:00	23.687	16.221	45.825	56.700	49.622	52.906
4/11/10 12:00	23.645	16.204	45.823	56.702	49.613	52.908
4/11/10 16:00	23.593	16.113	45.736	56.674	49.522	52.843
4/11/10 20:00	23.612	16.116	45.722	56.660	49.506	52.843
4/12/10 0:00	23.645	16.153	45.755	56.663	49.541	52.862
4/12/10 4:00	23.602	16.120	45.725	56.660	49.501	52.841
4/12/10 8:00	23.645	16.158	45.762	56.658	49.538	52.862
4/12/10 12:00	23.586	16.130	45.732	56.656	49.501	52.843
4/12/10 16:00	23.546	16.064	45.666	56.632	49.427	52.792
4/12/10 20:00	23.584	16.090	45.678	56.625	49.431	52.806
4/13/10 0:00	23.581	16.094	45.682	56.625	49.438	52.815
4/13/10 4:00	23.593	16.104	45.694	56.623	49.459	52.822
4/13/10 8:00	23.624	16.146	45.732	56.630	49.494	52.839
4/13/10 12:00	23.605	16.144	45.732	56.632	49.480	52.841
4/13/10 16:00	23.565	16.090	45.685	56.623	49.420	52.801
4/13/10 20:00	23.565	16.078	45.664	56.607	49.410	52.790
4/14/10 0:00	23.654	16.186	45.767	56.621	49.506	52.841
4/14/10 4:00	23.680	16.207	45.795	56.637	49.541	52.853
4/14/10 8:00	23.725	16.256	45.851	56.656	49.592	52.878
4/14/10 12:00	23.720	16.277	45.872	56.670	49.622	52.892
4/14/10 16:00	23.654	16.216	45.823	56.658	49.547	52.867
4/14/10 20:00	23.690	16.204	45.816	56.644	49.536	52.867
4/15/10 0:00	23.718	16.260	45.867	56.653	49.592	52.888
4/15/10 4:00	23.727	16.260	45.868	56.651	49.592	52.885
4/15/10 8:00	23.756	16.302	45.900	56.660	49.645	52.908
4/15/10 12:00	23.744	16.298	46.144	56.665	49.641	52.911
4/15/10 16:00	23.730	16.284	46.280	56.656	49.627	52.902
4/15/10 20:00	23.720	16.307	46.207	56.649	49.636	52.908
4/16/10 0:00	23.227	16.223	46.125	56.642	49.648	52.934
4/16/10 4:00	22.817	16.073	46.100	56.642	49.655	52.960
4/16/10 8:00	22.623	15.842	46.090	56.639	49.648	52.988
4/16/10 12:00	22.578	15.767	46.032	56.642	49.599	52.992
4/16/10 16:00	22.574	15.646	45.910	56.653	49.494	52.962
4/16/10 20:00	22.604	15.580	45.814	56.656	49.396	52.925
4/17/10 0:00	22.628	15.585	45.790	56.660	49.378	52.939
4/17/10 4:00	22.635	15.559	45.732	56.658	49.326	52.934
4/17/10 8:00	22.661	15.573	45.718	56.663	49.305	52.948
4/17/10 12:00	22.630	15.545	45.673	56.663	49.259	52.941
4/17/10 16:00	22.555	15.440	45.542	56.646	49.128	52.869
4/17/10 20:00	22.588	15.426	45.497	56.632	49.084	52.862
4/18/10 0:00	22.597	15.445	45.495	56.635	49.068	52.881
4/18/10 4:00	22.593	15.435	45.476	56.635	49.052	52.885
4/18/10 8:00	22.616	15.463	45.497	56.642	49.063	52.911
4/18/10 12:00	22.583	15.452	45.481	56.649	49.042	52.915
4/18/10 16:00	22.536	15.365	45.392	56.635	48.944	52.867
4/18/10 20:00	22.559	15.356	45.371	56.625	48.917	52.867
4/19/10 0:00	22.571	15.382	45.387	56.628	48.930	52.885
4/19/10 4:00	22.571	15.384	45.380	56.628	48.940	52.892
4/19/10 8:00	22.593	15.412	45.408	56.630	48.968	52.911

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
4/19/10 12:00	22.552	15.377	45.376	56.632	48.933	52.902
4/19/10 16:00	22.567	15.302	45.291	56.618	48.851	52.848
4/19/10 20:00	22.569	15.290	45.258	56.602	48.816	52.836
4/20/10 0:00	22.550	15.314	45.277	56.600	48.821	52.855
4/20/10 4:00	22.538	15.279	45.242	56.597	48.770	52.848
4/20/10 8:00	22.524	15.283	45.233	56.597	48.763	52.855
4/20/10 12:00	22.526	15.279	45.230	56.600	48.744	52.864
4/20/10 16:00	22.472	15.211	45.160	56.586	48.663	52.820
4/20/10 20:00	22.489	15.199	45.148	56.576	48.640	52.820
4/21/10 0:00	22.489	15.211	45.153	56.572	48.642	52.827
4/21/10 4:00	22.489	15.178	45.123	56.567	48.600	52.818
4/21/10 8:00	22.479	15.187	45.141	56.565	48.607	52.827
4/21/10 12:00	22.486	15.185	45.137	56.569	48.602	52.832
4/21/10 16:00	22.489	15.127	45.078	56.558	48.535	52.797
4/21/10 20:00	22.489	15.136	45.073	56.546	48.537	52.797
4/22/10 0:00	22.482	15.173	45.115	56.551	48.572	52.813
4/22/10 4:00	22.479	15.143	45.101	56.548	48.539	52.808
4/22/10 8:00	22.472	15.136	45.094	56.546	48.525	52.808
4/22/10 12:00	22.465	15.164	45.129	56.579	48.549	52.825
4/22/10 16:00	22.253	15.066	45.069	56.590	48.470	52.832
4/22/10 20:00	22.180	14.989	45.043	56.588	48.430	52.778
4/23/10 0:00	22.163	14.951	45.015	56.586	48.393	52.769
4/23/10 4:00	21.859	14.909	44.956	56.600	48.318	52.739
4/23/10 8:00	21.694	14.648	44.879	56.586	48.230	52.706
4/23/10 12:00	21.686	14.629	44.862	56.574	48.207	52.715
4/23/10 16:00	21.698	14.568	44.811	56.530	48.158	52.708
4/23/10 20:00	21.729	14.554	44.783	56.499	48.134	52.713
4/24/10 0:00	21.731	14.596	44.818	56.504	48.181	52.746
4/24/10 4:00	21.741	14.552	44.769	56.497	48.130	52.734
4/24/10 8:00	21.741	14.570	44.780	56.511	48.144	52.753
4/24/10 12:00	21.776	14.596	44.804	56.516	48.169	52.776
4/24/10 16:00	21.760	14.542	44.755	56.513	48.113	52.760
4/24/10 20:00	21.842	14.584	44.787	56.518	48.146	52.785
4/25/10 0:00	21.866	14.647	44.853	56.544	48.211	52.834
4/25/10 4:00	21.896	14.678	44.895	56.565	48.251	52.862
4/25/10 8:00	21.918	14.692	44.907	56.574	48.269	52.874
4/25/10 12:00	21.920	14.729	44.951	56.593	48.318	52.911
4/25/10 16:00	21.930	14.727	44.951	56.602	48.318	52.913
4/25/10 20:00	21.981	14.769	44.987	56.618	48.367	52.948
4/26/10 0:00	21.991	14.797	45.024	56.635	48.400	52.974
4/26/10 4:00	21.991	14.809	45.047	56.646	48.428	52.988
4/26/10 8:00	22.005	14.825	45.069	56.656	48.446	52.999
4/26/10 12:00	21.960	14.776	45.038	56.658	48.407	52.988
4/26/10 16:00	21.918	14.715	44.963	56.639	48.332	52.957
4/26/10 20:00	21.958	14.739	44.977	56.639	48.346	52.967
4/27/10 0:00	21.967	14.746	44.980	56.637	48.367	52.976
4/27/10 4:00	22.003	14.776	45.012	56.639	48.402	52.995
4/27/10 8:00	22.055	14.832	45.078	56.649	48.470	53.027
4/27/10 12:00	22.026	14.858	45.115	56.663	48.495	53.046
4/27/10 16:00	21.974	14.762	45.036	56.660	48.402	53.009
4/27/10 20:00	21.965	14.708	44.980	56.644	48.330	52.978
4/28/10 0:00	21.944	14.706	44.963	56.642	48.307	52.981
4/28/10 4:00	21.906	14.654	44.909	56.625	48.246	52.948
4/28/10 8:00	21.863	14.601	44.851	56.611	48.181	52.918
4/28/10 12:00	21.786	14.510	44.748	56.590	48.064	52.848

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
4/28/10 16:00	21.736	14.400	44.621	56.551	47.927	52.764
4/28/10 20:00	21.717	14.376	44.567	56.516	47.871	52.750
4/29/10 0:00	21.684	14.353	44.525	56.485	47.820	52.736
4/29/10 4:00	21.644	14.280	44.436	56.455	47.720	52.685
4/29/10 8:00	21.689	14.311	44.455	56.436	47.734	52.697
4/29/10 12:00	21.717	14.355	44.499	56.453	47.769	52.725
4/29/10 16:00	21.727	14.353	44.492	56.455	47.759	52.727
4/29/10 20:00	21.646	14.299	44.434	56.483	47.697	52.701
4/30/10 0:00	21.656	14.533	44.553	56.462	47.794	52.776
4/30/10 4:00	21.410	14.386	44.680	56.497	47.929	52.867
4/30/10 8:00	21.288	14.252	44.647	56.520	47.901	52.867
4/30/10 12:00	21.266	14.182	44.621	56.513	47.880	52.862
4/30/10 16:00	21.274	14.185	44.623	56.523	47.885	52.874
4/30/10 20:00	21.333	14.208	44.663	56.534	47.932	52.906
5/1/10 0:00	21.356	14.250	44.722	56.572	47.988	52.953
5/1/10 4:00	21.375	14.255	44.745	56.597	48.011	52.971
5/1/10 8:00	21.389	14.276	44.771	56.618	48.046	52.992
5/1/10 12:00	21.351	14.255	44.759	56.642	48.034	52.995
5/1/10 16:00	21.304	14.155	44.661	56.607	47.932	52.950
5/1/10 20:00	21.316	14.148	44.640	56.586	47.904	52.946
5/2/10 0:00	21.295	14.131	44.616	56.583	47.878	52.948
5/2/10 4:00	21.295	14.112	44.595	56.574	47.857	52.943
5/2/10 8:00	21.328	14.185	44.668	56.600	47.927	52.983
5/2/10 12:00	21.314	14.157	44.649	56.614	47.906	52.978
5/2/10 16:00	21.325	14.134	44.623	56.602	47.874	52.971
5/2/10 20:00	21.396	14.229	44.715	56.632	47.969	53.016
5/3/10 0:00	21.422	14.274	44.776	56.665	48.039	53.048
5/3/10 4:00	21.434	14.309	44.823	56.688	48.097	53.067
5/3/10 8:00	21.493	14.372	44.898	56.707	48.181	53.109
5/3/10 12:00	21.467	14.372	44.914	56.726	48.195	53.116
5/3/10 16:00	21.420	14.288	44.834	56.716	48.102	53.074
5/3/10 20:00	21.420	14.271	44.808	56.693	48.078	53.062
5/4/10 0:00	21.396	14.250	44.780	56.684	48.048	53.048
5/4/10 4:00	21.356	14.197	44.731	56.663	47.976	53.020
5/4/10 8:00	21.349	14.185	44.717	56.646	47.948	53.020
5/4/10 12:00	21.328	14.141	44.668	56.628	47.892	52.990
5/4/10 16:00	21.302	14.042	44.555	56.593	47.766	52.918
5/4/10 20:00	21.401	14.091	44.579	56.567	47.785	52.934
5/5/10 0:00	21.474	14.267	44.759	56.637	47.964	53.041
5/5/10 4:00	21.462	14.271	44.787	56.663	47.983	53.053
5/5/10 8:00	21.495	14.323	44.860	56.684	48.051	53.090
5/5/10 12:00	21.502	14.342	44.895	56.702	48.076	53.104
5/5/10 16:00	21.533	14.304	44.862	56.707	48.036	53.083
5/5/10 20:00	21.524	14.328	44.883	56.707	48.046	53.090
5/6/10 0:00	21.540	14.372	44.933	56.716	48.099	53.116
5/6/10 4:00	21.474	14.311	44.886	56.714	48.043	53.092
5/6/10 8:00	21.488	14.288	44.855	56.695	48.008	53.078
5/6/10 12:00	21.413	14.232	44.799	56.674	47.948	53.046
5/6/10 16:00	21.392	14.122	44.670	56.628	47.813	52.962
5/6/10 20:00	21.391	14.127	44.647	56.588	47.780	52.957
5/7/10 0:00	21.401	14.136	44.642	56.597	47.785	52.983
5/7/10 4:00	21.215	14.164	44.750	56.623	47.867	53.016
5/7/10 8:00	21.229	14.157	44.827	56.639	47.934	53.067
5/7/10 12:00	21.297	14.241	44.940	56.658	48.037	53.139
5/7/10 16:00	21.361	14.250	44.973	56.681	48.074	53.153

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
5/7/10 20:00	21.439	14.288	45.024	56.700	48.120	53.178
5/8/10 0:00	21.472	14.351	45.101	56.719	48.193	53.225
5/8/10 4:00	21.481	14.356	45.115	56.733	48.207	53.230
5/8/10 8:00	21.517	14.405	45.169	56.744	48.255	53.257
5/8/10 12:00	21.488	14.384	45.158	56.754	48.246	53.253
5/8/10 16:00	21.439	14.281	45.047	56.737	48.127	53.199
5/8/10 20:00	21.450	14.262	45.001	56.719	48.085	53.176
5/9/10 0:00	21.467	14.288	45.012	56.719	48.090	53.188
5/9/10 4:00	21.425	14.239	44.951	56.716	48.034	53.162
5/9/10 8:00	21.439	14.260	44.956	56.707	48.043	53.162
5/9/10 12:00	21.396	14.208	44.902	56.698	47.978	53.134
5/9/10 16:00	21.333	14.117	44.804	56.679	47.869	53.069
5/9/10 20:00	21.356	14.096	44.755	56.660	47.815	53.048
5/10/10 0:00	21.354	14.103	44.743	56.651	47.799	53.055
5/10/10 4:00	21.304	14.047	44.675	56.637	47.731	53.016
5/10/10 8:00	21.184	14.066	44.560	56.623	47.613	52.946
5/10/10 12:00	20.879	13.837	44.485	56.614	47.531	52.908
5/10/10 16:00	20.773	13.631	44.338	56.600	47.375	52.834
5/10/10 20:00	20.733	13.633	44.258	56.583	47.291	52.774
5/11/10 0:00	20.837	13.694	44.377	56.588	47.408	52.878
5/11/10 4:00	20.941	13.757	44.473	56.600	47.513	52.964
5/11/10 8:00	20.974	13.855	44.584	56.621	47.622	53.046
5/11/10 12:00	21.014	13.897	44.642	56.639	47.687	53.088
5/11/10 16:00	20.962	13.818	44.574	56.639	47.613	53.057
5/11/10 20:00	21.021	13.839	44.584	56.637	47.629	53.067
5/12/10 0:00	20.922	13.816	44.569	56.642	47.617	53.067
5/12/10 4:00	20.901	13.717	44.466	56.616	47.508	53.011
5/12/10 8:00	20.922	13.736	44.478	56.618	47.510	53.020
5/12/10 12:00	20.889	13.706	44.443	56.618	47.473	53.016
5/12/10 16:00	20.905	13.661	44.394	56.609	47.420	52.997
5/12/10 20:00	20.943	13.724	44.448	56.614	47.468	53.022
5/13/10 0:00	20.936	13.748	44.480	56.625	47.503	53.043
5/13/10 4:00	20.938	13.748	44.490	56.630	47.508	53.050
5/13/10 8:00	21.033	13.846	44.593	56.644	47.613	53.111
5/13/10 12:00	21.040	13.886	44.654	56.660	47.666	53.143
5/13/10 16:00	21.054	13.886	44.668	56.672	47.680	53.148
5/13/10 20:00	21.111	13.911	44.701	56.677	47.706	53.160
5/14/10 0:00	21.113	13.968	44.766	56.698	47.769	53.199
5/14/10 4:00	21.099	13.944	44.752	56.704	47.752	53.190
5/14/10 8:00	21.120	14.012	44.827	56.712	47.827	53.230
5/14/10 12:00	21.141	14.000	44.825	56.716	47.822	53.227
5/14/10 16:00	21.099	13.923	44.750	56.712	47.738	53.185
5/14/10 20:00	21.115	13.886	44.696	56.693	47.680	53.155
5/15/10 0:00	21.101	13.914	44.724	56.698	47.694	53.171
5/15/10 4:00	21.054	13.888	44.694	56.688	47.666	53.162
5/15/10 8:00	21.071	13.897	44.701	56.686	47.666	53.162
5/15/10 12:00	21.052	13.872	44.673	56.684	47.634	53.153
5/15/10 16:00	21.026	13.827	44.619	56.670	47.571	53.120
5/15/10 20:00	21.056	13.823	44.602	56.658	47.559	53.113
5/16/10 0:00	21.049	13.867	44.645	56.663	47.589	53.132
5/16/10 4:00	21.026	13.806	44.588	56.656	47.531	53.106
5/16/10 8:00	21.035	13.830	44.607	56.651	47.545	53.118
5/16/10 12:00	21.019	13.816	44.593	56.651	47.522	53.116
5/16/10 16:00	21.007	13.785	44.567	56.646	47.487	53.097
5/16/10 20:00	21.023	13.792	44.572	56.642	47.485	53.099

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
5/17/10 0:00	21.045	13.832	44.612	56.646	47.529	53.118
5/17/10 4:00	21.059	13.848	44.635	56.651	47.543	53.125
5/17/10 8:00	21.075	13.869	44.663	56.656	47.564	53.139
5/17/10 12:00	21.089	13.890	44.696	56.663	47.592	53.150
5/17/10 16:00	21.085	13.872	44.682	56.665	47.573	53.143
5/17/10 20:00	21.078	13.858	44.659	56.658	47.552	53.132
5/18/10 0:00	21.101	13.867	44.668	56.658	47.562	53.139
5/18/10 4:00	21.085	13.876	44.673	56.658	47.559	53.143
5/18/10 8:00	21.113	13.860	44.663	56.653	47.547	53.137
5/18/10 12:00	21.078	13.862	44.663	56.656	47.550	53.137
5/18/10 16:00	21.066	13.792	44.581	56.639	47.461	53.074
5/18/10 20:00	21.094	13.795	44.558	56.623	47.436	53.062
5/19/10 0:00	21.089	13.804	44.556	56.614	47.433	53.062
5/19/10 4:00	21.056	13.804	44.551	56.611	47.433	53.064
5/19/10 8:00	21.097	13.816	44.558	56.604	47.438	53.067
5/19/10 12:00	21.064	13.820	44.569	56.614	47.445	53.069
5/19/10 16:00	21.066	13.797	44.544	56.611	47.415	53.057
5/19/10 20:00	21.089	13.816	44.560	56.609	47.424	53.062
5/20/10 0:00	20.995	13.797	44.560	56.618	47.417	53.064
5/20/10 4:00	20.957	13.722	44.518	56.609	47.364	53.034
5/20/10 8:00	20.979	13.745	44.544	56.607	47.384	53.046
5/20/10 12:00	20.946	13.750	44.548	56.614	47.391	53.053
5/20/10 16:00	20.938	13.738	44.560	56.614	47.394	53.057
5/20/10 20:00	20.953	13.766	44.595	56.618	47.422	53.071
5/21/10 0:00	20.964	13.783	44.635	56.628	47.454	53.090
5/21/10 4:00	21.000	13.776	44.647	56.630	47.464	53.095
5/21/10 8:00	21.056	13.851	44.724	56.639	47.540	53.137
5/21/10 12:00	21.056	13.827	44.710	56.644	47.527	53.130
5/21/10 16:00	21.056	13.806	44.684	56.644	47.499	53.116
5/21/10 20:00	21.061	13.785	44.649	56.625	47.464	53.097
5/22/10 0:00	21.047	13.780	44.630	56.616	47.438	53.090
5/22/10 4:00	21.009	13.729	44.569	56.602	47.373	53.057
5/22/10 8:00	21.007	13.715	44.544	56.590	47.352	53.046
5/22/10 12:00	21.014	13.678	44.499	56.574	47.303	53.016
5/22/10 16:00	21.052	13.682	44.469	56.565	47.275	53.002
5/22/10 20:00	21.097	13.727	44.495	56.558	47.305	53.011
5/23/10 0:00	21.101	13.773	44.541	56.569	47.354	53.036
5/23/10 4:00	21.122	13.790	44.560	56.569	47.368	53.041
5/23/10 8:00	21.177	13.874	44.659	56.595	47.468	53.097
5/23/10 12:00	21.181	13.904	44.698	56.618	47.506	53.116
5/23/10 16:00	21.245	13.923	44.715	56.625	47.527	53.118
5/23/10 20:00	21.257	13.937	44.722	56.630	47.538	53.116
5/24/10 0:00	21.255	14.003	44.792	56.635	47.615	53.153
5/24/10 4:00	21.250	13.998	44.801	56.651	47.620	53.150
5/24/10 8:00	21.252	14.007	44.818	56.651	47.636	53.155
5/24/10 12:00	21.307	14.017	44.823	56.656	47.645	53.155
5/24/10 16:00	21.391	13.986	44.773	56.642	47.601	53.127
5/24/10 20:00	21.401	14.012	44.778	56.635	47.603	53.127
5/25/10 0:00	21.420	14.145	44.912	56.663	47.745	53.209
5/25/10 4:00	21.389	14.105	44.893	56.665	47.720	53.190
5/25/10 8:00	21.422	14.143	44.940	56.677	47.769	53.209
5/25/10 12:00	21.432	14.178	45.216	56.688	47.832	53.230
5/25/10 16:00	21.467	14.166	45.345	56.693	47.827	53.218
5/25/10 20:00	21.495	14.168	45.413	56.681	47.815	53.206
5/26/10 0:00	21.476	14.201	45.500	56.691	47.857	53.218

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
5/26/10 4:00	21.495	14.229	45.565	56.693	47.885	53.227
5/26/10 8:00	21.507	14.243	45.617	56.688	47.920	53.239
5/26/10 12:00	21.528	14.264	45.666	56.688	47.948	53.248
5/26/10 16:00	21.609	14.211	45.621	56.681	47.887	53.211
5/26/10 20:00	21.611	14.241	45.633	56.672	47.899	53.209
5/27/10 0:00	21.576	14.304	45.703	56.688	47.962	53.234
5/27/10 4:00	21.568	14.290	45.703	56.691	47.957	53.232
5/27/10 8:00	21.568	14.327	45.753	56.695	48.008	53.248
5/27/10 12:00	21.620	14.313	45.739	56.695	47.990	53.239
5/27/10 16:00	21.703	14.281	45.680	56.679	47.941	53.209
5/27/10 20:00	21.712	14.281	45.661	56.667	47.927	53.192
5/28/10 0:00	21.672	14.330	45.429	56.670	47.962	53.206
5/28/10 4:00	21.653	14.337	45.317	56.674	47.976	53.211
5/28/10 8:00	21.651	14.325	45.240	56.672	47.969	53.209
5/28/10 12:00	21.703	14.325	45.179	56.670	47.955	53.206
5/28/10 16:00	21.767	14.278	45.080	56.653	47.883	53.157
5/28/10 20:00	21.771	14.290	45.043	56.637	47.859	53.146
5/29/10 0:00	21.727	14.323	45.050	56.630	47.892	53.155
5/29/10 4:00	21.705	14.306	45.031	56.628	47.878	53.153
5/29/10 8:00	21.693	14.332	45.050	56.632	47.904	53.164
5/29/10 12:00	21.748	14.323	45.033	56.635	47.899	53.160
5/29/10 16:00	21.828	14.295	44.980	56.618	47.850	53.127
5/29/10 20:00	21.826	14.323	44.972	56.604	47.869	53.116
5/30/10 0:00	21.788	14.386	45.029	56.604	47.936	53.139
5/30/10 4:00	21.781	14.365	45.010	56.604	47.925	53.127
5/30/10 8:00	21.800	14.451	45.106	56.630	48.013	53.176
5/30/10 12:00	21.821	14.449	45.108	56.639	48.022	53.174
5/30/10 16:00	21.856	14.482	45.141	56.651	48.060	53.185
5/30/10 20:00	21.859	14.514	45.174	56.663	48.097	53.218
5/31/10 0:00	21.873	14.545	45.216	56.679	48.132	53.220
5/31/10 4:00	21.875	14.542	45.226	56.681	48.141	53.202
5/31/10 8:00	21.885	14.573	45.258	56.686	48.176	53.227
5/31/10 12:00	21.939	14.556	45.242	56.686	48.160	53.218
5/31/10 16:00	22.033	14.519	45.188	56.663	48.113	53.185
5/31/10 20:00	22.045	14.531	45.174	56.646	48.118	53.176
6/1/10 0:00	22.012	14.594	45.226	56.651	48.181	53.195
6/1/10 4:00	22.000	14.573	45.207	56.644	48.160	53.183
6/1/10 8:00	21.991	14.573	45.202	56.639	48.157	53.183
6/1/10 12:00	21.998	14.493	45.122	56.623	48.074	53.132
6/1/10 16:00	22.012	14.442	45.268	56.579	47.983	53.067
6/1/10 20:00	22.021	14.419	45.331	56.530	47.918	53.009
6/2/10 0:00	21.972	14.533	45.568	56.588	48.083	53.085
6/2/10 4:00	21.894	14.292	45.701	56.616	48.164	53.088
6/2/10 8:00	21.769	14.189	45.605	56.628	48.213	53.081
6/2/10 12:00	21.795	14.262	45.481	56.642	48.237	53.092
6/2/10 16:00	21.880	14.648	45.364	56.644	48.204	53.067
6/2/10 20:00	21.913	14.505	45.291	56.637	48.185	53.055
6/3/10 0:00	21.901	14.552	45.296	56.651	48.227	53.078
6/3/10 4:00	21.906	14.540	45.261	56.644	48.216	53.074
6/3/10 8:00	21.913	14.573	45.282	56.656	48.255	53.095
6/3/10 12:00	21.972	14.545	45.233	56.653	48.223	53.081
6/3/10 16:00	22.026	14.486	45.139	56.628	48.139	52.997
6/3/10 20:00	22.021	14.493	45.104	56.604	48.109	52.943
6/4/10 0:00	22.000	14.507	45.111	56.602	48.116	52.955
6/4/10 4:00	22.000	14.554	45.158	56.616	48.164	52.997

TABLE S3.2 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
6/4/10 8:00	22.000	14.549	45.155	56.616	48.160	52.995
6/4/10 12:00	22.047	14.566	45.160	56.614	48.174	52.999
6/4/10 16:00	22.142	14.559	45.132	56.602	48.153	52.988
6/4/10 20:00	22.154	14.589	45.125	56.588	48.164	52.978
6/5/10 0:00	22.128	14.622	45.155	56.590	48.202	52.992
6/5/10 4:00	22.092	14.633	45.158	56.581	48.213	52.988
6/5/10 8:00	22.125	14.701	45.233	56.616	48.300	53.027
6/5/10 12:00	22.161	14.708	45.242	56.618	48.300	53.027
6/5/10 16:00	22.231	14.736	45.258	56.623	48.309	53.032
6/5/10 20:00	22.300	14.874	45.382	56.660	48.430	53.099
6/6/10 0:00	22.302	14.928	45.462	56.693	48.509	53.141
6/6/10 4:00	22.347	14.982	45.544	56.716	48.586	53.183
6/6/10 8:00	22.373	15.031	45.612	56.737	48.656	53.213
6/6/10 12:00	22.413	15.010	45.600	56.744	48.646	53.202
6/6/10 16:00	22.496	14.982	45.551	56.737	48.602	53.176
6/6/10 20:00	22.498	14.968	45.514	56.719	48.570	53.153
6/7/10 0:00	22.451	15.012	45.551	56.723	48.611	53.171
6/7/10 4:00	22.439	14.937	45.483	56.711	48.542	53.132
6/7/10 8:00	22.423	14.961	45.500	56.705	48.558	53.141
6/7/10 12:00	22.458	15.066	45.596	56.718	48.656	53.188
6/7/10 16:00	22.444	14.893	45.547	56.691	48.483	53.092
6/7/10 20:00	22.467	14.926	45.739	56.667	48.486	53.092
6/8/10 0:00	22.453	14.923	45.821	56.656	48.472	53.083
6/8/10 4:00	22.378	14.930	45.884	56.639	48.476	53.074
6/8/10 8:00	22.177	14.853	45.891	56.632	48.430	52.911
6/8/10 12:00	22.210	14.909	46.020	56.649	48.537	52.978
6/8/10 16:00	22.269	14.874	46.024	56.656	48.516	52.969
6/8/10 20:00	22.300	14.895	46.055	56.651	48.539	52.974
6/9/10 0:00	22.347	14.979	46.156	56.679	48.628	53.022
6/9/10 4:00	22.368	15.003	46.193	56.691	48.658	53.034
6/9/10 8:00	22.406	15.050	46.249	56.700	48.709	53.060
6/9/10 12:00	22.460	15.040	46.249	56.709	48.707	53.057
6/9/10 16:00	22.557	14.998	46.193	56.691	48.646	53.025
6/9/10 20:00	22.581	15.021	46.182	56.674	48.665	53.016
6/10/10 0:00	22.555	15.059	46.200	56.670	48.686	53.020
6/10/10 4:00	22.529	14.986	46.135	56.653	48.614	52.983
6/10/10 8:00	22.491	14.977	46.062	56.637	48.584	52.976
6/10/10 12:00	22.510	15.021	45.844	56.625	48.602	52.978

[a] Values measured by using PT2X absolute-pressure and water level recorders.

TABLE S3.3 Ambient water levels in Zone 3 monitoring wells from April 1, 2009, to June 10, 2010.

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
4/1/09 20:00		55.066				
4/2/09 0:00		55.036				
4/2/09 4:00		55.008				
4/2/09 8:00		54.980				
4/2/09 12:00		54.949				
4/2/09 16:00		54.910				
4/2/09 20:00		54.891				
4/3/09 0:00		54.846				
4/3/09 4:00		54.821				
4/3/09 8:00		54.793				
4/3/09 12:00		54.765				
4/3/09 16:00		56.787				
4/3/09 20:00		56.708				
4/4/09 0:00		56.661				
4/4/09 4:00		56.616				
4/4/09 8:00		56.574				
4/4/09 12:00		56.532				
4/4/09 16:00		56.488				
4/4/09 20:00		56.457				
4/5/09 0:00		56.415				
4/5/09 4:00		56.359				
4/5/09 8:00		56.252				
4/5/09 12:00		56.200				
4/5/09 16:00		56.163				
4/5/09 20:00		56.128				
4/6/09 0:00		56.095				
4/6/09 4:00		56.065				
4/6/09 8:00		56.037				
4/6/09 12:00		56.009				
4/6/09 16:00		55.983				
4/6/09 20:00		55.950				
4/7/09 0:00		55.927				
4/7/09 4:00		55.899				
4/7/09 8:00		55.873				
4/7/09 12:00		56.069				
4/7/09 16:00		56.034				
4/7/09 20:00		56.009				
4/8/09 0:00		55.983				
4/8/09 4:00		55.955				
4/8/09 8:00		55.924				
4/8/09 12:00		55.686				
4/8/09 16:00		55.655				
4/8/09 20:00		55.625				
4/9/09 0:00		55.597				
4/9/09 4:00		55.567				
4/9/09 8:00		55.539				
4/9/09 12:00		55.510				
4/9/09 16:00		57.082				
4/9/09 20:00		57.079				
4/10/09 0:00		57.079				
4/10/09 4:00		57.077				
4/10/09 8:00		57.077				
4/10/09 12:00		57.079				
4/10/09 16:00		57.079				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
4/10/09 20:00		57.079				
4/11/09 0:00		57.079				
4/11/09 4:00		57.079				
4/11/09 8:00		57.077				
4/11/09 12:00		57.079				
4/11/09 16:00		57.077				
4/11/09 20:00		57.079				
4/12/09 0:00		57.079				
4/12/09 4:00		57.079				
4/12/09 8:00		57.079				
4/12/09 12:00		57.079				
4/12/09 16:00		57.079				
4/12/09 20:00		57.075				
4/13/09 0:00		57.042				
4/13/09 4:00		57.009				
4/13/09 8:00		56.981				
4/13/09 12:00		56.948				
4/13/09 16:00		56.918				
4/13/09 20:00		56.888				
4/14/09 0:00		56.857				
4/14/09 4:00		56.829				
4/14/09 8:00		56.799				
4/14/09 12:00		56.768				
4/14/09 16:00		56.740				
4/14/09 20:00		56.710				
4/15/09 0:00		56.684				
4/15/09 4:00		56.654				
4/15/09 8:00		56.626				
4/15/09 12:00		56.598				
4/15/09 16:00		56.558				
4/15/09 20:00		56.528				
4/16/09 0:00		56.502				
4/16/09 4:00		56.474				
4/16/09 8:00		56.446				
4/16/09 12:00		56.415				
4/16/09 16:00		56.380				
4/16/09 20:00		56.329				
4/17/09 0:00		56.259				
4/17/09 4:00		56.221				
4/17/09 8:00		56.189				
4/17/09 12:00		56.165				
4/17/09 16:00		56.135				
4/17/09 20:00		56.111				
4/18/09 0:00		56.083				
4/18/09 4:00		56.060				
4/18/09 8:00		56.034				
4/18/09 12:00		56.006				
4/18/09 16:00		55.983				
4/18/09 20:00		55.959				
4/19/09 0:00		55.934				
4/19/09 4:00		55.910				
4/19/09 8:00		55.889				
4/19/09 12:00		55.866				
4/19/09 16:00		55.838				
4/19/09 20:00		55.814				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
4/20/09 0:00		55.789				
4/20/09 4:00		55.761				
4/20/09 8:00		55.740				
4/20/09 12:00		55.709				
4/20/09 16:00		55.681				
4/20/09 20:00		55.655				
4/21/09 0:00		55.630				
4/21/09 4:00		55.604				
4/21/09 8:00		55.578				
4/21/09 12:00		55.550				
4/21/09 16:00		55.515				
4/21/09 20:00		55.487				
4/22/09 0:00		55.461				
4/22/09 4:00		55.436				
4/22/09 8:00		55.417				
4/22/09 12:00		55.398				
4/22/09 16:00		55.375				
4/22/09 20:00		55.356				
4/23/09 0:00		55.335				
4/23/09 4:00		55.307				
4/23/09 8:00		55.281				
4/23/09 12:00		55.258				
4/23/09 16:00		55.232				
4/23/09 20:00		55.207				
4/24/09 0:00		55.183				
4/24/09 4:00		55.157				
4/24/09 8:00		55.134				
4/24/09 12:00		55.111				
4/24/09 16:00		55.085				
4/24/09 20:00		55.064				
4/25/09 0:00		55.043				
4/25/09 4:00		55.017				
4/25/09 8:00		54.998				
4/25/09 12:00		54.975				
4/25/09 16:00		54.949				
4/25/09 20:00		54.926				
4/26/09 0:00		54.896				
4/26/09 4:00		54.865				
4/26/09 8:00		54.839				
4/26/09 12:00		54.816				
4/26/09 16:00		54.790				
4/26/09 20:00		54.767				
4/27/09 0:00		54.744				
4/27/09 4:00		54.722				
4/27/09 8:00		54.704				
4/27/09 12:00		54.687				
4/27/09 16:00		54.687				
4/27/09 20:00		54.650				
4/28/09 0:00		54.627				
4/28/09 4:00		54.601				
4/28/09 8:00		54.580				
4/28/09 12:00		54.554				
4/28/09 16:00		54.528				
4/28/09 20:00		54.500				
4/29/09 0:00		54.475				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
4/29/09 4:00		54.451				
4/29/09 8:00		54.426				
4/29/09 12:00		54.402				
4/29/09 16:00		54.376				
4/29/09 20:00		54.348				
4/30/09 0:00		54.327				
4/30/09 4:00		54.302				
4/30/09 8:00		54.283				
4/30/09 12:00		54.257				
4/30/09 16:00		54.238				
4/30/09 20:00		54.213				
5/1/09 0:00		54.192				
5/1/09 4:00		54.171				
5/1/09 8:00		54.150				
5/1/09 12:00		54.129				
5/1/09 16:00		54.105				
5/1/09 20:00		54.079				
5/2/09 0:00		54.058				
5/2/09 4:00		54.035				
5/2/09 8:00		54.009				
5/2/09 12:00		53.986				
5/2/09 16:00		53.960				
5/2/09 20:00		53.935				
5/3/09 0:00		53.913				
5/3/09 4:00		53.892				
5/3/09 8:00		53.869				
5/3/09 12:00		53.850				
5/3/09 16:00		53.825				
5/3/09 20:00		53.801				
5/4/09 0:00		53.780				
5/4/09 4:00		53.757				
5/4/09 8:00		53.736				
5/4/09 12:00		53.712				
5/4/09 16:00		53.687				
5/4/09 20:00		53.666				
5/5/09 0:00		53.642				
5/5/09 4:00		53.619				
5/5/09 8:00		53.595				
5/5/09 12:00		53.574				
5/5/09 16:00		53.546				
5/5/09 20:00		53.525				
5/6/09 0:00		53.502				
5/6/09 4:00		53.479				
5/6/09 8:00		53.455				
5/6/09 12:00		53.432				
5/6/09 16:00		53.411				
5/6/09 20:00		53.387				
5/7/09 0:00		53.366				
5/7/09 4:00		53.343				
5/7/09 8:00		53.320				
5/7/09 12:00		53.301				
5/7/09 16:00		53.273				
5/7/09 20:00	72.816	53.249				
5/8/09 0:00	72.809	53.228				
5/8/09 4:00	72.792	53.205				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
5/8/09 8:00	72.776	53.184				
5/8/09 12:00	72.748	53.161				
5/8/09 16:00	72.727	53.137				
5/8/09 20:00	72.715	53.118				
5/9/09 0:00	72.701	53.100				
5/9/09 4:00	72.666	53.076				
5/9/09 8:00	72.659	53.058				
5/9/09 12:00	72.638	53.032				
5/9/09 16:00	72.612	53.006				
5/9/09 20:00	72.595	52.981				
5/10/09 0:00	72.586	52.957				
5/10/09 4:00	72.563	52.934				
5/10/09 8:00	72.549	52.908				
5/10/09 12:00	72.53	52.880				
5/10/09 16:00	72.513	52.854				
5/10/09 20:00	72.495	52.826				
5/11/09 0:00	72.478	52.796				
5/11/09 4:00	72.46	52.758				
5/11/09 8:00	72.441	52.714				
5/11/09 12:00	72.422	52.667				
5/11/09 16:00	72.401	52.630				
5/11/09 20:00	72.378	52.602				
5/12/09 0:00	72.356	52.576				
5/12/09 4:00	72.335	52.546				
5/12/09 8:00	72.317	52.522				
5/12/09 12:00	72.291	52.492				
5/12/09 16:00	72.27	52.461				
5/12/09 20:00	72.244	52.436				
5/13/09 0:00	72.228	52.408				
5/13/09 4:00	72.211	52.380				
5/13/09 8:00	72.204	52.356				
5/13/09 12:00	72.192	52.333				
5/13/09 16:00	72.185	52.316				
5/13/09 20:00	72.176	52.300				
5/14/09 0:00	72.171	52.284				
5/14/09 4:00	72.155	52.263				
5/14/09 8:00	72.146	52.244				
5/14/09 12:00	72.129	52.221				
5/14/09 16:00	72.108	52.190				
5/14/09 20:00	72.092	52.164				
5/15/09 0:00	72.078	52.139				
5/15/09 4:00	72.061	52.113				
5/15/09 8:00	72.05	52.087				
5/15/09 12:00	72.038	52.062				
5/15/09 16:00	72.021	52.038				
5/15/09 20:00	72.021	52.022				
5/16/09 0:00	72.012	52.005				
5/16/09 4:00	72.005	51.989				
5/16/09 8:00	71.996	51.973				
5/16/09 12:00	71.986	51.952				
5/16/09 16:00	71.972	51.926				
5/16/09 20:00	71.958	51.900				
5/17/09 0:00	71.949	51.882				
5/17/09 4:00	71.935	51.858				
5/17/09 8:00	71.925	51.837				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
5/17/09 12:00	71.911	51.811				
5/17/09 16:00	71.895	51.783				
5/17/09 20:00	71.883	51.760				
5/18/09 0:00	71.872	51.737				
5/18/09 4:00	71.857	51.716				
5/18/09 8:00	71.848	51.694				
5/18/09 12:00	71.834	51.666				
5/18/09 16:00	71.822	51.638				
5/18/09 20:00	71.808	51.622				
5/19/09 0:00	71.799	51.601				
5/19/09 4:00	71.79	51.578				
5/19/09 8:00	71.778	51.559				
5/19/09 12:00	71.768	51.533				
5/19/09 16:00	71.752	51.507				
5/19/09 20:00	71.74	51.484				
5/20/09 0:00	71.731	51.468				
5/20/09 4:00	71.719	51.444				
5/20/09 8:00	71.708	51.423				
5/20/09 12:00	71.693	51.398				
5/20/09 16:00	71.679	51.374				
5/20/09 20:00	71.665	51.351				
5/21/09 0:00	71.656	51.332				
5/21/09 4:00	71.647	51.313				
5/21/09 8:00	71.635	51.295				
5/21/09 12:00	71.621	51.274				
5/21/09 16:00	71.607	51.248				
5/21/09 20:00	71.595	51.229				
5/22/09 0:00	71.583	51.208				
5/22/09 4:00	71.572	51.185				
5/22/09 8:00	71.56	51.166				
5/22/09 12:00	71.546	51.143				
5/22/09 16:00	71.534	51.117				
5/22/09 20:00	71.52	51.096				
5/23/09 0:00	71.511	51.075				
5/23/09 4:00	71.499	51.051				
5/23/09 8:00	71.487	51.030				
5/23/09 12:00	71.476	51.007				
5/23/09 16:00	71.462	50.981				
5/23/09 20:00	71.447	50.958				
5/24/09 0:00	71.44	50.942				
5/24/09 4:00	71.429	50.918				
5/24/09 8:00	71.419	50.897				
5/24/09 12:00	71.408	50.876				
5/24/09 16:00	71.394	50.848				
5/24/09 20:00	71.384	50.820				
5/25/09 0:00	71.373	50.806				
5/25/09 4:00	71.361	50.780				
5/25/09 8:00	71.347	50.759				
5/25/09 12:00	71.335	50.736				
5/25/09 16:00	71.314	50.708				
5/25/09 20:00	71.305	50.687				
5/26/09 0:00	71.295	50.668				
5/26/09 4:00	71.279	50.645				
5/26/09 8:00	71.267	50.621				
5/26/09 12:00	71.255	50.603				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
5/26/09 16:00	71.244	50.581				
5/26/09 20:00	71.232	50.560				
5/27/09 0:00	71.22	50.539				
5/27/09 4:00	71.204	50.518				
5/27/09 8:00	71.192	50.500				
5/27/09 12:00	71.178	50.476				
5/27/09 16:00	71.164	50.451				
5/27/09 20:00	71.15	50.427				
5/28/09 0:00	71.136	50.406				
5/28/09 4:00	71.122	50.380				
5/28/09 8:00	71.108	50.359				
5/28/09 12:00	71.094	50.336				
5/28/09 16:00	71.077	50.303				
5/28/09 20:00	71.061	50.282				
5/29/09 0:00	71.047	50.259				
5/29/09 4:00	71.03	50.235				
5/29/09 8:00	71.012	50.212				
5/29/09 12:00	70.993	50.189				
5/29/09 16:00	70.974	50.161				
5/29/09 20:00	70.955	50.135				
5/30/09 0:00	70.939	50.107				
5/30/09 4:00	70.92	50.081				
5/30/09 8:00	70.904	50.060				
5/30/09 12:00	70.89	50.037				
5/30/09 16:00	70.869	50.009				
5/30/09 20:00	70.852	49.983				
5/31/09 0:00	70.836	49.957				
5/31/09 4:00	70.82	49.927				
5/31/09 8:00	70.796	49.899				
5/31/09 12:00	70.768	49.866				
5/31/09 16:00	70.747	49.829				
5/31/09 20:00	70.726	49.796				
6/1/09 0:00	70.709	49.772				
6/1/09 4:00	70.695	49.751				
6/1/09 8:00	70.674	49.728				
6/1/09 12:00	70.653	49.700				
6/1/09 16:00	70.632	49.670				
6/1/09 20:00	70.62	49.649				
6/2/09 0:00	70.604	49.627				
6/2/09 4:00	70.59	49.602				
6/2/09 8:00	70.574	49.576				
6/2/09 12:00	70.557	49.553				
6/2/09 16:00	70.541	49.527				
6/2/09 20:00	70.527	49.504				
6/3/09 0:00	70.508	49.478				
6/3/09 4:00	70.494	49.454				
6/3/09 8:00	70.478	49.433				
6/3/09 12:00	70.461	49.405				
6/3/09 16:00	70.44	49.373				
6/3/09 20:00	70.424	49.345				
6/4/09 0:00	70.407	49.263				
6/4/09 4:00	70.389	49.148				
6/4/09 8:00	70.372	49.050				
6/4/09 12:00	70.356	48.949				
6/4/09 16:00	70.335	48.818				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
6/4/09 20:00	70.316	48.695				
6/5/09 0:00	70.3	48.599				
6/5/09 4:00	70.281	48.493				
6/5/09 8:00	70.264	48.398				
6/5/09 12:00	70.239	48.283				
6/5/09 16:00	70.222	48.152				
6/5/09 20:00	70.203	48.030				
6/6/09 0:00	70.185	47.925				
6/6/09 4:00	70.157	47.780				
6/6/09 8:00	70.14	47.694				
6/6/09 12:00	70.119	47.577				
6/6/09 16:00	70.1	47.462				
6/6/09 20:00	70.084	47.371				
6/7/09 0:00	70.07	47.292				
6/7/09 4:00	70.051	47.207				
6/7/09 8:00	70.035	47.121				
6/7/09 12:00	70.018	47.025				
6/7/09 16:00	70.002	46.938				
6/7/09 20:00	69.981	46.824				
6/8/09 0:00	69.972	46.761				
6/8/09 4:00	69.953	46.705				
6/8/09 8:00	69.943	46.663				
6/8/09 12:00	69.929	46.604				
6/8/09 16:00	69.908	46.515				
6/8/09 20:00	69.892	46.424				
6/9/09 0:00	69.878	46.352				
6/9/09 4:00	69.859	46.251				
6/9/09 8:00	69.84	46.160				
6/9/09 12:00	69.822	46.045				
6/9/09 16:00	69.8	45.956				
6/9/09 20:00	69.782	45.863				
6/10/09 0:00	69.768	45.790				
6/10/09 4:00	69.751	45.709				
6/10/09 8:00	69.733	45.622				
6/10/09 12:00	69.714	45.538				
6/10/09 16:00	69.695	45.454				
6/10/09 20:00	69.674	45.351				
6/11/09 0:00	69.662	45.285				
6/11/09 4:00	69.641	45.204				
6/11/09 8:00	69.622	45.143				
6/11/09 12:00	69.608	45.073				
6/11/09 16:00	69.592	44.993				
6/11/09 20:00	69.573	44.909				
6/12/09 0:00	69.559	44.853				
6/12/09 4:00	69.536	44.757				
6/12/09 8:00	69.519	44.680				
6/12/09 12:00	69.498	44.586				
6/12/09 16:00	69.484	44.509				
6/12/09 20:00	69.465	44.448				
6/13/09 0:00	69.454	44.406				
6/13/09 4:00	69.437	44.338				
6/13/09 8:00	69.421	44.292				
6/13/09 12:00	69.409	44.228				
6/13/09 16:00	69.383	44.130				
6/13/09 20:00	69.365	44.041				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
6/14/09 0:00	69.346	43.978				
6/14/09 4:00	69.325	43.894				
6/14/09 8:00	69.306	43.829				
6/14/09 12:00	69.285	43.756				
6/14/09 16:00	69.264	43.667				
6/14/09 20:00	69.245	43.578				
6/15/09 0:00	69.227	43.508				
6/15/09 4:00	69.21	43.422				
6/15/09 8:00	69.189	43.345				
6/15/09 12:00	69.173	43.286				
6/15/09 16:00	69.152	43.195				
6/15/09 20:00	69.128	43.090				
6/16/09 0:00	69.121	43.034				
6/16/09 4:00	69.1	42.978				
6/16/09 8:00	69.088	42.914				
6/16/09 12:00	69.074	42.875				
6/16/09 16:00	69.06	42.804				
6/16/09 20:00	69.044	42.737				
6/17/09 0:00	69.032	42.690				
6/17/09 4:00	69.013	42.617				
6/17/09 8:00	68.999	42.566				
6/17/09 12:00	68.983	42.486				
6/17/09 16:00	68.964	42.402				
6/17/09 20:00	68.945	42.313				
6/18/09 0:00	68.931	42.264				
6/18/09 4:00	68.915	42.190				
6/18/09 8:00	68.901	42.143				
6/18/09 12:00	68.887	42.073				
6/18/09 16:00	68.868	41.995				
6/18/09 20:00	68.849	41.928				
6/19/09 0:00	68.835	41.888				
6/19/09 4:00	68.819	41.820				
6/19/09 8:00	68.805	41.783				
6/19/09 12:00	68.788	41.727				
6/19/09 16:00	68.77	41.661				
6/19/09 20:00	68.76	41.628				
6/20/09 0:00	68.746	41.596				
6/20/09 4:00	68.73	41.544				
6/20/09 8:00	68.713	41.497				
6/20/09 12:00	68.697	41.441				
6/20/09 16:00	68.678	41.373				
6/20/09 20:00	68.66	41.296				
6/21/09 0:00	68.641	41.236				
6/21/09 4:00	68.62	41.161				
6/21/09 8:00	68.603	41.112				
6/21/09 12:00	68.587	41.062				
6/21/09 16:00	68.571	41.004				
6/21/09 20:00	68.554	40.946				
6/22/09 0:00	68.54	40.903				
6/22/09 4:00	68.521	40.861				
6/22/09 8:00	68.507	40.815				
6/22/09 12:00	68.489	40.766				
6/22/09 16:00	68.467	40.707				
6/22/09 20:00	68.451	40.656				
6/23/09 0:00	68.435	40.625				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
6/23/09 4:00	68.418	40.585				
6/23/09 8:00	68.404	40.548				
6/23/09 12:00	68.388	40.508				
6/23/09 16:00	68.367	40.445				
6/23/09 20:00	68.35	40.398				
6/24/09 0:00	68.336	40.370				
6/24/09 4:00	68.322	40.335				
6/24/09 8:00	68.306	40.300				
6/24/09 12:00	68.285	40.237				
6/24/09 16:00	68.264	40.172				
6/24/09 20:00	68.247	40.125				
6/25/09 0:00	68.233	40.104				
6/25/09 4:00	68.212	40.043				
6/25/09 8:00	68.198	40.003				
6/25/09 12:00	68.184	39.961				
6/25/09 16:00	68.165	39.905				
6/25/09 20:00	68.151	39.851				
6/26/09 0:00	68.139	39.823				
6/26/09 4:00	68.125	39.772				
6/26/09 8:00	68.111	39.741				
6/26/09 12:00	68.09	39.690				
6/26/09 16:00	68.072	39.634				
6/26/09 20:00	68.053	39.578				
6/27/09 0:00	68.036	39.533				
6/27/09 4:00	68.018	39.491				
6/27/09 8:00	68.001	39.456				
6/27/09 12:00	67.987	39.440				
6/27/09 16:00	67.978	39.428				
6/27/09 20:00	67.959	39.386				
6/28/09 0:00	67.947	39.365				
6/28/09 4:00	67.931	39.339				
6/28/09 8:00	67.915	39.316				
6/28/09 12:00	67.896	39.269				
6/28/09 16:00	67.877	39.220				
6/28/09 20:00	67.854	39.180				
6/29/09 0:00	67.835	39.185				
6/29/09 4:00	67.814	39.138				
6/29/09 8:00	67.8	39.103				
6/29/09 12:00	67.781	39.063				
6/29/09 16:00	67.762	39.021				
6/29/09 20:00	67.746	38.974				
6/30/09 0:00	67.729	38.946				
6/30/09 4:00	67.713	38.916				
6/30/09 8:00	67.701	38.883				
6/30/09 12:00	67.687	38.862				
6/30/09 16:00	67.664	38.820				
6/30/09 20:00	67.647	38.785				
7/1/09 0:00	67.636	38.766				
7/1/09 4:00	67.619	38.741				
7/1/09 8:00	67.608	38.722				
7/1/09 12:00	67.587	38.689				
7/1/09 16:00	67.57	38.647				
7/1/09 20:00	67.554	38.614				
7/2/09 0:00	67.54	38.598				
7/2/09 4:00	67.53	38.582				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
7/2/09 8:00	67.512	38.561				
7/2/09 12:00	67.498	38.537				
7/2/09 16:00	67.481	38.504				
7/2/09 20:00	67.462	38.469				
7/3/09 0:00	67.451	38.453				
7/3/09 4:00	67.432	38.420				
7/3/09 8:00	67.418	38.404				
7/3/09 12:00	67.399	38.357				
7/3/09 16:00	67.378	38.310				
7/3/09 20:00	67.359	38.261				
7/4/09 0:00	67.341	38.226				
7/4/09 4:00	67.324	38.191				
7/4/09 8:00	67.308	38.168				
7/4/09 12:00	67.298	38.156				
7/4/09 16:00	67.28	38.133				
7/4/09 20:00	67.266	38.112				
7/5/09 0:00	67.254	38.112				
7/5/09 4:00	67.24	38.081				
7/5/09 8:00	67.226	38.072				
7/5/09 12:00	67.212	38.048				
7/5/09 16:00	67.188	38.011				
7/5/09 20:00	67.17	37.974				
7/6/09 0:00	67.16	37.960				
7/6/09 4:00	67.141	37.929				
7/6/09 8:00	67.125	37.908				
7/6/09 12:00	67.106	37.878				
7/6/09 16:00	67.088	37.840				
7/6/09 20:00	67.066	37.801				
7/7/09 0:00	67.055	37.794				
7/7/09 4:00	67.036	37.770				
7/7/09 8:00	67.02	37.752				
7/7/09 12:00	67.001	37.721				
7/7/09 16:00	66.98	37.693				
7/7/09 20:00	66.961	37.665				
7/8/09 0:00	66.947	37.656				
7/8/09 4:00	66.928	37.642				
7/8/09 8:00	66.917	37.630				
7/8/09 12:00	66.895	37.602				
7/8/09 16:00	66.877	37.574				
7/8/09 20:00	66.865	37.560				
7/9/09 0:00	66.846	37.555				
7/9/09 4:00	66.835	37.541				
7/9/09 8:00	66.816	37.525				
7/9/09 12:00	66.806	37.520				
7/9/09 16:00	66.785	37.499				
7/9/09 20:00	66.771	37.476				
7/10/09 0:00	66.76	37.469				
7/10/09 4:00	66.743	37.443				
7/10/09 8:00	66.734	37.441				
7/10/09 12:00	66.72	37.417				
7/10/09 16:00	66.706	37.410				
7/10/09 20:00	66.692	37.394				
7/11/09 0:00	66.68	37.403				
7/11/09 4:00	66.666	37.391				
7/11/09 8:00	66.656	37.396				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
7/11/09 12:00	66.645	37.387				
7/11/09 16:00	66.631	37.384				
7/11/09 20:00	66.614	37.356				
7/12/09 0:00	66.598	37.345				
7/12/09 4:00	66.579	37.331				
7/12/09 8:00	66.558	37.296				
7/12/09 12:00	66.546	37.296				
7/12/09 16:00	66.532	37.277				
7/12/09 20:00	66.509	37.253				
7/13/09 0:00	66.495	37.251				
7/13/09 4:00	66.474	37.239				
7/13/09 8:00	66.453	37.211				
7/13/09 12:00	66.432	37.204				
7/13/09 16:00	66.406	37.169				
7/13/09 20:00	66.382	37.148				
7/14/09 0:00	66.357	37.134				
7/14/09 4:00	66.331	37.118				
7/14/09 8:00	66.307	37.085				
7/14/09 12:00	66.279	37.059				
7/14/09 16:00	66.254	37.036				
7/14/09 20:00	66.228	37.029				
7/15/09 0:00	66.209	37.038				
7/15/09 4:00	66.197	37.052				
7/15/09 8:00	66.176	37.064				
7/15/09 12:00	66.15	37.066				
7/15/09 16:00	66.122	37.045				
7/15/09 20:00	66.097	37.029				
7/16/09 0:00	66.073	37.020				
7/16/09 4:00	66.045	36.996				
7/16/09 8:00	66.031	37.001				
7/16/09 12:00	66	36.982				
7/16/09 16:00	65.979	36.971				
7/16/09 20:00	65.958	36.959				
7/17/09 0:00	65.94	36.964				
7/17/09 4:00	65.918	36.957				
7/17/09 8:00	65.9	36.959				
7/17/09 12:00	65.876	36.947				
7/17/09 16:00	65.853	36.921				
7/17/09 20:00	65.829	36.910				
7/18/09 0:00	65.808	36.907				
7/18/09 4:00	65.787	36.907				
7/18/09 8:00	65.771	36.900				
7/18/09 12:00	65.75	36.891				
7/18/09 16:00	65.724	36.868				
7/18/09 20:00	65.701	36.858				
7/19/09 0:00	65.682	36.851				
7/19/09 4:00	65.663	36.844				
7/19/09 8:00	65.642	36.837				
7/19/09 12:00	65.621	36.819				
7/19/09 16:00	65.595	36.788				
7/19/09 20:00	65.569	36.765				
7/20/09 0:00	65.548	36.753				
7/20/09 4:00	65.525	36.739				
7/20/09 8:00	65.501	36.725				
7/20/09 12:00	65.473	36.706				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
7/20/09 16:00	65.45	36.692				
7/20/09 20:00	65.427	36.678				
7/21/09 0:00	65.41	36.690				
7/21/09 4:00	65.387	36.678				
7/21/09 8:00	65.37	36.685				
7/21/09 12:00	65.349	36.688				
7/21/09 16:00	65.326	36.678				
7/21/09 20:00	65.305	36.662				
7/22/09 0:00	65.288	36.664				
7/22/09 4:00	65.27	36.655				
7/22/09 8:00	65.248	36.660				
7/22/09 12:00	65.232	36.653				
7/22/09 16:00	65.209	36.632				
7/22/09 20:00	65.19	36.620				
7/23/09 0:00	65.171	36.613				
7/23/09 4:00	65.155	36.615				
7/23/09 8:00	65.134	36.610				
7/23/09 12:00	65.117	36.601				
7/23/09 16:00	65.078	36.578				
7/23/09 20:00	65.057	36.564				
7/24/09 0:00	65.04	36.559				
7/24/09 4:00	65.015	36.536				
7/24/09 8:00	65.003	36.529				
7/24/09 12:00	64.986	36.517				
7/24/09 16:00	64.968	36.501				
7/24/09 20:00	64.949	36.491				
7/25/09 0:00	64.937	36.540				
7/25/09 4:00	64.928	36.629				
7/25/09 8:00	64.907	36.641				
7/25/09 12:00	64.89	36.655				
7/25/09 16:00	64.869	36.657				
7/25/09 20:00	64.853	36.660				
7/26/09 0:00	64.834	36.676				
7/26/09 4:00	64.818	36.688				
7/26/09 8:00	64.799	36.695				
7/26/09 12:00	64.78	36.699				
7/26/09 16:00	64.759	36.697				
7/26/09 20:00	64.736	36.697				
7/27/09 0:00	64.724	36.709				
7/27/09 4:00	64.703	36.706				
7/27/09 8:00	64.687	36.711				
7/27/09 12:00	64.668	36.711				
7/27/09 16:00	64.647	36.702				
7/27/09 20:00	64.63	36.702				
7/28/09 0:00	64.619	36.720				
7/28/09 4:00	64.595	36.713				
7/28/09 8:00	64.581	36.737				
7/28/09 12:00	64.567	36.751				
7/28/09 16:00	64.551	36.765				
7/28/09 20:00	64.53	36.746				
7/29/09 0:00	64.52	36.762				
7/29/09 4:00	64.501	36.767				
7/29/09 8:00	64.487	36.772				
7/29/09 12:00	64.471	36.772				
7/29/09 16:00	64.448	36.767				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
7/29/09 20:00	64.431	36.765				
7/30/09 0:00	64.417	36.774				
7/30/09 4:00	64.405	36.786				
7/30/09 8:00	64.391	36.809				
7/30/09 12:00	64.375	36.816				
7/30/09 16:00	64.361	36.816				
7/30/09 20:00	64.345	36.819				
7/31/09 0:00	64.333	36.840				
7/31/09 4:00	64.316	36.840				
7/31/09 8:00	64.302	36.854				
7/31/09 12:00	64.284	36.847				
7/31/09 16:00	64.258	36.826				
7/31/09 20:00	64.237	36.814				
8/1/09 0:00	64.244	36.863				
8/1/09 4:00	64.213	36.847				
8/1/09 8:00	64.204	36.868				
8/1/09 12:00	64.192	36.884				
8/1/09 16:00	64.176	36.879				
8/1/09 20:00	64.157	36.877				
8/2/09 0:00	64.141	36.882				
8/2/09 4:00	64.129	36.879				
8/2/09 8:00	64.11	36.872				
8/2/09 12:00	64.091	36.865				
8/2/09 16:00	64.068	36.842				
8/2/09 20:00	64.052	36.840				
8/3/09 0:00	64.042	36.842				
8/3/09 4:00	64.028	36.835				
8/3/09 8:00	64.017	36.847				
8/3/09 12:00	63.998	36.847				
8/3/09 16:00	63.984	36.835				
8/3/09 20:00	63.967	36.835				
8/4/09 0:00	63.956	36.844				
8/4/09 4:00	63.937	36.840				
8/4/09 8:00	63.939	36.863				
8/4/09 12:00	63.925	36.898				
8/4/09 16:00	63.911	36.900				
8/4/09 20:00	63.897	36.903				
8/5/09 0:00	63.89	36.924				
8/5/09 4:00	63.874	36.928				
8/5/09 8:00	63.867	36.950				
8/5/09 12:00	63.848	36.938				
8/5/09 16:00	63.836	36.945				
8/5/09 20:00	63.822	36.942				
8/6/09 0:00	63.813	36.959				
8/6/09 4:00	63.792	36.952				
8/6/09 8:00	63.782	36.961				
8/6/09 12:00	63.766	36.964				
8/6/09 16:00	63.74	36.926				
8/6/09 20:00	63.724	36.921				
8/7/09 0:00	63.712	36.926				
8/7/09 4:00	63.689	36.907				
8/7/09 8:00	63.677	36.907				
8/7/09 12:00	63.66	36.898				
8/7/09 16:00	63.637	36.877				
8/7/09 20:00	63.621	36.870				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
8/8/09 0:00	63.611	36.886				
8/8/09 4:00	63.597	36.891				
8/8/09 8:00	63.581	36.896				
8/8/09 12:00	63.562	36.889				
8/8/09 16:00	63.543	36.882				
8/8/09 20:00	63.527	36.889				
8/9/09 0:00	63.518	36.921				
8/9/09 4:00	63.506	36.931				
8/9/09 8:00	63.494	36.945				
8/9/09 12:00	63.478	36.942				
8/9/09 16:00	63.457	36.928				
8/9/09 20:00	63.452	36.945				
8/10/09 0:00	63.443	36.966				
8/10/09 4:00	63.433	36.975				
8/10/09 8:00	63.421	36.989				
8/10/09 12:00	63.419	37.010				
8/10/09 16:00	63.393	36.985				
8/10/09 20:00	63.379	36.985				
8/11/09 0:00	63.37	37.003				
8/11/09 4:00	63.361	37.006				
8/11/09 8:00	63.351	37.020				
8/11/09 12:00	63.337	37.024				
8/11/09 16:00	63.323	37.010				
8/11/09 20:00	63.307	36.999				
8/12/09 0:00	63.3	37.013				
8/12/09 4:00	63.283	37.010				
8/12/09 8:00	63.274	37.017				
8/12/09 12:00	63.26	37.017				
8/12/09 16:00	63.246	36.999				
8/12/09 20:00	63.232	36.987				
8/13/09 0:00	63.22	36.996				
8/13/09 4:00	63.206	36.992				
8/13/09 8:00	63.197	37.001				
8/13/09 12:00	63.185	37.003				
8/13/09 16:00	63.168	36.985				
8/13/09 20:00	63.157	36.980				
8/14/09 0:00	63.145	36.994				
8/14/09 4:00	63.136	37.006				
8/14/09 8:00	63.124	37.015				
8/14/09 12:00	63.11	37.013				
8/14/09 16:00	63.093	36.999				
8/14/09 20:00	63.077	36.987				
8/15/09 0:00	63.065	36.992				
8/15/09 4:00	63.051	36.982				
8/15/09 8:00	63.042	36.980				
8/15/09 12:00	63.026	36.978				
8/15/09 16:00	63.009	36.964				
8/15/09 20:00	63	36.964				
8/16/09 0:00	62.988	36.971				
8/16/09 4:00	62.99	36.996				
8/16/09 8:00	62.979	36.999				
8/16/09 12:00	62.965	37.027				
8/16/09 16:00	62.951	37.020				
8/16/09 20:00	62.944	37.029				
8/17/09 0:00	62.932	37.048				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
8/17/09 4:00	62.922	37.092				
8/17/09 8:00	62.92	37.134				
8/17/09 12:00	62.906	37.141				
8/17/09 16:00	62.892	37.153				
8/17/09 20:00	62.88	37.165				
8/18/09 0:00	62.871	37.195				
8/18/09 4:00	62.859	37.209				
8/18/09 8:00	62.847	37.225				
8/18/09 12:00	62.836	37.228				
8/18/09 16:00	62.817	37.211				
8/18/09 20:00	62.801	37.204				
8/19/09 0:00	62.787	37.204				
8/19/09 4:00	62.761	37.176				
8/19/09 8:00	62.758	37.190				
8/19/09 12:00	62.74	37.195				
8/19/09 16:00	62.728	37.190				
8/19/09 20:00	62.712	37.179				
8/20/09 0:00	62.712	37.216				
8/20/09 4:00	62.702	37.228				
8/20/09 8:00	62.691	37.249				
8/20/09 12:00	62.683	37.265				
8/20/09 16:00	62.669	37.265				
8/20/09 20:00	62.667	37.284				
8/21/09 0:00	62.658	37.303				
8/21/09 4:00	62.646	37.310				
8/21/09 8:00	62.616	37.328				
8/21/09 12:00	62.625	37.342				
8/21/09 16:00	62.616	37.342				
8/21/09 20:00	62.609	37.349				
8/22/09 0:00	62.597	37.368				
8/22/09 4:00	62.59	37.380				
8/22/09 8:00	62.578	37.394				
8/22/09 12:00	62.566	37.398				
8/22/09 16:00	62.548	37.382				
8/22/09 20:00	62.534	37.375				
8/23/09 0:00	62.524	37.391				
8/23/09 4:00	62.515	37.394				
8/23/09 8:00	62.505	37.401				
8/23/09 12:00	62.491	37.398				
8/23/09 16:00	62.473	37.389				
8/23/09 20:00	62.461	37.387				
8/24/09 0:00	62.452	37.396				
8/24/09 4:00	62.437	37.401				
8/24/09 8:00	62.428	37.398				
8/24/09 12:00	62.414	37.401				
8/24/09 16:00	62.4	37.391				
8/24/09 20:00	62.388	37.396				
8/25/09 0:00	62.377	37.415				
8/25/09 4:00	62.367	37.431				
8/25/09 8:00	62.353	37.429				
8/25/09 12:00	62.341	37.436				
8/25/09 16:00	62.327	37.438				
8/25/09 20:00	62.32	37.445				
8/26/09 0:00	62.306	37.462				
8/26/09 4:00	62.29	37.457				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
8/26/09 8:00	62.273	37.464				
8/26/09 12:00	62.269	37.485				
8/26/09 16:00	62.252	37.478				
8/26/09 20:00	62.238	37.487				
8/27/09 0:00	62.229	37.504				
8/27/09 4:00	62.217	37.504				
8/27/09 8:00	62.206	37.518				
8/27/09 12:00	62.194	37.532				
8/27/09 16:00	62.18	37.534				
8/27/09 20:00	62.163	37.536				
8/28/09 0:00	62.156	37.550				
8/28/09 4:00	62.14	37.548				
8/28/09 8:00	62.128	37.562				
8/28/09 12:00	62.117	37.557				
8/28/09 16:00	62.1	37.546				
8/28/09 20:00	62.086	37.550				
8/29/09 0:00	62.077	37.557				
8/29/09 4:00	62.065	37.562				
8/29/09 8:00	62.053	37.569				
8/29/09 12:00	62.042	37.576				
8/29/09 16:00	62.023	37.562				
8/29/09 20:00	62.016	37.567				
8/30/09 0:00	62.006	37.586				
8/30/09 4:00	61.997	37.595				
8/30/09 8:00	61.985	37.607				
8/30/09 12:00	61.974	37.609				
8/30/09 16:00	61.955	37.595				
8/30/09 20:00	61.941	37.593				
8/31/09 0:00	61.934	37.611				
8/31/09 4:00	61.92	37.614				
8/31/09 8:00	61.91	37.625				
8/31/09 12:00	61.899	37.623				
8/31/09 16:00	61.878	37.602				
8/31/09 20:00	61.864	37.602				
9/1/09 0:00	61.856	37.614				
9/1/09 4:00	61.84	37.609				
9/1/09 8:00	61.833	37.616				
9/1/09 12:00	61.819	37.616				
9/1/09 16:00	61.8	37.593				
9/1/09 20:00	61.784	37.586				
9/2/09 0:00	61.772	37.593				
9/2/09 4:00	61.76	37.588				
9/2/09 8:00	61.749	37.590				
9/2/09 12:00	61.737	37.595				
9/2/09 16:00	61.721	37.581				
9/2/09 20:00	61.707	37.574				
9/3/09 0:00	61.697	37.586				
9/3/09 4:00	61.685	37.583				
9/3/09 8:00	61.671	37.583				
9/3/09 12:00	61.66	37.586				
9/3/09 16:00	61.641	37.567				
9/3/09 20:00	61.632	37.567				
9/4/09 0:00	61.622	37.586				
9/4/09 4:00	61.608	37.581				
9/4/09 8:00	61.599	37.593				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
9/4/09 12:00	61.585	37.597				
9/4/09 16:00	61.573	37.590				
9/4/09 20:00	61.561	37.595				
9/5/09 0:00	61.552	37.611				
9/5/09 4:00	61.538	37.618				
9/5/09 8:00	61.531	37.630				
9/5/09 12:00	61.517	37.632				
9/5/09 16:00	61.498	37.623				
9/5/09 20:00	61.484	37.618				
9/6/09 0:00	61.472	37.632				
9/6/09 4:00	61.461	37.637				
9/6/09 8:00	61.449	37.646				
9/6/09 12:00	61.437	37.651				
9/6/09 16:00	61.418	37.632				
9/6/09 20:00	61.404	37.625				
9/7/09 0:00	61.397	37.642				
9/7/09 4:00	61.383	37.637				
9/7/09 8:00	61.374	37.637				
9/7/09 12:00	61.36	37.630				
9/7/09 16:00	61.343	37.614				
9/7/09 20:00	61.332	37.611				
9/8/09 0:00	61.322	37.618				
9/8/09 4:00	61.311	37.621				
9/8/09 8:00	61.297	37.628				
9/8/09 12:00	61.287	37.637				
9/8/09 16:00	61.268	37.630				
9/8/09 20:00	61.257	37.632				
9/9/09 0:00	61.252	37.663				
9/9/09 4:00	61.238	37.665				
9/9/09 8:00	61.226	37.681				
9/9/09 12:00	61.215	37.695				
9/9/09 16:00	61.2	37.695				
9/9/09 20:00	61.189	37.700				
9/10/09 0:00	61.179	37.719				
9/10/09 4:00	61.168	37.721				
9/10/09 8:00	61.154	37.733				
9/10/09 12:00	61.142	37.742				
9/10/09 16:00	61.126	37.735				
9/10/09 20:00	61.111	37.737				
9/11/09 0:00	61.102	37.754				
9/11/09 4:00	61.083	37.747				
9/11/09 8:00	61.072	37.754				
9/11/09 12:00	61.06	37.761				
9/11/09 16:00	61.037	37.752				
9/11/09 20:00	61.027	37.766				
9/12/09 0:00	61.018	37.796				
9/12/09 4:00	60.999	37.798				
9/12/09 8:00	60.992	37.812				
9/12/09 12:00	60.978	37.822				
9/12/09 16:00	60.957	37.810				
9/12/09 20:00	60.945	37.817				
9/13/09 0:00	60.933	37.833				
9/13/09 4:00	60.917	37.836				
9/13/09 8:00	60.908	37.847				
9/13/09 12:00	60.898	37.859				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
9/13/09 16:00	60.877	37.838				
9/13/09 20:00	60.861	37.840				
9/14/09 0:00	60.854	37.854				
9/14/09 4:00	60.837	37.859				
9/14/09 8:00	60.826	37.866				
9/14/09 12:00	60.812					
9/14/09 16:00	60.821					
9/14/09 20:00	60.806					
9/15/09 0:00	60.797					
9/15/09 4:00	60.785					
9/15/09 8:00	60.776					
9/15/09 12:00	60.764					
9/15/09 16:00	60.748					
9/15/09 20:00	60.734					
9/16/09 0:00	60.727					
9/16/09 4:00	60.717					
9/16/09 8:00	60.708					
9/16/09 12:00	60.696					
9/16/09 16:00	60.678					
9/16/09 20:00	60.668					
9/17/09 0:00	60.657					
9/17/09 4:00	60.645					
9/17/09 8:00	60.633					
9/17/09 12:00	60.619					
9/17/09 16:00	60.603					
9/17/09 20:00	60.589					
9/18/09 0:00	60.579					
9/18/09 4:00	60.563					
9/18/09 8:00	60.553					
9/18/09 12:00	60.544					
9/18/09 16:00	60.528					
9/18/09 20:00	60.514					
9/19/09 0:00	60.507					
9/19/09 4:00	60.492					
9/19/09 8:00	60.483					
9/19/09 12:00	60.469					
9/19/09 16:00	60.45					
9/19/09 20:00	60.434					
9/20/09 0:00	60.422					
9/20/09 4:00	60.406					
9/20/09 8:00	60.394					
9/20/09 12:00		38.504				
9/20/09 16:00		38.462				
9/20/09 20:00		38.450				
9/21/09 0:00		38.446				
9/21/09 4:00		38.434				
9/21/09 8:00		38.460				
9/21/09 12:00		38.462				
9/21/09 16:00		38.474				
9/21/09 20:00		38.488				
9/22/09 0:00		38.499				
9/22/09 4:00		38.504				
9/22/09 8:00		38.513				
9/22/09 12:00		38.513				
9/22/09 16:00		38.502				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
9/22/09 20:00		38.506				
9/23/09 0:00		38.513				
9/23/09 4:00		38.511				
9/23/09 8:00		38.523				
9/23/09 12:00		38.532				
9/23/09 16:00		38.523				
9/23/09 20:00		38.530				
9/24/09 0:00		38.534				
9/24/09 4:00		38.532				
9/24/09 8:00		38.532				
9/24/09 12:00		38.530				
9/24/09 16:00		38.518				
9/24/09 20:00		38.516				
9/25/09 0:00		38.518				
9/25/09 4:00		38.513				
9/25/09 8:00		38.520				
9/25/09 12:00		38.516				
9/25/09 16:00		38.504				
9/25/09 20:00		38.504				
9/26/09 0:00		38.497				
9/26/09 4:00		38.490				
9/26/09 8:00		38.490				
9/26/09 12:00		38.492				
9/26/09 16:00		38.467				
9/26/09 20:00		38.457				
9/27/09 0:00		38.443				
9/27/09 4:00		38.420				
9/27/09 8:00		38.387				
9/27/09 12:00		38.382				
9/27/09 16:00		38.413				
9/27/09 20:00		38.464				
9/28/09 0:00		38.509				
9/28/09 4:00		38.520				
9/28/09 8:00		38.544				
9/28/09 12:00		38.546				
9/28/09 16:00		38.537				
9/28/09 20:00		38.539				
9/29/09 0:00		38.558				
9/29/09 4:00		38.565				
9/29/09 8:00		38.579				
9/29/09 12:00		38.574				
9/29/09 16:00		38.544				
9/29/09 20:00		38.537				
9/30/09 0:00		38.537				
9/30/09 4:00		38.525				
9/30/09 8:00		38.518				
9/30/09 12:00		38.495				
9/30/09 16:00		38.453				
9/30/09 20:00		38.441				
10/1/09 0:00		38.415				
10/1/09 4:00		38.394				
10/1/09 8:00		38.394				
10/1/09 12:00		38.432				
10/1/09 16:00		38.455				
10/1/09 20:00		38.497				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
10/2/09 0:00		38.490				
10/2/09 4:00		38.485				
10/2/09 8:00		38.492				
10/2/09 12:00		38.502				
10/2/09 16:00		38.523				
10/2/09 20:00		38.555				
10/3/09 0:00		38.581				
10/3/09 4:00		38.600				
10/3/09 8:00		38.626				
10/3/09 12:00		38.651				
10/3/09 16:00	59.452	38.656				
10/3/09 20:00	59.434	38.679				
10/4/09 0:00	59.42	38.717				
10/4/09 4:00	59.403	38.726				
10/4/09 8:00	59.391	38.747				
10/4/09 12:00	59.375	38.759				
10/4/09 16:00	59.356	38.754				
10/4/09 20:00	59.338	38.766				
10/5/09 0:00	59.323	38.785				
10/5/09 4:00	59.288	38.778				
10/5/09 8:00	59.281	38.792				
10/5/09 12:00	59.26	38.782				
10/5/09 16:00	59.239	38.757				
10/5/09 20:00	59.223	38.759				
10/6/09 0:00	59.216	38.752				
10/6/09 4:00	59.211	38.792				
10/6/09 8:00	59.204	38.808				
10/6/09 12:00	59.195	38.836				
10/6/09 16:00	59.185	38.845				
10/6/09 20:00	59.181	38.892				
10/7/09 0:00	59.171	38.911				
10/7/09 4:00	59.159	38.925				
10/7/09 8:00	59.145	38.934				
10/7/09 12:00	59.131	38.932				
10/7/09 16:00	59.113	38.920				
10/7/09 20:00	59.101	38.927				
10/8/09 0:00	59.089	38.946				
10/8/09 4:00	59.075	38.951				
10/8/09 8:00	59.068	38.969				
10/8/09 12:00	59.056	38.993				
10/8/09 16:00	59.045	39.009				
10/8/09 20:00	59.033	39.016				
10/9/09 0:00	59.019	39.042				
10/9/09 4:00	59.007	39.063				
10/9/09 8:00	58.995	39.077				
10/9/09 12:00	58.981	39.093				
10/9/09 16:00	58.96	39.093				
10/9/09 20:00	58.951	39.114				
10/10/09 0:00	58.944	39.140				
10/10/09 4:00	58.932	39.175				
10/10/09 8:00	58.932	39.217				
10/10/09 12:00	58.921	39.243				
10/10/09 16:00	58.897	39.229				
10/10/09 20:00	58.883	39.238				
10/11/09 0:00	58.867	39.252				

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
10/11/09 4:00	58.85	39.250				
10/11/09 8:00	58.838	39.259				
10/11/09 12:00	58.817	39.257				
10/11/09 16:00	58.792	39.234				
10/11/09 20:00	58.778	39.234				
10/12/09 0:00	58.771	39.238				
10/12/09 4:00	58.742	39.229				
10/12/09 8:00	58.735	39.243				
10/12/09 12:00	58.721	39.255				
10/12/09 16:00	58.707	39.264				
10/12/09 20:00	58.703	39.294				
10/13/09 0:00	58.693	39.325				
10/13/09 4:00	58.684	39.336				
10/13/09 8:00	58.67	39.339				
10/13/09 12:00	58.653	39.341				
10/13/09 16:00	58.642	39.327				
10/13/09 20:00	58.625	39.353				
10/14/09 0:00	58.609	39.365				
10/14/09 4:00	58.59	39.367				
10/14/09 8:00	58.574	39.367				
10/14/09 12:00	58.553	39.346				
10/14/09 16:00	58.525	39.313				
10/14/09 20:00	58.518	39.308				
10/15/09 0:00	58.496	39.306				
10/15/09 4:00	58.482	39.308				
10/15/09 8:00	58.473	39.306				
10/15/09 12:00	58.466	39.355				
10/15/09 16:00	58.45	39.325				
10/15/09 20:00	58.45	39.327				
10/16/09 0:00	58.44	39.341				
10/16/09 4:00	58.431	39.346				
10/16/09 8:00	58.426	39.355				
10/16/09 12:00	58.414	39.365				
10/16/09 16:00						
10/16/09 20:00	59.07					
10/17/09 0:00	59.063					
10/17/09 4:00	59.052					
10/17/09 8:00	59.042					
10/17/09 12:00	59.028					
10/17/09 16:00	59.007					
10/17/09 20:00	58.991					
10/18/09 0:00	58.972					
10/18/09 4:00	58.951					
10/18/09 8:00	58.932					
10/18/09 12:00	58.909					
10/18/09 16:00	58.883					
10/18/09 20:00	58.869					
10/19/09 0:00	58.855					
10/19/09 4:00	58.839					
10/19/09 8:00	58.824					
10/19/09 12:00	58.81					
10/19/09 16:00	58.794					
10/19/09 20:00	58.787					
10/20/09 0:00	58.775					
10/20/09 4:00	58.759					

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
10/20/09 8:00	58.749					
10/20/09 12:00	58.738					
10/20/09 16:00	58.724					
10/20/09 20:00	58.717					
10/21/09 0:00	58.71					
10/21/09 4:00	58.7					
10/21/09 8:00	58.689					
10/21/09 12:00	58.682					
10/21/09 16:00	58.67					
10/21/09 20:00	58.663					
10/22/09 0:00	58.642					
10/22/09 4:00	58.628					
10/22/09 8:00	58.621					
10/22/09 12:00	58.602					
10/22/09 16:00	58.583					
10/22/09 20:00	58.569					
10/23/09 0:00	58.555					
10/23/09 4:00	58.539					
10/23/09 8:00	58.532					
10/23/09 12:00	58.522					
10/23/09 16:00	58.508					
10/23/09 20:00	58.499					
10/24/09 0:00	58.487					
10/24/09 4:00	58.475					
10/24/09 8:00	58.464					
10/24/09 12:00	58.45					
10/24/09 16:00	58.419					
10/24/09 20:00	58.403					
10/25/09 0:00	58.398					
10/25/09 4:00	58.393					
10/25/09 8:00	58.391					
10/25/09 12:00	58.386					
10/25/09 16:00	58.382					
10/25/09 20:00	58.389					
10/26/09 0:00	58.377					
10/26/09 4:00	58.365					
10/26/09 8:00	58.358					
10/26/09 12:00	58.344					
10/26/09 16:00	58.325					
10/26/09 20:00	58.309					
10/27/09 0:00	58.29					
10/27/09 4:00	58.272					
10/27/09 8:00	58.25					
10/27/09 12:00	58.234					
10/27/09 16:00	58.213					
10/27/09 20:00	58.206					
10/28/09 0:00	58.194					
10/28/09 4:00	58.18					
10/28/09 8:00	58.173					
10/28/09 12:00	58.159					
10/28/09 16:00	58.152					
10/28/09 20:00	58.143					
10/29/09 0:00	58.131					
10/29/09 4:00	58.115					
10/29/09 8:00	58.101					

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
10/29/09 12:00	58.089					
10/29/09 16:00	58.07					
10/29/09 20:00	58.049					
10/30/09 0:00	58.04					
10/30/09 4:00	58.026					
10/30/09 8:00	58.023					
10/30/09 12:00	58.016					
10/30/09 16:00	58.014					
10/30/09 20:00	58.014					
10/31/09 0:00	58.002					
10/31/09 4:00	58.004					
10/31/09 8:00	58.009					
10/31/09 12:00	58.002					
10/31/09 16:00	57.981					
10/31/09 20:00	57.972					
11/1/09 0:00	57.96					
11/1/09 4:00	57.944					
11/1/09 8:00	57.934					
11/1/09 12:00	57.922					
11/1/09 16:00	57.908					
11/1/09 20:00	57.904					
11/2/09 0:00	57.901					
11/2/09 4:00	57.894					
11/2/09 8:00	57.908					
11/2/09 12:00	57.906		89.669			
11/2/09 16:00	57.885		89.651		96.583	102.599
11/2/09 20:00	57.878		89.634		96.578	102.560
11/3/09 0:00	57.866		89.618		96.574	102.502
11/3/09 4:00	57.855		89.599		96.564	102.427
11/3/09 8:00	57.84		89.585		96.557	102.367
11/3/09 12:00	57.819		89.567		96.550	102.263
11/3/09 16:00	57.789		89.560		96.536	102.133
11/3/09 20:00	57.782		89.551		96.531	102.103
11/4/09 0:00	57.777		89.551		96.527	102.075
11/4/09 4:00	57.775		89.551		96.522	102.031
11/4/09 8:00	57.768		89.523		96.524	102.028
11/4/09 12:00	57.765		89.516		96.522	101.989
11/4/09 16:00	57.749		89.502	110.294	96.515	101.929
11/4/09 20:00	57.742		89.495	110.285	96.510	101.847
11/5/09 0:00	57.73		89.488	110.280	96.508	101.813
11/5/09 4:00	57.714		89.471	110.268	96.499	101.748
11/5/09 8:00	57.698		89.455	110.250	96.489	101.680
11/5/09 12:00	57.676		89.425	110.236	96.487	101.569
11/5/09 16:00	57.651		89.406	110.190	96.468	101.451
11/5/09 20:00	57.634		89.395	110.176	96.461	101.383
11/6/09 0:00	57.616		89.378	110.162	96.461	101.300
11/6/09 4:00	57.597		89.362	110.155	96.449	101.177
11/6/09 8:00	57.583		89.350	110.143	96.445	101.124
11/6/09 12:00	57.573		89.339	110.129	96.438	101.052
11/6/09 16:00	57.548		89.329	110.120	96.435	100.959
11/6/09 20:00	57.538		89.315	110.108	96.426	100.915
11/7/09 0:00	57.527		89.304	110.099	96.421	100.841
11/7/09 4:00	57.519		89.301	110.099	96.421	100.808
11/7/09 8:00	57.519		89.297	110.101	96.423	100.785
11/7/09 12:00	57.515		89.294	110.090	96.419	100.748

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
11/7/09 16:00	57.494		89.285	110.060	96.412	100.683
11/7/09 20:00	57.491		89.278	110.055	96.409	100.639
11/8/09 0:00	57.475		89.257	110.050	96.405	100.572
11/8/09 4:00	57.468		89.246	110.037	96.400	100.516
11/8/09 8:00	57.456		89.239	110.027	96.395	100.467
11/8/09 12:00	57.442		89.225	110.020	96.391	100.407
11/8/09 16:00	57.433		89.220	109.999	96.384	100.365
11/8/09 20:00	57.447		89.204	110.004	96.384	100.372
11/9/09 0:00	57.449		89.199	109.976	96.379	100.367
11/9/09 4:00	57.44		89.192	109.962	96.377	100.349
11/9/09 8:00	57.433		89.185	109.955	96.369	100.323
11/9/09 12:00	57.426		89.173	109.944	96.365	100.272
11/9/09 16:00	57.407		89.164	109.930	96.360	100.210
11/9/09 20:00	57.405		89.152	109.921	96.351	100.170
11/10/09 0:00	57.395		89.143	109.911	96.346	100.126
11/10/09 4:00	57.384		89.131	109.897	96.341	100.080
11/10/09 8:00	57.377		89.124	109.886	96.337	100.043
11/10/09 12:00	57.372	47.688	89.110	109.891	96.330	99.978
11/10/09 16:00	57.348	47.987	89.097	109.877	96.323	99.906
11/10/09 20:00	57.344	47.912	89.090	109.868	96.320	99.864
11/11/09 0:00	57.332	47.844	89.076	109.856	96.316	99.806
11/11/09 4:00	57.323	47.765	89.066	109.842	96.308	99.743
11/11/09 8:00	57.316	47.704	89.055	109.831	96.304	99.692
11/11/09 12:00	57.299	47.625	89.041	109.817	96.297	99.607
11/11/09 16:00	57.281	47.496	89.027	109.801	96.290	99.511
11/11/09 20:00	57.269	47.412	89.015	109.789	96.285	99.437
11/12/09 0:00	57.255	47.318	89.003	109.775	96.276	99.358
11/12/09 4:00	57.234	47.220	88.987	109.759	96.269	99.259
11/12/09 8:00	57.215	47.119	88.975	109.743	96.264	99.170
11/12/09 12:00	57.189	47.014	88.957	109.724	96.254	99.061
11/12/09 16:00	57.161	46.881	88.943	109.705	96.245	98.945
11/12/09 20:00	57.154	46.820	88.931	109.696	96.240	98.897
11/13/09 0:00	57.135	46.736	88.922	109.682	96.233	98.816
11/13/09 4:00	57.117	46.649	88.908	109.664	96.226	98.732
11/13/09 8:00	57.107	46.582	88.899	109.652	96.224	98.679
11/13/09 12:00	57.102	46.526	88.887	109.641	96.217	98.611
11/13/09 16:00	57.093	46.451	88.880	109.636	96.212	98.579
11/13/09 20:00	57.086	46.430	88.875	109.631	96.208	98.558
11/14/09 0:00	57.081	46.395	88.868	109.624	96.205	98.530
11/14/09 4:00	57.077	46.367	88.861	109.617	96.200	98.500
11/14/09 8:00	57.077	46.329	88.857	109.608	96.200	98.484
11/14/09 12:00	57.072	46.303	88.847	109.596	96.193	98.447
11/14/09 16:00	57.058	46.217	88.836	109.587	96.189	98.389
11/14/09 20:00	57.058	46.196	88.829	109.576	96.186	98.370
11/15/09 0:00	57.046	46.151	88.819	109.566	96.182	98.326
11/15/09 4:00	57.039	46.102	88.810	109.557	96.177	98.282
11/15/09 8:00	57.025	46.056	88.799	109.543	96.170	98.236
11/15/09 12:00	57.028	46.046	88.789	109.534	96.163	98.187
11/15/09 16:00	57.011	45.955	88.780	109.525	96.158	98.140
11/15/09 20:00	57.011	45.922	88.771	109.511	96.156	98.113
11/16/09 0:00	57.002	45.875	88.759	109.504	96.151	98.066
11/16/09 4:00	56.988	45.817	88.750	109.490	96.144	97.997
11/16/09 8:00	56.976	45.756	88.738	109.481	96.139	97.946
11/16/09 12:00	56.96	45.705	88.726	109.467	96.135	97.871
11/16/09 16:00	56.946	45.632	88.715	109.455	96.128	97.813

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
11/16/09 20:00	56.936	45.588	88.703	109.446	96.123	97.762
11/17/09 0:00	56.927	45.541	88.689	109.434	96.118	97.704
11/17/09 4:00	56.91	45.473	88.677	109.427	96.114	97.642
11/17/09 8:00	56.903	45.422	88.668	109.413	96.107	97.586
11/17/09 12:00	56.889	45.420	88.656	109.406	96.102	97.533
11/17/09 16:00	56.873	45.321	88.645	109.395	96.097	97.458
11/17/09 20:00	56.866	45.237	88.633	109.376	96.093	97.407
11/18/09 0:00	56.852	45.181	88.624	109.365	96.085	97.345
11/18/09 4:00	56.838	45.125	88.612	109.353	96.081	97.284
11/18/09 8:00	56.826	45.071	88.601	109.341	96.076	97.222
11/18/09 12:00	56.814	45.022	88.587	109.330	96.071	97.157
11/18/09 16:00	56.796	44.936	88.575	109.316	96.064	97.078
11/18/09 20:00	56.789	44.886	88.566	109.304	96.060	97.032
11/19/09 0:00	56.777	44.847	88.556	109.297	96.053	96.990
11/19/09 4:00	56.77	44.798	88.547	109.288	96.050	96.930
11/19/09 8:00	56.765	44.767	88.538	109.279	96.046	96.897
11/19/09 12:00	56.756	44.739	88.528	109.267	96.041	96.851
11/19/09 16:00	56.739	44.664	88.514	109.256	96.034	96.781
11/19/09 20:00	56.739	44.646	88.507	109.246	96.029	96.763
11/20/09 0:00	56.735	44.611	88.501	109.237	96.024	96.723
11/20/09 4:00	56.728	44.564	88.487	109.225	96.020	96.665
11/20/09 8:00	56.716	44.529	88.480	109.216	96.015	96.626
11/20/09 12:00	56.704	44.482	88.466	109.205	96.010	96.570
11/20/09 16:00	56.688	44.414	88.454	109.193	96.003	96.498
11/20/09 20:00	56.676	44.358	88.445	109.179	95.999	96.435
11/21/09 0:00	56.662	44.302	88.433	109.167	95.992	96.364
11/21/09 4:00	56.641	44.239	88.419	109.156	95.985	96.294
11/21/09 8:00	56.629	44.190	88.412	109.144	95.982	96.234
11/21/09 12:00	56.613	44.122	88.405	109.133	95.975	96.155
11/21/09 16:00	56.589	44.047	88.382	109.119	95.968	96.067
11/21/09 20:00	56.582	44.007	88.372	109.107	95.963	96.018
11/22/09 0:00	56.575	43.967	88.358	109.096	95.959	95.969
11/22/09 4:00	56.561	43.918	88.352	109.084	95.952	95.911
11/22/09 8:00	56.554	43.888	88.347	109.075	95.947	95.874
11/22/09 12:00	56.545	43.837	88.335	109.063	95.945	95.814
11/22/09 16:00	56.531	43.785	88.319	109.051	95.938	95.746
11/22/09 20:00	56.521	43.741	88.307	109.040	95.933	95.691
11/23/09 0:00	56.51	43.706	88.298	109.028	95.928	95.642
11/23/09 4:00	56.496	43.654	88.284	109.017	95.924	95.579
11/23/09 8:00	56.491	43.614	88.279	109.005	95.916	95.531
11/23/09 12:00	56.482		88.277	108.994	95.912	95.470
11/23/09 16:00	56.463		88.251	108.982	95.905	95.410
11/23/09 20:00	56.461		88.242	108.973	95.902	95.354
11/24/09 0:00	56.446		88.230	108.970	95.895	95.301
11/24/09 4:00	56.437		88.221	108.949	95.893	95.243
11/24/09 8:00	56.432		88.209	108.936	95.888	95.208
11/24/09 12:00	56.423		88.207	108.926	95.884	95.164
11/24/09 16:00	56.416		88.189	108.915	95.877	95.118
11/24/09 20:00	56.409		88.184	108.903	95.874	95.083
11/25/09 0:00	56.404		88.175	108.891	95.867	95.030
11/25/09 4:00	56.39		88.163	108.882	95.865	94.972
11/25/09 8:00	56.393		88.156	108.875	95.860	94.939
11/25/09 12:00	56.383		88.144	108.864	95.855	94.890
11/25/09 16:00	56.369		88.135	108.852	95.848	94.839
11/25/09 20:00	56.367		88.126	108.840	95.846	94.798

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
11/26/09 0:00	56.36		88.116	108.831	95.839	94.754
11/26/09 4:00	56.35		88.109	108.820	95.837	94.705
11/26/09 8:00	56.343		88.098	108.808	95.832	94.661
11/26/09 12:00	56.336		88.086	108.796	95.827	94.601
11/26/09 16:00	56.313		88.072	108.782	95.820	94.510
11/26/09 20:00	56.294		88.060	108.769	95.813	94.440
11/27/09 0:00	56.278		88.049	108.757	95.804	94.364
11/27/09 4:00	56.259		88.035	108.745	95.804	94.287
11/27/09 8:00	56.245		88.026	108.731	95.794	94.218
11/27/09 12:00	56.231		88.012	108.717	95.790	94.146
11/27/09 16:00	56.21		87.998	108.704	95.785	94.060
11/27/09 20:00	56.198		87.988	108.692	95.778	94.000
11/28/09 0:00	56.189		87.977	108.680	95.773	93.946
11/28/09 4:00	56.177		87.965	108.669	95.766	93.881
11/28/09 8:00	56.163		87.951	108.657	95.764	93.826
11/28/09 12:00	56.151		87.949	108.646	95.757	93.761
11/28/09 16:00	56.135		87.932	108.634	95.752	93.696
11/28/09 20:00	56.14		87.918	108.622	95.747	93.673
11/29/09 0:00	56.135		87.865	108.613	95.745	93.640
11/29/09 4:00	56.14		87.760	108.604	95.740	93.619
11/29/09 8:00	56.133		87.816	108.595	95.736	93.591
11/29/09 12:00	56.133		87.835	108.585	95.733	93.561
11/29/09 16:00	56.116		87.846	108.574	95.729	93.505
11/29/09 20:00	56.116		87.783	108.562	95.724	93.475
11/30/09 0:00	56.104		87.797	108.551	95.717	93.424
11/30/09 4:00	56.093		87.821	108.539	95.712	93.362
11/30/09 8:00	56.083		87.804	108.527	95.708	93.311
11/30/09 12:00	56.072		87.853	108.513	95.701	93.246
11/30/09 16:00	56.048		87.879	108.500	95.696	93.165
11/30/09 20:00	56.032		87.872	108.488	95.686	93.093
12/1/09 0:00	56.013		87.844	108.474	95.679	93.014
12/1/09 4:00	55.997		87.837	108.460	95.672	92.937
12/1/09 8:00	55.98		87.814	108.449	95.665	92.868
12/1/09 12:00	55.966		87.825	108.432	95.661	92.793
12/1/09 16:00	55.95		87.776	108.423	95.656	92.726
12/1/09 20:00	55.952		87.648	108.411	95.651	92.712
12/2/09 0:00	55.952		87.637	108.402	95.649	92.680
12/2/09 4:00	55.943		87.651	108.393	95.644	92.636
12/2/09 8:00	55.943		87.604	108.381	95.639	92.601
12/2/09 12:00	55.929		87.665	108.372	95.632	92.543
12/2/09 16:00	55.919		87.653	108.358	95.628	92.485
12/2/09 20:00	55.915		87.583	108.349	95.623	92.455
12/3/09 0:00	55.91		87.586	108.337	95.618	92.418
12/3/09 4:00	55.91		87.562	108.328	95.616	92.383
12/3/09 8:00	55.901		87.560	108.316	95.611	92.341
12/3/09 12:00	55.898		87.565	108.307	95.604	92.302
12/3/09 16:00	55.889		87.569	108.295	95.600	92.255
12/3/09 20:00	55.884		87.530	108.284	95.595	92.218
12/4/09 0:00	55.873		87.541	108.275	95.593	92.167
12/4/09 4:00	55.863		87.569	108.261	95.586	92.109
12/4/09 8:00	55.849		87.579	108.251	95.578	92.051
12/4/09 12:00	55.833		87.641	108.235	95.574	91.974
12/4/09 16:00	55.807		87.623	108.224	95.567	91.891
12/4/09 20:00	55.793		87.620	108.207	95.562	91.812
12/5/09 0:00	55.772		87.600	108.196	95.557	91.745

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
12/5/09 4:00	55.758		87.595	108.182	95.548	91.666
12/5/09 8:00	55.746		87.541	108.170	95.546	91.613
12/5/09 12:00	55.737		87.558	108.159	95.541	91.545
12/5/09 16:00	55.718		87.541	108.145	95.534	91.480
12/5/09 20:00	55.718		87.432	108.135	95.532	91.459
12/6/09 0:00	55.716		87.378	108.126	95.527	91.425
12/6/09 4:00	55.711		87.399	108.117	95.522	91.385
12/6/09 8:00	55.701		87.404	108.103	95.517	91.334
12/6/09 12:00	55.69		87.437	108.091	95.513	91.285
12/6/09 16:00	55.673		87.441	108.080	95.506	91.211
12/6/09 20:00	55.669		87.371	108.070	95.501	91.181
12/7/09 0:00	55.678		87.339	108.059	95.499	91.162
12/7/09 4:00	55.666		87.376	108.050	95.496	91.139
12/7/09 8:00	55.671		87.371	108.040	95.489	91.095
12/7/09 12:00	55.659		87.390	108.026	95.485	91.051
12/7/09 16:00	55.641		87.413	108.015	95.480	90.979
12/7/09 20:00	55.627		87.416	108.003	95.475	90.914
12/8/09 0:00	55.612		87.427	107.987	95.470	90.840
12/8/09 4:00	55.589		87.418	107.973	95.461	90.747
12/8/09 8:00	55.556		87.390	107.955	95.454	90.629
12/8/09 12:00	55.53		87.297	107.936	95.447	90.508
12/8/09 16:00	55.495		87.278	107.922	95.438	90.395
12/8/09 20:00	55.488		87.267	107.908	95.433	90.334
12/9/09 0:00	55.495		87.262	107.897	95.428	90.318
12/9/09 4:00	55.521		87.260	107.890	95.426	90.320
12/9/09 8:00	55.535		87.255	107.883	95.426	90.316
12/9/09 12:00	55.542		87.250	107.873	95.421	90.283
12/9/09 16:00	55.514		87.241	107.864	95.416	90.246
12/9/09 20:00	55.505		87.229	107.852	95.412	90.200
12/10/09 0:00	55.481		87.220	107.841	95.405	90.156
12/10/09 4:00	55.479		87.213	107.827	95.402	90.107
12/10/09 8:00	55.472		87.206	107.820	95.398	90.070
12/10/09 12:00	55.467		87.197	107.806	95.393	90.028
12/10/09 16:00	55.456		87.185	107.795	95.386	89.972
12/10/09 20:00	55.448		87.176	107.783	95.381	89.924
12/11/09 0:00	55.439		87.169	107.774	95.377	89.882
12/11/09 4:00	55.43		87.157	107.762	95.372	89.831
12/11/09 8:00	55.427		87.148	107.748	95.367	89.782
12/11/09 12:00	55.413		87.139	107.736	95.360	89.724
12/11/09 16:00	55.397		87.125	107.723	95.355	89.662
12/11/09 20:00	55.385		87.115	107.711	95.348	89.599
12/12/09 0:00	55.371		87.104	107.697	95.344	89.534
12/12/09 4:00	55.355		87.090	107.683	95.337	89.464
12/12/09 8:00	55.338		87.076	107.672	95.332	89.388
12/12/09 12:00	55.322		87.064	107.658	95.325	89.314
12/12/09 16:00	55.299		87.050	107.644	95.318	89.235
12/12/09 20:00	55.294		87.041	107.630	95.313	89.186
12/13/09 0:00	55.289		87.031	107.618	95.311	89.137
12/13/09 4:00	55.284		87.024	107.609	95.304	89.091
12/13/09 8:00	55.27		87.015	107.595	95.299	89.047
12/13/09 12:00	55.266		87.004	107.583	95.294	88.994
12/13/09 16:00	55.24		86.990	107.567	95.287	88.901
12/13/09 20:00	55.221		86.976	107.553	95.283	88.829
12/14/09 0:00	55.205		86.966	107.542	95.276	88.759
12/14/09 4:00	55.228		86.962	107.535	95.273	88.757

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
12/14/09 8:00	55.254		86.964	107.528	95.273	88.766
12/14/09 12:00	55.28		86.959	107.514	95.269	88.764
12/14/09 16:00	55.273		86.955	107.507	95.264	88.738
12/14/09 20:00	55.273		86.945	107.495	95.259	88.708
12/15/09 0:00	55.275		86.943	107.486	95.257	88.697
12/15/09 4:00	55.268		86.934	107.477	95.252	88.657
12/15/09 8:00	55.261		86.929	107.468	95.247	88.629
12/15/09 12:00	55.247		86.920	107.456	95.245	88.585
12/15/09 16:00	55.207		86.901	107.444	95.238	88.516
12/15/09 20:00	55.195		86.889	107.433	95.231	88.453
12/16/09 0:00	55.181		86.878	107.419	95.226	88.390
12/16/09 4:00	55.158		86.866	107.403	95.219	88.309
12/16/09 8:00	55.146		86.855	107.389	95.212	88.244
12/16/09 12:00	55.135		86.841	107.377	95.208	88.179
12/16/09 16:00	55.12		86.829	107.363	95.201	88.107
12/16/09 20:00	55.111		86.817	107.352	95.196	88.045
12/17/09 0:00	55.099		86.806	107.335	95.189	87.971
12/17/09 4:00	55.09		86.794	107.324	95.184	87.908
12/17/09 8:00	55.083		86.782	107.310	95.177	87.850
12/17/09 12:00	55.074		86.773	107.298	95.170	87.794
12/17/09 16:00	55.069		86.764	107.287	95.168	87.741
12/17/09 20:00	55.06		86.754	107.275	95.161	87.694
12/18/09 0:00	55.057		86.745	107.263	95.156	87.641
12/18/09 4:00	55.05		86.733	107.252	95.151	87.585
12/18/09 8:00	55.043		86.724	107.240	95.147	87.537
12/18/09 12:00	55.036		86.715	107.229	95.142	87.474
12/18/09 16:00	55.024		86.706	107.215	95.137	87.418
12/18/09 20:00	55.024		86.696	107.203	95.132	87.372
12/19/09 0:00	55.022		86.689	107.192	95.128	87.328
12/19/09 4:00	55.015		86.680	107.182	95.123	87.286
12/19/09 8:00	55.015		86.675	107.173	95.116	87.256
12/19/09 12:00	55.01		86.666	107.161	95.111	87.212
12/19/09 16:00	55.001		86.654	107.148	95.107	87.145
12/19/09 20:00	54.994		86.643	107.134	95.100	87.089
12/20/09 0:00	54.982		86.631	107.120	95.095	87.019
12/20/09 4:00	54.973		86.619	107.108	95.088	86.954
12/20/09 8:00	54.959		86.610	107.094	95.081	86.892
12/20/09 12:00	54.956		86.601	107.083	95.078	86.855
12/20/09 16:00	54.954		86.594	107.073	95.074	86.818
12/20/09 20:00	54.945		86.587	107.062	95.069	86.771
12/21/09 0:00	54.94		86.577	107.050	95.062	86.725
12/21/09 4:00	54.921		86.566	107.034	95.057	86.660
12/21/09 8:00	54.91		86.554	107.025	95.053	86.602
12/21/09 12:00	54.891		86.543	107.008	95.046	86.532
12/21/09 16:00	54.872		86.526	106.992	95.039	86.453
12/21/09 20:00	54.86		86.517	106.981	95.031	86.398
12/22/09 0:00	54.846		86.508	106.969	95.024	86.342
12/22/09 4:00	54.837		86.498	106.955	95.020	86.293
12/22/09 8:00	54.832		86.491	106.946	95.017	86.249
12/22/09 12:00	54.825		86.480	106.932	95.013	86.201
12/22/09 16:00	54.811		86.473	106.920	95.008	86.147
12/22/09 20:00	54.811		86.461	106.909	95.001	86.103
12/23/09 0:00	54.797		86.452	106.895	94.996	86.043
12/23/09 4:00	54.774		86.438	106.881	94.987	85.973
12/23/09 8:00	54.769		86.428	106.867	94.982	85.918

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
12/23/09 12:00	54.753		86.417	106.855	94.977	85.855
12/23/09 16:00	54.736		86.405	106.841	94.971	85.795
12/23/09 20:00	54.736		86.398	106.830	94.966	85.757
12/24/09 0:00	54.727		86.389	106.820	94.961	85.716
12/24/09 4:00	54.732		86.384	106.809	94.956	85.679
12/24/09 8:00	54.725		86.380	106.795	94.952	85.644
12/24/09 12:00	54.718		86.366	106.783	94.947	85.593
12/24/09 16:00	54.699		86.354	106.769	94.940	85.519
12/24/09 20:00	54.68		86.340	106.756	94.931	85.447
12/25/09 0:00	54.652		86.324	106.737	94.924	85.361
12/25/09 4:00	54.638		86.314	106.723	94.919	85.289
12/25/09 8:00	54.621		86.300	106.704	94.909	85.224
12/25/09 12:00	54.61		86.286	106.695	94.905	85.159
12/25/09 16:00	54.598		86.277	106.681	94.900	85.110
12/25/09 20:00	54.593		86.272	106.667	94.893	85.066
12/26/09 0:00	54.589		86.261	106.656	94.891	85.029
12/26/09 4:00	54.591		86.258	106.649	94.886	84.997
12/26/09 8:00	54.593		86.254	106.642	94.879	84.976
12/26/09 12:00	54.598		86.249	106.633	94.877	84.950
12/26/09 16:00	54.591		86.242	106.623	94.870	84.925
12/26/09 20:00	54.586		86.235	106.612	94.867	84.885
12/27/09 0:00	54.579		86.228	106.598	94.862	84.846
12/27/09 4:00	54.57		86.217	106.586	94.858	84.797
12/27/09 8:00	54.572		86.217	106.579	94.853	84.774
12/27/09 12:00	54.591		86.212	106.570	94.848	84.753
12/27/09 16:00	54.568		86.203	106.558	94.844	84.711
12/27/09 20:00	54.563		86.196	106.549	94.839	84.679
12/28/09 0:00	54.556		86.189	106.538	94.832	84.635
12/28/09 4:00	54.523		86.179	106.524	94.827	84.584
12/28/09 8:00	54.504		86.172	106.514	94.823	84.547
12/28/09 12:00	54.525		86.165	106.496	94.818	84.514
12/28/09 16:00	54.502		86.158	106.489	94.813	84.475
12/28/09 20:00	54.518		86.151	106.480	94.808	84.438
12/29/09 0:00	54.486		86.144	106.466	94.799	84.393
12/29/09 4:00	54.443		86.133	106.454	94.794	84.338
12/29/09 8:00	54.387		86.121	106.440	94.790	84.280
12/29/09 12:00	54.324		86.107	106.424	94.778	84.210
12/29/09 16:00	54.186		86.091	106.408	94.773	84.124
12/29/09 20:00	54.092		86.079	106.391	94.766	84.059
12/30/09 0:00	54.003		86.065	106.375	94.759	83.987
12/30/09 4:00	53.9		86.051	106.361	94.752	83.911
12/30/09 8:00	53.82		86.037	106.345	94.745	83.851
12/30/09 12:00	53.776		86.028	106.331	94.738	83.795
12/30/09 16:00	53.698		86.019	106.317	94.733	83.732
12/30/09 20:00	53.748		86.014	106.313	94.729	83.716
12/31/09 0:00	53.769		86.009	106.301	94.726	83.686
12/31/09 4:00	53.801		86.005	106.294	94.722	83.665
12/31/09 8:00	53.818		86.002	106.285	94.717	83.640
12/31/09 12:00	53.888		85.998	106.278	94.715	83.623
12/31/09 16:00	53.865		85.988	106.268	94.703	83.582
12/31/09 20:00	53.858		85.979	106.255	94.698	83.540
1/1/10 0:00	53.848		85.972	106.245	94.691	83.498
1/1/10 4:00	53.82		85.963	106.234	94.689	83.449
1/1/10 8:00	53.797		85.956	106.222	94.682	83.410
1/1/10 12:00	53.83		85.951	106.213	94.677	83.377

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
1/1/10 16:00	53.778		85.940	106.204	94.675	83.331
1/1/10 20:00	53.79		85.933	106.192	94.668	83.296
1/2/10 0:00	53.759		85.926	106.180	94.663	83.252
1/2/10 4:00	53.717		85.914	106.166	94.656	83.196
1/2/10 8:00	53.642		85.902	106.155	94.649	83.136
1/2/10 12:00	53.581		85.888	106.141	94.644	83.071
1/2/10 16:00	53.474		85.874	106.125	94.639	83.002
1/2/10 20:00	53.431		85.865	106.115	94.633	82.953
1/3/10 0:00	53.41		85.858	106.102	94.628	82.906
1/3/10 4:00	53.375		85.849	106.092	94.621	82.858
1/3/10 8:00	53.356		85.839	106.081	94.616	82.818
1/3/10 12:00	53.361		85.832	106.071	94.614	82.779
1/3/10 16:00	53.319		85.823	106.060	94.604	82.733
1/3/10 20:00	53.324		85.819	106.048	94.600	82.700
1/4/10 0:00	53.307		85.809	106.039	94.597	82.654
1/4/10 4:00	53.272		85.798	106.027	94.593	82.610
1/4/10 8:00	53.239		85.791	106.013	94.585	82.563
1/4/10 12:00	53.218		85.779	106.002	94.581	82.514
1/4/10 16:00	53.131		85.767	105.988	94.574	82.452
1/4/10 20:00	53.092		85.758	105.976	94.567	82.403
1/5/10 0:00	53.054		85.746	105.965	94.562	82.350
1/5/10 4:00	53.017		85.737	105.951	94.557	82.299
1/5/10 8:00	52.982		85.728	105.939	94.550	82.255
1/5/10 12:00	52.949		85.716	105.928	94.543	82.197
1/5/10 16:00	52.843		85.702	105.909	94.539	82.127
1/5/10 20:00	52.768		85.688	105.897	94.532	82.067
1/6/10 0:00	52.71		85.679	105.881	94.527	82.006
1/6/10 4:00	52.621		85.665	105.870	94.517	81.939
1/6/10 8:00	52.543		85.651	105.856	94.513	81.881
1/6/10 12:00	52.536		85.644	105.844	94.508	81.835
1/6/10 16:00	52.504		85.637	105.832	94.503	81.800
1/6/10 20:00	52.553		85.637	105.828	94.501	81.781
1/7/10 0:00	52.567		85.625	105.816	94.494	81.742
1/7/10 4:00	52.529		85.616	105.805	94.489	81.698
1/7/10 8:00	52.525		85.609	105.795	94.485	81.665
1/7/10 12:00	52.565		85.607	105.786	94.480	81.635
1/7/10 16:00	52.52		85.597	105.775	94.473	81.594
1/7/10 20:00	52.532		85.590	105.763	94.471	81.559
1/8/10 0:00	52.532		85.581	105.754	94.466	81.519
1/8/10 4:00	52.506		85.572	105.737	94.461	81.475
1/8/10 8:00	52.478		85.565	105.730	94.454	81.436
1/8/10 12:00	52.464		85.553	105.719	94.447	81.387
1/8/10 16:00	52.382		85.539	105.703	94.440	81.329
1/8/10 20:00	52.356		85.532	105.691	94.435	81.280
1/9/10 0:00	52.33		85.523	105.679	94.431	81.236
1/9/10 4:00	52.3		85.511	105.666	94.424	81.190
1/9/10 8:00	52.276		85.504	105.656	94.419	81.150
1/9/10 12:00	52.279		85.497	105.645	94.414	81.109
1/9/10 16:00	52.208		85.488	105.631	94.407	81.053
1/9/10 20:00	52.164		85.474	105.617	94.402	81.002
1/10/10 0:00	52.119		85.462	105.603	94.395	80.947
1/10/10 4:00	52.037		85.448	105.589	94.388	80.881
1/10/10 8:00	51.948		85.434	105.573	94.379	80.814
1/10/10 12:00	51.878		85.423	105.559	94.372	80.751
1/10/10 16:00	51.773		85.409	105.543	94.365	80.686

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
1/10/10 20:00	51.759		85.399	105.531	94.363	80.645
1/11/10 0:00	51.721		85.392	105.519	94.358	80.596
1/11/10 4:00	51.695		85.381	105.508	94.351	80.552
1/11/10 8:00	51.705		85.378	105.499	94.346	80.522
1/11/10 12:00	51.745		85.374	105.489	94.344	80.501
1/11/10 16:00	51.712		85.364	105.475	94.337	80.457
1/11/10 20:00	51.723		85.360	105.466	94.332	80.422
1/12/10 0:00	51.712		85.351	105.454	94.325	80.383
1/12/10 4:00	51.672		85.339	105.441	94.320	80.332
1/12/10 8:00	51.618		85.327	105.429	94.313	80.278
1/12/10 12:00	51.569		85.313	105.413	94.306	80.218
1/12/10 16:00	51.433		85.297	105.397	94.299	80.139
1/12/10 20:00	51.363		85.283	105.380	94.292	80.076
1/13/10 0:00	51.288		85.269	105.366	94.283	80.016
1/13/10 4:00	51.215		85.253	105.348	94.276	79.951
1/13/10 8:00	51.138		85.243	105.334	94.269	79.895
1/13/10 12:00	51.093		85.229	105.320	94.262	79.840
1/13/10 16:00	50.983		85.215	105.304	94.255	79.770
1/13/10 20:00	50.955		85.206	105.292	94.247	79.728
1/14/10 0:00	50.932		85.197	105.276	94.243	79.682
1/14/10 4:00	50.913		85.188	105.264	94.238	79.645
1/14/10 8:00	50.929		85.185	105.255	94.236	79.619
1/14/10 12:00	50.969		85.181	105.244	94.229	79.592
1/14/10 16:00	50.95		85.171	105.232	94.224	79.547
1/14/10 20:00	50.964		85.164	105.220	94.217	79.522
1/15/10 0:00	50.967		85.157	105.206	94.212	79.487
1/15/10 4:00	50.96		85.150	105.192	94.205	79.448
1/15/10 8:00	50.927		85.141	105.176	94.198	79.404
1/15/10 12:00	50.941		85.132	105.162	94.196	79.364
1/15/10 16:00	50.861		85.118	105.141	94.189	79.309
1/15/10 20:00	50.81		85.108	105.123	94.179	79.255
1/16/10 0:00	50.777		85.097	105.109	94.175	79.211
1/16/10 4:00	50.711		85.083	105.093	94.165	79.153
1/16/10 8:00	50.65		85.071	105.076	94.158	79.100
1/16/10 12:00	50.632		85.060	105.063	94.151	79.049
1/16/10 16:00	50.519		85.043	105.042	94.142	78.974
1/16/10 20:00	50.472		85.032	105.025	94.135	78.930
1/17/10 0:00	50.397		85.020	105.012	94.130	78.870
1/17/10 4:00	50.36		85.008	104.995	94.121	78.817
1/17/10 8:00	50.294		84.997	104.977	94.116	78.766
1/17/10 12:00	50.28		84.987	104.965	94.109	78.722
1/17/10 16:00	50.21		84.976	104.951	94.102	78.671
1/17/10 20:00	50.224		84.971	104.937	94.097	78.638
1/18/10 0:00	50.229		84.964	104.926	94.093	78.606
1/18/10 4:00	50.196		84.952	104.909	94.086	78.557
1/18/10 8:00	50.175		84.945	104.896	94.078	78.518
1/18/10 12:00	50.149		84.931	104.882	94.071	78.469
1/18/10 16:00	50.081		84.920	104.865	94.067	78.415
1/18/10 20:00	50.065		84.913	104.849	94.060	78.374
1/19/10 0:00	50.044		84.901	104.814	94.055	78.332
1/19/10 4:00	49.987		84.887	104.743	94.048	78.276
1/19/10 8:00	49.936		84.876	104.682	94.041	78.228
1/19/10 12:00	49.901		84.864	104.622	94.034	78.174
1/19/10 16:00	49.788		84.848	104.525	94.024	78.107
1/19/10 20:00	49.737		84.836	104.450	94.017	78.049

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
1/20/10 0:00	49.648		84.817	104.360	94.010	77.986
1/20/10 4:00	49.563		84.803	104.283	94.003	77.931
1/20/10 8:00	49.566		84.799	104.265	93.999	77.893
1/20/10 12:00	49.575		84.792	104.237	93.994	77.861
1/20/10 16:00	49.533		84.782	104.193	93.987	77.815
1/20/10 20:00	49.545		84.775	104.174	93.982	77.787
1/21/10 0:00	49.502		84.764	104.126	93.975	77.740
1/21/10 4:00	49.495		84.757	104.095	93.968	77.703
1/21/10 8:00	49.493		84.748	104.063	93.963	77.662
1/21/10 12:00	49.495		84.741	104.038	93.961	77.627
1/21/10 16:00	49.442		84.731	103.989	93.952	77.583
1/21/10 20:00	49.465		84.724	103.977	93.947	77.555
1/22/10 0:00	49.46		84.715	103.947	93.940	77.518
1/22/10 4:00	49.413		84.701	103.873	93.935	77.460
1/22/10 8:00	49.35		84.692	103.820	93.928	77.413
1/22/10 12:00	49.289		84.675	103.736	93.921	77.353
1/22/10 16:00	49.17		84.657	103.736	93.912	77.279
1/22/10 20:00	49.109		84.645	103.662	93.902	77.225
1/23/10 0:00	49.041		84.631	103.629	93.898	77.174
1/23/10 4:00	48.964		84.615	103.530	93.888	77.102
1/23/10 8:00	48.839		84.603	103.455	93.881	77.058
1/23/10 12:00	47.757		84.592	103.462	93.874	77.014
1/23/10 16:00	12.325		84.585	103.407	93.870	76.982
1/23/10 20:00	10.856		84.582	103.386	93.865	76.959
1/24/10 0:00	9.035		84.575	103.356	93.863	76.926
1/24/10 4:00	7.346		84.566	103.309	93.856	76.889
1/24/10 8:00	5.161		84.559	103.265	93.848	76.861
1/24/10 12:00	2.588		84.550	103.193	93.844	76.819
1/24/10 16:00	2.743		84.543	103.110	93.837	76.773
1/24/10 20:00	2.759		84.531	103.080	93.834	76.738
1/25/10 0:00	2.829		84.522	103.031	93.825	76.699
1/25/10 4:00	2.918		84.512	102.989	93.820	76.652
1/25/10 8:00	3.01		84.501	102.985	93.813	76.629
1/25/10 12:00	3.42		84.510	102.989	93.811	76.608
1/25/10 16:00	3.977	35.712	84.496	102.954	93.790	76.564
1/25/10 20:00	4.186	35.716	84.494	102.950	93.783	76.544
1/26/10 0:00	4.345	35.725	84.487	102.946	93.780	76.521
1/26/10 4:00	4.423	35.735	84.484	102.950	93.778	76.499
1/26/10 8:00	4.605	35.737	84.477	102.931	93.773	76.469
1/26/10 12:00	4.891	35.740	84.470	102.918	93.766	76.444
1/26/10 16:00	5.425	35.711	84.457	102.840	93.762	76.389
1/26/10 20:00	5.638	35.702	84.447	102.809	93.755	76.353
1/27/10 0:00	6.027	35.680	84.436	102.744	93.748	76.304
1/27/10 4:00	6.414	35.659	84.426	102.684	93.743	76.256
1/27/10 8:00	6.784	35.647	84.415	102.639	93.733	76.214
1/27/10 12:00	7.15	35.644	84.410	102.619	93.729	76.185
1/27/10 16:00	7.548	35.647	84.405	102.611	93.724	76.160
1/27/10 20:00	7.618	35.666	84.403	102.630	93.722	76.149
1/28/10 0:00	7.899	35.675	84.398	102.631	93.717	76.128
1/28/10 4:00	8.23	35.678	84.394	102.615	93.712	76.099
1/28/10 8:00	8.569	35.678	84.389	102.598	93.708	76.074
1/28/10 12:00	8.982	35.661	84.375	102.548	93.701	76.030
1/28/10 16:00	9.394	35.632	84.363	102.467	93.696	75.975
1/28/10 20:00	9.633	35.613	84.352	102.417	93.686	75.932
1/29/10 0:00	9.895	35.601	84.340	102.371	93.682	75.892

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
1/29/10 4:00	10.214	35.571	84.326	102.291	93.675	75.838
1/29/10 8:00	10.507	35.542	84.312	102.221	93.665	75.784
1/29/10 12:00	10.776	35.530	84.303	102.174	93.661	75.748
1/29/10 16:00	11.153	35.490	84.287	102.077	93.651	75.681
1/29/10 20:00	11.334	35.471	84.273	102.023	93.644	75.640
1/30/10 0:00	11.554	35.452	84.261	101.968	93.640	75.594
1/30/10 4:00	11.807	35.435	84.252	101.915	93.632	75.553
1/30/10 8:00	12.065	35.421	84.242	101.876	93.628	75.511
1/30/10 12:00	12.381	35.406	84.231	101.829	93.621	75.473
1/30/10 16:00	12.369	35.378	84.217	101.751	93.614	75.417
1/30/10 20:00	12.604	35.368	84.210	101.715	93.607	75.383
1/31/10 0:00	12.843	35.361	84.200	101.682	93.600	74.984
1/31/10 4:00	13.072	35.349	84.193	101.641	93.595	72.884
1/31/10 8:00	13.295	35.340	84.186	101.605	93.593	72.492
1/31/10 12:00	13.595	35.330	84.177	101.569	93.583	72.474
1/31/10 16:00	13.705	35.301	84.161	101.490	93.576	72.432
1/31/10 20:00	13.899	35.278	84.152	101.422	93.569	72.394
2/1/10 0:00	14.096	35.259	84.135	101.362	93.564	72.364
2/1/10 4:00	14.281	35.235	84.124	101.294	93.555	72.318
2/1/10 8:00	14.457	35.211	84.112	101.228	93.550	72.283
2/1/10 12:00	14.646	35.192	84.100	101.170	93.541	72.245
2/1/10 16:00	14.817	35.166	84.086	101.101	93.539	72.206
2/1/10 20:00	15.019	35.164	84.082	101.077	93.532	72.183
2/2/10 0:00	15.209	35.156	84.072	101.045	93.525	72.160
2/2/10 4:00	15.403	35.156	84.068	101.023	93.520	72.138
2/2/10 8:00	15.605	35.156	84.061	101.000	93.515	72.122
2/2/10 12:00	15.844	35.149	84.051	100.964	93.508	72.095
2/2/10 16:00	15.942	35.126	84.040	100.900	93.503	72.055
2/2/10 20:00	16.122	35.121	84.033	100.870	93.496	72.033
2/3/10 0:00	16.305	35.111	84.023	100.836	93.494	72.008
2/3/10 4:00	16.476	35.094	84.012	100.776	93.485	71.972
2/3/10 8:00	16.668	35.082	84.003	100.736	93.480	71.941
2/3/10 12:00	16.781	35.064	83.996	100.679	93.475	71.905
2/3/10 16:00	16.926	35.042	83.982	100.617	93.466	71.868
2/3/10 20:00	17.088	35.035	83.972	100.578	93.461	71.841
2/4/10 0:00	17.238	35.018	83.961	100.532	93.456	71.811
2/4/10 4:00	17.39	35.011	83.954	100.492	93.449	71.784
2/4/10 8:00	17.519	34.990	83.942	100.425	93.442	71.743
2/4/10 12:00	17.65	34.987	83.926	100.352	93.435	71.697
2/4/10 16:00	17.741	34.951	83.907	100.257	93.445	71.644
2/4/10 20:00	17.87	34.913	83.898	100.200	93.426	71.608
2/5/10 0:00	17.992	34.897	83.884	100.138	93.417	71.571
2/5/10 4:00	18.107	34.868	83.872	100.072	93.440	71.528
2/5/10 8:00	18.222	34.852	83.863	100.019	93.442	71.495
2/5/10 12:00	18.36	34.840	83.854	99.987	93.433	71.471
2/5/10 16:00	18.489	34.830	83.847	99.954	93.414	71.445
2/5/10 20:00	18.646	34.842	83.844	99.950	93.323	71.434
2/6/10 0:00	18.791	34.852	83.837	99.932	93.332	71.416
2/6/10 4:00	18.922		83.830	99.895	93.348	71.391
2/6/10 8:00	19.056		83.823	99.873	93.294	71.373
2/6/10 12:00	19.182		83.814	99.835	93.273	71.346
2/6/10 16:00	19.281		83.800	99.771	93.337	71.307
2/6/10 20:00	19.395		83.793	99.723	93.351	71.275
2/7/10 0:00	19.498		83.781	99.667	93.348	71.240
2/7/10 4:00	19.594		83.767	99.596	93.358	71.200

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
2/7/10 8:00	19.695		83.756	99.546	93.360	71.167
2/7/10 12:00	19.801		83.746	99.482	93.356	71.126
2/7/10 16:00	19.873		83.730	99.399	93.370	71.080
2/7/10 20:00	19.981		83.723	99.358	93.363	71.053
2/8/10 0:00	20.079		83.709	99.299	93.348	71.016
2/8/10 4:00	20.175		83.700	99.254	93.337	70.987
2/8/10 8:00	20.295		83.695	99.236	93.306	70.968
2/8/10 12:00	20.447		83.698	99.245	93.252	70.967
2/8/10 16:00	20.543		83.686	99.186	93.226	70.930
2/8/10 20:00	20.642		83.674	99.127	93.229	70.901
2/9/10 0:00	20.789		83.660	99.070	93.243	70.868
2/9/10 4:00	20.96		83.649	99.006	93.257	70.827
2/9/10 8:00	21.145		83.644	98.969	93.262	70.802
2/9/10 12:00	21.255		83.639	98.965	93.198	70.794
2/9/10 16:00	21.134		83.630	98.927	93.187	70.766
2/9/10 20:00	21.237		83.621	98.888	93.187	70.741
2/10/10 0:00	21.337		83.614	98.860	93.177	70.720
2/10/10 4:00	21.422		83.600	98.808	93.177	70.689
2/10/10 8:00	21.499		83.590	98.756	93.187	70.654
2/10/10 12:00	21.588		83.576	98.703	93.182	70.625
2/10/10 16:00	21.628		83.562	98.614	93.229	70.574
2/10/10 20:00	21.689		83.549	98.547	93.255	70.538
2/11/10 0:00	21.754		83.537	98.480	93.250	70.494
2/11/10 4:00	21.813		83.521	98.412	93.248	70.455
2/11/10 8:00	21.881		83.511	98.346	93.243	70.418
2/11/10 12:00	21.956		83.497	98.284	93.229	70.384
2/11/10 16:00	22.003		83.486	98.205	93.243	70.336
2/11/10 20:00	21.473		83.476	98.176	93.219	70.316
2/12/10 0:00	21.15		83.467	98.128	93.191	70.285
2/12/10 4:00	21.183		83.458	98.076	93.175	70.254
2/12/10 8:00	21.267		83.451	98.039	93.156	70.231
2/12/10 12:00	21.377		83.441	98.003	93.118	70.204
2/12/10 16:00	21.441		83.427	97.927	93.128	70.162
2/12/10 20:00	21.53		83.420	97.877	93.137	70.133
2/13/10 0:00	21.607		83.407	97.813	93.137	70.096
2/13/10 4:00	21.67		83.390	97.732	93.149	70.053
2/13/10 8:00	21.736		83.381	97.677	93.161	70.018
2/13/10 12:00	21.82		83.369	97.623	93.144	69.982
2/13/10 16:00	21.886		83.360	97.566	93.135	69.950
2/13/10 20:00	21.947		83.353	97.538	93.109	69.934
2/14/10 0:00	22.052		83.353	97.532	93.067	69.927
2/14/10 4:00	22.162		83.346	97.505	93.025	69.905
2/14/10 8:00	22.239		83.337	97.450	93.013	69.872
2/14/10 12:00	22.321		83.330	97.417	93.018	69.846
2/14/10 16:00	22.422		83.323	97.391	93.008	69.832
2/14/10 20:00	22.518		83.316	97.346	92.996	69.805
2/15/10 0:00	22.581		83.302	97.277	93.001	69.763
2/15/10 4:00	22.647		83.290	97.216	93.010	69.730
2/15/10 8:00	22.734		83.283	97.182	93.010	69.704
2/15/10 12:00	22.825		83.278	97.145	92.994	69.687
2/15/10 16:00	22.895		83.264	97.088	93.006	69.652
2/15/10 20:00	22.968		83.258	97.040	93.015	69.623
2/16/10 0:00	23.048		83.251	97.002	93.003	69.597
2/16/10 4:00	23.12		83.241	96.958	92.980	69.573
2/16/10 8:00	23.207		83.234	96.926	92.959	69.551

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
2/16/10 12:00	23.296		83.227	96.890	92.945	69.529
2/16/10 16:00	23.343		83.213	96.819	92.959	69.490
2/16/10 20:00	23.411		83.206	96.764	92.982	69.456
2/17/10 0:00	23.476		83.195	96.718	92.980	69.426
2/17/10 4:00	23.542		83.185	96.659	92.966	69.395
2/17/10 8:00	23.612		83.176	96.616	92.949	69.369
2/17/10 12:00	23.68		83.164	96.561	92.945	69.335
2/17/10 16:00	23.715		83.153	96.481	92.973	69.291
2/17/10 20:00	23.329		83.143	96.434	92.989	69.267
2/18/10 0:00	22.874		83.134	96.387	92.985	69.239
2/18/10 4:00	22.811		83.125	96.330	92.971	69.205
2/18/10 8:00	22.837		83.113	96.277	92.964	69.173
2/18/10 12:00	22.907		83.102	96.215	92.949	69.136
2/18/10 16:00	22.938		83.085	96.123	92.961	69.088
2/18/10 20:00	22.387		83.078	96.087	92.968	69.066
2/19/10 0:00	21.598		83.069	96.042	92.947	69.040
2/19/10 4:00	20.906		83.055	95.959	92.942	68.990
2/19/10 8:00	20.431		83.046	95.910	92.942	68.960
2/19/10 12:00	20.243		83.036	95.863	92.926	68.933
2/19/10 16:00	20.108		83.027	95.813	92.912	68.903
2/19/10 20:00	19.955		83.025	95.793	92.888	68.892
2/20/10 0:00	19.857		83.015	95.747	92.860	68.864
2/20/10 4:00	19.85		83.006	95.708	92.846	68.838
2/20/10 8:00	19.927		82.999	95.670	92.837	68.817
2/20/10 12:00	20.026		82.990	95.620	92.827	68.792
2/20/10 16:00	20.11		82.976	95.551	92.837	68.748
2/20/10 20:00	20.206		82.969	95.502	92.844	68.721
2/21/10 0:00	20.293		82.955	95.436	92.844	68.682
2/21/10 4:00	20.363		82.939	95.356	92.853	68.639
2/21/10 8:00	20.461		82.934	95.327	92.853	68.623
2/21/10 12:00	20.553		82.925	95.272	92.841	68.589
2/21/10 16:00	20.632		82.915	95.209	92.844	68.557
2/21/10 20:00	20.738		82.906	95.173	92.825	68.534
2/22/10 0:00	20.845		82.899	95.144	92.802	68.512
2/22/10 4:00	20.932		82.887	95.076	92.785	68.479
2/22/10 8:00	21.009		82.883	95.046	92.780	68.460
2/22/10 12:00	21.106		82.873	95.002	92.764	68.432
2/22/10 16:00	21.169		82.859	94.929	92.769	68.393
2/22/10 20:00	21.173		82.852	94.886	92.771	68.368
2/23/10 0:00	21.136		82.841	94.827	92.766	68.336
2/23/10 4:00	21.162		82.829	94.764	92.762	68.299
2/23/10 8:00	21.234		82.825	94.733	92.759	68.279
2/23/10 12:00	21.361		82.820	94.717	92.722	68.268
2/23/10 16:00	21.443		82.813	94.672	92.703	68.243
2/23/10 20:00	21.216		82.808	94.636	92.694	68.220
2/24/10 0:00	21.101		82.799	94.594	92.679	68.195
2/24/10 4:00	21.117		82.790	94.547	92.670	68.170
2/24/10 8:00	21.171		82.783	94.503	92.668	68.145
2/24/10 12:00	21.244		82.771	94.451	92.663	68.115
2/24/10 16:00	21.302		82.699	94.366	92.696	68.070
2/24/10 20:00	21.312		82.666	94.308	92.726	68.037
2/25/10 0:00	21.237		82.636	94.254	92.722	68.006
2/25/10 4:00	21.234		82.589	94.190	92.712	67.969
2/25/10 8:00	21.277		82.578	94.149	92.703	67.949
2/25/10 12:00	21.328		82.531	94.084	92.691	67.912

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
2/25/10 16:00	21.391		82.482	94.018	92.710	67.878
2/25/10 20:00	21.459		82.492	93.996	92.705	67.859
2/26/10 0:00	21.394		82.480	93.955	92.675	67.837
2/26/10 4:00	21.408		82.450	93.903	92.656	67.809
2/26/10 8:00	21.455		82.431	93.856	92.640	67.783
2/26/10 12:00	21.53		82.398	93.804	92.630	67.752
2/26/10 16:00	21.598		82.354	93.742	92.649	67.719
2/26/10 20:00	21.434		82.338	93.697	92.656	67.693
2/27/10 0:00	21.164		82.315	93.651	92.651	67.669
2/27/10 4:00	21.155		82.294	93.603	92.642	67.641
2/27/10 8:00	21.199		82.282	93.562	92.626	67.621
2/27/10 12:00	21.286		82.266	93.524	92.607	67.595
2/27/10 16:00	21.356		82.208	93.450	92.604	67.555
2/27/10 20:00	21.445		82.177	93.399	92.611	67.527
2/28/10 0:00	21.525		82.149	93.347	92.609	67.500
2/28/10 4:00	21.612		82.128	93.299	92.604	67.472
2/28/10 8:00	21.701		82.107	93.254	92.593	67.445
2/28/10 12:00	21.794		82.077	93.206	92.581	67.417
2/28/10 16:00	21.851		82.026	93.134	92.583	67.379
2/28/10 20:00	21.951		82.019	93.101	92.583	67.360
3/1/10 0:00	22.064		82.035	93.081	92.553	67.347
3/1/10 4:00	22.148		82.010	93.035	92.529	67.322
3/1/10 8:00	22.249		82.010	93.005	92.515	67.304
3/1/10 12:00	22.34		82.000	92.967	92.499	67.284
3/1/10 16:00	22.41		81.961	92.907	92.501	67.254
3/1/10 20:00	22.495		81.937	92.860	92.508	67.227
3/2/10 0:00	22.57		81.903	92.803	92.510	67.195
3/2/10 4:00	22.635		81.861	92.745	92.520	67.163
3/2/10 8:00	22.708		81.819	92.683	92.525	67.131
3/2/10 12:00	22.771		81.779	92.626	92.529	67.098
3/2/10 16:00	22.813		81.716	92.548	92.546	67.058
3/2/10 20:00	22.888		81.693	92.503	92.579	67.028
3/3/10 0:00	22.966		81.677	92.461	92.518	67.006
3/3/10 4:00	23.043		81.653	92.411	92.501	66.982
3/3/10 8:00	23.123		81.644	92.375	92.457	66.962
3/3/10 12:00	23.207		81.625	92.332	92.452	66.937
3/3/10 16:00	23.259		81.570	92.260	92.506	66.898
3/3/10 20:00	23.324		81.537	92.208	92.489	66.871
3/4/10 0:00	23.404		81.525	92.165	92.457	66.848
3/4/10 4:00	23.467		81.493	92.115	92.459	66.821
3/4/10 8:00	23.542		81.481	92.074	92.424	66.798
3/4/10 12:00	23.608		81.439	92.016	92.457	66.766
3/4/10 16:00	23.638		81.369	91.931	92.435	66.723
3/4/10 20:00	23.708		81.351	91.888	92.428	66.697
3/5/10 0:00	23.793		81.346	91.854	92.426	66.682
3/5/10 4:00	23.856		81.311	91.800	92.419	66.649
3/5/10 8:00	23.917		81.281	91.749	92.414	66.622
3/5/10 12:00	23.971		81.237	91.687	92.405	66.588
3/5/10 16:00	23.994		81.169	91.605	92.398	66.545
3/5/10 20:00	24.057		81.151	91.564	92.393	66.521
3/6/10 0:00	24.142		81.146	91.531	92.388	66.504
3/6/10 4:00	24.203		81.104	91.500	92.381	66.476
3/6/10 8:00	24.275		81.102	91.468	92.377	66.458
3/6/10 12:00	24.343		81.062	91.395	92.372	66.426
3/6/10 16:00	24.374		81.006	91.317	92.363	66.390

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
3/6/10 20:00	24.451		81.004	91.278	92.360	66.372
3/7/10 0:00	24.538		81.013	91.251	92.356	66.356
3/7/10 4:00	24.603		80.990	91.208	92.351	66.333
3/7/10 8:00	24.667		80.978	91.177	92.346	66.313
3/7/10 12:00	24.737		80.953	91.126	92.339	66.285
3/7/10 16:00	24.77		80.883	91.048	92.332	66.245
3/7/10 20:00	24.812		80.843	90.991	92.325	66.212
3/8/10 0:00	24.859		80.808	90.934	92.316	66.183
3/8/10 4:00	24.901		80.755	90.867	92.313	66.148
3/8/10 8:00	24.936		80.701	90.800	92.304	66.112
3/8/10 12:00	24.959		80.617	90.708	92.295	66.061
3/8/10 16:00	24.948		80.522	90.614	92.283	66.008
3/8/10 20:00	24.983		80.466	90.652	92.278	65.972
3/9/10 0:00	25.006		80.408	90.540	92.271	65.933
3/9/10 8:00	25.074		80.298	90.383	92.259	65.855
3/9/10 12:00	25.119		80.250	90.315	92.252	65.823
3/9/10 16:00	25.152		80.205	90.288	92.245	65.789
3/9/10 20:00	25.212		80.203	90.228	92.238	65.773
3/10/10 0:00	25.271		80.180	90.168	92.234	65.750
3/10/10 4:00	25.323		80.154	90.160	92.226	65.723
3/10/10 8:00	25.374		80.156	90.075	92.222	65.707
3/10/10 12:00	25.405		80.124	90.006	92.217	65.680
3/10/10 16:00	25.407		80.096	89.955	92.212	65.653
3/10/10 20:00	25.409		80.056	89.898	92.205	65.623
3/11/10 0:00	25.426		80.019	89.964	92.198	65.589
3/11/10 4:00	25.447		79.996	89.907	92.194	65.568
3/11/10 8:00	25.451		79.982	89.818	92.184	65.546
3/11/10 12:00	25.318		79.975	89.776	92.182	65.527
3/11/10 16:00	25.046		79.961	89.717	92.177	65.505
3/11/10 20:00	24.849		79.954	89.676	92.170	65.489
3/12/10 0:00	24.742		79.924	89.631	92.165	65.462
3/12/10 4:00	24.648		79.875	89.569	92.163	65.430
3/12/10 8:00	24.617		79.868	89.581	92.154	65.410
3/12/10 12:00	24.634		79.879	89.503	92.149	65.400
3/12/10 16:00	24.653		79.889	89.462	92.144	65.390
3/12/10 20:00	24.678		79.891	89.431	92.142	65.376
3/13/10 0:00	24.702		79.868	89.396	92.135	65.351
3/13/10 4:00	24.702		79.819	89.330	92.128	65.316
3/13/10 8:00	24.746		79.826	89.305	92.126	65.303
3/13/10 12:00	24.786		79.798	89.260	92.121	65.276
3/13/10 16:00	24.8		79.747	89.196	92.114	65.246
3/13/10 20:00	24.849		79.747	89.168	92.109	65.230
3/14/10 0:00	24.913		79.737	89.134	92.102	65.213
3/14/10 4:00	24.981		79.735	89.105	92.097	65.197
3/14/10 8:00	25.065		79.749	89.088	92.095	65.188
3/14/10 12:00	25.152		79.756	89.063	92.093	65.177
3/14/10 16:00	25.21		79.737	89.021	92.088	65.155
3/14/10 20:00	25.297		79.751	89.004	92.086	65.145
3/15/10 0:00	25.383		79.763	88.988	92.081	65.137
3/15/10 4:00	25.451		79.744	88.945	92.079	65.116
3/15/10 8:00	25.522		79.742	88.913	92.072	65.103
3/15/10 12:00	25.594		79.735	88.884	92.067	65.085
3/15/10 16:00	25.636		79.686	88.822	92.060	65.051
3/15/10 20:00	25.702		79.686	88.795	92.057	65.037
3/16/10 0:00	25.77		79.668	88.757	92.050	65.017

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
3/16/10 4:00	25.822		79.635	88.708	92.043	64.992
3/16/10 8:00	25.866		79.609	88.661	92.039	64.967
3/16/10 12:00	25.918		79.577	88.610	92.032	64.941
3/16/10 16:00	25.929		79.514	88.537	92.025	64.900
3/16/10 20:00	25.976		79.479	88.483	92.020	64.877
3/17/10 0:00	26.021		79.442	88.427	92.015	64.846
3/17/10 4:00	26.058		79.407	88.377	92.008	64.820
3/17/10 8:00	26.114		79.395	88.343	92.001	64.801
3/17/10 12:00	26.159		79.358	88.289	91.996	64.773
3/17/10 16:00	26.178		79.300	88.217	91.989	64.734
3/17/10 20:00	26.206		79.255	88.157	91.980	64.702
3/18/10 0:00	26.243		79.209	88.100	91.973	64.675
3/18/10 4:00	26.267		79.155	88.032	91.966	64.638
3/18/10 8:00	26.302		79.120	87.979	91.961	64.611
3/18/10 12:00	26.316		79.058	87.905	91.952	64.569
3/18/10 16:00	26.302		78.974	87.816	91.945	64.524
3/18/10 20:00	26.328		78.936	87.761	91.938	64.494
3/19/10 0:00	26.374		78.904	87.713	91.931	64.469
3/19/10 4:00	26.421		78.888	87.676	91.924	64.448
3/19/10 8:00	26.477		78.885	87.647	91.921	64.438
3/19/10 12:00	26.55		78.888	87.625	91.919	64.424
3/19/10 16:00	26.613		78.878	87.598	91.914	64.409
3/19/10 20:00	26.684		78.890	87.585	91.910	64.401
3/20/10 0:00	26.747		78.892	87.555	91.905	64.388
3/20/10 4:00	26.791		78.874	87.514	91.900	64.368
3/20/10 8:00	26.866		78.878	87.494	91.898	64.357
3/20/10 12:00	26.909		78.850	87.444	91.891	64.330
3/20/10 16:00	26.934		78.808	87.387	91.884	64.303
3/20/10 20:00	26.967		78.776	87.334	91.877	64.275
3/21/10 0:00	27		78.734	87.275	91.872	64.245
3/21/10 4:00	27.014		78.685	87.216	91.865	64.214
3/21/10 8:00	27.056		78.659	87.170	91.858	64.191
3/21/10 12:00	27.091		78.622	87.114	91.853	64.161
3/21/10 16:00	27.084		78.552	87.037	91.849	64.120
3/21/10 20:00	27.119		78.520	86.987	91.839	64.098
3/22/10 0:00	27.152		78.489	86.941	91.830	64.070
3/22/10 4:00	27.169		78.434	86.873	91.823	64.034
3/22/10 8:00	27.213		78.410	86.829	91.816	64.011
3/22/10 12:00	27.216		78.345	86.753	91.809	63.972
3/22/10 16:00	27.199		78.259	86.664	91.799	63.923
3/22/10 20:00	27.22		78.226	86.616	91.792	63.899
3/23/10 0:00	27.269		78.208	86.575	91.788	63.878
3/23/10 4:00	27.309		78.178	86.526	91.783	63.853
3/23/10 8:00	27.365		78.191	86.509	91.778	63.844
3/23/10 12:00	27.415		78.161	86.461	91.771	63.822
3/23/10 16:00	27.408		78.108	86.395	91.764	63.785
3/23/10 20:00	27.49		78.133	86.383	91.764	63.783
3/24/10 0:00	27.546		78.119	86.345	91.757	63.763
3/24/10 4:00	27.581		78.094	86.302	91.752	63.740
3/24/10 8:00	27.633		78.087	86.273	91.750	63.727
3/24/10 12:00	27.668		78.056	86.220	91.743	63.700
3/24/10 16:00	27.698		78.031	86.176	91.736	63.676
3/24/10 20:00	27.74		78.015	86.136	91.729	63.659
3/25/10 0:00	27.778		77.989	86.093	91.726	63.634
3/25/10 4:00	27.794		77.956	86.045	91.717	63.611

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
3/25/10 8:00	27.853		77.952	86.016	91.715	63.597
3/25/10 12:00	27.893		77.935	85.976	91.710	63.575
3/25/10 16:00	27.911		77.889	85.915	91.703	63.543
3/25/10 20:00	27.942		77.868	85.874	91.696	63.520
3/26/10 0:00	27.984		77.849	85.831	91.691	63.502
3/26/10 4:00	27.998		77.800	85.771	91.684	63.473
3/26/10 8:00	28.026		77.772	85.725	91.677	63.445
3/26/10 12:00	28.026		77.700	85.650	91.673	63.404
3/26/10 16:00	27.979		77.593	85.546	91.658	63.348
3/26/10 20:00	28.01		77.575	85.508	91.654	63.329
3/27/10 0:00	28.045		77.549	85.461	91.647	63.306
3/27/10 4:00	28.054		77.507	85.407	91.640	63.278
3/27/10 8:00	28.061		77.472	85.382	91.635	63.251
3/27/10 12:00	28.061		77.456	85.418	91.630	63.231
3/27/10 16:00	27.977		77.456	85.329	91.623	63.219
3/27/10 20:00	27.904		77.484	85.349	91.623	63.218
3/28/10 0:00	27.834		77.502	85.286	91.621	63.209
3/28/10 4:00	27.775		77.484	85.219	91.614	63.191
3/28/10 8:00	27.752		77.498	85.216	91.614	63.184
3/28/10 12:00	27.745		77.477	85.176	91.607	63.164
3/28/10 16:00	27.717		77.428	85.117	91.602	63.129
3/28/10 20:00	27.722		77.402	85.074	91.595	63.109
3/29/10 0:00	27.738		77.372	85.024	91.588	63.084
3/29/10 4:00	27.754		77.332	84.974	91.581	63.057
3/29/10 8:00	27.771		77.295	84.920	91.574	63.030
3/29/10 12:00	27.768		77.218	84.845	91.572	62.989
3/29/10 16:00	27.752		77.139	84.762	91.560	62.942
3/29/10 20:00	27.764		77.097	84.708	91.550	62.913
3/30/10 0:00	27.792		77.062	84.658	91.543	62.887
3/30/10 4:00	27.801		77.009	84.593	91.536	62.854
3/30/10 8:00	27.836		76.981	84.550	91.529	62.830
3/30/10 12:00	27.846		76.930	84.488	91.525	62.799
3/30/10 16:00	27.834		76.846	84.403	91.513	62.750
3/30/10 20:00	27.848		76.813	84.357	91.506	62.728
3/31/10 0:00	27.867		76.771	84.298	91.499	62.700
3/31/10 4:00	27.888		76.739	84.250	91.494	62.671
3/31/10 8:00	27.963		76.774	84.253	91.494	62.676
3/31/10 12:00	28.038		76.785	84.231	91.489	62.665
3/31/10 16:00	28.054		76.739	84.173	91.485	62.635
3/31/10 20:00	28.092		76.722	84.137	91.478	62.617
4/1/10 0:00	28.115		76.681	84.082	91.471	62.587
4/1/10 4:00	28.125		76.627	84.021	91.464	62.556
4/1/10 8:00	28.16		76.615	83.987	91.459	62.535
4/1/10 12:00	28.192		76.578	83.936	91.454	62.513
4/1/10 16:00	28.167		76.501	83.860	91.445	62.469
4/1/10 20:00	28.202		76.483	83.820	91.440	62.451
4/2/10 0:00	28.235		76.492	83.802	91.438	62.442
4/2/10 4:00	28.265		76.445	83.742	91.431	62.410
4/2/10 8:00	28.333		76.469	83.731	91.426	62.410
4/2/10 12:00	28.387		76.457	83.697	91.421	62.393
4/2/10 16:00	28.42		76.429	83.650	91.417	62.367
4/2/10 20:00	28.492		76.478	83.658	91.414	62.371
4/3/10 0:00	28.572		76.494	83.641	91.412	62.368
4/3/10 4:00	28.612		76.476	83.603	91.410	62.351
4/3/10 8:00	28.654		76.466	83.574	91.403	62.334

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
4/3/10 12:00	28.673		76.424	83.519	91.398	62.308
4/3/10 16:00	28.659		76.355	83.445	91.388	62.271
4/3/10 20:00	28.68		76.334	83.407	91.384	62.248
4/4/10 0:00	28.706		76.306	83.364	91.379	62.227
4/4/10 4:00	28.743		76.301	83.334	91.374	62.212
4/4/10 8:00	28.795		76.301	83.308	91.367	62.201
4/4/10 12:00	28.806		76.259	83.254	91.363	62.174
4/4/10 16:00	28.83		76.238	83.216	91.358	62.151
4/4/10 20:00	28.884		76.254	83.201	91.356	62.152
4/5/10 0:00	28.94		76.241	83.167	91.351	62.133
4/5/10 4:00	28.963		76.222	83.126	91.342	62.111
4/5/10 8:00	28.966		76.164	83.066	91.337	62.078
4/5/10 12:00	28.93		76.082	82.986	91.327	62.038
4/5/10 16:00	28.886		75.998	82.905	91.318	61.991
4/5/10 20:00	28.884		75.949	82.848	91.311	61.960
4/6/10 0:00	28.79		75.880	82.774	91.302	61.923
4/6/10 4:00	28.713		75.810	82.699	91.290	61.884
4/6/10 8:00	28.729		75.794	82.667	91.288	61.861
4/6/10 12:00	28.766		75.784	82.633	91.283	61.848
4/6/10 16:00	28.797		75.775	82.600	91.281	61.832
4/6/10 20:00	28.858		75.791	82.586	91.276	61.830
4/7/10 0:00	28.9		75.784	82.552	91.271	61.812
4/7/10 4:00	28.935		75.759	82.511	91.266	61.795
4/7/10 8:00	28.987		75.777	82.498	91.264	61.790
4/7/10 12:00	29.069		75.826	82.506	91.266	61.798
4/7/10 16:00	29.134		75.835	82.483	91.259	61.791
4/7/10 20:00	29.176		75.840	82.461	91.257	61.780
4/8/10 0:00	29.223		75.833	82.432	91.252	61.768
4/8/10 4:00	29.24		75.800	82.386	91.248	61.746
4/8/10 8:00	29.27		75.794	82.354	91.243	61.732
4/8/10 12:00	29.289		75.752	82.304	91.236	61.703
4/8/10 16:00	29.273		75.696	82.240	91.229	61.671
4/8/10 20:00	29.289		75.670	82.195	91.222	61.651
4/9/10 0:00	29.315		75.647	82.158	91.219	61.632
4/9/10 4:00	29.333		75.619	82.112	91.212	61.608
4/9/10 8:00	29.354		75.603	82.078	91.208	61.589
4/9/10 12:00	29.38		75.568	82.028	91.203	61.567
4/9/10 16:00	29.364		75.519	81.969	91.194	61.535
4/9/10 20:00	29.392		75.505	81.937	91.189	61.522
4/10/10 0:00	29.439		75.505	81.910	91.187	61.510
4/10/10 4:00	29.467		75.489	81.876	91.180	61.492
4/10/10 8:00	29.514		75.498	81.858	91.180	61.483
4/10/10 12:00	29.537		75.472	81.815	91.173	61.466
4/10/10 16:00	29.537		75.428	81.760	91.165	61.438
4/10/10 20:00	29.572		75.433	81.740	91.163	61.429
4/11/10 0:00	29.617		75.433	81.713	91.158	61.416
4/11/10 4:00	29.645		75.416	81.681	91.154	61.403
4/11/10 8:00	29.692		75.414	81.650	91.149	61.389
4/11/10 12:00	29.708		75.377	81.604	91.142	61.367
4/11/10 16:00	29.69		75.321	81.542	91.135	61.334
4/11/10 20:00	29.704		75.300	81.503	91.128	61.317
4/12/10 0:00	29.739		75.288	81.472	91.126	61.298
4/12/10 4:00	29.741		75.242	81.420	91.119	61.271
4/12/10 8:00	29.776		75.235	81.387	91.114	61.260
4/12/10 12:00	29.774		75.181	81.328	91.104	61.228

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
4/12/10 16:00	29.76		75.125	81.271	91.097	61.196
4/12/10 20:00	29.781		75.109	81.237	91.093	61.176
4/13/10 0:00	29.8		75.083	81.193	91.088	61.159
4/13/10 4:00	29.814		75.055	81.150	91.083	61.137
4/13/10 8:00	29.842		75.044	81.119	91.079	61.121
4/13/10 12:00	29.851		75.007	81.071	91.072	61.099
4/13/10 16:00	29.839		74.953	81.014	91.062	61.066
4/13/10 20:00	29.849		74.916	80.963	91.058	61.042
4/14/10 0:00	29.903		74.937	80.952	91.055	61.039
4/14/10 4:00	29.936		74.930	80.921	91.050	61.027
4/14/10 8:00	29.975		74.932	80.899	91.048	61.018
4/14/10 12:00	30.008		74.909	80.862	91.043	60.998
4/14/10 16:00	29.996		74.855	80.800	91.034	60.967
4/14/10 20:00	30.008		74.837	80.766	91.029	60.954
4/15/10 0:00	30.039		74.827	80.735	91.025	60.936
4/15/10 4:00	30.057		74.804	80.694	91.020	60.918
4/15/10 8:00	30.088		74.792	80.666	91.015	60.900
4/15/10 12:00	30.1		74.764	80.621	91.008	60.884
4/15/10 16:00	30.116		74.730	80.578	91.004	60.861
4/15/10 20:00	30.149		74.732	80.553	91.001	60.851
4/16/10 0:00	30.179		74.727	80.526	90.996	60.839
4/16/10 4:00	30.191		74.734	80.563	90.994	60.833
4/16/10 8:00	30.184		74.734	80.502	90.989	60.822
4/16/10 12:00	30.2		74.709	80.447	90.985	60.804
4/16/10 16:00	30.191		74.662	80.392	90.978	60.779
4/16/10 20:00	30.186		74.629	80.349	90.971	60.754
4/17/10 0:00	30.203		74.608	80.310	90.966	60.734
4/17/10 4:00	30.2		74.583	80.267	90.961	60.715
4/17/10 8:00	30.217		74.571	80.235	90.957	60.700
4/17/10 12:00	30.21		74.532	80.185	90.950	60.677
4/17/10 16:00	30.17		74.462	80.116	90.940	60.641
4/17/10 20:00	30.165		74.441	80.080	90.938	60.620
4/18/10 0:00	30.179		74.420	80.044	90.931	60.602
4/18/10 4:00	30.186		74.394	80.003	90.924	60.584
4/18/10 8:00	30.214		74.390	79.974	90.921	60.573
4/18/10 12:00	30.226		74.355	79.927	90.914	60.545
4/18/10 16:00	30.2		74.299	79.868	90.907	60.516
4/18/10 20:00	30.212		74.276	79.832	90.903	60.498
4/19/10 0:00	30.235		74.257	79.794	90.898	60.483
4/19/10 4:00	30.247		74.231	79.755	90.891	60.464
4/19/10 8:00	30.275		74.220	79.723	90.889	60.449
4/19/10 12:00	30.27		74.171	79.668	90.881	60.419
4/19/10 16:00	30.247		74.113	79.604	90.872	60.389
4/19/10 20:00	30.249		74.085	79.566	90.867	60.366
4/20/10 0:00	30.27		74.057	79.524	90.863	60.349
4/20/10 4:00	30.271		74.022	79.476	90.856	60.323
4/20/10 8:00	30.287		74.003	79.438	90.851	60.306
4/20/10 12:00	30.296		73.964	79.395	90.844	60.280
4/20/10 16:00	30.275		73.908	79.333	90.837	60.251
4/20/10 20:00	30.277		73.880	79.291	90.832	60.230
4/21/10 0:00	30.292		73.850	79.248	90.825	60.208
4/21/10 4:00	30.287		73.810	79.201	90.818	60.183
4/21/10 8:00	30.306		73.789	79.164	90.813	60.167
4/21/10 12:00	30.313		73.752	79.116	90.806	60.144
4/21/10 16:00	30.294		73.701	79.059	90.797	60.112

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
4/21/10 20:00	30.296		73.675	79.020	90.795	60.094
4/22/10 0:00	30.32		73.652	78.980	90.788	60.074
4/22/10 4:00	30.315		73.610	78.934	90.781	60.051
4/22/10 8:00	30.324		73.589	78.895	90.776	60.033
4/22/10 12:00	30.343		73.547	78.845	90.769	60.008
4/22/10 16:00	30.32		73.503	78.795	90.762	59.981
4/22/10 20:00	30.315		73.465	78.747	90.757	59.953
4/23/10 0:00	30.315		73.409	78.688	90.748	59.924
4/23/10 4:00	30.275		73.363	78.685	90.741	59.894
4/23/10 8:00	30.158		73.314	78.624	90.734	59.869
4/23/10 12:00	30.135		73.279	78.553	90.729	59.841
4/23/10 16:00	30.104		73.226	78.480	90.720	59.812
4/23/10 20:00	30.111		73.214	78.447	90.715	59.796
4/24/10 0:00	30.135		73.200	78.416	90.710	59.785
4/24/10 4:00	30.128		73.165	78.368	90.705	59.764
4/24/10 8:00	30.139		73.146	78.332	90.701	59.747
4/24/10 12:00	30.16		73.123	78.296	90.694	59.726
4/24/10 16:00	30.146		73.084	78.247	90.687	59.702
4/24/10 20:00	30.179		73.100	78.232	90.684	59.699
4/25/10 0:00	30.219		73.095	78.209	90.682	59.691
4/25/10 4:00	30.256		73.095	78.188	90.677	59.682
4/25/10 8:00	30.292		73.093	78.165	90.675	59.671
4/25/10 12:00	30.327		73.086	78.135	90.670	59.657
4/25/10 16:00	30.355		73.077	78.104	90.668	59.647
4/25/10 20:00	30.397		73.088	78.088	90.663	59.647
4/26/10 0:00	30.439		73.086	78.064	90.658	59.634
4/26/10 4:00	30.474		73.077	78.036	90.654	59.622
4/26/10 8:00	30.512		73.072	78.014	90.654	59.614
4/26/10 12:00	30.521		73.035	77.966	90.644	59.591
4/26/10 16:00	30.507		72.990	77.914	90.637	59.564
4/26/10 20:00	30.533		72.981	77.885	90.635	59.552
4/27/10 0:00	30.552		72.965	77.852	90.628	59.539
4/27/10 4:00	30.589		72.962	77.830	90.628	59.525
4/27/10 8:00	30.636		72.976	77.817	90.623	59.522
4/27/10 12:00	30.669		72.953	77.776	90.619	59.508
4/27/10 16:00	30.65		72.902	77.724	90.609	59.476
4/27/10 20:00	30.645		72.865	77.675	90.604	59.453
4/28/10 0:00	30.652		72.827	77.632	90.597	59.433
4/28/10 4:00	30.643		72.783	77.578	90.590	59.403
4/28/10 8:00	30.624		72.727	77.523	90.581	59.378
4/28/10 12:00	30.587		72.646	77.447	90.572	59.334
4/28/10 16:00	30.526		72.564	77.376	90.562	59.294
4/28/10 20:00	30.505		72.506	77.314	90.553	59.259
4/29/10 0:00	30.479		72.441	77.252	90.546	59.227
4/29/10 4:00	30.441		72.378	77.186	90.536	59.195
4/29/10 8:00	30.449		72.355	77.151	90.532	59.175
4/29/10 12:00	30.47		72.327	77.113	90.525	59.156
4/29/10 16:00	30.47		72.292	77.068	90.518	59.132
4/29/10 20:00	30.432		72.227	77.004	90.506	59.097
4/30/10 0:00	30.5		72.264	77.005	90.511	59.105
4/30/10 4:00	30.456		72.301	77.007	90.513	59.112
4/30/10 8:00	30.348		72.266	76.962	90.504	59.090
4/30/10 12:00	30.299		72.243	76.925	90.499	59.071
4/30/10 16:00	30.306		72.224	76.892	90.494	59.056
4/30/10 20:00	30.343		72.238	76.880	90.489	59.058

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
5/1/10 0:00	30.388		72.245	76.860	90.487	59.048
5/1/10 4:00	30.434		72.248	76.840	90.485	59.043
5/1/10 8:00	30.474		72.250	76.820	90.482	59.033
5/1/10 12:00	30.491		72.222	76.780	90.473	59.017
5/1/10 16:00	30.463		72.164	76.722	90.468	58.987
5/1/10 20:00	30.479		72.141	76.683	90.461	58.966
5/2/10 0:00	30.486		72.115	76.645	90.457	58.949
5/2/10 4:00	30.5		72.092	76.613	90.447	58.932
5/2/10 8:00	30.547		72.094	76.589	90.450	58.927
5/2/10 12:00	30.559		72.068	76.552	90.440	58.906
5/2/10 16:00	30.563		72.043	76.511	90.435	58.890
5/2/10 20:00	30.627		72.062	76.503	90.435	58.890
5/3/10 0:00	30.671		72.071	76.485	90.431	58.884
5/3/10 4:00	30.713		72.068	76.460	90.426	58.875
5/3/10 8:00	30.762		72.094	76.454	90.428	58.881
5/3/10 12:00	30.791		72.071	76.418	90.421	58.862
5/3/10 16:00	30.772		72.013	76.361	90.414	58.835
5/3/10 20:00	30.777		71.989	76.322	90.407	58.815
5/4/10 0:00	30.779		71.957	76.280	90.400	58.795
5/4/10 4:00	30.767		71.915	76.230	90.391	58.769
5/4/10 8:00	30.774		71.885	76.190	90.389	58.752
5/4/10 12:00	30.762		71.831	76.133	90.379	58.726
5/4/10 16:00	30.72		71.773	76.073	90.372	58.690
5/4/10 20:00	30.746		71.784	76.057	90.372	58.688
5/5/10 0:00	30.835		71.817	76.058	90.372	58.693
5/5/10 4:00	30.856		71.803	76.027	90.363	58.682
5/5/10 8:00	30.91		71.815	76.012	90.360	58.676
5/5/10 12:00	30.938		71.805	75.981	90.356	58.666
5/5/10 16:00	30.938		71.768	75.938	90.351	58.647
5/5/10 20:00	30.962		71.766	75.914	90.346	58.637
5/6/10 0:00	30.999		71.761	75.892	90.342	58.627
5/6/10 4:00	30.987		71.712	75.835	90.335	58.601
5/6/10 8:00	30.992		71.694	75.802	90.330	58.584
5/6/10 12:00	30.973		71.624	75.734	90.320	58.551
5/6/10 16:00	30.919		71.554	75.670	90.311	58.515
5/6/10 20:00	30.915		71.512	75.622	90.304	58.492
5/7/10 0:00	30.908		71.493	75.589	90.304	58.477
5/7/10 4:00	30.964		71.521	75.581	90.304	58.479
5/7/10 8:00	31.015		71.540	75.575	90.302	58.482
5/7/10 12:00	31.076		71.561	75.560	90.297	58.480
5/7/10 16:00	31.119		71.566	75.545	90.292	58.479
5/7/10 20:00	31.165		71.584	75.531	90.292	58.479
5/8/10 0:00	31.222		71.601	75.520	90.288	58.475
5/8/10 4:00	31.252		71.596	75.493	90.283	58.470
5/8/10 8:00	31.299		71.603	75.476	90.276	58.469
5/8/10 12:00	31.315		71.577	75.437	90.269	58.448
5/8/10 16:00	31.285		71.521	75.379	90.262	58.419
5/8/10 20:00	31.28		71.493	75.336	90.257	58.401
5/9/10 0:00	31.306		71.482	75.310	90.250	58.392
5/9/10 4:00	31.301		71.445	75.264	90.245	58.369
5/9/10 8:00	31.311		71.419	75.227	90.238	58.354
5/9/10 12:00	31.299		71.368	75.172	90.231	58.323
5/9/10 16:00	31.259		71.300	75.108	90.222	58.290
5/9/10 20:00	31.245		71.270	75.068	90.217	58.269
5/10/10 0:00	31.245		71.235	75.027	90.210	58.251

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
5/10/10 4:00	31.224		71.177	74.967	90.201	58.219
5/10/10 8:00	31.177		71.107	74.903	90.191	58.183
5/10/10 12:00	31.133		71.028	74.827	90.180	58.143
5/10/10 16:00	31.067		70.949	74.759	90.170	58.105
5/10/10 20:00	31.023		70.897	74.702	90.163	58.077
5/11/10 0:00	31.097		70.932	74.704	90.166	58.083
5/11/10 4:00	31.161		70.967	74.703	90.168	58.092
5/11/10 8:00	31.231		70.981	74.687	90.163	58.091
5/11/10 12:00	31.278		70.986	74.670	90.159	58.088
5/11/10 16:00	31.261		70.937	74.617	90.149	58.061
5/11/10 20:00	31.29		70.944	74.599	90.149	58.057
5/12/10 0:00	31.287		70.888	74.542	90.137	58.025
5/12/10 4:00	31.259		70.851	74.492	90.133	58.004
5/12/10 8:00	31.28		70.823	74.461	90.126	57.987
5/12/10 12:00	31.271		70.788	74.414	90.121	57.964
5/12/10 16:00	31.261		70.765	74.378	90.116	57.951
5/12/10 20:00	31.294		70.765	74.356	90.114	57.941
5/13/10 0:00	31.32		70.753	74.329	90.107	57.931
5/13/10 4:00	31.336		70.727	74.291	90.100	57.915
5/13/10 8:00	31.404		70.762	74.288	90.107	57.923
5/13/10 12:00	31.444		70.760	74.266	90.097	57.919
5/13/10 16:00	31.468		70.744	74.235	90.095	57.903
5/13/10 20:00	31.496		70.758	74.219	90.095	57.904
5/14/10 0:00	31.543		70.755	74.196	90.090	57.897
5/14/10 4:00	31.554		70.739	74.165	90.083	57.881
5/14/10 8:00	31.606		70.746	74.147	90.081	57.879
5/14/10 12:00	31.622		70.732	74.116	90.076	57.869
5/14/10 16:00	31.597		70.679	74.063	90.069	57.838
5/14/10 20:00	31.585		70.655	74.029	90.065	57.823
5/15/10 0:00	31.608		70.634	73.992	90.060	57.809
5/15/10 4:00	31.601		70.592	73.947	90.053	57.787
5/15/10 8:00	31.615		70.578	73.918	90.048	57.773
5/15/10 12:00	31.611		70.539	73.873	90.039	57.753
5/15/10 16:00	31.592		70.492	73.822	90.032	57.728
5/15/10 20:00	31.594		70.478	73.792	90.029	57.717
5/16/10 0:00	31.618		70.455	73.759	90.022	57.699
5/16/10 4:00	31.601		70.418	73.716	90.018	57.679
5/16/10 8:00	31.608		70.397	73.678	90.011	57.662
5/16/10 12:00	31.606		70.362	73.638	90.006	57.647
5/16/10 16:00	31.596		70.329	73.597	89.997	57.624
5/16/10 20:00	31.606		70.308	73.565	89.994	57.609
5/17/10 0:00	31.627		70.294	73.539	89.990	57.600
5/17/10 4:00	31.643		70.283	73.506	89.982	57.589
5/17/10 8:00	31.662		70.273	73.484	89.982	57.575
5/17/10 12:00	31.678		70.255	73.450	89.975	57.564
5/17/10 16:00	31.676		70.227	73.412	89.968	57.546
5/17/10 20:00	31.676		70.199	73.373	89.964	57.528
5/18/10 0:00	31.688		70.180	73.343	89.961	57.517
5/18/10 4:00	31.7		70.152	73.305	89.952	57.497
5/18/10 8:00	31.702		70.138	73.278	89.950	57.488
5/18/10 12:00	31.7		70.092	73.230	89.940	57.463
5/18/10 16:00	31.667		70.034	73.172	89.933	57.433
5/18/10 20:00	31.66		70.008	73.136	89.928	57.413
5/19/10 0:00	31.66		69.987	73.100	89.924	57.399
5/19/10 4:00	31.655		69.941	73.055	89.917	57.377

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
5/19/10 8:00	31.662		69.931	73.028	89.912	57.368
5/19/10 12:00	31.662		69.894	72.984	89.905	57.348
5/19/10 16:00	31.653		69.859	72.943	89.898	57.325
5/19/10 20:00	31.657		69.840	72.914	89.893	57.312
5/20/10 0:00	31.66		69.808	72.873	89.886	57.291
5/20/10 4:00	31.636		69.766	72.828	89.882	57.271
5/20/10 8:00	31.653		69.745	72.795	89.877	57.255
5/20/10 12:00	31.66		69.722	72.759	89.872	57.239
5/20/10 16:00	31.667		69.701	72.728	89.863	57.223
5/20/10 20:00	31.681		69.689	72.701	89.860	57.217
5/21/10 0:00	31.704		69.682	72.675	89.858	57.206
5/21/10 4:00	31.716		69.671	72.649	89.853	57.197
5/21/10 8:00	31.763		69.677	72.631	89.851	57.190
5/21/10 12:00	31.765		69.654	72.602	89.846	57.177
5/21/10 16:00	31.753		69.612	72.556	89.839	57.154
5/21/10 20:00	31.744		69.573	72.510	89.832	57.134
5/22/10 0:00	31.742		69.540	72.472	89.825	57.111
5/22/10 4:00	31.709		69.489	72.419	89.816	57.087
5/22/10 8:00	31.7		69.452	72.376	89.811	57.066
5/22/10 12:00	31.674		69.403	72.326	89.802	57.039
5/22/10 16:00	31.655		69.363	72.280	89.797	57.018
5/22/10 20:00	31.669		69.356	72.260	89.797	57.010
5/23/10 0:00	31.686		69.335	72.226	89.790	56.994
5/23/10 4:00	31.704		69.326	72.199	89.785	56.985
5/23/10 8:00	31.742		69.331	72.185	89.783	56.981
5/23/10 12:00	31.77		69.326	72.163	89.781	56.975
5/23/10 16:00	31.777		69.305	72.129	89.774	56.963
5/23/10 20:00	31.789		69.296	72.105	89.769	56.952
5/24/10 0:00	31.826		69.298	72.087	89.769	56.948
5/24/10 4:00	31.835		69.277	72.055	89.762	56.930
5/24/10 8:00	31.854		69.265	72.028	89.759	56.923
5/24/10 12:00	31.859		69.237	71.992	89.752	56.906
5/24/10 16:00	31.847		69.203	71.947	89.748	56.883
5/24/10 20:00	31.845		69.175	71.916	89.741	56.867
5/25/10 0:00	31.906		69.189	71.904	89.738	56.872
5/25/10 4:00	31.908		69.193	71.888	89.738	56.866
5/25/10 8:00	31.948		69.193	71.871	89.736	56.864
5/25/10 12:00	31.964		69.170	71.837	89.729	56.848
5/25/10 16:00	31.971		69.140	71.800	89.722	56.830
5/25/10 20:00	31.967		69.126	71.771	89.720	56.819
5/26/10 0:00	31.992		69.119	71.746	89.715	56.812
5/26/10 4:00	32.011		69.116	71.729	89.713	56.809
5/26/10 8:00	32.025		69.093	71.695	89.708	56.788
5/26/10 12:00	32.042		69.075	71.665	89.701	56.779
5/26/10 16:00	32.011		69.023	71.617	89.694	56.754
5/26/10 20:00	32.021		69.014	71.590	89.691	56.746
5/27/10 0:00	32.049		69.007	71.570	89.687	56.736
5/27/10 4:00	32.056		68.986	71.538	89.682	56.723
5/27/10 8:00	32.077		68.979	71.513	89.680	56.714
5/27/10 12:00	32.074		68.946	71.477	89.670	56.694
5/27/10 16:00	32.046		68.902	71.432	89.666	56.673
5/27/10 20:00	32.044		68.874	71.396	89.656	56.658
5/28/10 0:00	32.06		68.863	71.373	89.656	56.647
5/28/10 4:00	32.067		68.839	71.339	89.649	56.631
5/28/10 8:00	32.067		68.816	71.305	89.644	56.620

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
5/28/10 12:00	32.065		68.781	71.269	89.635	56.600
5/28/10 16:00	32.032		68.730	71.216	89.630	56.572
5/28/10 20:00	32.021		68.697	71.177	89.623	56.552
5/29/10 0:00	32.032		68.681	71.148	89.619	56.543
5/29/10 4:00	32.025		68.655	71.117	89.612	56.530
5/29/10 8:00	32.039		68.641	71.087	89.607	56.516
5/29/10 12:00	32.032		68.602	71.046	89.600	56.494
5/29/10 16:00	32.009		68.555	70.998	89.593	56.471
5/29/10 20:00	31.997		68.530	70.964	89.586	56.455
5/30/10 0:00	32.021		68.518	70.939	89.583	56.444
5/30/10 4:00	32.006		68.485	70.901	89.579	56.429
5/30/10 8:00	32.051		68.497	70.887	89.574	56.429
5/30/10 12:00	32.063		68.488	70.865	89.572	56.420
5/30/10 16:00	32.077		68.474	70.838	89.565	56.409
5/30/10 20:00	32.105		68.465	70.816	89.562	56.400
5/31/10 0:00	32.121		68.460	70.794	89.558	56.393
5/31/10 4:00	32.135		68.439	70.761	89.548	56.383
5/31/10 8:00	32.152		68.427	70.739	89.546	56.371
5/31/10 12:00	32.149		68.395	70.701	89.539	56.356
5/31/10 16:00	32.124		68.353	70.658	89.529	56.333
5/31/10 20:00	32.114		68.323	70.618	89.522	56.318
6/1/10 0:00	32.133		68.309	70.596	89.518	56.304
6/1/10 4:00	32.124		68.276	70.553	89.508	56.289
6/1/10 8:00	32.119		68.248	70.522	89.499	56.270
6/1/10 12:00	32.081		68.187	70.465	89.490	56.238
6/1/10 16:00	32.03		68.113	70.402	89.473	56.204
6/1/10 20:00	31.995		68.111	70.382	89.480	56.198
6/2/10 0:00	32.056		68.094	70.358	89.464	56.186
6/2/10 4:00	32.084		68.097	70.340	89.459	56.185
6/2/10 8:00	32.112		68.106	70.327	89.459	56.182
6/2/10 12:00	32.135		68.090	70.297	89.450	56.172
6/2/10 16:00	32.124		68.059	70.263	89.443	56.158
6/2/10 20:00	32.121		68.038	70.232	89.433	56.140
6/3/10 0:00	32.147		68.027	70.207	89.426	56.131
6/3/10 4:00	32.152		68.008	70.177	89.419	56.123
6/3/10 8:00	32.168		67.999	70.155	89.414	56.114
6/3/10 12:00	32.156		67.957	70.112	89.403	56.091
6/3/10 16:00	32.117		67.901	70.059	89.386	56.061
6/3/10 20:00	32.1		67.873	70.026	89.382	56.048
6/4/10 0:00	32.1		67.852	69.996	89.372	56.032
6/4/10 4:00	32.131		67.841	69.969	89.365	56.024
6/4/10 8:00	32.133		67.822	69.940	89.360	56.010
6/4/10 12:00	32.131		67.796	69.908	89.351	55.997
6/4/10 16:00	32.112		67.757	69.865	89.339	55.974
6/4/10 20:00	32.107		67.733	69.835	89.335	55.961
6/5/10 0:00	32.112		67.701	69.796	89.323	55.945
6/5/10 4:00	32.114		67.694	69.774	89.321	55.939
6/5/10 8:00	32.14		67.685	69.752	89.313	55.927
6/5/10 12:00	32.149		67.664	69.722	89.306	55.916
6/5/10 16:00	32.154		67.659	69.697	89.304	55.909
6/5/10 20:00	32.22		67.689	69.701	89.306	55.922
6/6/10 0:00	32.259		67.701	69.690	89.304	55.917
6/6/10 4:00	32.313		67.713	69.680	89.302	55.921
6/6/10 8:00	32.351		67.720	69.666	89.299	55.921
6/6/10 12:00	32.358		67.696	69.637	89.290	55.908

TABLE S3.3 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z3	MW45Z3	MW48Z3	MW49Z3	MW50Z3	MW51Z3
6/6/10 16:00	32.344		67.657	69.598	89.283	55.887
6/6/10 20:00	32.332		67.636	69.564	89.276	55.874
6/7/10 0:00	32.353		67.622	69.540	89.274	55.862
6/7/10 4:00	32.334		67.582	69.500	89.264	55.845
6/7/10 8:00	32.341		67.580	69.483	89.262	55.838
6/7/10 12:00	32.384		67.547	69.442	89.250	55.818
6/7/10 16:00	32.304		67.489	69.394	89.243	55.792
6/7/10 20:00	32.299		67.454	69.355	89.238	55.773
6/8/10 0:00	32.292		67.422	69.317	89.231	55.756
6/8/10 4:00	32.278		67.396	69.285	89.229	55.741
6/8/10 8:00	32.262		67.373	69.251	89.222	55.727
6/8/10 12:00	32.311		67.373	69.238	89.217	55.724
6/8/10 16:00	32.302		67.338	69.197	89.213	55.707
6/8/10 20:00	32.311		67.338	69.179	89.210	55.699
6/9/10 0:00	32.356		67.335	69.164	89.206	55.697
6/9/10 4:00	32.367		67.324	69.139	89.203	55.688
6/9/10 8:00	32.402		67.340	69.132	89.201	55.692
6/9/10 12:00	32.405		67.310	69.099	89.196	55.673
6/9/10 16:00	32.377		67.261	69.053	89.189	55.651
6/9/10 20:00	32.363		67.233	69.019	89.184	55.632
6/10/10 0:00	32.372		67.210	68.993	89.177	55.622
6/10/10 4:00	32.334		67.163	68.946	89.170	55.599
6/10/10 8:00	32.316		67.112	68.898	89.163	55.574
6/10/10 12:00	32.33	24.490	67.103	68.876	89.159	55.565

[a] Values measured by using PT2X absolute-pressure and water level recorders.

TABLE S3.4 Ambient water levels in Zone 4 monitoring wells from April 1, 2009, to June 10, 2010.

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
4/1/09 20:00		45.181				
4/2/09 0:00		45.195				
4/2/09 4:00		45.212				
4/2/09 8:00		45.224				
4/2/09 12:00		45.226				
4/2/09 16:00		45.221				
4/2/09 20:00		45.238				
4/3/09 0:00		45.247				
4/3/09 4:00		45.247				
4/3/09 8:00		45.264				
4/3/09 12:00		45.278				
4/3/09 16:00		45.261				
4/3/09 20:00		45.282				
4/4/09 0:00		45.292				
4/4/09 4:00		45.289				
4/4/09 8:00		45.287				
4/4/09 12:00		45.273				
4/4/09 16:00		45.238				
4/4/09 20:00		45.278				
4/5/09 0:00		45.306				
4/5/09 4:00		45.343				
4/5/09 8:00		45.388				
4/5/09 12:00		45.435				
4/5/09 16:00		45.456				
4/5/09 20:00		45.482				
4/6/09 0:00		45.501				
4/6/09 4:00		45.491				
4/6/09 8:00		45.505				
4/6/09 12:00		45.517				
4/6/09 16:00		45.510				
4/6/09 20:00		45.524				
4/7/09 0:00		45.531				
4/7/09 4:00		45.524				
4/7/09 8:00		45.524				
4/7/09 12:00		45.510				
4/7/09 16:00		45.477				
4/7/09 20:00		47.075				
4/8/09 0:00		45.864				
4/8/09 4:00		45.658				
4/8/09 8:00		45.625				
4/8/09 12:00		45.615				
4/8/09 16:00		45.578				
4/8/09 20:00		48.637				
4/9/09 0:00		45.881				
4/9/09 4:00		45.705				
4/9/09 8:00		45.667				
4/9/09 12:00		45.630				
4/9/09 16:00		45.618				
4/9/09 20:00		45.627				
4/10/09 0:00		45.634				
4/10/09 4:00		45.634				
4/10/09 8:00		45.660				
4/10/09 12:00		45.695				
4/10/09 16:00		45.688				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
4/10/09 20:00		45.625				
4/11/09 0:00		45.498				
4/11/09 4:00		45.475				
4/11/09 8:00		45.479				
4/11/09 12:00		45.761				
4/11/09 16:00		45.939				
4/11/09 20:00		45.808				
4/12/09 0:00		45.691				
4/12/09 4:00		45.662				
4/12/09 8:00		45.648				
4/12/09 12:00		45.714				
4/12/09 16:00		45.747				
4/12/09 20:00		45.662				
4/13/09 0:00		45.634				
4/13/09 4:00		45.660				
4/13/09 8:00		45.627				
4/13/09 12:00		45.686				
4/13/09 16:00		45.721				
4/13/09 20:00		45.691				
4/14/09 0:00		45.554				
4/14/09 4:00		45.510				
4/14/09 8:00		45.522				
4/14/09 12:00		45.789				
4/14/09 16:00		45.965				
4/14/09 20:00		45.815				
4/15/09 0:00		45.627				
4/15/09 4:00		45.594				
4/15/09 8:00		45.594				
4/15/09 12:00		45.761				
4/15/09 16:00		45.752				
4/15/09 20:00		45.747				
4/16/09 0:00		45.763				
4/16/09 4:00		45.782				
4/16/09 8:00		45.782				
4/16/09 12:00		47.992				
4/16/09 16:00		45.911				
4/16/09 20:00		45.843				
4/17/09 0:00		45.836				
4/17/09 4:00		45.836				
4/17/09 8:00		45.836				
4/17/09 12:00		45.838				
4/17/09 16:00		45.813				
4/17/09 20:00		45.820				
4/18/09 0:00		45.810				
4/18/09 4:00		45.796				
4/18/09 8:00		45.808				
4/18/09 12:00		46.979				
4/18/09 16:00		48.949				
4/18/09 20:00		46.106				
4/19/09 0:00		45.965				
4/19/09 4:00		45.876				
4/19/09 8:00		45.874				
4/19/09 12:00		45.895				
4/19/09 16:00		45.838				
4/19/09 20:00		45.827				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
4/20/09 0:00		45.817				
4/20/09 4:00		45.794				
4/20/09 8:00		45.808				
4/20/09 12:00		45.806				
4/20/09 16:00		45.787				
4/20/09 20:00		45.784				
4/21/09 0:00		45.789				
4/21/09 4:00		45.784				
4/21/09 8:00		45.791				
4/21/09 12:00		45.780				
4/21/09 16:00		47.241				
4/21/09 20:00		47.312				
4/22/09 0:00		49.365				
4/22/09 4:00		49.271				
4/22/09 8:00		46.277				
4/22/09 12:00		46.071				
4/22/09 16:00		45.956				
4/22/09 20:00		48.633				
4/23/09 0:00		46.233				
4/23/09 4:00		45.998				
4/23/09 8:00		45.932				
4/23/09 12:00		45.892				
4/23/09 16:00		47.227				
4/23/09 20:00		48.452				
4/24/09 0:00		48.987				
4/24/09 4:00		46.545				
4/24/09 8:00		46.160				
4/24/09 12:00		46.042				
4/24/09 16:00		45.963				
4/24/09 20:00		45.949				
4/25/09 0:00		45.925				
4/25/09 4:00		45.902				
4/25/09 8:00		45.918				
4/25/09 12:00		45.932				
4/25/09 16:00		46.326				
4/25/09 20:00		45.996				
4/26/09 0:00		45.935				
4/26/09 4:00		45.878				
4/26/09 8:00		45.885				
4/26/09 12:00		45.852				
4/26/09 16:00		45.787				
4/26/09 20:00		45.728				
4/27/09 0:00		45.618				
4/27/09 4:00		45.449				
4/27/09 8:00		45.299				
4/27/09 12:00		45.137				
4/27/09 16:00		45.003				
4/27/09 20:00		44.909				
4/28/09 0:00		44.872				
4/28/09 4:00		44.827				
4/28/09 8:00		44.806				
4/28/09 12:00		44.780				
4/28/09 16:00		44.724				
4/28/09 20:00		44.668				
4/29/09 0:00		44.632				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
4/29/09 4:00		44.590				
4/29/09 8:00		44.553				
4/29/09 12:00		44.541				
4/29/09 16:00		44.471				
4/29/09 20:00		44.435				
4/30/09 0:00		44.386				
4/30/09 4:00		44.341				
4/30/09 8:00		44.327				
4/30/09 12:00		44.208				
4/30/09 16:00		44.083				
4/30/09 20:00		43.922				
5/1/09 0:00		43.757				
5/1/09 4:00		43.600				
5/1/09 8:00		43.462				
5/1/09 12:00		43.314				
5/1/09 16:00		43.159				
5/1/09 20:00		43.035				
5/2/09 0:00		42.913				
5/2/09 4:00		42.802				
5/2/09 8:00		42.701				
5/2/09 12:00		42.605				
5/2/09 16:00		42.493				
5/2/09 20:00		42.378				
5/3/09 0:00		42.286				
5/3/09 4:00		42.197				
5/3/09 8:00		42.110				
5/3/09 12:00		42.016				
5/3/09 16:00		41.906				
5/3/09 20:00		41.803				
5/4/09 0:00		41.718				
5/4/09 4:00		41.655				
5/4/09 8:00		41.542				
5/4/09 12:00		41.449				
5/4/09 16:00		41.334				
5/4/09 20:00		41.237				
5/5/09 0:00		41.165				
5/5/09 4:00		41.137				
5/5/09 8:00		41.010				
5/5/09 12:00		40.932				
5/5/09 16:00		40.841				
5/5/09 20:00		40.756				
5/6/09 0:00		40.681				
5/6/09 4:00		40.583				
5/6/09 8:00		40.510				
5/6/09 12:00		40.437				
5/6/09 16:00		43.311				
5/6/09 20:00		40.602				
5/7/09 0:00		40.402				
5/7/09 4:00		40.306				
5/7/09 8:00		40.229				
5/7/09 12:00		40.172				
5/7/09 16:00		40.081				
5/7/09 20:00		40.013				
5/8/09 0:00		39.985				
5/8/09 4:00		39.931				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
5/8/09 8:00		39.884				
5/8/09 12:00		39.860				
5/8/09 16:00		39.804				
5/8/09 20:00		39.914				
5/9/09 0:00		39.839				
5/9/09 4:00		39.799				
5/9/09 8:00		39.788				
5/9/09 12:00		39.846				
5/9/09 16:00		42.162				
5/9/09 20:00		39.839				
5/10/09 0:00		39.729				
5/10/09 4:00		39.663				
5/10/09 8:00		39.663				
5/10/09 12:00		39.616				
5/10/09 16:00		39.574				
5/10/09 20:00		39.532				
5/11/09 0:00		39.504				
5/11/09 4:00		39.464				
5/11/09 8:00		39.424				
5/11/09 12:00		39.393				
5/11/09 16:00		39.325				
5/11/09 20:00		39.295				
5/12/09 0:00		39.243				
5/12/09 4:00		39.194				
5/12/09 8:00		39.154				
5/12/09 12:00		42.183				
5/12/09 16:00		39.363				
5/12/09 20:00		39.159				
5/13/09 0:00		39.025				
5/13/09 4:00		38.919				
5/13/09 8:00		38.868				
5/13/09 12:00		38.814				
5/13/09 16:00		38.800				
5/13/09 20:00		38.797				
5/14/09 0:00		38.828				
5/14/09 4:00		38.833				
5/14/09 8:00		38.851				
5/14/09 12:00		38.840				
5/14/09 16:00		38.788				
5/14/09 20:00		38.743				
5/15/09 0:00		38.722				
5/15/09 4:00		38.687				
5/15/09 8:00		38.661				
5/15/09 12:00		38.563				
5/15/09 16:00		38.502				
5/15/09 20:00		38.464				
5/16/09 0:00		38.441				
5/16/09 4:00		38.422				
5/16/09 8:00		38.413				
5/16/09 12:00		38.380				
5/16/09 16:00		38.321				
5/16/09 20:00		38.255				
5/17/09 0:00		38.232				
5/17/09 4:00		38.197				
5/17/09 8:00		38.164				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
5/17/09 12:00		38.129				
5/17/09 16:00		38.091				
5/17/09 20:00		38.047				
5/18/09 0:00		38.011				
5/18/09 4:00		37.979				
5/18/09 8:00		37.962				
5/18/09 12:00		37.922				
5/18/09 16:00		37.880				
5/18/09 20:00		37.873				
5/19/09 0:00		37.868				
5/19/09 4:00		37.861				
5/19/09 8:00		37.871				
5/19/09 12:00		37.850				
5/19/09 16:00		37.819				
5/19/09 20:00		37.821				
5/20/09 0:00		37.831				
5/20/09 4:00		37.819				
5/20/09 8:00		37.826				
5/20/09 12:00		37.805				
5/20/09 16:00		37.779				
5/20/09 20:00		37.784				
5/21/09 0:00		40.555				
5/21/09 4:00		38.661				
5/21/09 8:00		38.145				
5/21/09 12:00		39.398				
5/21/09 16:00		39.499				
5/21/09 20:00		39.576				
5/22/09 0:00		38.286				
5/22/09 4:00		38.115				
5/22/09 8:00		38.950				
5/22/09 12:00		39.126				
5/22/09 16:00		41.683				
5/22/09 20:00		41.392				
5/23/09 0:00		38.406				
5/23/09 4:00		38.197				
5/23/09 8:00		38.126				
5/23/09 12:00		38.087				
5/23/09 16:00		39.063				
5/23/09 20:00		38.169				
5/24/09 0:00		38.112				
5/24/09 4:00		38.049				
5/24/09 8:00		38.044				
5/24/09 12:00		38.033				
5/24/09 16:00		37.995				
5/24/09 20:00		39.391				
5/25/09 0:00		38.166				
5/25/09 4:00		38.035				
5/25/09 8:00		37.990				
5/25/09 12:00		37.976				
5/25/09 16:00		38.126				
5/25/09 20:00		38.009				
5/26/09 0:00		37.979				
5/26/09 4:00		37.948				
5/26/09 8:00		37.957				
5/26/09 12:00		37.993				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
5/26/09 16:00		40.186				
5/26/09 20:00		38.169				
5/27/09 0:00		38.070				
5/27/09 4:00		38.037				
5/27/09 8:00		38.033				
5/27/09 12:00		38.044				
5/27/09 16:00		38.033				
5/27/09 20:00		38.023				
5/28/09 0:00		38.030				
5/28/09 4:00		38.035				
5/28/09 8:00		38.049				
5/28/09 12:00		39.339				
5/28/09 16:00		39.717				
5/28/09 20:00		38.485				
5/29/09 0:00		41.601				
5/29/09 4:00		39.698				
5/29/09 8:00		39.525				
5/29/09 12:00		39.701				
5/29/09 16:00		39.734				
5/29/09 20:00		39.731				
5/30/09 0:00		38.502				
5/30/09 4:00		38.394				
5/30/09 8:00		40.742				
5/30/09 12:00		39.635				
5/30/09 16:00		38.612				
5/30/09 20:00		42.169				
5/31/09 0:00		41.869				
5/31/09 4:00		38.877				
5/31/09 8:00		38.671				
5/31/09 12:00		38.605				
5/31/09 16:00		38.795				
5/31/09 20:00		38.776				
6/1/09 0:00		38.643				
6/1/09 4:00		38.593				
6/1/09 8:00		38.593				
6/1/09 12:00		38.558				
6/1/09 16:00		38.516				
6/1/09 20:00		38.553				
6/2/09 0:00		38.570				
6/2/09 4:00		38.532				
6/2/09 8:00		38.556				
6/2/09 12:00		38.570				
6/2/09 16:00		38.560				
6/2/09 20:00		38.558				
6/3/09 0:00		38.575				
6/3/09 4:00		38.582				
6/3/09 8:00		38.600				
6/3/09 12:00		38.607				
6/3/09 16:00		38.591				
6/3/09 20:00		38.586				
6/4/09 0:00		41.599				
6/4/09 4:00		38.816				
6/4/09 8:00		38.734				
6/4/09 12:00		38.720				
6/4/09 16:00		38.678				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
6/4/09 20:00		38.654				
6/5/09 0:00		38.668				
6/5/09 4:00		38.657				
6/5/09 8:00		38.666				
6/5/09 12:00		38.678				
6/5/09 16:00		38.673				
6/5/09 20:00		38.645				
6/6/09 0:00		38.657				
6/6/09 4:00		38.617				
6/6/09 8:00		38.633				
6/6/09 12:00		38.643				
6/6/09 16:00		38.636				
6/6/09 20:00		38.680				
6/7/09 0:00		38.687				
6/7/09 4:00		38.732				
6/7/09 8:00		38.720				
6/7/09 12:00		38.746				
6/7/09 16:00		38.758				
6/7/09 20:00		38.741				
6/8/09 0:00		38.732				
6/8/09 4:00		38.797				
6/8/09 8:00		38.851				
6/8/09 12:00		38.898				
6/8/09 16:00		38.898				
6/8/09 20:00		38.903				
6/9/09 0:00		38.922				
6/9/09 4:00		38.919				
6/9/09 8:00		38.959				
6/9/09 12:00		38.896				
6/9/09 16:00		38.898				
6/9/09 20:00		38.887				
6/10/09 0:00		38.905				
6/10/09 4:00		38.901				
6/10/09 8:00		38.910				
6/10/09 12:00		38.922				
6/10/09 16:00		38.933				
6/10/09 20:00		38.917				
6/11/09 0:00		38.938				
6/11/09 4:00		38.945				
6/11/09 8:00		38.971				
6/11/09 12:00		38.992				
6/11/09 16:00		39.013				
6/11/09 20:00		39.009				
6/12/09 0:00		39.039				
6/12/09 4:00		39.037				
6/12/09 8:00		39.044				
6/12/09 12:00		39.044				
6/12/09 16:00		39.060				
6/12/09 20:00		39.086				
6/13/09 0:00		39.124				
6/13/09 4:00		39.145				
6/13/09 8:00		39.177				
6/13/09 12:00		39.201				
6/13/09 16:00		39.196				
6/13/09 20:00		39.196				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
6/14/09 0:00		39.217				
6/14/09 4:00		39.217				
6/14/09 8:00		39.238				
6/14/09 12:00		39.262				
6/14/09 16:00		39.257				
6/14/09 20:00		39.262				
6/15/09 0:00		39.269				
6/15/09 4:00		39.264				
6/15/09 8:00		39.269				
6/15/09 12:00		39.307				
6/15/09 16:00		39.299				
6/15/09 20:00		39.323				
6/16/09 0:00		39.267				
6/16/09 4:00		39.255				
6/16/09 8:00		39.222				
6/16/09 12:00		39.213				
6/16/09 16:00		39.196				
6/16/09 20:00		39.203				
6/17/09 0:00		39.229				
6/17/09 4:00		39.231				
6/17/09 8:00		39.255				
6/17/09 12:00		39.255				
6/17/09 16:00		39.253				
6/17/09 20:00		39.241				
6/18/09 0:00		39.262				
6/18/09 4:00		39.269				
6/18/09 8:00		39.307				
6/18/09 12:00		39.307				
6/18/09 16:00		39.307				
6/18/09 20:00		39.328				
6/19/09 0:00		39.353				
6/19/09 4:00		39.358				
6/19/09 8:00		39.410				
6/19/09 12:00		39.436				
6/19/09 16:00		39.450				
6/19/09 20:00		39.483				
6/20/09 0:00		39.513				
6/20/09 4:00		39.529				
6/20/09 8:00		39.572				
6/20/09 12:00		39.590				
6/20/09 16:00		39.572				
6/20/09 20:00		39.562				
6/21/09 0:00		39.536				
6/21/09 4:00		39.515				
6/21/09 8:00		39.515				
6/21/09 12:00		39.522				
6/21/09 16:00		39.487				
6/21/09 20:00		39.487				
6/22/09 0:00		39.504				
6/22/09 4:00		39.520				
6/22/09 8:00		39.544				
6/22/09 12:00		39.562				
6/22/09 16:00		39.574				
6/22/09 20:00		39.590				
6/23/09 0:00		39.626				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
6/23/09 4:00		39.642				
6/23/09 8:00		39.673				
6/23/09 12:00		39.696				
6/23/09 16:00		39.703				
6/23/09 20:00		39.724				
6/24/09 0:00		39.759				
6/24/09 4:00		39.778				
6/24/09 8:00		39.804				
6/24/09 12:00		39.806				
6/24/09 16:00		39.811				
6/24/09 20:00		39.825				
6/25/09 0:00		39.870				
6/25/09 4:00		39.858				
6/25/09 8:00		39.881				
6/25/09 12:00		39.926				
6/25/09 16:00		39.935				
6/25/09 20:00		39.942				
6/26/09 0:00		39.959				
6/26/09 4:00		39.968				
6/26/09 8:00		39.994				
6/26/09 12:00		40.001				
6/26/09 16:00		40.010				
6/26/09 20:00		40.017				
6/27/09 0:00		40.055				
6/27/09 4:00		40.085				
6/27/09 8:00		40.102				
6/27/09 12:00		40.144				
6/27/09 16:00		40.200				
6/27/09 20:00		40.205				
6/28/09 0:00		40.238				
6/28/09 4:00		40.273				
6/28/09 8:00		40.287				
6/28/09 12:00		41.798				
6/28/09 16:00		41.937				
6/28/09 20:00		42.863				
6/29/09 0:00		43.168				
6/29/09 4:00		41.158				
6/29/09 8:00		40.792				
6/29/09 12:00		42.009				
6/29/09 16:00		41.988				
6/29/09 20:00		43.173				
6/30/09 0:00		43.954				
6/30/09 4:00		41.111				
6/30/09 8:00		40.897				
6/30/09 12:00		40.871				
6/30/09 16:00		40.794				
6/30/09 20:00		40.775				
7/1/09 0:00		43.886				
7/1/09 4:00		41.819				
7/1/09 8:00		41.275				
7/1/09 12:00		41.113				
7/1/09 16:00		41.054				
7/1/09 20:00		41.024				
7/2/09 0:00		41.125				
7/2/09 4:00		41.169				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
7/2/09 8:00		41.198				
7/2/09 12:00		41.193				
7/2/09 16:00		41.174				
7/2/09 20:00		41.179				
7/3/09 0:00		41.228				
7/3/09 4:00		41.247				
7/3/09 8:00		41.287				
7/3/09 12:00		41.230				
7/3/09 16:00		41.193				
7/3/09 20:00		41.179				
7/4/09 0:00		41.158				
7/4/09 4:00		41.146				
7/4/09 8:00		41.153				
7/4/09 12:00		41.188				
7/4/09 16:00		41.179				
7/4/09 20:00		41.188				
7/5/09 0:00		41.226				
7/5/09 4:00		41.228				
7/5/09 8:00		41.254				
7/5/09 12:00		41.277				
7/5/09 16:00		41.296				
7/5/09 20:00		41.284				
7/6/09 0:00		41.308				
7/6/09 4:00		41.313				
7/6/09 8:00		41.338				
7/6/09 12:00		42.758				
7/6/09 16:00		43.037				
7/6/09 20:00		43.124				
7/7/09 0:00		44.255				
7/7/09 4:00		42.291				
7/7/09 8:00		42.831				
7/7/09 12:00		43.159				
7/7/09 16:00		43.039				
7/7/09 20:00		42.587				
7/8/09 0:00		44.349				
7/8/09 4:00		42.399				
7/8/09 8:00		42.040				
7/8/09 12:00		41.904				
7/8/09 16:00		41.908				
7/8/09 20:00		41.927				
7/9/09 0:00		44.776				
7/9/09 4:00		42.856				
7/9/09 8:00		42.305				
7/9/09 12:00		42.150				
7/9/09 16:00		43.283				
7/9/09 20:00		42.237				
7/10/09 0:00		42.181				
7/10/09 4:00		42.096				
7/10/09 8:00		42.150				
7/10/09 12:00		42.136				
7/10/09 16:00		42.115				
7/10/09 20:00		42.106				
7/11/09 0:00		45.313				
7/11/09 4:00		45.397				
7/11/09 8:00		42.542				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
7/11/09 12:00		43.734				
7/11/09 16:00		44.205				
7/11/09 20:00		42.751				
7/12/09 0:00		45.320				
7/12/09 4:00		43.326				
7/12/09 8:00		42.859				
7/12/09 12:00		42.671				
7/12/09 16:00		42.589				
7/12/09 20:00		42.537				
7/13/09 0:00		42.528				
7/13/09 4:00		42.718				
7/13/09 8:00		42.507				
7/13/09 12:00		42.521				
7/13/09 16:00		42.502				
7/13/09 20:00		42.554				
7/14/09 0:00		42.551				
7/14/09 4:00		42.500				
7/14/09 8:00		42.465				
7/14/09 12:00		42.467				
7/14/09 16:00		42.450				
7/14/09 20:00		42.460				
7/15/09 0:00		42.495				
7/15/09 4:00		42.526				
7/15/09 8:00		42.561				
7/15/09 12:00		42.577				
7/15/09 16:00		42.594				
7/15/09 20:00		42.603				
7/16/09 0:00		42.615				
7/16/09 4:00		42.617				
7/16/09 8:00		42.652				
7/16/09 12:00		42.664				
7/16/09 16:00		42.662				
7/16/09 20:00		42.673				
7/17/09 0:00		42.702				
7/17/09 4:00		42.720				
7/17/09 8:00		42.751				
7/17/09 12:00		42.765				
7/17/09 16:00		42.767				
7/17/09 20:00		42.779				
7/18/09 0:00		42.802				
7/18/09 4:00		42.826				
7/18/09 8:00		42.856				
7/18/09 12:00		42.866				
7/18/09 16:00		42.875				
7/18/09 20:00		43.084				
7/19/09 0:00		42.974				
7/19/09 4:00		42.997				
7/19/09 8:00		43.032				
7/19/09 12:00		43.037				
7/19/09 16:00		43.011				
7/19/09 20:00		43.014				
7/20/09 0:00		43.025				
7/20/09 4:00		43.014				
7/20/09 8:00		43.037				
7/20/09 12:00		43.023				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
7/20/09 16:00		43.035				
7/20/09 20:00		43.030				
7/21/09 0:00		43.065				
7/21/09 4:00		43.068				
7/21/09 8:00		43.107				
7/21/09 12:00		43.161				
7/21/09 16:00		43.161				
7/21/09 20:00		43.201				
7/22/09 0:00		43.185				
7/22/09 4:00		43.194				
7/22/09 8:00		43.225				
7/22/09 12:00		43.243				
7/22/09 16:00		43.246				
7/22/09 20:00		43.251				
7/23/09 0:00		43.274				
7/23/09 4:00		43.295				
7/23/09 8:00		43.319				
7/23/09 12:00		43.335				
7/23/09 16:00		43.337				
7/23/09 20:00		43.356				
7/24/09 0:00		43.384				
7/24/09 4:00		43.380				
7/24/09 8:00		43.401				
7/24/09 12:00		43.412				
7/24/09 16:00		45.034				
7/24/09 20:00		45.233				
7/25/09 0:00		46.885				
7/25/09 4:00		44.705				
7/25/09 8:00		43.966				
7/25/09 12:00		45.015				
7/25/09 16:00		45.306				
7/25/09 20:00		43.961				
7/26/09 0:00		43.879				
7/26/09 4:00		43.856				
7/26/09 8:00		43.849				
7/26/09 12:00		44.079				
7/26/09 16:00		45.350				
7/26/09 20:00		44.105				
7/27/09 0:00		43.987				
7/27/09 4:00		43.947				
7/27/09 8:00		44.006				
7/27/09 12:00		43.968				
7/27/09 16:00		43.957				
7/27/09 20:00		43.966				
7/28/09 0:00		43.992				
7/28/09 4:00		43.997				
7/28/09 8:00		44.065				
7/28/09 12:00		44.109				
7/28/09 16:00		44.112				
7/28/09 20:00		44.046				
7/29/09 0:00		44.076				
7/29/09 4:00		44.083				
7/29/09 8:00		44.112				
7/29/09 12:00		44.119				
7/29/09 16:00		44.126				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
7/29/09 20:00		44.140				
7/30/09 0:00		44.161				
7/30/09 4:00		44.227				
7/30/09 8:00		44.236				
7/30/09 12:00		44.250				
7/30/09 16:00	52.971	44.255				
7/30/09 20:00	52.888	44.285				
7/31/09 0:00	52.831	44.313				
7/31/09 4:00	52.765	44.323				
7/31/09 8:00	52.705	44.353				
7/31/09 12:00	52.641	44.374				
7/31/09 16:00	52.568	44.363				
7/31/09 20:00	52.492	44.374				
8/1/09 0:00	52.435	44.431				
8/1/09 4:00	52.380	44.421				
8/1/09 8:00	52.335	44.445				
8/1/09 12:00	52.285	44.473				
8/1/09 16:00		44.482				
8/1/09 20:00		44.496				
8/2/09 0:00		44.525				
8/2/09 4:00		44.536				
8/2/09 8:00		44.553				
8/2/09 12:00	51.918	44.564				
8/2/09 16:00	51.847	44.562				
8/2/09 20:00	51.783	44.590				
8/3/09 0:00	51.728	44.609				
8/3/09 4:00	51.666	44.623				
8/3/09 8:00	51.612	44.649				
8/3/09 12:00	51.560	44.672				
8/3/09 16:00	51.498	44.677				
8/3/09 20:00	51.439	44.715				
8/4/09 0:00	51.389	44.733				
8/4/09 4:00	51.334	44.736				
8/4/09 8:00	51.280	44.761				
8/4/09 12:00	51.263	44.818				
8/4/09 16:00	51.211	44.832				
8/4/09 20:00	51.161	44.853				
8/5/09 0:00	51.118	44.883				
8/5/09 4:00	51.071	44.902				
8/5/09 8:00	51.040	44.940				
8/5/09 12:00	50.981	44.940				
8/5/09 16:00	50.929	44.963				
8/5/09 20:00	50.874	44.984				
8/6/09 0:00	50.834	45.015				
8/6/09 4:00	50.784	45.020				
8/6/09 8:00	50.737	45.045				
8/6/09 12:00	50.689	45.076				
8/6/09 16:00	50.618	45.057				
8/6/09 20:00	50.561	45.066				
8/7/09 0:00	50.514	45.092				
8/7/09 4:00	50.457	45.099				
8/7/09 8:00	50.405	45.123				
8/7/09 12:00	50.353	45.137				
8/7/09 16:00	50.288	45.142				
8/7/09 20:00	50.234	45.156				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
8/8/09 0:00	50.194	45.198				
8/8/09 4:00	50.148	45.214				
8/8/09 8:00	50.104	45.235				
8/8/09 12:00	50.054	45.254				
8/8/09 16:00	50.006	45.266				
8/8/09 20:00	49.961	45.289				
8/9/09 0:00	49.938	45.334				
8/9/09 4:00	49.902	45.357				
8/9/09 8:00	49.864	45.376				
8/9/09 12:00	49.826	45.400				
8/9/09 16:00	49.774	45.414				
8/9/09 20:00	49.729	45.397				
8/10/09 0:00	49.707	45.451				
8/10/09 4:00	49.667	45.472				
8/10/09 8:00	49.634	45.503				
8/10/09 12:00	49.603	45.547				
8/10/09 16:00	49.553	45.540				
8/10/09 20:00	49.515	45.552				
8/11/09 0:00	49.487	45.587				
8/11/09 4:00	49.451	45.606				
8/11/09 8:00	49.416	45.634				
8/11/09 12:00	49.385	45.660				
8/11/09 16:00	49.340	45.662				
8/11/09 20:00	49.290	45.669				
8/12/09 0:00	49.255	45.695				
8/12/09 4:00	49.216	45.712				
8/12/09 8:00		45.740				
8/12/09 12:00		45.756				
8/12/09 16:00		45.766				
8/12/09 20:00		45.775				
8/13/09 0:00		45.798				
8/13/09 4:00	48.977	45.824				
8/13/09 8:00	48.946	45.841				
8/13/09 12:00	48.913	45.862				
8/13/09 16:00	48.868	47.326				
8/13/09 20:00	48.823	47.631				
8/14/09 0:00	48.797	49.327				
8/14/09 4:00	48.778	47.312				
8/14/09 8:00	48.756	46.409				
8/14/09 12:00	48.725	47.434				
8/14/09 16:00	48.681	47.736				
8/14/09 20:00	48.654	46.913				
8/15/09 0:00	48.652	46.359				
8/15/09 4:00	48.654	46.268				
8/15/09 8:00	48.635	46.247				
8/15/09 12:00	48.626	46.230				
8/15/09 16:00	48.605	46.218				
8/15/09 20:00	48.609	48.098				
8/16/09 0:00	48.617	48.910				
8/16/09 4:00	48.616	46.925				
8/16/09 8:00	48.631	46.549				
8/16/09 12:00	48.623	46.486				
8/16/09 16:00	48.628	46.432				
8/16/09 20:00	48.643	46.418				
8/17/09 0:00	48.664	49.025				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
8/17/09 4:00	48.652	47.281				
8/17/09 8:00	48.640	46.770				
8/17/09 12:00	48.626	46.650				
8/17/09 16:00	48.607	46.594				
8/17/09 20:00	48.586	46.570				
8/18/09 0:00	48.576	46.577				
8/18/09 4:00	48.562	46.592				
8/18/09 8:00	48.541	46.582				
8/18/09 12:00	48.522	46.589				
8/18/09 16:00	48.496	46.570				
8/18/09 20:00	48.465	46.570				
8/19/09 0:00	48.451	46.584				
8/19/09 4:00	48.424	46.561				
8/19/09 8:00	48.405	46.589				
8/19/09 12:00	48.391	46.610				
8/19/09 16:00	48.375	46.610				
8/19/09 20:00	48.349	46.580				
8/20/09 0:00	48.360	46.631				
8/20/09 4:00	48.370	46.645				
8/20/09 8:00	48.363	46.681				
8/20/09 12:00	48.334	46.714				
8/20/09 16:00	48.303	46.711				
8/20/09 20:00	48.275	46.739				
8/21/09 0:00	48.261	46.765				
8/21/09 4:00	48.235	46.779				
8/21/09 8:00	48.223	46.798				
8/21/09 12:00	48.211	46.821				
8/21/09 16:00	48.192	46.828				
8/21/09 20:00	48.168	46.840				
8/22/09 0:00	48.154	46.873				
8/22/09 4:00	48.137	46.887				
8/22/09 8:00	48.116	46.908				
8/22/09 12:00	48.092	46.922				
8/22/09 16:00	48.052	46.918				
8/22/09 20:00	48.012	46.922				
8/23/09 0:00		46.950				
8/23/09 4:00		46.962				
8/23/09 8:00		46.981				
8/23/09 12:00		46.993				
8/23/09 16:00		46.993				
8/23/09 20:00	47.827	47.002				
8/24/09 0:00	47.801	47.089				
8/24/09 4:00	47.772	47.040				
8/24/09 8:00	47.739	47.056				
8/24/09 12:00	47.708	47.065				
8/24/09 16:00	47.675	47.080				
8/24/09 20:00	47.644	49.388				
8/25/09 0:00	47.625	50.397				
8/25/09 4:00	47.606	47.690				
8/25/09 8:00	47.578	47.424				
8/25/09 12:00	47.554	47.347				
8/25/09 16:00	47.528	47.314				
8/25/09 20:00	47.502	47.302				
8/26/09 0:00	47.485	47.309				
8/26/09 4:00	47.454	47.300				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
8/26/09 8:00	47.440	47.293				
8/26/09 12:00	47.414	47.307				
8/26/09 16:00	47.388	47.309				
8/26/09 20:00	47.364	47.316				
8/27/09 0:00	47.352	47.340				
8/27/09 4:00	47.324	47.349				
8/27/09 8:00	47.300	47.366				
8/27/09 12:00	47.281	47.385				
8/27/09 16:00	47.255	47.392				
8/27/09 20:00	47.227	47.401				
8/28/09 0:00	47.208	47.422				
8/28/09 4:00	47.182	47.431				
8/28/09 8:00	47.160	47.462				
8/28/09 12:00	47.137	47.471				
8/28/09 16:00	47.103	47.471				
8/28/09 20:00	47.080	47.499				
8/29/09 0:00	47.063	47.511				
8/29/09 4:00	47.042	47.525				
8/29/09 8:00	47.023	47.546				
8/29/09 12:00	47.011	47.570				
8/29/09 16:00	46.982	47.572				
8/29/09 20:00	46.961	47.589				
8/30/09 0:00	46.952	47.617				
8/30/09 4:00	46.937	47.636				
8/30/09 8:00	46.921	47.661				
8/30/09 12:00	46.907	47.678				
8/30/09 16:00	46.876	47.673				
8/30/09 20:00	46.847	47.692				
8/31/09 0:00	46.835	47.722				
8/31/09 4:00	46.809	47.734				
8/31/09 8:00	46.788	47.767				
8/31/09 12:00	46.767	47.776				
8/31/09 16:00	46.731	47.772				
8/31/09 20:00	46.693	47.783				
9/1/09 0:00	46.677	47.819				
9/1/09 4:00	46.650	47.821				
9/1/09 8:00	46.629	47.844				
9/1/09 12:00	46.603	47.858				
9/1/09 16:00	46.567	47.851				
9/1/09 20:00	46.532	47.868				
9/2/09 0:00	46.508	47.889				
9/2/09 4:00	46.484	47.901				
9/2/09 8:00	46.453	47.917				
9/2/09 12:00	46.437	47.941				
9/2/09 16:00		47.943				
9/2/09 20:00		47.973				
9/3/09 0:00		47.988				
9/3/09 4:00		47.992				
9/3/09 8:00		48.006				
9/3/09 12:00	46.264	48.030				
9/3/09 16:00	46.226	48.025				
9/3/09 20:00	46.193	48.044				
9/4/09 0:00	46.176	48.060				
9/4/09 4:00	46.145	48.070				
9/4/09 8:00	46.124	48.088				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
9/4/09 12:00	46.100	48.114				
9/4/09 16:00	46.067	48.114				
9/4/09 20:00	46.041	48.126				
9/5/09 0:00	46.024	48.154				
9/5/09 4:00	46.003	48.171				
9/5/09 8:00	45.982	48.192				
9/5/09 12:00	45.963	48.215				
9/5/09 16:00	45.929	48.213				
9/5/09 20:00	45.899	48.222				
9/6/09 0:00	45.882	48.260				
9/6/09 4:00	45.861	48.269				
9/6/09 8:00	45.839	48.290				
9/6/09 12:00	45.820	48.309				
9/6/09 16:00	45.785	48.307				
9/6/09 20:00	45.752	48.311				
9/7/09 0:00	45.733	48.339				
9/7/09 4:00	45.707	48.349				
9/7/09 8:00	45.678	48.365				
9/7/09 12:00	45.652	48.391				
9/7/09 16:00	45.619	48.384				
9/7/09 20:00	45.588	48.398				
9/8/09 0:00	45.567	48.419				
9/8/09 4:00	45.543	48.431				
9/8/09 8:00	45.519	48.450				
9/8/09 12:00	45.503	48.471				
9/8/09 16:00	45.472	48.478				
9/8/09 20:00	45.446	51.594				
9/9/09 0:00	45.436	51.826				
9/9/09 4:00	45.415	49.025				
9/9/09 8:00	45.398	49.843				
9/9/09 12:00	45.386	50.238				
9/9/09 16:00	45.363	50.578				
9/9/09 20:00	45.337	49.323				
9/10/09 0:00	45.327	48.982				
9/10/09 4:00	45.306	48.893				
9/10/09 8:00	45.289	48.867				
9/10/09 12:00	45.273	48.919				
9/10/09 16:00	45.244	50.038				
9/10/09 20:00	45.218	48.971				
9/11/09 0:00	45.208	48.919				
9/11/09 4:00	45.182	48.893				
9/11/09 8:00	45.161	48.895				
9/11/09 12:00	45.147	48.898				
9/11/09 16:00	45.116	50.364				
9/11/09 20:00	45.088	49.086				
9/12/09 0:00	45.085	48.912				
9/12/09 4:00	45.057	48.839				
9/12/09 8:00	45.033	48.752				
9/12/09 12:00	45.016	48.724				
9/12/09 16:00	44.986	48.673				
9/12/09 20:00	44.964	48.642				
9/13/09 0:00	44.952	48.630				
9/13/09 4:00	44.931	48.614				
9/13/09 8:00		48.612				
9/13/09 12:00		48.605				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
9/13/09 16:00		48.576				
9/13/09 20:00		48.572				
9/14/09 0:00		48.579				
9/14/09 4:00	44.812	48.579				
9/14/09 8:00	44.793	48.583				
9/14/09 12:00	44.779	48.600				
9/14/09 16:00		48.582				
9/14/09 20:00		48.589				
9/15/09 0:00		48.600				
9/15/09 4:00		48.603				
9/15/09 8:00		48.617				
9/15/09 12:00		48.636				
9/15/09 16:00		48.629				
9/15/09 20:00		48.645				
9/16/09 0:00		48.659				
9/16/09 4:00		48.664				
9/16/09 8:00		48.685				
9/16/09 12:00		48.701				
9/16/09 16:00		48.805				
9/16/09 20:00		49.067				
9/17/09 0:00		48.943				
9/17/09 4:00		48.959				
9/17/09 8:00		48.943				
9/17/09 12:00		48.957				
9/17/09 16:00		48.929				
9/17/09 20:00		48.849				
9/18/09 0:00		48.856				
9/18/09 4:00		48.852				
9/18/09 8:00		48.863				
9/18/09 12:00		48.882				
9/18/09 16:00		49.126				
9/18/09 20:00		48.964				
9/19/09 0:00		48.950				
9/19/09 4:00		48.945				
9/19/09 8:00		48.948				
9/19/09 12:00		48.955				
9/19/09 16:00		48.943				
9/19/09 20:00		48.945				
9/20/09 0:00		48.957				
9/20/09 4:00		48.957				
9/20/09 8:00		49.161				
9/20/09 12:00	44.473	49.645				
9/20/09 16:00	44.422	49.058				
9/20/09 20:00	44.392	48.997				
9/21/09 0:00	44.364	48.999				
9/21/09 4:00	44.332	48.990				
9/21/09 8:00	44.327	49.009				
9/21/09 12:00	44.306	49.044				
9/21/09 16:00	44.290	49.039				
9/21/09 20:00	44.276	49.058				
9/22/09 0:00	44.262	49.081				
9/22/09 4:00	44.246	49.088				
9/22/09 8:00	44.230	49.133				
9/22/09 12:00	44.209	49.114				
9/22/09 16:00	44.183	49.112				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
9/22/09 20:00	44.165	49.124				
9/23/09 0:00	44.149	49.140				
9/23/09 4:00	44.130	49.149				
9/23/09 8:00	44.114	49.175				
9/23/09 12:00	44.102	49.189				
9/23/09 16:00	44.077	49.187				
9/23/09 20:00	44.063	49.372				
9/24/09 0:00	44.047	49.276				
9/24/09 4:00	44.028	49.260				
9/24/09 8:00	44.007	49.257				
9/24/09 12:00	43.991	49.267				
9/24/09 16:00	43.963	49.257				
9/24/09 20:00	43.942	49.271				
9/25/09 0:00	43.926	49.281				
9/25/09 4:00	43.905	49.283				
9/25/09 8:00	43.889	49.300				
9/25/09 12:00	43.870	49.335				
9/25/09 16:00	43.845	49.349				
9/25/09 20:00	43.828	49.363				
9/26/09 0:00	43.805	49.356				
9/26/09 4:00	43.784	49.361				
9/26/09 8:00	43.766	49.368				
9/26/09 12:00	43.749	49.382				
9/26/09 16:00	43.719	49.370				
9/26/09 20:00	43.696	49.377				
9/27/09 0:00	43.671	49.377				
9/27/09 4:00	43.640	49.375				
9/27/09 8:00	43.603	49.370				
9/27/09 12:00	43.580	49.379				
9/27/09 16:00	43.580	49.415				
9/27/09 20:00	43.592	49.471				
9/28/09 0:00	43.601	49.516				
9/28/09 4:00	43.594	49.530				
9/28/09 8:00	43.589	49.553				
9/28/09 12:00	43.578	49.565				
9/28/09 16:00	43.554	49.567				
9/28/09 20:00	43.541	49.574				
9/29/09 0:00	43.536	49.607				
9/29/09 4:00	43.522	49.614				
9/29/09 8:00	43.515	49.638				
9/29/09 12:00	43.499	49.642				
9/29/09 16:00	43.466	49.623				
9/29/09 20:00	43.445	49.656				
9/30/09 0:00	43.429	49.668				
9/30/09 4:00	43.406	49.661				
9/30/09 8:00	43.385	49.673				
9/30/09 12:00	43.357	49.755				
9/30/09 16:00	43.315	49.673				
9/30/09 20:00	43.290	49.670				
10/1/09 0:00	43.260	49.661				
10/1/09 4:00	43.234	49.656				
10/1/09 8:00	43.213	49.675				
10/1/09 12:00	43.216	49.724				
10/1/09 16:00	43.218	49.760				
10/1/09 20:00	43.223	49.802				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
10/2/09 0:00	43.206	49.804				
10/2/09 4:00	43.181	49.797				
10/2/09 8:00	43.165	49.804				
10/2/09 12:00	43.151	49.828				
10/2/09 16:00	43.137	49.835				
10/2/09 20:00	43.134	49.865				
10/3/09 0:00	43.125	49.886				
10/3/09 4:00	43.118	49.900				
10/3/09 8:00	43.111	49.943				
10/3/09 12:00	43.107	49.950				
10/3/09 16:00	43.088	49.957				
10/3/09 20:00	43.079	49.971				
10/4/09 0:00	43.079	50.032				
10/4/09 4:00	43.067	50.013				
10/4/09 8:00	43.044	50.025				
10/4/09 12:00	43.102	50.048				
10/4/09 16:00	43.274	50.036				
10/4/09 20:00	43.044	50.053				
10/5/09 0:00	42.951	50.074				
10/5/09 4:00	43.002	50.065				
10/5/09 8:00	42.972	52.610				
10/5/09 12:00	43.053	53.122				
10/5/09 16:00	43.095	51.367				
10/5/09 20:00	42.991	50.463				
10/6/09 0:00	42.944	50.348				
10/6/09 4:00	42.856	50.353				
10/6/09 8:00	42.823	50.276				
10/6/09 12:00	42.949	50.278				
10/6/09 16:00	43.086	50.276				
10/6/09 20:00	42.977	50.294				
10/7/09 0:00	43.097	50.306				
10/7/09 4:00	43.278	50.309				
10/7/09 8:00	43.364	50.309				
10/7/09 12:00	43.501	50.311				
10/7/09 16:00	43.626	50.301				
10/7/09 20:00	43.578	50.313				
10/8/09 0:00	43.557	50.330				
10/8/09 4:00	43.587	50.332				
10/8/09 8:00	43.559	50.353				
10/8/09 12:00	43.585	50.377				
10/8/09 16:00	43.606	50.393				
10/8/09 20:00	43.629	50.400				
10/9/09 0:00	43.652	50.419				
10/9/09 4:00	43.671	50.468				
10/9/09 8:00	43.661	50.447				
10/9/09 12:00	43.712	50.463				
10/9/09 16:00	43.775	50.475				
10/9/09 20:00	43.666	50.492				
10/10/09 0:00	43.650	50.508				
10/10/09 4:00	43.684	50.543				
10/10/09 8:00	43.677	50.571				
10/10/09 12:00	43.708	50.588				
10/10/09 16:00	43.770	50.581				
10/10/09 20:00	43.759	50.585				
10/11/09 0:00	43.747	50.604				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
10/11/09 4:00	43.782	50.611				
10/11/09 8:00	43.789	50.628				
10/11/09 12:00	43.817	50.623				
10/11/09 16:00	43.833	50.611				
10/11/09 20:00	43.826	50.621				
10/12/09 0:00	43.812	50.628				
10/12/09 4:00	43.810	50.628				
10/12/09 8:00	43.784	50.773				
10/12/09 12:00	43.794	50.667				
10/12/09 16:00	43.784	50.682				
10/12/09 20:00	43.740	50.710				
10/13/09 0:00	43.717	50.738				
10/13/09 4:00	43.715	50.754				
10/13/09 8:00	43.736	50.757				
10/13/09 12:00	43.777	50.761				
10/13/09 16:00	43.763	50.743				
10/13/09 20:00	43.731	50.813				
10/14/09 0:00	43.729	50.827				
10/14/09 4:00	43.742	50.848				
10/14/09 8:00	43.733	50.829				
10/14/09 12:00	43.742	50.808				
10/14/09 16:00	43.756	50.766				
10/14/09 20:00	43.738	50.759				
10/15/09 0:00	43.698	50.738				
10/15/09 4:00	43.691	50.750				
10/15/09 8:00	43.675	50.693				
10/15/09 12:00	43.677	50.886				
10/15/09 16:00	43.724	50.806				
10/15/09 20:00	43.643	50.806				
10/16/09 0:00	43.659	50.853				
10/16/09 4:00	43.657	50.855				
10/16/09 8:00	43.654	50.881				
10/16/09 12:00	43.715	50.926				
10/16/09 16:00	80.829	50.916				
10/16/09 20:00	59.313	50.902				
10/17/09 0:00	59.104	50.916				
10/17/09 4:00	58.958	50.958				
10/17/09 8:00	58.812	50.975				
10/17/09 12:00	58.758	51.015				
10/17/09 16:00	58.772	51.003				
10/17/09 20:00	58.605	50.977				
10/18/09 0:00	58.433	50.996				
10/18/09 4:00	58.304	50.998				
10/18/09 8:00	58.192	50.994				
10/18/09 12:00	58.129	51.003				
10/18/09 16:00	58.125	50.977				
10/18/09 20:00	57.851	50.975				
10/19/09 0:00	57.647	50.989				
10/19/09 4:00	57.489	50.987				
10/19/09 8:00	57.317	51.003				
10/19/09 12:00	57.231	51.038				
10/19/09 16:00	57.227	51.019				
10/19/09 20:00	56.981	51.026				
10/20/09 0:00	56.802	51.057				
10/20/09 4:00	56.691	51.055				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
10/20/09 8:00	56.568	51.059				
10/20/09 12:00	56.477	51.085				
10/20/09 16:00	56.438	51.085				
10/20/09 20:00	56.243	51.064				
10/21/09 0:00	56.108	51.062				
10/21/09 4:00	56.031	51.073				
10/21/09 8:00	55.920	51.095				
10/21/09 12:00	55.820	51.207				
10/21/09 16:00	55.730	51.132				
10/21/09 20:00	55.621	51.123				
10/22/09 0:00	55.532	51.137				
10/22/09 4:00	55.442	51.144				
10/22/09 8:00	55.328	51.099				
10/22/09 12:00	55.240	51.087				
10/22/09 16:00	55.161	51.113				
10/22/09 20:00	55.036	51.080				
10/23/09 0:00	54.936	51.080				
10/23/09 4:00	54.841	51.083				
10/23/09 8:00	54.727	51.043				
10/23/09 12:00	54.634	51.017				
10/23/09 16:00	54.593	51.055				
10/23/09 20:00	54.458	51.010				
10/24/09 0:00	54.365	51.017				
10/24/09 4:00	54.272	51.015				
10/24/09 8:00	54.196	51.045				
10/24/09 12:00	54.142	51.085				
10/24/09 16:00	54.098	51.160				
10/24/09 20:00	53.940	51.106				
10/25/09 0:00	53.822	51.059				
10/25/09 4:00	53.736	51.034				
10/25/09 8:00	53.606	50.977				
10/25/09 12:00	53.585	50.956				
10/25/09 16:00	53.525	50.982				
10/25/09 20:00	53.372	50.937				
10/26/09 0:00	53.290	50.919				
10/26/09 4:00	53.239	50.937				
10/26/09 8:00	53.186	50.970				
10/26/09 12:00	53.195	51.041				
10/26/09 16:00	53.140	51.179				
10/26/09 20:00	53.040	51.207				
10/27/09 0:00	52.947	51.214				
10/27/09 4:00	52.880	51.259				
10/27/09 8:00	52.798	51.282				
10/27/09 12:00	52.780	51.334				
10/27/09 16:00	52.824	51.418				
10/27/09 20:00	52.594	51.348				
10/28/09 0:00	52.450	51.390				
10/28/09 4:00	52.371	51.268				
10/28/09 8:00	52.286	51.254				
10/28/09 12:00	52.218	51.209				
10/28/09 16:00	52.156	51.217				
10/28/09 20:00	52.053	51.177				
10/29/09 0:00	51.979	51.167				
10/29/09 4:00	51.956	51.193				
10/29/09 8:00	51.889	51.177				

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
10/29/09 12:00	51.833	51.151				
10/29/09 16:00	51.835	51.172				
10/29/09 20:00	51.740	51.118				
10/30/09 0:00	51.622	51.008				
10/30/09 4:00	51.527	50.890				
10/30/09 8:00	51.438	50.728				
10/30/09 12:00	51.378	50.567				
10/30/09 16:00	51.302	50.431				
10/30/09 20:00	51.204	50.297				
10/31/09 0:00	51.188	50.236				
10/31/09 4:00	51.107	50.154				
10/31/09 8:00	51.037	50.102				
10/31/09 12:00	51.044	50.081				
10/31/09 16:00	51.044	50.172				
10/31/09 20:00	50.937	50.177				
11/1/09 0:00	50.868	50.177				
11/1/09 4:00	50.830	50.205				
11/1/09 8:00	50.772	50.205				
11/1/09 12:00	50.742	50.226				
11/1/09 16:00	50.707	50.262				
11/1/09 20:00	50.566	50.182				
11/2/09 0:00	50.450	50.119				
11/2/09 4:00	50.403	50.069				
11/2/09 8:00	50.299	49.978				
11/2/09 12:00	50.299	49.966	81.568			
11/2/09 16:00	50.308	50.032	81.364		98.576	
11/2/09 20:00	50.248	50.034	81.164		98.509	
11/3/09 0:00	50.187	50.043	80.960		98.402	
11/3/09 4:00	50.169	50.086	80.761		98.318	
11/3/09 8:00	50.118	50.111	80.561		98.237	
11/3/09 12:00	50.102	50.210	80.362		98.128	
11/3/09 16:00	50.064	50.325	80.160		98.021	
11/3/09 20:00	49.967	50.278	79.962		97.944	
11/4/09 0:00	49.858	50.184	79.767		97.853	
11/4/09 4:00	49.809	50.118	79.574		97.769	
11/4/09 8:00	49.744	50.046	79.384		97.704	
11/4/09 12:00	49.712	50.018	79.196		97.600	106.297
11/4/09 16:00	49.719	50.083	79.001		97.514	105.959
11/4/09 20:00	49.614	50.069	78.813		97.425	105.638
11/5/09 0:00	49.533	50.058	78.628		97.339	105.316
11/5/09 4:00	49.498	50.081	78.435		97.249	104.990
11/5/09 8:00	49.466	50.104	78.250		97.160	104.660
11/5/09 12:00	49.443	50.175	78.062		97.074	104.317
11/5/09 16:00	49.512	50.290	77.872		96.976	103.968
11/5/09 20:00	49.371	50.248	77.686	112.007	96.886	103.646
11/6/09 0:00	49.303	50.240	77.501	111.771	96.793	103.320
11/6/09 4:00	49.236	50.222	77.316	111.535	96.704	102.994
11/6/09 8:00	49.159	50.189	77.138	111.304	96.618	102.687
11/6/09 12:00	49.125	50.168	76.957	111.075	96.525	102.373
11/6/09 16:00	49.148	50.205	76.779	110.839	96.437	102.047
11/6/09 20:00	48.971	50.118	76.600	110.617	96.351	101.749
11/7/09 0:00	48.858	50.050	76.426	110.400	96.267	101.450
11/7/09 4:00	48.783	50.001	76.248	110.185	96.183	101.166
11/7/09 8:00	48.691	49.914	76.085	109.972	96.100	100.880
11/7/09 12:00	48.677	49.903	75.914	109.762	96.018	100.596

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
11/7/09 16:00	48.707	49.943	75.745	109.538	95.932	100.298
11/7/09 20:00	48.588	49.905	75.573	109.325	95.851	100.011
11/8/09 0:00	48.535	49.919	75.409	109.106	95.765	99.720
11/8/09 4:00	48.486	49.924	75.239	108.891	95.681	99.429
11/8/09 8:00	48.442	49.919	75.075	108.678	95.597	99.142
11/8/09 12:00	48.442	49.935	74.909	108.461	95.516	98.856
11/8/09 16:00	48.417	49.943	74.742	108.251	95.432	98.576
11/8/09 20:00	48.259	49.837	74.587	108.059	95.356	98.323
11/9/09 0:00	48.152	49.781	74.432	107.863	95.279	98.066
11/9/09 4:00	48.085	49.757	74.274	107.662	95.200	97.799
11/9/09 8:00	48.055	49.757	74.119	107.464	95.123	97.538
11/9/09 12:00	48.108	49.788	73.959	107.258	95.039	97.265
11/9/09 16:00	48.178	49.874	73.804	107.048	94.960	96.984
11/9/09 20:00	48.087	49.870	73.651	106.847	94.879	96.720
11/10/09 0:00	48.024	49.877	73.496	106.644	94.797	96.448
11/10/09 4:00	47.966	49.882	73.343	106.441	94.721	96.185
11/10/09 8:00	47.934	49.893	73.190	106.242	94.639	95.922
11/10/09 12:00	47.929	49.896	73.040	106.152	94.560	95.903
11/10/09 16:00	47.867	49.996	72.882	105.944	94.477	95.628
11/10/09 20:00	47.827	50.001	72.733	105.748	94.393	95.376
11/11/09 0:00	47.785	50.001	72.589	105.549	94.311	95.109
11/11/09 4:00	47.739	49.994	72.437	105.348	94.232	94.843
11/11/09 8:00	47.697	49.994	72.291	105.151	94.153	94.589
11/11/09 12:00	47.651	49.985	72.142	104.947	94.072	94.321
11/11/09 16:00	47.586	49.957	71.997	104.741	93.986	94.051
11/11/09 20:00	47.539	49.952	71.848	104.539	93.907	93.791
11/12/09 0:00	47.488	49.931	71.702	104.338	93.823	93.527
11/12/09 4:00	47.430	49.905	71.554	104.130	93.739	93.257
11/12/09 8:00	47.372	49.884	71.413	103.930	93.658	92.996
11/12/09 12:00	47.314	49.863	71.267	103.724	93.572	92.726
11/12/09 16:00	47.245	49.818	71.117	103.516	93.486	92.456
11/12/09 20:00	47.201	49.828	70.982	103.325	93.407	92.216
11/13/09 0:00	47.154	49.816	70.841	103.126	93.325	91.964
11/13/09 4:00	47.101	49.799	70.702	102.932	93.244	91.710
11/13/09 8:00	47.057	49.799	70.562	102.739	93.167	91.466
11/13/09 12:00	47.015	49.802	70.423	102.550	93.086	91.228
11/13/09 16:00	46.975	49.802	70.289	102.367	93.014	91.000
11/13/09 20:00	46.950	49.818	70.157	102.188	92.939	90.778
11/14/09 0:00	46.924	49.839	70.025	102.013	92.867	90.557
11/14/09 4:00	46.894	49.846	69.898	101.833	92.788	90.334
11/14/09 8:00	46.871	49.870	69.769	101.658	92.718	90.115
11/14/09 12:00	46.843	49.889	69.637	101.478	92.642	89.896
11/14/09 16:00	46.801	50.088	69.509	101.295	92.560	89.665
11/14/09 20:00	46.778	49.907	69.382	101.122	92.488	89.455
11/15/09 0:00	46.753	49.919	69.255	100.946	92.416	89.234
11/15/09 4:00	46.715	49.912	69.128	100.765	92.342	89.013
11/15/09 8:00	46.681	49.914	68.989	100.589	92.267	88.791
11/15/09 12:00	46.655	49.938	68.890	100.414	92.193	88.574
11/15/09 16:00	46.616	49.921	68.719	100.237	92.118	88.362
11/15/09 20:00	46.588	49.938	68.506	100.064	92.049	88.151
11/16/09 0:00	46.558	49.950	68.395	99.889	91.974	87.934
11/16/09 4:00	46.518	49.950	68.284	99.712	91.898	87.717
11/16/09 8:00	46.476	49.910	68.131	99.537	91.825	87.501
11/16/09 12:00	46.449	49.935	68.074	99.356	91.749	87.278
11/16/09 16:00	46.407	49.905	67.965	99.180	91.674	87.066

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
11/16/09 20:00	46.349	49.912	67.831	99.009	91.598	86.856
11/17/09 0:00	46.302	49.900	67.722	98.843	91.523	86.644
11/17/09 4:00	46.302	49.870	67.623	98.685	91.444	86.431
11/17/09 8:00	46.256	49.844	67.512	98.510	91.370	86.223
11/17/09 12:00	46.254	49.926	67.504	98.348	91.298	86.013
11/17/09 16:00	46.337	49.856	67.304	98.174	91.223	85.803
11/17/09 20:00	46.119	49.696	67.189	97.982	91.146	85.598
11/18/09 0:00	46.059	49.609	67.075	97.807	91.074	85.390
11/18/09 4:00	46.033	49.499	66.959	97.637	91.000	85.186
11/18/09 8:00	46.003	49.386	66.846	97.464	90.926	84.981
11/18/09 12:00	46.024	49.300	66.728	97.295	90.853	84.776
11/18/09 16:00	46.112	49.210	66.615	97.121	90.781	84.566
11/18/09 20:00	45.929	49.159	66.501	96.957	90.707	84.374
11/19/09 0:00	45.861	49.124	66.397	96.796	90.635	84.180
11/19/09 4:00	45.790	49.091	66.284	96.629	90.563	83.984
11/19/09 8:00	45.708	49.070	66.178	96.467	90.491	83.797
11/19/09 12:00	45.778	49.056	66.069	96.308	90.421	83.606
11/19/09 16:00	45.880	49.020	65.961	96.139	90.349	83.409
11/19/09 20:00	45.629	49.018	65.857	95.984	90.279	83.229
11/20/09 0:00	45.557	49.013	65.751	95.825	90.209	83.043
11/20/09 4:00	45.534	48.995	65.644	95.665	90.137	82.856
11/20/09 8:00	45.564	48.981	65.539	95.506	90.065	82.672
11/20/09 12:00	45.627	48.969	65.438	95.349	90.000	82.486
11/20/09 16:00	45.706	48.936	65.329	95.182	89.928	82.295
11/20/09 20:00	45.504	48.915	65.228	95.022	89.856	82.106
11/21/09 0:00	45.451	48.894	65.124	94.861	89.781	81.919
11/21/09 4:00	45.446	48.870	65.020	94.701	89.709	81.728
11/21/09 8:00	45.425	48.840	64.918	94.539	89.642	81.550
11/21/09 12:00	45.469	48.816	64.817	94.378	89.570	81.359
11/21/09 16:00	45.550	48.772	64.713	94.218	89.498	81.174
11/21/09 20:00	45.381	48.760	64.611	94.063	89.423	80.997
11/22/09 0:00	45.304	48.751	64.514	93.908	89.356	80.822
11/22/09 4:00	45.239	48.737	64.415	93.751	89.288	80.644
11/22/09 8:00	45.195	48.720	64.318	93.603	89.219	80.476
11/22/09 12:00	45.216	48.711	64.219	93.448	89.146	80.301
11/22/09 16:00	45.232	48.701	64.122	93.293	89.077	80.123
11/22/09 20:00	45.130	48.669	64.024	93.141	89.009	79.954
11/23/09 0:00	45.079	48.652	63.929	92.990	88.940	79.784
11/23/09 4:00	45.044	48.631	63.835	92.838	88.870	79.614
11/23/09 8:00	45.010	48.617	63.740	92.688	88.805	79.448
11/23/09 12:00	45.035	48.608	63.646	92.540	88.723	79.280
11/23/09 16:00	45.079	48.575	63.551	92.388	88.656	79.111
11/23/09 20:00	44.938	48.570	63.459	92.240	88.588	78.945
11/24/09 0:00	44.873	48.629	63.371	92.118	88.523	78.784
11/24/09 4:00	44.617	48.582	63.276	91.965	88.453	78.621
11/24/09 8:00	44.559	48.483	63.187	91.804	88.386	78.465
11/24/09 12:00	44.539	48.392	63.092	91.658	88.321	78.302
11/24/09 16:00	44.627	48.195	63.004	91.515	88.253	78.146
11/24/09 20:00	44.453	48.096	62.917	91.374	88.188	77.997
11/25/09 0:00	44.418	47.974	62.829	91.228	88.121	77.836
11/25/09 4:00	44.425	47.868	62.734	91.086	88.053	77.679
11/25/09 8:00	44.404	47.859	62.616	90.947	87.991	77.531
11/25/09 12:00	44.441	47.840	62.607	90.806	87.923	77.377
11/25/09 16:00	44.494	47.674	62.524	90.661	87.856	77.226
11/25/09 20:00	44.334	47.622	62.285	90.523	87.793	77.076

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
11/26/09 0:00	44.295	47.580	62.151	90.383	87.726	76.929
11/26/09 4:00	44.297	47.538	62.080	90.245	87.663	76.776
11/26/09 8:00	44.288	47.493	61.983	90.105	87.593	76.632
11/26/09 12:00	44.344	47.458	62.110	89.966	87.533	76.485
11/26/09 16:00	44.388	47.387	61.973	89.821	87.463	76.321
11/26/09 20:00	44.295	47.486	61.888	89.678	87.395	76.166
11/27/09 0:00	44.267	47.284	61.805	89.534	87.328	76.015
11/27/09 4:00	44.242	47.209	61.722	89.389	87.258	75.863
11/27/09 8:00	44.214	47.160	61.641	89.253	87.188	75.711
11/27/09 12:00	44.244	47.099	61.550	89.109	87.126	75.564
11/27/09 16:00	44.390	47.029	61.470	88.969	87.054	75.409
11/27/09 20:00	44.137	46.986	61.389	88.831	86.988	75.269
11/28/09 0:00	44.060	46.939	61.309	88.696	86.923	75.127
11/28/09 4:00	44.016	46.888	61.228	88.558	86.856	74.984
11/28/09 8:00	43.998	46.843	61.147	88.425	86.793	74.844
11/28/09 12:00	44.019	46.803	61.069	88.288	86.726	74.699
11/28/09 16:00	44.130	46.740	60.989	88.152	86.661	74.561
11/28/09 20:00	43.889	46.719	60.910	88.025	86.598	74.432
11/29/09 0:00	43.810	46.693	60.837	87.900	86.535	74.304
11/29/09 4:00	43.733	46.665	60.763	87.776	86.474	74.180
11/29/09 8:00	43.703	46.644	60.687	87.647	86.414	74.053
11/29/09 12:00	43.745	46.630	60.613	87.525	86.354	73.927
11/29/09 16:00	43.868	46.576	60.538	87.394	86.291	73.796
11/29/09 20:00	43.682	46.550	60.465	87.268	86.230	73.670
11/30/09 0:00	43.668	46.512	60.354	87.140	86.168	73.538
11/30/09 4:00	43.675	46.463	60.271	87.013	86.105	73.408
11/30/09 8:00	43.694	46.419	60.179	86.886	86.044	73.279
11/30/09 12:00	43.773	46.379	60.292	86.757	85.977	73.148
11/30/09 16:00	43.898	46.311	60.097	86.626	85.912	73.013
11/30/09 20:00	43.745	46.261	60.024	86.494	85.847	72.879
12/1/09 0:00	43.701	46.210	59.952	86.365	85.784	72.746
12/1/09 4:00	43.689	46.149	59.876	86.234	85.716	72.615
12/1/09 8:00	43.666	46.095	59.805	86.106	85.654	72.485
12/1/09 12:00	43.698	46.060	59.734	85.977	85.588	72.354
12/1/09 16:00	43.812	45.994	59.665	85.853	85.526	72.224
12/1/09 20:00	43.522	45.982	59.596	85.733	85.468	72.119
12/2/09 0:00	43.408	45.973	59.529	85.616	85.407	72.000
12/2/09 4:00	43.362	45.945	59.460	85.496	85.349	71.883
12/2/09 8:00	43.336	45.916	59.395	85.378	85.288	71.774
12/2/09 12:00	43.420	45.888	59.328	85.256	85.228	71.654
12/2/09 16:00	43.506	45.837	59.257	85.135	85.165	71.532
12/2/09 20:00	43.332	45.820	59.193	85.019	85.107	71.422
12/3/09 0:00	43.267	45.801	59.129	84.904	85.049	71.313
12/3/09 4:00	43.250	45.780	59.064	84.789	84.986	71.199
12/3/09 8:00	43.248	45.747	59.002	84.669	84.928	71.087
12/3/09 12:00	43.283	45.731	58.940	84.556	84.870	70.982
12/3/09 16:00	43.371	45.694	58.874	84.435	84.812	70.865
12/3/09 20:00	43.246	45.675	58.809	84.319	84.754	70.758
12/4/09 0:00	43.218	45.654	58.750	84.204	84.691	70.649
12/4/09 4:00	43.225	45.618	58.686	84.089	84.635	70.537
12/4/09 8:00	43.253	45.572	58.624	83.971	84.572	70.425
12/4/09 12:00	43.299	45.536	58.559	83.852	84.514	70.310
12/4/09 16:00	43.341	45.473	58.494	83.730	84.447	70.194
12/4/09 20:00	43.241	45.442	58.432	83.609	84.386	70.076
12/5/09 0:00	43.227	45.391	58.370	83.492	84.328	69.962

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
12/5/09 4:00	43.220	45.344	58.304	83.373	84.263	69.850
12/5/09 8:00	43.181	45.304	58.244	83.259	84.205	69.742
12/5/09 12:00	43.181	45.281	58.182	83.145	84.144	69.635
12/5/09 16:00	43.260	45.236	58.118	83.030	84.084	69.522
12/5/09 20:00	43.062	45.227	58.063	82.923	84.028	69.428
12/6/09 0:00	42.988	45.215	58.003	82.816	83.972	69.330
12/6/09 4:00	42.951	45.208	57.946	82.708	83.916	69.227
12/6/09 8:00	42.951	45.182	57.884	82.597	83.856	69.129
12/6/09 12:00	42.972	45.159	57.834	82.484	83.800	69.025
12/6/09 16:00	43.025	45.105	57.769	82.374	83.740	68.920
12/6/09 20:00	42.953	45.095	57.714	82.268	83.684	68.824
12/7/09 0:00	42.877	45.095	57.654	82.165	83.630	68.729
12/7/09 4:00	42.844	45.100	57.601	82.059	83.575	68.641
12/7/09 8:00	42.842	45.081	57.548	81.957	83.519	68.548
12/7/09 12:00	42.823	45.079	57.493	81.850	83.461	68.454
12/7/09 16:00	42.905	45.034	57.434	81.738	83.405	68.351
12/7/09 20:00	42.914	45.004	57.377	81.628	83.347	68.251
12/8/09 0:00	42.923	44.964	57.321	81.518	83.286	68.147
12/8/09 4:00	42.928	44.912	57.264	81.407	83.226	68.040
12/8/09 8:00	43.023	44.837	57.205	81.288	83.161	67.925
12/8/09 12:00	43.021	44.771	57.145	81.171	83.098	67.813
12/8/09 16:00	43.074	44.689	57.083	81.052	83.035	67.701
12/8/09 20:00	42.914	44.664	57.026	80.945	82.977	67.597
12/9/09 0:00	42.758	44.661	56.978	80.844	82.923	67.520
12/9/09 4:00	42.605	44.692	56.923	80.749	82.872	67.436
12/9/09 8:00	42.510	44.720	56.874	80.653	82.819	67.361
12/9/09 12:00	42.450	44.729	56.819	80.555	82.768	67.274
12/9/09 16:00	42.480	44.708	56.769	80.455	82.709	67.189
12/9/09 20:00	42.485	44.701	56.718	80.352	82.656	67.102
12/10/09 0:00	42.512	44.682	56.668	80.254	82.600	67.014
12/10/09 4:00	42.503	44.671	56.618	80.150	82.547	66.927
12/10/09 8:00	42.508	44.659	56.568	80.053	82.493	66.842
12/10/09 12:00	42.485	44.659	56.515	79.953	82.440	66.758
12/10/09 16:00	42.510	44.638	56.465	79.853	82.379	66.667
12/10/09 20:00	42.508	44.624	56.416	79.755	82.328	66.585
12/11/09 0:00	42.492	44.610	56.366	79.654	82.272	66.499
12/11/09 4:00	42.485	44.600	56.314	79.555	82.219	66.418
12/11/09 8:00	42.487	44.586	56.266	79.456	82.163	66.329
12/11/09 12:00	42.468	44.572	56.218	79.358	82.107	66.247
12/11/09 16:00	42.512	44.532	56.165	79.256	82.054	66.156
12/11/09 20:00	42.498	44.516	56.121	79.158	81.998	66.072
12/12/09 0:00	42.485	44.492	56.068	79.059	81.942	65.985
12/12/09 4:00	42.482	44.459	56.020	78.957	81.886	65.898
12/12/09 8:00	42.485	44.427	55.967	78.854	81.830	65.807
12/12/09 12:00	42.471	44.398	55.922	78.756	81.772	65.721
12/12/09 16:00	42.494	44.354	55.872	78.652	81.719	65.632
12/12/09 20:00	42.420	44.347	55.824	78.556	81.663	65.549
12/13/09 0:00	42.357	44.335	55.776	78.460	81.609	65.472
12/13/09 4:00	42.331	44.321	55.730	78.367	81.558	65.392
12/13/09 8:00	42.297	44.312	55.687	78.273	81.505	65.315
12/13/09 12:00	42.266	44.309	55.639	78.180	81.454	65.234
12/13/09 16:00	42.320	44.258	55.586	78.073	81.393	65.143
12/13/09 20:00	42.315	44.232	55.540	77.979	81.337	65.061
12/14/09 0:00	42.315	44.199	55.493	77.879	81.284	64.977
12/14/09 4:00	42.162	44.215	55.451	77.796	81.235	64.914

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
12/14/09 8:00	42.032	44.253	55.414	77.713	81.188	64.857
12/14/09 12:00	41.960	44.293	55.369	77.631	81.142	64.793
12/14/09 16:00	41.993	44.295	55.328	77.541	81.091	64.728
12/14/09 20:00	42.004	44.302	55.285	77.457	81.044	64.660
12/15/09 0:00	41.990	44.316	55.250	77.374	80.996	64.599
12/15/09 4:00	42.016	44.319	55.207	77.285	80.942	64.528
12/15/09 8:00	42.027	44.319	55.168	77.200	80.893	64.460
12/15/09 12:00	42.051	44.321	55.125	77.110	80.842	64.390
12/15/09 16:00	42.164	44.281	55.082	77.019	80.791	64.317
12/15/09 20:00	42.178	44.262	55.041	76.930	80.737	64.238
12/16/09 0:00	42.187	44.241	55.000	76.837	80.684	64.164
12/16/09 4:00	42.211	44.208	54.954	76.741	80.630	64.087
12/16/09 8:00	42.208	44.171	54.913	76.654	80.579	64.012
12/16/09 12:00	42.176	44.159	54.869	76.562	80.526	63.938
12/16/09 16:00	42.204	44.117	54.828	76.473	80.472	63.865
12/16/09 20:00	42.148	44.105	54.787	76.384	80.421	63.791
12/17/09 0:00	42.160	44.077	54.744	76.289	80.368	63.714
12/17/09 4:00	42.127	44.054	54.700	76.205	80.317	63.642
12/17/09 8:00	42.095	44.030	54.659	76.116	80.265	63.572
12/17/09 12:00	42.058	44.021	54.623	76.030	80.212	63.503
12/17/09 16:00	42.037	43.997	54.582	75.941	80.160	63.435
12/17/09 20:00	41.997	43.995	54.541	75.859	80.112	63.369
12/18/09 0:00	41.969	43.988	54.503	75.771	80.061	63.301
12/18/09 4:00	41.958	43.974	54.464	75.684	80.012	63.234
12/18/09 8:00	41.935	43.957	54.423	75.602	79.961	63.167
12/18/09 12:00	41.935	43.948	54.384	75.517	79.912	63.099
12/18/09 16:00	41.935	43.922	54.346	75.432	79.861	63.034
12/18/09 20:00	41.888	43.924	54.309	75.350	79.812	62.975
12/19/09 0:00	41.856	43.924	54.267	75.270	79.761	62.910
12/19/09 4:00	41.835	43.922	54.233	75.188	79.714	62.848
12/19/09 8:00	41.798	43.922	54.199	75.110	79.665	62.789
12/19/09 12:00	41.791	43.927	54.161	75.027	79.617	62.730
12/19/09 16:00	41.851	43.903	54.122	74.943	79.565	62.665
12/19/09 20:00	41.835	43.889	54.086	74.863	79.517	62.600
12/20/09 0:00	41.856	43.868	54.047	74.780	79.465	62.531
12/20/09 4:00	41.851	43.849	54.011	74.695	79.417	62.467
12/20/09 8:00	41.837	43.826	53.972	74.611	79.368	62.402
12/20/09 12:00	41.788	43.828	53.936	74.533	79.319	62.346
12/20/09 16:00	41.774	43.831	53.902	74.458	79.272	62.288
12/20/09 20:00	41.703	43.831	53.866	74.378	79.224	62.230
12/21/09 0:00	41.675	43.826	53.829	74.299	79.177	62.171
12/21/09 4:00	41.700	43.807	53.798	74.222	79.126	62.108
12/21/09 8:00	41.726	43.784	53.761	74.140	79.077	62.045
12/21/09 12:00	41.754	43.763	53.724	74.059	79.026	61.981
12/21/09 16:00	41.800	43.737	53.686	73.975	78.975	61.915
12/21/09 20:00	41.723	43.711	53.649	73.897	78.928	61.854
12/22/09 0:00	41.686	43.695	53.615	73.817	78.879	61.798
12/22/09 4:00	41.649	43.690	53.581	73.739	78.831	61.740
12/22/09 8:00	41.638	43.680	53.545	73.664	78.784	61.683
12/22/09 12:00	41.619	43.685	53.513	73.588	78.737	61.626
12/22/09 16:00	41.633	43.666	53.479	73.511	78.689	61.570
12/22/09 20:00	41.570	43.669	53.446	73.437	78.642	61.516
12/23/09 0:00	41.577	43.652	53.414	73.357	78.593	61.460
12/23/09 4:00	41.610	43.624	53.380	73.280	78.544	61.395
12/23/09 8:00	41.475	43.589	53.343	73.201	78.498	61.337

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
12/23/09 12:00	41.461	43.575	53.310	73.126	78.447	61.278
12/23/09 16:00	41.466	43.544	53.277	73.049	78.400	61.220
12/23/09 20:00	41.396	43.549	53.245	72.975	78.354	61.171
12/24/09 0:00	41.352	43.540	53.209	72.902	78.307	61.118
12/24/09 4:00	41.299	43.479	53.180	72.832	78.263	61.069
12/24/09 8:00	41.255	43.397	53.143	72.758	78.217	61.017
12/24/09 12:00	41.266	43.296	53.116	72.687	78.170	60.963
12/24/09 16:00	41.340	43.188	53.085	72.610	78.121	60.906
12/24/09 20:00	41.380	43.066	53.046	72.530	78.074	60.843
12/25/09 0:00	41.426	42.981	53.012	72.454	78.024	60.780
12/25/09 4:00	41.433	42.913	52.980	72.379	77.975	60.723
12/25/09 8:00	41.389	42.873	52.946	72.299	77.928	60.663
12/25/09 12:00	41.357	42.845	52.915	72.231	77.879	60.610
12/25/09 16:00	41.329	42.805	52.881	72.156	77.831	60.556
12/25/09 20:00	41.248	42.808	52.849	72.084	77.786	60.505
12/26/09 0:00	41.220	42.789	52.819	72.014	77.740	60.455
12/26/09 4:00	41.173	42.787	52.787	71.948	77.696	60.408
12/26/09 8:00	41.111	42.796	52.758	71.884	77.654	60.368
12/26/09 12:00	41.069	42.812	52.729	71.816	77.610	60.325
12/26/09 16:00	41.064	42.810	52.702	71.747	77.565	60.285
12/26/09 20:00	41.069	42.815	52.675	71.681	77.521	60.238
12/27/09 0:00	41.104	42.798	52.645	71.613	77.477	60.191
12/27/09 4:00	41.132	42.777	52.614	71.547	77.433	60.144
12/27/09 8:00	41.094	42.780	52.584	71.480	77.391	60.104
12/27/09 12:00	41.036	42.803	52.560	71.417	77.347	60.064
12/27/09 16:00	41.097	42.794	52.533	71.351	77.305	60.019
12/27/09 20:00	41.101	42.787	52.506	71.287	77.263	59.976
12/28/09 0:00	41.113	42.775	52.479	71.221	77.221	59.932
12/28/09 4:00	41.146	42.749	52.447	71.153	77.175	59.884
12/28/09 8:00	41.143	42.733	52.422	71.088	77.128	59.842
12/28/09 12:00	41.108	42.740	52.392	71.023	77.091	59.800
12/28/09 16:00	41.132	42.719	52.370	70.962	77.047	59.757
12/28/09 20:00	41.101	42.721	52.343	70.897	77.005	59.717
12/29/09 0:00	41.134	42.702	52.316	70.832	76.961	59.672
12/29/09 4:00	41.166	42.674	52.289	70.768	76.917	59.628
12/29/09 8:00	41.190	42.641	52.262	70.697	76.870	59.581
12/29/09 12:00	41.190	42.622	52.237	70.631	76.828	59.528
12/29/09 16:00	41.231	42.552	52.206	70.561	76.779	59.474
12/29/09 20:00	41.248	42.507	52.174	70.491	76.738	59.425
12/30/09 0:00	41.243	42.467	52.147	70.423	76.689	59.376
12/30/09 4:00	41.252	42.414	52.118	70.353	76.642	59.324
12/30/09 8:00	41.229	42.369	52.091	70.286	76.598	59.277
12/30/09 12:00	41.164	42.350	52.064	70.221	76.554	59.229
12/30/09 16:00	41.155	42.308	52.032	70.156	76.509	59.180
12/30/09 20:00	41.027	42.322	52.009	70.095	76.465	59.147
12/31/09 0:00	40.978	42.327	51.984	70.036	76.428	59.111
12/31/09 4:00	40.918	42.334	51.962	69.977	76.386	59.078
12/31/09 8:00	40.909	42.327	51.937	69.920	76.347	59.040
12/31/09 12:00	40.851	42.355	51.917	69.864	76.307	59.010
12/31/09 16:00	40.918	42.341	51.890	69.799	76.265	58.968
12/31/09 20:00	40.934	42.331	51.868	69.741	76.224	58.931
1/1/10 0:00	40.944	42.324	51.841	69.680	76.184	58.891
1/1/10 4:00	40.974	42.299	51.819	69.620	76.140	58.854
1/1/10 8:00	40.983	42.282	51.794	69.561	76.100	58.812
1/1/10 12:00	40.937	42.292	51.772	69.505	76.058	58.781

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
1/1/10 16:00	40.999	42.261	51.747	69.445	76.014	58.740
1/1/10 20:00	40.951	42.259	51.729	69.384	75.977	58.703
1/2/10 0:00	40.988	42.247	51.705	69.323	75.935	58.667
1/2/10 4:00	41.006	42.223	51.681	69.265	75.896	58.625
1/2/10 8:00	41.041	42.184	51.654	69.202	75.849	58.583
1/2/10 12:00	41.053	42.158	51.630	69.141	75.807	58.537
1/2/10 16:00	41.083	42.104	51.607	69.077	75.765	58.497
1/2/10 20:00	41.046	42.080	51.583	69.020	75.723	58.455
1/3/10 0:00	41.004	42.069	51.563	68.962	75.679	58.417
1/3/10 4:00	40.990	42.050	51.534	68.902	75.640	58.380
1/3/10 8:00	40.976	42.026	51.516	68.843	75.598	58.344
1/3/10 12:00	40.925	42.029	51.491	68.789	75.561	58.311
1/3/10 16:00	40.946	42.144	51.469	68.729	75.521	58.271
1/3/10 20:00	40.909	42.003	51.447	68.673	75.482	58.238
1/4/10 0:00	40.899	41.998	51.427	68.619	75.440	58.204
1/4/10 4:00	40.916	41.979	51.407	68.562	75.400	58.169
1/4/10 8:00	40.916	41.958	51.382	68.505	75.361	58.131
1/4/10 12:00	40.906	41.949	51.361	68.449	75.321	58.096
1/4/10 16:00	40.964	41.914	51.336	68.387	75.279	58.056
1/4/10 20:00	40.953	41.886	51.316	68.333	75.238	58.018
1/5/10 0:00	40.937	41.872	51.292	68.276	75.196	57.980
1/5/10 4:00	40.920	41.855	51.272	68.217	75.156	57.947
1/5/10 8:00	40.909	41.836	51.254	68.165	75.119	57.909
1/5/10 12:00	40.895	41.829	51.229	68.106	75.075	57.869
1/5/10 16:00	40.937	41.780	51.207	68.049	75.035	57.833
1/5/10 20:00	40.941	41.743	51.185	67.990	74.993	57.793
1/6/10 0:00	40.925	41.717	51.160	67.934	74.952	57.751
1/6/10 4:00	40.937	41.679	51.138	67.873	74.912	57.713
1/6/10 8:00	40.923	41.644	51.116	67.817	74.870	57.673
1/6/10 12:00	40.846	41.635	51.093	67.763	74.831	57.639
1/6/10 16:00	40.821	41.618	51.076	67.708	74.793	57.606
1/6/10 20:00	40.735	41.639	51.052	67.661	74.754	57.585
1/7/10 0:00	40.700	41.651	51.032	67.604	74.716	57.550
1/7/10 4:00	40.735	41.632	51.012	67.556	74.682	57.519
1/7/10 8:00	40.716	41.628	50.997	67.500	74.640	57.492
1/7/10 12:00	40.660	41.649	50.982	67.450	74.603	57.464
1/7/10 16:00	40.714	41.632	50.955	67.401	74.566	57.429
1/7/10 20:00	40.702	41.637	50.939	67.349	74.531	57.400
1/8/10 0:00	40.698	41.635	50.922	67.299	74.491	57.373
1/8/10 4:00	40.714	41.623	50.902	67.246	74.452	57.338
1/8/10 8:00	40.730	41.613	50.882	67.197	74.414	57.310
1/8/10 12:00	40.728	41.606	50.862	67.145	74.375	57.279
1/8/10 16:00	40.793	41.571	50.839	67.091	74.335	57.242
1/8/10 20:00	40.779	41.569	50.826	67.039	74.300	57.210
1/9/10 0:00	40.758	41.550	50.806	66.989	74.258	57.182
1/9/10 4:00	40.749	41.538	50.788	66.942	74.224	57.149
1/9/10 8:00	40.746	41.531	50.768	66.890	74.184	57.123
1/9/10 12:00	40.709	41.531	50.750	66.839	74.149	57.090
1/9/10 16:00	40.760	41.501	50.728	66.785	74.110	57.061
1/9/10 20:00	40.763	41.489	50.713	66.736	74.072	57.028
1/10/10 0:00	40.753	41.470	50.695	66.686	74.033	56.995
1/10/10 4:00	40.772	41.435	50.670	66.632	73.991	56.960
1/10/10 8:00	40.788	41.398	50.653	66.580	73.956	56.923
1/10/10 12:00	40.772	41.372	50.630	66.525	73.917	56.888
1/10/10 16:00	40.811	41.327	50.613	66.471	73.875	56.853

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
1/10/10 20:00	40.730	41.323	50.597	66.421	73.840	56.822
1/11/10 0:00	40.700	41.311	50.577	66.373	73.800	56.796
1/11/10 4:00	40.670	41.297	50.557	66.326	73.763	56.767
1/11/10 8:00	40.619	41.301	50.540	66.279	73.731	56.741
1/11/10 12:00	40.551	41.325	50.524	66.233	73.693	56.720
1/11/10 16:00	40.584	41.316	50.506	66.182	73.658	56.692
1/11/10 20:00	40.563	41.327	50.490	66.139	73.621	56.668
1/12/10 0:00	40.568	41.325	50.473	66.091	73.586	56.641
1/12/10 4:00	40.602	41.308	50.455	66.042	73.552	56.613
1/12/10 8:00	40.628	41.287	50.437	65.995	73.512	56.582
1/12/10 12:00	40.635	41.273	50.422	65.944	73.475	56.549
1/12/10 16:00	40.714	41.219	50.400	65.888	73.435	56.514
1/12/10 20:00	40.712	41.189	50.382	65.838	73.396	56.480
1/13/10 0:00	40.695	41.165	50.362	65.790	73.361	56.449
1/13/10 4:00	40.681	41.135	50.347	65.739	73.321	56.419
1/13/10 8:00	40.663	41.107	50.327	65.692	73.282	56.386
1/13/10 12:00	40.623	41.100	50.309	65.641	73.247	56.353
1/13/10 16:00	40.670	41.050	50.289	65.590	73.207	56.317
1/13/10 20:00	40.591	41.041	50.269	65.543	73.173	56.293
1/14/10 0:00	40.535	41.041	50.251	65.495	73.135	56.265
1/14/10 4:00	40.500	41.032	50.238	65.452	73.100	56.241
1/14/10 8:00	40.454	41.043	50.220	65.408	73.066	56.217
1/14/10 12:00	40.384	41.074	50.205	65.364	73.033	56.198
1/14/10 16:00	40.410	41.067	50.189	65.320	72.996	56.172
1/14/10 20:00	40.387	41.079	50.176	65.276	72.963	56.150
1/15/10 0:00	40.384	41.090	50.163	65.234	72.928	56.131
1/15/10 4:00	40.391	41.090	50.146	65.187	72.893	56.107
1/15/10 8:00	40.428	41.076	50.133	65.143	72.859	56.083
1/15/10 12:00	40.398	41.093	50.117	65.101	72.824	56.059
1/15/10 16:00	40.468	41.064	50.100	65.054	72.786	56.034
1/15/10 20:00	40.500	41.039	50.084	65.006	72.754	56.005
1/16/10 0:00	40.482	41.032	50.071	64.964	72.717	55.979
1/16/10 4:00	40.491	41.010	50.054	64.916	72.680	55.952
1/16/10 8:00	40.505	40.980	50.033	64.870	72.647	55.926
1/16/10 12:00	40.468	40.985	50.017	64.826	72.612	55.898
1/16/10 16:00	40.521	40.940	50.002	64.779	72.573	55.868
1/16/10 20:00	40.489	40.919	49.987	64.735	72.537	55.843
1/17/10 0:00	40.500	40.896	49.976	64.689	72.503	55.812
1/17/10 4:00	40.463	40.884	49.956	64.644	72.466	55.786
1/17/10 8:00	40.461	40.856	49.941	64.595	72.431	55.758
1/17/10 12:00	40.401	40.858	49.918	64.553	72.398	55.736
1/17/10 16:00	40.419	40.835	49.908	64.511	72.361	55.710
1/17/10 20:00	40.356	40.839	49.893	64.468	72.328	55.691
1/18/10 0:00	40.315	40.851	49.880	64.430	72.293	55.670
1/18/10 4:00	40.326	40.842	49.864	64.383	72.261	55.646
1/18/10 8:00	40.317	40.830	49.851	64.342	72.228	55.621
1/18/10 12:00	40.310	40.830	49.838	64.299	72.191	55.598
1/18/10 16:00	40.354	40.802	49.822	64.254	72.156	55.572
1/18/10 20:00	40.324	40.792	49.807	64.214	72.124	55.551
1/19/10 0:00	40.305	40.785	49.789	64.171	72.089	55.527
1/19/10 4:00	40.322	40.759	49.778	64.129	72.056	55.500
1/19/10 8:00	40.336	40.729	49.763	64.085	72.019	55.474
1/19/10 12:00	40.324	40.708	49.748	64.043	71.984	55.453
1/19/10 16:00	40.377	40.656	49.730	63.996	71.949	55.424
1/19/10 20:00	40.349	40.635	49.715	63.955	71.917	55.399

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
1/20/10 0:00	40.370	40.588	49.692	63.908	71.880	55.367
1/20/10 4:00	40.370	40.548	49.684	63.865	71.844	55.339
1/20/10 8:00	40.275	40.537	49.666	63.824	71.810	55.322
1/20/10 12:00	40.208	40.539	49.653	63.785	71.780	55.303
1/20/10 16:00	40.219	40.508	49.640	63.745	71.744	55.279
1/20/10 20:00	40.168	40.508	49.627	63.706	71.712	55.262
1/21/10 0:00	40.201	40.492	49.614	63.665	71.677	55.241
1/21/10 4:00	40.182	40.403	49.598	63.625	71.647	55.217
1/21/10 8:00	40.148	40.246	49.585	63.585	71.612	55.198
1/21/10 12:00	40.131	40.086	49.572	63.551	71.582	55.178
1/21/10 16:00	40.164	40.049	49.559	63.509	71.547	55.154
1/21/10 20:00	40.127	39.908	49.546	63.468	71.514	55.140
1/22/10 0:00	40.122	39.758	49.535	63.433	71.484	55.123
1/22/10 4:00	40.157	39.629	49.518	63.389	71.449	55.095
1/22/10 8:00	40.194	39.462	49.505	63.351	71.417	55.075
1/22/10 12:00	40.222	39.277	49.492	63.309	71.384	55.049
1/22/10 16:00	40.291	39.166	49.477	63.273	71.349	55.016
1/22/10 20:00	40.266	39.042	49.464	63.233	71.312	54.995
1/23/10 0:00	40.236	38.880	49.448	63.197	71.279	54.967
1/23/10 4:00	40.254	38.664	49.431	63.154	71.245	54.942
1/23/10 8:00	40.226	38.481	49.418	63.117	71.210	54.919
1/23/10 12:00	40.194	38.329	49.404	63.081	71.177	54.900
1/23/10 16:00	40.059	38.136	49.386	63.045	71.147	54.881
1/23/10 20:00	39.804	37.930	49.375	63.009	71.114	54.866
1/24/10 0:00	39.667	37.881	49.365	62.976	71.084	54.851
1/24/10 4:00	39.556	37.813	49.354	62.938	71.052	54.830
1/24/10 8:00	39.421	37.756	49.339	62.902	71.019	54.813
1/24/10 12:00	39.365	37.684	49.328	62.860	70.989	54.796
1/24/10 16:00	39.344	37.583	49.313	62.821	70.956	54.776
1/24/10 20:00	39.075	37.517	49.300	62.786	70.926	54.758
1/25/10 0:00	38.876	37.428	49.289	62.748	70.894	54.739
1/25/10 4:00	38.699	37.339	49.276	62.709	70.861	54.720
1/25/10 8:00	38.483	37.273	49.268	62.676	70.831	54.708
1/25/10 12:00	38.249	37.242	49.271	62.641	70.803	54.695
1/25/10 16:00	38.121	37.160	49.259	62.595	70.766	54.677
1/25/10 20:00	37.859	37.116	49.248	62.561	70.738	54.662
1/26/10 0:00	37.667	37.064	49.234	62.528	70.707	54.645
1/26/10 4:00	37.451	37.015	49.224	62.491	70.680	54.637
1/26/10 8:00	37.281	36.956	49.215	62.456	70.649	54.621
1/26/10 12:00	37.093	36.916	49.203	62.424	70.617	54.605
1/26/10 16:00	37.072	36.813	49.192	62.385	70.589	54.581
1/26/10 20:00	36.775	36.740	49.178	62.350	70.559	54.565
1/27/10 0:00	36.636	36.661	49.166	62.311	70.526	54.544
1/27/10 4:00	36.471	36.583	49.154	62.273	70.493	54.521
1/27/10 8:00	36.323	36.508	49.140	62.234	70.463	54.501
1/27/10 12:00	36.137	36.482	49.133	62.204	70.435	54.487
1/27/10 16:00	36.026	36.428	49.122	62.170	70.405	54.473
1/27/10 20:00	35.652	36.426	49.112	62.139	70.380	54.463
1/28/10 0:00	35.490	36.400	49.098	62.104	70.349	54.452
1/28/10 4:00	35.364	36.353	49.091	62.075	70.324	54.438
1/28/10 8:00	35.262	36.304	49.084	62.039	70.294	54.424
1/28/10 12:00	35.209	36.269	49.070	62.004	70.266	54.406
1/28/10 16:00	35.213	36.166	49.059	61.970	70.231	54.383
1/28/10 20:00	35.056	36.121	49.050	61.933	70.203	54.364
1/29/10 0:00	34.937	36.076	49.038	61.896	70.173	54.348

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
1/29/10 4:00	34.865	36.004	49.029	61.861	70.142	54.325
1/29/10 8:00	34.786	35.924	49.015	61.825	70.112	54.301
1/29/10 12:00	34.640	35.903	49.003	61.792	70.082	54.285
1/29/10 16:00	34.587	35.802	48.989	61.752	70.049	54.260
1/29/10 20:00	34.396	35.762	48.977	61.714	70.021	54.242
1/30/10 0:00	34.264	35.732	48.966	61.680	69.991	54.223
1/30/10 4:00	34.143	35.689	48.956	61.648	69.961	54.202
1/30/10 8:00	34.020	35.652	48.947	61.610	69.931	54.184
1/30/10 12:00	33.925	35.642	48.933	61.579	69.898	54.170
1/30/10 16:00	33.960	35.570	48.924	61.541	69.870	54.146
1/30/10 20:00	33.698	35.541	48.907	61.507	69.842	54.130
1/31/10 0:00	33.575	35.530	48.898	61.474	69.814	54.427
1/31/10 4:00	33.491	35.504	48.889	61.440	69.784	56.320
1/31/10 8:00	33.392	35.473	48.877	61.407	69.754	56.739
1/31/10 12:00	33.347	35.464	48.870	61.374	69.726	56.690
1/31/10 16:00	33.431	35.401	48.856	61.339	69.698	56.642
1/31/10 20:00	33.229	35.361	48.847	61.305	69.670	56.593
2/1/10 0:00	33.152	35.335	48.835	61.270	69.637	56.548
2/1/10 4:00	33.127	35.293	48.823	61.235	69.608	56.502
2/1/10 8:00	33.088	35.241	48.809	61.199	69.577	56.456
2/1/10 12:00	33.004	35.222	48.798	61.166	69.549	56.414
2/1/10 16:00	32.962	35.180	48.786	61.131	69.521	56.370
2/1/10 20:00	32.823	35.171	48.779	61.101	69.491	56.331
2/2/10 0:00	32.742	35.166	48.770	61.066	69.463	56.293
2/2/10 4:00	32.660	35.164	48.756	61.039	69.438	56.256
2/2/10 8:00	32.568	35.166	48.746	61.008	69.410	56.219
2/2/10 12:00	32.554	35.161	48.739	60.979	69.384	56.185
2/2/10 16:00	32.686	35.117	48.728	60.941	69.352	56.148
2/2/10 20:00	32.479	35.100	48.718	60.914	69.324	56.110
2/3/10 0:00	32.405	35.091	48.709	60.881	69.298	56.073
2/3/10 4:00	32.408	35.063	48.697	60.849	69.270	56.036
2/3/10 8:00	32.349	35.044	48.693	60.816	69.242	56.003
2/3/10 12:00	32.405	35.023	48.679	60.782	69.214	55.966
2/3/10 16:00	32.424	34.995	48.667	60.755	69.184	55.930
2/3/10 20:00	32.298	34.976	48.651	60.722	69.156	55.897
2/4/10 0:00	32.254	34.967	48.646	60.689	69.131	55.862
2/4/10 4:00	32.206	34.957	48.637	60.659	69.103	55.827
2/4/10 8:00	32.231	34.910	48.627	60.625	69.077	55.792
2/4/10 12:00	32.226	34.971	48.618	60.594	69.042	55.755
2/4/10 16:00	32.280	34.929	48.604	60.557	69.026	55.718
2/4/10 20:00	32.220	34.788	48.593	60.525	68.998	55.683
2/5/10 0:00	32.196	34.777	48.583	60.492	68.965	55.649
2/5/10 4:00	32.182	34.734	48.572	60.460	68.933	55.614
2/5/10 8:00	32.161	34.704	48.560	60.427	68.908	55.579
2/5/10 12:00	32.103	34.692	48.548	60.400	68.880	55.549
2/5/10 16:00	32.078	34.687	48.541	60.367	68.852	55.514
2/5/10 20:00	32.011	34.720	48.530	60.339	68.824	55.488
2/6/10 0:00	31.985	34.713	48.525	60.312	68.801	55.460
2/6/10 4:00	31.990	34.734	48.513	60.284	68.772	55.431
2/6/10 8:00	31.992	34.727	48.502	60.254	68.747	55.403
2/6/10 12:00	32.001	34.725	48.495	60.223	68.721	55.370
2/6/10 16:00	32.066	34.692	48.485	60.194	68.694	55.340
2/6/10 20:00	32.076	34.662	48.478	60.164	68.668	55.308
2/7/10 0:00	32.094	34.638	48.469	60.136	68.638	55.277
2/7/10 4:00	32.120	34.605	48.457	60.103	68.612	55.247

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
2/7/10 8:00	32.122	34.577	48.446	60.071	68.584	55.217
2/7/10 12:00	32.122	34.558	48.434	60.041	68.561	55.183
2/7/10 16:00	32.180	34.509	48.429	60.009	68.531	55.150
2/7/10 20:00	32.124	34.488	48.418	59.981	68.503	55.122
2/8/10 0:00	32.120	34.488	48.406	59.951	68.477	55.092
2/8/10 4:00	32.117	34.467	48.399	59.920	68.449	55.064
2/8/10 8:00	32.073	34.420	48.387	59.895	68.424	55.036
2/8/10 12:00	31.997	34.495	48.380	59.870	68.398	55.015
2/8/10 16:00	32.092	34.488	48.373	59.840	68.372	54.986
2/8/10 20:00	32.034	34.476	48.364	59.812	68.347	54.960
2/9/10 0:00	32.085	34.446	48.355	59.785	68.319	54.932
2/9/10 4:00	32.122	34.418	48.348	59.752	68.293	54.904
2/9/10 8:00	32.161	34.399	48.338	59.724	68.268	54.874
2/9/10 12:00	32.113	34.448	48.334	59.700	68.240	54.853
2/9/10 16:00	32.161	34.446	48.322	59.674	68.215	54.827
2/9/10 20:00	32.115	34.450	48.310	59.645	68.189	54.802
2/10/10 0:00	32.122	34.450	48.306	59.620	68.166	54.780
2/10/10 4:00	32.157	34.432	48.299	59.593	68.140	54.749
2/10/10 8:00	32.208	34.408	48.287	59.565	68.112	54.724
2/10/10 12:00	32.275	34.408	48.280	59.537	68.086	54.698
2/10/10 16:00	32.417	34.354	48.271	59.504	68.061	54.670
2/10/10 20:00	32.333	34.331	48.264	59.477	68.035	54.644
2/11/10 0:00	32.343	34.317	48.254	59.449	68.010	54.619
2/11/10 4:00	32.387	34.284	48.243	59.416	67.982	54.590
2/11/10 8:00	32.391	34.265	48.231	59.389	67.956	54.564
2/11/10 12:00	32.419	34.263	48.226	59.361	67.931	54.536
2/11/10 16:00	32.524	34.221	48.215	59.331	67.905	54.508
2/11/10 20:00	32.373	34.235	48.205	59.303	67.877	54.487
2/12/10 0:00	32.368	34.230	48.198	59.278	67.851	54.461
2/12/10 4:00	32.370	34.221	48.189	59.248	67.828	54.436
2/12/10 8:00	32.384	34.214	48.182	59.222	67.801	54.414
2/12/10 12:00	32.380	34.237	48.175	59.198	67.775	54.390
2/12/10 16:00	32.491	34.199	48.166	59.169	67.752	54.365
2/12/10 20:00	32.447	34.192	48.157	59.144	67.726	54.339
2/13/10 0:00	32.466	34.183	48.147	59.116	67.701	54.311
2/13/10 4:00	32.510	34.150	48.140	59.086	67.677	54.285
2/13/10 8:00	32.535	34.117	48.131	59.056	67.652	54.262
2/13/10 12:00	32.556	34.122	48.119	59.030	67.628	54.239
2/13/10 16:00	32.568	34.134	48.108	59.002	67.603	54.217
2/13/10 20:00	32.461	34.120	48.103	58.978	67.575	54.196
2/14/10 0:00	32.417	34.070	48.094	58.957	67.551	54.175
2/14/10 4:00	32.405	34.129	48.094	58.933	67.529	54.156
2/14/10 8:00	32.459	34.117	48.082	58.906	67.503	54.133
2/14/10 12:00	32.521	34.138	48.073	58.880	67.480	54.109
2/14/10 16:00	32.561	34.143	48.066	58.857	67.454	54.091
2/14/10 20:00	32.500	34.167	48.063	58.832	67.431	54.071
2/15/10 0:00	32.558	34.145	48.054	58.804	67.405	54.045
2/15/10 4:00	32.609	34.117	48.042	58.779	67.382	54.024
2/15/10 8:00	32.607	34.115	48.040	58.755	67.356	54.003
2/15/10 12:00	32.609	34.155	48.028	58.730	67.331	53.982
2/15/10 16:00	32.725	34.160	48.024	58.705	67.308	53.961
2/15/10 20:00	32.616	34.169	48.017	58.684	67.284	53.940
2/16/10 0:00	32.623	34.183	48.010	58.656	67.261	53.920
2/16/10 4:00	32.651	34.202	47.998	58.634	67.235	53.902
2/16/10 8:00	32.656	34.206	47.996	58.608	67.210	53.879

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
2/16/10 12:00	32.679	34.237	47.989	58.584	67.187	53.860
2/16/10 16:00	32.802	34.211	47.986	58.557	67.166	53.841
2/16/10 20:00	32.742	34.199	47.975	58.536	67.142	53.820
2/17/10 0:00	32.751	34.199	47.965	58.508	67.117	53.799
2/17/10 4:00	32.774	34.190	47.958	58.483	67.093	53.778
2/17/10 8:00	32.777	34.185	47.951	58.463	67.068	53.759
2/17/10 12:00	32.853	34.190	47.947	58.435	67.045	53.740
2/17/10 16:00	33.009	34.162	47.937	58.409	67.021	53.717
2/17/10 20:00	32.832	34.157	47.930	58.384	67.001	53.696
2/18/10 0:00	32.832	34.157	47.921	58.363	66.975	53.679
2/18/10 4:00	32.855	34.160	47.916	58.337	66.954	53.658
2/18/10 8:00	32.895	34.141	47.909	58.312	66.928	53.637
2/18/10 12:00	32.939	34.141	47.902	58.287	66.908	53.617
2/18/10 16:00	33.088	34.101	47.893	58.261	66.884	53.594
2/18/10 20:00	32.906	34.099	47.886	58.238	66.861	53.576
2/19/10 0:00	32.851	34.110	47.877	58.212	66.835	53.557
2/19/10 4:00	32.892	34.082	47.877	58.188	66.815	53.536
2/19/10 8:00	32.879	34.063	47.865	58.162	66.789	53.515
2/19/10 12:00	32.860	34.068	47.856	58.139	66.768	53.496
2/19/10 16:00	32.851	34.066	47.846	58.116	66.745	53.478
2/19/10 20:00	32.772	34.089	47.844	58.093	66.722	53.462
2/20/10 0:00	32.744	34.101	47.837	58.070	66.698	53.446
2/20/10 4:00	32.749	34.103	47.830	58.048	66.673	53.427
2/20/10 8:00	32.742	34.103	47.823	58.026	66.654	53.411
2/20/10 12:00	32.781	34.099	47.816	58.005	66.631	53.393
2/20/10 16:00	32.853	34.089	47.811	57.979	66.607	53.372
2/20/10 20:00	32.832	34.094	47.804	57.957	66.584	53.355
2/21/10 0:00	32.842	34.070	47.797	57.931	66.561	53.338
2/21/10 4:00	32.890	34.084	47.788	57.908	66.540	53.314
2/21/10 8:00	32.869	34.063	47.781	57.885	66.517	53.298
2/21/10 12:00	32.858	34.056	47.774	57.865	66.494	53.279
2/21/10 16:00	32.888	34.084	47.769	57.839	66.473	53.258
2/21/10 20:00	32.839	34.049	47.762	57.816	66.449	53.245
2/22/10 0:00	32.804	34.033	47.751	57.798	66.428	53.228
2/22/10 4:00	32.837	34.023	47.746	57.773	66.405	53.210
2/22/10 8:00	32.853	34.016	47.739	57.749	66.382	53.197
2/22/10 12:00	32.876	34.031	47.737	57.730	66.358	53.178
2/22/10 16:00	33.002	34.005	47.728	57.703	66.340	53.159
2/22/10 20:00	32.888	33.960	47.723	57.684	66.317	53.143
2/23/10 0:00	32.902	33.955	47.716	57.659	66.294	53.127
2/23/10 4:00	32.918	33.958	47.714	57.636	66.270	53.106
2/23/10 8:00	32.911	33.953	47.704	57.615	66.249	53.089
2/23/10 12:00	32.890	34.028	47.700	57.597	66.226	53.079
2/23/10 16:00	32.978	34.092	47.690	57.573	66.205	53.063
2/23/10 20:00	32.855	34.045	47.683	57.553	66.184	53.049
2/24/10 0:00	32.858	34.054	47.681	57.535	66.161	53.035
2/24/10 4:00	32.876	34.045	47.676	57.509	66.140	53.016
2/24/10 8:00	32.890	34.045	47.669	57.491	66.119	53.000
2/24/10 12:00	32.951	34.059	47.662	57.468	66.098	52.983
2/24/10 16:00	33.115	34.028	47.655	57.447	66.075	52.968
2/24/10 20:00	32.948	34.040	47.651	57.421	66.054	52.952
2/25/10 0:00	32.944	34.045	47.644	57.401	66.031	52.935
2/25/10 4:00	32.946	34.042	47.634	57.378	66.007	52.917
2/25/10 8:00	32.927	34.045	47.630	57.359	65.986	52.901
2/25/10 12:00	32.985	34.047	47.625	57.336	65.966	52.884

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
2/25/10 16:00	33.099	34.023	47.618	57.313	65.942	52.868
2/25/10 20:00	32.865	34.052	47.613	57.293	65.922	52.852
2/26/10 0:00	32.839	34.073	47.606	57.271	65.900	52.841
2/26/10 4:00	32.874	34.066	47.599	57.254	65.880	52.825
2/26/10 8:00	32.888	34.070	47.592	57.233	65.859	52.808
2/26/10 12:00	32.951	34.075	47.588	57.212	65.836	52.794
2/26/10 16:00	33.085	34.047	47.581	57.188	65.817	52.778
2/26/10 20:00	32.900	34.049	47.576	57.168	65.794	52.764
2/27/10 0:00	32.862	34.054	47.571	57.150	65.775	52.748
2/27/10 4:00	32.883	34.054	47.564	57.126	65.754	52.735
2/27/10 8:00	32.890	34.061	47.560	57.106	65.733	52.721
2/27/10 12:00	32.920	34.077	47.557	57.087	65.710	52.707
2/27/10 16:00	33.020	34.052	47.546	57.064	65.691	52.693
2/27/10 20:00	32.895	34.040	47.543	57.045	65.670	52.674
2/28/10 0:00	32.879	34.040	47.536	57.023	65.649	52.660
2/28/10 4:00	32.906	34.026	47.534	57.004	65.629	52.649
2/28/10 8:00	32.895	34.033	47.529	56.983	65.610	52.632
2/28/10 12:00	32.939	34.038	47.520	56.966	65.589	52.622
2/28/10 16:00	33.048	34.007	47.513	56.942	65.568	52.603
2/28/10 20:00	32.895	34.009	47.506	56.924	65.545	52.589
3/1/10 0:00	32.811	34.049	47.504	56.907	65.526	52.577
3/1/10 4:00	32.844	34.045	47.499	56.887	65.507	52.566
3/1/10 8:00	32.832	34.047	47.494	56.869	65.489	52.552
3/1/10 12:00	32.909	34.070	47.490	56.850	65.468	52.543
3/1/10 16:00	33.020	34.045	47.485	56.832	65.447	52.525
3/1/10 20:00	32.902	34.033	47.478	56.811	65.426	52.513
3/2/10 0:00	32.872	34.016	47.476	56.793	65.410	52.502
3/2/10 4:00	32.916	33.995	47.466	56.774	65.389	52.488
3/2/10 8:00	32.939	33.977	47.464	56.751	65.368	52.474
3/2/10 12:00	33.006	33.970	47.457	56.730	65.345	52.457
3/2/10 16:00	33.162	33.930	47.452	56.707	65.326	52.441
3/2/10 20:00	32.990	33.920	47.445	56.689	65.305	52.430
3/3/10 0:00	32.920	33.925	47.441	56.671	65.286	52.416
3/3/10 4:00	32.893	33.927	47.434	56.652	65.268	52.405
3/3/10 8:00	32.904	33.918	47.429	56.636	65.247	52.391
3/3/10 12:00	32.971	33.934	47.424	56.616	65.226	52.379
3/3/10 16:00	33.136	33.906	47.420	56.595	65.208	52.363
3/3/10 20:00	32.999	33.885	47.415	56.574	65.191	52.351
3/4/10 0:00	32.906	33.890	47.408	56.557	65.170	52.340
3/4/10 4:00	32.923	33.876	47.403	56.538	65.152	52.329
3/4/10 8:00	32.932	33.871	47.399	56.521	65.128	52.315
3/4/10 12:00	33.032	33.880	47.394	56.500	65.110	52.301
3/4/10 16:00	33.229	33.831	47.387	56.480	65.089	52.287
3/4/10 20:00	33.062	33.812	47.385	56.461	65.070	52.273
3/5/10 0:00	32.951	33.826	47.380	56.443	65.049	52.264
3/5/10 4:00	32.962	33.812	47.371	56.424	65.031	52.250
3/5/10 8:00	32.983	33.798	47.366	56.408	65.007	52.237
3/5/10 12:00	33.097	33.794	47.361	56.387	64.991	52.225
3/5/10 16:00	33.271	33.744	47.357	56.369	64.968	52.209
3/5/10 20:00	33.127	33.723	47.352	56.349	64.949	52.197
3/6/10 0:00	33.029	33.730	47.343	56.332	64.926	52.186
3/6/10 4:00	33.034	33.726	47.340	56.314	64.907	52.174
3/6/10 8:00	33.023	33.688	47.336	56.297	64.891	52.162
3/6/10 12:00	33.081	33.702	47.329	56.277	64.873	52.148
3/6/10 16:00	33.224	33.650	47.326	56.259	64.852	52.138

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
3/6/10 20:00	33.085	33.646	47.319	56.240	64.831	52.128
3/7/10 0:00	32.985	33.653	47.317	56.225	64.814	52.117
3/7/10 4:00	32.990	33.646	47.312	56.206	64.793	52.105
3/7/10 8:00	33.013	33.629	47.308	56.192	64.775	52.096
3/7/10 12:00	33.101	33.613	47.303	56.171	64.756	52.084
3/7/10 16:00	33.245	33.559	47.296	56.153	64.738	52.068
3/7/10 20:00	33.176	33.533	47.289	56.135	64.717	52.057
3/8/10 0:00	33.162	33.496	47.287	56.116	64.700	52.043
3/8/10 4:00	33.183	33.463	47.282	56.093	64.677	52.032
3/8/10 8:00	33.208	33.428	47.275	56.077	64.659	52.018
3/8/10 12:00	33.278	33.397	47.268	56.054	64.638	52.004
3/8/10 16:00	33.387	33.320	47.259	56.035	64.617	51.983
3/8/10 20:00	33.317	33.364	47.252	56.027	64.598	51.969
3/9/10 0:00	33.299	33.303	47.247	56.003	64.579	51.955
3/9/10 4:00	33.301	33.247	47.240	55.985	64.561	51.937
3/9/10 8:00	33.252	33.223	47.233	55.965	64.538	51.925
3/9/10 12:00	33.257	33.207	47.226	55.944	64.519	51.911
3/9/10 16:00	33.273	33.167	47.217	55.930	64.500	51.895
3/9/10 20:00	33.166	33.151	47.212	55.911	64.482	51.886
3/10/10 0:00	33.122	33.141	47.205	55.896	64.463	51.874
3/10/10 4:00	33.101	33.144	47.198	55.882	64.445	51.863
3/10/10 8:00	33.088	33.101	47.196	55.858	64.424	51.852
3/10/10 12:00	33.134	33.097	47.189	55.837	64.405	51.840
3/10/10 16:00	33.190	33.036	47.182	55.822	64.387	51.829
3/10/10 20:00	33.176	32.991	47.175	55.801	64.368	51.815
3/11/10 0:00	33.173	33.040	47.166	55.794	64.352	51.803
3/11/10 4:00	33.146	32.954	47.166	55.779	64.329	51.789
3/11/10 8:00	33.148	32.900	47.156	55.760	64.314	51.777
3/11/10 12:00	33.169	32.897	47.154	55.743	64.296	51.767
3/11/10 16:00	33.176	32.860	47.147	55.725	64.277	51.757
3/11/10 20:00	33.143	32.803	47.142	55.709	64.259	51.748
3/12/10 0:00	33.157	32.766	47.138	55.688	64.240	51.734
3/12/10 4:00	33.215	32.759	47.131	55.670	64.221	51.722
3/12/10 8:00	33.199	32.714	47.126	55.659	64.205	51.711
3/12/10 12:00	33.194	32.724	47.117	55.638	64.184	51.702
3/12/10 16:00	33.171	32.700	47.114	55.624	64.168	51.690
3/12/10 20:00	33.143	32.618	47.110	55.608	64.152	51.686
3/13/10 0:00	33.152	32.627	47.105	55.592	64.131	51.675
3/13/10 4:00	33.217	32.595	47.098	55.574	64.115	51.661
3/13/10 8:00	33.206	32.515	47.093	55.557	64.098	51.654
3/13/10 12:00	33.227	32.522	47.086	55.544	64.077	51.640
3/13/10 16:00	33.354	32.461	47.084	55.528	64.061	51.630
3/13/10 20:00	33.285	32.428	47.079	55.509	64.040	51.621
3/14/10 0:00	33.248	32.426	47.075	55.491	64.024	51.613
3/14/10 4:00	33.224	32.400	47.068	55.480	64.008	51.606
3/14/10 8:00	33.197	32.398	47.063	55.466	63.989	51.596
3/14/10 12:00	33.222	32.395	47.063	55.452	63.972	51.589
3/14/10 16:00	33.282	32.362	47.061	55.434	63.957	51.580
3/14/10 20:00	33.241	32.353	47.056	55.422	63.943	51.575
3/15/10 0:00	33.229	32.355	47.051	55.411	63.926	51.568
3/15/10 4:00	33.264	32.332	47.049	55.394	63.907	51.557
3/15/10 8:00	33.285	32.301	47.044	55.381	63.893	51.551
3/15/10 12:00	33.340	32.304	47.042	55.367	63.877	51.546
3/15/10 16:00	33.501	32.247	47.035	55.351	63.859	51.532
3/15/10 20:00	33.417	32.219	47.033	55.337	63.843	51.528

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
3/16/10 0:00	33.382	32.210	47.030	55.322	63.824	51.521
3/16/10 4:00	33.412	32.170	47.026	55.305	63.808	51.511
3/16/10 8:00	33.433	32.132	47.021	55.291	63.791	51.502
3/16/10 12:00	33.475	32.107	47.021	55.279	63.773	51.491
3/16/10 16:00	33.649	32.043	47.012	55.260	63.756	51.484
3/16/10 20:00	33.559	32.013	47.009	55.243	63.740	51.473
3/17/10 0:00	33.540	31.987	47.007	55.225	63.724	51.461
3/17/10 4:00	33.552	31.954	47.002	55.212	63.705	51.449
3/17/10 8:00	33.535	31.938	47.000	55.198	63.689	51.442
3/17/10 12:00	33.584	31.924	46.991	55.181	63.673	51.435
3/17/10 16:00	33.561	31.874	46.986	55.166	63.657	51.425
3/17/10 20:00	33.447	31.832	46.984	55.150	63.638	51.415
3/18/10 0:00	33.450	31.809	46.981	55.133	63.619	51.401
3/18/10 4:00	33.510	31.771	46.972	55.115	63.600	51.392
3/18/10 8:00	33.535	31.750	46.967	55.101	63.584	51.380
3/18/10 12:00	33.675	31.722	46.960	55.080	63.566	51.369
3/18/10 16:00	33.865	31.659	46.956	55.064	63.549	51.355
3/18/10 20:00	33.719	31.628	46.946	55.046	63.529	51.346
3/19/10 0:00	33.621	31.626	46.946	55.030	63.512	51.335
3/19/10 4:00	33.577	31.633	46.939	55.016	63.496	51.328
3/19/10 8:00	33.561	31.633	46.937	55.002	63.482	51.321
3/19/10 12:00	33.554	31.659	46.930	54.989	63.466	51.312
3/19/10 16:00	33.533	31.684	46.932	54.975	63.449	51.305
3/19/10 20:00	33.508	31.659	46.928	54.963	63.433	51.302
3/20/10 0:00	33.535	31.698	46.921	54.953	63.419	51.295
3/20/10 4:00	33.610	31.705	46.918	54.936	63.400	51.285
3/20/10 8:00	33.598	31.691	46.916	54.927	63.384	51.278
3/20/10 12:00	33.693	31.741	46.914	54.908	63.368	51.271
3/20/10 16:00	33.795	31.703	46.909	54.895	63.352	51.261
3/20/10 20:00	33.791	31.644	46.902	54.881	63.338	51.252
3/21/10 0:00	33.777	31.630	46.900	54.863	63.322	51.245
3/21/10 4:00	33.830	31.595	46.893	54.850	63.305	51.233
3/21/10 8:00	33.809	31.583	46.888	54.836	63.287	51.224
3/21/10 12:00	33.879	31.579	46.886	54.819	63.270	51.218
3/21/10 16:00	34.097	31.537	46.876	54.801	63.257	51.206
3/21/10 20:00	33.958	31.520	46.876	54.788	63.238	51.197
3/22/10 0:00	33.865	31.506	46.867	54.773	63.221	51.188
3/22/10 4:00	33.874	31.485	46.867	54.755	63.205	51.176
3/22/10 8:00	33.849	31.483	46.862	54.738	63.186	51.167
3/22/10 12:00	33.981	31.457	46.855	54.725	63.170	51.155
3/22/10 16:00	34.130	31.405	46.848	54.709	63.152	51.145
3/22/10 20:00	34.060	31.386	46.844	54.693	63.136	51.135
3/23/10 0:00	33.930	31.400	46.839	54.677	63.117	51.126
3/23/10 4:00	33.872	31.407	46.832	54.661	63.103	51.117
3/23/10 8:00	33.837	31.422	46.827	54.649	63.086	51.110
3/23/10 12:00	33.904	31.436	46.825	54.635	63.073	51.098
3/23/10 16:00	34.127	31.398	46.818	54.620	63.054	51.093
3/23/10 20:00	33.923	31.433	46.816	54.606	63.038	51.087
3/24/10 0:00	33.867	31.450	46.814	54.597	63.026	51.083
3/24/10 4:00	33.888	31.438	46.809	54.584	63.008	51.071
3/24/10 8:00	33.888	31.480	46.804	54.567	62.991	51.066
3/24/10 12:00	33.944	31.522	46.802	54.556	62.975	51.057
3/24/10 16:00	33.969	31.485	46.797	54.539	62.961	51.045
3/24/10 20:00	33.969	31.452	46.793	54.529	62.945	51.041
3/25/10 0:00	33.972	31.405	46.790	54.512	62.928	51.031

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
3/25/10 4:00	33.995	31.356	46.783	54.501	62.914	51.026
3/25/10 8:00	33.962	31.368	46.781	54.488	62.896	51.016
3/25/10 12:00	34.030	31.377	46.779	54.476	62.882	51.012
3/25/10 16:00	34.220	31.351	46.774	54.457	62.868	51.002
3/25/10 20:00	34.134	31.342	46.767	54.448	62.852	50.995
3/26/10 0:00	34.046	31.344	46.767	54.432	62.838	50.988
3/26/10 4:00	34.072	31.318	46.760	54.416	62.819	50.977
3/26/10 8:00	34.085	31.307	46.755	54.404	62.803	50.973
3/26/10 12:00	34.199	31.288	46.751	54.384	62.791	50.959
3/26/10 16:00	34.408	31.201	46.741	54.366	62.773	50.945
3/26/10 20:00	34.273	31.203	46.739	54.354	62.754	50.938
3/27/10 0:00	34.164	31.220	46.732	54.342	62.738	50.929
3/27/10 4:00	34.183	31.246	46.730	54.325	62.724	50.919
3/27/10 8:00	34.155	31.203	46.725	54.313	62.708	50.912
3/27/10 12:00	34.137	31.119	46.720	54.311	62.694	50.903
3/27/10 16:00	34.153	31.044	46.716	54.291	62.675	50.897
3/27/10 20:00	34.072	30.999	46.713	54.286	62.663	50.892
3/28/10 0:00	34.053	30.915	46.706	54.270	62.647	50.888
3/28/10 4:00	34.085	30.889	46.704	54.256	62.633	50.878
3/28/10 8:00	34.074	30.863	46.701	54.245	62.619	50.876
3/28/10 12:00	34.148	30.847	46.699	54.233	62.605	50.867
3/28/10 16:00	34.338	30.758	46.690	54.217	62.586	50.860
3/28/10 20:00	34.276	30.699	46.690	54.203	62.573	50.849
3/29/10 0:00	34.213	30.652	46.683	54.190	62.559	50.845
3/29/10 4:00	34.215	30.589	46.681	54.176	62.542	50.838
3/29/10 8:00	34.236	30.535	46.676	54.162	62.528	50.828
3/29/10 12:00	34.352	30.469	46.669	54.147	62.510	50.817
3/29/10 16:00	34.526	30.370	46.664	54.130	62.498	50.800
3/29/10 20:00	34.434	30.305	46.659	54.116	62.480	50.796
3/30/10 0:00	34.329	30.272	46.653	54.100	62.463	50.785
3/30/10 4:00	34.318	30.225	46.648	54.084	62.450	50.778
3/30/10 8:00	34.280	30.194	46.641	54.073	62.433	50.769
3/30/10 12:00	34.348	30.155	46.634	54.056	62.415	50.759
3/30/10 16:00	34.496	30.077	46.632	54.041	62.398	50.745
3/30/10 20:00	34.420	30.035	46.625	54.027	62.384	50.738
3/31/10 0:00	34.348	30.011	46.620	54.013	62.368	50.727
3/31/10 4:00	34.306	29.981	46.611	53.997	62.352	50.720
3/31/10 8:00	34.208	29.997	46.606	53.986	62.335	50.714
3/31/10 12:00	34.197	30.044	46.606	53.979	62.326	50.709
3/31/10 16:00	34.369	30.004	46.601	53.963	62.310	50.700
3/31/10 20:00	34.294	29.976	46.597	53.950	62.296	50.693
4/1/10 0:00	34.260	29.958	46.592	53.936	62.280	50.686
4/1/10 4:00	34.292	29.915	46.587	53.922	62.263	50.677
4/1/10 8:00	34.276	29.904	46.583	53.908	62.249	50.667
4/1/10 12:00	34.345	29.901	46.578	53.895	62.236	50.664
4/1/10 16:00	34.503	29.843	46.569	53.878	62.217	50.650
4/1/10 20:00	34.394	29.828	46.566	53.864	62.203	50.643
4/2/10 0:00	34.348	29.814	46.559	53.854	62.189	50.636
4/2/10 4:00	34.352	29.807	46.559	53.842	62.173	50.626
4/2/10 8:00	34.267	29.836	46.554	53.833	62.159	50.624
4/2/10 12:00	34.253	29.864	46.550	53.821	62.147	50.617
4/2/10 16:00	34.396	29.850	46.543	53.808	62.131	50.612
4/2/10 20:00	34.243	29.878	46.543	53.799	62.117	50.609
4/3/10 0:00	34.137	29.927	46.538	53.789	62.103	50.604
4/3/10 4:00	34.171	29.927	46.538	53.780	62.091	50.599

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
4/3/10 8:00	34.211	29.922	46.536	53.767	62.075	50.595
4/3/10 12:00	34.355	29.911	46.534	53.755	62.063	50.588
4/3/10 16:00	34.550	29.857	46.531	53.739	62.047	50.574
4/3/10 20:00	34.501	29.843	46.522	53.728	62.031	50.569
4/4/10 0:00	34.443	29.831	46.520	53.716	62.019	50.565
4/4/10 4:00	34.406	29.840	46.517	53.705	62.005	50.556
4/4/10 8:00	34.373	29.854	46.510	53.693	61.989	50.554
4/4/10 12:00	34.492	29.847	46.510	53.682	61.975	50.547
4/4/10 16:00	34.629	29.836	46.508	53.668	61.963	50.540
4/4/10 20:00	34.510	29.861	46.503	53.661	61.950	50.537
4/5/10 0:00	34.434	29.889	46.501	53.651	61.935	50.530
4/5/10 4:00	34.422	29.885	46.496	53.637	61.921	50.526
4/5/10 8:00	34.510	29.852	46.496	53.625	61.910	50.520
4/5/10 12:00	34.663	29.812	46.489	53.611	61.891	50.506
4/5/10 16:00	34.851	29.737	46.487	53.593	61.880	50.497
4/5/10 20:00	34.784	29.718	46.478	53.579	61.863	50.487
4/6/10 0:00	34.735	29.756	46.475	53.558	61.845	50.478
4/6/10 4:00	34.775	29.667	46.471	53.552	61.831	50.464
4/6/10 8:00	34.691	29.617	46.461	53.536	61.817	50.457
4/6/10 12:00	34.661	29.648	46.459	53.522	61.803	50.453
4/6/10 16:00	34.698	29.603	46.457	53.513	61.789	50.449
4/6/10 20:00	34.540	29.641	46.450	53.504	61.775	50.442
4/7/10 0:00	34.519	29.662	46.450	53.495	61.761	50.437
4/7/10 4:00	34.533	29.664	46.443	53.481	61.747	50.432
4/7/10 8:00	34.508	29.645	46.443	53.475	61.736	50.428
4/7/10 12:00	34.452	29.751	46.438	53.463	61.724	50.432
4/7/10 16:00	34.471	29.796	46.440	53.456	61.710	50.426
4/7/10 20:00	34.547	29.803	46.436	53.447	61.700	50.422
4/8/10 0:00	34.538	29.824	46.436	53.438	61.684	50.417
4/8/10 4:00	34.619	29.798	46.433	53.427	61.673	50.410
4/8/10 8:00	34.654	29.805	46.429	53.415	61.659	50.408
4/8/10 12:00	34.768	29.796	46.422	53.407	61.647	50.401
4/8/10 16:00	34.981	29.751	46.419	53.388	61.633	50.391
4/8/10 20:00	34.900	29.737	46.419	53.379	61.617	50.387
4/9/10 0:00	34.812	29.742	46.412	53.367	61.605	50.381
4/9/10 4:00	34.800	29.728	46.410	53.356	61.591	50.376
4/9/10 8:00	34.798	29.735	46.405	53.347	61.580	50.371
4/9/10 12:00	34.882	29.735	46.405	53.335	61.566	50.364
4/9/10 16:00	35.060	29.711	46.398	53.321	61.552	50.355
4/9/10 20:00	34.967	29.711	46.398	53.311	61.538	50.350
4/10/10 0:00	34.842	29.742	46.396	53.301	61.529	50.348
4/10/10 4:00	34.826	29.751	46.396	53.290	61.512	50.342
4/10/10 8:00	34.798	29.782	46.387	53.284	61.503	50.342
4/10/10 12:00	34.898	29.791	46.387	53.274	61.487	50.335
4/10/10 16:00	35.072	29.763	46.382	53.263	61.477	50.331
4/10/10 20:00	34.972	29.772	46.385	53.251	61.461	50.328
4/11/10 0:00	34.891	29.800	46.378	53.240	61.449	50.321
4/11/10 4:00	34.891	29.805	46.380	53.233	61.438	50.319
4/11/10 8:00	34.884	29.828	46.375	53.222	61.426	50.317
4/11/10 12:00	34.991	29.831	46.375	53.213	61.412	50.308
4/11/10 16:00	35.190	29.784	46.371	53.199	61.398	50.304
4/11/10 20:00	35.118	29.777	46.368	53.190	61.387	50.297
4/12/10 0:00	35.039	29.791	46.368	53.181	61.375	50.294
4/12/10 4:00	35.070	29.779	46.361	53.170	61.359	50.287
4/12/10 8:00	35.037	29.786	46.361	53.158	61.349	50.283

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
4/12/10 12:00	35.137	29.786	46.357	53.147	61.338	50.278
4/12/10 16:00	35.306	29.749	46.354	53.136	61.321	50.269
4/12/10 20:00	35.188	29.753	46.349	53.126	61.310	50.265
4/13/10 0:00	35.116	29.763	46.349	53.112	61.293	50.260
4/13/10 4:00	35.097	29.760	46.345	53.103	61.282	50.256
4/13/10 8:00	35.079	29.777	46.345	53.095	61.270	50.251
4/13/10 12:00	35.160	29.789	46.340	53.083	61.259	50.246
4/13/10 16:00	35.299	29.763	46.338	53.071	61.245	50.239
4/13/10 20:00	35.246	29.746	46.335	53.061	61.231	50.231
4/14/10 0:00	35.097	29.791	46.336	53.051	61.219	50.233
4/14/10 4:00	35.088	29.812	46.333	53.044	61.205	50.229
4/14/10 8:00	35.083	29.838	46.328	53.035	61.196	50.224
4/14/10 12:00	35.135	29.864	46.328	53.027	61.187	50.221
4/14/10 16:00	35.255	29.836	46.321	53.015	61.170	50.212
4/14/10 20:00	35.258	29.821	46.322	53.003	61.159	50.208
4/15/10 0:00	35.193	29.847	46.319	52.995	61.147	50.205
4/15/10 4:00	35.204	29.843	46.322	52.988	61.135	50.199
4/15/10 8:00	35.183	29.866	46.317	52.976	61.124	50.197
4/15/10 12:00	35.269	29.875	46.315	52.967	61.110	50.195
4/15/10 16:00	35.299	29.918	46.312	52.956	61.098	50.190
4/15/10 20:00	35.267	29.911	46.310	52.949	61.084	50.183
4/16/10 0:00	35.237	29.852	46.307	52.940	61.075	50.181
4/16/10 4:00	35.213	29.767	46.305	52.938	61.064	50.178
4/16/10 8:00	35.195	29.669	46.308	52.929	61.052	50.175
4/16/10 12:00	35.267	29.655	46.305	52.918	61.040	50.173
4/16/10 16:00	35.387	29.613	46.303	52.906	61.026	50.166
4/16/10 20:00	35.408	29.568	46.296	52.895	61.015	50.161
4/17/10 0:00	35.348	29.566	46.293	52.886	61.005	50.156
4/17/10 4:00	35.353	29.549	46.294	52.874	60.989	50.149
4/17/10 8:00	35.332	29.545	46.287	52.867	60.978	50.147
4/17/10 12:00	35.399	29.542	46.287	52.854	60.966	50.140
4/17/10 16:00	35.629	29.509	46.282	52.840	60.954	50.134
4/17/10 20:00	35.541	29.469	46.279	52.831	60.943	50.127
4/18/10 0:00	35.432	29.469	46.275	52.823	60.928	50.125
4/18/10 4:00	35.411	29.455	46.273	52.813	60.917	50.120
4/18/10 8:00	35.381	29.462	46.270	52.801	60.905	50.115
4/18/10 12:00	35.457	29.582	46.268	52.792	60.893	50.108
4/18/10 16:00	35.608	29.432	46.263	52.779	60.882	50.104
4/18/10 20:00	35.552	29.404	46.261	52.770	60.870	50.098
4/19/10 0:00	35.457	29.406	46.259	52.763	60.856	50.093
4/19/10 4:00	35.443	29.399	46.254	52.752	60.845	50.086
4/19/10 8:00	35.422	29.399	46.254	52.743	60.833	50.084
4/19/10 12:00	35.504	29.387	46.251	52.729	60.822	50.074
4/19/10 16:00	35.710	29.347	46.245	52.717	60.807	50.072
4/19/10 20:00	35.640	29.322	46.240	52.706	60.796	50.063
4/20/10 0:00	35.524	29.336	46.238	52.697	60.782	50.061
4/20/10 4:00	35.524	29.312	46.235	52.685	60.773	50.054
4/20/10 8:00	35.508	29.310	46.233	52.679	60.761	50.050
4/20/10 12:00	35.562	29.308	46.231	52.668	60.747	50.043
4/20/10 16:00	35.682	29.275	46.228	52.656	60.736	50.036
4/20/10 20:00	35.629	29.263	46.221	52.644	60.724	50.029
4/21/10 0:00	35.578	29.258	46.219	52.636	60.710	50.022
4/21/10 4:00	35.585	29.242	46.214	52.624	60.698	50.019
4/21/10 8:00	35.562	29.247	46.214	52.615	60.687	50.013
4/21/10 12:00	35.610	29.249	46.207	52.607	60.675	50.007

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
4/21/10 16:00	35.729	29.221	46.203	52.593	60.663	50.002
4/21/10 20:00	35.664	29.214	46.200	52.581	60.649	49.995
4/22/10 0:00	35.578	29.225	46.198	52.574	60.638	49.990
4/22/10 4:00	35.589	29.211	46.198	52.563	60.624	49.983
4/22/10 8:00	35.596	29.214	46.191	52.554	60.614	49.976
4/22/10 12:00	35.580	29.291	46.140	52.542	60.603	49.973
4/22/10 16:00	35.671	29.279	46.133	52.531	60.589	49.966
4/22/10 20:00	35.671	29.169	46.130	52.518	60.580	49.961
4/23/10 0:00	35.659	29.202	46.126	52.506	60.566	49.949
4/23/10 4:00	35.673	29.169	46.121	52.504	60.552	49.942
4/23/10 8:00	35.696	29.099	46.116	52.490	60.540	49.938
4/23/10 12:00	35.675	29.061	46.109	52.479	60.526	49.928
4/23/10 16:00	35.740	28.963	46.107	52.462	60.515	49.919
4/23/10 20:00	35.678	28.953	46.105	52.453	60.501	49.915
4/24/10 0:00	35.545	28.979	46.100	52.442	60.491	49.908
4/24/10 4:00	35.543	28.958	46.095	52.431	60.477	49.904
4/24/10 8:00	35.506	28.970	46.093	52.421	60.466	49.897
4/24/10 12:00	35.527	28.993	46.088	52.413	60.454	49.892
4/24/10 16:00	35.624	28.974	46.083	52.401	60.440	49.882
4/24/10 20:00	35.552	28.989	46.081	52.392	60.431	49.880
4/25/10 0:00	35.459	29.024	46.076	52.383	60.419	49.877
4/25/10 4:00	35.432	29.038	46.077	52.377	60.410	49.874
4/25/10 8:00	35.439	29.050	46.074	52.370	60.398	49.867
4/25/10 12:00	35.441	29.075	46.072	52.360	60.387	49.867
4/25/10 16:00	35.494	29.075	46.069	52.354	60.377	49.860
4/25/10 20:00	35.476	29.094	46.067	52.345	60.366	49.863
4/26/10 0:00	35.441	29.120	46.062	52.336	60.356	49.858
4/26/10 4:00	35.448	29.127	46.062	52.329	60.347	49.854
4/26/10 8:00	35.464	29.143	46.060	52.323	60.333	49.850
4/26/10 12:00	35.552	29.132	46.058	52.313	60.324	49.845
4/26/10 16:00	35.668	29.089	46.058	52.302	60.310	49.838
4/26/10 20:00	35.606	29.092	46.053	52.293	60.303	49.836
4/27/10 0:00	35.587	29.106	46.051	52.286	60.291	49.831
4/27/10 4:00	35.571	29.061	46.048	52.277	60.280	49.827
4/27/10 8:00	35.534	29.122	46.046	52.270	60.270	49.826
4/27/10 12:00	35.561	29.150	46.044	52.262	60.259	49.823
4/27/10 16:00	35.798	29.118	46.042	52.250	60.249	49.821
4/27/10 20:00	35.777	29.078	46.037	52.241	60.238	49.811
4/28/10 0:00	35.694	29.073	46.037	52.231	60.224	49.807
4/28/10 4:00	35.696	29.042	46.034	52.223	60.214	49.800
4/28/10 8:00	35.722	29.017	46.028	52.207	60.203	49.793
4/28/10 12:00	35.828	28.977	46.023	52.197	60.189	49.783
4/28/10 16:00	36.009	28.923	46.016	52.182	60.177	49.775
4/28/10 20:00	35.919	28.897	46.016	52.170	60.164	49.768
4/29/10 0:00	35.833	28.883	46.007	52.154	60.152	49.756
4/29/10 4:00	35.833	28.848	46.007	52.147	60.138	49.749
4/29/10 8:00	35.759	28.852	46.000	52.136	60.128	49.742
4/29/10 12:00	35.722	28.888	45.995	52.122	60.114	49.738
4/29/10 16:00	35.842	28.890	45.988	52.115	60.107	49.731
4/29/10 20:00	35.747	28.838	45.986	52.102	60.089	49.721
4/30/10 0:00	35.582	28.939	45.986	52.095	60.082	49.722
4/30/10 4:00	35.450	28.850	45.983	52.088	60.075	49.720
4/30/10 8:00	35.501	28.815	45.979	52.081	60.061	49.718
4/30/10 12:00	35.571	28.798	45.979	52.073	60.049	49.711
4/30/10 16:00	35.640	28.775	45.976	52.061	60.038	49.704

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
4/30/10 20:00	35.548	28.803	45.972	52.054	60.028	49.701
5/1/10 0:00	35.473	28.841	45.969	52.048	60.019	49.699
5/1/10 4:00	35.464	28.855	45.967	52.043	60.010	49.698
5/1/10 8:00	35.478	28.862	45.965	52.034	59.998	49.695
5/1/10 12:00	35.557	28.871	45.962	52.027	59.989	49.691
5/1/10 16:00	35.780	28.827	45.962	52.014	59.977	49.683
5/1/10 20:00	35.726	28.803	45.955	52.005	59.968	49.679
5/2/10 0:00	35.671	28.796	45.953	51.995	59.954	49.672
5/2/10 4:00	35.654	28.777	45.948	51.985	59.945	49.667
5/2/10 8:00	35.587	28.806	45.948	51.980	59.933	49.665
5/2/10 12:00	35.636	28.810	45.946	51.971	59.926	49.662
5/2/10 16:00	35.819	28.798	45.942	51.964	59.912	49.655
5/2/10 20:00	35.657	28.829	45.942	51.955	59.905	49.655
5/3/10 0:00	35.562	28.862	45.941	51.948	59.894	49.655
5/3/10 4:00	35.550	28.871	45.939	51.944	59.884	49.652
5/3/10 8:00	35.517	28.899	45.939	51.938	59.880	49.648
5/3/10 12:00	35.587	28.913	45.934	51.928	59.868	49.648
5/3/10 16:00	35.847	28.883	45.930	51.921	59.856	49.642
5/3/10 20:00	35.801	28.864	45.932	51.910	59.845	49.639
5/4/10 0:00	35.754	28.843	45.927	51.906	59.836	49.635
5/4/10 4:00	35.768	28.813	45.925	51.892	59.824	49.630
5/4/10 8:00	35.763	28.803	45.923	51.883	59.814	49.625
5/4/10 12:00	35.828	28.784	45.918	51.876	59.803	49.618
5/4/10 16:00	36.044	28.745	45.913	51.863	59.794	49.609
5/4/10 20:00	35.921	28.742	45.913	51.856	59.780	49.612
5/5/10 0:00	35.671	28.831	45.916	51.853	59.773	49.610
5/5/10 4:00	35.650	28.852	45.911	51.847	59.763	49.607
5/5/10 8:00	35.613	28.885	45.913	51.840	59.754	49.608
5/5/10 12:00	35.664	28.904	45.913	51.833	59.745	49.603
5/5/10 16:00	35.884	28.899	45.909	51.824	59.735	49.598
5/5/10 20:00	35.828	28.906	45.907	51.818	59.728	49.598
5/6/10 0:00	35.722	28.930	45.906	51.813	59.717	49.598
5/6/10 4:00	35.766	28.913	45.902	51.804	59.707	49.592
5/6/10 8:00	35.861	28.897	45.904	51.795	59.696	49.590
5/6/10 12:00	35.859	28.878	45.897	51.784	59.687	49.583
5/6/10 16:00	35.845	28.822	45.895	51.772	59.673	49.576
5/6/10 20:00	35.845	28.810	45.895	51.765	59.664	49.569
5/7/10 0:00	35.849	28.815	45.892	51.759	59.656	49.564
5/7/10 4:00	35.866	28.784	45.892	51.750	59.645	49.564
5/7/10 8:00	35.879	28.789	45.885	51.747	59.640	49.565
5/7/10 12:00	35.907	28.834	45.890	51.739	59.629	49.565
5/7/10 16:00	35.917	28.855	45.888	51.737	59.619	49.568
5/7/10 20:00	35.933	28.881	45.888	51.732	59.612	49.565
5/8/10 0:00	35.956	28.920	45.890	51.725	59.603	49.565
5/8/10 4:00	35.970	28.935	45.890	51.719	59.594	49.563
5/8/10 8:00	35.986	28.960	45.888	51.717	59.589	49.563
5/8/10 12:00	35.998	28.967	45.883	51.710	59.578	49.558
5/8/10 16:00	35.991	28.925	45.883	51.701	59.566	49.557
5/8/10 20:00	35.991	28.909	45.886	51.692	59.556	49.550
5/9/10 0:00	36.003	28.920	45.883	51.685	59.549	49.550
5/9/10 4:00	36.005	28.909	45.883	51.676	59.540	49.548
5/9/10 8:00	36.009	28.906	45.881	51.670	59.531	49.541
5/9/10 12:00	36.007	28.890	45.876	51.660	59.519	49.538
5/9/10 16:00	36.000	28.850	45.876	51.649	59.510	49.531
5/9/10 20:00	35.996	28.829	45.874	51.643	59.501	49.528

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
5/10/10 0:00	35.998	28.834	45.871	51.633	59.489	49.525
5/10/10 4:00	35.993	28.808	45.869	51.624	59.480	49.521
5/10/10 8:00	35.982	28.796	45.864	51.612	59.468	49.514
5/10/10 12:00	35.970	28.808	45.862	51.599	59.456	49.500
5/10/10 16:00	35.947	28.698	45.855	51.588	59.445	49.491
5/10/10 20:00	35.933	28.599	45.851	51.576	59.433	49.484
5/11/10 0:00	35.947	28.536	45.850	51.574	59.426	49.485
5/11/10 4:00	35.961	28.611	45.848	51.570	59.417	49.487
5/11/10 8:00	35.979	28.674	45.850	51.563	59.410	49.482
5/11/10 12:00	35.991	28.707	45.848	51.561	59.401	49.482
5/11/10 16:00	35.986	28.684	45.846	51.548	59.392	49.478
5/11/10 20:00	35.991	28.686	45.841	51.543	59.382	49.478
5/12/10 0:00	35.993	28.695	45.841	51.531	59.373	49.471
5/12/10 4:00	35.982	28.639	45.839	51.520	59.361	49.464
5/12/10 8:00	35.982	28.644	45.834	51.518	59.352	49.462
5/12/10 12:00	35.979	28.698	45.832	51.506	59.342	49.457
5/12/10 16:00	35.975	28.742	45.832	51.499	59.333	49.450
5/12/10 20:00	35.982	28.688	45.829	51.491	59.324	49.448
5/13/10 0:00	35.989	28.662	45.827	51.489	59.317	49.446
5/13/10 4:00	35.993	28.665	45.827	51.479	59.305	49.444
5/13/10 8:00	36.009	28.681	45.825	51.475	59.298	49.444
5/13/10 12:00	36.026	28.759	45.825	51.471	59.291	49.442
5/13/10 16:00	36.030	28.763	45.823	51.466	59.282	49.442
5/13/10 20:00	36.040	28.775	45.822	51.457	59.273	49.442
5/14/10 0:00	36.056	28.815	45.818	51.453	59.266	49.437
5/14/10 4:00	36.061	28.806	45.820	51.446	59.256	49.435
5/14/10 8:00	36.077	28.841	45.818	51.442	59.249	49.435
5/14/10 12:00	36.081	28.850	45.822	51.435	59.240	49.433
5/14/10 16:00	36.079	28.824	45.818	51.426	59.233	49.428
5/14/10 20:00	36.074	28.794	45.820	51.419	59.224	49.427
5/15/10 0:00	36.084	28.810	45.818	51.412	59.212	49.425
5/15/10 4:00	36.084	28.794	45.813	51.406	59.205	49.420
5/15/10 8:00	36.086	28.789	45.813	51.399	59.196	49.415
5/15/10 12:00	36.086	28.789	45.813	51.390	59.187	49.413
5/15/10 16:00	36.081	28.768	45.811	51.381	59.177	49.406
5/15/10 20:00	36.084	28.761	45.806	51.377	59.166	49.406
5/16/10 0:00	36.093	28.789	45.808	51.370	59.159	49.402
5/16/10 4:00	36.088	28.756	45.804	51.361	59.147	49.398
5/16/10 8:00	36.093	28.768	45.804	51.352	59.142	49.395
5/16/10 12:00	36.093	28.768	45.802	51.345	59.133	49.388
5/16/10 16:00	36.093	28.756	45.801	51.336	59.124	49.386
5/16/10 20:00	36.095	28.747	45.797	51.331	59.112	49.384
5/17/10 0:00	36.102	28.768	45.799	51.325	59.105	49.381
5/17/10 4:00	36.107	28.775	45.794	51.318	59.098	49.382
5/17/10 8:00	36.114	28.796	45.797	51.314	59.091	49.378
5/17/10 12:00	36.121	28.867	45.797	51.307	59.082	49.375
5/17/10 16:00	36.123	28.843	45.792	51.298	59.071	49.375
5/17/10 20:00	36.121	28.813	45.792	51.294	59.063	49.371
5/18/10 0:00	36.126	28.813	45.790	51.287	59.054	49.366
5/18/10 4:00	36.128	28.820	45.790	51.278	59.045	49.364
5/18/10 8:00	36.128	28.810	45.785	51.274	59.038	49.361
5/18/10 12:00	36.130	28.827	45.785	51.267	59.029	49.355
5/18/10 16:00	36.119	28.798	45.783	51.255	59.014	49.351
5/18/10 20:00	36.114	28.794	45.780	51.247	59.010	49.348
5/19/10 0:00	36.114	28.796	45.778	51.240	59.001	49.344

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
5/19/10 4:00	36.114	28.806	45.776	51.230	58.991	49.341
5/19/10 8:00	36.114	28.803	45.773	51.224	58.982	49.336
5/19/10 12:00	36.116	28.810	45.778	51.217	58.973	49.332
5/19/10 16:00	36.109	28.808	45.771	51.210	58.966	49.328
5/19/10 20:00	36.112	28.864	45.771	51.203	58.956	49.329
5/20/10 0:00	36.112	28.850	45.766	51.197	58.949	49.322
5/20/10 4:00	36.105	28.857	45.766	51.188	58.938	49.315
5/20/10 8:00	36.109	28.831	45.762	51.178	58.929	49.312
5/20/10 12:00	36.112	28.857	45.762	51.172	58.921	49.309
5/20/10 16:00	36.112	28.885	45.760	51.165	58.910	49.305
5/20/10 20:00	36.116	28.843	45.755	51.161	58.903	49.301
5/21/10 0:00	36.123	28.824	45.757	51.154	58.894	49.302
5/21/10 4:00	36.126	28.798	45.752	51.148	58.887	49.302
5/21/10 8:00	36.139	28.841	45.752	51.143	58.880	49.299
5/21/10 12:00	36.142	28.862	45.752	51.136	58.871	49.295
5/21/10 16:00	36.139	28.859	45.750	51.130	58.863	49.288
5/21/10 20:00	36.137	28.850	45.745	51.118	58.852	49.285
5/22/10 0:00	36.135	28.845	45.750	51.114	58.842	49.278
5/22/10 4:00	36.126	28.824	45.743	51.107	58.833	49.275
5/22/10 8:00	36.123	28.822	45.743	51.094	58.826	49.275
5/22/10 12:00	36.114	28.808	45.738	51.087	58.814	49.265
5/22/10 16:00	36.112	28.817	45.738	51.077	58.808	49.258
5/22/10 20:00	36.112	28.841	45.736	51.070	58.798	49.256
5/23/10 0:00	36.116	28.871	45.734	51.069	58.791	49.254
5/23/10 4:00	36.119	28.876	45.734	51.057	58.782	49.251
5/23/10 8:00	36.130	28.928	45.729	51.053	58.773	49.252
5/23/10 12:00	36.139	28.960	45.731	51.051	58.768	49.250
5/23/10 16:00	36.144	28.977	45.729	51.044	58.759	49.248
5/23/10 20:00	36.146	29.012	45.729	51.037	58.749	49.243
5/24/10 0:00	36.158	29.035	45.727	51.033	58.745	49.243
5/24/10 4:00	36.160	29.045	45.727	51.024	58.736	49.241
5/24/10 8:00	36.167	29.059	45.729	51.022	58.726	49.238
5/24/10 12:00	36.170	29.080	45.727	51.015	58.719	49.236
5/24/10 16:00	36.165	29.073	45.722	51.007	58.710	49.230
5/24/10 20:00	36.167	29.082	45.722	51.002	58.701	49.228
5/25/10 0:00	36.188	29.150	45.722	50.995	58.698	49.230
5/25/10 4:00	36.188	29.134	45.722	50.995	58.689	49.227
5/25/10 8:00	36.197	29.167	45.724	50.989	58.680	49.228
5/25/10 12:00	36.209	29.193	45.722	50.982	58.673	49.228
5/25/10 16:00	36.211	29.190	45.722	50.977	58.666	49.221
5/25/10 20:00	36.211	29.200	45.722	50.971	58.656	49.219
5/26/10 0:00	36.218	29.221	45.720	50.964	58.649	49.224
5/26/10 4:00	36.223	29.223	45.720	50.960	58.643	49.221
5/26/10 8:00	36.230	29.305	45.722	50.957	58.636	49.214
5/26/10 12:00	36.237	29.432	45.720	50.951	58.628	49.215
5/26/10 16:00	36.232	29.244	45.720	50.944	58.619	49.210
5/26/10 20:00	36.235	29.254	45.717	50.935	58.612	49.210
5/27/10 0:00	36.246	29.289	45.720	50.934	58.605	49.210
5/27/10 4:00	36.249	29.289	45.717	50.927	58.596	49.206
5/27/10 8:00	36.258	29.310	45.720	50.924	58.589	49.204
5/27/10 12:00	36.260	29.315	45.717	50.917	58.582	49.206
5/27/10 16:00	36.255	29.305	45.715	50.914	58.575	49.199
5/27/10 20:00	36.253	29.331	45.717	50.904	58.563	49.199
5/28/10 0:00	36.258	29.338	45.715	50.897	58.556	49.194
5/28/10 4:00	36.265	29.345	45.710	50.891	58.547	49.190

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
5/28/10 8:00	36.267	29.345	45.713	50.889	58.542	49.191
5/28/10 12:00	36.269	29.362	45.708	50.882	58.536	49.189
5/28/10 16:00	36.260	29.352	45.706	50.870	58.526	49.181
5/28/10 20:00	36.258	29.352	45.706	50.866	58.519	49.177
5/29/10 0:00	36.260	29.373	45.703	50.862	58.512	49.177
5/29/10 4:00	36.260	29.371	45.703	50.852	58.503	49.175
5/29/10 8:00	36.265	29.385	45.701	50.848	58.496	49.170
5/29/10 12:00	36.262	29.397	45.701	50.842	58.489	49.167
5/29/10 16:00	36.258	29.397	45.699	50.835	58.477	49.166
5/29/10 20:00	36.253	29.406	45.699	50.825	58.470	49.162
5/30/10 0:00	36.260	29.451	45.696	50.822	58.463	49.160
5/30/10 4:00	36.260	29.437	45.694	50.815	58.454	49.155
5/30/10 8:00	36.274	29.477	45.696	50.810	58.447	49.157
5/30/10 12:00	36.276	29.512	45.697	50.810	58.440	49.153
5/30/10 16:00	36.283	29.523	45.694	50.802	58.433	49.153
5/30/10 20:00	36.290	29.533	45.694	50.797	58.428	49.153
5/31/10 0:00	36.300	29.559	45.694	50.795	58.419	49.154
5/31/10 4:00	36.304	29.559	45.694	50.786	58.414	49.148
5/31/10 8:00	36.311	29.575	45.694	50.782	58.410	49.149
5/31/10 12:00	36.311	29.606	45.689	50.777	58.401	49.147
5/31/10 16:00	36.307	29.580	45.692	50.770	58.391	49.142
5/31/10 20:00	36.304	29.582	45.687	50.764	58.382	49.140
6/1/10 0:00	36.311	29.606	45.689	50.759	58.377	49.141
6/1/10 4:00	36.309	29.601	45.687	50.752	58.368	49.134
6/1/10 8:00	36.311	29.601	45.685	50.746	58.361	49.131
6/1/10 12:00	36.302	29.584	45.682	50.737	58.354	49.127
6/1/10 16:00	36.288	29.570	45.680	50.728	58.342	49.117
6/1/10 20:00	36.274	31.696	45.680	50.723	58.333	49.117
6/2/10 0:00	36.295	32.789	45.680	50.717	58.328	49.115
6/2/10 4:00	36.307	30.274	45.678	50.715	58.321	49.115
6/2/10 8:00	36.311	29.892	45.675	50.708	58.317	49.116
6/2/10 12:00	36.318	29.805	45.675	50.706	58.308	49.114
6/2/10 16:00	36.320	29.608	45.675	50.697	58.301	49.111
6/2/10 20:00	36.318	29.570	45.675	50.690	58.291	49.107
6/3/10 0:00	36.325	29.580	45.671	50.685	58.287	49.104
6/3/10 4:00	36.325	29.556	45.668	50.684	58.280	49.102
6/3/10 8:00	36.334	29.570	45.668	50.677	58.270	49.104
6/3/10 12:00	36.332	29.563	45.666	50.670	58.266	49.098
6/3/10 16:00	36.323	29.540	45.664	50.657	58.257	49.093
6/3/10 20:00	36.318	29.528	45.659	50.655	58.249	49.087
6/4/10 0:00	36.320	29.540	45.661	50.650	58.240	49.087
6/4/10 4:00	36.325	29.545	45.659	50.643	58.233	49.084
6/4/10 8:00	36.327	29.561	45.659	50.637	58.224	49.082
6/4/10 12:00	36.327	29.577	45.657	50.632	58.217	49.077
6/4/10 16:00	36.325	29.589	45.654	50.625	58.212	49.073
6/4/10 20:00	36.323	29.608	45.650	50.618	58.205	49.071
6/5/10 0:00	36.325	29.629	45.650	50.612	58.196	49.067
6/5/10 4:00	36.325	29.622	45.650	50.608	58.192	49.064
6/5/10 8:00	36.334	29.667	45.650	50.603	58.182	49.066
6/5/10 12:00	36.337	29.674	45.647	50.599	58.175	49.060
6/5/10 16:00	36.339	29.702	45.647	50.592	58.170	49.062
6/5/10 20:00	36.358	29.777	45.647	50.590	58.163	49.064
6/6/10 0:00	36.376	29.824	45.647	50.588	58.159	49.065
6/6/10 4:00	36.392	29.859	45.647	50.586	58.154	49.065
6/6/10 8:00	36.406	29.894	45.647	50.584	58.147	49.065

TABLE S3.4 (Cont.)

	Water Level, ft from Top of Casing[a]					
Date and Time	MW44Z4	MW45Z4	MW48Z4	MW49Z4	MW50Z4	MW51Z4
6/6/10 12:00	36.411	30.941	45.650	50.579	58.140	49.065
6/6/10 16:00	36.409	30.159	45.647	50.573	58.133	49.058
6/6/10 20:00	36.406	29.981	45.647	50.566	58.126	49.058
6/7/10 0:00	36.416	29.972	45.647	50.559	58.117	49.058
6/7/10 4:00	36.409	29.929	45.645	50.554	58.110	49.052
6/7/10 8:00	36.413	29.929	45.645	50.553	58.105	49.055
6/7/10 12:00	36.430	29.965	45.645	50.546	58.098	49.052
6/7/10 16:00	36.409	30.033	45.645	50.539	58.091	49.047
6/7/10 20:00	36.409	29.885	45.640	50.533	58.082	49.043
6/8/10 0:00	36.406	29.899	45.640	50.526	58.080	49.043
6/8/10 4:00	36.399	29.871	45.640	50.519	58.070	49.036
6/8/10 8:00	36.397	29.899	45.640	50.514	58.061	49.036
6/8/10 12:00	36.411	29.958	45.638	50.513	58.056	49.035
6/8/10 16:00	36.411	29.920	45.638	50.504	58.050	49.030
6/8/10 20:00	36.411	29.833	45.638	50.501	58.043	49.028
6/9/10 0:00	36.425	29.906	45.636	50.498	58.035	49.027
6/9/10 4:00	36.432	29.927	45.636	50.495	58.031	49.028
6/9/10 8:00	36.441	29.950	45.636	50.491	58.024	49.027
6/9/10 12:00	36.443	29.972	45.633	50.481	58.017	49.028
6/9/10 16:00	36.436	29.955	45.631	50.480	58.010	49.024
6/9/10 20:00	36.432	29.960	45.633	50.471	58.003	49.019
6/10/10 0:00	36.432	29.974	45.631	50.466	57.999	49.019
6/10/10 4:00	36.420	29.946	45.629	50.459	57.989	49.012
6/10/10 8:00	36.416	29.943	45.624	50.451	57.980	49.007
6/10/10 12:00	36.413	29.958	45.629	50.448	57.975	49.005

[a] Values measured by using PT2X absolute-pressure and water level recorders.

Supplement 4:

Slug Testing of Zone 1 Monitoring Wells at Hanover, Kansas, in August 2009

Argonne NATIONAL LABORATORY

ANL/EVS/AGEM/CHRON-1297

Slug Testing of Zone 1 Monitoring Wells at Hanover, Kansas, in August 2009

Environmental Science Division

USDA United States Department of Agriculture

Work sponsored by Commodity Credit Corporation,
United States Department of Agriculture

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ANL/EVS/AGEM/CHRON-1297

Slug Testing of Zone 1 Monitoring Wells at Hanover, Kansas, in August 2009

by
Environmental Science Division, Argonne National Laboratory

October 2009

United States Department of Agriculture

Work sponsored by Commodity Credit Corporation,
United States Department of Agriculture

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Notation

BGL	below ground level
CCC	Commodity Credit Corporation
ft	foot (feet)
gpm	gallon(s) per minute
hr	hour(s)
in.	inch(es)
KDHE	Kansas Department of Health and Environment
K_h	horizontal hydraulic conductivity
μg/L	microgram(s) per liter
min	minute(s)
PVC	polyvinyl chloride
TD	total depth
USDA	U.S. Department of Agriculture

Slug Testing of Zone 1 Monitoring Wells at Hanover, Kansas, in August 2009

1 Background

On behalf of the Commodity Credit Corporation of the U.S. Department of Agriculture (CCC/USDA), Argonne National Laboratory has recently conducted site characterization and vapor intrusion studies at Hanover, as specified in two independent work plans (Argonne 2008a,b) approved by the Kansas Department of Health and Environment (KDHE 2008a,b). On the basis of preliminary information obtained from these studies, groundwater Zone 1 has been identified as a critical water-bearing unit with the potential to provide a migration pathway for both upward vapor intrusion and downward leakage of carbon tetrachloride contamination to underlying groundwater Zone 2.

During sampling and well purging, groundwater Zone 1 displayed slow recharge rates, particularly along the western erosional limit of the zone, implying poor transmissivity at many locations. Further hydrologic characterization of the Zone 1 interval was therefore considered necessary to identify the critical factors that govern groundwater flow and contaminant migration in this unit. Consequently, "Addendum 1" (Argonne 2009) to the site investigation work plan (Argonne 2008a) was issued, proposing aquifer single-well-response ("slug") testing at selected Zone 1 monitoring wells. The plan was approved by the KDHE (2009).

The primary technical objectives of the slug tests outlined in "Addendum 1" (Argonne 2009) were as follows:

- Determine the hydraulic properties of groundwater Zone 1 along and near the apparent contaminant migration pathways defined previously in the ongoing investigation.

- Determine the lateral distribution of hydraulic properties in groundwater Zone 1.

- Provide quantitative information for evaluation of potential options to be considered in a Corrective Action Study.

With the approval of the CCC/USDA and the KDHE, Argonne conducted slug testing at the Hanover site on August 10-14, 2009. The purpose of this document is to report the results of these tests.

2 Lithology of Groundwater Zone 1

The preliminary results of the ongoing investigation indicate that the geologic sequence at the former CCC/USDA facility includes a Permian Chase Group bedrock unit with an unconformably overlying unit of clay, silt, and silty sand of Pleistocene age. Groundwater Zone 1 is the uppermost local water-bearing zone in the bedrock. The qualitative characteristics of Zone 1 were identified through coring and groundwater sampling at 45 locations during the ongoing site investigation. Lithologic logs for the cores collected at the locations subjected to slug testing in August 2009 are in Appendix A. The full set of logs will be presented in a subsequent report.

At and near the former CCC/USDA facility, the lithologic units identified in the uppermost portion of the bedrock, immediately below the erosional bedrock surface, were (1) weathered shale of various colors, (2) weathered limestone, and (3) gray shale. The former CCC/USDA facility is located on a bedrock high. Core recovery data and field observations indicate that the weathered shale and limestone units were progressively eroded laterally from the bedrock high and are partially or completely absent along its flanks.

Groundwater Zone 1 is present in a weathered limestone unit directly underlying the weathered shale unit (unit 1 above) or, alternatively, is located in unconsolidated Pleistocene deposits where these deposits directly overlie the gray shale unit (unit 3 above). The Zone 1 unit has a total thickness of less than 15 ft and has been eroded as it extends laterally. Zone 1 contains a few thin, saturated intervals that are found from the approximate middle of the limestone unit and downward within the unit, forming a water-bearing zone. These intervals have a limited total thickness (1-3 ft) and primarily reflect secondary porosity developed along bedding planes and fractures in the limestone. At the lateral erosional limit of the Zone 1 unit, water recovery was observed to be extremely slow. Recovery for sampling usually required days after well installation.

The extent of contamination in groundwater Zone 1 has been delineated as shown in Figure 1. Carbon tetrachloride concentrations in this zone range from a maximum concentration of 617 µg/L on the bedrock high along the northern boundary of the former CCC/USDA facility to a low of 0.5 µg/L (not detected) progressing off the former property. The slug test locations were focused along the apparent contaminant migration pathway.

3 Field Implementation of the Slug Testing Program

Slug testing was conducted in 20 Zone 1 monitoring wells: MW01, MW02, MW04-MW07, MW09-MW13, MW16, MW18, MW20, MW21, MW28, MW29, MW34, MW37, and MW38 (Figure 1). The testing was performed in accord with the investigative program proposed in "Addendum 1" (Argonne 2009). As proposed, the specific field procedures employed for the slug testing at each targeted monitoring well were selected on the basis of the hydrologic and logistic conditions encountered when the well was tested. Well construction data, measured static groundwater levels, and the test procedures used for each well are summarized in Table 1.

Two wells originally proposed for the present investigation (Argonne 2009), MW14 and MW24, were not tested during the August 2009 field session, because the column of water in the well casings was insufficient for testing. Adjacent wells MW13 and MW16 were therefore tested as alternatives, respectively, for these wells (Figure 1).

Monitoring well MW40 is completed as a flush mount in the roadway at the intersection of Elm and East Streets (Figure 1), and hence is exposed to vehicle traffic. As noted in "Addendum 1" (Argonne 2009), a very slow water level response was anticipated for this well. Argonne experience in testing several of the nearby wells (MW37, MW38) suggested that the data-gathering period for slug testing of MW40 could extend over several days, during which the protective lid for the well housing could not be installed. Therefore, the proposed testing in MW40 was not conducted because of logistic and safety concerns.

Monitoring well MW11 was not included in the slug testing program as originally proposed (Argonne 2009) because of a previous blockage of this well by a lost bailer. The well casing was cleared, however, to permit slug testing of MW11 during the August field session (Figure 1).

Table 1 indicates that the static groundwater levels in wells MW05, MW09, MW11, MW13, MW16, MW18, MW20, MW21, MW28, MW29, MW34, MW37, and MW38 fell within or were only slightly above (by 0.2 ft or less) their respective screened intervals. These water levels, within or near the screened intervals, precluded the use of the casing air pressurization method (which requires that the static water level be a significant distance above the well screen) for slug testing in these wells. Static groundwater levels ranging from approximately 3.6 ft to 7.4 ft above the screened intervals were identified in wells MW01, MW02, MW04, MW06, MW07, MW10, and MW12 (Table 1). The air pressurization method was attempted initially in wells MW01, MW02, MW04, and MW10. This method proved logistically impractical, however, because long time periods were required to achieve initial equilibration of the air pressures and water levels in the wells prior to the initiation of each slug test. The slug tests in all wells were therefore performed by quickly lowering or withdrawing a physical slug into the casing to perturb the static water column. For this purpose, the physical slugs used consisted of 1.0-in.-diameter sealed, sand-filled PVC (polyvinyl chloride) pipes, either 5 ft long or 3 ft long. The slugs were used either individually or in pairs to achieve the desired water level offset in each well. The slug configuration used for the testing of each well is indicated in Table 1.

In keeping with the plan in “Addendum 1” (Argonne 2009), the number of slug test data sets collected at each well was determined on the basis of the observed water level response. For wells having a water level recovery period of less than 1 hr, four sets of slug test data were collected, representing two complete insertion-and-withdrawal cycles of the physical slug. For wells having recovery periods longer than 1 hr, the following data collection scheme was employed:

Length of Recovery Period	Number of Data Sets
1 hr to 3 hr	3
3 hr to 1 day	2
> 1 day	1

The water level responses for all tests, with one exception, were recorded by using self-contained, downhole pressure sensor and data logging units (Instrumentation Northwest, Inc., Model PT2X). Data for the tests conducted at well MW34 were recorded by using a downhole pressure transducer connected to an external data logger (In-Situ, Inc., Hermit 1000C). The number of data sets collected at each well tested is in Table 1.

4 Analysis of the Slug Test Data

To generate estimates of hydraulic conductivity (K_h), the water level response data obtained from the slug tests were interpreted by using the analysis methods of Bouwer and Rice (Bouwer and Rice 1976; Bouwer 1989) and Hvorslev (1951), as implemented in the commercial well test software analysis package AqteSolv for Windows (HydroSolve, Inc.). Numerous alternative slug test analysis methods have been developed, each with advantages and disadvantages. The methods used for this study were selected in light of their relatively wide applicability, their level of documentation and general acceptance by the scientific community, and their ease of implementation to achieve the objective of estimating hydraulic parameters for the Zone 1 water-bearing interval.

The K_h values calculated for each well location by using either analysis method are dependent, in part, on the assumed thickness of the water-bearing interval that responds to the water level offset during a test, as well as on the construction features and the position of the static groundwater level within the well itself. At Hanover, the exact effective thickness of the water-bearing interval is difficult to define in many of the wells tested, because of the lithologic characteristics of the Zone 1 materials and the very slow groundwater accumulation rates that were originally observed in these wells. On the basis of analyses of the Zone 1 lithologic logs discussed in Section 2 of this report, an average inferred thickness of 2 ft for the water-bearing interval, and hence a corresponding effective well screen height of 2 ft, was assumed for all slug test analyses. Use of this approach also assumes that the lithologic materials overlying and underlying Zone 1 (which, in many wells, are also penetrated by the actual well screen) contributed no groundwater flow to the well during the slug tests.

Table 1 indicates that when the slug tests were performed, the static groundwater levels at MW09, MW11, MW16, MW18, MW20, MW21, MW28, MW29, MW34, MW37, and MW38 fell within the respective screened intervals for these wells. Under this condition, the water level response observed during a slug test is influenced by water drainage from (or into) both the well casing and the surrounding (partially unsaturated) gravel pack. For the analyses of the tests from these wells, a correction was applied for water movement in the gravel pack under the assumption of 30% porosity for the pack materials. Because the exact vertical position of the Zone 1 materials contributing groundwater to the borehole cannot be precisely identified for most of the wells tested, the effective water-bearing interval is assumed to have remained fully saturated, and hence “confined,” throughout the slug testing procedure in all of the wells tested.

The Zone 1 monitoring wells slug tested at Hanover are all constructed with 2-in.-diameter screens and casing. Although some variability might exist, for the purpose of these analyses a nominal borehole diameter of 4 in. was assumed for all wells tested.

5 Results and Discussion

The hydraulic conductivity estimates derived from the August 2009 slug tests are summarized in Table 2 and Figure 2. Complete data (time versus residual drawdown) for the slug tests and the input parameters employed for the data analyses are in Tables A.1-A.20 in Appendix A. Representative (manual) curve fits for the test data are in Figures A.1-A.20 in Appendix A. For each data set (Table 2), the estimated K_h values calculated with the Bouwer and Rice method are of the same magnitude as, but roughly 25% lower than, the values for the same data set calculated with the Hvorslev method.

The estimated K_h values for the Zone 1 water-bearing materials at Hanover ranged over five orders of magnitude, from approximately 0.001 ft/day at MW06 to approximately 100 ft/day at MW09. The areal distribution of the calculated *average* K_h values (averaged for all individual tests and both calculation methods; last column in Table 2) is illustrated in Figure 2. The areal distribution of the hydraulic conductivities estimated by using *either* analysis method (not shown) yields a similar spatial pattern.

Figures 1 and 2 demonstrate that the estimated hydraulic conductivities of the Zone 1 water-bearing interval are generally highest in the area corresponding to the main body of the identified carbon tetrachloride contamination in groundwater. The highest K_h values, ranging from approximately 40 ft/day to 100 ft/day, were calculated for wells MW05, MW09, MW11, and MW13, which are located near the north central margin of the former CCC/USDA facility. At two locations (MW02 and MW10) within and near the eastern portion of the former facility, K_h values ranging from approximately 2 ft/day to 4 ft/day were observed. Similar values of approximately 3-8 ft/day were estimated for adjacent wells MW28 and MW29, located near the intersection of North East and Elm Streets, in the more downgradient portion of the contamination (Figure 2). Figure 2 further indicates that the estimated K_h values in Zone 1 decrease rapidly in all directions toward the margins of the contamination, to values that are consistently < 1 ft/day (and in most cases < 0.1 ft/day).

Although the estimated K_h values observed at several of the monitoring wells noted above are relatively high (approaching or equal to values often associated with clean sand deposits), the results in Tables 1 and 2 suggest that the expected capacity of the Zone 1 water-bearing interval to produce groundwater to wells, even at the identified locations having higher K_h values, is very limited. In addition to hydraulic conductivity, the factors affecting the capacity to produce groundwater to wells include (1) the restricted thickness of the Zone 1 water-bearing interval, (2) the dramatic variations in K_h values over short (< 150 ft) lateral distances documented within the study area, and (3) the relatively low groundwater head levels observed for wells in the portions of the study area having higher estimated K_h values.

The value of K_h is primarily a function of intrinsic characteristics of the saturated pore spaces within a water-bearing interval; however, the ability of such a unit to transmit water horizontally (under a given hydraulic gradient) is determined by its transmissivity (T), which represents the product of K_h and the total saturated thickness of the unit. Because the net thickness of the saturated Zone 1 materials at Hanover ranges from only 1 ft to 3 ft, the resulting T value of this unit is limited at even the most permeable of the locations subjected to slug testing (MW05, MW09, MW11, and MW13; Figure 2). The significantly lower K_h values observed across much of the investigation area (Figure 2) will further restrict the ability of groundwater to move through Zone 1 toward the more permeable regions of the unit, under the localized hydraulic gradients that would be induced by the pumping of one (or more) wells. Finally, the low initial groundwater head levels observed in the areas of higher K_h values physically constrain the drawdown conditions under which groundwater pumping would be logistically viable for wells in these areas.

To illustrate the influence of these factors on potential groundwater production rates, the theoretical response of Zone 1 deposits to pumping at the locations of wells MW09 (estimated K_h = 75 ft/day, head level approximately 4 ft above the well's total depth [TD]), MW10 (estimated K_h = 3.4 ft/day, head level approximately 8 ft above TD), and MW29 (estimated K_h = 4.7 ft/day, head level approximately 4 ft above TD) were approximated on the basis of the Theis equation for transient flow in a confined aquifer (Theis 1935). For each location, the Theis equation was used to estimate a maximum sustainable pumping rate over a 90-day period, with the assumption of drawdown at the well to within approximately 1 ft of TD. (Sensitivity testing performed for each scenario demonstrated that little further drawdown is predicted at each well location after the modeled 90-day period.) For the purposes of this exercise, a representative storativity value

for confined aquifers of 0.001 was assumed. The results of the calculations are shown in Figures 3-5.

Figures 3-5 suggest that a maximum pumping rate of < 1.5 gpm is predicted from the Zone 1 water-bearing interval in the vicinity of well MW09, while rates of < 0.2 gpm from this interval are estimated in the vicinity of monitoring wells MW10 and MW29. Because these calculations assume a homogeneous aquifer of "infinite" areal extent and no mechanical head losses associated with the entry of groundwater to the modeled pumping well, the results in Figures 3-5 are believed to represent hypothetical "best-case" estimates that are unlikely to be achieved by actual wells at these locations. These estimates are qualitatively in keeping, however, with the slow rates of groundwater recovery that have been observed during actual purging and sampling of the monitoring wells at Hanover.

6 References

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TABLE 1 Construction data, measured water levels, and testing parameters for the Zone 1 monitoring wells slug tested in August 2009.

Well	Reported Well Depth[a] (ft BGL)	Screened Interval[a] (ft BGL)	Measured Well Depth[b] (ft TOC)	Static Water Level[c] (ft TOC)	Height of Water Column in Casing[c] (ft)	Height of Water above Screen[c] (ft)	Slug Used for Testing[d]	Number of Data Sets Collected
MW01	35	30–35	34.53	22.18	12.35	7.36	5 ft	4
MW02	36	31–36	35.59	26.81	8.78	3.78	2 x 3 ft	4
MW04	35	30–35	34.48	24.34	10.14	5.20	5 ft	4
MW05	29	24–29	28.45	23.25	5.20	0.20	3 ft	4
MW06	29	24–29	28.30	18.07	10.23	5.54	5 ft	1
MW07	35	30–35	34.60	24.25	10.35	5.53	5 ft	2
MW09	23	18–23	22.57	18.42	4.15	–0.67	3 ft	4
MW10	31	26–31	30.30	22.07	8.23	3.63	5 ft	4
MW11	20	15–20	19.60	16.61	2.99	–1.85	3 ft	4
MW12	35	25–35	34.59	20.45	14.14	4.32	5 ft	1
MW13	20	15–20	19.74	14.63	5.11	0.15	3 ft	4
MW16	25	15–25	24.45	16.96	7.55	–2.45	2 x 3 ft	2
MW18	25	15–25	24.90	16.92	7.98	–2.57	5 ft	3
MW20	28	18–28	27.64	21.49	6.15	–3.85	5 ft	1
MW21	25	15–25	24.41	16.74	7.67	–2.27	5 ft	1
MW28	29	19–29	28.40	22.91	5.49	–4.42	3 ft	4
MW29	29	19–29	28.22	24.06	4.16	–4.61	3 ft	4
MW34	27	17–27	26.66	17.08	9.58	–0.40	5 ft	3
MW37	30	15–30	29.68	19.90	9.78	–5.20	5 ft	1
MW38	28	18–28	27.83	23.82	4.01	–6.03	3 ft	1

[a] Well construction parameters as reported in KDHE WWC–5 Water Well Records.

[b] Well depth from top of casing, measured on August 10–14, 2009.

[c] Water levels determined from measurements on August 10–14, 2009.

[d] Physical slugs constructed from 1–in–diameter, sealed, sand–filled PVC tubing (length of slug[s] and the number used).

TABLE 2 Summary of interpreted results for slug tests in Zone 1 monitoring wells in August 2009.

	Calculated Hydraulic Conductivity[a] (ft/day)								
Well	Bouwer and Rice Method Result for Each Test				Hvorslev Method Result for Each Test				Average[b]
MW01	0.71	0.48	0.60	0.46	0.98	0.66	0.83	0.63	0.67
MW02	2.9	2.2	3.0	2.4	4.0	3.0	4.1	3.3	3.1
MW04	0.67	0.49	0.64	0.43	0.92	0.67	0.89	0.59	0.66
MW05	45	47	42	42	62	65	59	59	53
MW06	0.001	–	–	–	0.001	–	–	–	0.001
MW07	0.017	0.012	–	–	0.024	0.017	–	–	0.018
MW09	69	73	40	67	97	102	55	93	75
MW10	2.8	2.7	3.0	2.8	3.9	3.7	4.1	3.9	3.4
MW11	56	39	55	56	78	53	78	77	62
MW12	0.005	–	–	–	0.007	–	–	–	0.006
MW13	55	48	51	46	75	66	70	63	59
MW16	0.043	0.025	–	–	0.059	0.034	–	–	0.040
MW18	0.25	0.22	0.28	–	0.34	0.30	0.40	–	0.30
MW20	0.011	–	–	–	0.015	–	–	–	0.013
MW21	0.002	–	–	–	0.003	–	–	–	0.003
MW28	2.6	5.9	2.8	4.1	3.6	8.3	3.9	5.7	4.6
MW29	3.0	4.5	3.4	4.8	4.1	6.3	4.8	6.6	4.7
MW34	0.24	0.07	0.21	–	0.33	0.09	0.29	–	0.20
MW37	0.003	–	–	–	0.004	–	–	–	0.004
MW38	0.017	–	–	–	0.024	–	–	–	0.021

[a] Calculated with the assumption of a thickness of 2 ft for the water–bearing interval.

[b] Averaged for all tests and both calculation methods.

FIGURE 1 Carbon tetrachloride distribution in groundwater Zone 1 and locations of wells used for slug testing in August 2009.

FIGURE 2 Areal distribution of average estimated hydraulic conductivity values for groundwater Zone 1, as determined by analysis of the data generated by the August 2009 slug testing.

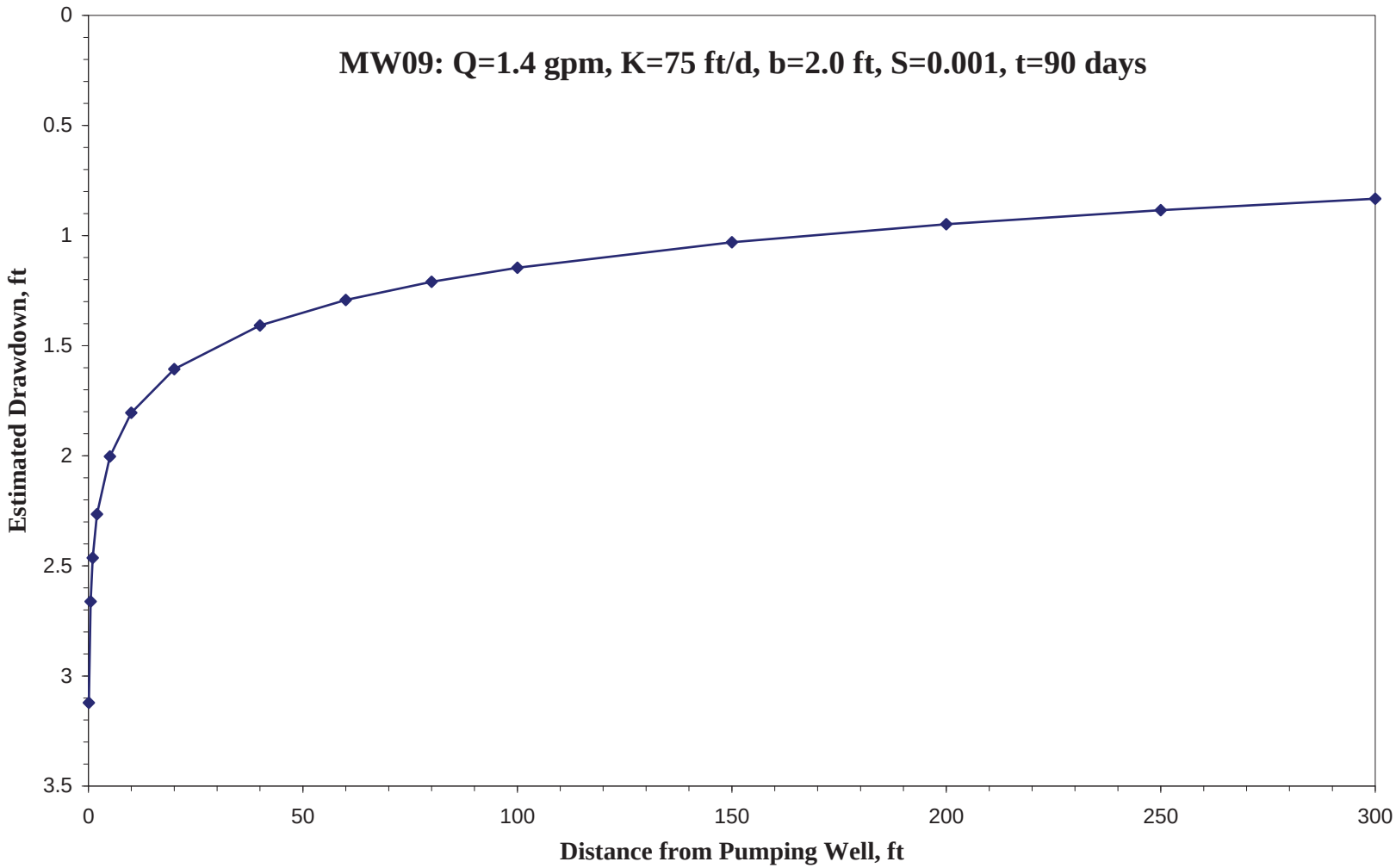

FIGURE 3 Estimated groundwater level drawdown in the vicinity of monitoring well MW09, in response to continuous pumping at a rate of 1.4 gpm.

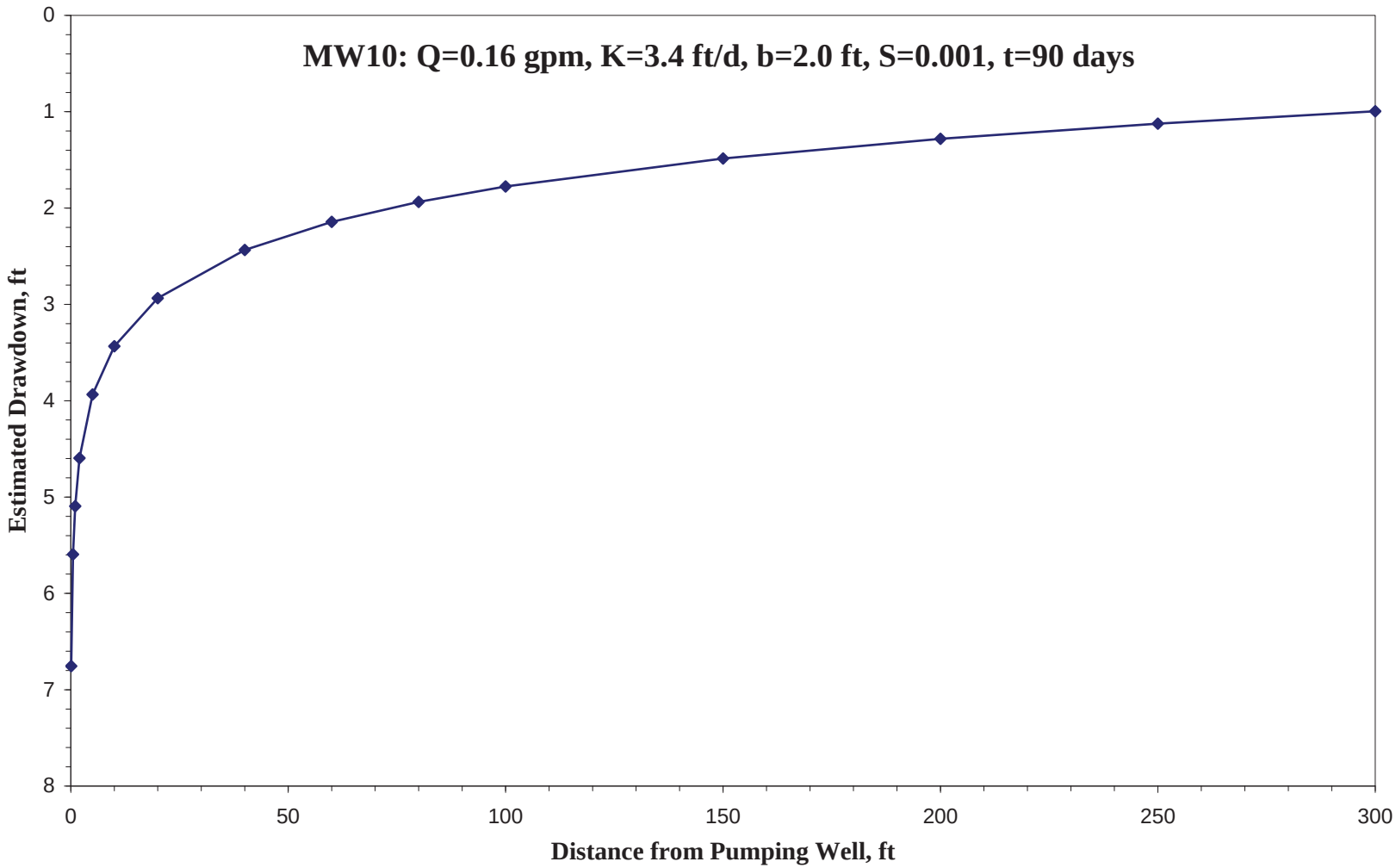

FIGURE 4 Estimated groundwater level drawdown in the vicinity of monitoring well MW10, in response to continuous pumping at a rate of 0.16 gpm.

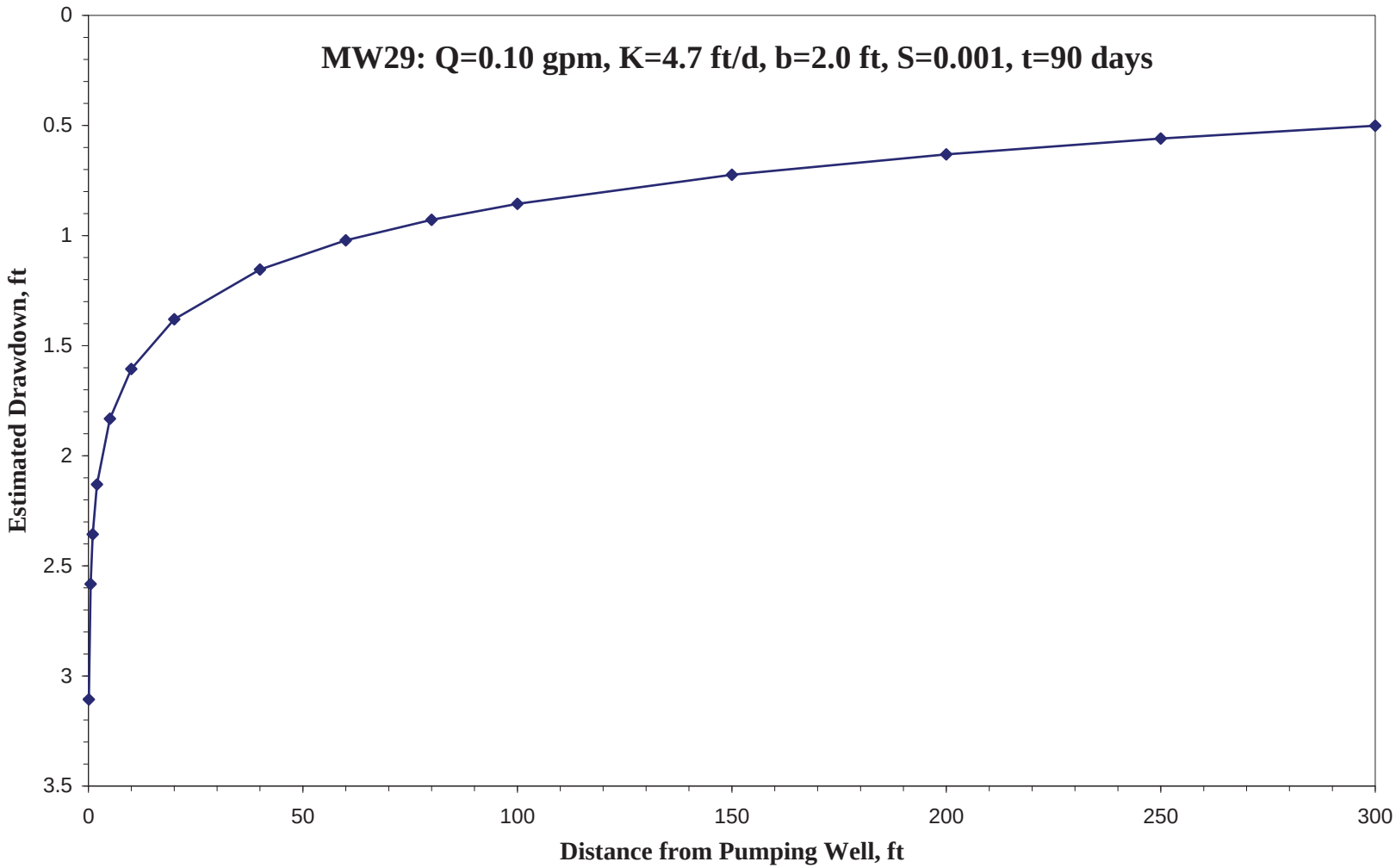

FIGURE 5 Estimated groundwater level drawdown in the vicinity of monitoring well MW29, in response to continuous pumping at a rate of 0.10 gpm.

Appendix A:

Lithology Logs and Complete Slug Test Results

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Argonne National Laboratory

Well ID: TI01/MW01

Project: Hanover **Elevation:** 1326.51 ft **Log Date:** January 13, 2009

Geologist: Eugene Yan **Depth:** 63 ft **Rig:** Geoprobe/Mini-sonic drilling rig

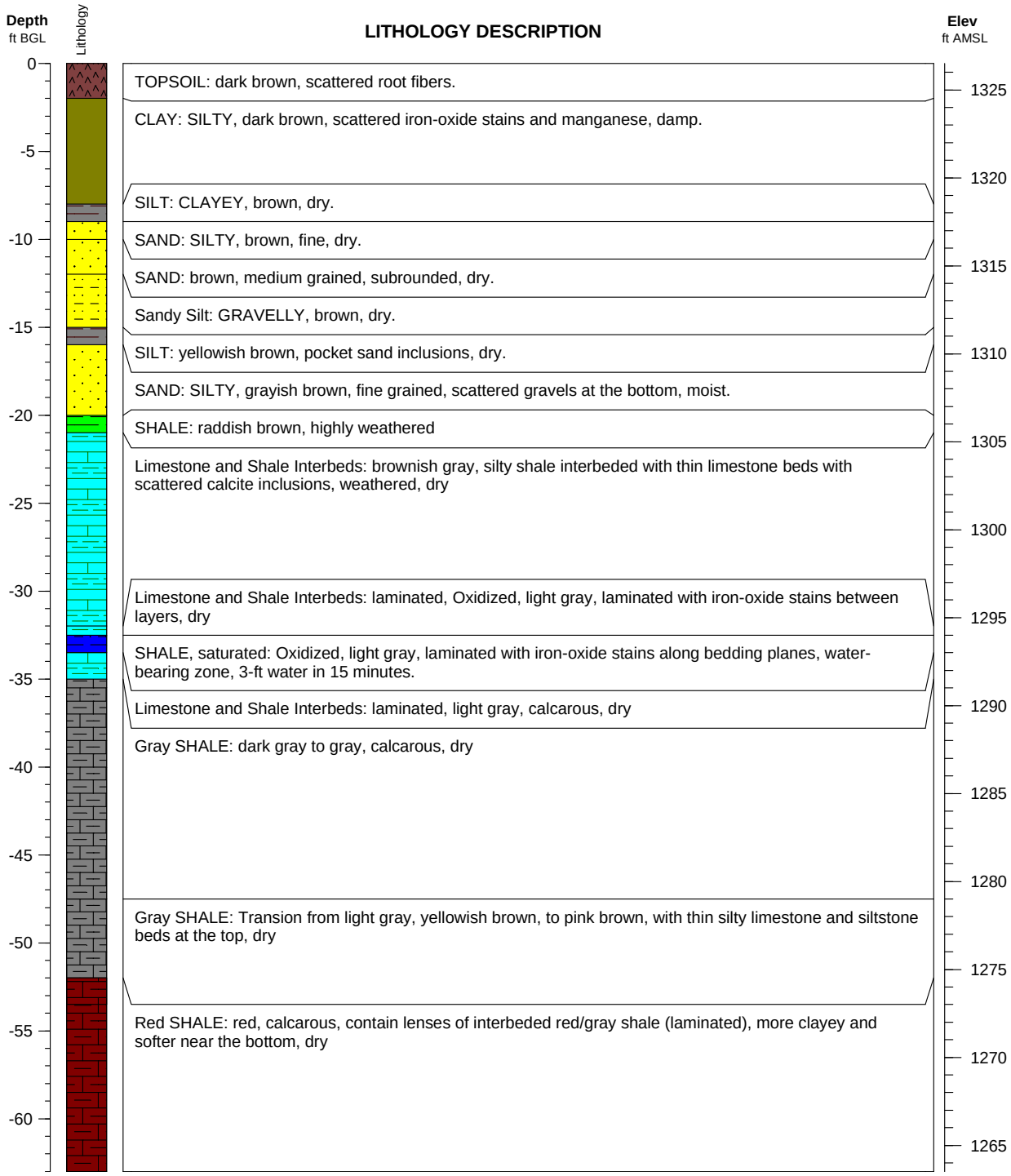
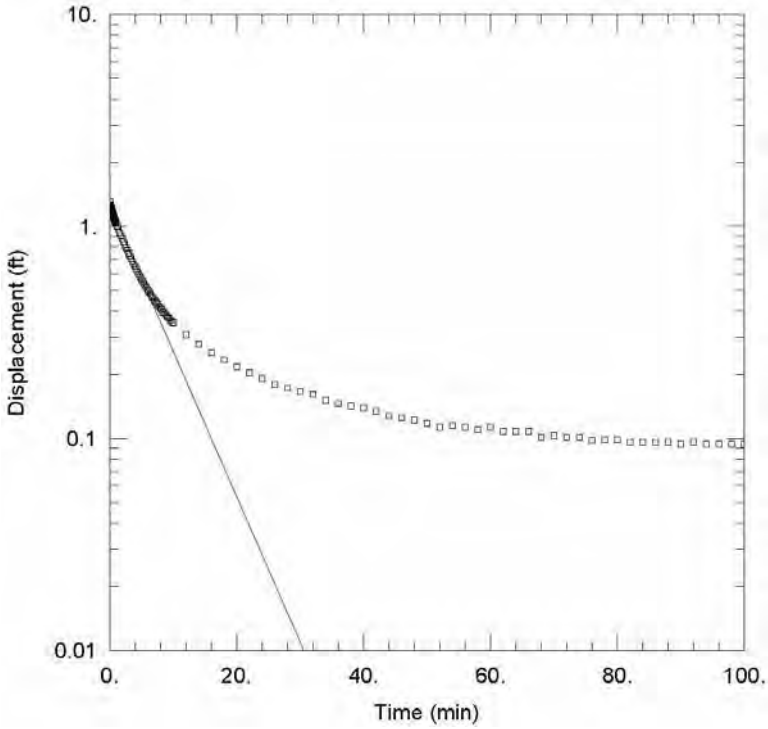


TABLE A.1 Slug test data for boring MW01 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

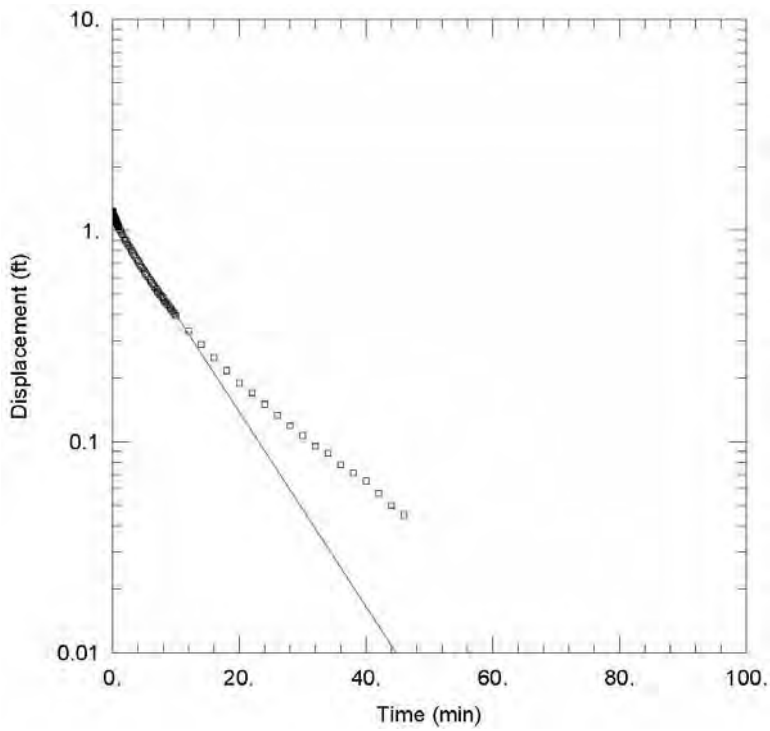
	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.000	1.223	1.172	1.182	1.196	0.767	1.084	1.077	1.12	1.07
0.017	1.259	1.244	1.244	1.203	0.783	1.079	1.075	1.117	1.07
0.033	1.314	1.244	1.271	1.223	0.800	1.076	1.07	1.117	1.068
0.050	1.266	1.239	1.24	1.215	0.817	1.074	1.068	1.112	1.063
0.067	1.263	1.232	1.256	1.208	0.833	1.069	1.065	1.11	1.06
0.083	1.273	1.227	1.249	1.201	0.850	1.067	1.065	1.107	1.058
0.100	1.263	1.223	1.244	1.196	0.867	1.064	1.06	1.105	1.058
0.117	1.259	1.218	1.239	1.192	0.883	1.06	1.058	1.1	1.056
0.133	1.254	1.211	1.237	1.189	0.900	1.057	1.056	1.1	1.053
0.150	1.249	1.206	1.235	1.182	0.917	1.055	1.056	1.098	1.051
0.167	1.244	1.199	1.232	1.18	0.933	1.052	1.053	1.095	1.048
0.183	1.239	1.194	1.23	1.172	0.950	1.05	1.051	1.093	1.046
0.200	1.235	1.189	1.227	1.168	0.967	1.048	1.046	1.091	1.044
0.217	1.232	1.182	1.223	1.163	0.983	1.045	1.044	1.088	1.041
0.233	1.227	1.177	1.218	1.16	1.0	1.04	1.041	1.086	1.036
0.250	1.223	1.172	1.213	1.156	1.2	1.007	1.012	1.057	1.012
0.267	1.22	1.168	1.206	1.151	1.4	0.969	0.983	1.031	0.986
0.283	1.215	1.163	1.203	1.149	1.6	0.938	0.959	1.003	0.962
0.300	1.211	1.158	1.201	1.146	1.8	0.907	0.933	0.981	0.938
0.317	1.206	1.156	1.196	1.144	2.0	0.876	0.909	0.957	0.916
0.333	1.201	1.151	1.191	1.139	2.2	0.847	0.89	0.931	0.897
0.350	1.196	1.149	1.189	1.137	2.4	0.818	0.866	0.909	0.878
0.367	1.191	1.144	1.187	1.137	2.6	0.794	0.847	0.888	0.859
0.383	1.184	1.141	1.182	1.132	2.8	0.771	0.828	0.866	0.837
0.400	1.179	1.139	1.179	1.127	3.0	0.747	0.806	0.845	0.818
0.417	1.175	1.137	1.177	1.125	3.2	0.725	0.787	0.826	0.799
0.433	1.167	1.132	1.175	1.122	3.4	0.704	0.768	0.807	0.782
0.450	1.163	1.129	1.172	1.12	3.6	0.682	0.751	0.787	0.768
0.467	1.156	1.127	1.167	1.115	3.8	0.663	0.734	0.768	0.751
0.483	1.146	1.125	1.165	1.113	4.0	0.646	0.72	0.752	0.734
0.500	1.141	1.12	1.163	1.11	4.2	0.63	0.701	0.725	0.718
0.517	1.134	1.118	1.16	1.108	4.4	0.61	0.686	0.704	0.706
0.533	1.129	1.115	1.155	1.106	4.6	0.596	0.672	0.677	0.689
0.550	1.127	1.113	1.153	1.103	4.8	0.579	0.658	0.656	0.674
0.567	1.122	1.11	1.151	1.103	5.0	0.565	0.643	0.637	0.663
0.583	1.12	1.108	1.148	1.099	5.2	0.551	0.629	0.615	0.648
0.600	1.115	1.103	1.146	1.099	5.4	0.539	0.617	0.599	0.636
0.617	1.112	1.101	1.143	1.094	5.6	0.527	0.603	0.579	0.624
0.633	1.11	1.099	1.141	1.091	5.8	0.515	0.591	0.567	0.612
0.650	1.105	1.096	1.139	1.089	6.0	0.503	0.581	0.548	0.598
0.667	1.103	1.094	1.134	1.087	6.2	0.491	0.569	0.534	0.588
0.683	1.098	1.091	1.131	1.084	6.4	0.481	0.555	0.519	0.576
0.700	1.096	1.089	1.129	1.082	6.6	0.469	0.545	0.507	0.564
0.717	1.091	1.087	1.127	1.08	6.8	0.462	0.533	0.493	0.552
0.733	1.088	1.082	1.124	1.077	7.0	0.452	0.524	0.481	0.543
0.750	1.086	1.079	1.124	1.075	7.2	0.443	0.512	0.469	0.533

TABLE A.1 (Cont.)

	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
7.4	0.436	0.505	0.457	0.524	78	0.099			
7.6	0.429	0.495	0.448	0.514	80	0.099			
7.8	0.419	0.485	0.438	0.505	82	0.096			
8.0	0.412	0.478	0.426	0.495	84	0.096			
8.2	0.405	0.466	0.421	0.488	86	0.096			
8.4	0.395	0.459	0.409	0.478	88	0.096			
8.6	0.393	0.45	0.402	0.469	90	0.094			
8.8	0.385	0.445	0.395	0.462	92	0.096			
9.0	0.378	0.435	0.388	0.452	94	0.094			
9.2	0.373	0.428	0.381	0.445	96	0.094			
9.4	0.369	0.418	0.374	0.435	98	0.094			
9.6	0.362	0.411	0.369	0.428	100	0.094			
9.8	0.354	0.404	0.359	0.421					
10	0.352	0.397	0.354	0.416					
12	0.309	0.335	0.307	0.349					
14	0.278	0.289	0.273	0.296					
16	0.254	0.251	0.249	0.256					
18	0.235	0.217	0.228	0.22					
20	0.218	0.189	0.216	0.191					
22	0.204	0.17	0.204	0.165					
24	0.192	0.15	0.192	0.143					
26	0.18	0.133	0.182	0.126					
28	0.173	0.119	0.178	0.11					
30	0.166	0.107	0.168	0.095					
32	0.161	0.095	0.163	0.081					
34	0.151	0.088	0.158	0.069					
36	0.146	0.078	0.154	0.062					
38	0.142	0.071	0.154	0.052					
40	0.139	0.065	0.146	0.043					
42	0.134	0.057	0.144	0.035					
44	0.127	0.05	0.139	0.028					
46	0.125	0.045	0.137	0.021					
48	0.122		0.132	0.014					
50	0.118		0.130	0.007					
52	0.113		0.127	0.002					
54	0.115		0.125						
56	0.113		0.125						
58	0.11		0.125						
60	0.113		0.123						
62	0.108								
64	0.108								
66	0.108								
68	0.101								
70	0.103								
72	0.101								
74	0.101								
76	0.098								

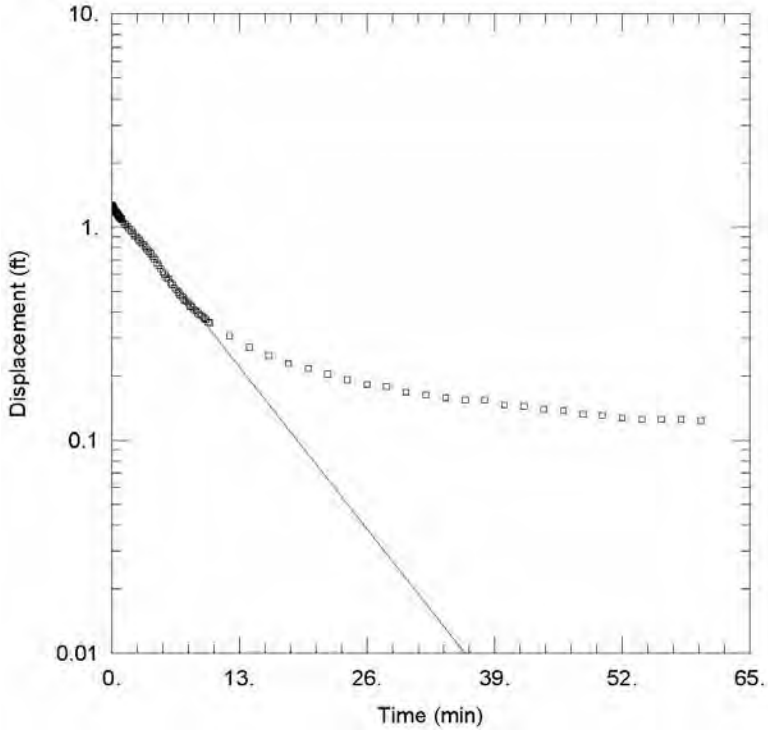


Observed slug test water level response and interpretive straight-line fit to the measured data for MW01, Test 1, slug in.

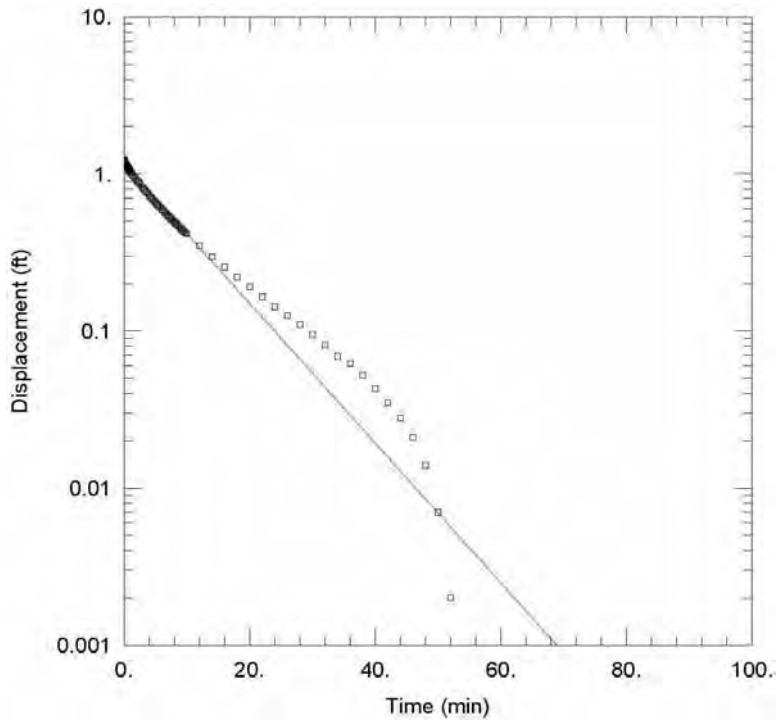


Observed slug test water level response and interpretive straight-line fit to the measured data for MW01, Test 2, slug out.

FIGURE A.1 Observed slug test water level response and interpretive fit to the data for MW01 (Table A.1).



Observed slug test water level response and interpretive straight-line fit to the measured data for MW01, Test 3, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW01, Test 4, slug out.

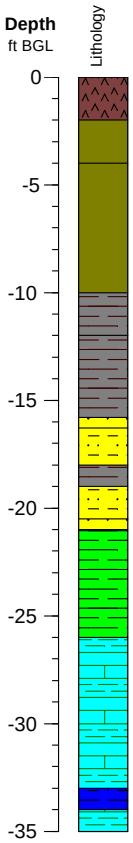
FIGURE A.1 (Cont.)

Argonne National Laboratory

Well ID: TI05/MW02

Project: Hanover **Elevation:** 1332.44 ft **Log Date:** January 13-15, 29, 2009

Geologist: Eugene Yan **Depth:** 35 ft **Rig:** Geoprobe/Mini-sonic drilling rig



LITHOLOGY DESCRIPTION

TOPSOIL: dark brown, scattered gravels, abundant root fibers.

CLAY: SILTY, yellowish brown, scattered iron-oxide stains, dry.

CLAY: SILTY, dark brown, scattered sand grains with iron-oxide stains, molted with brown and gray at the bottom, dry.

SILT: brownish gray, a few pocket iron-oxide stain, dry.

SILT: CLAYEY, yellowish to grayish brown, scattered lenses of precipitates at the bottom, dry

SAND: brownish yellow, well-sorted fine grains, iron-oxide coated, dry.

Sandy Silt: grayish brown, scattered gravels and iron-oxide stains, dry.

SILT: CLAYEY, reddish brown, dry.

Sandy Silt: grayish yellow, increasing sand and gravel and wet near the bottom.

Sand: reddish brown, medium.

SHALE: red and brownis gray layer, alternated, weathered, dry.

Limestone and Shale Interbeds: brownish gray, weathered siltstone and silty limestone, dry

SHALE, saturated: Oxidized, light gray, laminated with iron-oxide stains along the bedding planes, water-bearing zone, 4-ft water in 10 minutes.

Limestone and Shale Interbeds: brownish gray, weathered siltstone and silty limestone, dry

Elev
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1330
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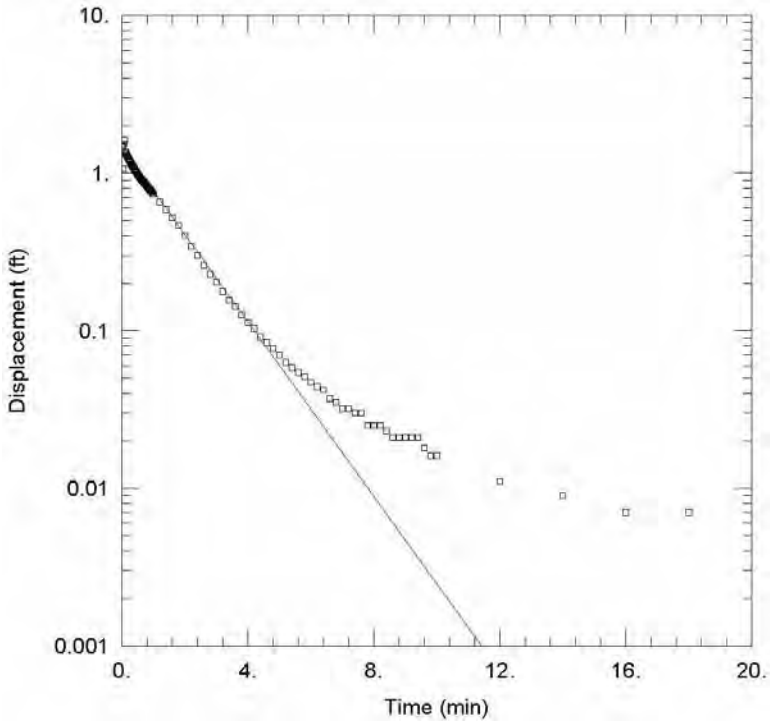
1300

TABLE A.2 Slug test data for boring MW02 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

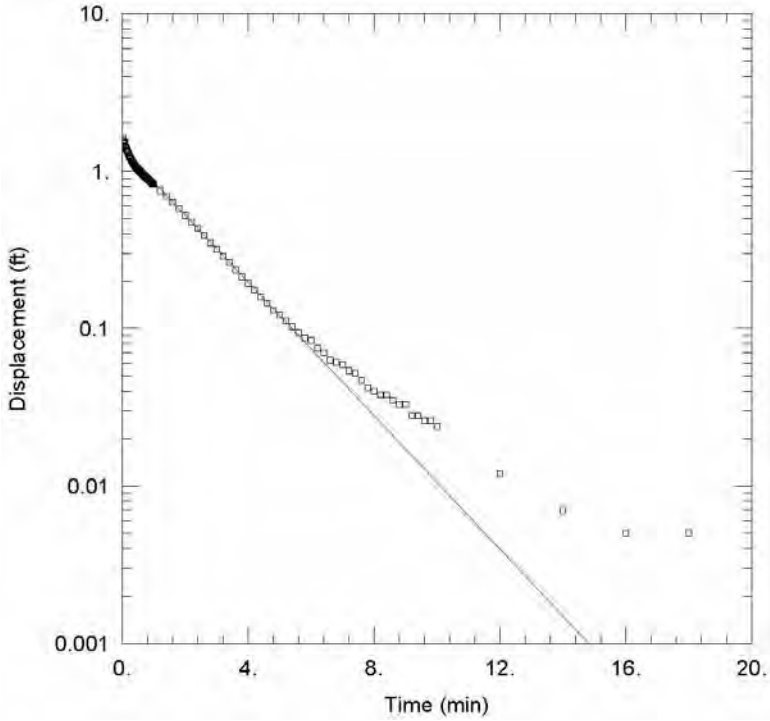
	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.000	1.488	0.631	2.042	1.875	0.767	0.843	0.91	0.831	0.868
0.017	1.481	1.636	1.806	1.779	0.783	0.834	0.903	0.827	0.863
0.033	1.47	1.578	0.82	1.622	0.800	0.827	0.898	0.815	0.854
0.050	1.065	1.555	1.61	1.538	0.817	0.817	0.891	0.808	0.849
0.067	1.523	1.524	1.32	1.505	0.833	0.81	0.886	0.801	0.842
0.083	1.621	1.517	1.346	1.482	0.850	0.803	0.879	0.794	0.837
0.100	1.353	1.459	1.395	1.431	0.867	0.796	0.872	0.785	0.83
0.117	1.357	1.412	1.367	1.393	0.883	0.785	0.868	0.78	0.823
0.133	1.329	1.384	1.341	1.356	0.900	0.778	0.863	0.771	0.816
0.150	1.306	1.358	1.322	1.33	0.917	0.773	0.856	0.764	0.812
0.167	1.283	1.335	1.304	1.305	0.933	0.764	0.851	0.757	0.807
0.183	1.264	1.314	1.285	1.281	0.950	0.759	0.842	0.747	0.798
0.200	1.247	1.291	1.264	1.26	0.967	0.754	0.837	0.738	0.793
0.217	1.226	1.267	1.245	1.237	0.983	0.743	0.83	0.731	0.786
0.233	1.212	1.234	1.226	1.213	1.0	0.738	0.826	0.724	0.781
0.250	1.194	1.218	1.21	1.195	1.2	0.656	0.758	0.642	0.713
0.267	1.18	1.202	1.191	1.176	1.4	0.586	0.692	0.57	0.65
0.283	1.161	1.185	1.173	1.155	1.6	0.521	0.634	0.504	0.589
0.300	1.147	1.169	1.159	1.136	1.8	0.465	0.578	0.446	0.536
0.317	1.128	1.153	1.145	1.12	2.0	0.404	0.524	0.385	0.482
0.333	1.114	1.141	1.126	1.104	2.2	0.343	0.475	0.325	0.435
0.350	1.1	1.127	1.112	1.087	2.4	0.299	0.433	0.28	0.391
0.367	1.086	1.113	1.098	1.076	2.6	0.261	0.391	0.245	0.349
0.383	1.072	1.099	1.084	1.059	2.8	0.229	0.351	0.212	0.311
0.400	1.06	1.09	1.07	1.05	3.0	0.203	0.318	0.187	0.278
0.417	1.044	1.078	1.056	1.038	3.2	0.177	0.288	0.161	0.248
0.433	1.032	1.069	1.042	1.027	3.4	0.156	0.262	0.145	0.222
0.450	1.023	1.057	1.03	1.017	3.6	0.142	0.236	0.126	0.199
0.467	1.009	1.048	1.016	1.008	3.8	0.126	0.213	0.112	0.178
0.483	1	1.038	1.004	0.998	4.0	0.112	0.194	0.098	0.159
0.500	0.986	1.031	0.993	0.991	4.2	0.103	0.176	0.089	0.143
0.517	0.976	1.022	0.981	0.98	4.4	0.091	0.159	0.082	0.129
0.533	0.965	1.012	0.967	0.97	4.6	0.084	0.145	0.075	0.115
0.550	0.958	1.003	0.958	0.963	4.8	0.077	0.131	0.065	0.105
0.567	0.946	0.998	0.946	0.954	5.0	0.07	0.122	0.061	0.094
0.583	0.937	0.989	0.934	0.947	5.2	0.063	0.112	0.054	0.087
0.600	0.925	0.98	0.925	0.94	5.4	0.058	0.103	0.049	0.08
0.617	0.916	0.975	0.918	0.933	5.6	0.054	0.094	0.047	0.073
0.633	0.909	0.968	0.904	0.926	5.8	0.051	0.087	0.042	0.068
0.650	0.899	0.959	0.897	0.917	6.0	0.047	0.084	0.039	0.059
0.667	0.892	0.954	0.885	0.91	6.2	0.044	0.075	0.037	0.056
0.683	0.885	0.945	0.876	0.905	6.4	0.042	0.07	0.032	0.052
0.700	0.873	0.94	0.866	0.896	6.6	0.037	0.063	0.032	0.049
0.717	0.866	0.931	0.859	0.889	6.8	0.035	0.061	0.03	0.045
0.733	0.859	0.926	0.85	0.882	7.0	0.032	0.059	0.028	0.042
0.750	0.85	0.919	0.841	0.877	7.2	0.032	0.054	0.025	0.038

TABLE A.2 (Cont.)

	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
7.4	0.03	0.052	0.025	0.035					
7.6	0.03	0.047	0.023	0.035					
7.8	0.025	0.042	0.023	0.031					
8.0	0.025	0.04	0.021	0.028					
8.2	0.025	0.038	0.021	0.026					
8.4	0.023	0.038	0.021	0.026					
8.6	0.021	0.035	0.018	0.024					
8.8	0.021	0.033	0.016	0.021					
9.0	0.021	0.033	0.016	0.021					
9.2	0.021	0.028	0.016	0.019					
9.4	0.021	0.028	0.016	0.017					
9.6	0.018	0.026	0.014	0.017					
9.8	0.016	0.026	0.016	0.014					
10	0.016	0.024	0.014	0.014					
12	0.011	0.012	0.009	0.01					
14	0.009	0.007	0.007	0.005					
16	0.007	0.005	0.007	0.003					
18	0.007	0.005	0.004	0.002					
20	0.007	0	0.004	0					
22	0.009	0.002	0.005						
24	0.007		0.002						
26	0.007		0.004						
28	0.007								
30	0.007								
32	0.007								
34	0.007								
36	0.009								
38	0.009								
40	0.007								
42	0.007								
44	0.009								

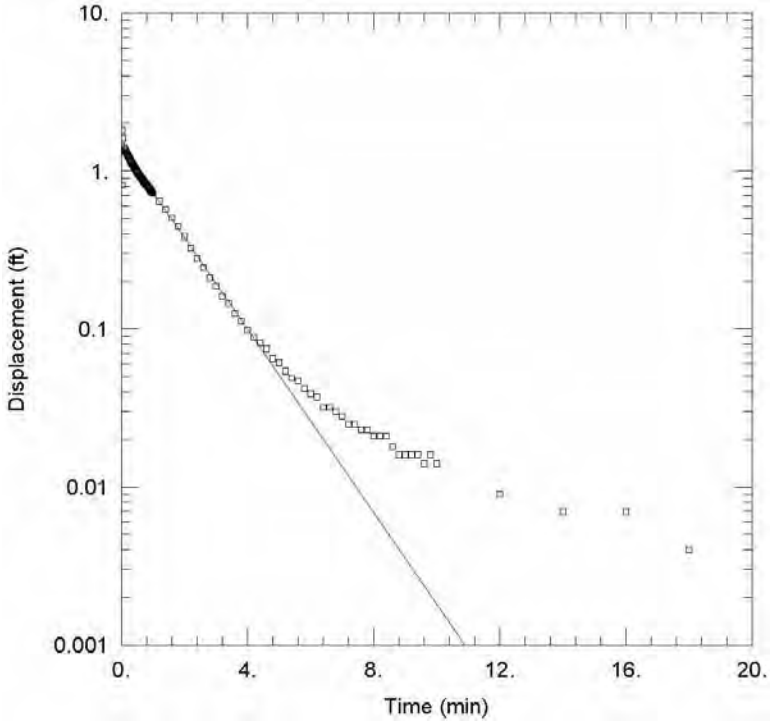


Observed slug test water level response and interpretive straight-line fit to the measured data for MW02, Test 1, slug in.

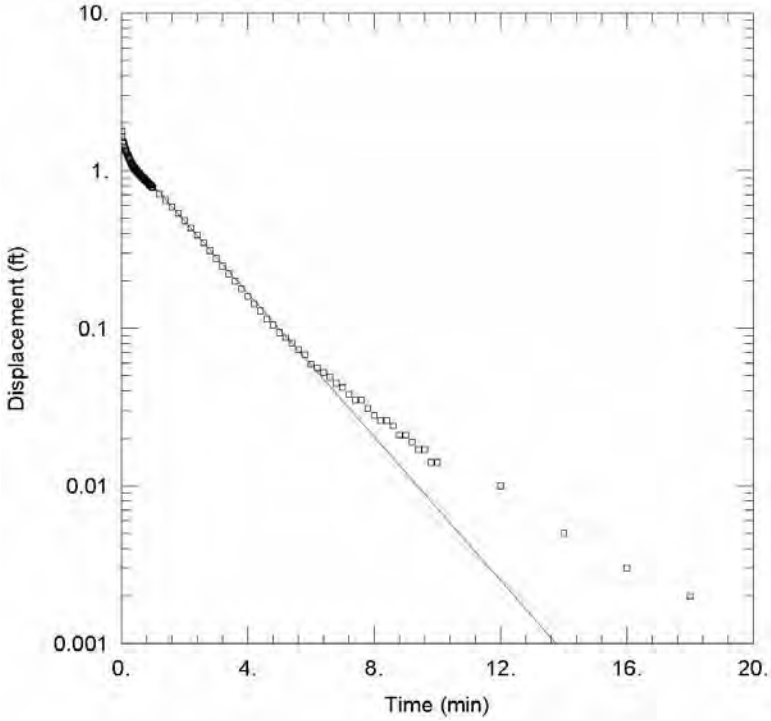


Observed slug test water level response and interpretive straight-line fit to the measured data for MW02, Test 2, slug out.

FIGURE A.2 Observed slug test water level response and interpretive fit to the data for MW02 (Table A.2).



Observed slug test water level response and interpretive straight-line fit to the measured data for MW02, Test 3, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW02, Test 4, slug out.

FIGURE A.2 (Cont.)

Argonne National Laboratory

Well ID: MW04

Project: Hanover **Elevation:** 1328.14 ft **Log Date:** January 31, 2009

Geologist: Eugene Yan **Depth:** 35 ft **Rig:** Mini-sonic drilling rig

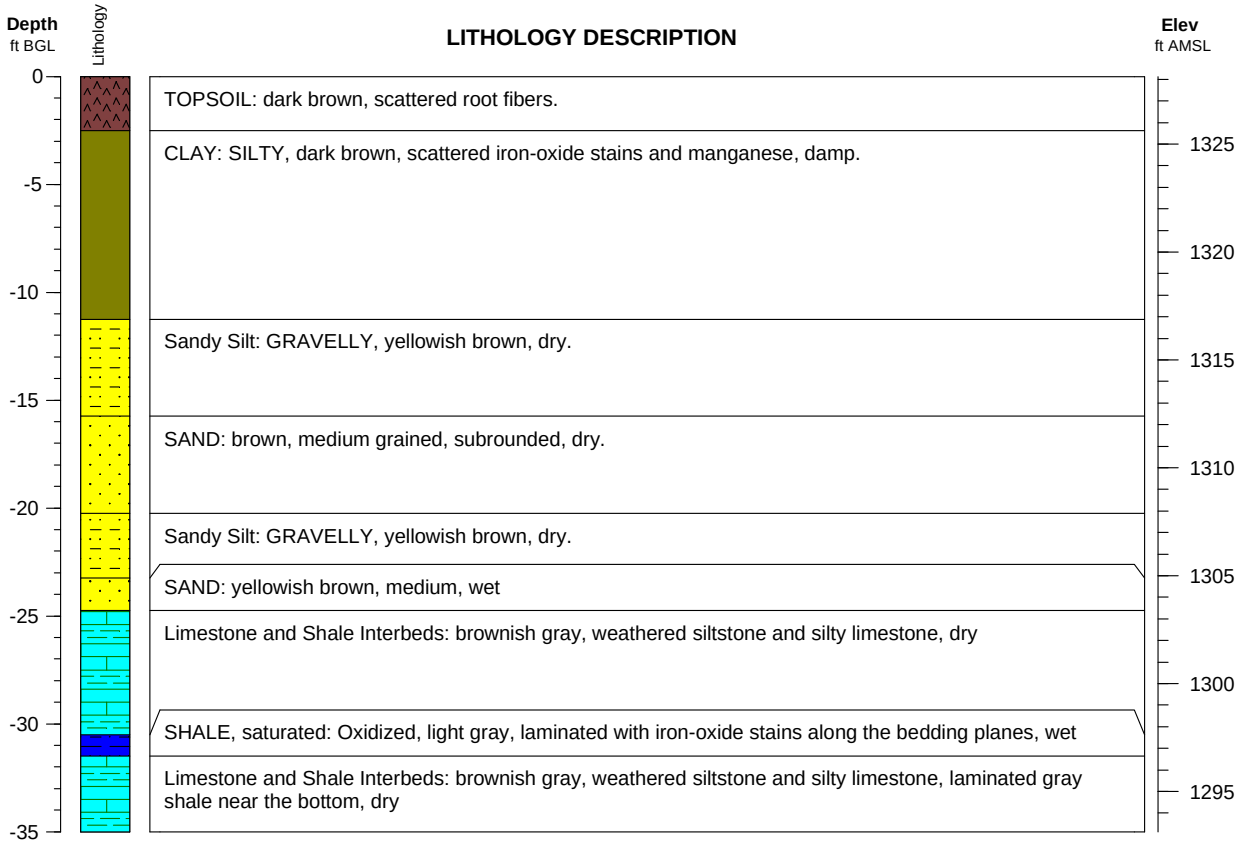
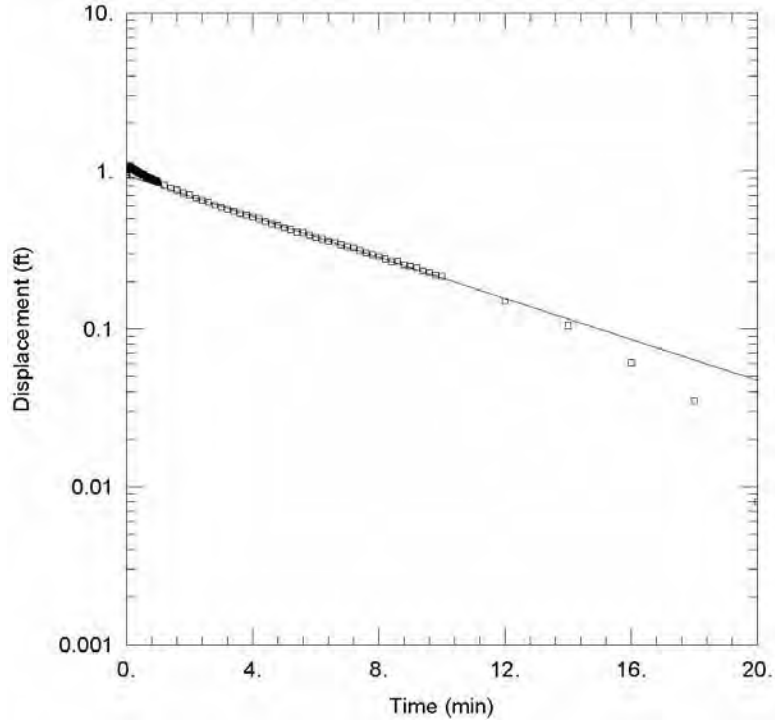


TABLE A.3 Slug test data for boring MW04 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

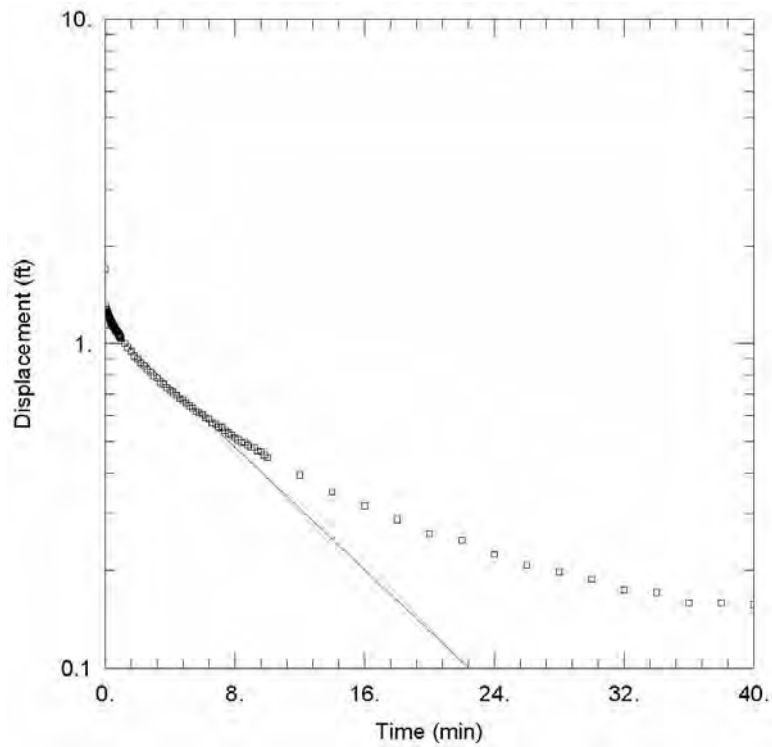
	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.000	1.275	0.369	0.831	1.376	0.767	0.894	1.08	0.915	1.077
0.017	0.943	1.699	1.219	0.986	0.783	0.895	1.08	0.912	1.075
0.033	0.981	1.195	1.079	1.448	0.800	0.887	1.07	0.905	1.073
0.050	1.039	1.306	1.103	1.28	0.817	0.885	1.073	0.905	1.07
0.067	1.085	1.28	1.101	1.284	0.833	0.88	1.07	0.903	1.061
0.083	1.08	1.272	1.096	1.284	0.850	0.88	1.068	0.898	1.065
0.100	1.066	1.272	1.086	1.27	0.867	0.878	1.061	0.896	1.061
0.117	1.068	1.26	1.081	1.268	0.883	0.87	1.058	0.888	1.056
0.133	1.056	1.256	1.076	1.258	0.900	0.866	1.056	0.888	1.048
0.150	1.049	1.246	1.072	1.246	0.917	0.863	1.051	0.881	1.051
0.167	1.049	1.241	1.064	1.241	0.933	0.861	1.051	0.886	1.048
0.183	1.042	1.236	1.057	1.227	0.950	0.87	1.046	0.881	1.041
0.200	1.034	1.227	1.052	1.224	0.967	0.858	1.041	0.876	1.044
0.217	1.034	1.217	1.05	1.219	0.983	0.851	1.041	0.879	1.039
0.233	1.025	1.212	1.04	1.212	1.0	0.846	1.039	0.869	1.032
0.250	1.02	1.212	1.038	1.21	1.2	0.813	1.003	0.831	1.003
0.267	1.017	1.205	1.035	1.2	1.4	0.779	0.974	0.804	0.971
0.283	1.013	1.2	1.033	1.193	1.6	0.757	0.947	0.773	0.94
0.300	1.008	1.191	1.028	1.191	1.8	0.728	0.916	0.751	0.918
0.317	1.003	1.188	1.021	1.186	2.0	0.704	0.897	0.72	0.892
0.333	0.998	1.183	1.016	1.186	2.2	0.671	0.872	0.698	0.872
0.350	0.991	1.171	1.014	1.176	2.4	0.654	0.856	0.674	0.848
0.367	0.989	1.171	1.007	1.171	2.6	0.632	0.834	0.653	0.827
0.383	0.979	1.171	1.004	1.164	2.8	0.608	0.815	0.633	0.807
0.400	0.976	1.166	0.997	1.164	3.0	0.591	0.798	0.616	0.788
0.417	0.969	1.159	0.999	1.159	3.2	0.572	0.783	0.597	0.771
0.433	0.967	1.154	0.987	1.147	3.4	0.555	0.762	0.583	0.757
0.450	0.962	1.147	0.982	1.15	3.6	0.541	0.75	0.566	0.74
0.467	0.964	1.15	0.982	1.145	3.8	0.526	0.733	0.547	0.733
0.483	0.955	1.145	0.975	1.14	4.0	0.509	0.718	0.532	0.711
0.500	0.95	1.135	0.97	1.138	4.2	0.497	0.709	0.52	0.694
0.517	0.948	1.133	0.966	1.135	4.4	0.48	0.694	0.503	0.685
0.533	0.948	1.135	0.966	1.128	4.6	0.463	0.68	0.494	0.675
0.550	0.94	1.128	0.956	1.126	4.8	0.451	0.67	0.479	0.658
0.567	0.94	1.123	0.956	1.121	5.0	0.439	0.656	0.467	0.644
0.583	0.933	1.121	0.951	1.118	5.2	0.427	0.644	0.457	0.639
0.600	0.928	1.114	0.944	1.111	5.4	0.41	0.632	0.441	0.624
0.617	0.926	1.109	0.946	1.111	5.6	0.406	0.619	0.431	0.617
0.633	0.921	1.097	0.941	1.109	5.8	0.394	0.612	0.416	0.605
0.650	0.921	1.104	0.939	1.101	6.0	0.379	0.603	0.404	0.593
0.667	0.919	1.101	0.934	1.099	6.2	0.37	0.591	0.397	0.588
0.683	0.907	1.099	0.934	1.097	6.4	0.357	0.586	0.39	0.576
0.700	0.907	1.094	0.937	1.094	6.6	0.353	0.571	0.378	0.562
0.717	0.904	1.092	0.927	1.087	6.8	0.341	0.564	0.368	0.554
0.733	0.899	1.087	0.922	1.085	7.0	0.331	0.554	0.356	0.545
0.750	0.902	1.087	0.917	1.077	7.2	0.326	0.552	0.351	0.537

TABLE A.3 (Cont.)

	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
7.4	0.314	0.54	0.344	0.528					
7.6	0.302	0.53	0.337	0.521					
7.8	0.295	0.523	0.325	0.511					
8.0	0.288	0.513	0.318	0.504					
8.2	0.278	0.506	0.308	0.497					
8.4	0.266	0.494	0.301	0.489					
8.6	0.268	0.497	0.294	0.48					
8.8	0.254	0.487	0.286	0.475					
9.0	0.249	0.48	0.282	0.47					
9.2	0.244	0.48	0.272	0.463					
9.4	0.232	0.468	0.265	0.456					
9.6	0.227	0.465	0.258	0.448					
9.8	0.218	0.453	0.253	0.441					
10	0.215	0.446	0.238	0.436					
12	0.15	0.393	0.185	0.378					
14	0.105	0.35	0.139	0.335					
16	0.061	0.316	0.101	0.301					
18	0.035	0.287	0.072	0.268					
20	0.008	0.26	0.048	0.244					
22		0.248	0.024	0.224					
24		0.224		0.205					
26		0.207		0.176					
28		0.198		0.176					
30		0.188		0.166					
32		0.174		0.154					
34		0.171		0.152					
36		0.159		0.145					
38		0.159		0.14					
40		0.157		0.13					
42				0.13					
44				0.126					
46				0.123					

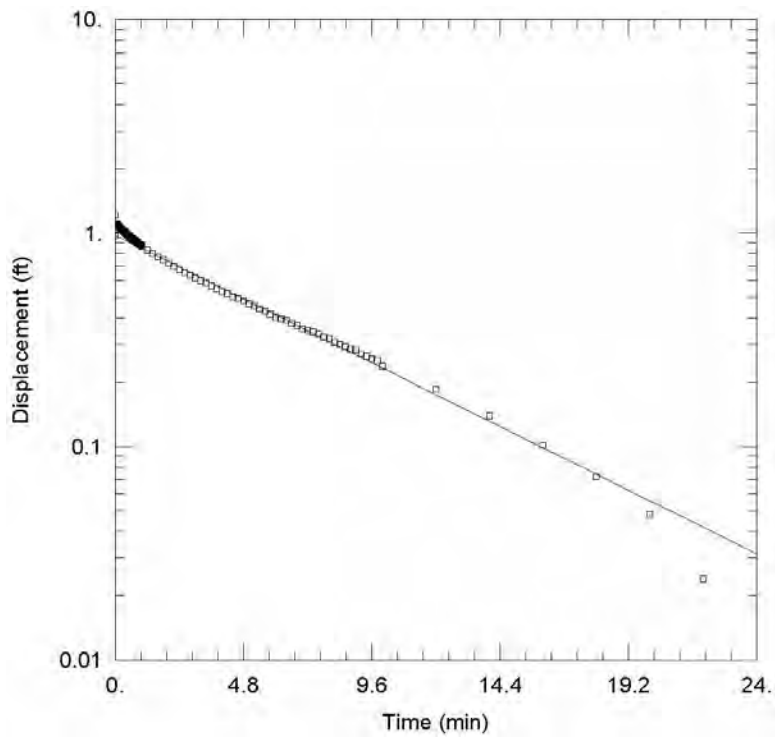


Observed slug test water level response and interpretive straight-line fit to the measured data for MW04, Test 1, slug in.

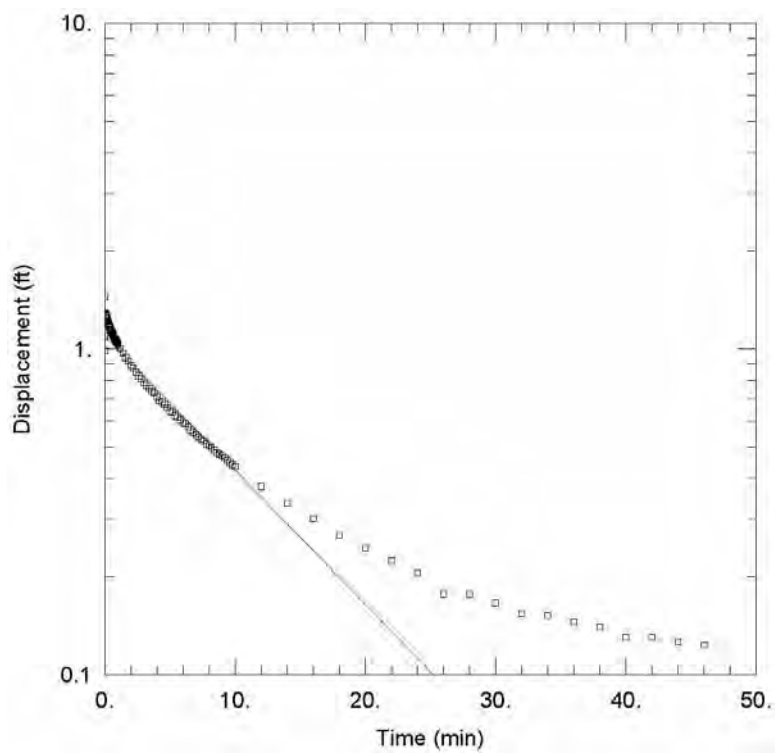


Observed slug test water level response and interpretive straight-line fit to the measured data for MW04, Test 2, slug out.

FIGURE A.3 Observed slug test water level response and interpretive fit to the data for MW04 (Table A.3).



Observed slug test water level response and interpretive straight-line fit to the measured data for MW04, Test 3, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW04, Test 4, slug out.

FIGURE A.3 (Cont.)

Argonne National Laboratory

Well ID: TI07/MW05

Project: Hanover **Elevation:** 1327.36 ft **Log Date:** January 31, 2009

Geologist: Eugene Yan **Depth:** 29 ft **Rig:** Geoprobe/Mini-sonic drilling rig

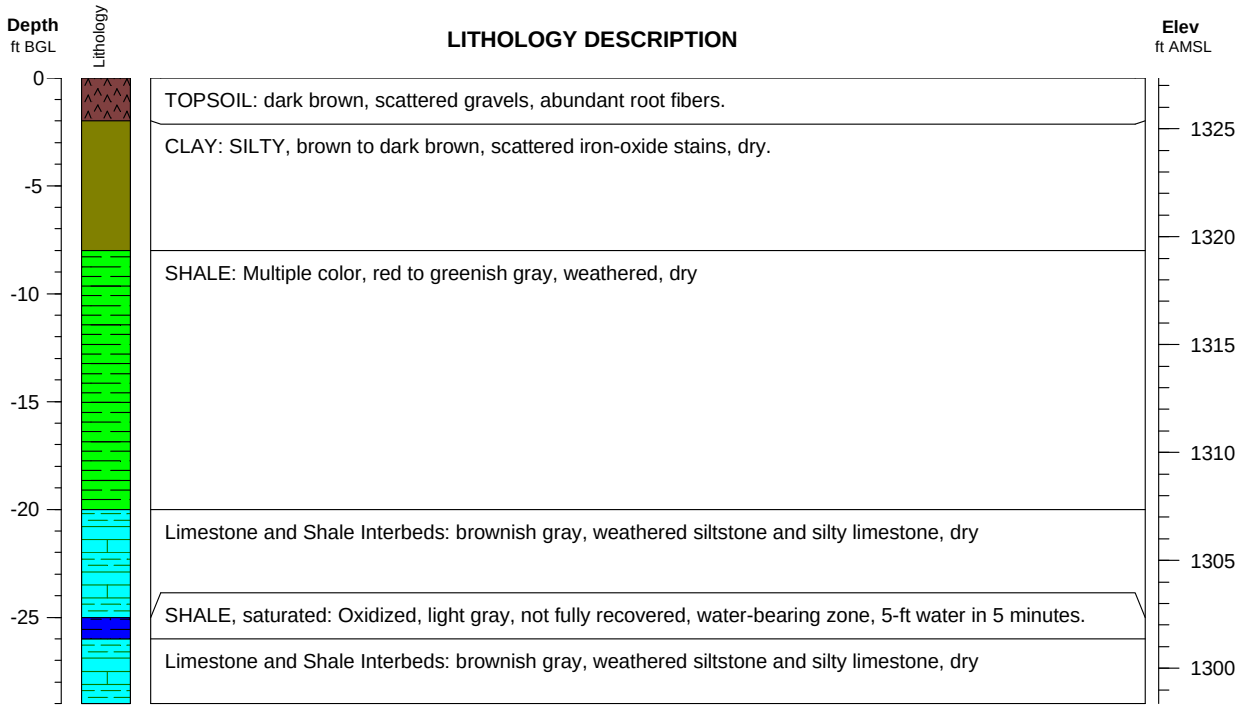
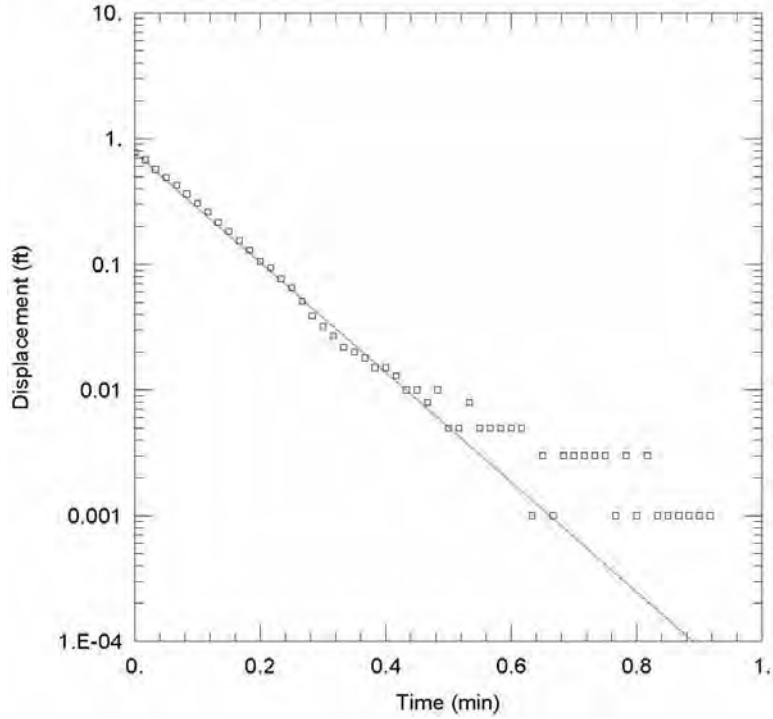
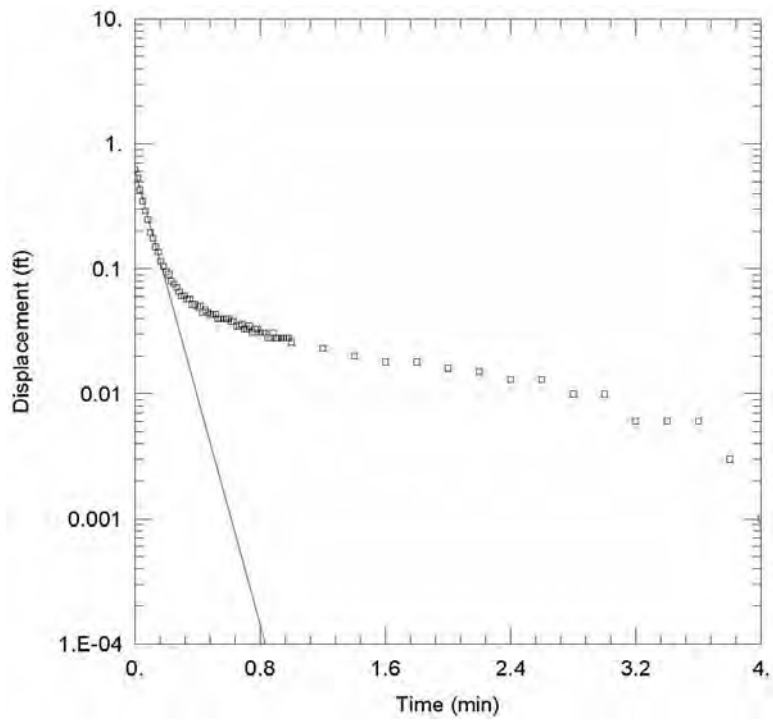


TABLE A.4 Slug test data for boring MW05 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.000	0.707	0.683	0.767	0.684	0.767	0.001	0.033	0.011	0.022
0.017	0.679	0.537	0.769	0.536	0.783	0.003	0.033	0.009	0.022
0.033	0.568	0.43	0.637	0.428	0.800	0.001	0.031	0.011	0.022
0.050	0.492	0.348	0.642	0.344	0.817	0.003	0.031	0.009	0.022
0.067	0.425	0.291	0.505	0.289	0.833	0.001	0.031	0.009	0.02
0.083	0.363	0.25	0.388	0.246	0.850	0.001	0.028	0.009	0.02
0.100	0.305	0.195	0.337	0.208	0.867	0.001	0.028	0.009	0.02
0.117	0.262	0.176	0.292	0.182	0.883	0.001	0.031	0.009	0.02
0.133	0.216	0.15	0.249	0.158	0.900	0.001	0.028	0.009	0.02
0.150	0.183	0.136	0.211	0.136	0.917	0.001	0.028	0.009	0.02
0.167	0.154	0.116	0.179	0.11	0.933	0	0.028	0.009	0.017
0.183	0.13	0.104	0.151	0.098	0.950	0.001	0.028	0.009	0.017
0.200	0.106	0.095	0.129	0.089	0.967		0.028	0.009	0.017
0.217	0.094	0.09	0.105	0.081	0.983		0.028	0.007	0.017
0.233	0.077	0.08	0.093	0.074	1.0		0.026	0.007	0.017
0.250	0.065	0.076	0.079	0.067	1.2		0.023	0.007	0.012
0.267	0.051	0.071	0.067	0.06	1.4		0.02	0.005	0.009
0.283	0.039	0.066	0.057	0.057	1.6		0.018	0.005	0.007
0.300	0.032	0.061	0.048	0.053	1.8		0.018	0.005	0.007
0.317	0.027	0.061	0.043	0.051	2.0		0.016	0.005	0.007
0.333	0.022	0.057	0.036	0.046	2.2		0.015	0.003	0.002
0.350	0.02	0.057	0.031	0.046	2.4		0.013	0.003	0.004
0.367	0.018	0.052	0.028	0.046	2.6		0.013	0.005	0.002
0.383	0.015	0.052	0.024	0.043	2.8		0.01	0.003	0.002
0.400	0.015	0.05	0.021	0.041	3.0		0.01	0.003	
0.417	0.013	0.05	0.024	0.039	3.2		0.006		
0.433	0.01	0.045	0.019	0.039	3.4		0.006		
0.450	0.01	0.047	0.019	0.036	3.6		0.006		
0.467	0.008	0.045	0.019	0.034	3.8		0.003		
0.483	0.01	0.043	0.016	0.036	4.0		0.001		
0.500	0.005	0.043	0.019	0.034					
0.517	0.005	0.043	0.014	0.031					
0.533	0.008	0.04	0.014	0.031					
0.550	0.005	0.04	0.016	0.029					
0.567	0.005	0.04	0.014	0.029					
0.583	0.005	0.04	0.014	0.029					
0.600	0.005	0.04	0.014	0.027					
0.617	0.005	0.038	0.011	0.027					
0.633	0.001	0.038	0.012	0.029					
0.650	0.003	0.035	0.014	0.027					
0.667	0.001	0.035	0.014	0.027					
0.683	0.003	0.036	0.011	0.024					
0.700	0.003	0.033	0.011	0.024					
0.717	0.003	0.033	0.012	0.024					
0.733	0.003	0.035	0.011	0.022					
0.750	0.003	0.031	0.009	0.024					

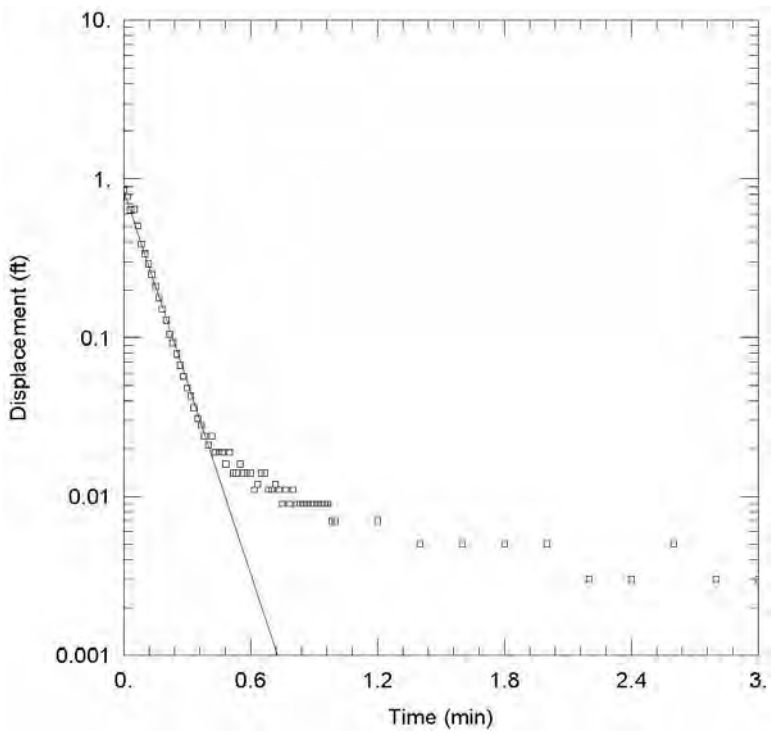


Observed slug test water level response and interpretive straight-line fit to the measured data for MW05, Test 1, slug in.

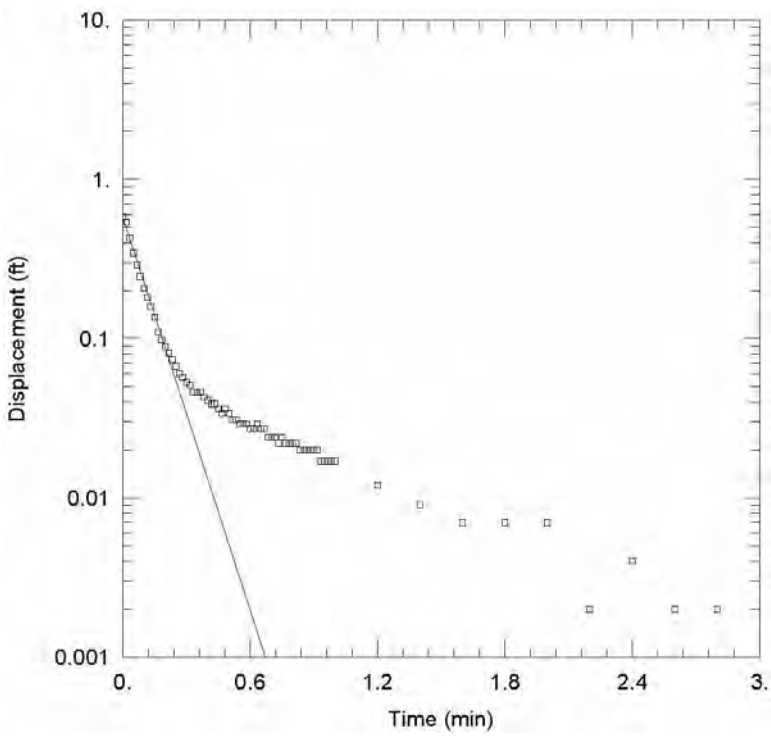


Observed slug test water level response and interpretive straight-line fit to the measured data for MW05, Test 2, slug out.

FIGURE A.4 Observed slug test water level response and interpretive fit to the data for MW05 (Table A.4).



Observed slug test water level response and interpretive straight-line fit to the measured data for MW05, Test 3, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW05, Test 4, slug out.

FIGURE A.4 (Cont.)

Argonne National Laboratory

Well ID: TI26/MW06

Project: Hanover **Elevation:** 1317.93 ft **Log Date:** January 31, 2009

Geologist: Eugene Yan **Depth:** 35 ft **Rig:** Geoprobe/Mini-sonic drilling rig

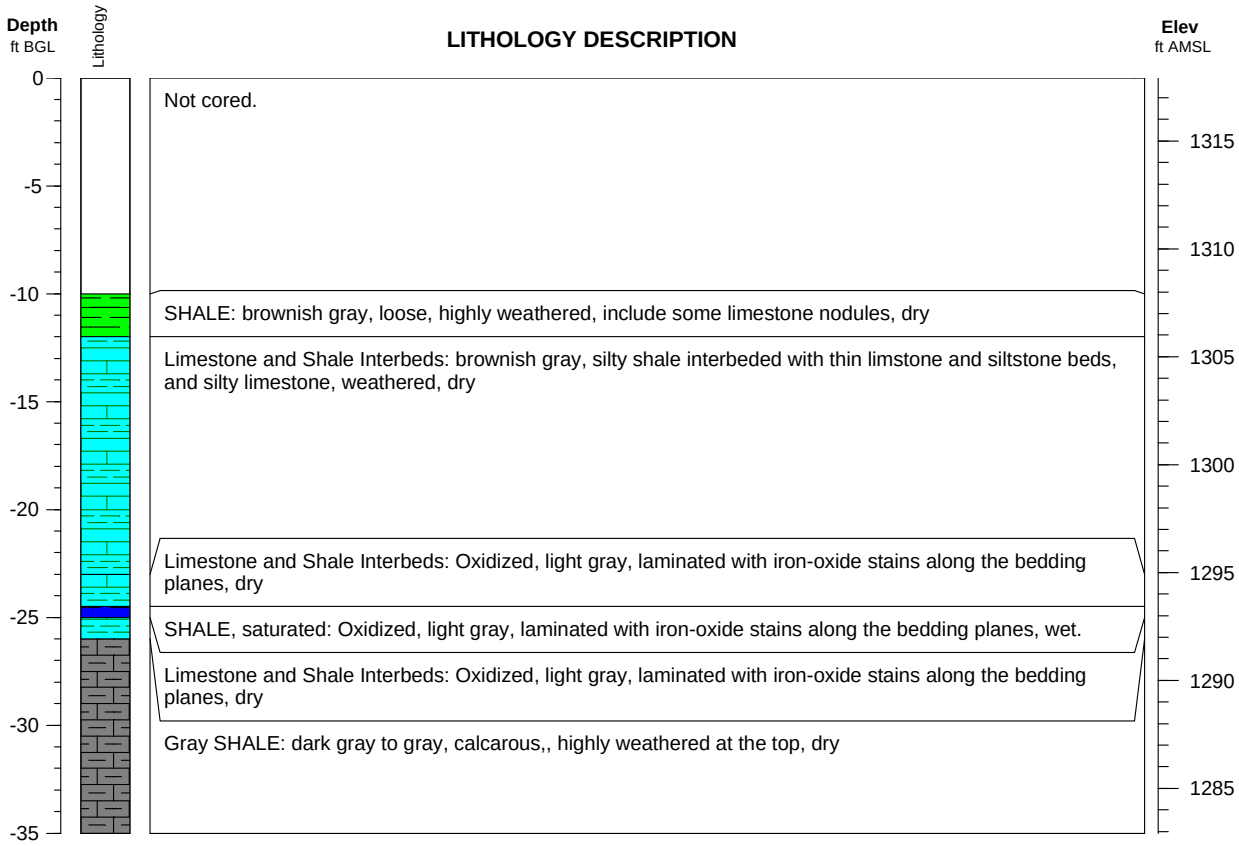
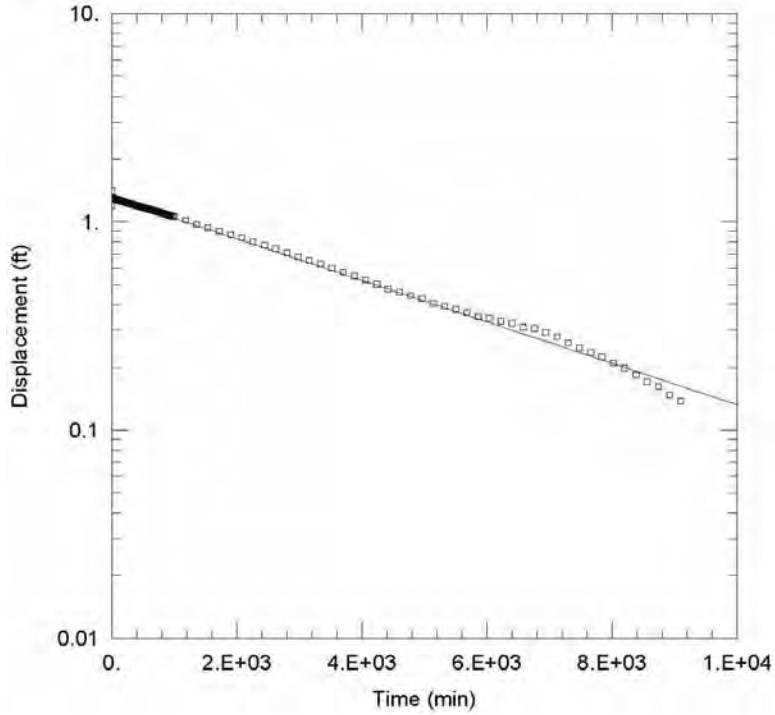


TABLE A.5 Slug test data for boring MW06 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In
0.000	-0.004	0.767	1.308	7.4	1.303	76	1.282
0.017	1.202	0.783	1.308	7.6	1.305	78	1.28
0.033	1.409	0.800	1.305	7.8	1.303	80	1.28
0.050	1.202	0.817	1.308	8.0	1.303	82	1.28
0.067	1.275	0.833	1.308	8.2	1.303	84	1.28
0.083	1.31	0.850	1.308	8.4	1.301	86	1.277
0.100	1.305	0.867	1.308	8.6	1.305	88	1.277
0.117	1.284	0.883	1.308	8.8	1.301	90	1.275
0.133	1.305	0.900	1.308	9.0	1.303	92	1.277
0.150	1.308	0.917	1.305	9.2	1.303	94	1.275
0.167	1.31	0.933	1.305	9.4	1.303	96	1.277
0.183	1.308	0.950	1.305	9.6	1.303	98	1.275
0.200	1.308	0.967	1.305	9.8	1.303	100	1.273
0.217	1.31	0.983	1.308	10	1.303	120	1.268
0.233	1.308	1.0	1.308	12	1.301	140	1.265
0.250	1.31	1.2	1.305	14	1.301	160	1.256
0.267	1.308	1.4	1.308	16	1.298	180	1.251
0.283	1.308	1.6	1.308	18	1.301	200	1.244
0.300	1.308	1.8	1.308	20	1.296	220	1.24
0.317	1.31	2.0	1.305	22	1.298	240	1.235
0.333	1.308	2.2	1.308	24	1.296	260	1.23
0.350	1.308	2.4	1.308	26	1.296	280	1.225
0.367	1.31	2.6	1.305	28	1.294	300	1.221
0.383	1.308	2.8	1.305	30	1.294	320	1.216
0.400	1.305	3.0	1.305	32	1.294	340	1.211
0.417	1.31	3.2	1.308	34	1.296	360	1.207
0.433	1.308	3.4	1.305	36	1.296	380	1.202
0.450	1.308	3.6	1.305	38	1.291	400	1.195
0.467	1.308	3.8	1.305	40	1.291	420	1.192
0.483	1.308	4.0	1.305	42	1.291	440	1.185
0.500	1.305	4.2	1.305	44	1.291	460	1.183
0.517	1.308	4.4	1.305	46	1.289	480	1.178
0.533	1.308	4.6	1.305	48	1.289	500	1.174
0.550	1.308	4.8	1.305	50	1.289	520	1.169
0.567	1.308	5.0	1.303	52	1.287	540	1.164
0.583	1.308	5.2	1.308	54	1.289	560	1.16
0.600	1.308	5.4	1.303	56	1.289	580	1.155
0.617	1.308	5.6	1.303	58	1.287	600	1.152
0.633	1.308	5.8	1.305	60	1.287	620	1.148
0.650	1.308	6.0	1.303	62	1.287	640	1.143
0.667	1.308	6.2	1.305	64	1.284	660	1.136
0.683	1.308	6.4	1.305	66	1.284	680	1.134
0.700	1.308	6.6	1.305	68	1.284	700	1.127
0.717	1.308	6.8	1.303	70	1.284	720	1.124
0.733	1.308	7.0	1.303	72	1.282	740	1.117
0.750	1.308	7.2	1.305	74	1.282	760	1.112

TABLE A.5 (Cont.)

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In
780	1.108	7480	0.248				
800	1.103	7660	0.236				
820	1.098	7840	0.224				
840	1.094	8020	0.21				
860	1.089	8200	0.198				
880	1.082	8380	0.184				
900	1.079	8560	0.17				
920	1.075	8740	0.161				
940	1.07	8920	0.147				
960	1.065	9100	0.137				
980	1.063						
1000	1.058						
1180	1.016						
1360	0.973						
1540	0.936						
1720	0.9						
1900	0.867						
2080	0.841						
2260	0.804						
2440	0.771						
2620	0.745						
2800	0.71						
2980	0.677						
3160	0.651						
3340	0.627						
3520	0.601						
3700	0.573						
3880	0.549						
4060	0.526						
4240	0.5						
4420	0.476						
4600	0.458						
4780	0.441						
4960	0.427						
5140	0.406						
5320	0.394						
5500	0.38						
5680	0.366						
5860	0.351						
6040	0.344						
6220	0.333						
6400	0.326						
6580	0.311						
6760	0.309						
6940	0.293						
7120	0.281						
7300	0.262						



Observed slug test water level response and interpretive straight-line fit to the measured data for MW06, Test 1, slug in.

FIGURE A.5 Observed slug test water level response and interpretive fit to the data for MW06 (Table A.5).

Argonne National Laboratory

Well ID: MW07

Project: Hanover **Elevation:** 1326.14 ft **Log Date:** February 2, 2009

Geologist: Eugene Yan **Depth:** 35 ft **Rig:** Mini-sonic drilling rig

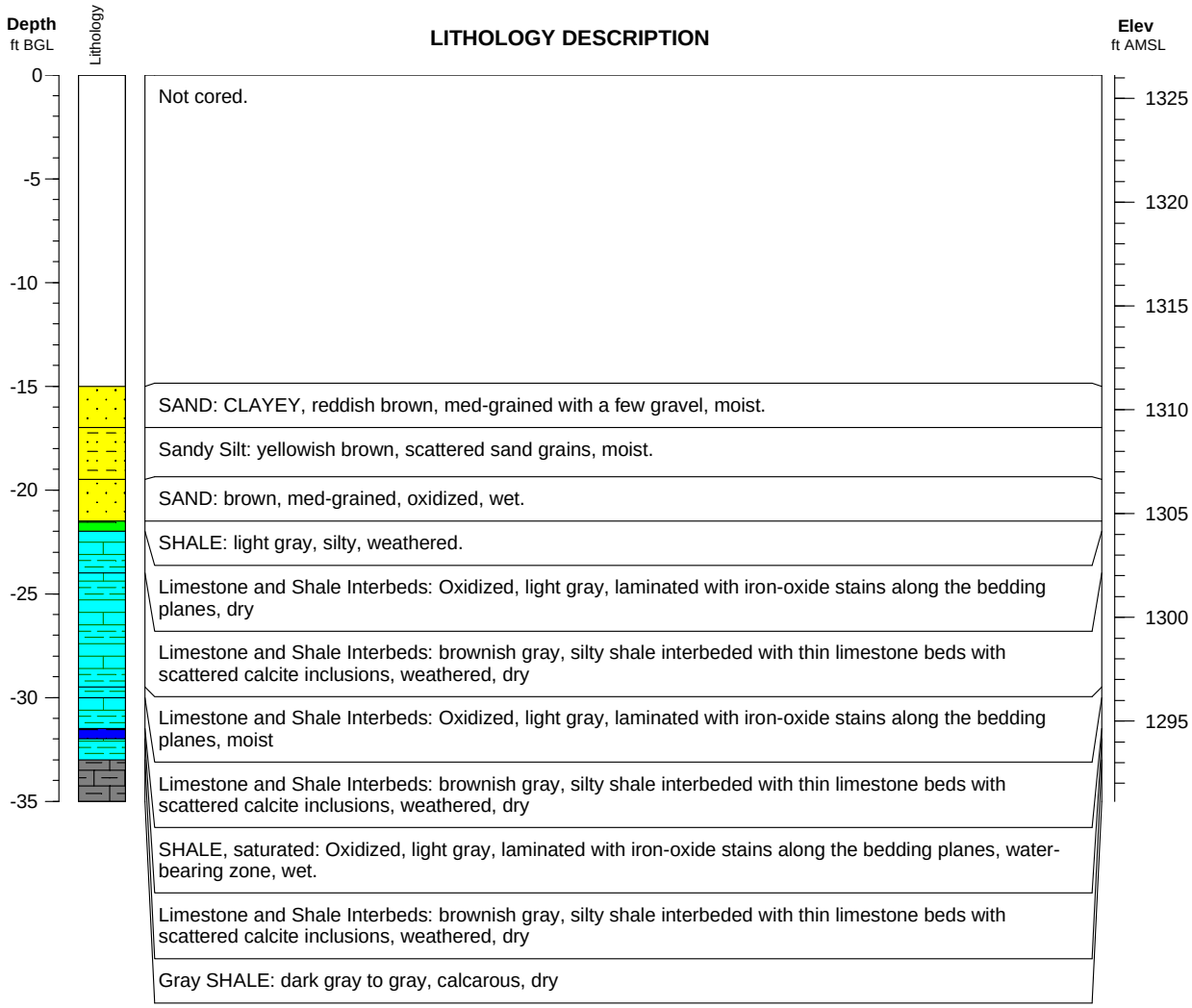
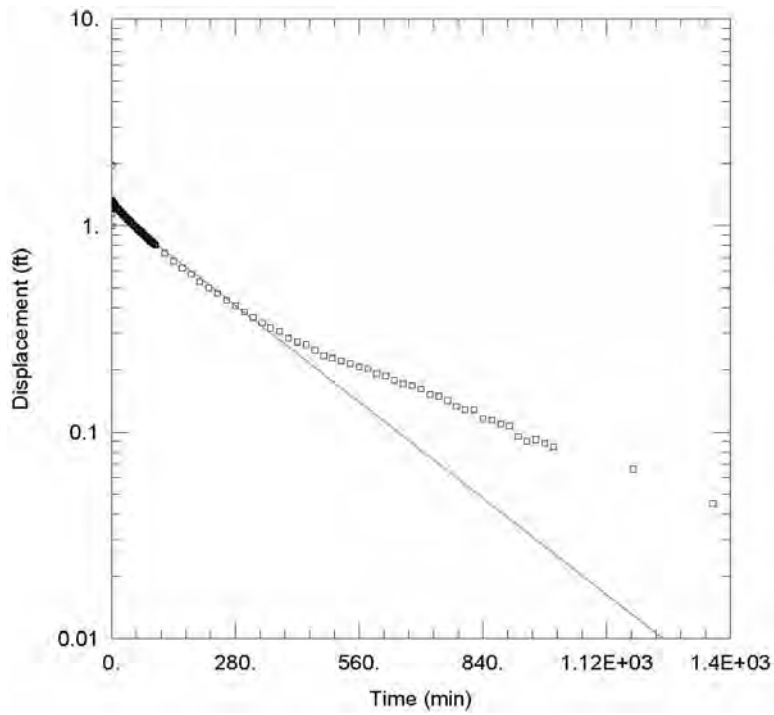


TABLE A.6 Slug test data for boring MW07 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

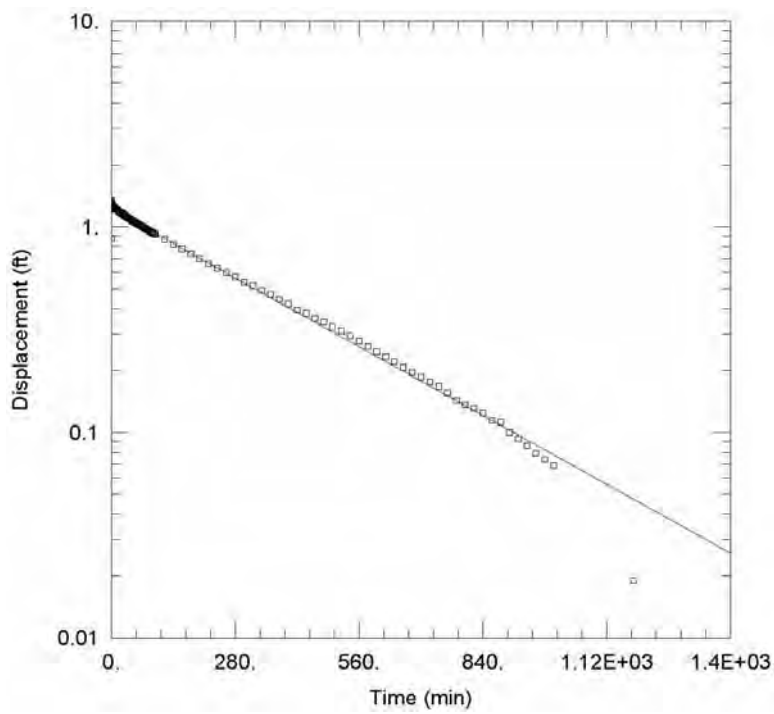
Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Residual Drawdown (ft) Test 2 Slug Out	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Residual Drawdown (ft) Test 2 Slug Out	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Residual Drawdown (ft) Test 2 Slug Out
0.000	1.406	0.606	0.767	1.311	1.288	7.4	1.252	1.24
0.017	1.952	0.877	0.783	1.311	1.286	7.6	1.249	1.238
0.033	0.995	1.342	0.800	1.311	1.288	7.8	1.247	1.235
0.050	1.316	1.354	0.817	1.311	1.286	8.0	1.247	1.233
0.067	1.327	1.323	0.833	1.311	1.286	8.2	1.247	1.235
0.083	1.144	1.323	0.850	1.311	1.288	8.4	1.247	1.233
0.100	1.315	1.314	0.867	1.311	1.283	8.6	1.244	1.231
0.117	1.332	1.312	0.883	1.308	1.286	8.8	1.24	1.228
0.133	1.318	1.314	0.900	1.306	1.288	9.0	1.24	1.231
0.150	1.32	1.307	0.917	1.311	1.286	9.2	1.24	1.228
0.167	1.323	1.305	0.933	1.308	1.283	9.4	1.24	1.226
0.183	1.32	1.305	0.950	1.308	1.283	9.6	1.237	1.226
0.200	1.32	1.307	0.967	1.308	1.283	9.8	1.235	1.224
0.217	1.318	1.305	0.983	1.308	1.286	10	1.235	1.226
0.233	1.318	1.305	1.0	1.308	1.286	12	1.216	1.212
0.250	1.323	1.302	1.2	1.306	1.283	14	1.209	1.205
0.267	1.318	1.302	1.4	1.304	1.281	16	1.195	1.193
0.283	1.318	1.3	1.6	1.304	1.276	18	1.183	1.188
0.300	1.32	1.297	1.8	1.299	1.273	20	1.171	1.178
0.317	1.318	1.3	2.0	1.299	1.276	22	1.157	1.174
0.333	1.313	1.3	2.2	1.297	1.273	24	1.145	1.164
0.350	1.315	1.297	2.4	1.294	1.266	26	1.13	1.155
0.367	1.315	1.295	2.6	1.292	1.269	28	1.121	1.148
0.383	1.313	1.295	2.8	1.289	1.264	30	1.109	1.136
0.400	1.315	1.295	3.0	1.287	1.264	32	1.097	1.129
0.417	1.313	1.297	3.2	1.287	1.266	34	1.088	1.121
0.433	1.315	1.295	3.4	1.282	1.262	36	1.076	1.112
0.450	1.315	1.293	3.6	1.285	1.264	38	1.066	1.107
0.467	1.315	1.295	3.8	1.285	1.262	40	1.059	1.1
0.483	1.315	1.29	4.0	1.278	1.257	42	1.047	1.095
0.500	1.313	1.29	4.2	1.275	1.254	44	1.033	1.088
0.517	1.313	1.29	4.4	1.28	1.254	46	1.026	1.079
0.533	1.315	1.29	4.6	1.273	1.254	48	1.012	1.069
0.550	1.315	1.29	4.8	1.273	1.254	50	1.007	1.064
0.567	1.313	1.29	5.0	1.273	1.252	52	0.995	1.057
0.583	1.311	1.29	5.2	1.27	1.25	54	0.988	1.05
0.600	1.313	1.293	5.4	1.27	1.25	56	0.976	1.043
0.617	1.311	1.29	5.6	1.266	1.247	58	0.964	1.038
0.633	1.315	1.29	5.8	1.268	1.247	60	0.957	1.034
0.650	1.313	1.29	6.0	1.263	1.247	62	0.952	1.024
0.667	1.313	1.288	6.2	1.266	1.245	64	0.94	1.022
0.683	1.311	1.288	6.4	1.259	1.243	66	0.933	1.017
0.700	1.306	1.288	6.6	1.259	1.243	68	0.924	1.01
0.717	1.311	1.286	6.8	1.256	1.24	70	0.919	1.003
0.733	1.313	1.288	7.0	1.259	1.24	72	0.907	0.998
0.750	1.311	1.286	7.2	1.254	1.238	74	0.9	0.991

TABLE A.6 (Cont.)

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Residual Drawdown (ft) Test 2 Slug Out	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Residual Drawdown (ft) Test 2 Slug Out	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Residual Drawdown (ft) Test 2 Slug Out
76	0.89	0.984	800	0.128	0.136			
78	0.883	0.981	820	0.128	0.131			
80	0.874	0.972	840	0.116	0.124			
82	0.869	0.967	860	0.114	0.114			
84	0.86	0.962	880	0.109	0.112			
86	0.85	0.958	900	0.107	0.1			
88	0.841	0.948	920	0.095	0.093			
90	0.838	0.946	940	0.09	0.086			
92	0.829	0.939	960	0.092	0.079			
94	0.822	0.931	980	0.088	0.074			
96	0.814	0.929	1000	0.085	0.069			
98	0.807	0.922	1180	0.066	0.019			
100	0.803	0.92	1360	0.045				
120	0.734	0.87						
140	0.674	0.82						
160	0.624	0.782						
180	0.582	0.739						
200	0.534	0.701						
220	0.499	0.663						
240	0.468	0.63						
260	0.434	0.601						
280	0.408	0.57						
300	0.382	0.539						
320	0.358	0.516						
340	0.337	0.49						
360	0.318	0.468						
380	0.306	0.444						
400	0.285	0.423						
420	0.273	0.394						
440	0.266	0.38						
460	0.249	0.359						
480	0.233	0.345						
500	0.228	0.326						
520	0.221	0.311						
540	0.214	0.295						
560	0.206	0.278						
580	0.202	0.262						
600	0.192	0.247						
620	0.187	0.233						
640	0.178	0.221						
660	0.171	0.207						
680	0.168	0.195						
700	0.161	0.186						
720	0.152	0.176						
740	0.149	0.167						
760	0.142	0.155						
780	0.133	0.143						



Observed slug test water level response and interpretive straight-line fit to the measured data for MW07, Test 1, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW07, Test 2, slug out.

FIGURE A.6 Observed slug test water level response and interpretive fit to the data for MW07 (Table A.6).

Argonne National Laboratory

Well ID: MW09

Project: Hanover **Elevation:** 1323.08 ft **Log Date:** February 4, 2009

Geologist: Eugene Yan **Depth:** 23 ft **Rig:** Mini-sonic drilling rig

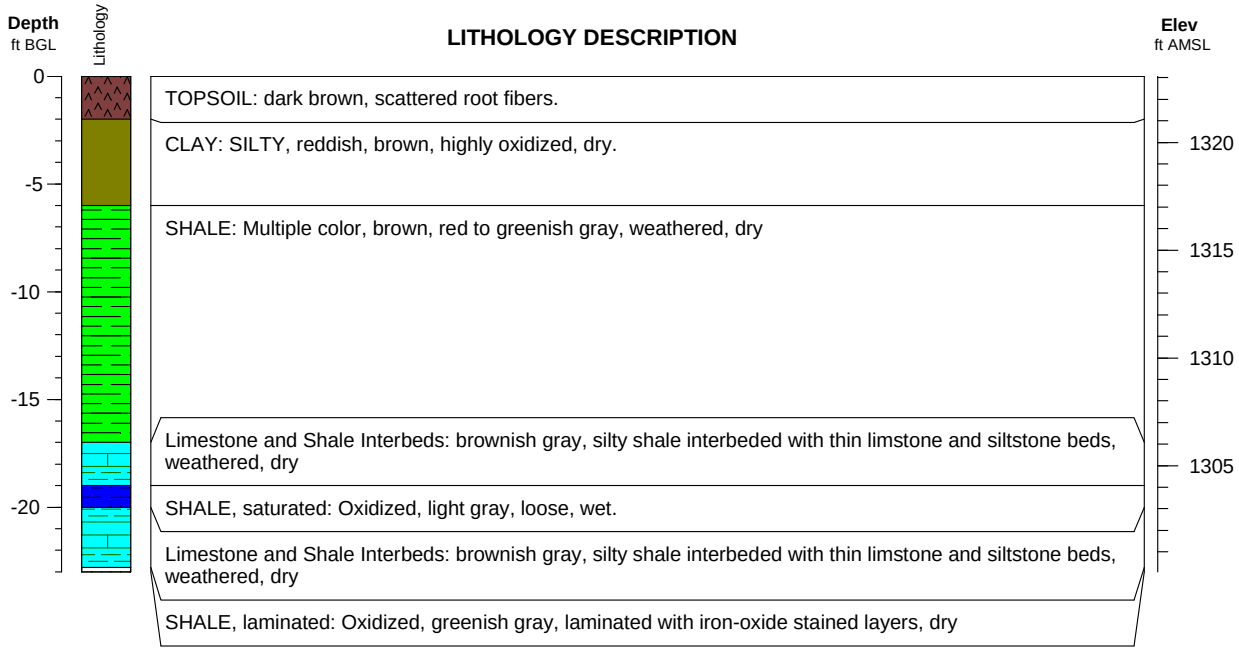
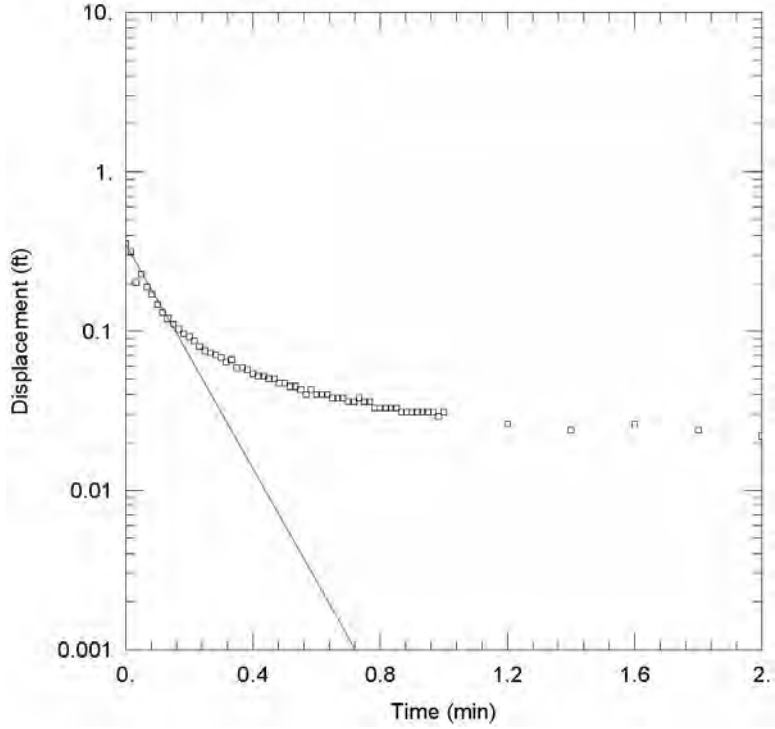
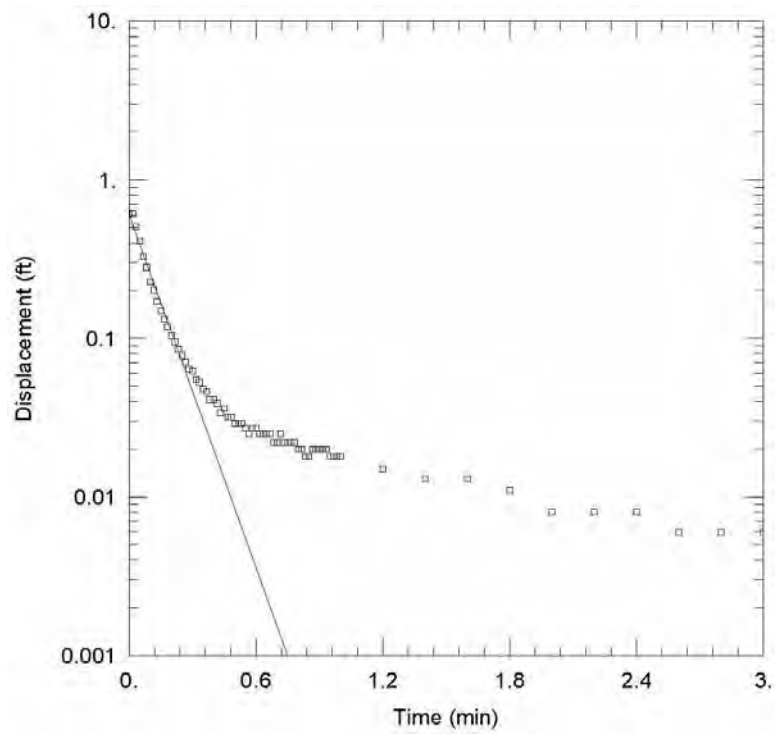


TABLE A.7 Slug test data for boring MW09 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.000	0.343	1.005	0.189	0.583	0.767	0.036	0.022	0.005	0.036
0.017	0.315	0.616	0.15	0.467	0.783	0.033	0.022	0.003	0.036
0.033	0.201	0.504	0.18	0.383	0.800	0.033	0.02	0.003	0.034
0.050	0.227	0.413	0.103	0.32	0.817	0.033	0.02	0.001	0.036
0.067	0.189	0.33	0.103	0.285	0.833	0.033	0.018	0.001	0.034
0.083	0.171	0.281	0.106	0.239	0.850	0.033	0.018		0.034
0.100	0.147	0.227	0.092	0.202	0.867	0.031	0.02		0.034
0.117	0.131	0.202	0.08	0.178	0.883	0.031	0.02		0.034
0.133	0.12	0.171	0.071	0.157	0.900	0.031	0.02		0.034
0.150	0.11	0.15	0.066	0.141	0.917	0.031	0.02		0.034
0.167	0.103	0.132	0.059	0.127	0.933	0.031	0.02		0.034
0.183	0.096	0.118	0.05	0.113	0.950	0.031	0.018		0.034
0.200	0.092	0.104	0.05	0.104	0.967	0.031	0.018		0.034
0.217	0.087	0.095	0.047	0.092	0.983	0.029	0.018		0.034
0.233	0.08	0.085	0.043	0.085	1.0	0.031	0.018		0.034
0.250	0.075	0.078	0.04	0.081	1.2	0.026	0.015		0.032
0.267	0.073	0.071	0.038	0.074	1.4	0.024	0.013		0.032
0.283	0.071	0.064	0.036	0.069	1.6	0.026	0.013		0.027
0.300	0.068	0.062	0.033	0.067	1.8	0.024	0.011		0.025
0.317	0.064	0.055	0.029	0.06	2.0	0.022	0.008		0.025
0.333	0.066	0.053	0.029	0.057	2.2	0.022	0.008		0.025
0.350	0.059	0.048	0.026	0.055	2.4	0.022	0.008		0.022
0.367	0.059	0.046	0.024	0.055	2.6	0.022	0.006		0.02
0.383	0.057	0.041	0.024	0.05	2.8	0.019	0.006		0.022
0.400	0.054	0.041	0.024	0.048	3.0	0.019	0.006		0.022
0.417	0.052	0.039	0.022	0.048					
0.433	0.052	0.034	0.019	0.046					
0.450	0.05	0.036	0.019	0.046					
0.467	0.05	0.032	0.015	0.046					
0.483	0.047	0.032	0.017	0.043					
0.500	0.047	0.029	0.015	0.041					
0.517	0.045	0.029	0.015	0.041					
0.533	0.045	0.029	0.012	0.041					
0.550	0.043	0.027	0.01	0.041					
0.567	0.04	0.025	0.01	0.041					
0.583	0.043	0.027	0.01	0.039					
0.600	0.04	0.027	0.01	0.039					
0.617	0.04	0.025	0.008	0.039					
0.633	0.04	0.025	0.01	0.039					
0.650	0.038	0.025	0.008	0.039					
0.667	0.038	0.025	0.008	0.036					
0.683	0.038	0.022	0.008	0.036					
0.700	0.036	0.022	0.008	0.034					
0.717	0.036	0.025	0.008	0.039					
0.733	0.038	0.022	0.005	0.036					
0.750	0.036	0.022	0.003	0.034					

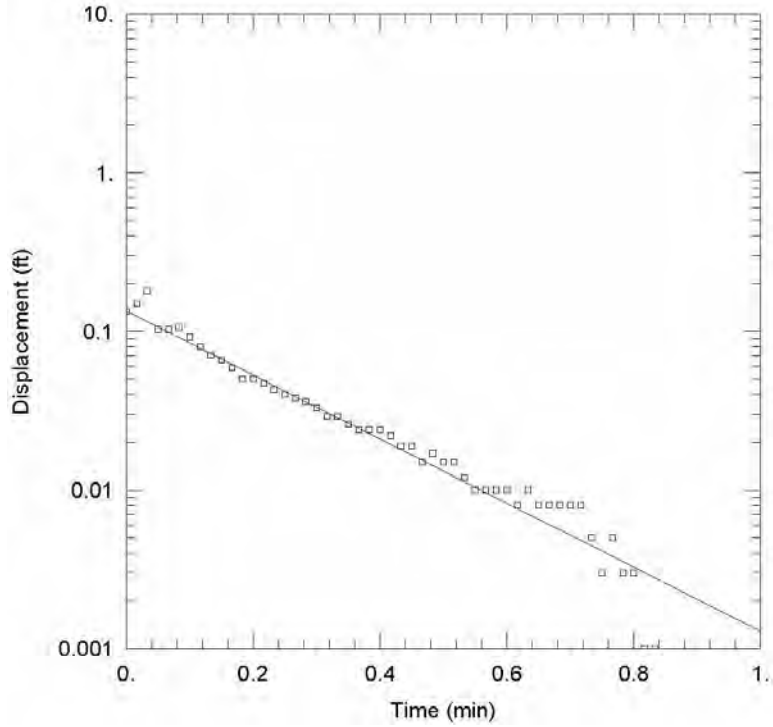


Observed slug test water level response and interpretive straight-line fit to the measured data for MW09, Test 1, slug in.

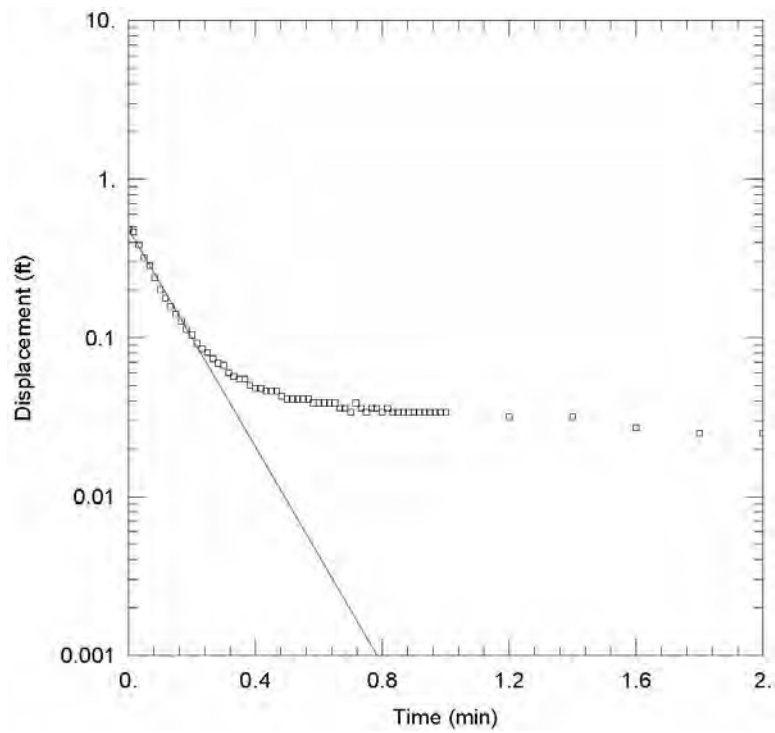


Observed slug test water level response and interpretive straight-line fit to the measured data for MW09, Test 2, slug out.

FIGURE A.7 Observed slug test water level response and interpretive fit to the data for MW09 (Table A.7).



Observed slug test water level response and interpretive straight-line fit to the measured data for MW09, Test 3, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW09, Test 4, slug out.

FIGURE A.7 (Cont.)

Argonne National Laboratory

Well ID: MW10

Project: Hanover **Elevation:** 1325.34 ft **Log Date:** Februray 3, 2009

Geologist: Eugene Yan **Depth:** 31 ft **Rig:** Mini-sonic drilling rig

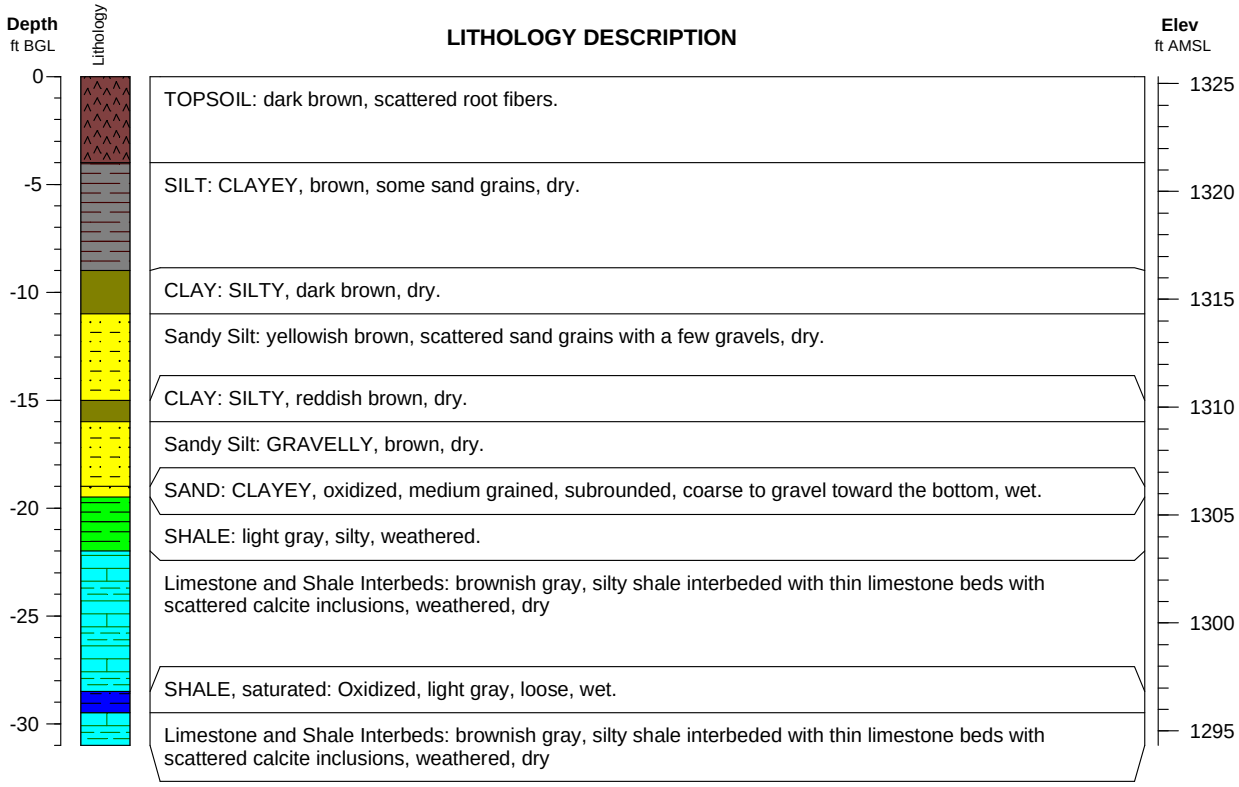
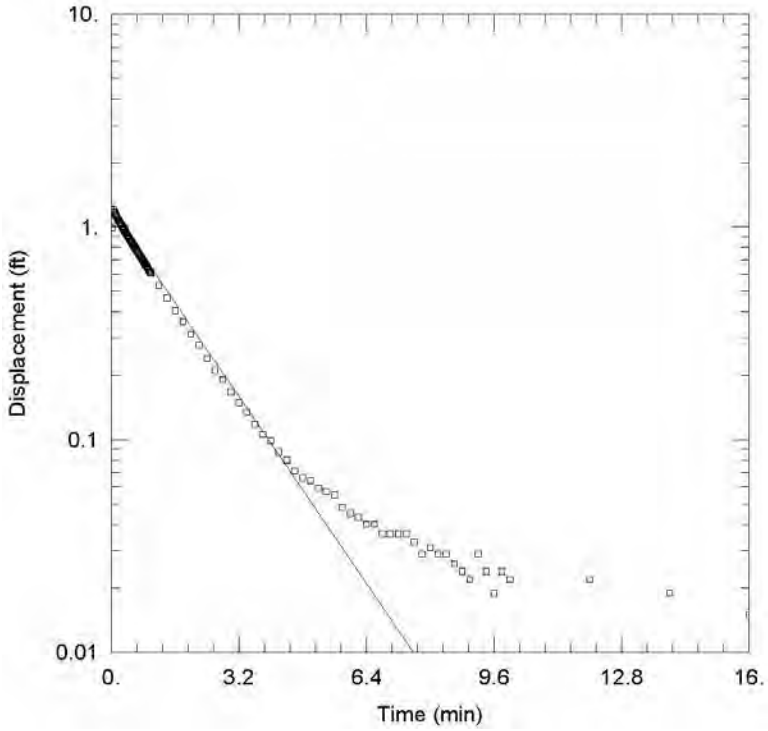


TABLE A.8 Slug test data for boring MW10 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

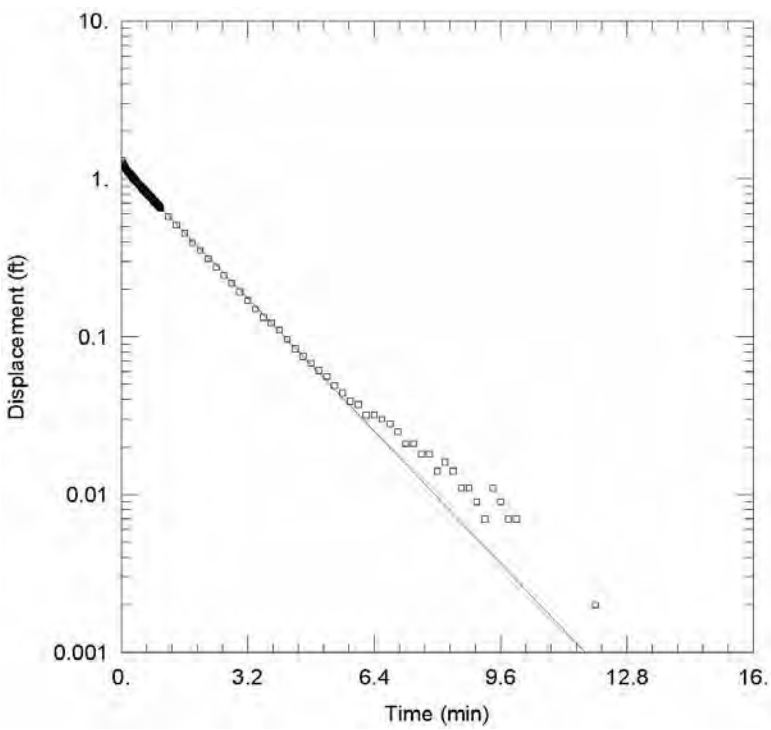
	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.000	1.21	1.298	0.907	-0.141	0.767	0.712	0.756	0.707	0.737
0.017	0.989	1.308	1.649	1.32	0.783	0.7	0.749	0.7	0.73
0.033	1.064	1.263	1.22	1.282	0.800	0.693	0.742	0.693	0.721
0.050	1.201	1.24	1.043	1.263	0.817	0.684	0.733	0.684	0.714
0.067	1.175	1.214	1.184	1.231	0.833	0.677	0.726	0.677	0.707
0.083	1.163	1.195	1.177	1.205	0.850	0.667	0.719	0.667	0.7
0.100	1.154	1.176	1.161	1.181	0.867	0.66	0.712	0.663	0.688
0.117	1.135	1.16	1.147	1.162	0.883	0.656	0.702	0.653	0.683
0.133	1.126	1.144	1.13	1.153	0.900	0.646	0.697	0.644	0.674
0.150	1.107	1.132	1.116	1.129	0.917	0.642	0.69	0.637	0.667
0.167	1.09	1.113	1.1	1.115	0.933	0.632	0.681	0.632	0.66
0.183	1.079	1.104	1.083	1.104	0.950	0.625	0.676	0.623	0.655
0.200	1.064	1.09	1.069	1.085	0.967	0.618	0.669	0.616	0.646
0.217	1.05	1.075	1.057	1.075	0.983	0.611	0.662	0.611	0.639
0.233	1.036	1.066	1.046	1.061	1.0	0.606	0.655	0.609	0.629
0.250	1.024	1.052	1.029	1.05	1.2	0.529	0.577	0.527	0.554
0.267	1.01	1.038	1.017	1.036	1.4	0.463	0.512	0.456	0.481
0.283	0.999	1.026	1.003	1.026	1.6	0.404	0.451	0.402	0.425
0.300	0.987	1.017	0.992	1.014	1.8	0.358	0.396	0.348	0.371
0.317	0.975	1.007	0.98	1	2.0	0.313	0.354	0.308	0.324
0.333	0.961	0.996	0.966	0.989	2.2	0.278	0.312	0.271	0.289
0.350	0.952	0.982	0.954	0.977	2.4	0.24	0.277	0.238	0.253
0.367	0.94	0.972	0.945	0.967	2.6	0.212	0.244	0.21	0.225
0.383	0.928	0.965	0.933	0.956	2.8	0.191	0.218	0.184	0.194
0.400	0.919	0.953	0.919	0.944	3.0	0.167	0.192	0.167	0.173
0.417	0.905	0.942	0.909	0.932	3.2	0.149	0.169	0.148	0.15
0.433	0.895	0.932	0.905	0.923	3.4	0.134	0.15	0.134	0.136
0.450	0.886	0.923	0.886	0.916	3.6	0.118	0.133	0.12	0.117
0.467	0.872	0.913	0.876	0.904	3.8	0.106	0.122	0.111	0.103
0.483	0.862	0.904	0.867	0.892	4.0	0.099	0.11	0.099	0.096
0.500	0.855	0.892	0.853	0.881	4.2	0.087	0.096	0.09	0.084
0.517	0.844	0.885	0.848	0.871	4.4	0.08	0.084	0.083	0.075
0.533	0.832	0.876	0.834	0.864	4.6	0.071	0.075	0.076	0.065
0.550	0.822	0.866	0.825	0.85	4.8	0.066	0.068	0.073	0.058
0.567	0.813	0.855	0.815	0.845	5.0	0.064	0.061	0.066	0.051
0.583	0.806	0.848	0.811	0.834	5.2	0.059	0.056	0.059	0.046
0.600	0.794	0.841	0.799	0.822	5.4	0.057	0.049	0.059	0.042
0.617	0.787	0.829	0.792	0.815	5.6	0.055	0.044	0.057	0.039
0.633	0.775	0.822	0.775	0.805	5.8	0.048	0.039	0.055	0.037
0.650	0.771	0.817	0.768	0.796	6.0	0.045	0.037	0.05	0.032
0.667	0.759	0.805	0.759	0.791	6.2	0.043	0.032	0.048	0.028
0.683	0.752	0.798	0.75	0.78	6.4	0.04	0.032	0.045	0.028
0.700	0.743	0.789	0.743	0.77	6.6	0.04	0.03	0.045	0.025
0.717	0.733	0.782	0.736	0.763	6.8	0.036	0.028	0.043	0.023
0.733	0.726	0.77	0.726	0.751	7.0	0.036	0.025	0.043	0.021
0.750	0.717	0.766	0.717	0.744	7.2	0.036	0.021	0.04	0.016

TABLE A.8 (Cont.)

	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
7.4	0.036	0.021	0.038	0.016					
7.6	0.033	0.018	0.036	0.016					
7.8	0.029	0.018	0.036	0.014					
8.0	0.031	0.014	0.038	0.014					
8.2	0.029	0.016	0.036	0.011					
8.4	0.029	0.014	0.033	0.009					
8.6	0.026	0.011	0.033	0.009					
8.8	0.024	0.011	0.031	0.007					
9.0	0.022	0.009	0.031	0.007					
9.2	0.029	0.007	0.031	0.004					
9.4	0.024	0.011	0.031	0.009					
9.6	0.019	0.009	0.029	0.007					
9.8	0.024	0.007	0.029	0.007					
10	0.022	0.007	0.029	0.007					
12	0.022	0.002	0.024	0.002					
14	0.019		0.022						
16	0.015		0.021						
18	0.017		0.019						
20	0.017		0.024						
22	0.019		0.022						
24	0.015		0.019						
26	0.017		0.019						

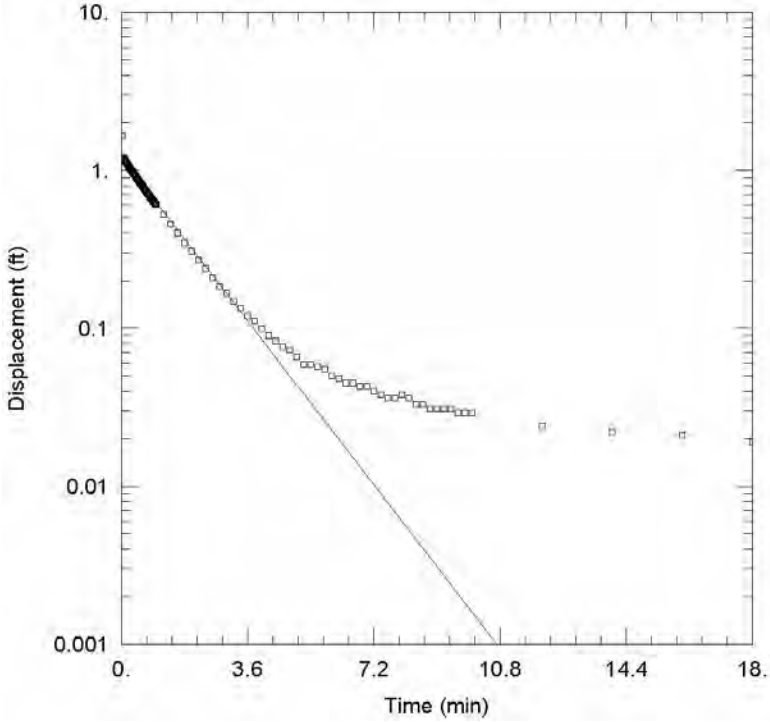


Observed slug test water level response and interpretive straight-line fit to the measured data for MW10, Test 1, slug in.

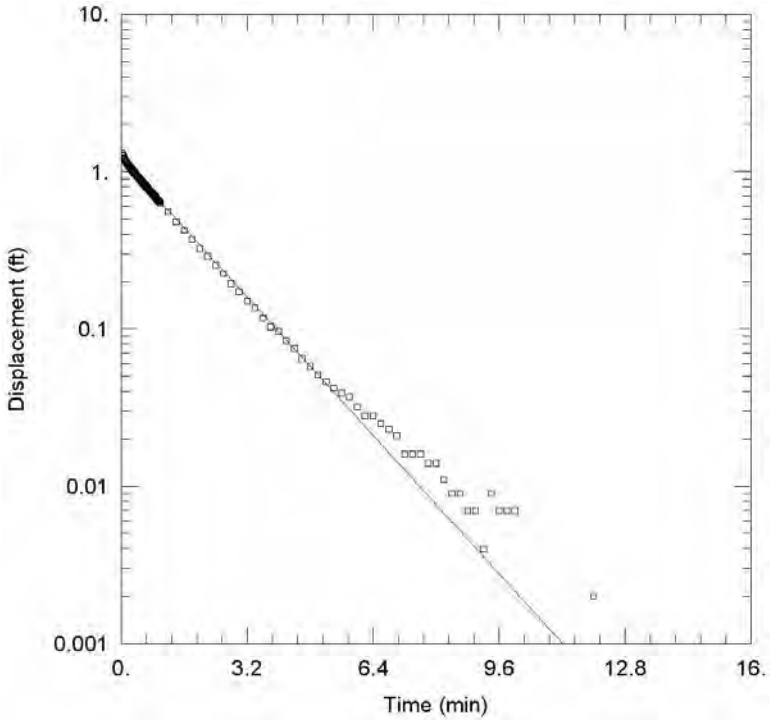


Observed slug test water level response and interpretive straight-line fit to the measured data for MW10, Test 2, slug out.

FIGURE A.8 Observed slug test water level response and interpretive fit to the data for MW10 (Table A.8).



Observed slug test water level response and interpretive straight-line fit to the measured data for MW10, Test 3, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW10, Test 4, slug out.

FIGURE A.8 (Cont.)

Argonne National Laboratory

Well ID: MW11

Project: Hanover **Elevation:** 1317.40 ft **Log Date:** February 4, 2009

Geologist: Eugene Yan **Depth:** 23 ft **Rig:** Mini-sonic drilling rig

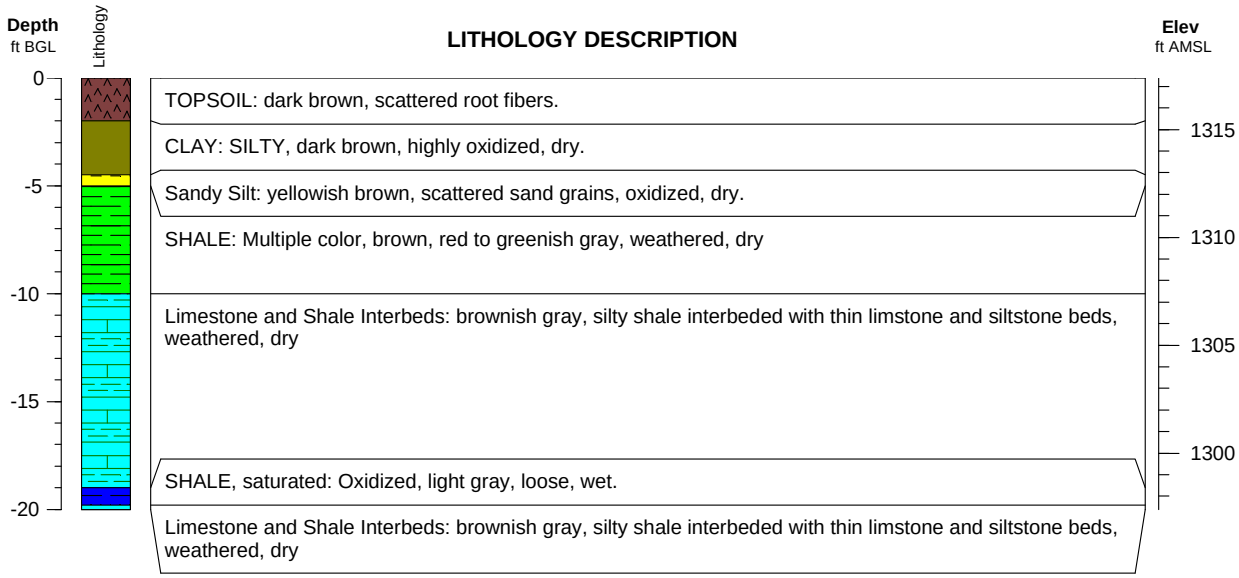
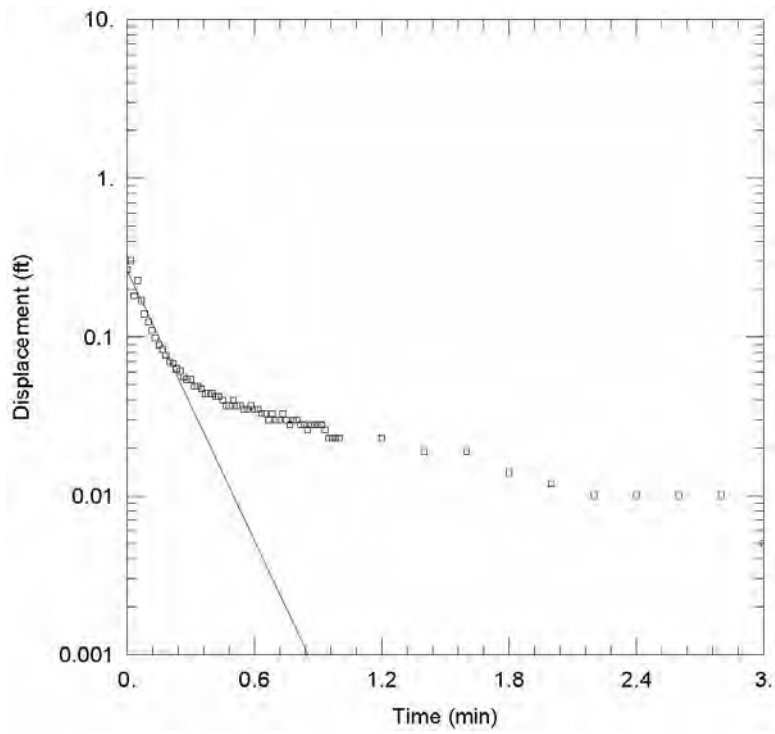
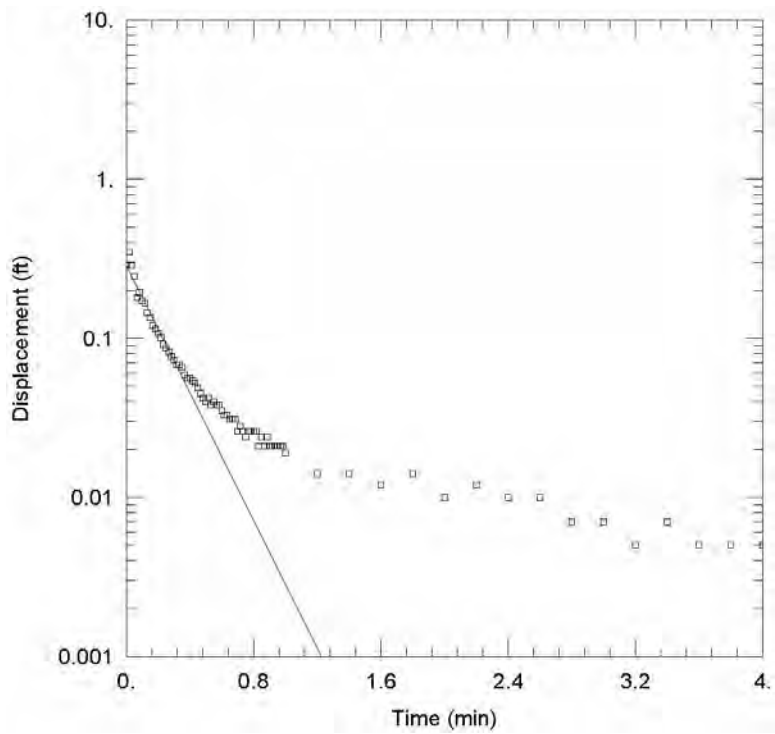


TABLE A.9 Slug test data for boring MW11 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.000	-0.643	0.413	0.51	0.659	0.767	0.028	0.026	0.027	0.024
0.017	0.301	0.35	0.177	0.41	0.783	0.03	0.026	0.023	0.026
0.033	0.182	0.289	0.228	0.331	0.800	0.03	0.026	0.025	0.026
0.050	0.226	0.245	0.209	0.273	0.817	0.028	0.026	0.025	0.024
0.067	0.17	0.18	0.165	0.238	0.833	0.028	0.021	0.027	0.021
0.083	0.14	0.194	0.139	0.208	0.850	0.026	0.024	0.025	0.024
0.100	0.124	0.173	0.123	0.184	0.867	0.028	0.021	0.023	0.021
0.117	0.11	0.166	0.109	0.168	0.883	0.028	0.024	0.025	0.021
0.133	0.098	0.145	0.097	0.152	0.900	0.028	0.021	0.023	0.021
0.150	0.089	0.135	0.088	0.14	0.917	0.028	0.021	0.027	0.021
0.167	0.084	0.121	0.083	0.126	0.933	0.026	0.021	0.023	0.019
0.183	0.077	0.115	0.072	0.119	0.950	0.023	0.021	0.02	0.019
0.200	0.07	0.108	0.067	0.11	0.967	0.023	0.021	0.023	0.019
0.217	0.068	0.101	0.062	0.103	0.983	0.023	0.021	0.023	0.019
0.233	0.063	0.091	0.06	0.094	1.0	0.023	0.019	0.023	0.019
0.250	0.061	0.087	0.055	0.091	1.2	0.023	0.014	0.018	0.017
0.267	0.056	0.082	0.055	0.087	1.4	0.019	0.014	0.018	0.014
0.283	0.054	0.077	0.051	0.08	1.6	0.019	0.012	0.016	0.012
0.300	0.054	0.073	0.048	0.075	1.8	0.014	0.014	0.014	0.01
0.317	0.049	0.068	0.046	0.07	2.0	0.012	0.01	0.011	0.012
0.333	0.049	0.068	0.046	0.068	2.2	0.01	0.012	0.011	0.01
0.350	0.047	0.066	0.044	0.063	2.4	0.01	0.01	0.009	0.01
0.367	0.044	0.059	0.044	0.061	2.6	0.01	0.01	0.009	0.007
0.383	0.044	0.056	0.041	0.059	2.8	0.01	0.007	0.009	0.007
0.400	0.044	0.056	0.039	0.056	3.0	0.005	0.007	0.007	0.007
0.417	0.042	0.054	0.037	0.052	3.2		0.005	0.004	0.005
0.433	0.042	0.052	0.037	0.052	3.4		0.007	0.004	0.007
0.450	0.04	0.049	0.037	0.049	3.6		0.005	0.002	0.007
0.467	0.037	0.045	0.037	0.045	3.8		0.005	0.004	0.005
0.483	0.037	0.042	0.034	0.047	4.0		0.005	0.004	0.005
0.500	0.04	0.04	0.034	0.042					
0.517	0.037	0.042	0.032	0.042					
0.533	0.037	0.038	0.034	0.038					
0.550	0.035	0.04	0.032	0.04					
0.567	0.035	0.038	0.032	0.038					
0.583	0.037	0.038	0.032	0.033					
0.600	0.035	0.035	0.03	0.035					
0.617	0.035	0.033	0.03	0.033					
0.633	0.033	0.033	0.03	0.031					
0.650	0.033	0.031	0.03	0.031					
0.667	0.03	0.031	0.027	0.031					
0.683	0.033	0.031	0.027	0.031					
0.700	0.03	0.026	0.03	0.028					
0.717	0.03	0.028	0.027	0.028					
0.733	0.033	0.026	0.03	0.026					
0.750	0.03	0.024	0.03	0.024					

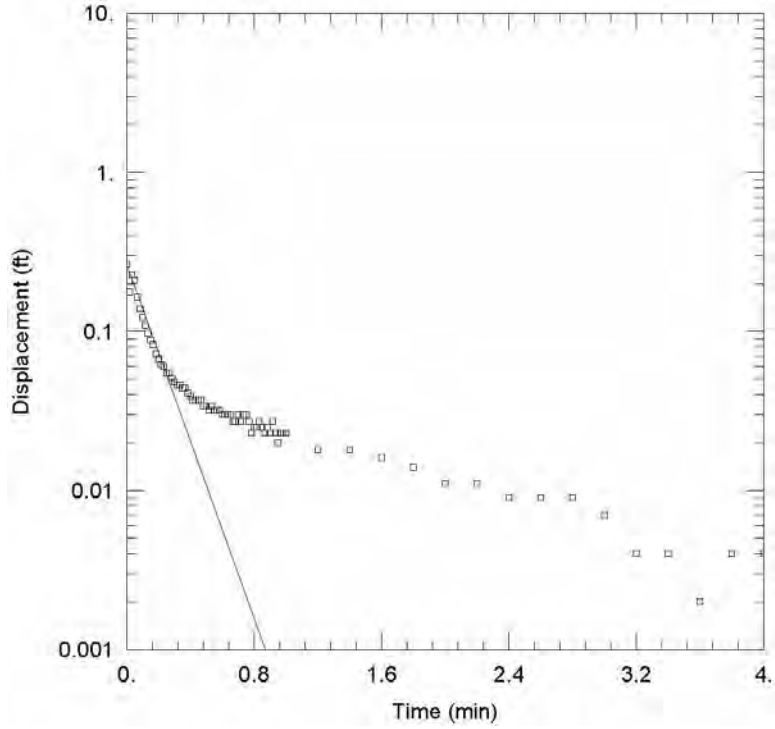


Observed slug test water level response and interpretive straight-line fit to the measured data for MW11, Test 1, slug in.

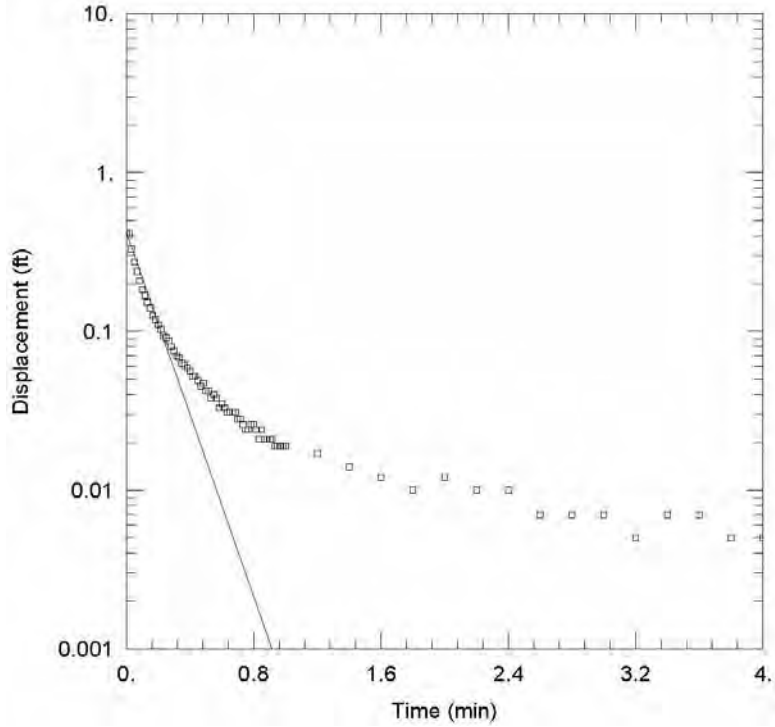


Observed slug test water level response and interpretive straight-line fit to the measured data for MW11, Test 2, slug out.

FIGURE A.9 Observed slug test water level response and interpretive fit to the data for MW11 (Table A.9).



Observed slug test water level response and interpretive straight-line fit to the measured data for MW11, Test 3, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW11, Test 4, slug out.

FIGURE A.9 (Cont.)

Argonne National Laboratory

Well ID: MW12

Project: Hanover **Elevation:** 1321.68 ft **Log Date:** February 4, 2009

Geologist: Eugene Yan **Depth:** 35 ft **Rig:** Mini-sonic drilling rig

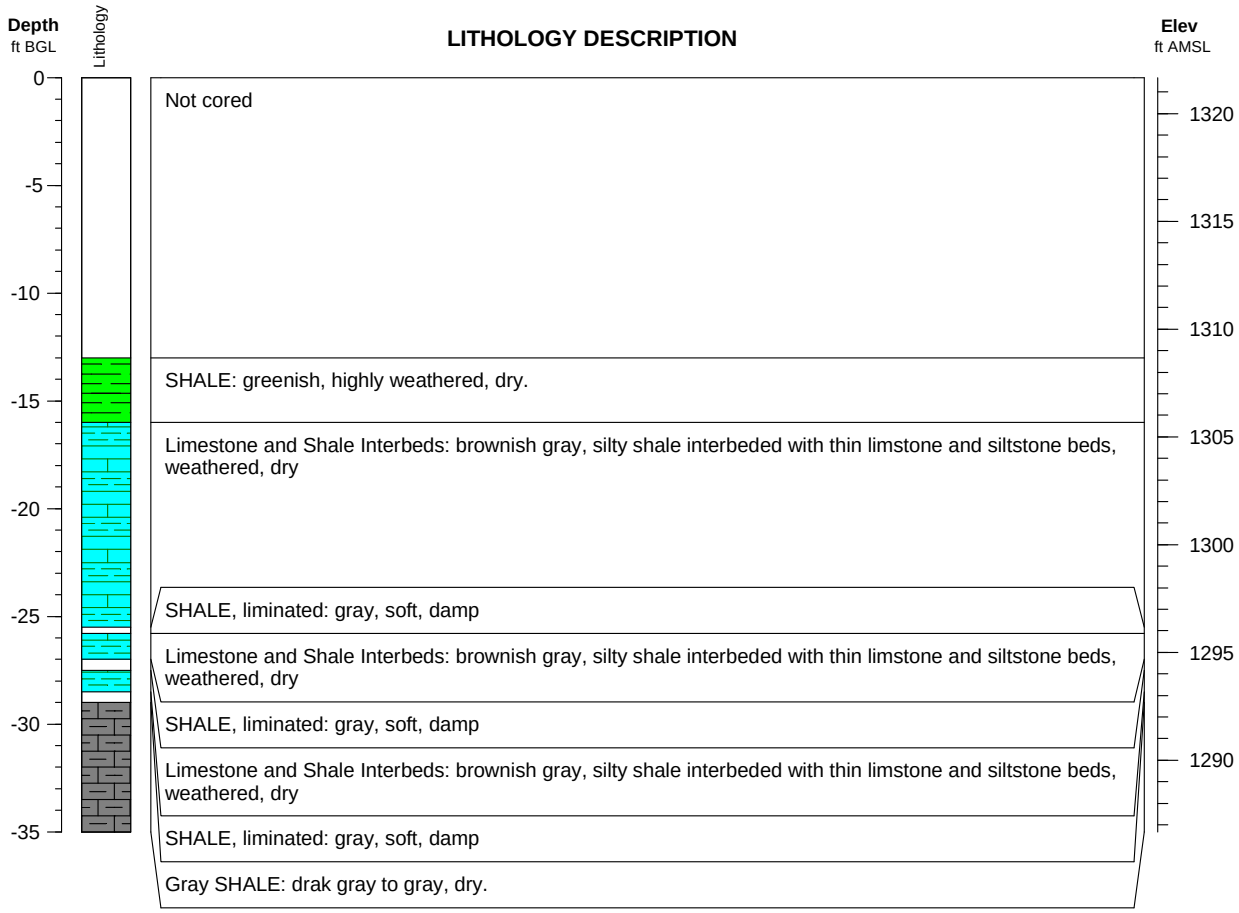
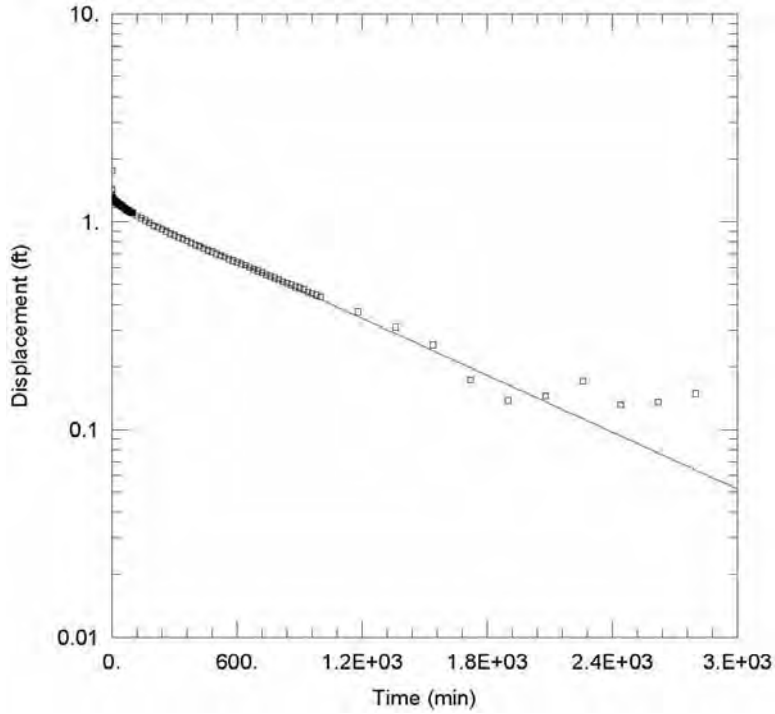


TABLE A.10 Slug test data for boring MW12 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In
0.000	1.765	0.767	1.311	7.4	1.281	76	1.138
0.017	1.76	0.783	1.309	7.6	1.279	78	1.131
0.033	1.424	0.800	1.307	7.8	1.281	80	1.129
0.050	1.314	0.817	1.309	8.0	1.276	82	1.129
0.067	1.323	0.833	1.307	8.2	1.279	84	1.121
0.083	1.246	0.850	1.304	8.4	1.279	86	1.119
0.100	1.349	0.867	1.307	8.6	1.279	88	1.117
0.117	1.304	0.883	1.307	8.8	1.279	90	1.11
0.133	1.323	0.900	1.307	9.0	1.276	92	1.11
0.150	1.319	0.917	1.307	9.2	1.279	94	1.105
0.167	1.316	0.933	1.304	9.4	1.276	96	1.103
0.183	1.309	0.950	1.304	9.6	1.276	98	1.098
0.200	1.319	0.967	1.302	9.8	1.274	100	1.098
0.217	1.314	0.983	1.307	10	1.272	120	1.067
0.233	1.314	1.0	1.302	12	1.267	140	1.042
0.250	1.316	1.2	1.307	14	1.262	160	1.013
0.267	1.316	1.4	1.307	16	1.258	180	0.988
0.283	1.311	1.6	1.302	18	1.255	200	0.959
0.300	1.314	1.8	1.305	20	1.248	220	0.941
0.317	1.311	2.0	1.302	22	1.244	240	0.92
0.333	1.311	2.2	1.3	24	1.239	260	0.898
0.350	1.311	2.4	1.3	26	1.234	280	0.877
0.367	1.311	2.6	1.298	28	1.23	300	0.863
0.383	1.314	2.8	1.298	30	1.222	320	0.84
0.400	1.311	3.0	1.298	32	1.22	340	0.828
0.417	1.311	3.2	1.295	34	1.215	360	0.807
0.433	1.311	3.4	1.295	36	1.213	380	0.79
0.450	1.314	3.6	1.295	38	1.208	400	0.774
0.467	1.311	3.8	1.293	40	1.204	420	0.762
0.483	1.311	4.0	1.295	42	1.199	440	0.743
0.500	1.309	4.2	1.293	44	1.194	460	0.729
0.517	1.311	4.4	1.291	46	1.192	480	0.718
0.533	1.311	4.6	1.291	48	1.185	500	0.701
0.550	1.316	4.8	1.288	50	1.183	520	0.687
0.567	1.311	5.0	1.288	52	1.178	540	0.678
0.583	1.309	5.2	1.291	54	1.175	560	0.664
0.600	1.309	5.4	1.288	56	1.171	580	0.65
0.617	1.309	5.6	1.288	58	1.168	600	0.638
0.633	1.309	5.8	1.288	60	1.164	620	0.626
0.650	1.309	6.0	1.283	62	1.161	640	0.617
0.667	1.311	6.2	1.288	64	1.159	660	0.605
0.683	1.311	6.4	1.281	66	1.152	680	0.591
0.700	1.309	6.6	1.283	68	1.147	700	0.579
0.717	1.311	6.8	1.286	70	1.145	720	0.567
0.733	1.307	7.0	1.281	72	1.143	740	0.556
0.750	1.309	7.2	1.283	74	1.14	760	0.546

TABLE A.10 (Cont.)

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In
780	0.537						
800	0.525						
820	0.513						
840	0.506						
860	0.497						
880	0.485						
900	0.478						
920	0.471						
940	0.459						
960	0.452						
980	0.443						
1000	0.434						
1180	0.368						
1360	0.311						
1540	0.255						
1720	0.173						
1900	0.138						
2080	0.145						
2260	0.171						
2440	0.131						
2620	0.135						
2800	0.149						



Observed slug test water level response and interpretive straight-line fit to the measured data for MW12, Test 1, slug in.

FIGURE A.10 Observed slug test water level response and interpretive fit to the data for MW12 (Table A.10).

Argonne National Laboratory

Well ID: MW13

Project: Hanover **Elevation:** 1311.70 ft **Log Date:** February 4, 2009

Geologist: Eugene Yan **Depth:** 20 ft **Rig:** Mini-sonic drilling rig

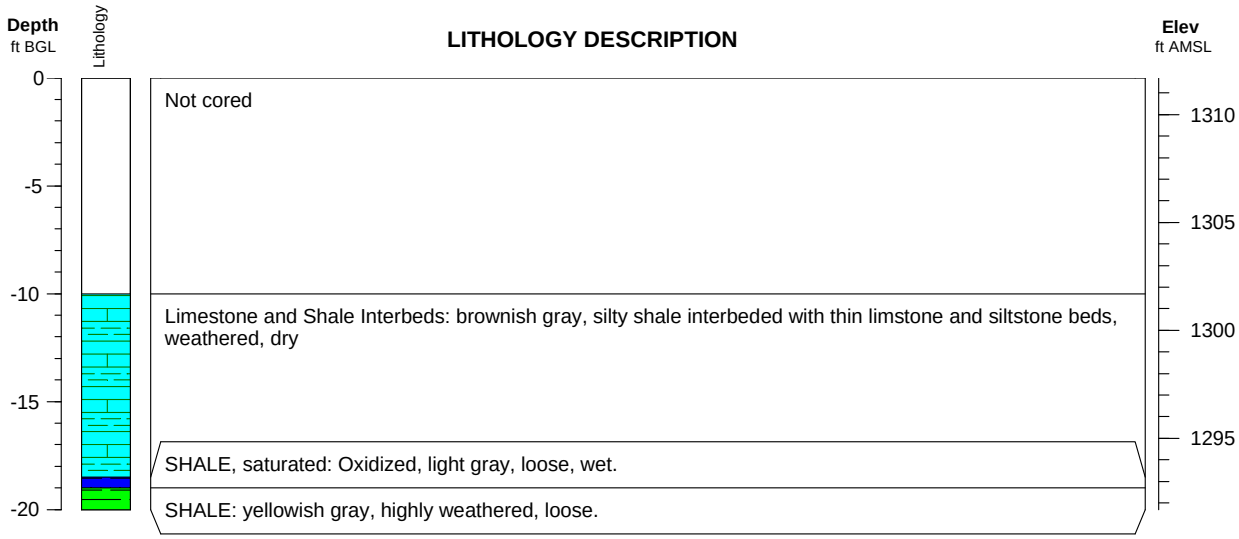
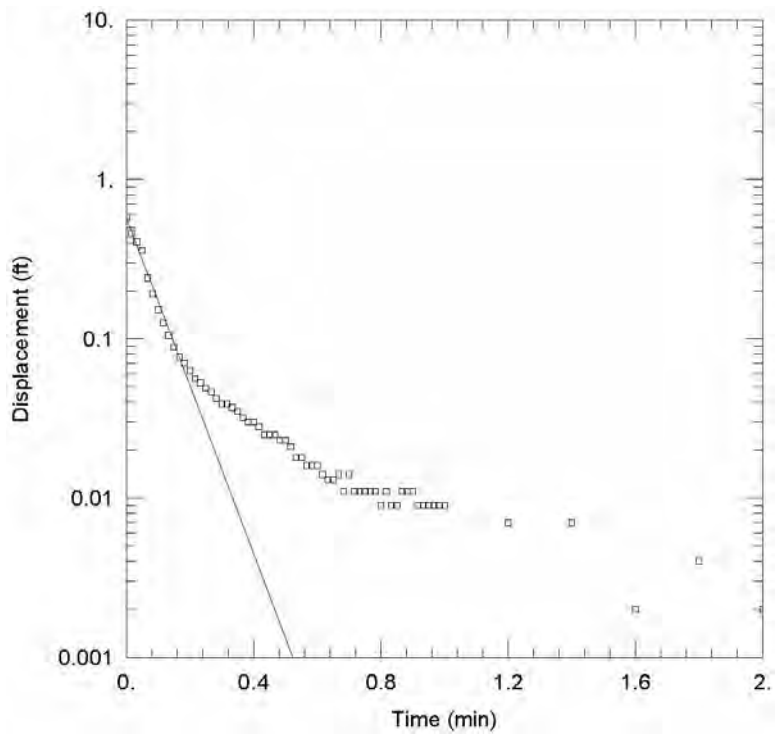
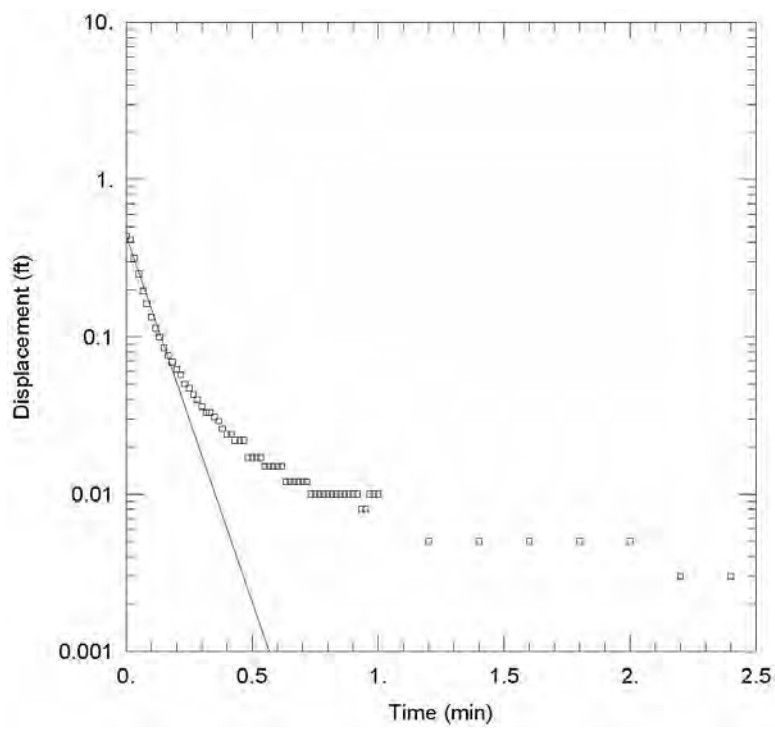


TABLE A.11 Slug test data for boring MW13 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.000	0.52	0.512	0.56	0.603	0.767	0.011	0.01	0.011	0.01
0.017	0.459	0.416	0.394	0.465	0.783	0.011	0.01	0.011	0.012
0.033	0.405	0.315	0.302	0.364	0.800	0.009	0.01	0.011	0.01
0.050	0.356	0.251	0.157	0.287	0.817	0.011	0.01	0.009	0.012
0.067	0.241	0.195	0.246	0.228	0.833	0.009	0.01	0.009	0.01
0.083	0.192	0.162	0.175	0.155	0.850	0.009	0.01	0.011	0.01
0.100	0.152	0.134	0.143	0.155	0.867	0.011	0.01	0.009	0.01
0.117	0.126	0.113	0.119	0.132	0.883	0.011	0.01	0.009	0.01
0.133	0.105	0.099	0.1	0.113	0.900	0.011	0.01	0.009	0.01
0.150	0.089	0.085	0.086	0.097	0.917	0.009	0.01	0.009	0.01
0.167	0.077	0.076	0.075	0.085	0.933	0.009	0.008	0.009	0.01
0.183	0.07	0.069	0.065	0.078	0.950	0.009	0.008	0.009	0.008
0.200	0.063	0.062	0.058	0.069	0.967	0.009	0.01	0.009	0.01
0.217	0.056	0.057	0.053	0.062	0.983	0.009	0.01	0.006	0.01
0.233	0.053	0.05	0.051	0.057	1.0	0.009	0.01	0.006	0.008
0.250	0.049	0.047	0.046	0.052	1.2	0.007	0.005	0.007	0.008
0.267	0.046	0.043	0.044	0.047	1.4	0.007	0.005	0.007	0.008
0.283	0.042	0.04	0.039	0.043	1.6	0.002	0.005	0.004	0.005
0.300	0.039	0.036	0.039	0.04	1.8	0.004	0.005	0.004	0.005
0.317	0.039	0.033	0.035	0.038	2.0	0.002	0.005	0.004	0.003
0.333	0.037	0.033	0.035	0.033	2.2	0.004	0.003	0.004	0.005
0.350	0.035	0.031	0.032	0.031	2.4	0.002	0.003	0.002	0.003
0.367	0.032	0.029	0.03	0.029	2.6	0.002	0.003	0.002	0.003
0.383	0.03	0.026	0.028	0.029	2.8	0.002	0.003	0.002	0.003
0.400	0.03	0.024	0.028	0.029	3.0	0.002	0.003	0.002	0.003
0.417	0.028	0.024	0.025	0.026					
0.433	0.025	0.022	0.025	0.024					
0.450	0.025	0.022	0.023	0.022					
0.467	0.025	0.022	0.023	0.022					
0.483	0.023	0.017	0.021	0.022					
0.500	0.023	0.017	0.021	0.022					
0.517	0.021	0.017	0.018	0.019					
0.533	0.018	0.017	0.021	0.019					
0.550	0.018	0.015	0.018	0.017					
0.567	0.016	0.015	0.016	0.017					
0.583	0.016	0.015	0.016	0.017					
0.600	0.016	0.015	0.016	0.015					
0.617	0.014	0.015	0.016	0.015					
0.633	0.013	0.012	0.014	0.015					
0.650	0.013	0.012	0.014	0.012					
0.667	0.014	0.012	0.014	0.015					
0.683	0.011	0.012	0.014	0.012					
0.700	0.014	0.012	0.014	0.015					
0.717	0.011	0.012	0.011	0.012					
0.733	0.011	0.01	0.011	0.012					
0.750	0.011	0.01	0.011	0.012					

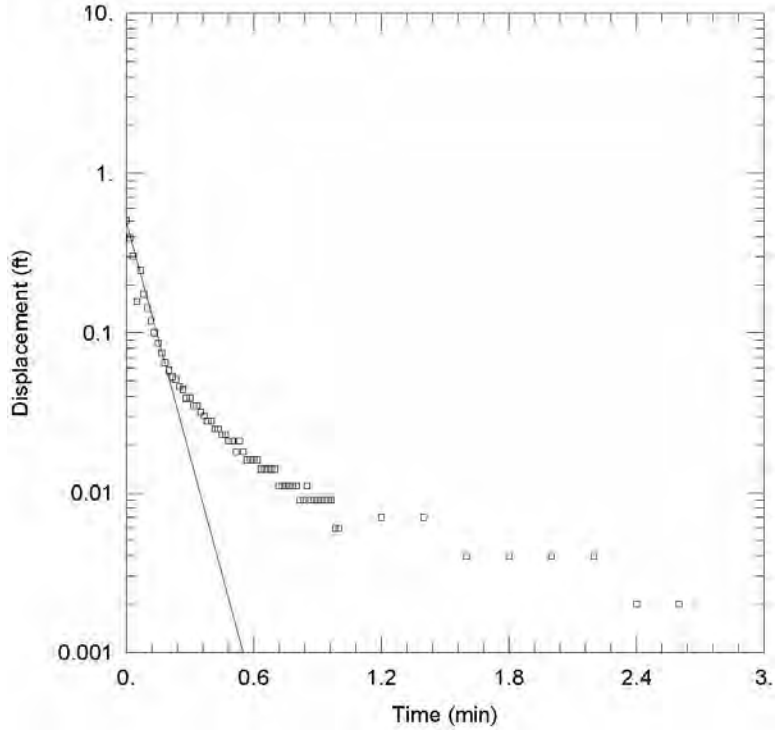


Observed slug test water level response and interpretive straight-line fit to the measured data for MW13, Test 1, slug in.

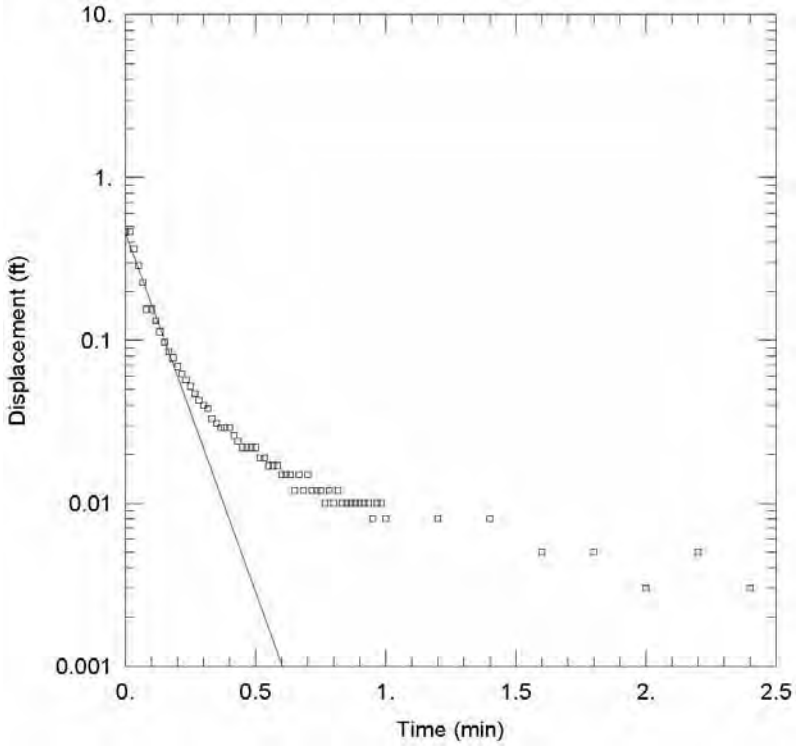


Observed slug test water level response and interpretive straight-line fit to the measured data for MW13, Test 2, slug out.

FIGURE A.11 Observed slug test water level response and interpretive fit to the data for MW13 (Table A.11).



Observed slug test water level response and interpretive straight-line fit to the measured data for MW13, Test 3, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW13, Test 4, slug out.

FIGURE A.11 (Cont.)

Argonne National Laboratory

Well ID: MW16

Project: Hanover **Elevation:** 1307.41 ft **Log Date:** February 26, 2009

Geologist: Eugene Yan **Depth:** 25 ft **Rig:** Mini-sonic drilling rig

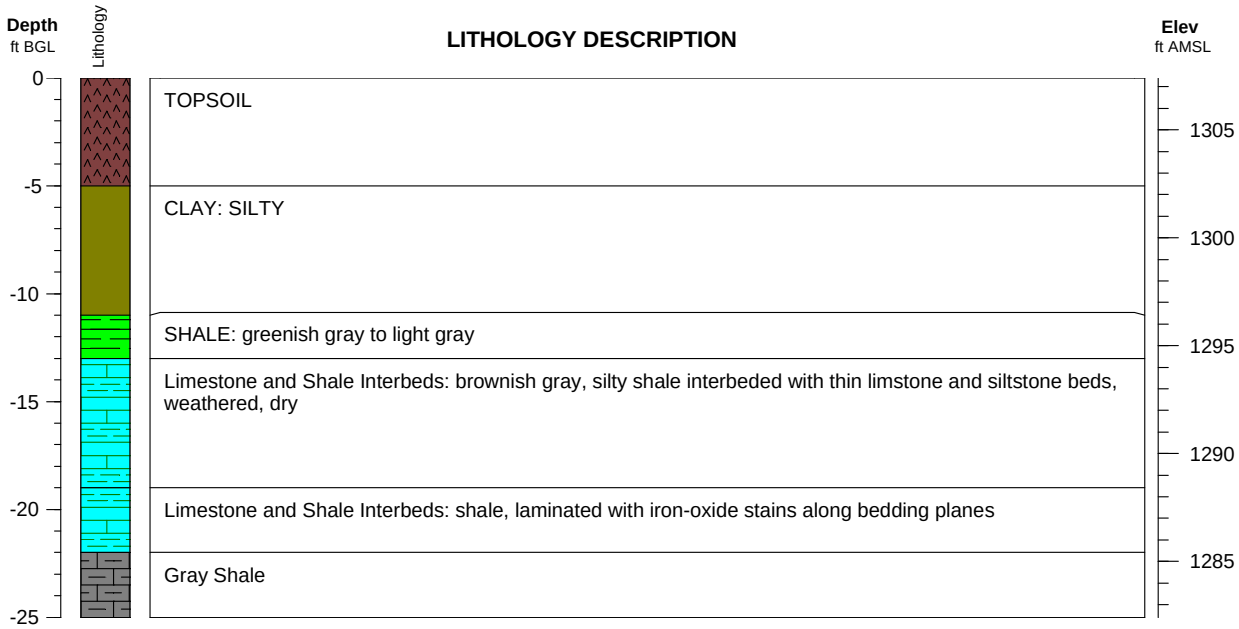
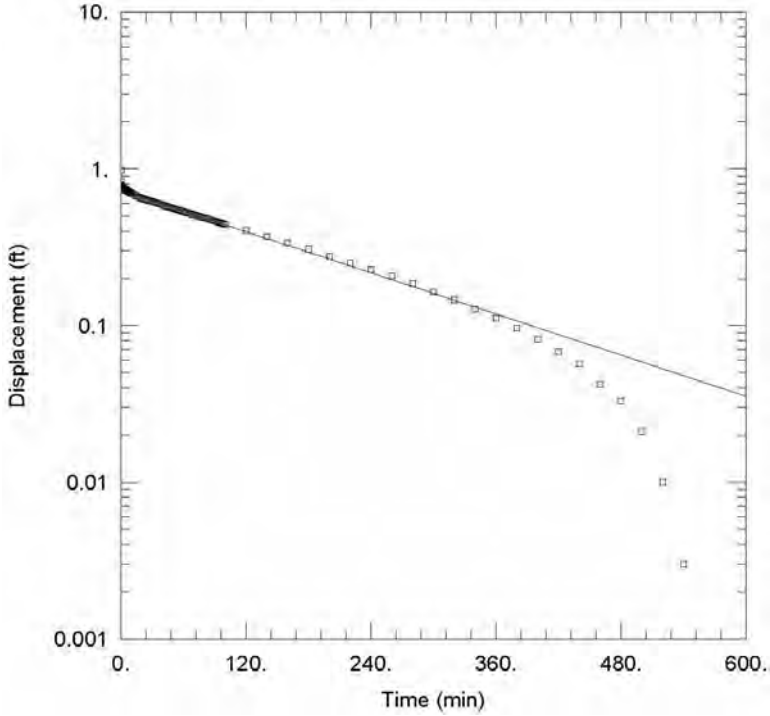


TABLE A.12 Slug test data for boring MW16 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

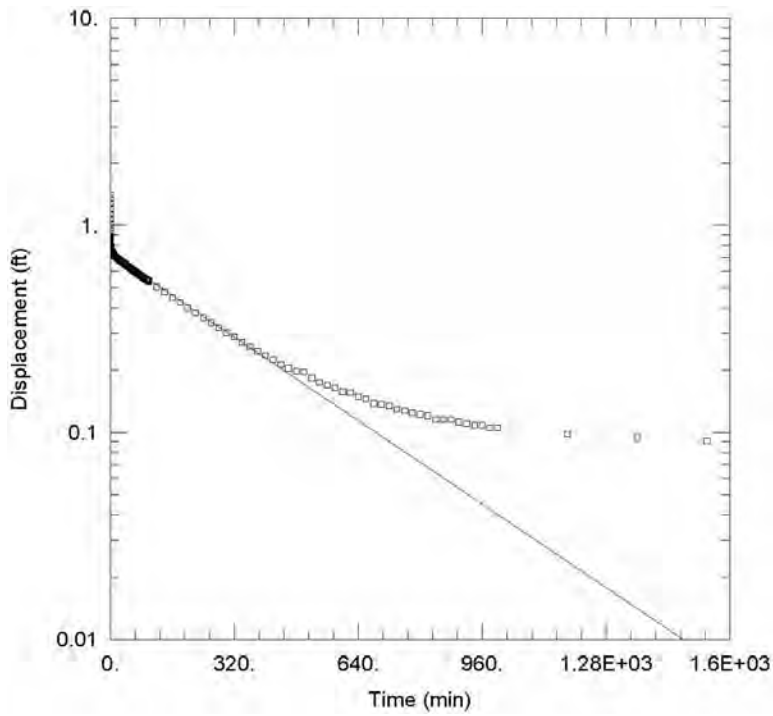
Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Residual Drawdown (ft) Test 2 Slug Out	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Residual Drawdown (ft) Test 2 Slug Out	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Residual Drawdown (ft) Test 2 Slug Out
0.000	0.711	1.371	0.767	0.77	0.807	7.4	0.718	0.727
0.017	0.977	1.403	0.783	0.77	0.807	7.6	0.716	0.727
0.033	0.782	1.352	0.800	0.77	0.807	7.8	0.716	0.727
0.050	0.829	1.277	0.817	0.77	0.805	8.0	0.709	0.725
0.067	0.791	1.202	0.833	0.77	0.805	8.2	0.711	0.725
0.083	0.789	1.134	0.850	0.77	0.803	8.4	0.709	0.723
0.100	0.784	1.072	0.867	0.77	0.803	8.6	0.709	0.723
0.117	0.784	1.018	0.883	0.77	0.8	8.8	0.709	0.723
0.133	0.782	0.974	0.900	0.77	0.8	9.0	0.707	0.723
0.150	0.782	0.939	0.917	0.77	0.8	9.2	0.702	0.72
0.167	0.782	0.911	0.933	0.768	0.798	9.4	0.704	0.72
0.183	0.78	0.889	0.950	0.768	0.798	9.6	0.702	0.72
0.200	0.78	0.873	0.967	0.768	0.798	9.8	0.7	0.72
0.217	0.78	0.864	0.983	0.768	0.798	10	0.7	0.718
0.233	0.777	0.852	1.0	0.768	0.795	12	0.686	0.711
0.250	0.777	0.845	1.2	0.765	0.788	14	0.676	0.706
0.267	0.777	0.838	1.4	0.763	0.781	16	0.667	0.699
0.283	0.777	0.866	1.6	0.763	0.774	18	0.657	0.695
0.300	0.777	0.868	1.8	0.761	0.77	20	0.65	0.69
0.317	0.777	0.868	2.0	0.758	0.767	22	0.643	0.685
0.333	0.777	0.864	2.2	0.758	0.763	24	0.636	0.68
0.350	0.777	0.861	2.4	0.756	0.76	26	0.629	0.676
0.367	0.775	0.857	2.6	0.754	0.758	28	0.625	0.671
0.383	0.775	0.852	2.8	0.754	0.756	30	0.618	0.666
0.400	0.775	0.849	3.0	0.751	0.753	32	0.613	0.662
0.417	0.775	0.845	3.2	0.751	0.751	34	0.608	0.659
0.433	0.775	0.842	3.4	0.749	0.751	36	0.601	0.655
0.450	0.773	0.84	3.6	0.747	0.749	38	0.599	0.65
0.467	0.773	0.835	3.8	0.747	0.749	40	0.587	0.645
0.483	0.773	0.835	4.0	0.744	0.746	42	0.58	0.641
0.500	0.773	0.833	4.2	0.742	0.744	44	0.575	0.636
0.517	0.773	0.828	4.4	0.74	0.744	46	0.571	0.634
0.533	0.773	0.828	4.6	0.74	0.742	48	0.566	0.629
0.550	0.773	0.826	4.8	0.737	0.742	50	0.559	0.624
0.567	0.773	0.824	5.0	0.737	0.739	52	0.554	0.622
0.583	0.77	0.824	5.2	0.735	0.739	54	0.549	0.617
0.600	0.77	0.821	5.4	0.733	0.739	56	0.545	0.612
0.617	0.77	0.819	5.6	0.733	0.737	58	0.54	0.61
0.633	0.77	0.819	5.8	0.73	0.734	60	0.533	0.605
0.650	0.773	0.817	6.0	0.73	0.734	62	0.528	0.601
0.667	0.77	0.814	6.2	0.728	0.732	64	0.524	0.596
0.683	0.77	0.814	6.4	0.726	0.734	66	0.521	0.594
0.700	0.77	0.812	6.6	0.723	0.732	68	0.514	0.591
0.717	0.768	0.812	6.8	0.723	0.732	70	0.51	0.587
0.733	0.77	0.81	7.0	0.723	0.73	72	0.505	0.582
0.750	0.77	0.81	7.2	0.718	0.73	74	0.498	0.58

TABLE A.12 (Cont.)

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Residual Drawdown (ft) Test 2 Slug Out	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Residual Drawdown (ft) Test 2 Slug Out	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Residual Drawdown (ft) Test 2 Slug Out
76	0.495	0.575	800		0.122			
78	0.491	0.57	820		0.12			
80	0.486	0.57	840		0.115			
82	0.484	0.565	860		0.115			
84	0.479	0.561	880		0.115			
86	0.472	0.558	900		0.112			
88	0.47	0.554	920		0.11			
90	0.465	0.551	940		0.108			
92	0.46	0.551	960		0.108			
94	0.456	0.547	980		0.105			
96	0.453	0.542	1000		0.105			
98	0.448	0.537	1180		0.098			
100	0.444	0.54	1360		0.094			
120	0.406	0.504	1540		0.091			
140	0.369	0.476						
160	0.336	0.448						
180	0.308	0.425						
200	0.277	0.399						
220	0.251	0.378						
240	0.228	0.357						
260	0.207	0.338						
280	0.186	0.319						
300	0.164	0.303						
320	0.146	0.289						
340	0.127	0.272						
360	0.111	0.26						
380	0.096	0.246						
400	0.082	0.235						
420	0.068	0.225						
440	0.057	0.213						
460	0.042	0.204						
480	0.033	0.197						
500	0.021	0.195						
520	0.01	0.183						
540	0.003	0.174						
560		0.169						
580		0.164						
600		0.157						
620		0.155						
640		0.148						
660		0.145						
680		0.138						
700		0.136						
720		0.134						
740		0.129						
760		0.127						
780		0.124						



Observed slug test water level response and interpretive straight-line fit to the measured data for MW16, Test 1, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW16, Test 2, slug out.

FIGURE A.12 Observed slug test water level response and interpretive fit to the data for MW16 (Table A.12).

Argonne National Laboratory

Well ID: MW18

Project: Hanover **Elevation:** 1315.11 ft **Log Date:** Februray 26, 2009

Geologist: Eugene Yan **Depth:** 29 ft **Rig:** Mini-sonic drilling rig

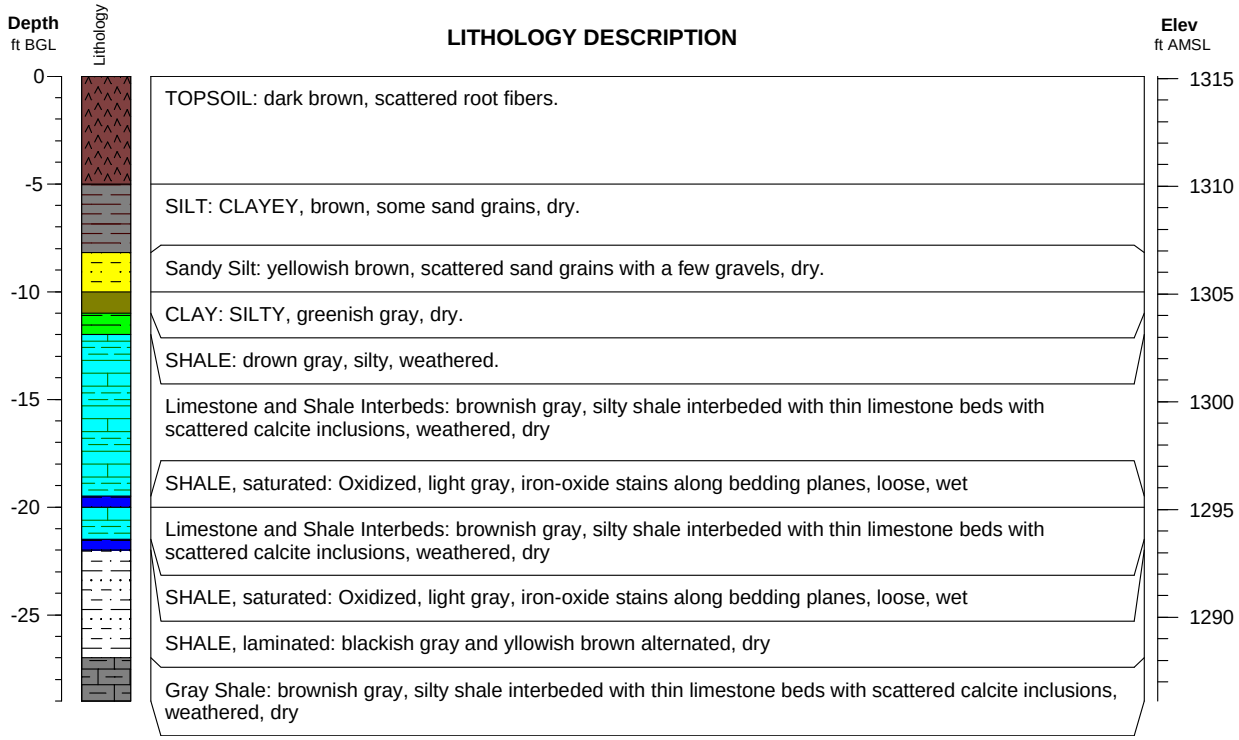
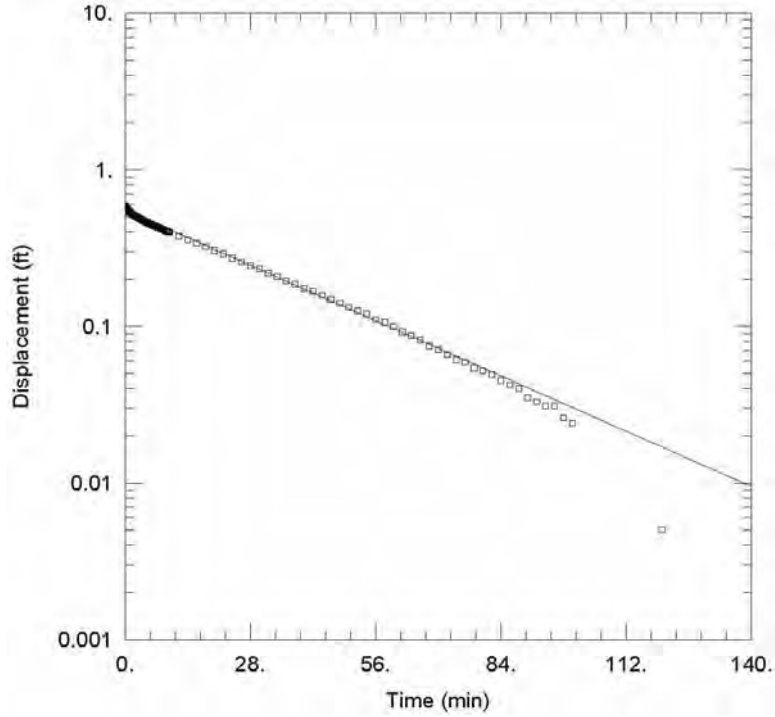


TABLE A.13 Slug test data for boring MW18 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

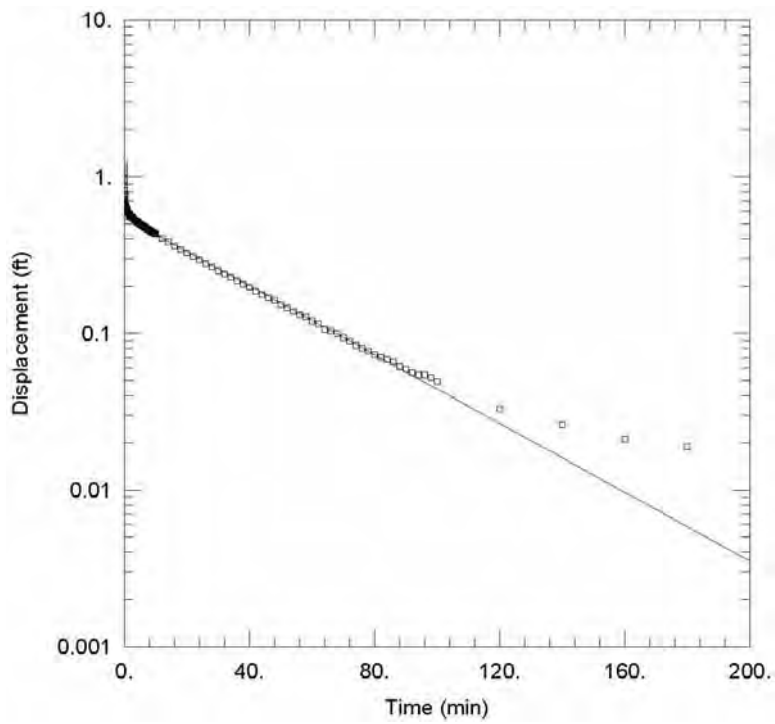
	Residual Drawdown (ft)				Residual Drawdown (ft)		
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In
0.000	0.627	1.202	0.648	0.767	0.547	0.615	0.498
0.017	0.585	1.188	0.596	0.783	0.547	0.615	0.498
0.033	0.587	1.127	0.545	0.800	0.545	0.612	0.496
0.050	0.575	1.061	0.533	0.817	0.545	0.612	0.496
0.067	0.58	0.995	0.528	0.833	0.545	0.61	0.496
0.083	0.578	0.941	0.528	0.850	0.543	0.61	0.496
0.100	0.575	0.89	0.526	0.867	0.543	0.608	0.493
0.117	0.573	0.845	0.526	0.883	0.543	0.608	0.493
0.133	0.573	0.81	0.524	0.900	0.543	0.608	0.493
0.150	0.571	0.777	0.521	0.917	0.543	0.605	0.493
0.167	0.571	0.756	0.521	0.933	0.54	0.603	0.491
0.183	0.568	0.739	0.521	0.950	0.54	0.603	0.491
0.200	0.568	0.725	0.519	0.967	0.54	0.603	0.491
0.217	0.568	0.716	0.519	0.983	0.54	0.601	0.491
0.233	0.566	0.706	0.517	1.0	0.538	0.601	0.491
0.250	0.566	0.699	0.517	1.2	0.531	0.589	0.484
0.267	0.566	0.692	0.517	1.4	0.526	0.582	0.479
0.283	0.564	0.685	0.514	1.6	0.521	0.575	0.474
0.300	0.564	0.681	0.517	1.8	0.517	0.568	0.47
0.317	0.564	0.676	0.514	2.0	0.512	0.561	0.463
0.333	0.564	0.671	0.514	2.2	0.507	0.556	0.458
0.350	0.561	0.669	0.512	2.4	0.505	0.552	0.456
0.367	0.561	0.664	0.512	2.6	0.5	0.547	0.451
0.383	0.561	0.659	0.512	2.8	0.496	0.542	0.446
0.400	0.559	0.657	0.512	3.0	0.491	0.537	0.444
0.417	0.559	0.655	0.51	3.2	0.489	0.533	0.439
0.433	0.559	0.65	0.51	3.4	0.484	0.528	0.437
0.450	0.557	0.648	0.51	3.6	0.481	0.526	0.434
0.467	0.557	0.645	0.507	3.8	0.477	0.521	0.43
0.483	0.557	0.645	0.507	4.0	0.474	0.519	0.427
0.500	0.557	0.641	0.51	4.2	0.472	0.514	0.425
0.517	0.557	0.638	0.507	4.4	0.467	0.512	0.42
0.533	0.554	0.636	0.507	4.6	0.465	0.507	0.418
0.550	0.554	0.636	0.505	4.8	0.463	0.502	0.416
0.567	0.554	0.634	0.505	5.0	0.46	0.5	0.413
0.583	0.554	0.631	0.505	5.2	0.456	0.495	0.411
0.600	0.552	0.629	0.505	5.4	0.453	0.493	0.406
0.617	0.552	0.629	0.503	5.6	0.451	0.488	0.406
0.633	0.552	0.627	0.503	5.8	0.449	0.486	0.402
0.650	0.55	0.624	0.503	6.0	0.446	0.483	0.399
0.667	0.55	0.624	0.503	6.2	0.444	0.479	0.397
0.683	0.55	0.622	0.5	6.4	0.439	0.476	0.394
0.700	0.547	0.62	0.5	6.6	0.437	0.474	0.392
0.717	0.547	0.62	0.498	6.8	0.437	0.472	0.39
0.733	0.547	0.617	0.498	7.0	0.432	0.469	0.387
0.750	0.547	0.617	0.498	7.2	0.43	0.465	0.385

TABLE A.13 (Cont.)

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In
7.4	0.427	0.462	0.383	78	0.054	0.077	0.024
7.6	0.425	0.46	0.38	80	0.052	0.073	0.019
7.8	0.423	0.458	0.378	82	0.049	0.07	0.017
8.0	0.42	0.455	0.376	84	0.045	0.068	0.014
8.2	0.418	0.451	0.373	86	0.042	0.066	0.009
8.4	0.416	0.448	0.371	88	0.04	0.061	0.007
8.6	0.413	0.446	0.369	90	0.035	0.059	0.005
8.8	0.411	0.441	0.366	92	0.033	0.056	0.002
9.0	0.409	0.441	0.364	94	0.031	0.054	0
9.2	0.406	0.439	0.364	96	0.031	0.054	
9.4	0.406	0.437	0.359	98	0.026	0.052	
9.6	0.404	0.434	0.359	100	0.024	0.049	
9.8	0.399	0.432	0.355	120	0.005	0.033	
10	0.399	0.429	0.355	140		0.026	
12	0.376	0.404	0.333	160		0.021	
14	0.357	0.383	0.312	180		0.019	
16	0.338	0.361	0.296	200		0.021	
18	0.322	0.343	0.279				
20	0.305	0.326	0.261				
22	0.289	0.31	0.247				
24	0.272	0.293	0.23				
26	0.258	0.279	0.218				
28	0.244	0.265	0.204				
30	0.233	0.251	0.193				
32	0.218	0.239	0.181				
34	0.207	0.228	0.169				
36	0.195	0.216	0.157				
38	0.186	0.206	0.148				
40	0.174	0.197	0.136				
42	0.167	0.185	0.129				
44	0.157	0.176	0.12				
46	0.148	0.169	0.113				
48	0.141	0.162	0.103				
50	0.132	0.153	0.096				
52	0.125	0.145	0.089				
54	0.12	0.138	0.082				
56	0.11	0.131	0.075				
58	0.106	0.127	0.071				
60	0.099	0.12	0.063				
62	0.092	0.115	0.059				
64	0.087	0.106	0.052				
66	0.082	0.103	0.047				
68	0.075	0.099	0.042				
70	0.071	0.094	0.04				
72	0.066	0.089	0.033				
74	0.061	0.084	0.031				
76	0.059	0.08	0.026				

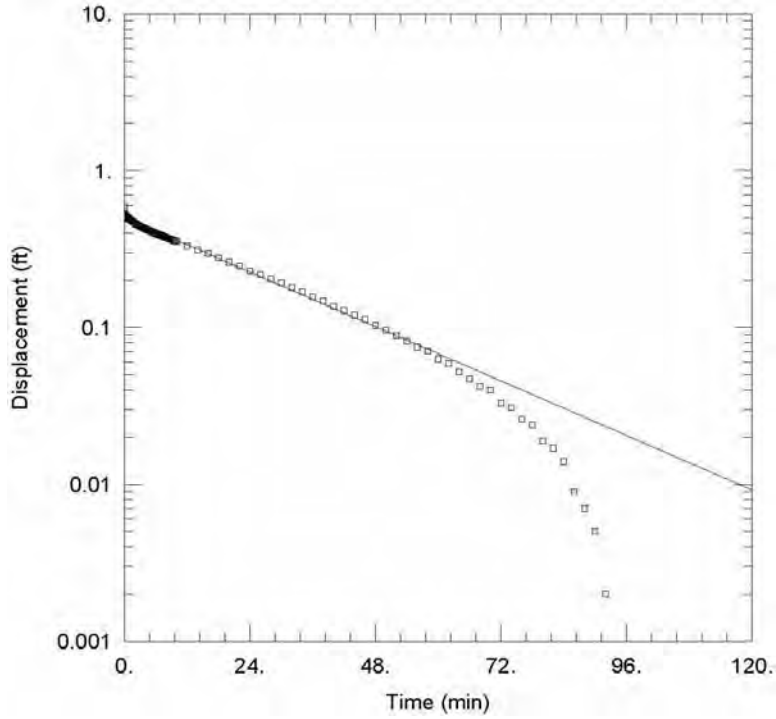


Observed slug test water level response and interpretive straight-line fit to the measured data for MW18, Test 1, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW18, Test 2, slug out.

FIGURE A.13 Observed slug test water level response and interpretive fit to the data for MW18 (Table A.13).



Observed slug test water level response and interpretive straight-line fit to the measured data for MW18, Test 3, slug in.

FIGURE A.13 (Cont.)

Argonne National Laboratory

Well ID: MW20

Project: Hanover **Elevation:** 1319.96 ft **Log Date:** Februray 26, 2009

Geologist: Eugene Yan **Depth:** 30 ft **Rig:** Mini-sonic drilling rig

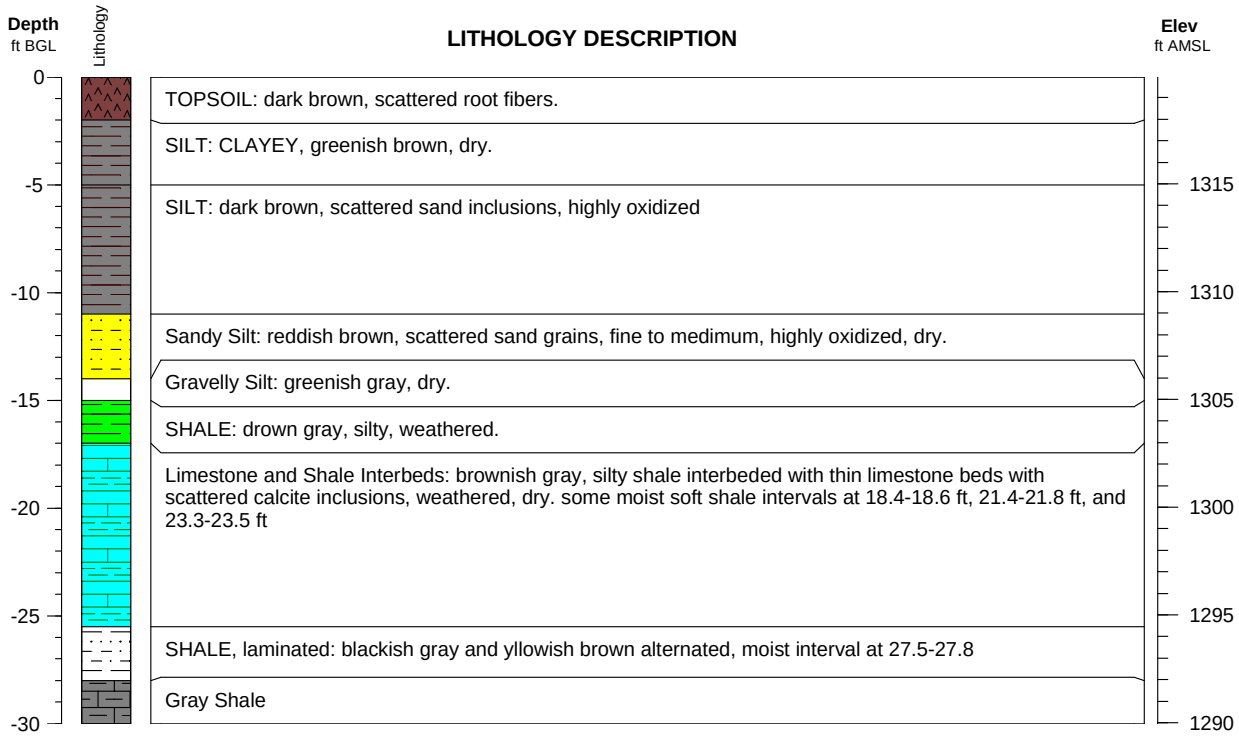
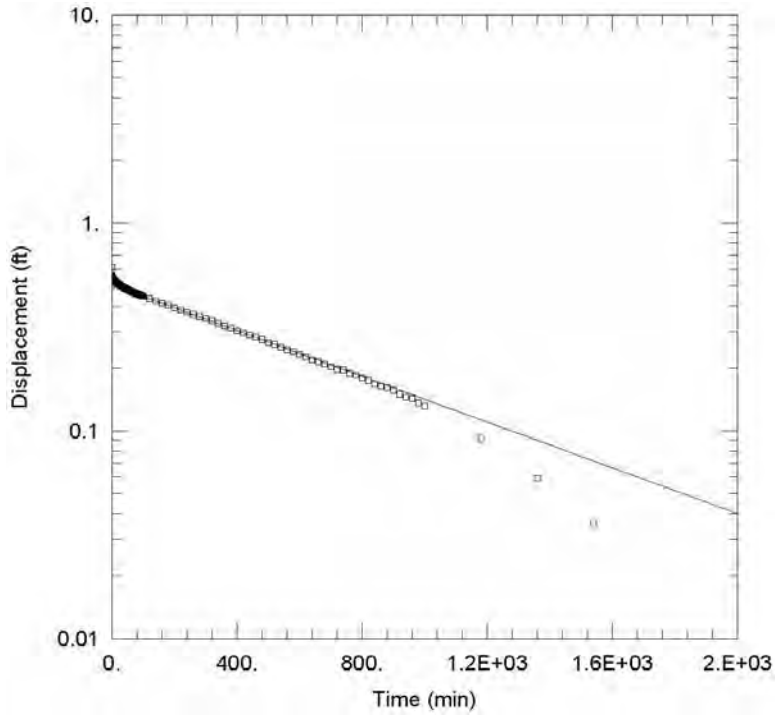


TABLE A.14 Slug test data for boring MW20 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In
0.000	0.621	0.767	0.547	7.4	0.528	76	0.458
0.017	0.614	0.783	0.547	7.6	0.528	78	0.456
0.033	0.565	0.800	0.547	7.8	0.528	80	0.456
0.050	0.563	0.817	0.547	8.0	0.528	82	0.454
0.067	0.558	0.833	0.547	8.2	0.528	84	0.454
0.083	0.558	0.850	0.547	8.4	0.528	86	0.454
0.100	0.556	0.867	0.547	8.6	0.528	88	0.451
0.117	0.556	0.883	0.547	8.8	0.528	90	0.449
0.133	0.556	0.900	0.547	9.0	0.526	92	0.447
0.150	0.554	0.917	0.549	9.2	0.526	94	0.447
0.167	0.554	0.933	0.547	9.4	0.526	96	0.447
0.183	0.554	0.950	0.547	9.6	0.526	98	0.445
0.200	0.554	0.967	0.547	9.8	0.526	100	0.445
0.217	0.554	0.983	0.547	10	0.526	120	0.433
0.233	0.554	1.0	0.547	12	0.521	140	0.421
0.250	0.554	1.2	0.544	14	0.519	160	0.412
0.267	0.554	1.4	0.544	16	0.516	180	0.403
0.283	0.551	1.6	0.544	18	0.514	200	0.391
0.300	0.551	1.8	0.542	20	0.512	220	0.382
0.317	0.551	2.0	0.542	22	0.51	240	0.373
0.333	0.551	2.2	0.542	24	0.507	260	0.363
0.350	0.551	2.4	0.54	26	0.503	280	0.354
0.367	0.551	2.6	0.54	28	0.5	300	0.347
0.383	0.551	2.8	0.54	30	0.498	320	0.338
0.400	0.551	3.0	0.537	32	0.498	340	0.328
0.417	0.551	3.2	0.537	34	0.496	360	0.319
0.433	0.549	3.4	0.537	36	0.491	380	0.312
0.450	0.549	3.6	0.537	38	0.489	400	0.303
0.467	0.549	3.8	0.537	40	0.486	420	0.296
0.483	0.549	4.0	0.535	42	0.486	440	0.289
0.500	0.549	4.2	0.535	44	0.484	460	0.282
0.517	0.549	4.4	0.535	46	0.482	480	0.275
0.533	0.551	4.6	0.535	48	0.479	500	0.266
0.550	0.549	4.8	0.533	50	0.479	520	0.261
0.567	0.549	5.0	0.533	52	0.477	540	0.252
0.583	0.549	5.2	0.533	54	0.475	560	0.245
0.600	0.547	5.4	0.533	56	0.475	580	0.24
0.617	0.549	5.6	0.533	58	0.47	600	0.233
0.633	0.549	5.8	0.533	60	0.47	620	0.226
0.650	0.549	6.0	0.533	62	0.468	640	0.219
0.667	0.549	6.2	0.53	64	0.468	660	0.215
0.683	0.547	6.4	0.53	66	0.465	680	0.21
0.700	0.549	6.6	0.53	68	0.463	700	0.203
0.717	0.549	6.8	0.53	70	0.463	720	0.198
0.733	0.549	7.0	0.53	72	0.461	740	0.196
0.750	0.547	7.2	0.53	74	0.461	760	0.189

TABLE A.14 (Cont.)

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In
780	0.185						
800	0.18						
820	0.175						
840	0.168						
860	0.164						
880	0.161						
900	0.157						
920	0.15						
940	0.145						
960	0.143						
980	0.136						
1000	0.131						
1180	0.092						
1360	0.059						
1540	0.036						



Observed slug test water level response and interpretive straight-line fit to the measured data for MW20, Test 1, slug in.

FIGURE A.14 Observed slug test water level response and interpretive fit to the data for MW20 (Table A.14).

Argonne National Laboratory

Well ID: MW21

Project: Hanover **Elevation:** 1316.46 ft **Log Date:** Februray 26, 2009

Geologist: Eugene Yan **Depth:** 30 ft **Rig:** Mini-sonic drilling rig

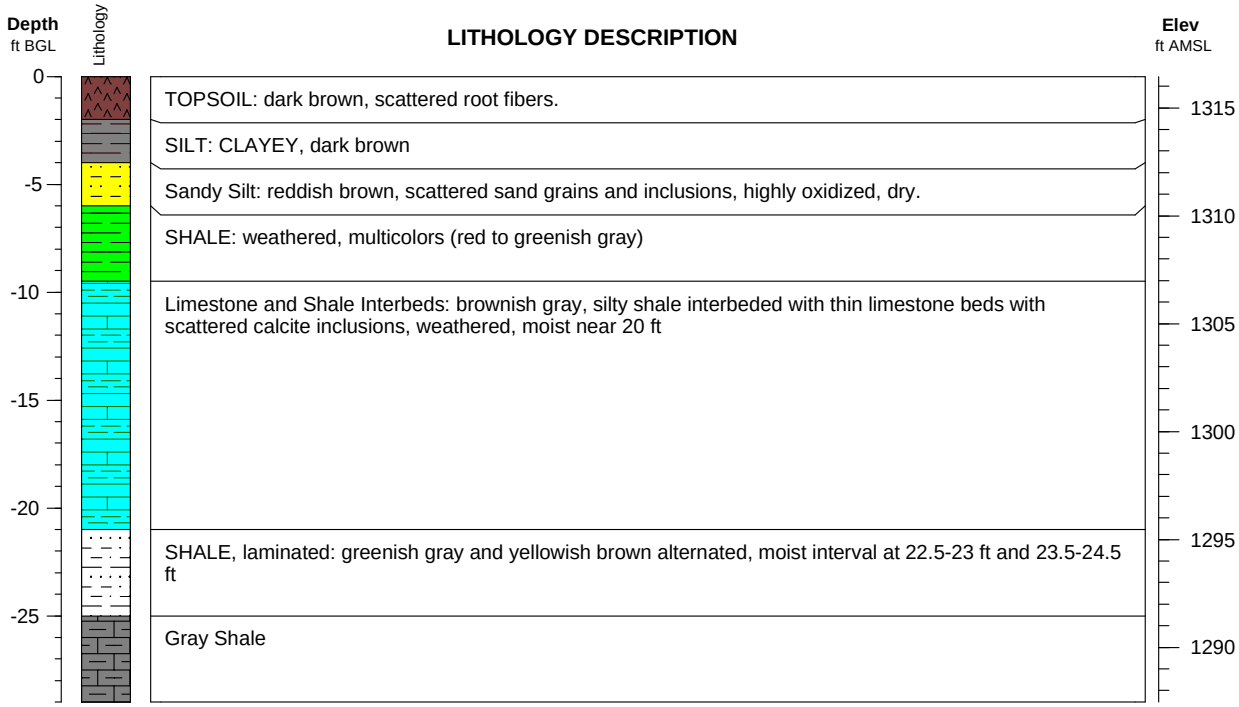
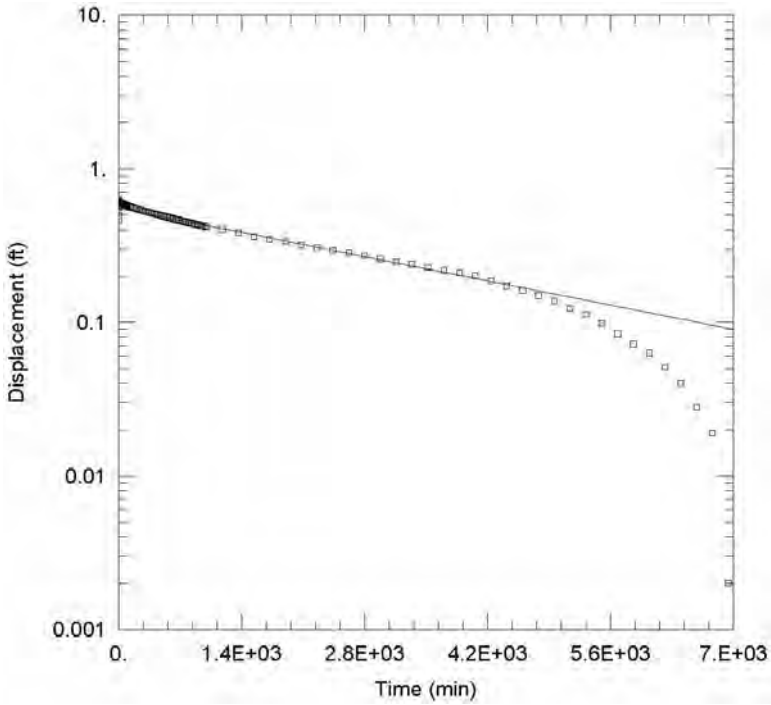


TABLE A.15 Slug test data for boring MW21 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In
0.000	1.372	0.767	0.617	7.4	0.606	76	0.58
0.017	0.606	0.783	0.617	7.6	0.606	78	0.58
0.033	0.606	0.800	0.617	7.8	0.606	80	0.58
0.050	0.494	0.817	0.617	8.0	0.603	82	0.58
0.067	0.631	0.833	0.617	8.2	0.606	84	0.582
0.083	0.456	0.850	0.617	8.4	0.606	86	0.58
0.100	0.564	0.867	0.615	8.6	0.606	88	0.578
0.117	0.633	0.883	0.617	8.8	0.606	90	0.578
0.133	0.62	0.900	0.615	9.0	0.606	92	0.578
0.150	0.629	0.917	0.615	9.2	0.606	94	0.578
0.167	0.62	0.933	0.615	9.4	0.606	96	0.578
0.183	0.622	0.950	0.617	9.6	0.606	98	0.575
0.200	0.617	0.967	0.615	9.8	0.606	100	0.573
0.217	0.62	0.983	0.617	10	0.603	120	0.568
0.233	0.622	1.0	0.617	12	0.603	140	0.566
0.250	0.619	1.2	0.615	14	0.603	160	0.561
0.267	0.617	1.4	0.615	16	0.601	180	0.554
0.283	0.622	1.6	0.615	18	0.601	200	0.55
0.300	0.619	1.8	0.608	20	0.601	220	0.545
0.317	0.619	2.0	0.613	22	0.601	240	0.538
0.333	0.619	2.2	0.615	24	0.596	260	0.538
0.350	0.619	2.4	0.608	26	0.601	280	0.533
0.367	0.617	2.6	0.608	28	0.596	300	0.526
0.383	0.615	2.8	0.608	30	0.596	320	0.526
0.400	0.617	3.0	0.608	32	0.596	340	0.519
0.417	0.619	3.2	0.608	34	0.596	360	0.517
0.433	0.617	3.4	0.61	36	0.594	380	0.512
0.450	0.619	3.6	0.608	38	0.594	400	0.51
0.467	0.615	3.8	0.608	40	0.592	420	0.505
0.483	0.617	4.0	0.606	42	0.592	440	0.503
0.500	0.617	4.2	0.608	44	0.592	460	0.499
0.517	0.619	4.4	0.606	46	0.589	480	0.496
0.533	0.617	4.6	0.608	48	0.587	500	0.492
0.550	0.617	4.8	0.606	50	0.592	520	0.487
0.567	0.615	5.0	0.608	52	0.589	540	0.487
0.583	0.617	5.2	0.606	54	0.589	560	0.482
0.600	0.617	5.4	0.608	56	0.589	580	0.478
0.617	0.615	5.6	0.608	58	0.587	600	0.48
0.633	0.617	5.8	0.606	60	0.587	620	0.473
0.650	0.617	6.0	0.606	62	0.585	640	0.468
0.667	0.615	6.2	0.606	64	0.587	660	0.464
0.683	0.617	6.4	0.608	66	0.585	680	0.464
0.700	0.615	6.6	0.606	68	0.582	700	0.459
0.717	0.615	6.8	0.606	70	0.582	720	0.457
0.733	0.617	7.0	0.606	72	0.582	740	0.454
0.750	0.615	7.2	0.606	74	0.582	760	0.45

TABLE A.15 (Cont.)

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In
780	0.45						
800	0.445						
820	0.44						
840	0.44						
860	0.436						
880	0.433						
900	0.431						
920	0.429						
940	0.426						
960	0.424						
980	0.422						
1000	0.419						
1180	0.401						
1360	0.382						
1540	0.361						
1720	0.347						
1900	0.335						
2080	0.319						
2260	0.307						
2440	0.294						
2620	0.284						
2800	0.27						
2980	0.259						
3160	0.247						
3340	0.238						
3520	0.228						
3700	0.217						
3880	0.21						
4060	0.2						
4240	0.186						
4420	0.172						
4600	0.161						
4780	0.149						
4960	0.137						
5140	0.123						
5320	0.112						
5500	0.098						
5680	0.084						
5860	0.072						
6040	0.063						
6220	0.051						
6400	0.04						
6580	0.028						
6760	0.019						
6940	0.002						



Observed slug test water level response and interpretive straight-line fit to the measured data for MW21, Test 1, slug in.

FIGURE A.15 Observed slug test water level response and interpretive fit to the data for MW21 (Table A.15).

Argonne National Laboratory

Well ID: MW28

Project: Hanover **Elevation:** 1323.39 ft **Log Date:** March 2, 2009

Geologist: Eugene Yan **Depth:** 29 ft **Rig:** Mini-sonic drilling rig

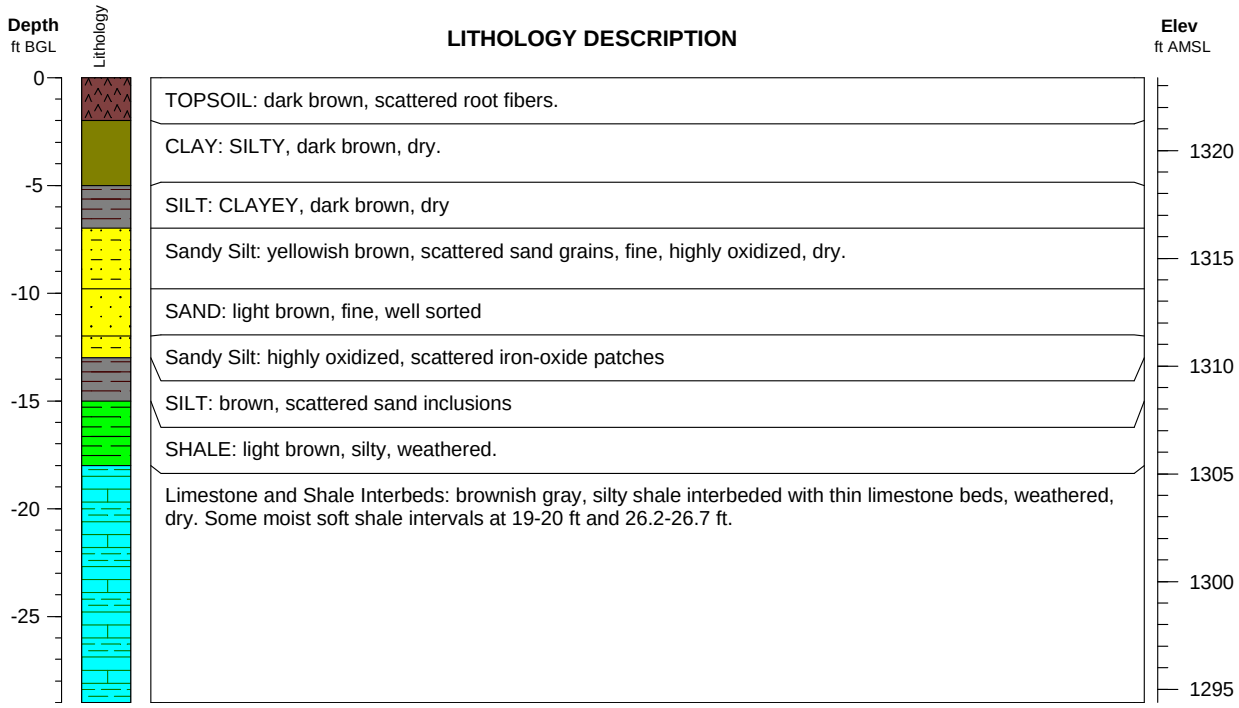
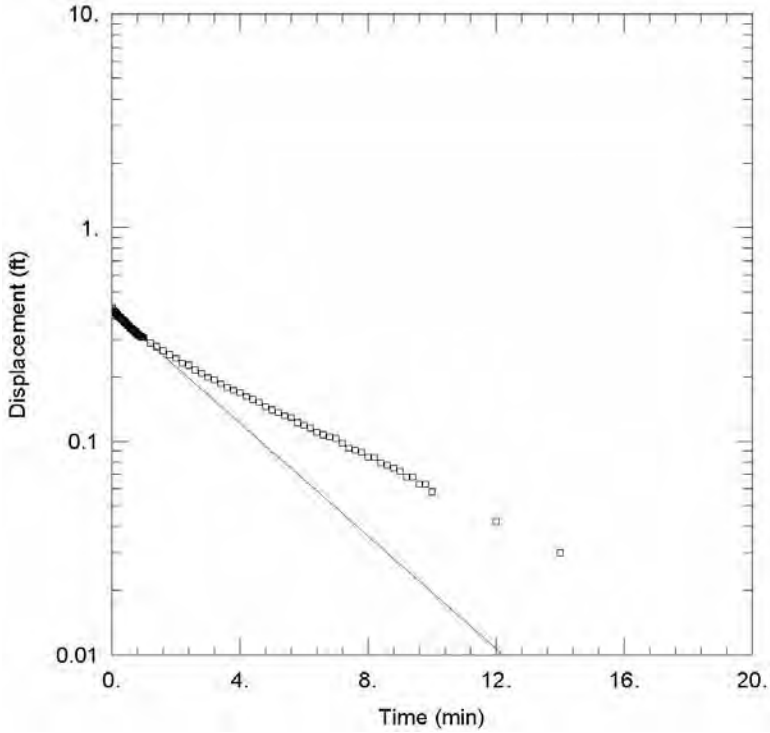


TABLE A.16 Slug test data for boring MW28 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

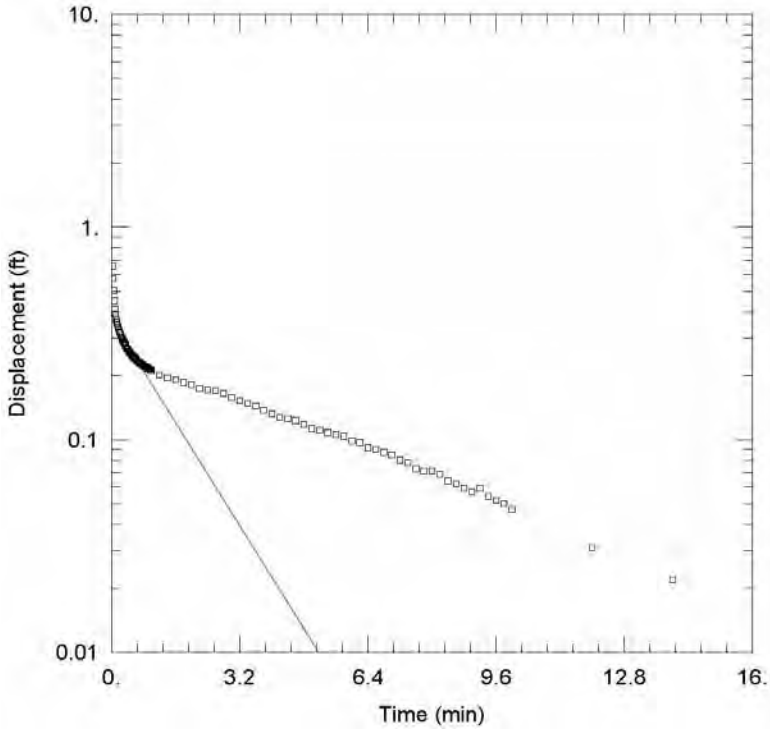
	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.000	0.422	0.702	0.38	0.695	0.767	0.321	0.226	0.286	0.254
0.017	0.422	0.655	0.389	0.634	0.783	0.319	0.223	0.286	0.252
0.033	0.413	0.573	0.41	0.557	0.800	0.319	0.221	0.284	0.252
0.050	0.389	0.505	0.373	0.5	0.817	0.316	0.221	0.281	0.249
0.067	0.408	0.449	0.37	0.456	0.833	0.316	0.221	0.279	0.249
0.083	0.406	0.411	0.366	0.428	0.850	0.312	0.219	0.279	0.247
0.100	0.403	0.39	0.366	0.4	0.867	0.312	0.219	0.277	0.247
0.117	0.401	0.374	0.361	0.385	0.883	0.312	0.219	0.277	0.247
0.133	0.399	0.357	0.359	0.374	0.900	0.312	0.216	0.274	0.245
0.150	0.394	0.348	0.356	0.362	0.917	0.309	0.216	0.272	0.242
0.167	0.392	0.339	0.352	0.353	0.933	0.307	0.216	0.272	0.242
0.183	0.389	0.329	0.352	0.346	0.950	0.305	0.214	0.272	0.242
0.200	0.387	0.322	0.349	0.339	0.967	0.305	0.214	0.27	0.24
0.217	0.384	0.317	0.345	0.331	0.983	0.305	0.212	0.27	0.24
0.233	0.382	0.31	0.345	0.327	1.0	0.305	0.212	0.267	0.24
0.250	0.382	0.303	0.342	0.322	1.2	0.288	0.202	0.255	0.231
0.267	0.38	0.299	0.342	0.317	1.4	0.277	0.195	0.241	0.221
0.283	0.377	0.294	0.338	0.313	1.6	0.265	0.191	0.232	0.214
0.300	0.375	0.289	0.335	0.308	1.8	0.255	0.186	0.22	0.205
0.317	0.373	0.287	0.333	0.306	2.0	0.244	0.181	0.213	0.198
0.333	0.37	0.282	0.333	0.301	2.2	0.232	0.174	0.204	0.193
0.350	0.37	0.277	0.331	0.296	2.4	0.227	0.172	0.197	0.191
0.367	0.366	0.275	0.328	0.294	2.6	0.215	0.17	0.187	0.186
0.383	0.363	0.27	0.326	0.292	2.8	0.208	0.165	0.183	0.181
0.400	0.363	0.268	0.326	0.289	3.0	0.199	0.158	0.176	0.177
0.417	0.361	0.266	0.323	0.287	3.2	0.194	0.153	0.166	0.174
0.433	0.359	0.261	0.321	0.285	3.4	0.185	0.148	0.161	0.17
0.450	0.356	0.259	0.319	0.282	3.6	0.178	0.144	0.157	0.165
0.467	0.354	0.256	0.316	0.28	3.8	0.173	0.137	0.152	0.158
0.483	0.352	0.254	0.314	0.277	4.0	0.169	0.132	0.147	0.153
0.500	0.349	0.252	0.314	0.275	4.2	0.161	0.127	0.14	0.148
0.517	0.347	0.249	0.312	0.275	4.4	0.157	0.125	0.136	0.144
0.533	0.347	0.247	0.312	0.273	4.6	0.152	0.123	0.131	0.139
0.550	0.345	0.247	0.307	0.27	4.8	0.145	0.118	0.126	0.134
0.567	0.342	0.245	0.305	0.268	5.0	0.14	0.113	0.122	0.13
0.583	0.34	0.24	0.302	0.268	5.2	0.136	0.111	0.119	0.127
0.600	0.338	0.24	0.302	0.268	5.4	0.131	0.108	0.115	0.123
0.617	0.338	0.238	0.298	0.266	5.6	0.129	0.106	0.11	0.118
0.633	0.335	0.238	0.298	0.266	5.8	0.122	0.104	0.107	0.113
0.650	0.335	0.233	0.298	0.263	6.0	0.119	0.099	0.105	0.111
0.667	0.333	0.233	0.298	0.261	6.2	0.115	0.097	0.1	0.108
0.683	0.331	0.233	0.295	0.261	6.4	0.11	0.092	0.096	0.106
0.700	0.328	0.231	0.295	0.259	6.6	0.107	0.09	0.093	0.101
0.717	0.326	0.228	0.293	0.259	6.8	0.105	0.087	0.089	0.099
0.733	0.326	0.228	0.293	0.256	7.0	0.103	0.085	0.086	0.097
0.750	0.323	0.226	0.288	0.254	7.2	0.098	0.08	0.084	0.092

TABLE A.16 (Cont.)

	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
7.4	0.093	0.078	0.079	0.09					
7.6	0.091	0.073	0.077	0.087					
7.8	0.089	0.071	0.077	0.085					
8.0	0.084	0.071	0.072	0.08					
8.2	0.084	0.069	0.07	0.078					
8.4	0.079	0.064	0.068	0.076					
8.6	0.077	0.062	0.065	0.071					
8.8	0.075	0.059	0.063	0.069					
9.0	0.072	0.057	0.063	0.066					
9.2	0.068	0.059	0.058	0.066					
9.4	0.068	0.054	0.058	0.062					
9.6	0.063	0.052	0.056	0.062					
9.8	0.063	0.05	0.054	0.057					
10	0.058	0.047	0.051	0.054					
12	0.042	0.031	0.035	0.038					
14	0.03	0.022	0.028	0.024					

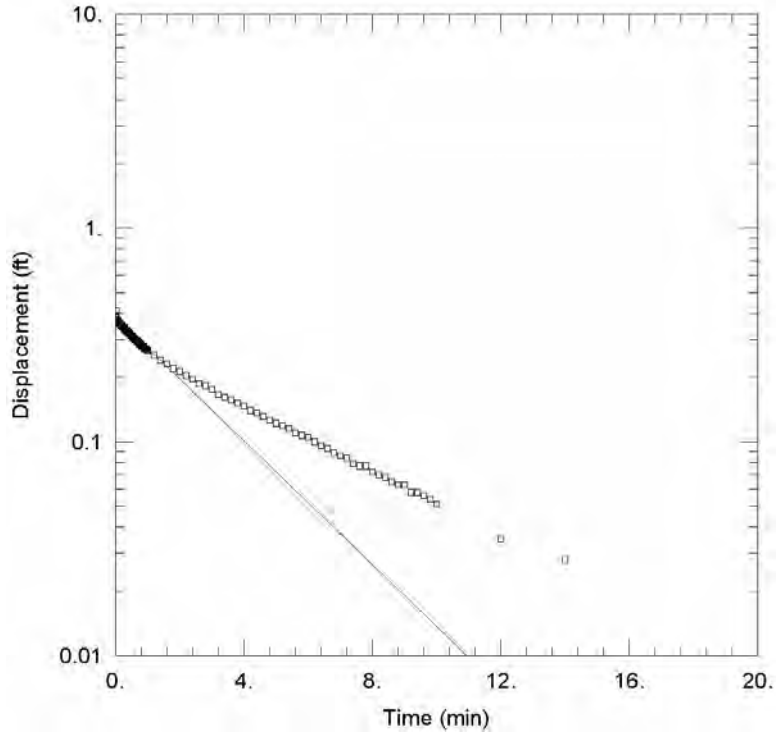


Observed slug test water level response and interpretive straight-line fit to the measured data for MW28, Test 1, slug in.

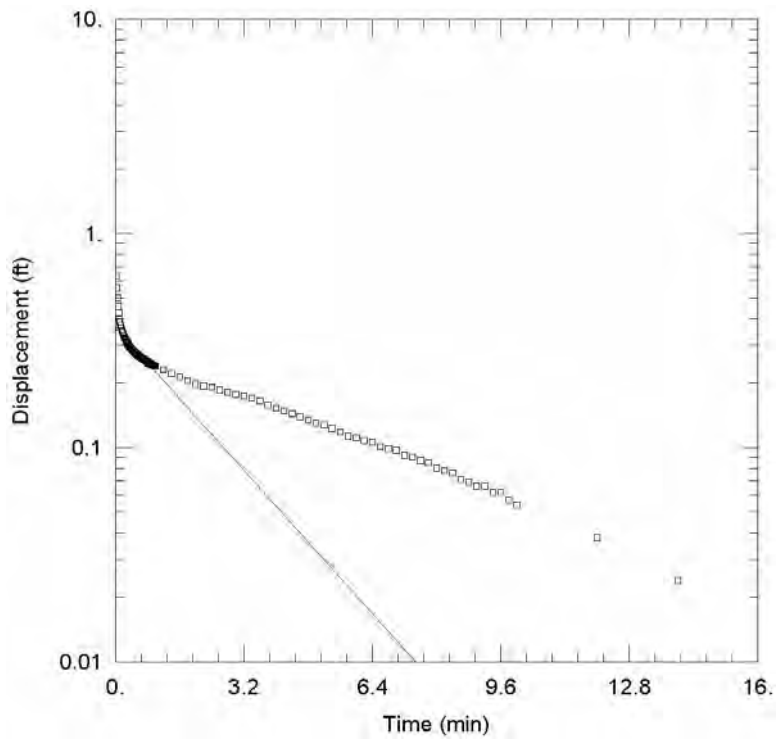


Observed slug test water level response and interpretive straight-line fit to the measured data for MW28, Test 2, slug out.

FIGURE A.16 Observed slug test water level response and interpretive fit to the data for MW28 (Table A.16).



Observed slug test water level response and interpretive straight-line fit to the measured data for MW28, Test 3, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW28, Test 4, slug out.

FIGURE A.16 (Cont.)

Argonne National Laboratory

Well ID: MW29

Project: Hanover **Elevation:** 1324.02 ft **Log Date:** March 2, 2009

Geologist: Eugene Yan **Depth:** 33 ft **Rig:** Mini-sonic drilling rig

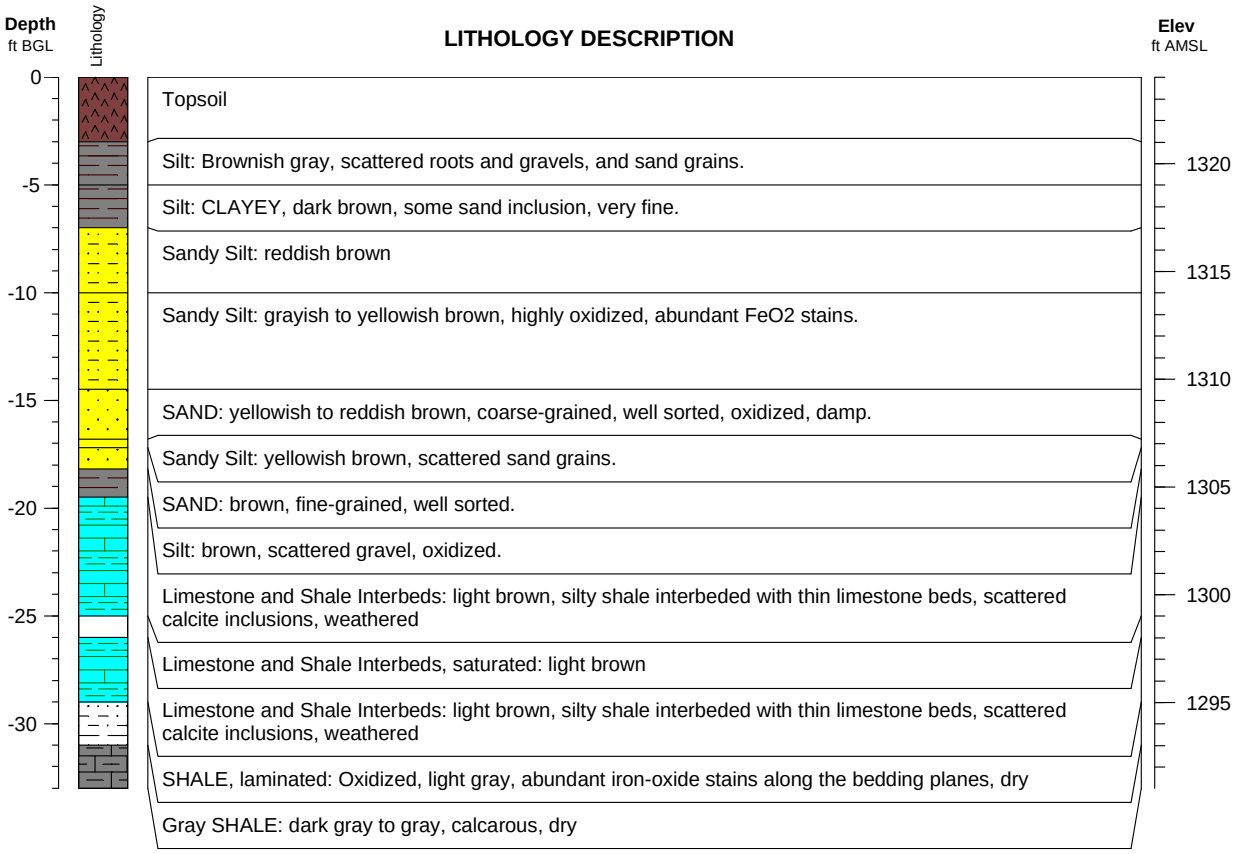
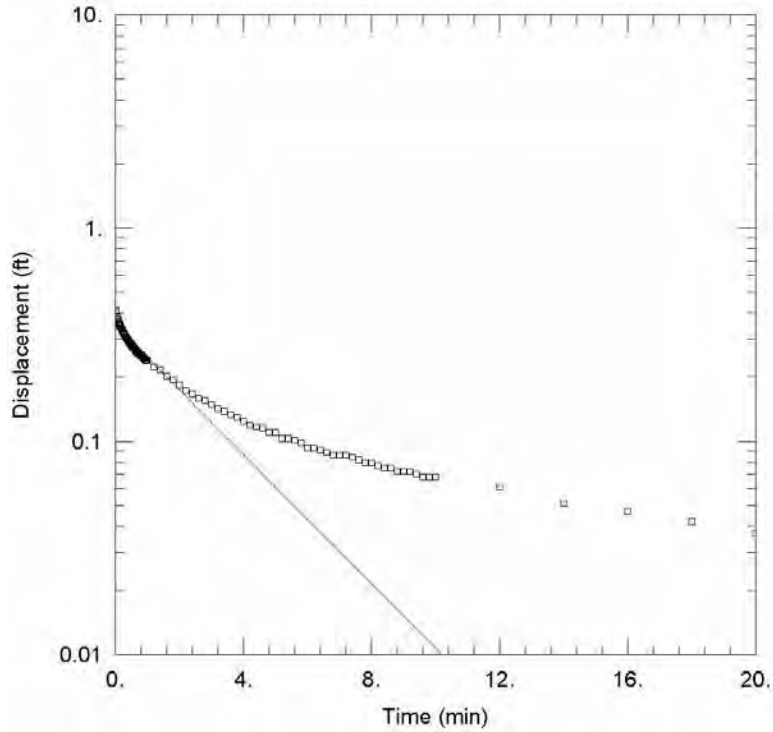


TABLE A.17 Slug test data for boring MW29 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

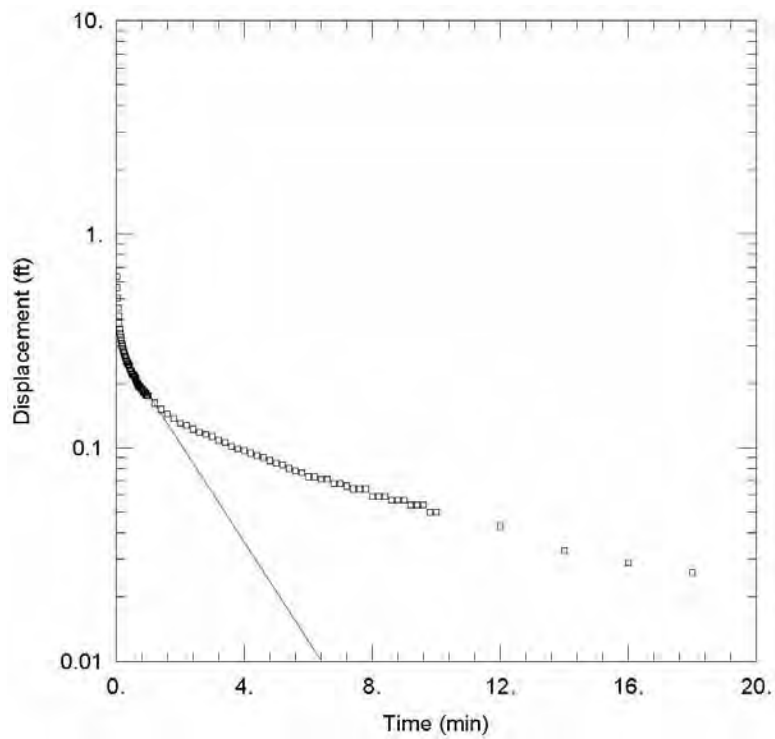
	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.000	0.471	0.674	0.427	0.684	0.767	0.256	0.191	0.223	0.205
0.017	0.41	0.632	0.366	0.639	0.783	0.253	0.188	0.223	0.202
0.033	0.406	0.561	0.368	0.573	0.800	0.253	0.188	0.22	0.2
0.050	0.387	0.503	0.352	0.512	0.817	0.253	0.188	0.218	0.2
0.067	0.375	0.451	0.34	0.463	0.833	0.251	0.186	0.218	0.198
0.083	0.373	0.414	0.331	0.425	0.850	0.248	0.183	0.218	0.198
0.100	0.366	0.383	0.326	0.395	0.867	0.248	0.183	0.216	0.195
0.117	0.359	0.36	0.321	0.376	0.883	0.246	0.183	0.216	0.193
0.133	0.354	0.343	0.314	0.357	0.900	0.244	0.181	0.213	0.193
0.150	0.349	0.329	0.309	0.343	0.917	0.244	0.181	0.213	0.191
0.167	0.345	0.317	0.305	0.331	0.933	0.241	0.179	0.211	0.188
0.183	0.34	0.308	0.3	0.32	0.950	0.241	0.176	0.211	0.188
0.200	0.335	0.299	0.295	0.31	0.967	0.239	0.176	0.209	0.186
0.217	0.331	0.291	0.291	0.303	0.983	0.239	0.176	0.206	0.186
0.233	0.328	0.284	0.288	0.296	1.0	0.239	0.174	0.206	0.183
0.250	0.324	0.277	0.286	0.292	1.2	0.223	0.162	0.192	0.172
0.267	0.321	0.273	0.281	0.284	1.4	0.216	0.151	0.18	0.16
0.283	0.317	0.268	0.279	0.28	1.6	0.202	0.144	0.169	0.151
0.300	0.314	0.263	0.277	0.275	1.8	0.194	0.137	0.159	0.144
0.317	0.31	0.259	0.272	0.27	2.0	0.183	0.13	0.152	0.137
0.333	0.307	0.254	0.27	0.268	2.2	0.173	0.127	0.145	0.132
0.350	0.305	0.252	0.267	0.263	2.4	0.166	0.122	0.136	0.127
0.367	0.302	0.247	0.265	0.259	2.6	0.159	0.118	0.131	0.122
0.383	0.3	0.245	0.263	0.256	2.8	0.155	0.115	0.126	0.12
0.400	0.298	0.242	0.26	0.254	3.0	0.148	0.113	0.122	0.115
0.417	0.293	0.24	0.258	0.252	3.2	0.143	0.108	0.117	0.113
0.433	0.291	0.235	0.255	0.247	3.4	0.138	0.106	0.112	0.111
0.450	0.288	0.23	0.253	0.242	3.6	0.133	0.101	0.108	0.108
0.467	0.286	0.228	0.251	0.242	3.8	0.129	0.099	0.103	0.106
0.483	0.286	0.226	0.248	0.237	4.0	0.124	0.097	0.101	0.101
0.500	0.284	0.223	0.246	0.237	4.2	0.119	0.094	0.098	0.099
0.517	0.281	0.221	0.244	0.235	4.4	0.117	0.092	0.096	0.094
0.533	0.279	0.219	0.241	0.233	4.6	0.115	0.09	0.093	0.094
0.550	0.277	0.219	0.241	0.23	4.8	0.11	0.087	0.089	0.092
0.567	0.274	0.216	0.239	0.228	5.0	0.11	0.085	0.089	0.087
0.583	0.274	0.214	0.237	0.226	5.2	0.103	0.083	0.084	0.085
0.600	0.272	0.212	0.237	0.223	5.4	0.103	0.08	0.084	0.085
0.617	0.27	0.209	0.234	0.221	5.6	0.101	0.078	0.082	0.083
0.633	0.267	0.205	0.232	0.219	5.8	0.098	0.076	0.079	0.08
0.650	0.265	0.202	0.232	0.216	6.0	0.093	0.073	0.079	0.078
0.667	0.265	0.2	0.23	0.214	6.2	0.093	0.073	0.077	0.076
0.683	0.263	0.198	0.23	0.214	6.4	0.091	0.071	0.075	0.073
0.700	0.26	0.195	0.227	0.212	6.6	0.089	0.071	0.072	0.073
0.717	0.26	0.195	0.225	0.209	6.8	0.086	0.068	0.072	0.071
0.733	0.258	0.193	0.225	0.209	7.0	0.086	0.068	0.07	0.071
0.750	0.256	0.193	0.225	0.207	7.2	0.086	0.066	0.068	0.069

TABLE A.17 (Cont.)

	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
7.4	0.084	0.064	0.065	0.066					
7.6	0.082	0.064	0.065	0.066					
7.8	0.079	0.064	0.063	0.064					
8.0	0.079	0.059	0.063	0.064					
8.2	0.077	0.059	0.063	0.061					
8.4	0.075	0.059	0.061	0.059					
8.6	0.075	0.057	0.061	0.061					
8.8	0.072	0.057	0.058	0.059					
9.0	0.072	0.057	0.058	0.059					
9.2	0.072	0.054	0.056	0.057					
9.4	0.07	0.054	0.056	0.054					
9.6	0.068	0.054	0.054	0.052					
9.8	0.068	0.05	0.054	0.054					
10	0.068	0.05	0.054	0.052					
12	0.061	0.043	0.047	0.045					
14	0.051	0.033	0.042	0.038					
16	0.047	0.029	0.037	0.031					
18	0.042	0.026	0.032	0.026					
20	0.037			0.024					
22	0.032								

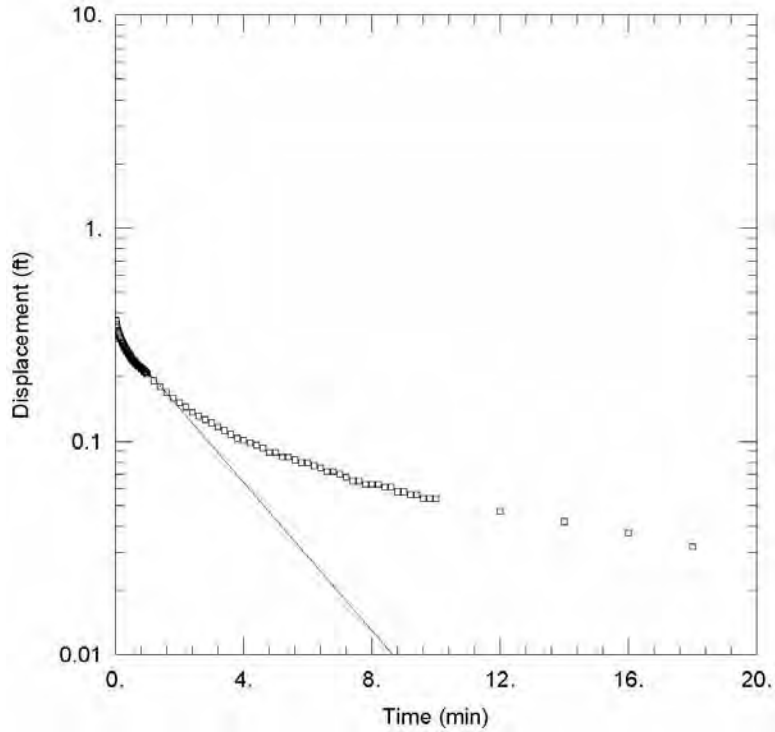


Observed slug test water level response and interpretive straight-line fit to the measured data for MW29, Test 1, slug in.

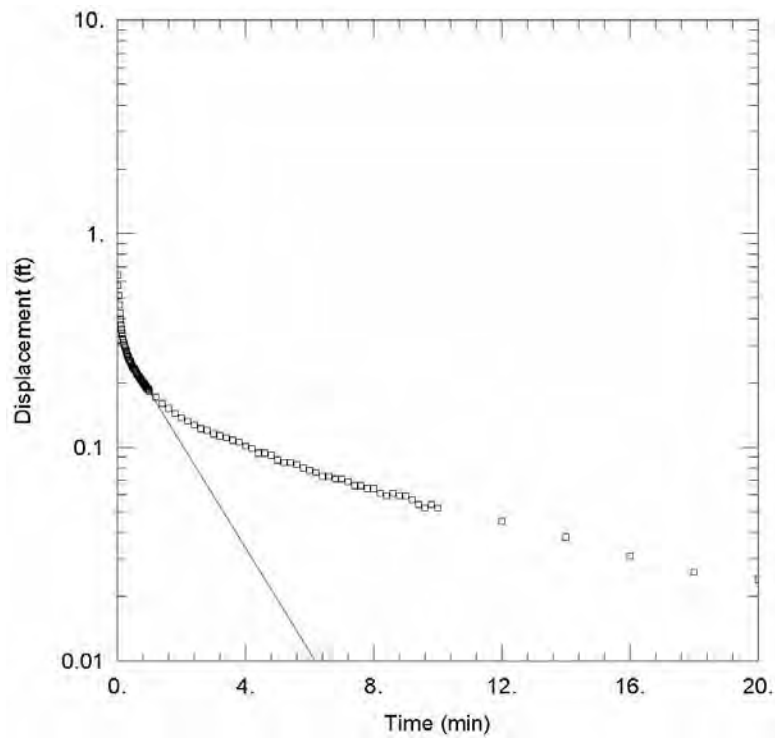


Observed slug test water level response and interpretive straight-line fit to the measured data for MW29, Test 2, slug out.

FIGURE A.17 Observed slug test water level response and interpretive fit to the data for MW29 (Table A.17).



Observed slug test water level response and interpretive straight-line fit to the measured data for MW29, Test 3, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW29, Test 4, slug out.

FIGURE A.17 (Cont.)

Argonne National Laboratory

Well ID: MW34

Project: Hanover **Elevation:** 1323.35 ft **Log Date:** March 3, 2009

Geologist: Eugene Yan **Depth:** 29 ft **Rig:** Mini-sonic drilling rig

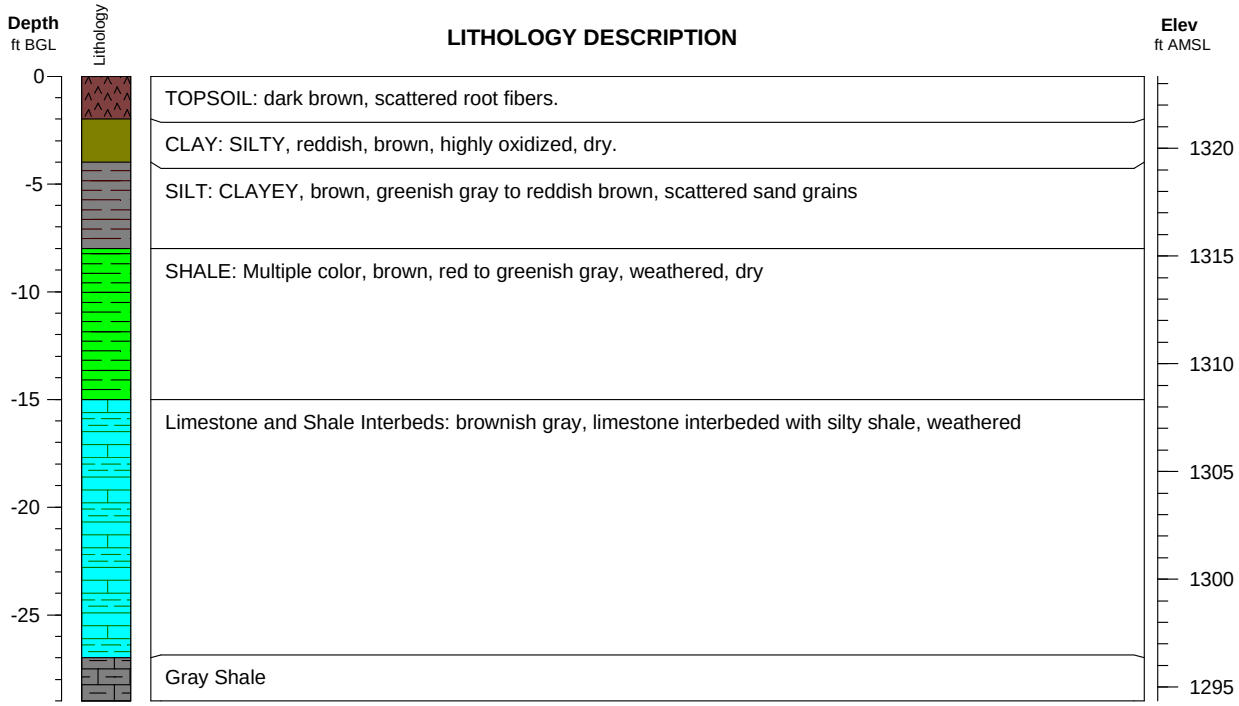


TABLE A.18 Slug test data for boring MW34 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

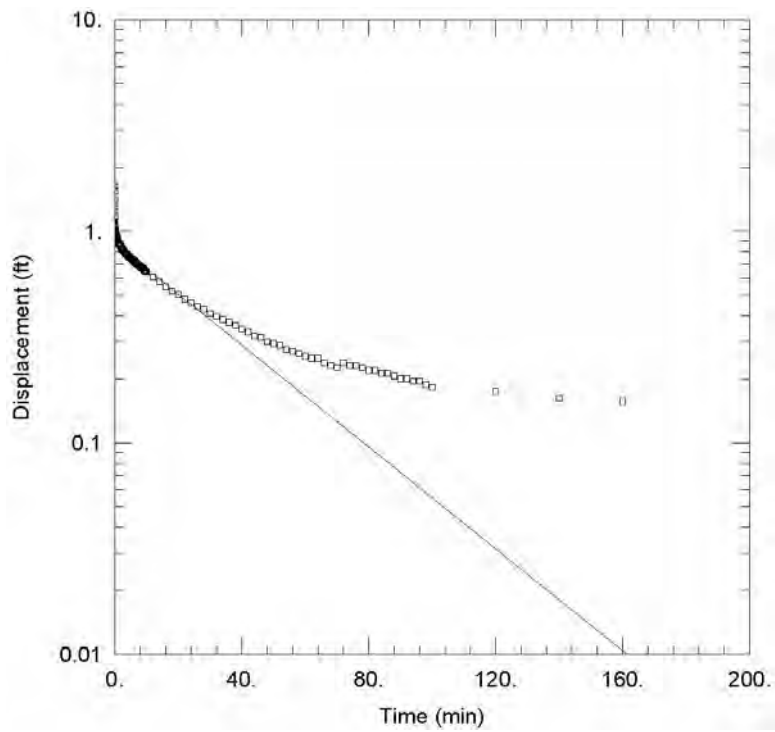
	Residual Drawdown (ft)				Residual Drawdown (ft)		
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In
0	0.32	0.981	1.1	0.1533	1.006	0.83	0.641
0.0033	0.899	2.095	2.415	0.1566	1.006	0.824	0.641
0.0066	1.314	1.302	1.723	0.16	1.006	0.817	0.641
0.01	0.975		1.553	0.1633	1.006	0.811	0.641
0.0133	1.094	1.824		0.1666	1	0.805	0.635
0.0166	1.654	1.101	0.169	0.17	1.006	0.799	0.629
0.02	1.541	1.321	1.327	0.1733	1	0.792	0.635
0.0233	1.61	1.214	1.157	0.1766	1	0.786	0.629
0.0266	1.258	1.233	0.452	0.18	0.994	0.78	0.629
0.03		1.195	0.773	0.1833	0.994	0.773	0.629
0.0333	1.415	1.195	0.994	0.1866	0.994	0.767	0.622
0.0366	1.277	1.176	0.635	0.19	0.994	0.767	0.622
0.04	0.88	1.163	0.792	0.1933	0.987	0.761	0.622
0.0433	1.157	1.157	0.792	0.1966	0.987	0.755	0.622
0.0466	1.107	1.138	0.723	0.2	0.987	0.748	0.616
0.05	1.038	1.126	0.742	0.2033	0.987	0.742	0.616
0.0533	1.088	1.113	0.798	0.2066	0.987	0.742	0.616
0.0566	1.088	1.101	0.616	0.21	0.981	0.736	0.616
0.06	1.05	1.094	0.786	0.2133	0.987	0.729	0.616
0.0633	1.063	1.082	0.71	0.2166	0.981	0.723	0.61
0.0666	1.063	1.069	0.761	0.22	0.981	0.723	0.61
0.07	1.056	1.056	0.874	0.2233	0.981	0.717	0.61
0.0733	1.056	1.044	0.452	0.2266	0.981	0.71	0.61
0.0766	1.056	1.038	0.679	0.23	0.981	0.71	0.61
0.08	1.056	1.025	0.805	0.2333	0.981	0.704	0.603
0.0833	1.082	1.056	0.572	0.2366	0.981	0.698	0.603
0.0866	1.025	0.994	0.767	0.24	0.981	0.698	0.603
0.09	1.056	1	0.635	0.2433	0.981	0.692	0.603
0.0933	1.044	0.981	0.679	0.2466	0.981	0.692	0.603
0.0966	1.038	0.981	0.673	0.25	0.981	0.685	0.603
0.1	1.044	0.962	0.66	0.2533	0.975	0.685	0.597
0.1033	1.038	0.956	0.666	0.2566	0.975	0.679	0.597
0.1066	1.038	0.95	0.666	0.26	0.975	0.679	0.591
0.11	1.038	0.937	0.654	0.2633	0.975	0.673	0.603
0.1133	1.038	0.931	0.66	0.2666	0.975	0.673	0.616
0.1166	1.038	0.918	0.654	0.27	0.975	0.666	0.578
0.12	1.069	0.912	0.654	0.2733	0.975	0.666	0.603
0.1233	1.012	0.905	0.654	0.2766	0.975	0.66	0.597
0.1266	1.038	0.893	0.654	0.28	0.975	0.66	0.591
0.13	1.025	0.887	0.647	0.2833	0.975	0.66	0.597
0.1333	1.019	0.88	0.647	0.2866	0.975	0.654	0.591
0.1366	1.025	0.868	0.647	0.29	0.975	0.654	0.591
0.14	1.012	0.861	0.641	0.2933	0.975	0.648	0.591
0.1433	1.019	0.855	0.641	0.2966	0.975	0.648	0.591
0.1466	1.012	0.849	0.641	0.3	0.968	0.648	0.591
0.15	1.012	0.843	0.641	0.3033	0.968	0.641	0.591

TABLE A.18 (Cont.)

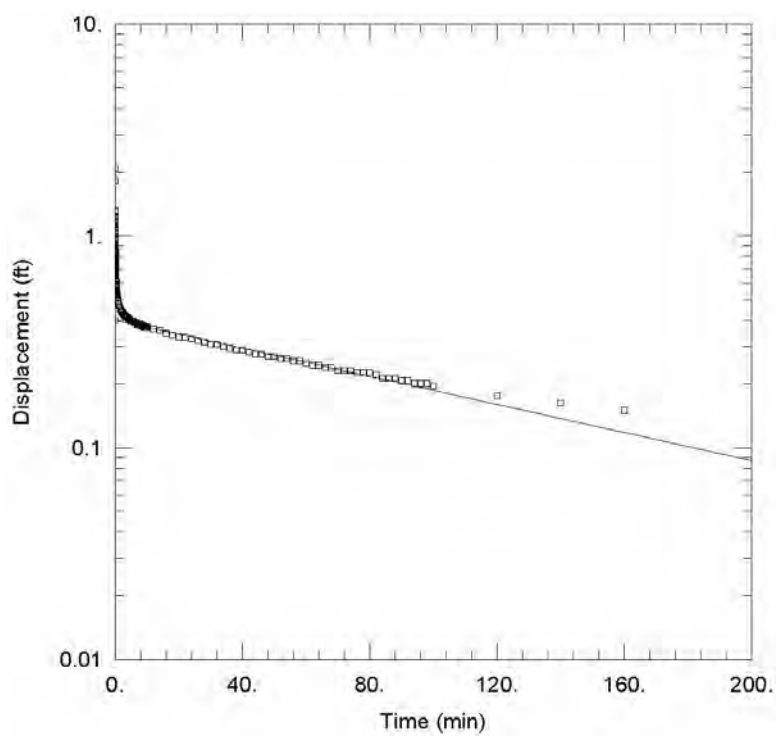
Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In
0.3066	0.968	0.641	0.591	0.9833	0.905	0.49	0.541
0.31	0.968	0.641	0.591	1.0	0.905	0.484	0.541
0.3133	0.968	0.635	0.591	1.2	0.887	0.471	0.522
0.3166	0.968	0.635	0.591	1.4	0.874	0.465	0.515
0.32	0.968	0.635	0.591	1.6	0.861	0.453	0.515
0.3233	0.968	0.629	0.591	1.8	0.849	0.446	0.509
0.3266	0.968	0.629	0.591	2.0	0.843	0.44	0.509
0.33	0.968	0.629	0.591	2.2	0.83	0.434	0.503
0.3333	0.968	0.622	0.585	2.4	0.824	0.434	0.496
0.35	0.968	0.616	0.585	2.6	0.817	0.427	0.496
0.3666	0.962	0.61	0.585	2.8	0.811	0.427	0.49
0.3833	0.962	0.604	0.585	3.0	0.805	0.421	0.49
0.4	0.962	0.591	0.585	3.2	0.792	0.421	0.484
0.4166	0.962	0.585	0.578	3.4	0.786	0.415	0.484
0.4333	0.956	0.578	0.578	3.6	0.78	0.415	0.478
0.45	0.956	0.572	0.578	3.8	0.78	0.415	0.471
0.4666	0.956	0.566	0.578	4.0	0.773	0.408	0.471
0.4833	0.956	0.566	0.572	4.2	0.767	0.408	0.471
0.5	0.949	0.559	0.572	4.4	0.761	0.402	0.465
0.5166	0.949	0.553	0.572	4.6	0.754	0.402	0.465
0.5333	0.949	0.553	0.572	4.8	0.748	0.402	0.465
0.55	0.943	0.547	0.566	5.0	0.748	0.396	0.459
0.5666	0.943	0.541	0.566	5.2	0.742	0.396	0.459
0.5833	0.943	0.541	0.566	5.4	0.736	0.396	0.452
0.6	0.943	0.534	0.566	5.6	0.729	0.396	0.452
0.6166	0.937	0.534	0.566	5.8	0.729	0.396	0.452
0.6333	0.937	0.528	0.566	6.0	0.723	0.39	0.452
0.65	0.937	0.528	0.559	6.2	0.723	0.39	0.446
0.6666	0.937	0.522	0.559	6.4	0.717	0.39	0.44
0.6833	0.931	0.522	0.559	6.6	0.71	0.39	0.44
0.7	0.931	0.522	0.559	6.8	0.704	0.39	0.434
0.7166	0.931	0.515	0.559	7.0	0.698	0.383	0.434
0.7333	0.924	0.515	0.559	7.2	0.698	0.383	0.427
0.75	0.924	0.509	0.559	7.4	0.692	0.383	0.427
0.7666	0.924	0.509	0.553	7.6	0.692	0.383	0.427
0.7833	0.924	0.509	0.553	7.8	0.685	0.383	0.427
0.8	0.918	0.509	0.553	8.0	0.679	0.383	0.421
0.8166	0.918	0.503	0.553	8.2	0.679	0.377	0.421
0.8333	0.918	0.503	0.553	8.4	0.673	0.377	0.415
0.85	0.918	0.503	0.553	8.6	0.673	0.377	0.415
0.8666	0.918	0.497	0.553	8.8	0.666	0.377	0.415
0.8833	0.912	0.497	0.547	9.0	0.666	0.371	0.408
0.9	0.912	0.497	0.547	9.2	0.66	0.371	0.408
0.9166	0.912	0.497	0.547	9.4	0.654	0.371	0.408
0.9333	0.912	0.49	0.547	9.6	0.647	0.371	0.408
0.95	0.905	0.49	0.547	9.8	0.647	0.371	0.402
0.9666	0.905	0.49	0.547	10	0.641	0.371	0.402

TABLE A.18 (Cont.)

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In
12	0.61	0.364	0.383	160	0.157	0.15	
14	0.578	0.358	0.371				
16	0.547	0.346	0.358				
18	0.522	0.339	0.345				
20	0.503	0.333	0.333				
22	0.478	0.333	0.32				
24	0.459	0.327	0.314				
26	0.44	0.32	0.308				
28	0.427	0.314	0.301				
30	0.408	0.308	0.289				
32	0.396	0.308	0.283				
34	0.383	0.301	0.283				
36	0.371	0.295	0.27				
38	0.358	0.289	0.264				
40	0.345	0.289	0.264				
42	0.333	0.283	0.257				
44	0.32	0.276	0.251				
46	0.314	0.276	0.251				
48	0.301	0.27	0.245				
50	0.295	0.27	0.239				
52	0.289	0.264	0.232				
54	0.276	0.264	0.232				
56	0.27	0.257	0.226				
58	0.264	0.257	0.226				
60	0.257	0.251	0.226				
62	0.251	0.245	0.22				
64	0.251	0.245	0.213				
66	0.239	0.239	0.207				
68	0.232	0.239	0.207				
70	0.226	0.232	0.207				
72	0.239	0.232	0.201				
74	0.232	0.232	0.201				
76	0.232	0.226	0.195				
78	0.226	0.226	0.195				
80	0.22	0.226	0.188				
82	0.22	0.22	0.188				
84	0.213	0.213	0.188				
86	0.213	0.213	0.182				
88	0.207	0.213	0.182				
90	0.201	0.207	0.182				
92	0.201	0.207	0.176				
94	0.195	0.201	0.176				
96	0.195	0.201	0.176				
98	0.188	0.201	0.176				
100	0.182	0.195	0.169				
120	0.176	0.176	0.157				
140	0.163	0.163	0.138				

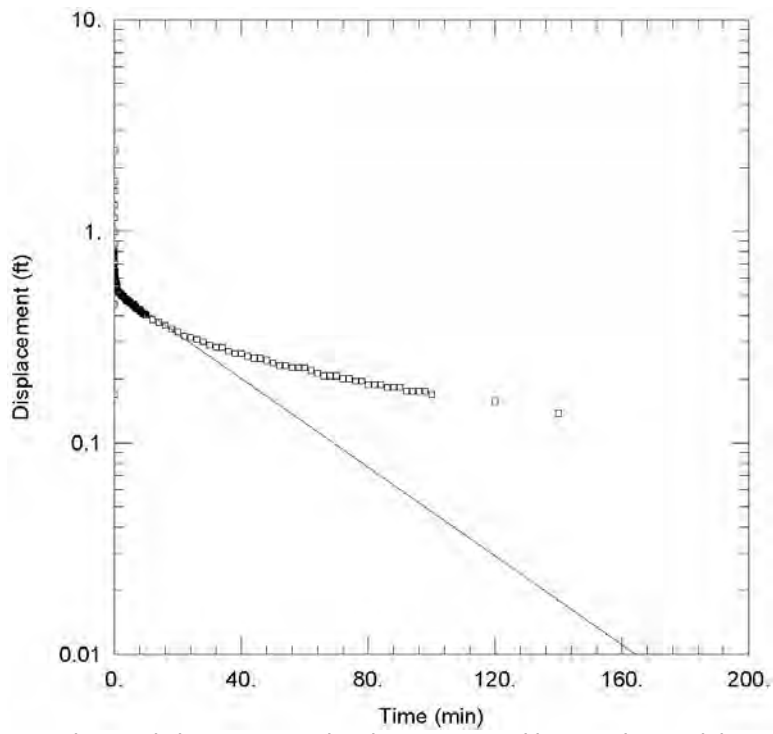


Observed slug test water level response and interpretive straight-line fit to the measured data for MW34, Test 1, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW34, Test 2, slug out.

FIGURE A.18 Observed slug test water level response and interpretive fit to the data for MW34 (Table A.18).



Observed slug test water level response and interpretive straight-line fit to the measured data for MW34, Test 3, slug in.

FIGURE A.18 (Cont.)

Argonne National Laboratory

Well ID: MW37

Project: Hanover **Elevation:** 1317.14 ft **Log Date:** March 4, 2009

Geologist: Eugene Yan **Depth:** 32 ft **Rig:** Mini-sonic drilling rig

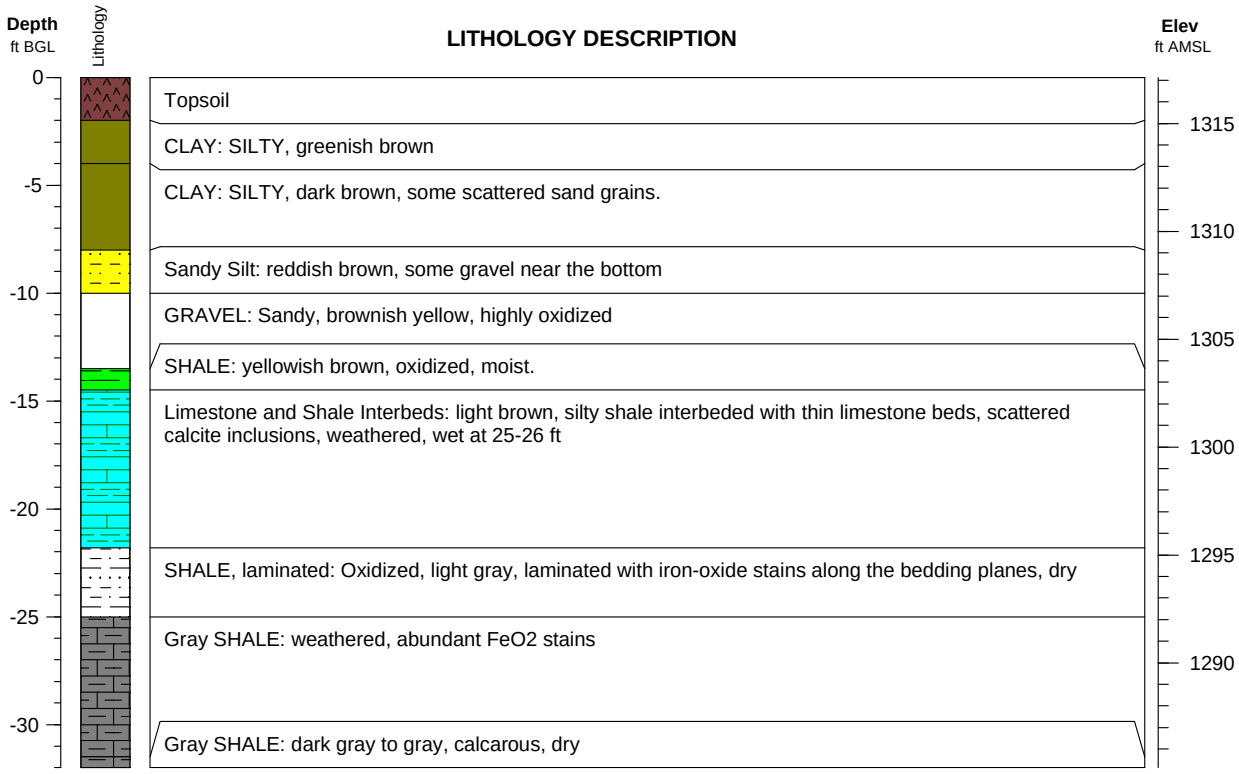
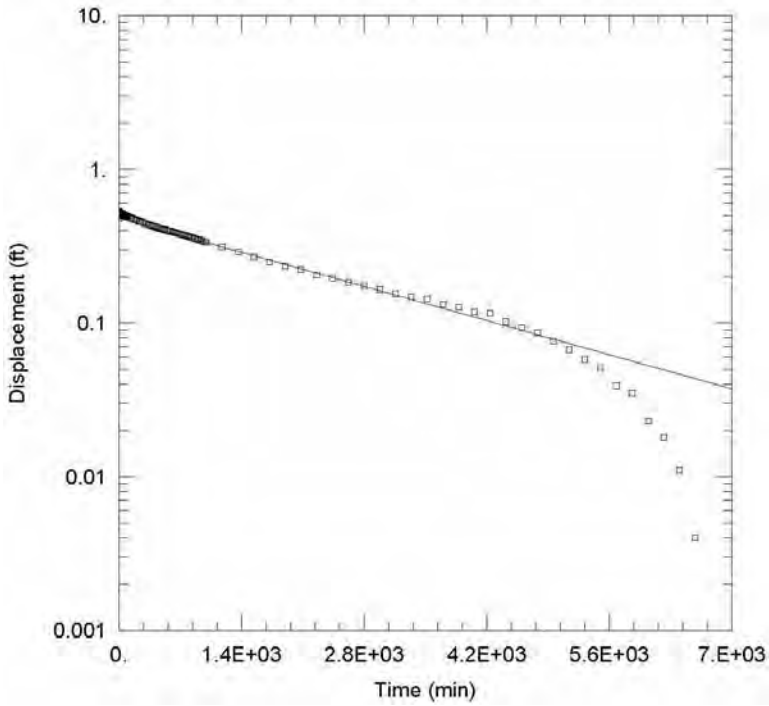


TABLE A.19 Slug test data for boring MW37 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In
0.000	0.573	0.767	0.531	7.4	0.524	76	0.499
0.017	0.536	0.783	0.534	7.6	0.524	78	0.499
0.033	0.517	0.800	0.531	7.8	0.527	80	0.496
0.050	0.517	0.817	0.534	8.0	0.524	82	0.496
0.067	0.52	0.833	0.531	8.2	0.524	84	0.496
0.083	0.522	0.850	0.531	8.4	0.524	86	0.494
0.100	0.522	0.867	0.534	8.6	0.524	88	0.494
0.117	0.524	0.883	0.531	8.8	0.524	90	0.494
0.133	0.527	0.900	0.531	9.0	0.524	92	0.494
0.150	0.527	0.917	0.531	9.2	0.524	94	0.494
0.167	0.527	0.933	0.531	9.4	0.524	96	0.494
0.183	0.529	0.950	0.531	9.6	0.524	98	0.492
0.200	0.529	0.967	0.531	9.8	0.522	100	0.492
0.217	0.529	0.983	0.531	10	0.522	120	0.49
0.233	0.529	1.0	0.531	12	0.522	140	0.483
0.250	0.529	1.2	0.531	14	0.522	160	0.478
0.267	0.529	1.4	0.531	16	0.522	180	0.473
0.283	0.531	1.6	0.531	18	0.52	200	0.469
0.300	0.531	1.8	0.531	20	0.52	220	0.464
0.317	0.531	2.0	0.529	22	0.517	240	0.459
0.333	0.531	2.2	0.529	24	0.517	260	0.455
0.350	0.531	2.4	0.529	26	0.517	280	0.45
0.367	0.517	2.6	0.531	28	0.515	300	0.443
0.383	0.529	2.8	0.529	30	0.515	320	0.443
0.400	0.531	3.0	0.529	32	0.513	340	0.436
0.417	0.531	3.2	0.529	34	0.513	360	0.434
0.433	0.534	3.4	0.529	36	0.513	380	0.429
0.450	0.534	3.6	0.527	38	0.51	400	0.427
0.467	0.531	3.8	0.529	40	0.51	420	0.422
0.483	0.531	4.0	0.529	42	0.513	440	0.418
0.500	0.531	4.2	0.527	44	0.508	460	0.413
0.517	0.531	4.4	0.527	46	0.508	480	0.411
0.533	0.534	4.6	0.527	48	0.508	500	0.408
0.550	0.531	4.8	0.527	50	0.508	520	0.406
0.567	0.531	5.0	0.527	52	0.506	540	0.401
0.583	0.531	5.2	0.527	54	0.506	560	0.399
0.600	0.531	5.4	0.527	56	0.506	580	0.397
0.617	0.531	5.6	0.527	58	0.506	600	0.394
0.633	0.531	5.8	0.527	60	0.506	620	0.392
0.650	0.531	6.0	0.527	62	0.503	640	0.387
0.667	0.534	6.2	0.527	64	0.503	660	0.387
0.683	0.534	6.4	0.527	66	0.501	680	0.383
0.700	0.531	6.6	0.527	68	0.501	700	0.38
0.717	0.531	6.8	0.524	70	0.501	720	0.376
0.733	0.534	7.0	0.524	72	0.499	740	0.373
0.750	0.534	7.2	0.524	74	0.501	760	0.371

TABLE A.19 (Cont.)

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In
780	0.369						
800	0.364						
820	0.362						
840	0.36						
860	0.355						
880	0.353						
900	0.35						
920	0.348						
940	0.346						
960	0.339						
980	0.336						
1000	0.336						
1180	0.313						
1360	0.29						
1540	0.269						
1720	0.25						
1900	0.234						
2080	0.223						
2260	0.206						
2440	0.195						
2620	0.183						
2800	0.174						
2980	0.165						
3160	0.155						
3340	0.148						
3520	0.144						
3700	0.132						
3880	0.127						
4060	0.118						
4240	0.116						
4420	0.102						
4600	0.093						
4780	0.086						
4960	0.076						
5140	0.067						
5320	0.058						
5500	0.051						
5680	0.039						
5860	0.035						
6040	0.023						
6220	0.018						
6400	0.011						
6580	0.004						



Observed slug test water level response and interpretive straight-line fit to the measured data for MW37, Test 1, slug in.

FIGURE A.19 Observed slug test water level response and interpretive fit to the data for MW37 (Table A.19).

Argonne National Laboratory

Well ID: MW38

Project: Hanover **Elevation:** 1322.23 ft **Log Date:** March 4, 2009

Geologist: Eugene Yan **Depth:** 35 ft **Rig:** Mini-sonic drilling rig

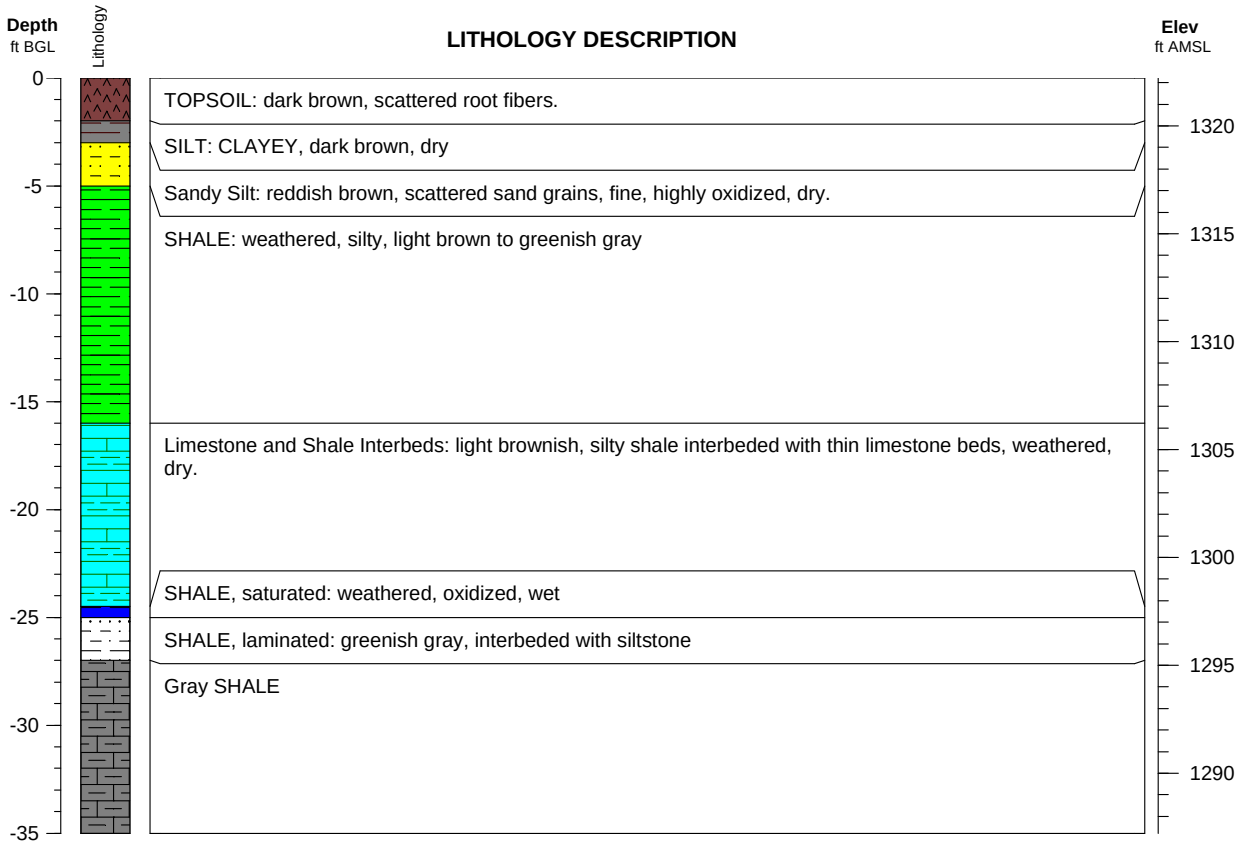
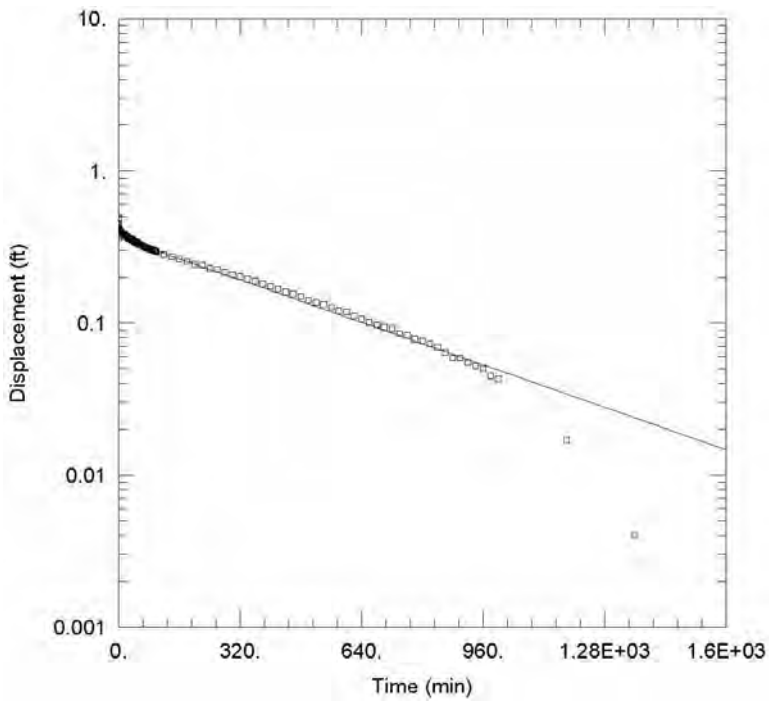


TABLE A.20 Slug test data for boring MW38 (effective saturated thickness = 2 ft; effective length of well = 2 ft; effective screen length = 2 ft; casing radius = 0.08333 ft; borehole radius = 0.1667; Kz/Kr = 1).

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In
0.000	0.427	0.767	0.406	7.4	0.392	76	0.311
0.017	0.483	0.783	0.409	7.6	0.392	78	0.309
0.033	0.493	0.800	0.409	7.8	0.392	80	0.309
0.050	0.446	0.817	0.406	8.0	0.39	82	0.306
0.067	0.434	0.833	0.404	8.2	0.39	84	0.304
0.083	0.425	0.850	0.409	8.4	0.39	86	0.306
0.100	0.418	0.867	0.406	8.6	0.39	88	0.302
0.117	0.418	0.883	0.406	8.8	0.39	90	0.302
0.133	0.418	0.900	0.406	9.0	0.39	92	0.302
0.150	0.418	0.917	0.406	9.2	0.388	94	0.299
0.167	0.416	0.933	0.409	9.4	0.388	96	0.297
0.183	0.416	0.950	0.406	9.6	0.388	98	0.297
0.200	0.416	0.967	0.406	9.8	0.388	100	0.295
0.217	0.416	0.983	0.406	10	0.388	120	0.283
0.233	0.413	1.0	0.406	12	0.385	140	0.274
0.250	0.413	1.2	0.406	14	0.383	160	0.264
0.267	0.413	1.4	0.406	16	0.378	180	0.255
0.283	0.409	1.6	0.404	18	0.376	200	0.243
0.300	0.413	1.8	0.404	20	0.372	220	0.239
0.317	0.413	2.0	0.404	22	0.372	240	0.229
0.333	0.413	2.2	0.404	24	0.367	260	0.225
0.350	0.411	2.4	0.404	26	0.365	280	0.215
0.367	0.411	2.6	0.402	28	0.36	300	0.208
0.383	0.411	2.8	0.404	30	0.358	320	0.202
0.400	0.411	3.0	0.402	32	0.358	340	0.194
0.417	0.411	3.2	0.402	34	0.355	360	0.188
0.433	0.411	3.4	0.399	36	0.351	380	0.181
0.450	0.406	3.6	0.402	38	0.351	400	0.174
0.467	0.409	3.8	0.399	40	0.346	420	0.167
0.483	0.409	4.0	0.399	42	0.344	440	0.16
0.500	0.411	4.2	0.399	44	0.341	460	0.155
0.517	0.411	4.4	0.399	46	0.339	480	0.15
0.533	0.409	4.6	0.399	48	0.337	500	0.141
0.550	0.409	4.8	0.395	50	0.337	520	0.136
0.567	0.409	5.0	0.395	52	0.332	540	0.132
0.583	0.409	5.2	0.395	54	0.332	560	0.127
0.600	0.409	5.4	0.399	56	0.327	580	0.12
0.617	0.409	5.6	0.395	58	0.325	600	0.118
0.633	0.406	5.8	0.395	60	0.325	620	0.111
0.650	0.409	6.0	0.397	62	0.325	640	0.106
0.667	0.409	6.2	0.395	64	0.32	660	0.101
0.683	0.409	6.4	0.395	66	0.32	680	0.097
0.700	0.409	6.6	0.392	68	0.318	700	0.094
0.717	0.411	6.8	0.392	70	0.316	720	0.092
0.733	0.406	7.0	0.395	72	0.313	740	0.085
0.750	0.406	7.2	0.392	74	0.311	760	0.083

TABLE A.20 (Cont.)

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In
780	0.078						
800	0.076						
820	0.073						
840	0.069						
860	0.064						
880	0.059						
900	0.059						
920	0.055						
940	0.052						
960	0.05						
980	0.045						
1000	0.043						
1180	0.017						
1360	0.004						



Observed slug test water level response and interpretive straight-line fit to the measured data for MW38, Test 1, slug in.

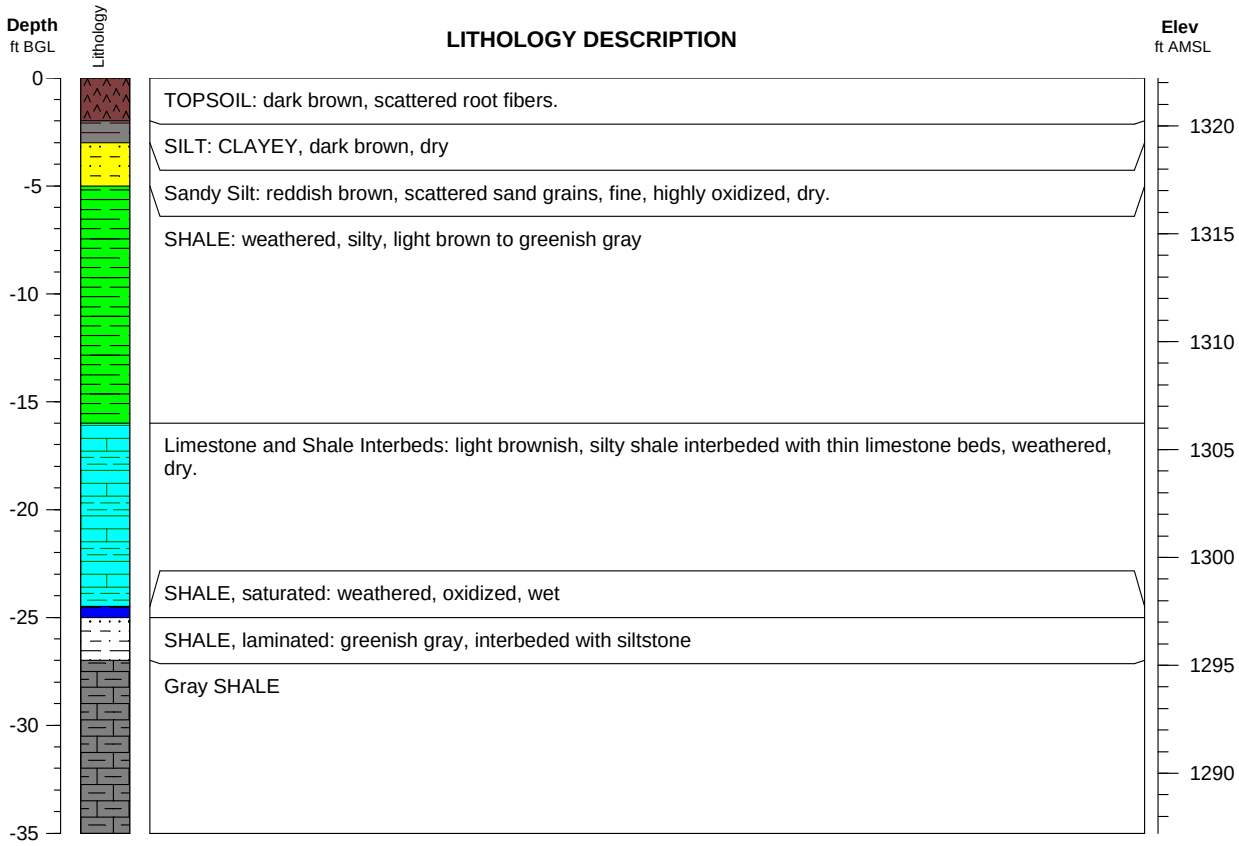
FIGURE A.20 Observed slug test water level response and interpretive fit to the data for MW38 (Table A.20).

Argonne National Laboratory

Well ID: MW38

Project: Hanover **Elevation:** 1322.23 ft **Log Date:** March 4, 2009

Geologist: Eugene Yan **Depth:** 35 ft **Rig:** Mini-sonic drilling rig



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Supplement 5:

Slug Testing of Zone 2 Monitoring Wells at Hanover, Kansas, in January 2010

Argonne NATIONAL LABORATORY

ANL/EVS/AGEM/CHRON-1358

Slug Testing of Zone 2 Monitoring Wells at Hanover, Kansas, in January 2010

Environmental Science Division

USDA United States Department of Agriculture

Work sponsored by Commodity Credit Corporation,
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Slug Testing of Zone 2 Monitoring Wells at Hanover, Kansas, in January 2010

by
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Notation

AMSL	above mean sea level
BGL	below ground level
CCC	Commodity Credit Corporation
ft	foot (feet)
hr	hour(s)
in.	inch(es)
KDHE	Kansas Department of Health and Environment
K_h	horizontal hydraulic conductivity
μg/L	microgram(s) per liter
min	minute(s)
PVC	polyvinyl chloride
sec	second(s)
TOC	top of casing
USDA	U.S. Department of Agriculture
VOC	volatile organic compound

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1 Background

On behalf of the Commodity Credit Corporation of the U.S. Department of Agriculture (CCC/USDA), Argonne National Laboratory has been conducting site characterization and vapor intrusion studies at Hanover, as specified in independent work plans (Argonne 2008a,b) approved by the Kansas Department of Health and Environment (KDHE 2008a,b). On the basis of information obtained from these studies, groundwater Zone 1 and Zone 2 have been identified as critical water-bearing units with the potential to provide migration pathways for carbon tetrachloride contamination in groundwater and for upward vapor intrusion.

During sampling and well purging, groundwater Zone 1 displayed slow recharge rates, particularly along its western erosional limit, implying poor transmissivity at many locations. Further hydrologic characterization of the Zone 1 interval was therefore considered necessary to identify the critical factors that govern groundwater flow and contaminant migration in this unit. Consequently, Addendum 1 and Addendum 3 were issued and incorporated into the site investigation *Final Work Plan* (Argonne 2008a). These addenda outline a program of single-well-response ("slug") testing, step-drawdown pump testing, and constant-rate pump testing at selected monitoring wells to determine the hydraulic properties of the Zone 1 water-bearing unit. The addenda were approved by the KDHE (2009a-d). The results of the Zone 1 hydraulic studies were reported separately (Argonne 2009, 2010).

At the request of the CCC/USDA and the KDHE, Addendum 2 to the *Final Work Plan* was similarly issued to address further characterization of the deeper groundwater-bearing units in the bedrock at Hanover (Zones 2-4). To supplement data already obtained for the deeper groundwater intervals at locations MW44 and MW45, Addendum 2 recommended the following investigative activities at four locations (MW48-MW51; Figure 1).

1. Sediment coring for hydrostratigraphic analysis.

2. Groundwater sampling for analysis for volatile organic compounds (VOCs).

3. Installation of monitoring wells to determine groundwater levels and flow directions and to facilitate further sampling.

4. Slug testing to determine the hydraulic properties of groundwater-bearing Zone 2.

With the approval of the KDHE (2009b,c), Argonne implemented elements 1-3 in September-October 2009. The results of these studies are reported separately.

In accord with Addendum 2 to the *Final Work Plan* (Argonne 2008a), Argonne attempted slug testing of the Zone 2 monitoring wells (MW44Z2, MW45Z2, MW48Z2, MW49Z2, MW50Z2, and MW51Z2; Figure 1) on November 10-11, 2009. In keeping with the slug testing previously conducted in selected Zone 1 monitoring wells at Hanover (Argonne 2009), the initial Zone 2 tests were performed by using a self-contained downhole pressure sensor and data logger to record the water level responses in each well. The preliminary data revealed, however, that the maximum rate of data acquisition attainable by the downhole instrument (one reading per second) was insufficient to capture the detailed slug test responses in several of the targeted wells. To address this concern, slug testing of the six Zone 2 monitoring wells was subsequently conducted on January 26-27, 2010, by using a downhole pressure transducer linked to an aboveground data logging unit capable of faster data acquisition. The purpose of this document is to report the results of the January 2010 tests.

2 Hydrogeology of Groundwater Zone 2

The results of the ongoing investigations at Hanover indicate that the geologic sequence at the former CCC/USDA facility includes a Permian Chase Group bedrock unit with an unconformably overlying unit of clay, silt, and silty sand of Pleistocene age. Groundwater Zone 1 is the uppermost local water-bearing zone in the bedrock. Groundwater Zone 2 is hosted mainly by a gray limy shale. The Zone 2 unit underlies a red shale unit (approximately 25 ft thick) and overlies an upper gypsum deposit and a gray shale unit (also approximately 25 ft thick). Within the Zone 2 unit, three thin, saturated intervals were identified as forming a water-bearing zone that provided immediate water during coring at most of the locations investigated. Groundwater Zone 2 is located vertically at an elevation of 1,240-1,250 ft AMSL (above mean sea level), as identified in the preliminary investigation. A total thickness of 10 ft is postulated

for the stratigraphic interval incorporating Zone 2, although the actual combined thickness of the multiple thin, saturated intervals observed in Zone 2 is on the order of 3.5 ft.

Groundwater Zone 2 was initially identified by coring at locations MW44 and MW45, west of the former CCC/USDA facility. Comparison of logging records for private wells suggests that Zone 2 extends through the area surrounding the former CCC/USDA facility. Evidence of the unit was found at five Bill's Service monitoring wells ("BSMW" wells) to the east and at four private wells to the south and southeast (Figure 1). No immediate water recovery or evidence of saturation was identified, however, during coring at one deep well (MW03) on the former CCC/USDA facility. This well should have encountered water-bearing Zone 2. On the basis of local topography, groundwater Zone 2 is projected to be eroded farther to the east, south, and west, where the ground surface elevation is near 1,250 ft AMSL. Measured elevations indicate that groundwater Zone 2 is completely eroded near West Railroad Street (Figure 1).

Water level measurements indicate westward groundwater flow in Zone 2. This pattern is consistent with the identified distribution of carbon tetrachloride contamination in Zone 2. Carbon tetrachloride was detected in Zone 2 wells MW44Z2, MW45Z2, MW49Z2, and MW50Z2, at concentrations ranging from 9.7 μg/L to 35 μg/L (Figure 1).

3 Field Implementation of the Slug Testing Program

Slug testing was conducted in six Zone 2 monitoring wells: MW44Z2, MW45Z2, and MW48Z2-MW51Z2 (Figure 1). The testing was performed in accord with the investigative program proposed in Addendum 2 to the *Final Work Plan* (Argonne 2008a), by using the procedures for slug testing (previously identified for the investigation of groundwater Zone 1) defined in Addendum 1. As proposed, the specific field procedures employed for the testing at each targeted monitoring well were selected on the basis of the hydrologic and logistic conditions encountered when the well was tested. Well construction data, measured static groundwater levels, and the test procedures used for each well are summarized in Table 1. The slug tests in all wells were performed by quickly lowering or withdrawing a physical slug into the casing to perturb the static water column. For this purpose, the physical slugs used consisted of 5-ft long, 1.0-in.-diameter sealed, sand-filled PVC (polyvinyl chloride) pipes.

The Zone 2 monitoring wells slug tested at Hanover are all constructed with 2-in.-diameter screens and casing. Although some variability might exist, the nominal borehole diameter of each well tested is 6 in. On the basis of these dimensions, the volumetric parameters associated with the monitoring well construction and physical slugs are as follows:

Volumetric Parameter	Value
Storage volume of the 2-in. casing or screen	0.0218 ft^3/ft
Storage volume of the surrounding gravel pack	0.0524 ft^3/ft
Total volume displaced by the physical slug	0.0272 ft^3

As noted in Section 1, an initial attempt was made to record the slug test water level responses in each Zone 2 well by using a self-contained downhole pressure sensor and data logger (Instrumentation Northwest, Inc., Model PT2X). The preliminary data revealed, however, that the maximum rate of data acquisition attainable with this instrument (limited to one reading per second) was insufficient to capture the detailed slug test response in several of the targeted wells. The slug tests in the complete set of Zone 2 monitoring wells were therefore conducted on January 26-27, 2010, by using a downhole pressure transducer (In-Situ, Inc., Model PTX-161) linked to an aboveground data logging unit (In-Situ, Inc., Hermit 1000C) capable of obtaining water level measurements at an initial rate of five readings per second. For each well, four sets of slug test data were collected, representing two complete insertion-and-withdrawal cycles of the physical slug.

4 Analysis of the Slug Test Data

To generate estimates of hydraulic conductivity (K_h), the water level response data obtained from the slug tests were interpreted by using the analysis methods of Bouwer and Rice (Bouwer and Rice 1976; Bouwer 1989) and Hvorslev (1951), as implemented in the commercial well test analysis software package AqteSolv for Windows (HydroSolve, Inc.). Numerous alternative slug test analysis methods have been developed, each with advantages and disadvantages. The methods used for this study were selected in light of their relatively wide applicability, their level of documentation and general acceptance by the scientific community, and their ease of implementation to achieve the objective of estimating hydraulic parameters for the Zone 2 water-bearing interval.

The K_h values calculated for each well location by using either analysis method are dependent, in part, on the assumed thickness of the water-bearing interval that responds to the water level offset during a test, as well as on the construction features and the position of the static groundwater level within the well itself. At Hanover, the exact effective thickness of the water-bearing interval is difficult to define in many of the wells tested, because of the lithologic characteristics of the Zone 2 materials. On the basis of analyses of the Zone 2 lithologic logs discussed in Section 2 of this report, an average inferred thickness of 3.5 ft for the water-bearing interval, and hence a corresponding effective well screen height of 3.5 ft, was assumed for all slug test analyses. Use of this approach also assumes that the lithologic materials overlying and underlying Zone 2 (which, in many wells, are also penetrated by the actual well screen) contributed no groundwater flow to the well during the slug tests.

Table 1 indicates that when the slug tests were performed, the static groundwater levels at MW44Z2, MW45Z2, MW49Z2, and MW50Z2 fell within the respective screened or gravel pack intervals for these wells. Under this condition, the water level response observed during a slug test is influenced by water drainage from (or into) both the well casing and the surrounding (partially unsaturated) gravel pack. For the analyses of the results for these wells, a correction was applied for water movement in the gravel pack under the assumption of 30% porosity for the pack materials. Because the exact vertical position of the Zone 2 materials contributing groundwater to the borehole cannot be identified for most of the wells tested, the effective water-bearing interval is assumed to have remained fully saturated, and hence “confined,” throughout the slug testing procedure in all of the wells tested.

The Bouwer and Rice (Bouwer and Rice 1976; Bouwer 1989) and Hvorslev (1951) methods have been adapted to the analysis of slug test data from a range of common aquifer scenarios and well construction geometries. In each case, however, the implementation of these methods for each test data set requires the fitting of a straight line to a semi-logarithmic plot of residual head versus elapsed time. The identification of a straight-line trend yields an estimate of hydraulic conductivity, under the assumption that the unit being tested is effectively homogeneous and isotropic. For more complex aquifer and well construction conditions, however, slug testing may result in multiple apparent straight-line segments within a single data set, or no clear straight-line trend throughout the observed slug test response curve. Under these conditions, the estimation of hydraulic conductivity from slug test data with these (or other) interpretive methods becomes more problematic.

Complete data (time versus residual drawdown) for the slug tests and the input parameters employed for the data analyses are in Tables A.1-A.6 in Appendix A. Representative (manual) curve fits for the test data are included, as appropriate, in Figures A.1, A.2, A.5, and A.6 in Appendix A.

Figures A.1-A.6 demonstrate that the slug testing of Zone 2 at Hanover frequently yielded data sets that did not display single, well-defined straight-line trends. Although the observed slug test responses for each of the Zone 2 wells are unique, several factors common to all or most of these wells influence the interpretation of the individual test results, as follows:

- In many of the wells, highly erratic water levels were recorded during the first few seconds (or less) of each test. This was particularly true for tests in which the slug was inserted to initiate the test. These early responses (in some cases both positive and negative relative to the initial water level offset in the well) are likely a result of splash and/or transient pressure surges and reflections associated with the physical movement of the solid slug as it enters (for a "slug-in" test) or leaves (for a "slug-out" test) the water column in the well. The observed variations generally appear more erratic, and of longer duration, for slug-in tests, as groundwater is forced to rise rapidly in the well and escape through the well screen and the gravel pack. In contrast, the effects associated with slug-out tests appear more subdued, as groundwater drains back into the void created in the well casing (or screen) as the slug is removed.

- Table 1 indicates that when the slug tests were performed, the static groundwater levels at MW44Z2, MW45Z2, MW49Z2, and MW50Z2 fell within the respective screened or gravel pack intervals for these wells. Under this condition, a slug test response curve displaying two straight-line segments might appear. During a slug-in test, water can initially drain from the well screen/casing into the surrounding (partially unsaturated) gravel pack. (For a slug-out test, the initial drainage would be from the gravel pack into the screen.) This can result in an artificially "steep" early response trend in the slug test data set, associated with the hydraulic conductivity of the gravel pack materials. Once the water level in the gravel pack equilibrates with the water level in the screen, a second response trend may appear that is more representative of the hydraulic conductivity of the groundwater-bearing unit

(Fetter 1994). As Section 3 indicates, the volume of the gravel pack surrounding each Zone 2 well is quite large (0.0524 ft^3/ft) in comparison to the total volume of water that can be displaced by the solid slug (0.0272 ft^3). Consequently, the relative water level change associated with equilibration of the gravel pack can represent a significant fraction of the total head change depicted in the slug test response curve.

- As noted in Section 2, the Zone 2 water-bearing unit consists of multiple saturated intervals, which together have a thickness of approximately 3.5 ft. The relative contributions of these intervals to the groundwater movement at each monitoring well location cannot be determined individually. We postulate, however, that heterogeneity among the saturated horizons might influence the temporal water level response observed in each of the monitoring wells tested.

In light of these observations, the rationale employed to interpret the slug test responses for each of the Zone 2 monitoring wells are summarized below.

4.1 Well MW44Z2 Test

Table 1 indicates that the static groundwater level in well MW44Z2 at the time of testing fell above the top of the well screen, but within the gravel pack. For this well, Table A.1 and Figure A.1 in Appendix A document erratic water level fluctuations during the first 6-7 sec of each slug-in test, as well as during the first 1-2 sec of each slug-out test. The maximum (positive) displacements during both slug-in and slug-out tests were on the order of 1.2-1.5 ft; this observation is consistent with the volumetric parameters in Section 3, suggesting that the initial water level offset during each test occurred primarily within the well screen and casing, with possible subsequent equilibration within the surrounding gravel pack and natural formation.

In the response curve for Test 1 (slug-in; Figure A.1), an apparent straight-line segment is observed during the recovery period from 0.5 ft to 0.1 ft of displacement. The volumetric parameter data in Section 3 suggest that a maximum water level offset of approximately 0.4 ft can be expected, upon insertion or removal of the solid slug, if equilibration of the water levels in the well screen and surrounding gravel pack has been achieved. The apparent straight-line

segment identified in the Test 1 data set is therefore consistent with groundwater drainage from both the well screen and the gravel pack into the natural formation adjacent to the well.

The response curves for Tests 2-4 (Figure A.1) show a similar, steep initial water level decline that is consistent with the interpretation of gravel pack equilibration outlined above; however, the development of a straight-line trend at smaller residual displacements (as noted for Test 1) is less clear. In keeping with the observations noted for Test 1, an interpretive straight line has been fitted to the portion of each curve reflecting recovery from approximately 0.5 ft to 0.1 ft of residual head.

4.2 Well MW45Z2 Test

Table 1 indicates that the static groundwater level in well MW45Z2 at the time of testing fell within both the well screen and the gravel pack. Erratic water level fluctuations were observed during the first 6-7 sec of each slug-in test, as well as during the first 1-2 sec of each slug-out test, for this well (Table A.2 and Figure A.2 in Appendix A). The maximum displacements during both slug-in and slug-out tests were on the order of 1.2-1.5 ft, suggesting that the initial water level offset during each test occurred primarily within the well screen and casing, with possible subsequent equilibration within the surrounding gravel pack and natural formation. The response curves for slug-out Tests 2 and 4 show an apparent straight-line trend in the early recovery data, which might reflect the hydraulic response of the gravel pack materials during this initial equilibration period.

The response curves for Tests 1-4 (Figure A.2), all show a well-defined straight-line segment during the recovery period from 0.5 ft to < 0.1 ft of displacement. The volumetric parameter data in Section 3 suggest that a maximum water level offset of approximately 0.4 ft can be expected, upon insertion or removal of the solid slug, if equilibration of the water levels in the well screen and surrounding gravel pack has been achieved. The apparent straight-line segments identified over the displacement range (0.5 ft to < 0.1 ft) are therefore consistent with groundwater drainage from both the well screen and the gravel pack into the natural formation adjacent to the well. An interpretive straight line was therefore fitted to this portion of each recovery curve, as best representing the potential water level response associated with the natural formation. Figure A.2 shows, however, that a more rapid recovery was consistently observed over this interval for slug-out Tests 2 and 4.

4.3 Well MW48Z2 Test

Table 1 indicates that the static groundwater level in well MW48Z2 at the time of testing fell above the top of the well screen but within the gravel pack. Table A.3 and Figure A.3 in Appendix A indicate that each slug test in this well resulted in very rapid recovery, with water levels returning completely to static conditions within 5-6 sec. As noted in the introductory discussion of Section 4, the water level response during the first few seconds of each slug test might be partially or completely masked by the mechanical disturbance caused by the insertion (or removal) of the solid slug. Except for Test 1 (slug-in), the results from each MW48Z2 test show a maximum displacement of only 0.6-0.7 ft, which further suggests (in contrast to the observations for wells MW44Z2 and MW45Z2) that the initial water level offset in this well effectively occurred simultaneously in the well screen and the gravel pack, as well as in the surrounding formation. The recovery curves for the well MW48Z2 tests also display a possibly underdamped, oscillatory response, with the observed heads temporarily dropping below the original static water level before returning to static conditions.

The rapid decline and possibly underdamped response observed in the well MW48Z2 recovery curves are slug test characteristics that are often associated with highly permeable hydrologic systems (Van der Kamp 1976). The features of these curves make them unsuitable for interpretation with the Bouwer and Rice or Hvorslev methods. Alternative methods have been developed for the analysis of oscillatory slug test responses (Van der Kamp 1976; Butler 1998; Butler and Zhan 2004); attempts to employ these methods for the MW48Z2 data sets resulted in extremely poor fits to the theoretical interpretive curves, however, and geologically unrealistic (> 1,000 ft/day) hydraulic conductivity estimates in the context of the identified Zone 2 lithologic setting. On the basis of these findings, no reasonable estimates of the hydraulic conductivity of Zone 2 could be obtained from the MW48Z2 slug test data.

4.4 Well MW49Z2 Test

Table 1 indicates that the static groundwater level in well MW49Z2 at the time of testing fell within both the well screen and the gravel pack. Table A.4 and Figure A.4 in Appendix A indicate that the slug test responses observed in this well were also highly anomalous. For slug-in Tests 1 and 3, erratic but generally decreasing water levels were recorded during the first 7-12 sec of each test, followed by almost no further recovery during the remainder of the

observation period (to 10 min elapsed time). In Tests 2 and 4 (slug-out) an initial, fairly well-defined straight-line segment was developed in the recovery curves over the first 8-12 sec of each test, but little further recovery was again apparent over the remainder of the observation period.

The maximum initial displacements during the slug-in and slug-out tests were on the order of 1.2-1.5 ft; this observation is consistent with the volumetric parameters in Section 3, suggesting that the initial water level offset during each test occurred primarily within the well screen and casing. The recovery curves for slug-out Tests 2 and 4 show a break in slope, away from the initial straight-line trend, at residual displacement levels of about 0.4 ft. The volumetric parameter data in Section 3 suggest that an offset of approximately 0.4 ft can be expected, upon removal of the solid slug, if equilibration of the water levels in the well screen and surrounding gravel pack has been achieved. The apparent early straight-line segments identified in the Test 2 and Test 4 data sets are therefore consistent with initial groundwater drainage from the well screen into the surrounding gravel pack. Neither the slug-in nor slug-out tests, however, display a distinct (linear) recovery trend that appears representative of groundwater movement from the well screen and the gravel pack into the natural formation.

On the basis of these findings, no reasonable estimates of the hydraulic conductivity of Zone 2 could be obtained from the MW49Z2 slug test data.

4.5 Well MW50Z2 Test

Table 1 indicates that the static groundwater level in well MW50Z2 at the time of testing fell within both the well screen and the gravel pack. Table A.5 and Figure A.5 (Appendix A) show that erratic water level fluctuations were observed during the first 6-10 sec of each slug-in test, as well as during the first 1-2 sec of each slug-out test, for this well. The maximum displacements during both slug-in and slug-out tests were on the order of 1.2-1.3 ft, suggesting that the initial water level offset during each test occurred primarily within the well screen and the casing, with possible subsequent equilibration within the surrounding gravel pack and natural formation.

The response curves for slug-in Tests 1 and 3 (Figure A.5), display a straight-line segment during the recovery period from 0.4 ft to approximately 0.1 ft of displacement. The

volumetric parameter data in Section 3 suggest that a maximum water level offset of approximately 0.4 ft can be expected upon insertion of the solid slug, if equilibration of the water levels in the well screen and surrounding gravel pack has been achieved. The apparent straight-line segments identified in the Test 1 and 3 data sets are therefore consistent with groundwater drainage from both the well screen and the gravel pack into the natural formation adjacent to the well.

The response curves for Tests 2 and 4 (Figure A.5) show a steep initial water level decline that is consistent with the interpretation of gravel pack equilibration outlined above; however, the development of a straight-line trend at smaller residual displacements (as noted for Tests 1 and 3) is less clear. In keeping with the observations noted for Tests 1 and 3, an interpretive straight line has been fitted to the portion of each curve reflecting recovery from approximately 0.4 ft to 0.1 ft of residual head, as best representing the potential water level response associated with the natural formation.

4.6 Well MW51Z2 Test

Table 1 indicates that the static groundwater level in well MW51Z2 at the time of testing fell above the top of the well screen but was at or only slightly above the top of the gravel pack. Erratic water level fluctuations were observed (Table A.6 and Figure A.6 in Appendix A) during the first 6-10 sec of each slug-in test, as well as during the first 1-2 sec of each slug-out test, for this well. The maximum displacements during both slug-in and slug-out tests were on the order of 1.2-1.3 ft; this observation is consistent with the volumetric parameters in Section 3 and the well construction parameters in Table 1, demonstrating that the water level offset in this well occurred within the well casing above the screened interval.

The results for Tests 1-4 all show a single straight-line trend (Figure A.6) beginning at or near the maximum initial offset, as expected for the physical conditions of this well. However, the response curves for Tests 1-4 are anomalous in that they show a progressively greater approach toward recovery to static conditions with each successive slug test. Figure A.6 also demonstrates that a relatively faster rate of recovery occurred during the slug-out tests (Tests 2 and 4) than in slug-in Tests 1 and 3.

5 Results and Discussion

The hydraulic conductivity estimates derived from the January 2010 slug tests are summarized in Table 2. For each data set (Table 2), the estimated K_h values calculated with the Bouwer and Rice method are of the same magnitude as the values calculated for the same data set with the Hvorslev method, but roughly 25% lower.

The estimated hydraulic conductivities for the Zone 2 water-bearing unit at Hanover ranged over approximately one order of magnitude, from approximately 4 ft/day at MW51Z2 to approximately 60 ft/day at MW50Z2.

As noted in Sections 4.3 and 4.4, the slug test data recovered from monitoring wells MW48Z2 and MW49Z2 could not be analyzed to yield geologically meaningful estimates of the hydraulic conductivity of Zone 2 at these locations; however, the results obtained for MW48Z2 qualitatively suggest that the K_h value for Zone 2 at this location might be higher than the values observed for the other tested locations.

The estimated Zone 2 K_h values were generally comparable to the highest K_h values identified (on the basis of slug tests) in the Zone 1 water-bearing unit (Argonne 2009), suggesting that Zone 2 locally might have some capacity to provide groundwater to wells. These observations are qualitatively consistent with the results of Argonne's purging and sampling of the Zone 2 wells, as well as with the identification of several private wells completed in Zone 2, in conjunction with other deeper water-bearing intervals, at Hanover.

The results discussed in Sections 4.2, 4.4, and 4.5 suggest that the early water level recovery data for the slug-out tests conducted in wells MW45Z2, MW49Z2, and MW50Z2 might primarily reflect the hydraulic response of the gravel pack materials in these wells. To test this hypothesis, an interpretive straight line was fitted to the early response data for each of these data sets (Figures A.7-A.9). The K_h estimates obtained from these analyses (Table 3) range from 65 ft/day to 161 ft/day. These values fall within the range of hydraulic conductivities typically associated with clean sand (Anderson and Woessner 1992) and are therefore consistent with a response of the gravel pack material.

6 Recommendation

The results of slug tests performed in Zone 2 monitoring wells MW44Z2, MW45Z2, and MW48Z2-MW51Z2, although variable, suggest that this interval might possess a somewhat higher range of estimated hydraulic conductivities (from 4 ft/day to 60 ft/day) than the values observed in much of overlying water-bearing Zone 1. Analyses of lithologic logs and measured water levels for the tested wells also suggest that the Zone 2 unit is somewhat thicker than the Zone 1 unit, and that each Zone 2 well has a slightly greater available head than the wells in Zone 1. Finally, we note that the Zone 2 unit was screened during the construction of numerous private wells at Hanover.

Together, these observations qualitatively suggest the potential for better groundwater production from the Zone 2 water-bearing unit than has been identified by Argonne in Zone 1.

To generate data needed to evaluate aquifer performance, we are recommending a constant-rate pumping test of the Zone 2 water-bearing unit, to be performed by using the presently available network of monitoring wells.

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KDHE, 2009b, letter from E. Finzer (Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas) to C. Roe (Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C.), regarding Addendum 2 to *Final Work Plan*, August 18.

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KDHE, 2009d, letter from E. Finzer (Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas) to C. Roe (Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C.), regarding Addendum 3 to *Final Work Plan*, November 17.

Van der Kamp, G., 1976, "Determining Aquifer Transmissivity by Means of Well Response Tests: The Underdamped Case," *Water Resources Research* 12:71-77.

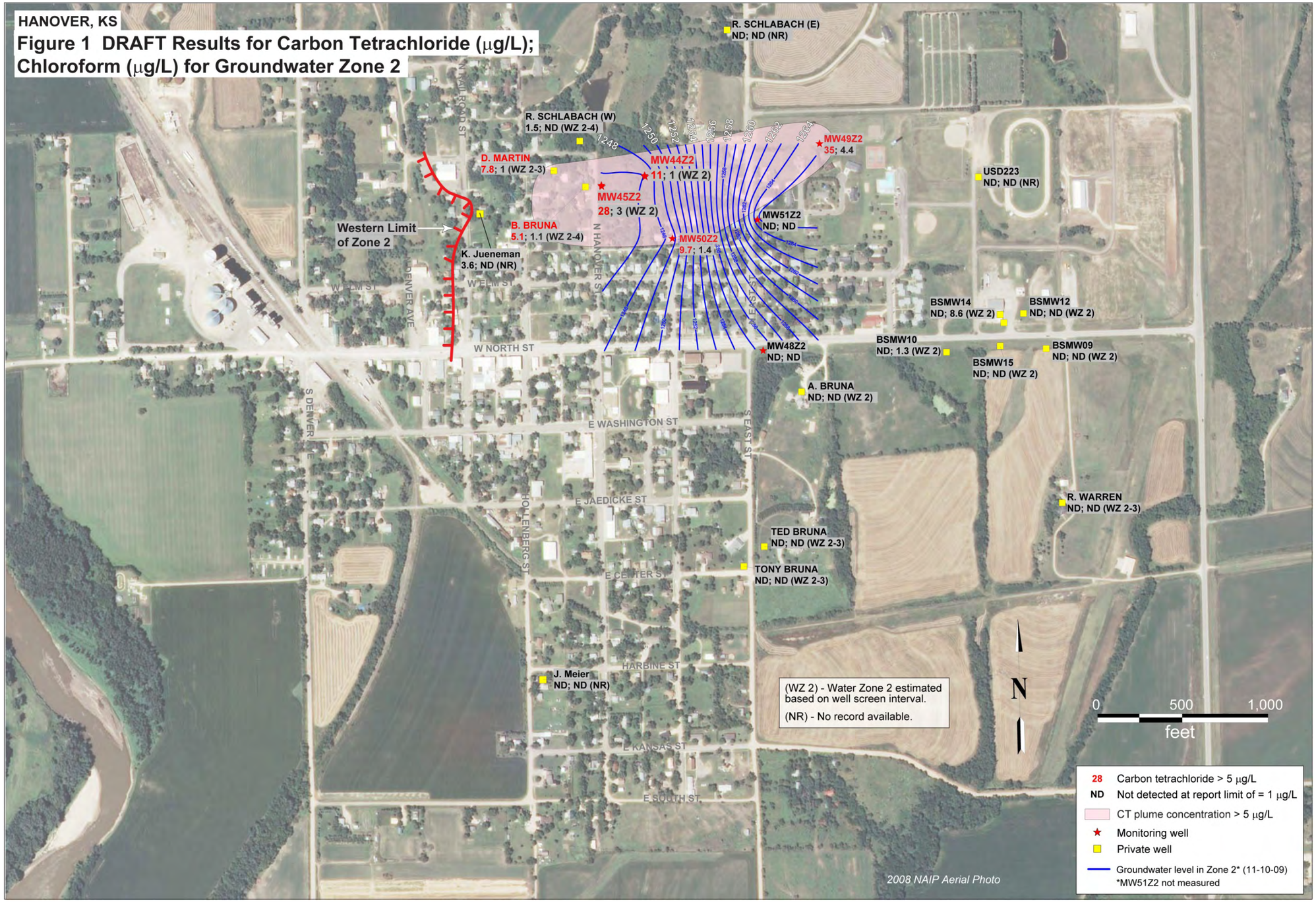

FIGURE 1 Analytical results for carbon tetrachloride and chloroform in groundwater Zone 2.

TABLE 1 Construction data, measured water levels, and testing parameters for the slug tests in Zone 2 monitoring wells in January 2010.

Well	Reported Well Depth[a] (ft BGL)	Screened Interval[a] (ft BGL)	Measured Well Depth[b] (ft TOC)	Static Water Level[c] (ft TOC)	Height of Water Column in Casing[c] (ft)	Height of Water Above Screen[c] (ft)	Slug Used for Testing[d]	Number of Data Sets Collected
MW44Z2	40	30-40	39.34[e]	28.76	10.58	0.74	5 ft	4
MW45Z2	30	20-30	29.22[e]	20.84	8.73	-1.27	5 ft	4
MW48Z2	59	49-59	58.90[f]	48.47	10.21	0.21	5 ft	4
MW49Z2	65	55-65	65.06[f]	56.65	8.20	-1.80	5 ft	4
MW50Z2	65	55-65	64.33[f]	54.92	9.08	-0.92	5 ft	4
MW51Z2	66	56-66	64.25[f]	53.23	12.35	2.35	5 ft	4

[a] Well construction parameters as reported in KDHE WWC-5 Water Well Records.

[b] Well depth measured from top of casing.

[c] Water levels determined from measurements on January 26-27, 2010.

[d] Physical slugs constructed from 1-in.-diameter, sealed, sand-filled PVC tubing.

[e] Measured on August 10-14, 2009.

[f] Measured on November 2, 2009.

TABLE 2 Summary of interpreted results for slug tests in Zone 2 monitoring wells in January 2010.

	Calculated Hydraulic Conductivity[a] (ft/day)								
Well	Bouwer and Rice Method Result for Each Test				Hvorslev Method Result for Each Test				Average[b]
MW44Z2	23	18	20	20	31	25	27	27	24
MW45Z2	16	26	15	26	22	36	20	35	25
MW48Z2	NA[c]	NA	NA	NA	NA	NA	NA	NA	NA
MW49Z2	NA	NA	NA	NA	NA	NA	NA	NA	NA
MW50Z2	29	41	30	43	40	56	42	59	43
MW51Z2	4.4	7.3	4.9	10	6.1	10	6.7	14	7.9

[a] Calculated with the assumption of a thickness of 3.5 ft for the water-bearing interval.

[b] Averaged for all tests and both calculation methods.

[c] Results could not be analyzed; see Sections 4.3 and 4.4.

TABLE 3 Summary of interpreted results for gravel pack materials in Zone 2 monitoring wells in January 2010.

Well	Calculated Gravel Pack Hydraulic Conductivity[a] (ft/day)				
	Bouwer and Rice Method		Hvorslev Method		Average[b]
MW45Z2	67	65	91	88	78
MW49Z2	81	84	112	116	98
MW50Z2	116	117	160	161	139

[a] Calculated with the assumption of a thickness of 3.5 ft for the water-bearing interval.

[b] Averaged for all tests and both calculation methods.

Appendix A:

Lithology Logs and Complete Slug Test Results

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Argonne National Laboratory

Well ID: MW44Z2

Project: Hanover **Elevation:** 1280.91 ft **Log Date:** March 26, 2009 **Rig:** Mini-sonic drilling rig

Geologist: Eugene Yan **Depth:** 40 ft **Drilling Company:** Boart Longyear

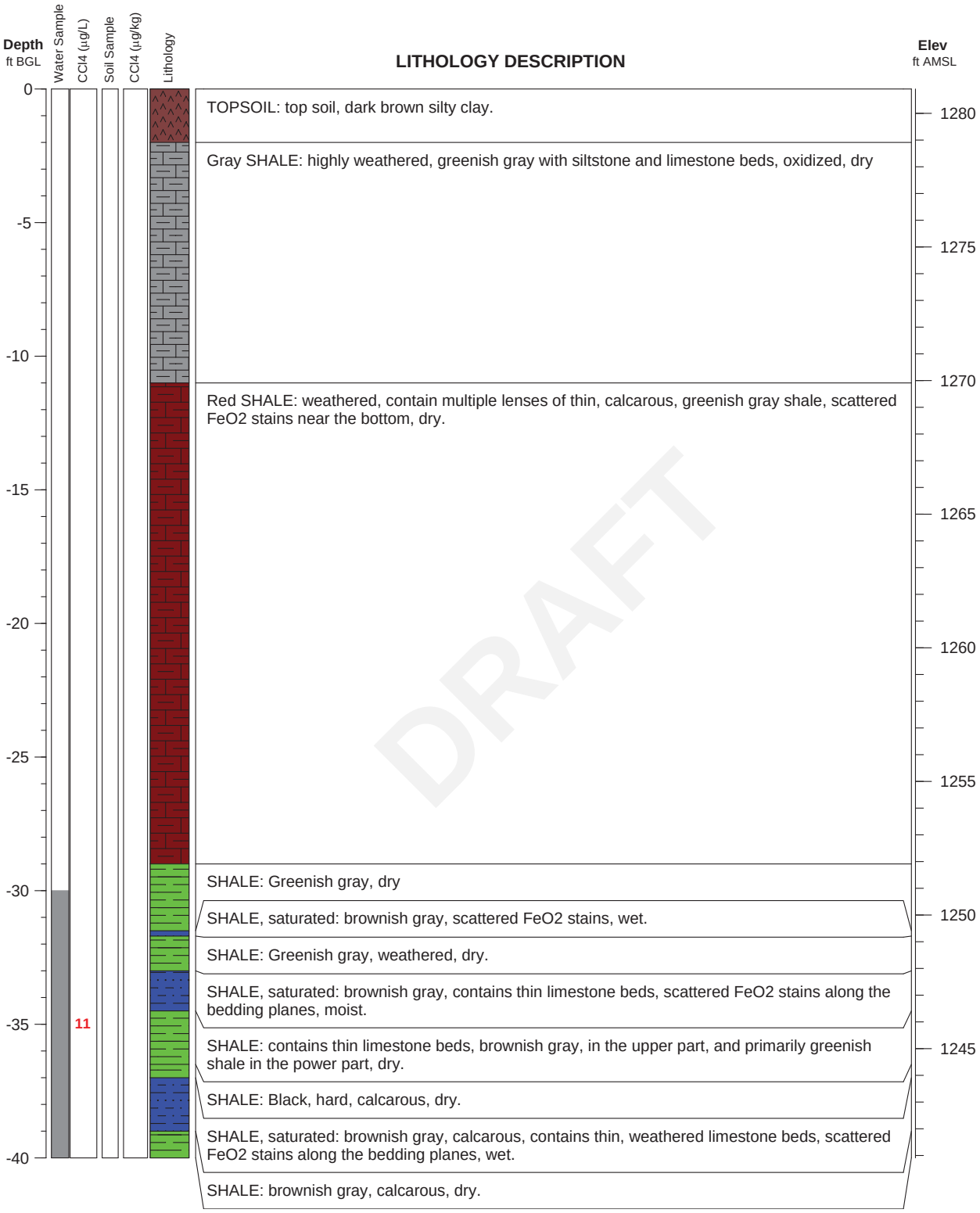
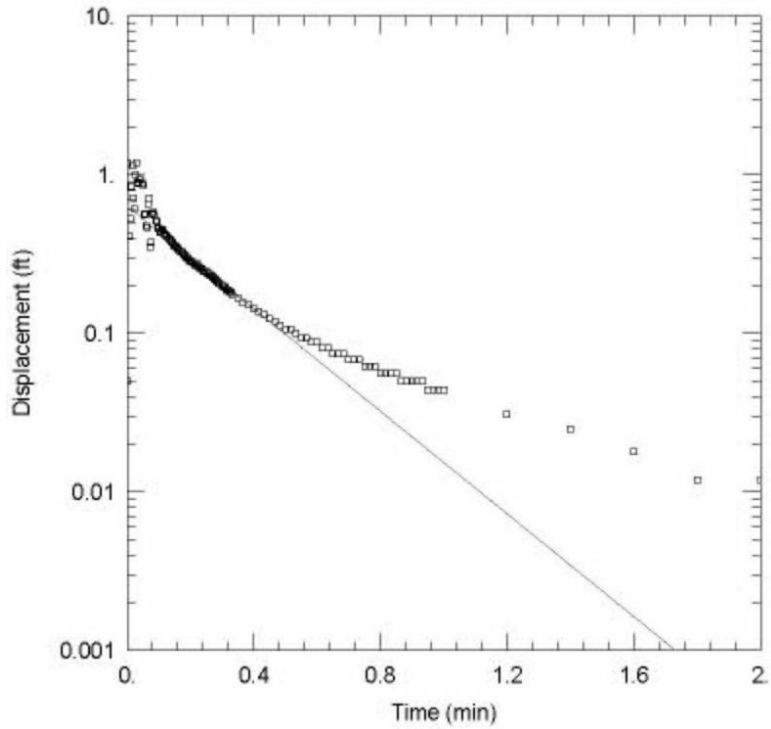


TABLE A.1 Slug test data for boring MW44Z2 (effective saturated thickness = 3.5 ft; effective length of well = 3.5 ft; effective screen length = 3.5 ft; casing radius = 0.08333 ft; borehole radius = 0.25; Kz/Kr = 1).

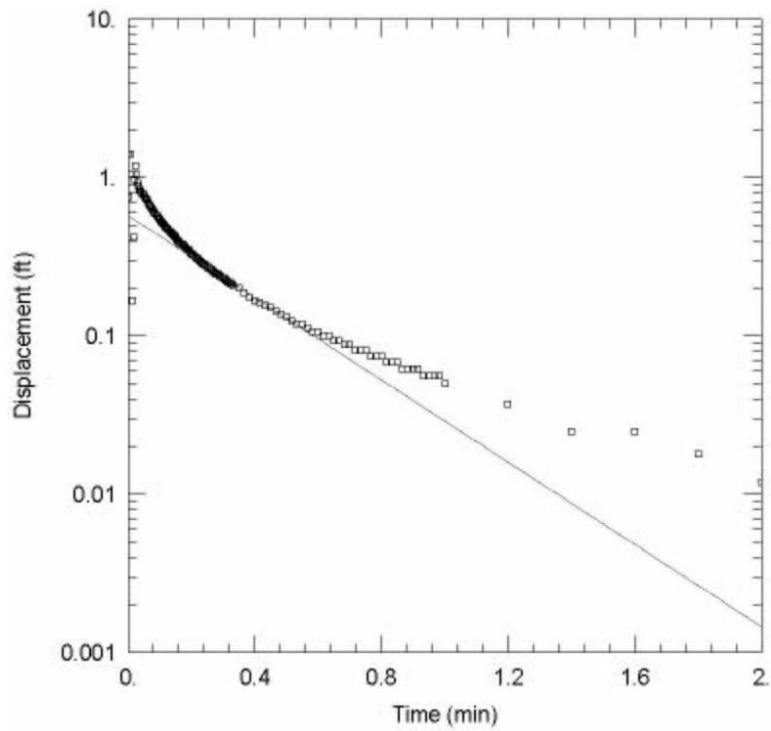
	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0	0.006	0.566	0	0.169	0.1533	0.358	0.409	0.364	0.415
0.0033	0.05	0.755	0	0.729	0.1566	0.352	0.402	0.358	0.409
0.0066	0.408	1.415	0.006	1.535	0.16	0.346	0.402	0.358	0.402
0.01	0.534	1.05	0.302	1.962	0.1633	0.339	0.39	0.346	0.396
0.0133	0.843	0.169	0.427	0.528	0.1666	0.333	0.383	0.339	0.39
0.0166	1.151	0.421	0.534	0.528	0.17	0.327	0.383	0.339	0.383
0.02	0.717	0.975	0.723	0.604	0.1733	0.327	0.377	0.327	0.377
0.0233	0.61	1.195	0.742	1.05	0.1766	0.32	0.371	0.327	0.371
0.0266	1	1.044	0.736	1.189	0.18	0.314	0.364	0.314	0.364
0.03	1.201	0.937	0.868	1.019	0.1833	0.308	0.358	0.314	0.358
0.0333	0.899	0.887	0.861	0.918	0.1866	0.302	0.352	0.308	0.358
0.0366	0.887	0.843	0.868	0.899	0.19	0.302	0.352	0.302	0.352
0.04	0.931	0.824	0.931	0.874	0.1933	0.295	0.346	0.302	0.346
0.0433	0.943	0.805	1.05	0.843	0.1966	0.289	0.339	0.302	0.339
0.0466	0.88	0.786	1.063	0.811	0.2	0.289	0.333	0.289	0.333
0.05	0.855	0.767	1.025	0.792	0.2033	0.283	0.327	0.289	0.333
0.0533	0.559	0.748	1.063	0.761	0.2066	0.283	0.327	0.289	0.32
0.0566	0.566	0.736	1.126	0.742	0.21	0.276	0.32	0.283	0.32
0.06	0.478	0.723	0.754	0.723	0.2133	0.27	0.314	0.276	0.314
0.0633	0.465	0.698	0.113	0.704	0.2166	0.276	0.308	0.27	0.308
0.0666	0.654	0.679	0.251	0.685	0.22	0.276	0.308	0.27	0.308
0.07	0.717	0.666	0.534	0.666	0.2233	0.264	0.302	0.264	0.302
0.0733	0.352	0.648	0.591	0.654	0.2266	0.264	0.295	0.264	0.295
0.0766	0.377	0.635	0.591	0.641	0.23	0.257	0.295	0.257	0.295
0.08	0.572	0.622	0.591	0.622	0.2333	0.257	0.289	0.257	0.289
0.0833	0.585	0.604	0.585	0.61	0.2366	0.257	0.289	0.251	0.289
0.0866	0.559	0.591	0.547	0.597	0.24	0.251	0.283	0.251	0.283
0.09	0.515	0.578	0.522	0.578	0.2433	0.245	0.283	0.245	0.283
0.0933	0.509	0.566	0.509	0.566	0.2466	0.245	0.276	0.245	0.276
0.0966	0.459	0.553	0.484	0.559	0.25	0.245	0.276	0.239	0.27
0.1	0.459	0.547	0.509	0.547	0.2533	0.239	0.27	0.239	0.27
0.1033	0.434	0.534	0.541	0.541	0.2566	0.239	0.27	0.232	0.264
0.1066	0.44	0.522	0.603	0.528	0.26	0.232	0.264	0.239	0.264
0.11	0.453	0.515	0.534	0.522	0.2633	0.232	0.264	0.232	0.257
0.1133	0.446	0.509	0.314	0.509	0.2666	0.232	0.257	0.226	0.257
0.1166	0.427	0.497	0.339	0.503	0.27	0.226	0.257	0.226	0.257
0.12	0.421	0.484	0.453	0.49	0.2733	0.226	0.251	0.226	0.251
0.1233	0.415	0.478	0.421	0.484	0.2766	0.22	0.251	0.22	0.251
0.1266	0.408	0.471	0.434	0.478	0.28	0.22	0.245	0.22	0.245
0.13	0.402	0.459	0.421	0.465	0.2833	0.213	0.245	0.213	0.245
0.1333	0.396	0.453	0.402	0.453	0.2866	0.213	0.245	0.213	0.239
0.1366	0.39	0.446	0.402	0.453	0.29	0.207	0.239	0.213	0.239
0.14	0.377	0.44	0.39	0.44	0.2933	0.207	0.239	0.207	0.239
0.1433	0.377	0.434	0.377	0.434	0.2966	0.201	0.232	0.207	0.232
0.1466	0.364	0.427	0.377	0.427	0.3	0.201	0.232	0.201	0.232
0.15	0.358	0.421	0.371	0.421	0.3033	0.195	0.232	0.201	0.226

TABLE A.1 (Cont.)

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.3066	0.195	0.226	0.201	0.226	0.9833	0.044	0.056	0.05	0.056
0.31	0.195	0.226	0.195	0.226	1	0.044	0.05	0.044	0.05
0.3133	0.188	0.22	0.195	0.22	1.2	0.031	0.037	0.031	0.037
0.3166	0.188	0.22	0.195	0.22	1.4	0.025	0.025	0.025	0.031
0.32	0.188	0.22	0.188	0.213	1.6	0.018	0.025	0.018	0.025
0.3233	0.182	0.213	0.195	0.213	1.8	0.012	0.018	0.018	0.018
0.3266	0.182	0.213	0.188	0.213	2	0.012	0.012	0.012	0.018
0.33	0.182	0.213	0.188	0.213	2.2	0.012	0.012	0.012	0.012
0.3333	0.176	0.207	0.182	0.207	2.4	0.006	0.012	0.012	0.012
0.35	0.169	0.201	0.176	0.195	2.6	0.006	0.012	0.012	0.006
0.3666	0.157	0.188	0.169	0.188	2.8	0.006	0.006	0.012	
0.3833	0.151	0.176	0.157	0.176	3	0.006	0.006	0.006	
0.4	0.144	0.169	0.151	0.169	3.2	0.006	0.006	0.006	
0.4166	0.138	0.163	0.144	0.163	3.4	0.006	0.006	0.006	
0.4333	0.132	0.157	0.138	0.157	3.6	0.006	0.006	0.006	
0.45	0.125	0.151	0.132	0.144	3.8	0.006	0.006	0.006	
0.4666	0.119	0.144	0.125	0.144	4	0.006	0.006	0.006	
0.4833	0.113	0.138	0.119	0.138	4.2	0.006	0.006	0.006	
0.5	0.107	0.132	0.113	0.132	4.4	0.006	0.006	0.006	
0.5166	0.107	0.125	0.107	0.125	4.6	0	0.006	0.006	
0.5333	0.1	0.119	0.107	0.119	4.8		0.006	0.006	
0.55	0.094	0.119	0.1	0.119	5		0.006	0	
0.5666	0.094	0.113	0.1	0.113	5.2		0.006		
0.5833	0.088	0.106	0.094	0.106	5.4		0.006		
0.6	0.088	0.106	0.088	0.106	5.6		0.006		
0.6166	0.081	0.1	0.088	0.1	5.8		0.006		
0.6333	0.081	0.1	0.088	0.1	6		0.006		
0.65	0.075	0.094	0.081	0.094	6.2		0.006		
0.6666	0.075	0.094	0.081	0.094	6.4		0.006		
0.6833	0.075	0.088	0.075	0.088	6.6		0.006		
0.7	0.069	0.088	0.075	0.088	6.8		0.006		
0.7166	0.069	0.081	0.069	0.081	7		0.006		
0.7333	0.069	0.081	0.069	0.081	7.2		0.006		
0.75	0.062	0.081	0.069	0.075	7.4		0.006		
0.7666	0.062	0.075	0.069	0.075	7.6		0.006		
0.7833	0.062	0.075	0.062	0.075	7.8		0.006		
0.8	0.056	0.075	0.062	0.069	8		0.006		
0.8166	0.056	0.069	0.062	0.069	8.2		0.006		
0.8333	0.056	0.069	0.056	0.069	8.4		0.006		
0.85	0.056	0.069	0.056	0.069	8.6		0.006		
0.8666	0.05	0.062	0.056	0.062	8.8		0		
0.8833	0.05	0.062	0.056	0.062	9				
0.9	0.05	0.062	0.05	0.062	9.2				
0.9166	0.05	0.062	0.05	0.062	9.4				
0.9333	0.05	0.056	0.05	0.056	9.6				
0.95	0.044	0.056	0.05	0.056	9.8				
0.9666	0.044	0.056	0.05	0.056	10				

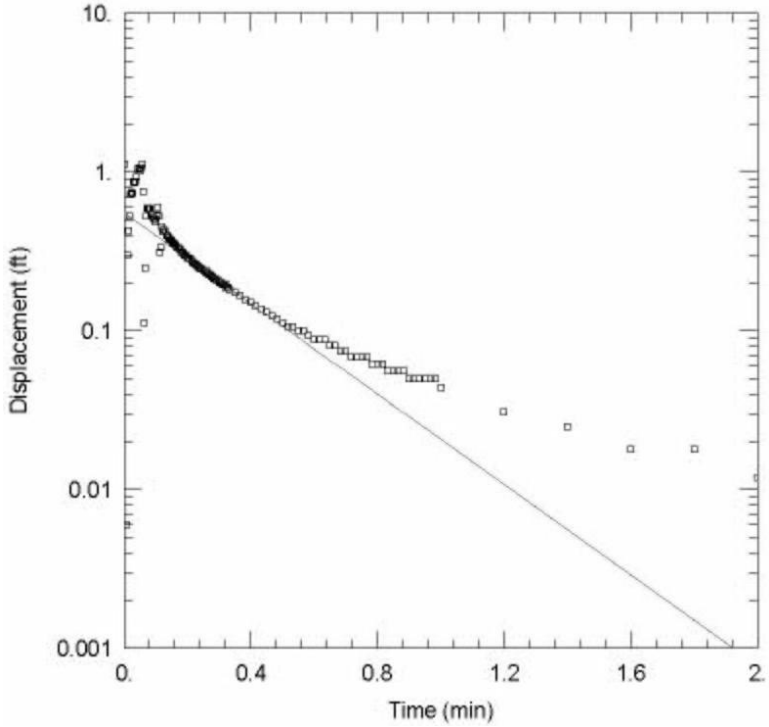


Observed slug test water level response and interpretive straight-line fit to the measured data for MW44Z2, Test 1, slug in.

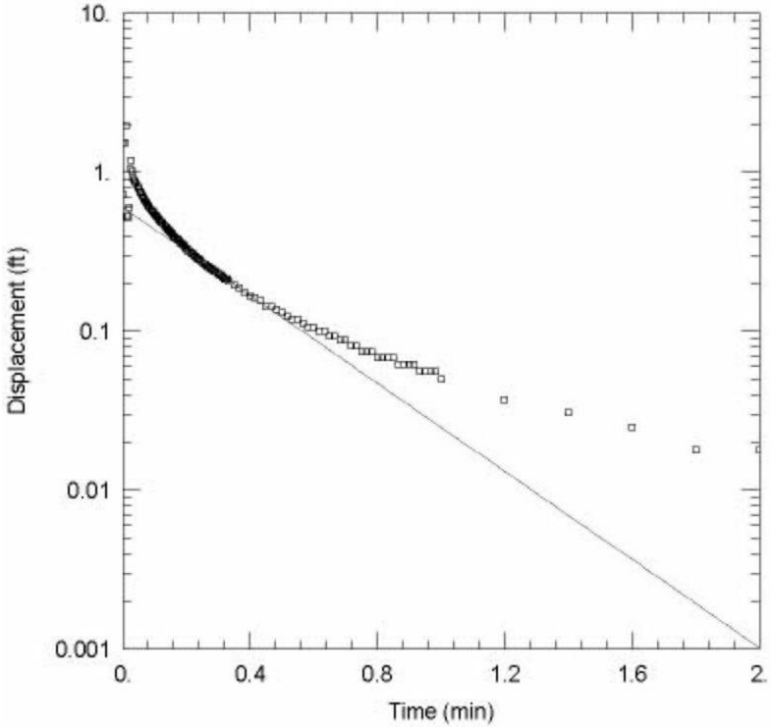


Observed slug test water level response and interpretive straight-line fit to the measured data for MW44Z2, Test 2, slug out.

FIGURE A.1 Observed slug test water level response and interpretive fit for the data for MW44Z2 (Table A.1).



Observed slug test water level response and interpretive straight-line fit to the measured data for MW44Z2, Test 3, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW44Z2, Test 4, slug out.

FIGURE A.1 (Cont.)

Argonne National Laboratory

Well ID: MW45Z2

Project: Hanover **Elevation:** 1271.74 ft **Log Date:** March 27, 2009 **Rig:** Mini-sonic drilling rig

Geologist: Eugene Yan **Depth:** 30 ft **Drilling Company:** Boart Longyear

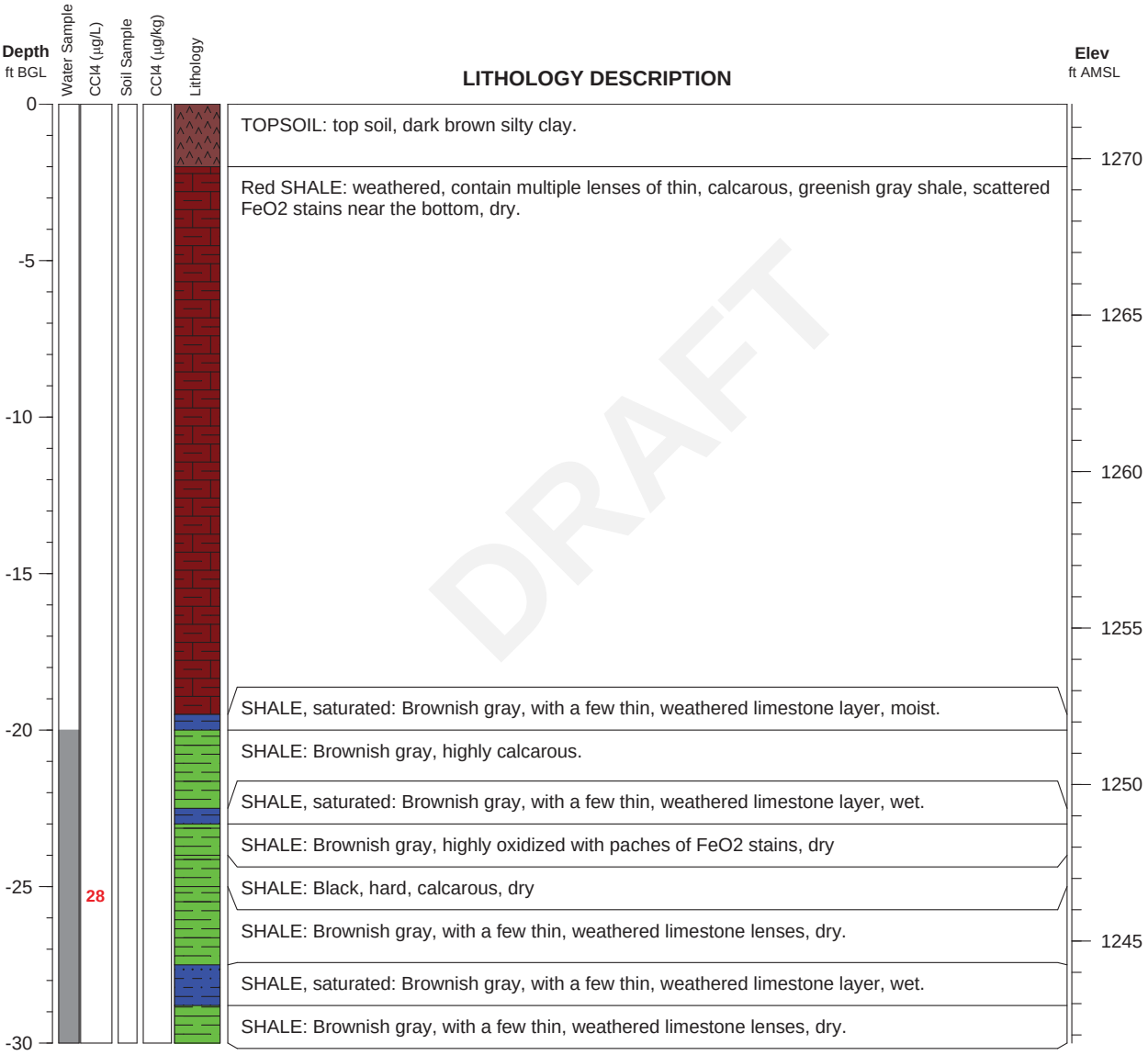
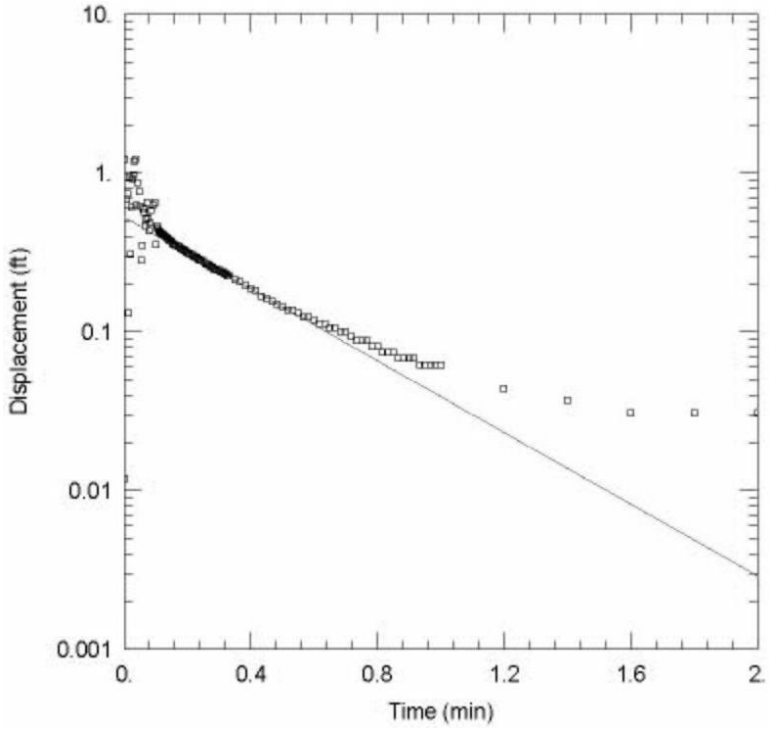


TABLE A.2 Slug test data for boring MW45Z2 (effective saturated thickness = 3.5 ft; effective length of well = 3.5 ft; effective screen length = 3.5 ft; casing radius = 0.08333 ft; borehole radius = 0.25; Kz/Kr = 1).

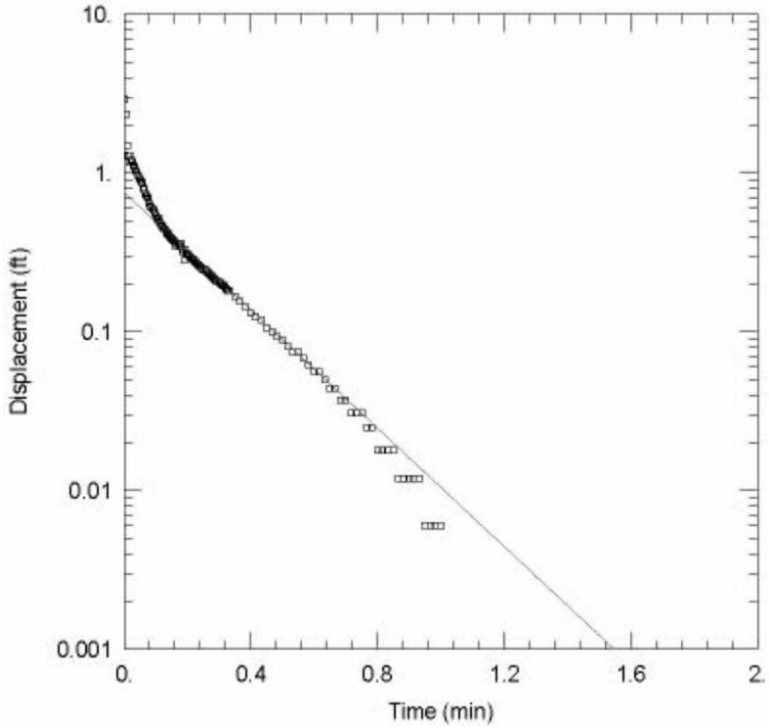
	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0	0.012	0.257	0.025	0.239	0.1533	0.364	0.383	0.408	0.396
0.0033	0.012	2.913	0.025	2.542	0.1566	0.358	0.377	0.402	0.39
0.0066	0.685	2.359	0.767	1.617	0.16	0.358	0.371	0.396	0.39
0.01	0.748	1.491	0.547	1.258	0.1633	0.352	0.346	0.396	0.383
0.0133	0.132	1.277	0.32	1.516	0.1666	0.352	0.364	0.39	0.371
0.0166	0.95	1.17	0.754	1.396	0.17	0.346	0.364	0.383	0.371
0.02	0.308	1.289	0.805	1.264	0.1733	0.346	0.346	0.377	0.364
0.0233	0.616	1.208	0.704	1.22	0.1766	0.339	0.346	0.377	0.358
0.0266	0.918	1.182	1.283	1.189	0.18	0.339	0.364	0.371	0.352
0.03	0.975	1.132	0.893	1.151	0.1833	0.333	0.333	0.371	0.333
0.0333	1.201	1.088	0.874	1.101	0.1866	0.333	0.32	0.364	0.346
0.0366	1.226	1.057	0.742	1.063	0.19	0.327	0.283	0.364	0.333
0.04	0.629	1.019	0.912	1.025	0.1933	0.327	0.333	0.358	0.333
0.0433	0.874	0.981	0.528	0.994	0.1966	0.32	0.314	0.358	0.327
0.0466	0.767	0.943	0.666	0.956	0.2	0.32	0.308	0.352	0.32
0.05	0.622	0.906	0.333	0.918	0.2033	0.314	0.308	0.352	0.314
0.0533	0.283	0.88	0.824	0.868	0.2066	0.314	0.302	0.346	0.308
0.0566	0.352	0.874	0.446	0.887	0.21	0.308	0.295	0.339	0.308
0.06	0.597	0.811	0.528	0.817	0.2133	0.308	0.289	0.339	0.302
0.0633	0.566	0.792	0.547	0.805	0.2166	0.301	0.289	0.339	0.295
0.0666	0.465	0.742	0.679	0.773	0.22	0.301	0.283	0.333	0.295
0.07	0.515	0.729	0.49	0.748	0.2233	0.295	0.276	0.333	0.289
0.0733	0.654	0.71	0.534	0.723	0.2266	0.295	0.276	0.327	0.283
0.0766	0.522	0.692	0.522	0.698	0.23	0.295	0.27	0.327	0.283
0.08	0.434	0.648	0.509	0.673	0.2333	0.289	0.264	0.32	0.276
0.0833	0.49	0.622	0.597	0.717	0.2366	0.289	0.264	0.32	0.27
0.0866	0.585	0.616	0.49	0.622	0.24	0.283	0.257	0.314	0.27
0.09	0.629	0.591	0.522	0.616	0.2433	0.283	0.257	0.314	0.264
0.0933	-0.107	0.585	0.597	0.591	0.2466	0.283	0.251	0.308	0.257
0.0966	0.66	0.56	0.497	0.578	0.25	0.276	0.251	0.308	0.257
0.1	0.358	0.541	0.497	0.585	0.2533	0.276	0.245	0.308	0.251
0.1033	0.465	0.522	0.459	0.528	0.2566	0.27	0.245	0.301	0.251
0.1066	0.446	0.509	0.497	0.541	0.26	0.27	0.239	0.301	0.245
0.11	0.434	0.522	0.471	0.509	0.2633	0.27	0.239	0.295	0.245
0.1133	0.427	0.484	0.471	0.515	0.2666	0.264	0.232	0.295	0.239
0.1166	0.421	0.478	0.465	0.49	0.27	0.264	0.232	0.295	0.232
0.12	0.415	0.465	0.459	0.484	0.2733	0.257	0.226	0.289	0.232
0.1233	0.408	0.459	0.453	0.471	0.2766	0.257	0.226	0.289	0.232
0.1266	0.408	0.446	0.446	0.465	0.28	0.257	0.22	0.283	0.226
0.13	0.402	0.44	0.44	0.453	0.2833	0.251	0.22	0.283	0.226
0.1333	0.396	0.415	0.434	0.446	0.2866	0.251	0.213	0.283	0.22
0.1366	0.39	0.421	0.427	0.402	0.29	0.251	0.213	0.276	0.22
0.14	0.383	0.409	0.427	0.446	0.2933	0.245	0.207	0.276	0.213
0.1433	0.377	0.402	0.421	0.421	0.2966	0.245	0.207	0.276	0.213
0.1466	0.377	0.396	0.415	0.415	0.3	0.245	0.207	0.27	0.207
0.15	0.371	0.39	0.408	0.402	0.3033	0.239	0.201	0.27	0.207

TABLE A.2 (Cont.)

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.3066	0.239	0.201	0.27	0.201	0.9833	0.062	0.006	0.075	
0.31	0.239	0.195	0.264	0.201	1	0.062	0.006	0.069	
0.3133	0.239	0.195	0.264	0.195	1.2	0.044		0.056	
0.3166	0.232	0.195	0.264	0.195	1.4	0.037		0.05	
0.32	0.232	0.188	0.257	0.195	1.6	0.031		0.044	
0.3233	0.232	0.188	0.257	0.188	1.8	0.031		0.044	
0.3266	0.226	0.182	0.257	0.188	2	0.031		0.037	
0.33	0.226	0.182	0.251	0.182	2.2	0.031		0.037	
0.3333	0.226	0.182	0.251	0.182	2.4	0.031		0.037	
0.35	0.213	0.169	0.239	0.169	2.6	0.031		0.037	
0.3666	0.207	0.157	0.232	0.157	2.8	0.025		0.037	
0.3833	0.195	0.144	0.22	0.144	3			0.037	
0.4	0.188	0.132	0.213	0.138	3.2			0.037	
0.4166	0.182	0.125	0.201	0.125	3.4			0.037	
0.4333	0.169	0.119	0.195	0.119	3.6			0.037	
0.45	0.163	0.107	0.188	0.107	3.8			0.037	
0.4666	0.157	0.1	0.182	0.1	4			0.031	
0.4833	0.15	0.094	0.176	0.094	4.2			0.031	
0.5	0.144	0.088	0.169	0.088	4.4			0.037	
0.5166	0.138	0.081	0.163	0.081	4.6			0.031	
0.5333	0.138	0.075	0.157	0.075	4.8			0.037	
0.55	0.132	0.075	0.15	0.069	5			0.031	
0.5666	0.125	0.069	0.144	0.062	5.2			0.037	
0.5833	0.125	0.062	0.138	0.056	5.4			0.037	
0.6	0.119	0.056	0.132	0.05	5.6			0.037	
0.6166	0.113	0.056	0.132	0.05	5.8			0.031	
0.6333	0.113	0.05	0.125	0.044	6			0.037	
0.65	0.106	0.044	0.119	0.044	6.2			0.037	
0.6666	0.106	0.044	0.119	0.037	6.4			0.037	
0.6833	0.1	0.037	0.113	0.031	6.6			0.037	
0.7	0.1	0.037	0.106	0.031	6.8			0.037	
0.7166	0.094	0.031	0.106	0.025	7			0.031	
0.7333	0.088	0.031	0.106	0.025	7.2			0.037	
0.75	0.088	0.031	0.100	0.025	7.4			0.031	
0.7666	0.088	0.025	0.100	0.018	7.6				
0.7833	0.081	0.025	0.094	0.018	7.8				
0.8	0.081	0.018	0.094	0.012	8				
0.8166	0.075	0.018	0.088	0.012	8.2				
0.8333	0.075	0.018	0.088	0.012	8.4				
0.85	0.075	0.018	0.088	0.012	8.6				
0.8666	0.069	0.012	0.088	0.006	8.8				
0.8833	0.069	0.012	0.081	0.006	9				
0.9	0.069	0.012	0.081	0.006	9.2				
0.9166	0.069	0.012	0.081	0.006	9.4				
0.9333	0.062	0.012	0.081	0	9.6				
0.95	0.062	0.006	0.075		9.8				
0.9666	0.062	0.006	0.075		10				

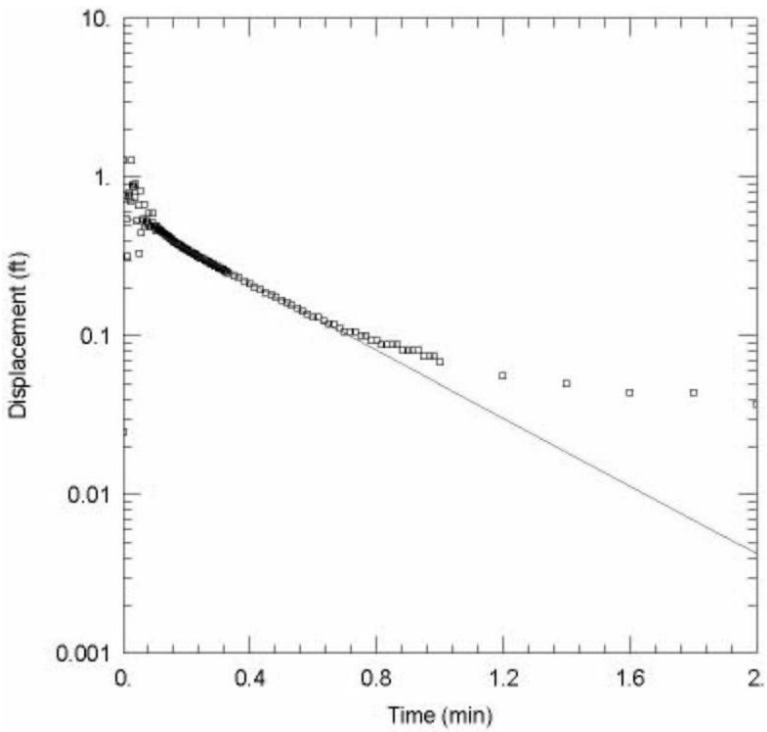


Observed slug test water level response and interpretive straight-line fit to the measured data for MW45Z2, Test 1, slug in.

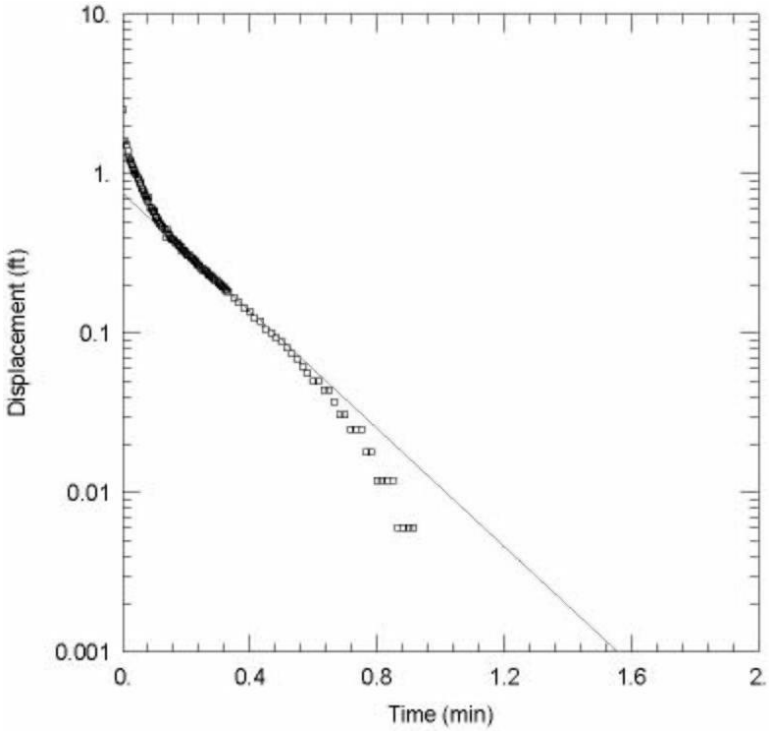


Observed slug test water level response and interpretive straight-line fit to the measured data for MW45Z2, Test 2, slug out.

FIGURE A.2 Observed slug test water level response and interpretive fit for the data for MW45Z2 (Table A.2).



Observed slug test water level response and interpretive straight-line fit to the measured data for MW45Z2, Test 3, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW45Z2, Test 4, slug out.

FIGURE A.2 (Cont.)

Argonne National Laboratory

Well ID: MW48Z2

Project: Hanover **Elevation:** 1306.69 ft **Log Date:** October 5, 2009 **Rig:** Sonic drilling rig

Geologist: Eugene Yan **Depth:** 59 ft **Drilling Company:** Boart Longyear

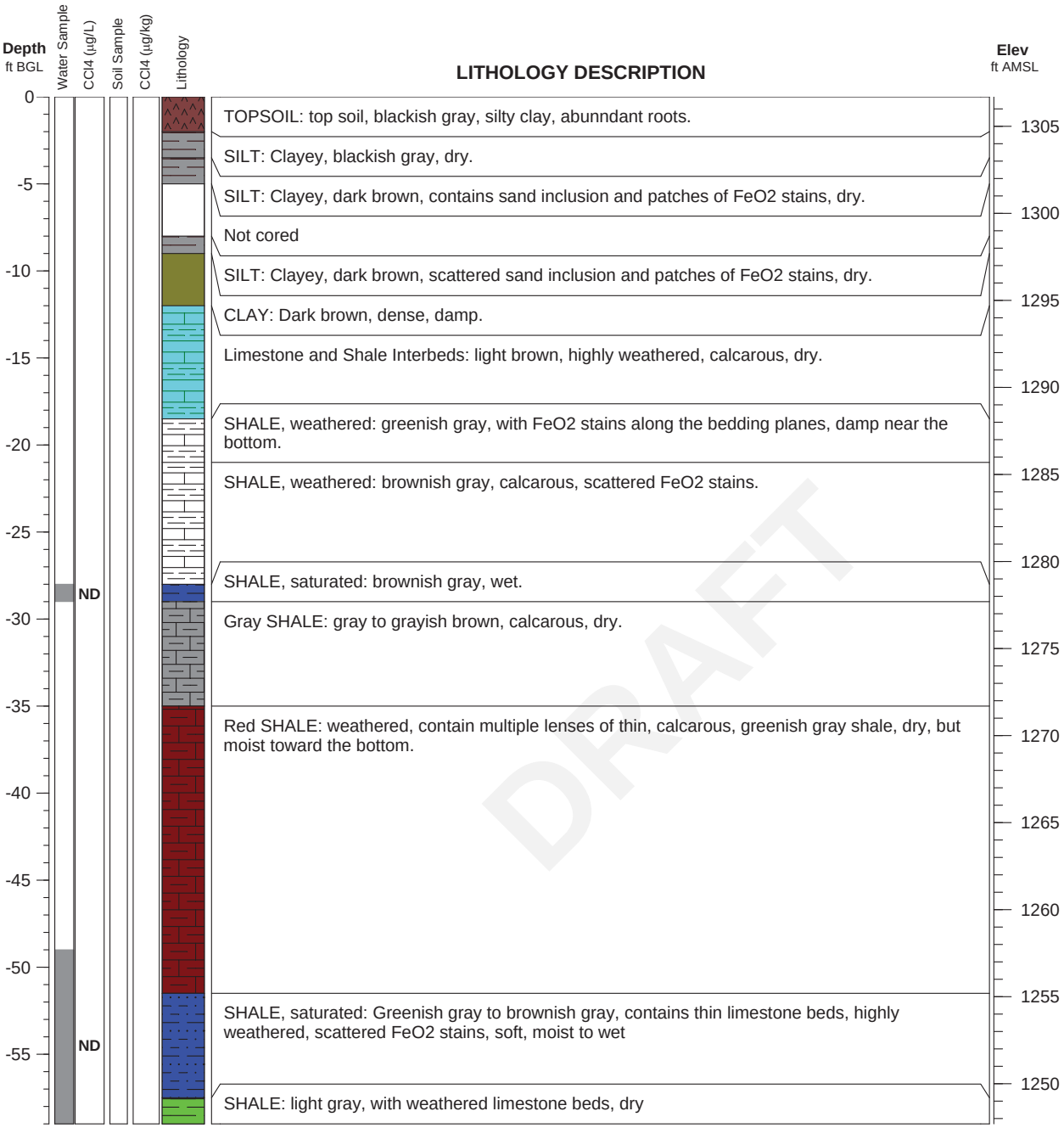


TABLE A.3 Slug test data for boring MW48Z2 (effective saturated thickness = 3.5 ft; effective length of well = 3.5 ft; effective screen length = 3.5 ft; casing radius = 0.08333 ft; borehole radius = 0.25; Kz/Kr = 1).

	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0	0.27	0.566	0.007	0.031	0.1533	0.012	-0.006		-0.006
0.0033	1.384	0.68	0.007	0.264	0.1566	0.012	-0.006		-0.006
0.0066	1.598	0.315	0.013	0.667	0.16	0.012	-0.006		-0.006
0.01	0.119	0.327	0.221	0.692	0.1633	0.012	-0.006		-0.006
0.0133	0.207	0.359	0.252	0.56	0.1666	0.012	-0.006		-0.006
0.0166	0.453	0.371	0.258	0.428	0.17	0.012	-0.006		-0.006
0.02	0.101	0.29	0.353	0.421	0.1733	0.012	-0.006		-0.006
0.0233	0.101	0.233	0.56	0.34	0.1766	0.012	-0.006		-0.006
0.0266	0.05	0.176	0.604	0.252	0.18	0.012	-0.006		-0.006
0.03	0.031	0.113	0.648	0.176	0.1833	0.012	-0.006		-0.006
0.0333	0.006	0.063	0.63	0.107	0.1866	0.012	-0.006		-0.006
0.0366	0	0.019	0.07	0.05	0.19	0.012	-0.006		-0.006
0.04	-0.069	-0.019	0.189	0	0.1933	0.012	-0.006		-0.006
0.0433	-0.006	-0.044	0.183	-0.038	0.1966	0.012	-0.006		-0.006
0.0466	-0.05	-0.069	0.019	-0.069	0.2	0.012	-0.006		-0.006
0.05	-0.069	-0.082	-0.037	-0.082	0.2033	0.012	-0.006		-0.006
0.0533	-0.044	-0.088	-0.031	-0.095	0.2066	0.012	-0.006		-0.006
0.0566	-0.032	-0.088	-0.031	-0.095	0.21	0.012	-0.006		-0.006
0.06	-0.025	-0.082	-0.031	-0.095	0.2133	0.012	-0.006		-0.006
0.0633	-0.025	-0.069	-0.056	-0.082	0.2166	0.012	-0.006		-0.006
0.0666	0.006	-0.056	-0.062	-0.076	0.22	0.012	-0.006		-0.006
0.07	0.063	-0.05	-0.05	-0.063	0.2233	0.012	-0.006		-0.006
0.0733	-0.044	-0.038	-0.006	-0.05	0.2266	0.012	-0.006		-0.006
0.0766	0.019	-0.025	-0.05	-0.032	0.23	0.012	-0.006		-0.006
0.08	0.006	-0.019	-0.018	-0.025	0.2333	0.012	-0.006		-0.006
0.0833	0.019	-0.006	-0.025	-0.013	0.2366	0.012	-0.006		-0.006
0.0866	0.006	-0.006	-0.031	0	0.24	0.012	-0.006		-0.006
0.09	0.019	-0.006	-0.025	0	0.2433	0.012	-0.006		-0.006
0.0933	0.012	-0.006	-0.018	0	0.2466	0.012	-0.006		-0.006
0.0966	0.012	0	-0.012	0	0.25	0.012	-0.006		-0.006
0.1	0.019	0	-0.006	0	0.2533	0.012	-0.006		-0.006
0.1033	0.019	-0.006	0	0	0.2566	0.012	-0.006		-0.006
0.1066	0.019	-0.006	0	0	0.26	0.012	-0.006		-0.006
0.11	0.012	-0.006	0.007	-0.006	0.2633	0.012	-0.006		-0.006
0.1133	0.012	-0.006	0.007	-0.006	0.2666	0.012	0		-0.006
0.1166	0.012	-0.006	0.007	-0.006	0.27	0.012			-0.006
0.12	0.012	-0.012	0.007	-0.006	0.2733	0.012			-0.006
0.1233	0.012	-0.012	0.007	-0.013	0.2766	0.012			-0.006
0.1266	0.012	-0.012	0.007	-0.013	0.28	0.012			-0.006
0.13	0.012	-0.012	0.013	-0.013	0.2833	0.012			-0.006
0.1333	0.012	-0.012	0.007	-0.013	0.2866	0.012			-0.006
0.1366	0.012	-0.012	0.007	-0.013	0.29	0.012			-0.006
0.14	0.006	-0.012	0	-0.013	0.2933	0.012			-0.006
0.1433	0.012	-0.012		-0.013	0.2966	0.012			-0.006
0.1466	0.012	-0.006		-0.013	0.3	0.012			-0.006
0.15	0.012	-0.006		-0.013	0.3033	0.012			-0.006

TABLE A.3 (Cont.)

	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.3066	0.012			0	0.9833	0.012			
0.31	0.012				1	0.012			
0.3133	0.012				1.2	0.012			
0.3166	0.012				1.4	0.012			
0.32	0.012				1.6	0.012			
0.3233	0.012				1.8	0.012			
0.3266	0.012				2	0.012			
0.33	0.012				2.2	0.012			
0.3333	0.012				2.4	0.012			
0.35	0.012				2.6	0.012			
0.3666	0.012				2.8	0.012			
0.3833	0.012				3	0.006			
0.4	0.012				3.2	0.006			
0.4166	0.012				3.4	0.006			
0.4333	0.012				3.6	0.006			
0.45	0.012				3.8	0.006			
0.4666	0.006				4	0.006			
0.4833	0.012				4.2	0.006			
0.5	0.012				4.4	0.006			
0.5166	0.012				4.6	0.006			
0.5333	0.012				4.8	0.006			
0.55	0.012				5	0.006			
0.5666	0.012				5.2	0			
0.5833	0.012				5.4				
0.6	0.012				5.6				
0.6166	0.012				5.8				
0.6333	0.012				6				
0.65	0.012				6.2				
0.6666	0.012				6.4				
0.6833	0.012				6.6				
0.7	0.012				6.8				
0.7166	0.012				7				
0.7333	0.012				7.2				
0.75	0.012				7.4				
0.7666	0.012				7.6				
0.7833	0.012				7.8				
0.8	0.012				8				
0.8166	0.012				8.2				
0.8333	0.012				8.4				
0.85	0.012				8.6				
0.8666	0.012				8.8				
0.8833	0.012				9				
0.9	0.012				9.2				
0.9166	0.006				9.4				
0.9333	0.012				9.6				
0.95	0.012				9.8				
0.9666	0.012				10				

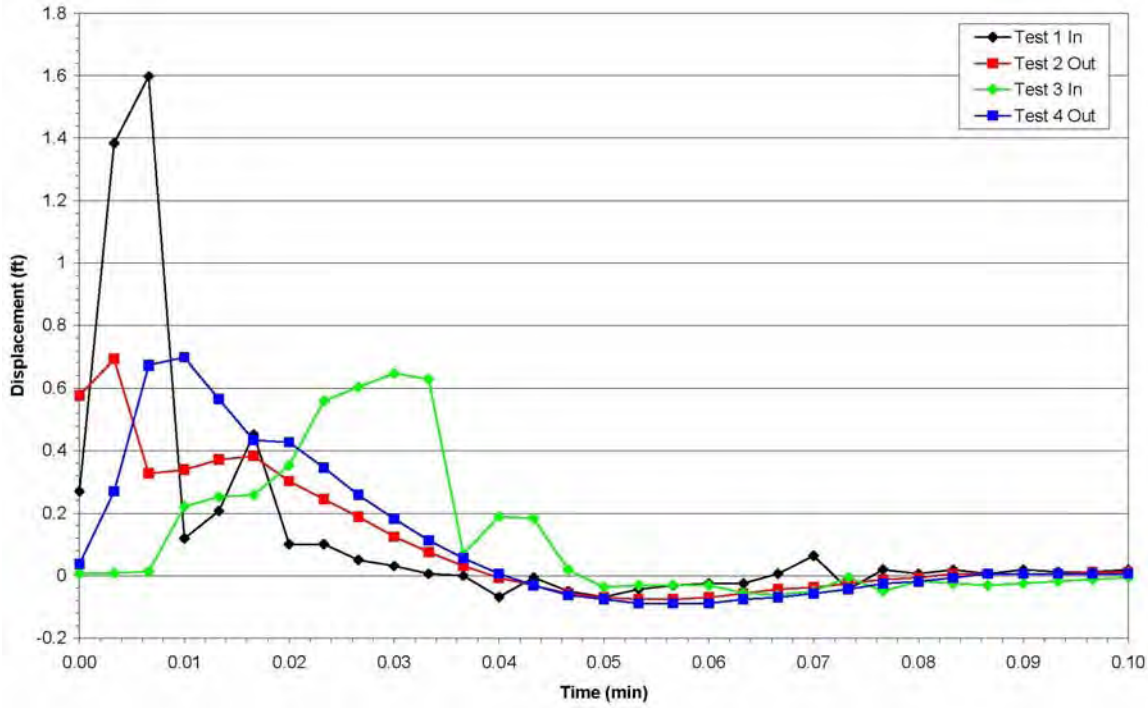


FIGURE A.3 Observed slug test water level response data for MW48Z2 (Table A.3). Data for this well cannot be fully displayed in semi-logarithmic format.

Argonne National Laboratory

Well ID: MW49Z2

Project: Hanover **Elevation:** 1321.43 ft **Log Date:** October 8, 2009 **Rig:** Sonic drilling rig

Geologist: Eugene Yan **Depth:** 65 ft **Drilling Company:** Boart Longyear

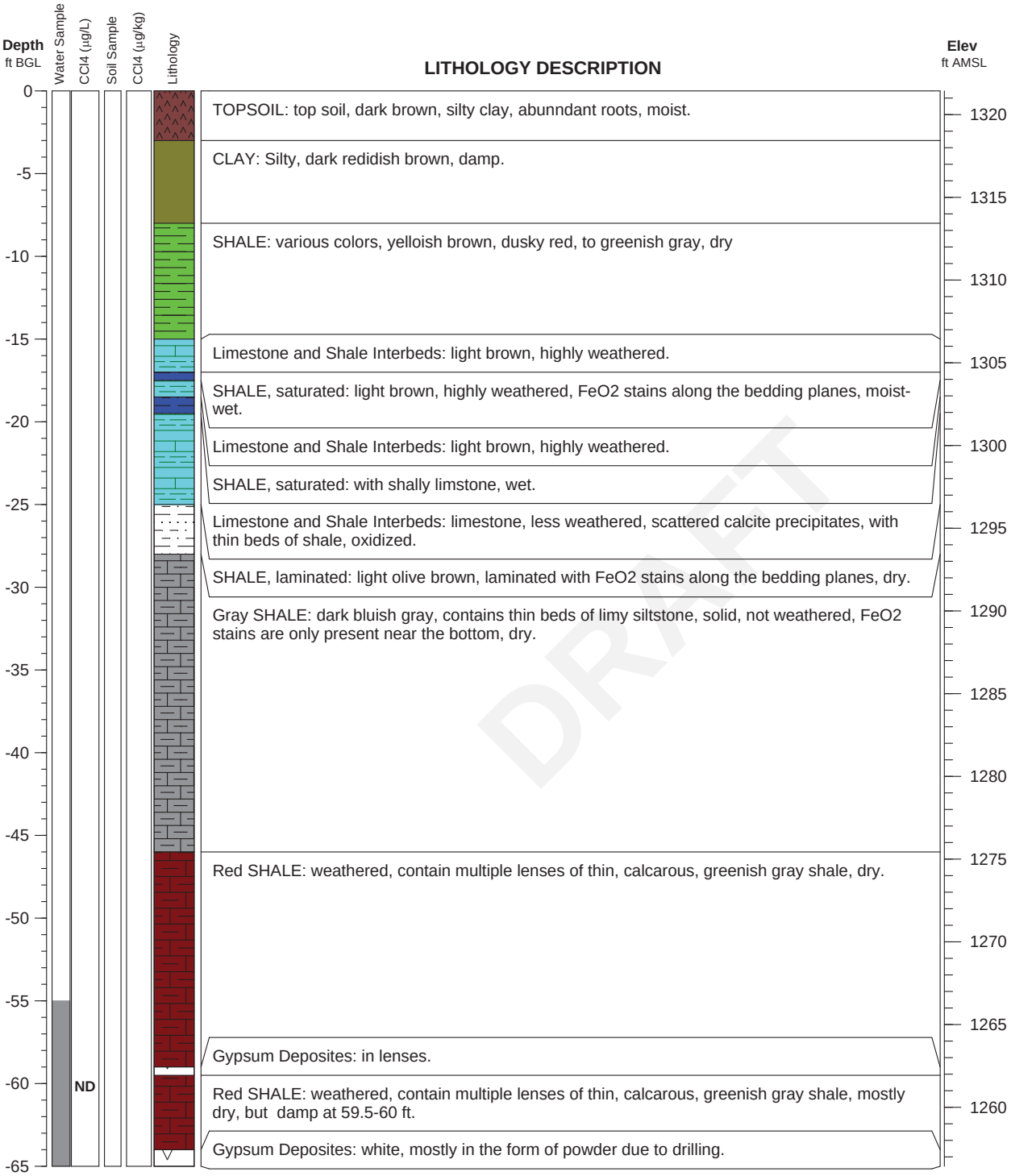


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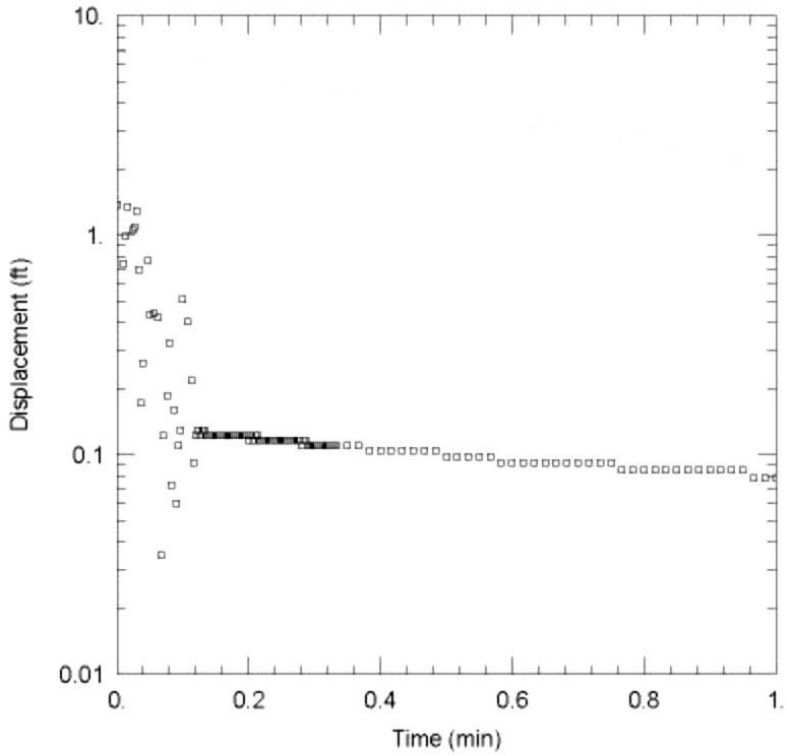
TABLE A.4 Slug test data for boring MW49Z2 (effective saturated thickness = 3.5 ft; effective length of well = 3.5 ft; effective screen length = 3.5 ft; casing radius = 0.08333 ft; borehole radius = 0.25; Kz/Kr = 1).

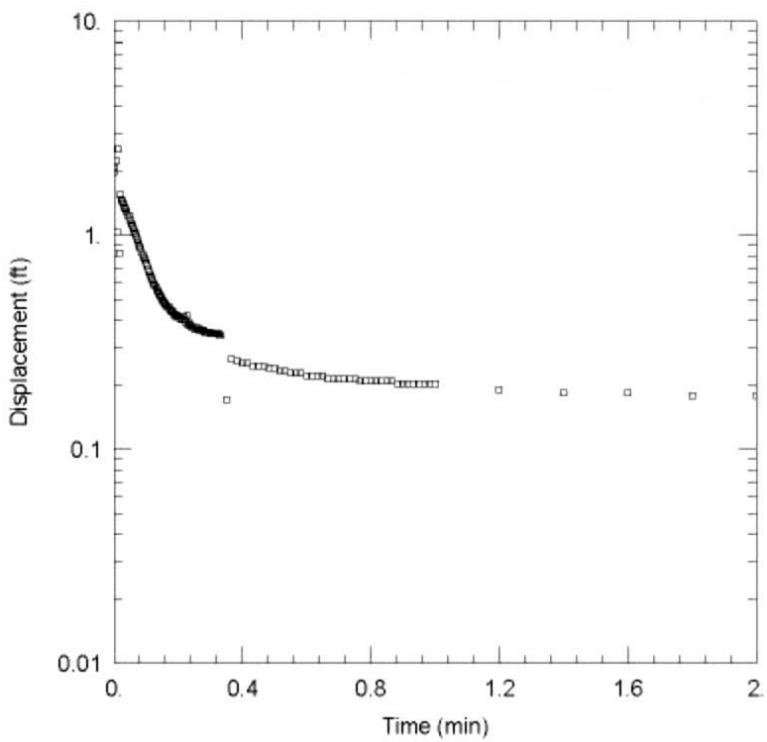
	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0	-0.084	0.543	-0.121	-0.105	0.1533	0.123	0.498	0.117	0.467
0.0033	-0.084	2.078	-0.121	0.028	0.1566	0.123	0.486	0.13	0.461
0.0066	-0.084	2.235	-0.121	3.273	0.16	0.123	0.48	0.111	0.448
0.01	0.746	1.04	0.545	1.958	0.1633	0.123	0.473	0.193	0.442
0.0133	0.992	2.525	0.52	-0.375	0.1666	0.123	0.467	0.105	0.436
0.0166	1.35	0.826	0.419	0.782	0.17	0.123	0.467	0.18	0.429
0.02	-0.53	1.562	0.312	0.807	0.1733	0.123	0.454	0.079	0.423
0.0233	1.055	1.48	0.765	1.587	0.1766	0.123	0.448	0.205	0.41
0.0266	1.092	1.442	0.683	1.48	0.18	0.123	0.442	0.293	0.41
0.03	1.294	1.411	0.583	1.367	0.1833	0.123	0.442	0.067	0.404
0.0333	0.696	1.361	0.696	1.342	0.1866	0.123	0.429	0.123	0.398
0.0366	0.174	1.335	0.633	1.31	0.19	0.123	0.429	0.155	0.398
0.04	0.262	1.291	0.715	1.272	0.1933	0.123	0.417	0.155	0.392
0.0433	-0.203	1.247	0.608	1.235	0.1966	0.123	0.423	0.155	0.385
0.0466	0.771	1.241	0.092	1.203	0.2	0.117	0.417	0.149	0.385
0.05	0.438	1.184	0.69	1.165	0.2033	0.123	0.417	0.149	0.379
0.0533	-0.813	1.147	0.589	1.128	0.2066	0.117	0.41	0.142	0.379
0.0566	0.444	1.115	0.482	1.096	0.21	0.123	0.404	0.155	0.373
0.06	-0.009	1.084	-0.461	1.065	0.2133	0.123	0.404	0.161	0.373
0.0633	0.425	1.046	0.306	1.033	0.2166	0.117	0.417	0.167	0.366
0.0666	0.035	1.021	0.337	0.996	0.22	0.117	0.404	0.149	0.366
0.07	0.123	0.989	0.067	0.958	0.2233	0.117	0.392	0.136	0.36
0.0733	-0.184	0.958	0.3	0.901	0.2266	0.117	0.423	0.149	0.354
0.0766	0.186	0.926	0.274	0.895	0.23	0.117	0.385	0.149	0.354
0.08	0.325	0.889	0.029	0.87	0.2333	0.117	0.392	0.155	0.348
0.0833	0.073	0.876	0.117	0.851	0.2366	0.117	0.379	0.149	0.354
0.0866	0.161	0.838	0.136	0.819	0.24	0.117	0.379	0.149	0.341
0.09	0.06	0.813	0.256	0.801	0.2433	0.117	0.373	0.149	0.348
0.0933	0.111	0.788	0.174	0.769	0.2466	0.117	0.373	0.149	0.341
0.0966	0.13	0.769	0.105	0.744	0.25	0.117	0.373	0.149	0.341
0.1	0.514	0.744	0.306	0.719	0.2533	0.117	0.366	0.149	0.335
0.1033	-0.417	0.719	0.193	0.7	0.2566	0.117	0.373	0.149	0.335
0.1066	0.407	0.7	0.142	0.681	0.26	0.117	0.366	0.149	0.335
0.11	-0.034	0.675	0.098	0.656	0.2633	0.117	0.366	0.149	0.329
0.1133	0.218	0.656	0.268	0.637	0.2666	0.117	0.36	0.149	0.329
0.1166	0.092	0.643	0.205	0.612	0.27	0.117	0.366	0.149	0.329
0.12	0.123	0.624	-0.028	0.599	0.2733	0.117	0.36	0.149	0.329
0.1233	0.13	0.605	0.274	0.58	0.2766	0.117	0.36	0.149	0.322
0.1266	0.123	0.587	0.136	0.561	0.28	0.111	0.36	0.149	0.322
0.13	0.13	0.574	0.111	0.555	0.2833	0.117	0.354	0.149	0.322
0.1333	0.13	0.561	0.224	0.536	0.2866	0.117	0.354	0.149	0.322
0.1366	0.123	0.549	0.413	0.524	0.29	0.111	0.354	0.149	0.322
0.14	0.123	0.536	0.174	0.505	0.2933	0.111	0.354	0.149	0.316
0.1433	0.123	0.524	-0.19	0.492	0.2966	0.111	0.354	0.149	0.316
0.1466	0.123	0.517	0.205	0.486	0.3	0.111	0.348	0.149	0.316
0.15	0.123	0.505	0.52	0.473	0.3033	0.111	0.348	0.149	0.31

TABLE A.4 (Cont.)

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.3066	0.111	0.348	0.149	0.316	0.9833	0.079	0.203	0.136	0.19
0.31	0.111	0.348	0.149	0.31	1	0.079	0.203	0.136	0.184
0.3133	0.111	0.348	0.149	0.31	1.2	0.073	0.19	0.136	0.178
0.3166	0.111	0.348	0.149	0.31	1.4	0.073	0.184	0.136	0.171
0.32	0.111	0.348	0.149	0.31	1.6	0.067	0.184	0.13	0.165
0.3233	0.111	0.348	0.149	0.303	1.8	0.067	0.178	0.13	0.165
0.3266	0.111	0.348	0.149	0.31	2	0.067	0.178	0.13	0.159
0.33	0.111	0.341	0.149	0.303	2.2	0.06	0.171	0.13	0.159
0.3333	0.111	0.341	0.149	0.303	2.4	0.06	0.171	0.13	0.159
0.35	0.111	0.171	0.149	0.297	2.6	0.06	0.171	0.13	0.152
0.3666	0.111	0.266	0.149	0.285	2.8	0.06	0.165	0.13	0.152
0.3833	0.105	0.259	0.149	0.285	3	0.06	0.165	0.123	0.152
0.4	0.105	0.253	0.149	0.285	3.2	0.054	0.165	0.123	0.152
0.4166	0.105	0.253	0.149	0.278	3.4	0.054	0.165	0.123	0.146
0.4333	0.105	0.247	0.149	0.278	3.6	0.054	0.159	0.123	0.146
0.45	0.105	0.247	0.149	0.272	3.8	0.054	0.159	0.123	0.146
0.4666	0.105	0.247	0.149	0.272	4	0.054	0.159	0.123	0.146
0.4833	0.105	0.241	0.149	0.266	4.2	0.054	0.159	0.123	0.14
0.5	0.098	0.241	0.142	0.222	4.4	0.048	0.152	0.123	0.14
0.5166	0.098	0.234	0.142	0.222	4.6	0.048	0.152	0.117	0.14
0.5333	0.098	0.234	0.142	0.215	4.8	0.048	0.152	0.117	0.14
0.55	0.098	0.228	0.142	0.215	5	0.048	0.152	0.117	0.14
0.5666	0.098	0.228	0.142	0.215	5.2	0.048	0.152	0.117	0.14
0.5833	0.092	0.228	0.142	0.215	5.4	0.048	0.152	0.117	0.14
0.6	0.092	0.222	0.142	0.209	5.6	0.048	0.152	0.117	0.134
0.6166	0.092	0.222	0.142	0.209	5.8	0.048	0.152	0.117	0.134
0.6333	0.092	0.222	0.142	0.209	6	0.042	0.152	0.117	0.134
0.65	0.092	0.222	0.142	0.209	6.2	0.042	0.146	0.117	0.134
0.6666	0.092	0.215	0.142	0.203	6.4	0.042	0.152	0.111	0.134
0.6833	0.092	0.215	0.142	0.203	6.6	0.042	0.146	0.117	0.134
0.7	0.092	0.215	0.142	0.203	6.8	0.042	0.146	0.111	0.134
0.7166	0.092	0.215	0.142	0.203	7	0.042	0.146	0.111	0.134
0.7333	0.092	0.215	0.142	0.203	7.2	0.042	0.146	0.111	0.134
0.75	0.092	0.215	0.142	0.196	7.4	0.042	0.146	0.111	0.127
0.7666	0.086	0.209	0.136	0.196	7.6	0.042	0.146	0.111	0.134
0.7833	0.086	0.209	0.142	0.196	7.8	0.042	0.14	0.111	0.134
0.8	0.086	0.209	0.136	0.196	8	0.042	0.146	0.111	0.127
0.8166	0.086	0.209	0.142	0.196	8.2	0.042	0.14	0.111	0.127
0.8333	0.086	0.209	0.142	0.19	8.4	0.035	0.14	0.111	0.127
0.85	0.086	0.209	0.136	0.196	8.6	0.035	0.14	0.111	0.127
0.8666	0.086	0.209	0.136	0.19	8.8	0.035	0.14	0.111	0.127
0.8833	0.086	0.203	0.136	0.19	9	0.035	0.14	0.111	0.127
0.9	0.086	0.203	0.136	0.19	9.2	0.035	0.14	0.111	0.127
0.9166	0.086	0.203	0.136	0.19	9.4	0.035	0.14	0.111	0.121
0.9333	0.086	0.203	0.136	0.19	9.6	0.035	0.14	0.111	0.127
0.95	0.086	0.203	0.136	0.19	9.8	0.035	0.14	0.105	0.121
0.9666	0.079	0.203	0.136	0.19	10	0.035	0.14	0.105	0.121

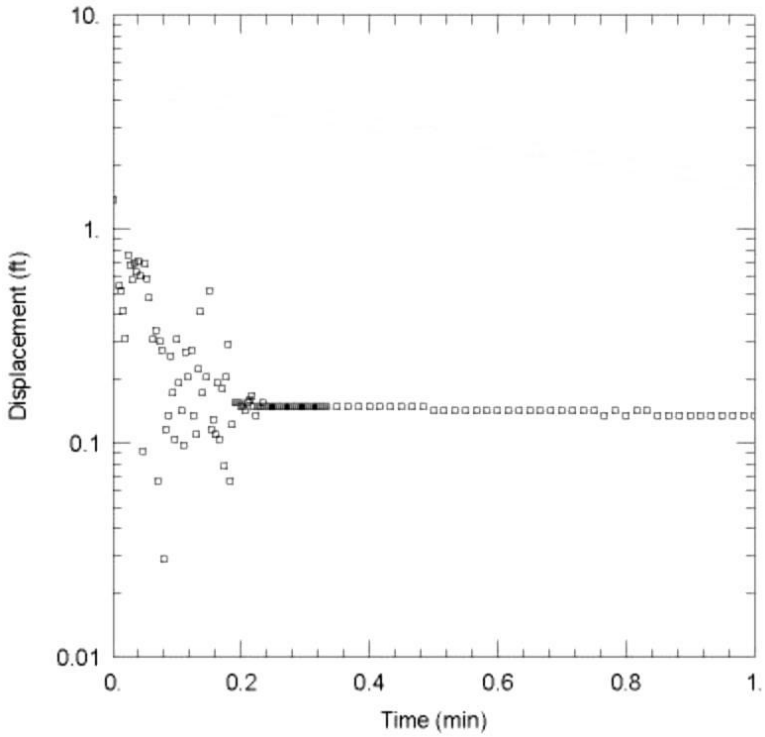


Observed slug test water level response data for MW49Z2, Test 1, slug in.

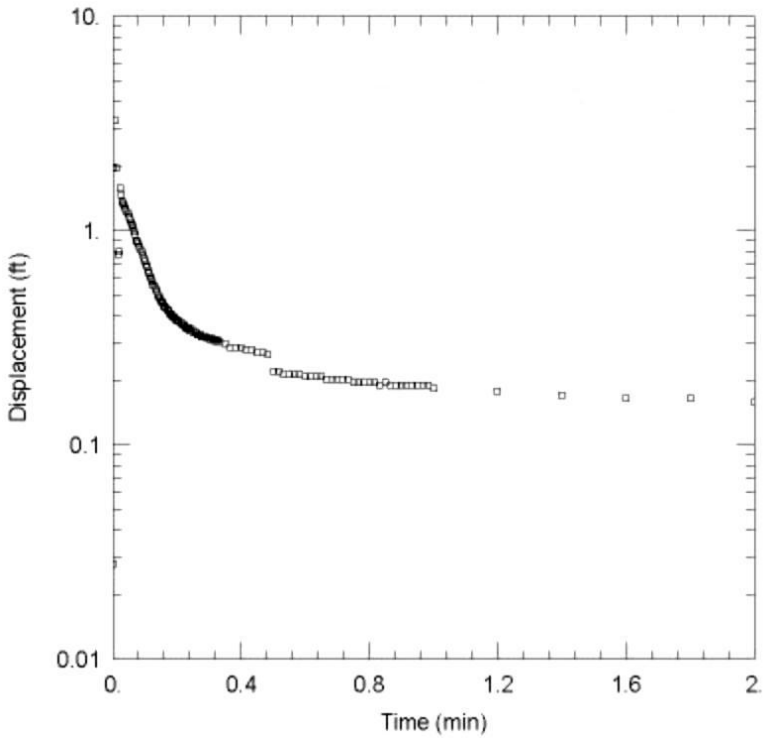


Observed slug test water level response data for MW49Z2, Test 2, slug out.

FIGURE A.4 Observed slug test water level response data for MW49Z2 (Table A.4).



Observed slug test water level response data for MW49Z2, Test 3, slug in.



Observed slug test water level response data for MW49Z2, Test 4, slug out.

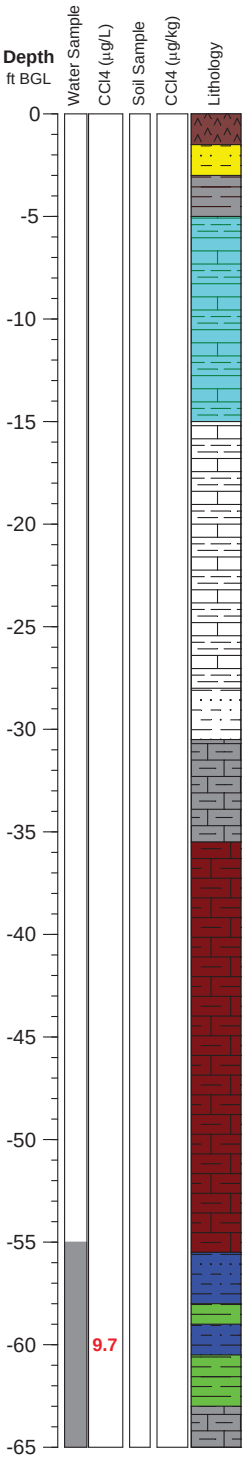
FIGURE A.4 (Cont.)

Argonne National Laboratory

Well ID: MW50Z2

Project: Hanover **Elevation:** 1307.18 ft **Log Date:** October 11, 2009 **Rig:** Sonic drilling rig

Geologist: Eugene Yan **Depth:** 65 ft **Drilling Company:** Boart Longyear



LITHOLOGY DESCRIPTION

Elev ft AMSL: 1305, 1300, 1295, 1290, 1285, 1280, 1275, 1270, 1265, 1260, 1255, 1250, 1245

TOPSOIL: dark brown, silty clay, abunndant roots, moist.

Sandy Silt: light yellowish brown, scattered sand patches and FeO2 stains.

SILT: Clayey, dark brown, highly oxidized.

Limestone and Shale Interbeds: light brown, highly weathered. abundant FeO2 stains, dry.

SHALE, weathered: greenish gray to light brown, contains lenses of siltstone and limestone, scattered FeO2 stains along the bedding planes.

SHALE, laminated: light brown, highly weathered.

Gray SHALE: dark bluish gray, contains thin beds of limy siltstone, solid, less weathered, dry.

Red SHALE: weathered, contain multiple lenses of thin, calcarous, greenish gray shale, dry.

SHALE, saturated: Greenish gray, contains thin limestone beds, highly weathered, scattered FeO2 stains, soft, wet

SHALE: Greenish gray, lenses of red shale, dry.

SHALE, saturated: Greenish gray, contains thin limestone beds, highly weathered, scattered FeO2 stains, soft, wet

SHALE: weathered light brown limestone and greenish gray shale, dry.

Gray SHALE: Light gray, contains massive siltstone/dolomite and lenses of gypsum deposite at 63.8-64.5, dry

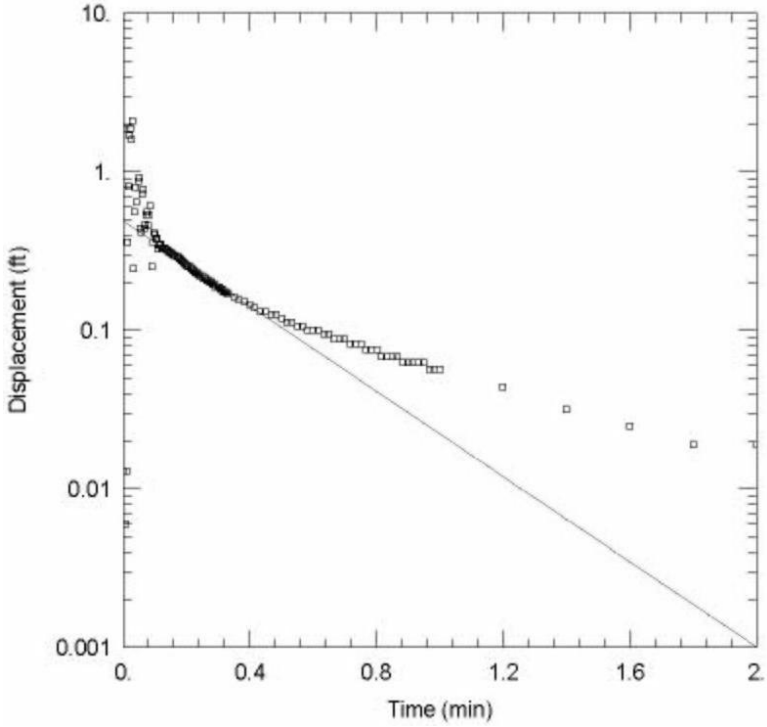
DRAFT

TABLE A.5 Slug test data for boring MW50Z2 (effective saturated thickness = 3.5 ft; effective length of well = 3.5 ft; effective screen length = 3.5 ft; casing radius = 0.08333 ft; borehole radius = 0.25; Kz/Kr = 1).

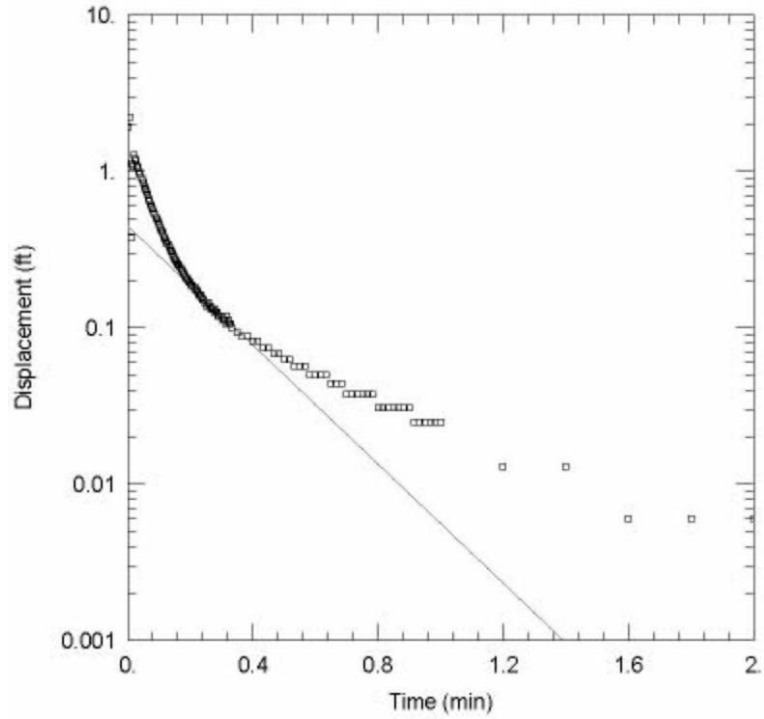
	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0	0.013	0.749	0.012	0.151	0.1533	0.308	0.271	0.295	0.258
0.0033	0.013	1.937	0.006	0.887	0.1566	0.302	0.264	0.277	0.252
0.0066	0.006	2.22	0.012	2.22	0.16	0.302	0.258	0.283	0.246
0.01	0.013	0.377	0.012	2.088	0.1633	0.296	0.252	0.283	0.239
0.0133	0.359	1.132	0.327	-0.239	0.1666	0.296	0.245	0.277	0.233
0.0166	0.812	1.076	0.472	1.516	0.17	0.29	0.239	0.27	0.227
0.02	1.705	1.276	0.648	0.913	0.1733	0.29	0.233	0.27	0.221
0.0233	1.875	1.213	0.553	1.585	0.1766	0.283	0.226	0.264	0.214
0.0266	1.617	1.182	0.868	1.133	0.18	0.283	0.22	0.264	0.208
0.03	2.095	1.095	1.063	1.207	0.1833	0.277	0.214	0.258	0.202
0.0333	0.246	1.063	1.422	1.089	0.1866	0.277	0.208	0.258	0.202
0.0366	0.56	1.007	1.579	1.07	0.19	0.271	0.208	0.251	0.195
0.04	0.806	0.963	0.723	1.013	0.1933	0.264	0.201	0.251	0.189
0.0433	0.648	0.919	0.83	0.969	0.1966	0.264	0.195	0.245	0.189
0.0466	0.875	0.887	1.025	0.925	0.2	0.258	0.195	0.245	0.183
0.05	0.919	0.843	0.339	0.881	0.2033	0.258	0.189	0.239	0.177
0.0533	0.441	0.805	0.66	0.85	0.2066	0.252	0.189	0.239	0.177
0.0566	0.415	0.768	0.843	0.806	0.21	0.252	0.182	0.233	0.17
0.06	0.73	0.742	0.969	0.774	0.2133	0.246	0.182	0.233	0.164
0.0633	0.78	0.711	0.66	0.73	0.2166	0.246	0.176	0.233	0.164
0.0666	0.441	0.679	0.201	0.705	0.22	0.239	0.176	0.226	0.158
0.07	0.466	0.648	0.484	0.68	0.2233	0.239	0.17	0.226	0.158
0.0733	0.541	0.623	0.402	0.648	0.2266	0.233	0.164	0.22	0.158
0.0766	0.56	0.604	0.553	0.623	0.23	0.233	0.164	0.22	0.151
0.08	0.459	0.579	0.352	0.598	0.2333	0.233	0.164	0.214	0.145
0.0833	0.535	0.554	0.365	0.573	0.2366	0.227	0.157	0.214	0.145
0.0866	0.61	0.535	0.377	0.554	0.24	0.227	0.151	0.214	0.145
0.09	0.252	0.51	0.402	0.529	0.2433	0.22	0.151	0.214	0.139
0.0933	0.359	0.497	0.371	0.51	0.2466	0.22	0.145	0.207	0.139
0.0966	0.415	0.478	0.377	0.491	0.25	0.22	0.145	0.207	0.139
0.1	0.403	0.459	0.346	0.472	0.2533	0.214	0.138	0.201	0.132
0.1033	0.378	0.44	0.346	0.453	0.2566	0.214	0.145	0.201	0.126
0.1066	0.384	0.421	0.352	0.434	0.26	0.214	0.138	0.201	0.126
0.11	0.327	0.415	0.459	0.416	0.2633	0.208	0.138	0.201	0.126
0.1133	0.346	0.403	0.258	0.403	0.2666	0.208	0.132	0.195	0.126
0.1166	0.352	0.384	0.339	0.39	0.27	0.208	0.132	0.195	0.12
0.12	0.352	0.371	0.321	0.378	0.2733	0.202	0.132	0.195	0.12
0.1233	0.334	0.359	0.358	0.365	0.2766	0.202	0.126	0.189	0.12
0.1266	0.334	0.346	0.314	0.346	0.28	0.202	0.132	0.189	0.114
0.13	0.334	0.34	0.270	0.34	0.2833	0.195	0.126	0.189	0.114
0.1333	0.327	0.327	0.428	0.328	0.2866	0.195	0.126	0.182	0.114
0.1366	0.321	0.315	0.352	0.309	0.29	0.195	0.119	0.182	0.114
0.14	0.321	0.308	0.295	0.296	0.2933	0.189	0.119	0.182	0.107
0.1433	0.315	0.296	0.302	0.29	0.2966	0.189	0.119	0.176	0.107
0.1466	0.315	0.289	0.302	0.277	0.3	0.189	0.119	0.176	0.107
0.15	0.308	0.277	0.295	0.271	0.3033	0.189	0.113	0.176	0.107

TABLE A.5 (Cont.)

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.3066	0.183	0.113	0.176	0.101	0.9833	0.057	0.025	0.056	0.013
0.31	0.183	0.113	0.17	0.101	1	0.057	0.025	0.056	0.013
0.3133	0.183	0.107	0.17	0.101	1.2	0.044	0.013	0.044	0.007
0.3166	0.176	0.119	0.17	0.101	1.4	0.032	0.013	0.031	0
0.32	0.176	0.107	0.17	0.101	1.6	0.025	0.006	0.025	
0.3233	0.176	0.113	0.17	0.095	1.8	0.019	0.006	0.019	
0.3266	0.176	0.107	0.163	0.095	2	0.019	0.006	0.019	
0.33	0.17	0.107	0.163	0.095	2.2	0.013	0.006	0.012	
0.3333	0.17	0.101	0.163	0.095	2.4	0.013	0.006	0.012	
0.35	0.164	0.094	0.157	0.088	2.6	0.013	0	0.006	
0.3666	0.157	0.088	0.151	0.082	2.8	0.006		0.006	
0.3833	0.151	0.088	0.144	0.076	3	0.006		0.006	
0.4	0.145	0.082	0.138	0.07	3.2	0.006		0.006	
0.4166	0.139	0.082	0.132	0.07	3.4	0.006		0.006	
0.4333	0.132	0.075	0.132	0.063	3.6	0		0	
0.45	0.132	0.075	0.126	0.063	3.8				
0.4666	0.126	0.069	0.119	0.057	4				
0.4833	0.126	0.069	0.119	0.057	4.2				
0.5	0.12	0.063	0.113	0.051	4.4				
0.5166	0.113	0.063	0.113	0.051	4.6				
0.5333	0.113	0.057	0.107	0.051	4.8				
0.55	0.107	0.057	0.107	0.044	5				
0.5666	0.107	0.057	0.1	0.044	5.2				
0.5833	0.101	0.05	0.1	0.044	5.4				
0.6	0.101	0.05	0.094	0.038	5.6				
0.6166	0.101	0.05	0.094	0.038	5.8				
0.6333	0.095	0.05	0.088	0.038	6				
0.65	0.095	0.044	0.088	0.038	6.2				
0.6666	0.088	0.044	0.088	0.032	6.4				
0.6833	0.088	0.044	0.088	0.032	6.6				
0.7	0.088	0.038	0.082	0.032	6.8				
0.7166	0.082	0.038	0.082	0.032	7				
0.7333	0.082	0.038	0.082	0.026	7.2				
0.75	0.082	0.038	0.075	0.026	7.4				
0.7666	0.076	0.038	0.075	0.026	7.6				
0.7833	0.076	0.038	0.075	0.026	7.8				
0.8	0.076	0.031	0.075	0.026	8				
0.8166	0.069	0.031	0.069	0.026	8.2				
0.8333	0.069	0.031	0.069	0.019	8.4				
0.85	0.069	0.031	0.069	0.019	8.6				
0.8666	0.069	0.031	0.063	0.019	8.8				
0.8833	0.063	0.031	0.063	0.019	9				
0.9	0.063	0.031	0.063	0.019	9.2				
0.9166	0.063	0.025	0.063	0.019	9.4				
0.9333	0.063	0.025	0.056	0.019	9.6				
0.95	0.063	0.025	0.056	0.019	9.8				
0.9666	0.057	0.025	0.056	0.013	10				

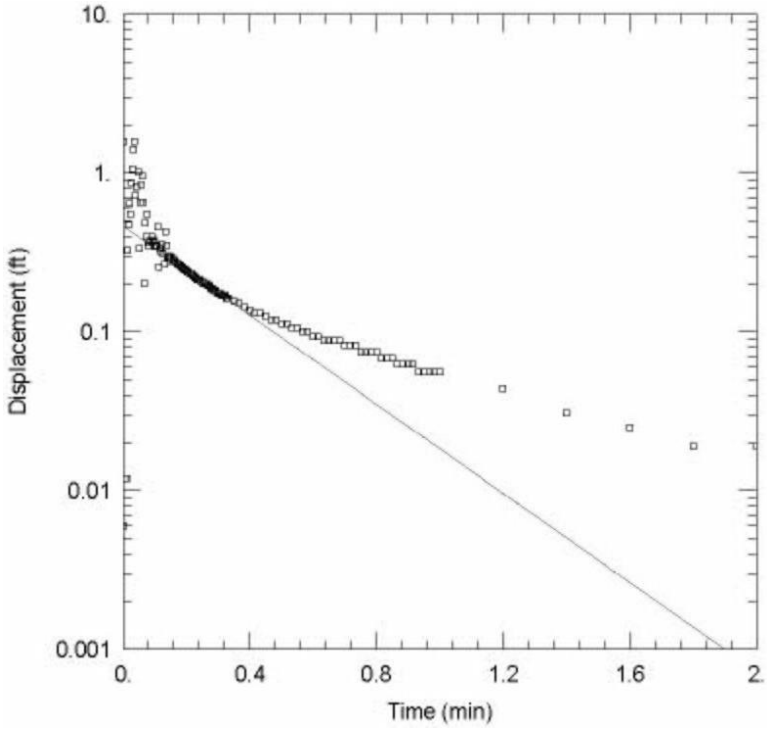


Observed slug test water level response and interpretive straight-line fit to the measured data for MW50Z2, Test 1, slug in.

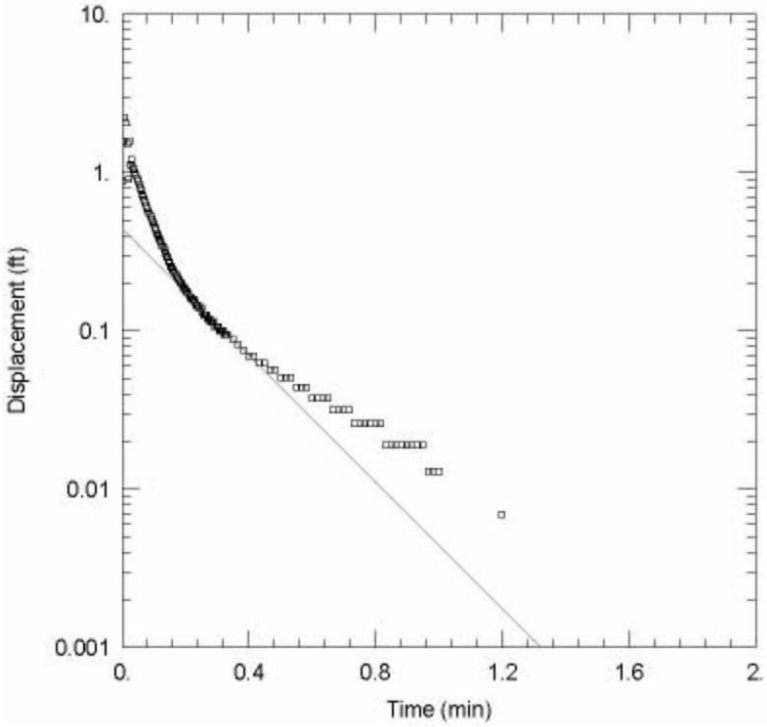


Observed slug test water level response and interpretive straight-line fit to the measured data for MW50Z2, Test 2, slug out.

FIGURE A.5 Observed slug test water level response and interpretive fit for the data for MW50Z2 (Table A.5).



Observed slug test water level response and interpretive straight-line fit to the measured data for MW50Z2, Test 3, slug in.



Observed slug test water level response and interpretive straight-line fit to the measured data for MW50Z2, Test 4, slug out.

FIGURE A.5 (Cont.)

Argonne National Laboratory

Well ID: MW51Z2

Project: Hanover **Elevation:** 1318.42 ft **Log Date:** October 15, 2009 **Rig:** Sonic drilling rig

Geologist: Eugene Yan **Depth:** 66 ft **Drilling Company:** Boart Longyear

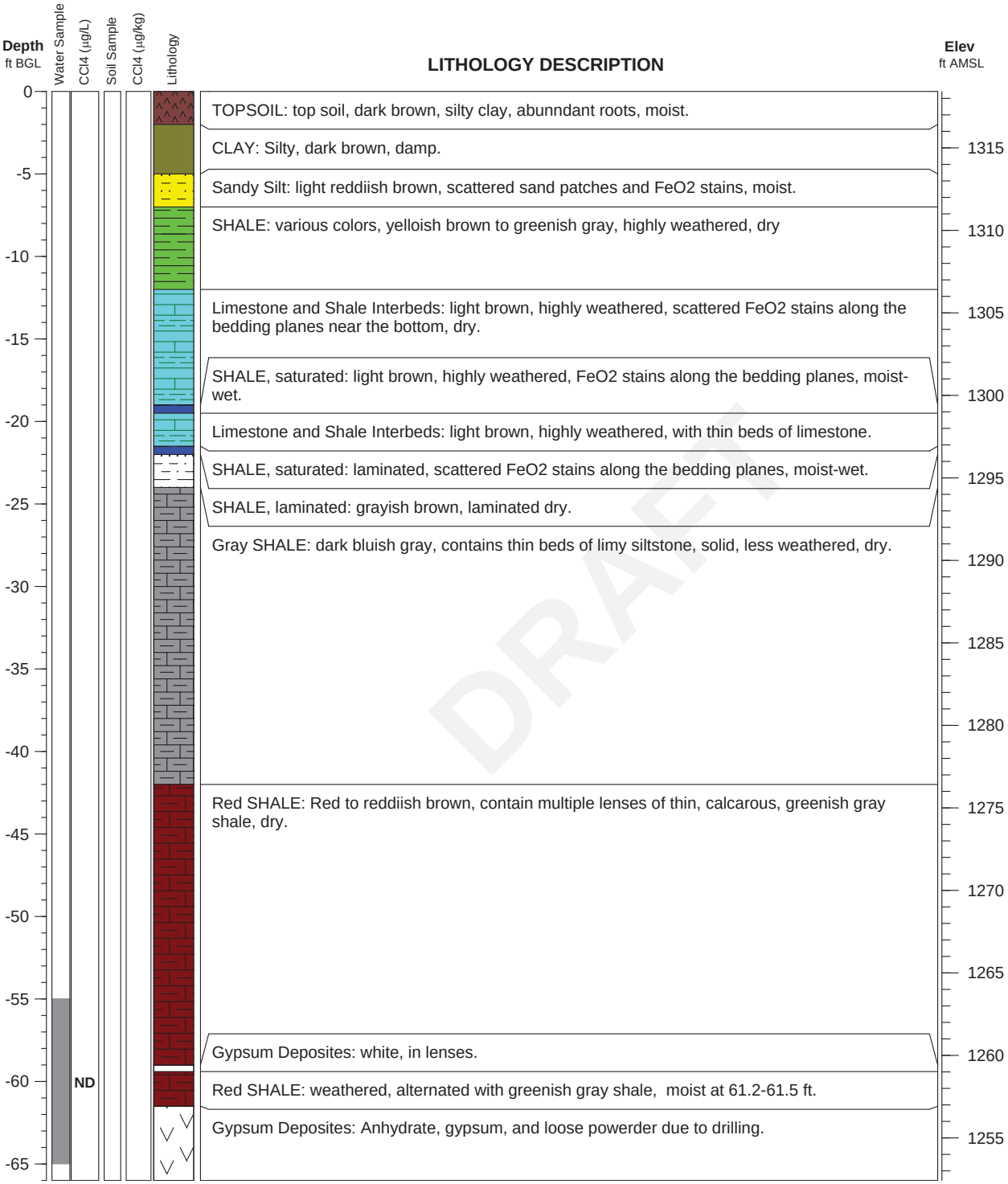


TABLE A.6 Slug test data for boring MW51Z2 (effective saturated thickness = 3.5 ft; effective length of well = 3.5 ft; effective screen length = 3.5 ft; casing radius = 0.08333 ft; borehole radius = 0.25; Kz/Kr = 1).

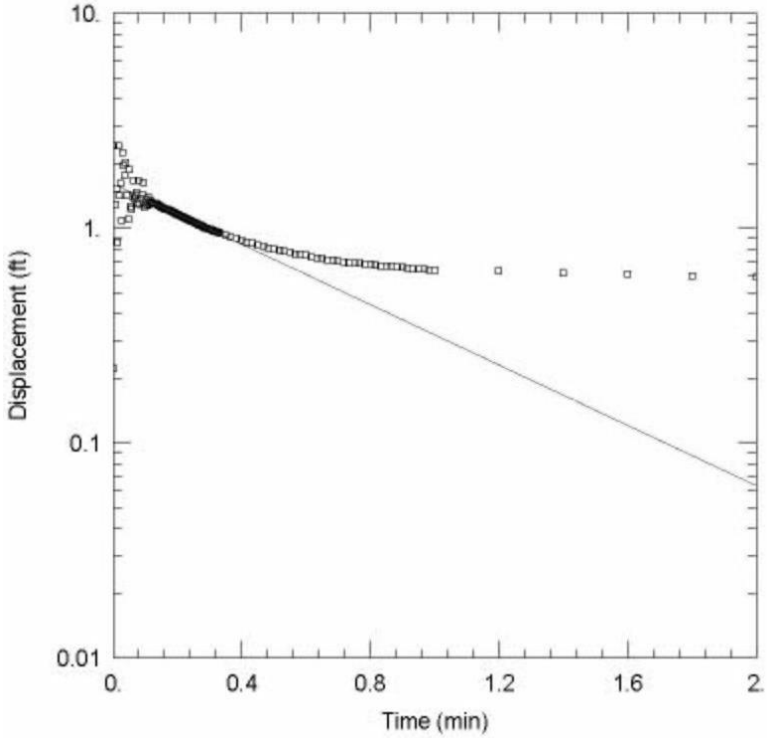
	Residual Drawdown (ft)					Residual Drawdown (ft)			
Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0	0.218	0.22	-0.021	-0.399	0.1533	1.255	0.723	1.135	0.543
0.0033	0.224	1.352	-0.021	-0.035	0.1566	1.249	0.717	1.129	0.537
0.0066	1.293	2.497	-0.021	1.172	0.16	1.242	0.71	1.123	0.531
0.01	1.532	-0.49	-0.021	1.965	0.1633	1.236	0.698	1.11	0.524
0.0133	0.865	1.855	-0.015	0.996	0.1666	1.23	0.698	1.104	0.518
0.0166	2.431	1.075	0.205	0.738	0.17	1.224	0.692	1.098	0.512
0.02	1.425	0.956	0.588	1.242	0.1733	1.217	0.685	1.091	0.506
0.0233	1.614	1.17	0.922	0.726	0.1766	1.211	0.679	1.085	0.499
0.0266	1.091	1	1.721	0.971	0.18	1.205	0.666	1.079	0.493
0.03	2.262	1.056	1.752	0.845	0.1833	1.198	0.666	1.073	0.487
0.0333	1.96	1.019	1.809	0.864	0.1866	1.192	0.66	1.066	0.487
0.0366	1.765	1.006	1.393	0.858	0.19	1.186	0.66	1.06	0.474
0.04	2.023	1.006	0.852	0.833	0.1933	1.173	0.654	1.054	0.474
0.0433	1.425	0.975	2.079	0.833	0.1966	1.167	0.647	1.047	0.468
0.0466	1.104	0.981	1.821	0.82	0.2	1.161	0.635	1.041	0.462
0.05	1.89	0.962	1.683	0.808	0.2033	1.161	0.629	1.035	0.455
0.0533	1.274	0.949	1.123	0.795	0.2066	1.154	0.629	1.029	0.443
0.0566	1.224	0.949	1.324	0.789	0.21	1.148	0.616	1.022	0.443
0.06	1.406	0.937	1.463	0.782	0.2133	1.142	0.616	1.016	0.436
0.0633	1.677	0.931	1.318	0.77	0.2166	1.135	0.616	1.01	0.43
0.0666	1.387	0.918	1.538	0.763	0.22	1.129	0.61	1.003	0.424
0.07	1.431	0.912	1.142	0.745	0.2233	1.123	0.603	0.997	0.424
0.0733	1.469	0.893	1.249	0.745	0.2266	1.117	0.597	0.991	0.411
0.0766	1.318	0.887	1.406	0.732	0.23	1.11	0.597	0.985	0.411
0.08	1.67	0.874	1.318	0.719	0.2333	1.104	0.585	0.978	0.405
0.0833	1.293	0.874	1.406	0.713	0.2366	1.098	0.578	0.972	0.399
0.0866	1.381	0.868	1.261	0.707	0.24	1.091	0.578	0.966	0.399
0.09	1.444	0.861	1.205	0.694	0.2433	1.085	0.572	0.959	0.392
0.0933	1.645	0.855	1.312	0.682	0.2466	1.079	0.572	0.953	0.386
0.0966	1.255	0.843	1.255	0.675	0.25	1.073	0.566	0.953	0.38
0.1	1.324	0.836	1.312	0.669	0.2533	1.066	0.559	0.947	0.373
0.1033	1.375	0.824	1.381	0.657	0.2566	1.06	0.547	0.94	0.373
0.1066	1.287	0.817	1.173	0.65	0.26	1.054	0.547	0.934	0.367
0.11	1.4	0.811	1.117	0.638	0.2633	1.047	0.547	0.928	0.361
0.1133	1.293	0.798	1.356	0.631	0.2666	1.041	0.541	0.922	0.361
0.1166	1.356	0.798	1.11	0.625	0.27	1.041	0.541	0.915	0.355
0.12	1.331	0.786	1.268	0.619	0.2733	1.035	0.534	0.915	0.348
0.1233	1.318	0.78	1.161	0.606	0.2766	1.029	0.528	0.909	0.342
0.1266	1.318	0.78	1.268	0.606	0.28	1.022	0.522	0.903	0.342
0.13	1.305	0.767	1.154	0.6	0.2833	1.016	0.522	0.896	0.336
0.1333	1.305	0.767	1.167	0.587	0.2866	1.01	0.515	0.89	0.329
0.1366	1.293	0.761	1.205	0.575	0.29	1.01	0.515	0.884	0.329
0.14	1.287	0.748	1.142	0.575	0.2933	1.003	0.509	0.884	0.323
0.1433	1.28	0.742	1.173	0.562	0.2966	0.997	0.509	0.878	0.317
0.1466	1.274	0.736	1.142	0.562	0.3	0.997	0.503	0.871	0.317
0.15	1.261	0.729	1.148	0.55	0.3033	0.991	0.503	0.871	0.311

TABLE A.6 (Cont.)

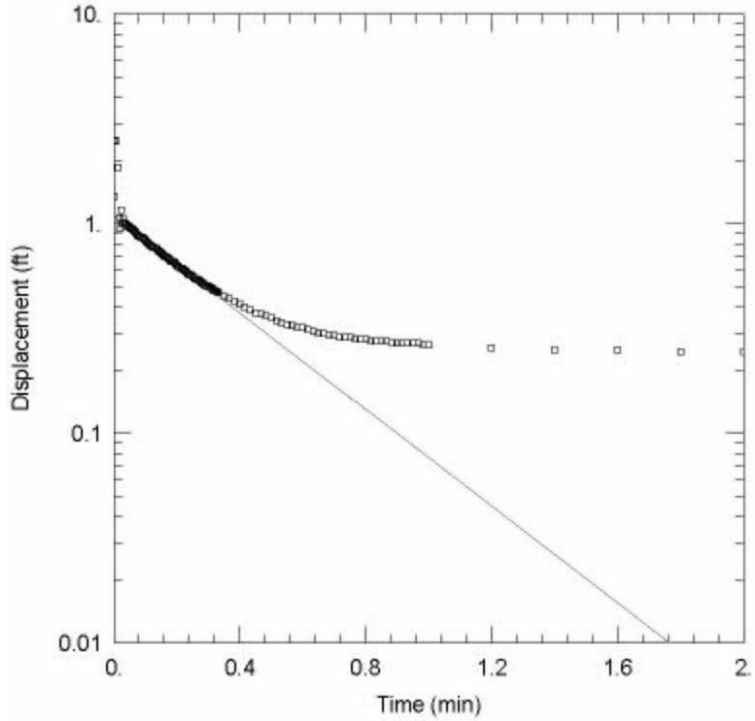
Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
0.3066	0.985	0.496	0.865	0.311	0.9833	0.645	0.264	0.475	0.071
0.31	0.985	0.496	0.859	0.304	1	0.645	0.264	0.475	0.065
0.3133	0.978	0.49	0.852	0.304	1.2	0.632	0.257	0.45	0.059
0.3166	0.978	0.484	0.852	0.298	1.4	0.62	0.251	0.444	0.053
0.32	0.972	0.484	0.846	0.298	1.6	0.613	0.251	0.431	0.046
0.3233	0.966	0.484	0.84	0.292	1.8	0.601	0.245	0.425	0.046
0.3266	0.966	0.478	0.834	0.285	2	0.594	0.245	0.425	0.04
0.33	0.959	0.478	0.834	0.285	2.2	0.588	0.245	0.418	0.04
0.3333	0.953	0.471	0.827	0.279	2.4	0.582	0.245	0.418	0.04
0.35	0.934	0.452	0.802	0.26	2.6	0.576	0.239	0.418	0.04
0.3666	0.915	0.44	0.783	0.248	2.8	0.569	0.239	0.412	0.04
0.3833	0.903	0.427	0.764	0.235	3	0.563	0.239	0.412	0.034
0.4	0.884	0.415	0.745	0.216	3.2	0.563	0.239	0.412	0.034
0.4166	0.865	0.402	0.727	0.204	3.4	0.557	0.232	0.412	0.034
0.4333	0.852	0.39	0.714	0.197	3.6	0.55	0.232	0.412	0.034
0.45	0.84	0.377	0.695	0.185	3.8	0.544	0.239	0.406	0.034
0.4666	0.827	0.371	0.683	0.172	4	0.55	0.239	0.406	0.034
0.4833	0.815	0.364	0.67	0.166	4.2	0.544	0.239	0.406	0.034
0.5	0.802	0.358	0.657	0.16	4.4	0.544	0.239	0.406	0.034
0.5166	0.796	0.346	0.645	0.147	4.6	0.544	0.232	0.406	0.034
0.5333	0.783	0.339	0.632	0.141	4.8	0.538	0.232	0.406	0.034
0.55	0.777	0.333	0.62	0.134	5	0.544	0.232	0.406	0.034
0.5666	0.764	0.327	0.607	0.128	5.2	0.532	0.232	0.406	0.027
0.5833	0.758	0.32	0.601	0.122	5.4	0.532	0.232	0.406	0.027
0.6	0.752	0.32	0.588	0.122	5.6	0.532	0.232	0.406	0.027
0.6166	0.739	0.314	0.582	0.116	5.8	0.532	0.232	0.406	0.027
0.6333	0.733	0.308	0.576	0.109	6	0.525	0.239	0.406	0.027
0.65	0.727	0.301	0.563	0.109	6.2	0.525	0.239	0.399	0.027
0.6666	0.714	0.301	0.557	0.103	6.4	0.532	0.239	0.399	0.027
0.6833	0.714	0.295	0.550	0.103	6.6	0.525	0.239	0.399	0.027
0.7	0.708	0.295	0.544	0.097	6.8	0.532	0.239	0.399	0.027
0.7166	0.701	0.289	0.538	0.097	7	0.525	0.239	0.399	0.027
0.7333	0.695	0.289	0.532	0.09	7.2	0.525	0.239	0.399	0.027
0.75	0.695	0.289	0.525	0.09	7.4	0.525	0.239	0.399	0.027
0.7666	0.689	0.283	0.525	0.084	7.6	0.519	0.239	0.399	0.027
0.7833	0.683	0.283	0.519	0.084	7.8	0.519	0.239	0.399	0.027
0.8	0.683	0.283	0.513	0.084	8	0.525	0.239	0.399	0.027
0.8166	0.676	0.276	0.506	0.084	8.2	0.525	0.239	0.399	0.027
0.8333	0.67	0.276	0.506	0.078	8.4	0.519	0.239	0.399	0.027
0.85	0.67	0.276	0.500	0.078	8.6	0.519	0.232	0.399	0.027
0.8666	0.67	0.276	0.500	0.078	8.8	0.513	0.232	0.399	0.027
0.8833	0.664	0.27	0.494	0.078	9	0.513	0.232	0.399	0.027
0.9	0.664	0.27	0.494	0.071	9.2	0.519	0.232	0.399	0.027
0.9166	0.657	0.27	0.488	0.071	9.4	0.513	0.239	0.399	0.027
0.9333	0.651	0.27	0.488	0.071	9.6	0.513	0.239	0.399	0.027
0.95	0.651	0.27	0.481	0.071	9.8	0.506	0.239	0.399	0.027
0.9666	0.651	0.27	0.481	0.071	10	0.506	0.239	0.393	0.027

TABLE A.6 (Cont.)

Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out	Elapsed Time (min)	Residual Drawdown (ft) Test 1 Slug In	Test 2 Slug Out	Test 3 Slug In	Test 4 Slug Out
12	0.494	0.245	0.393	0.021					
14	0.475	0.239	0.387	0.034					
16	0.462	0.245	0.387	0.034					
18	0.45	0.245	0.387	0.034					
20	0.462	0.251	0.393	0.034					
22	0.469	0.251	0.387	0.034					
24	0.45	0.251	0.381	0.027					
26	0.437	0.251	0.381	0.027					
28	0.431	0.251	0.381	0.027					
30	0.425	0.251	0.381	0.027					
32	0.425	0.251	0.381	0.027					
34	0.418	0.251	0.381	0.027					
36	0.418	0.251	0.381	0.027					
38	0.418	0.251	0.381	0.027					
40	0.418	0.251	0.381	0.027					
42	0.412	0.251	0.462						
44	0.406	0.251							
46	0.399	0.257							
48	0.406	0.251							
50	0.399	0.251							
52	0.399	0.251							

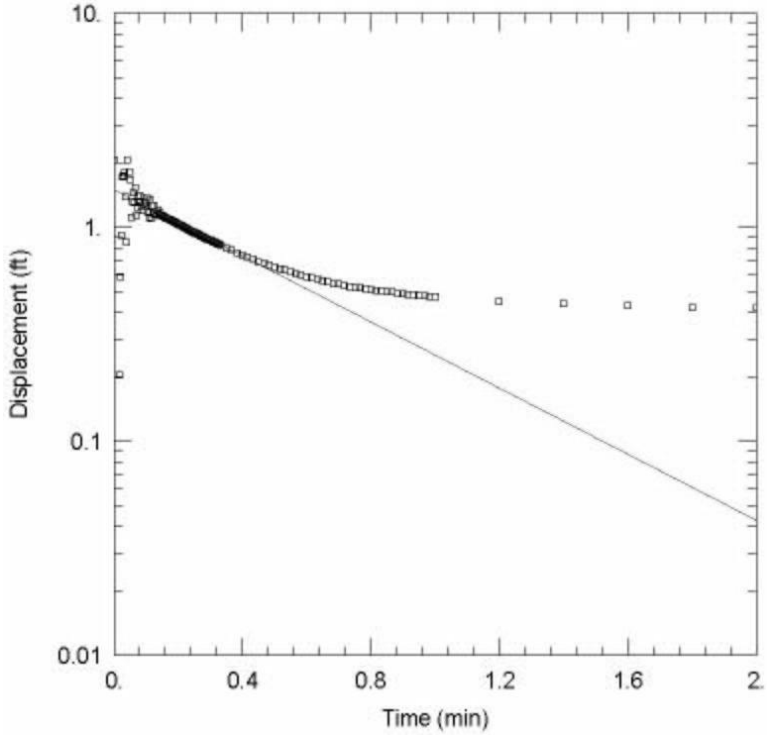


Observed slug test water level response and interpretive straight-line fit to the measured data for MW51Z2, Test 1, slug in.

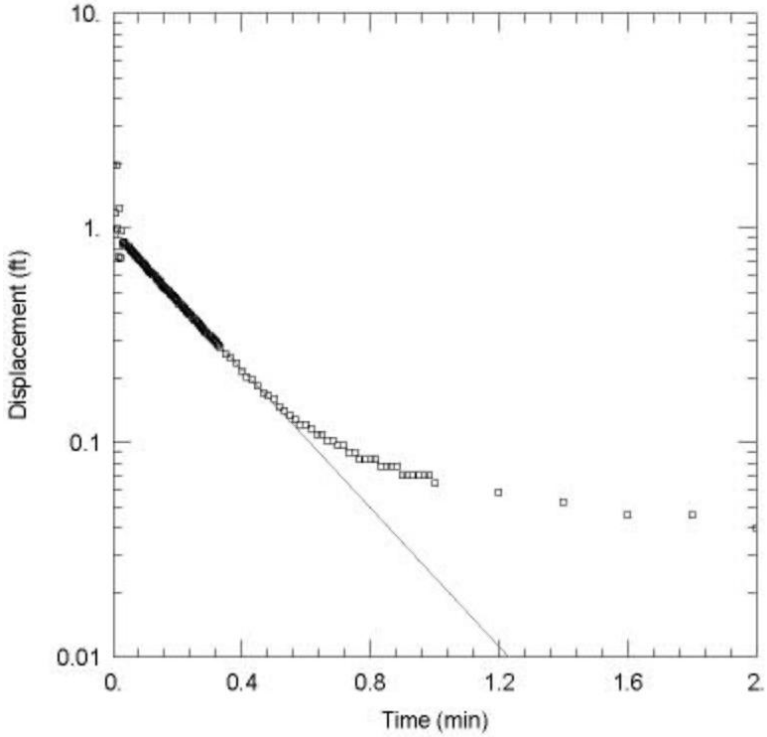


Observed slug test water level response and interpretive straight-line fit to the measured data for MW51Z2, Test 2, slug out.

FIGURE A.6 Observed slug test water level response and interpretive fit for the data for MW51Z2 (Table A.6).

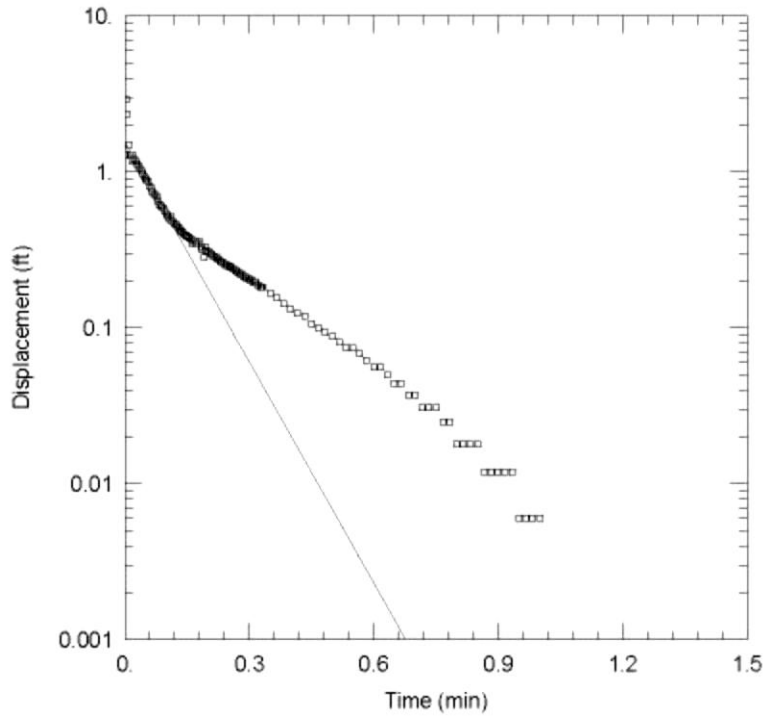


Observed slug test water level response and interpretive straight-line fit to the measured data for MW51Z2, Test 3, slug in.

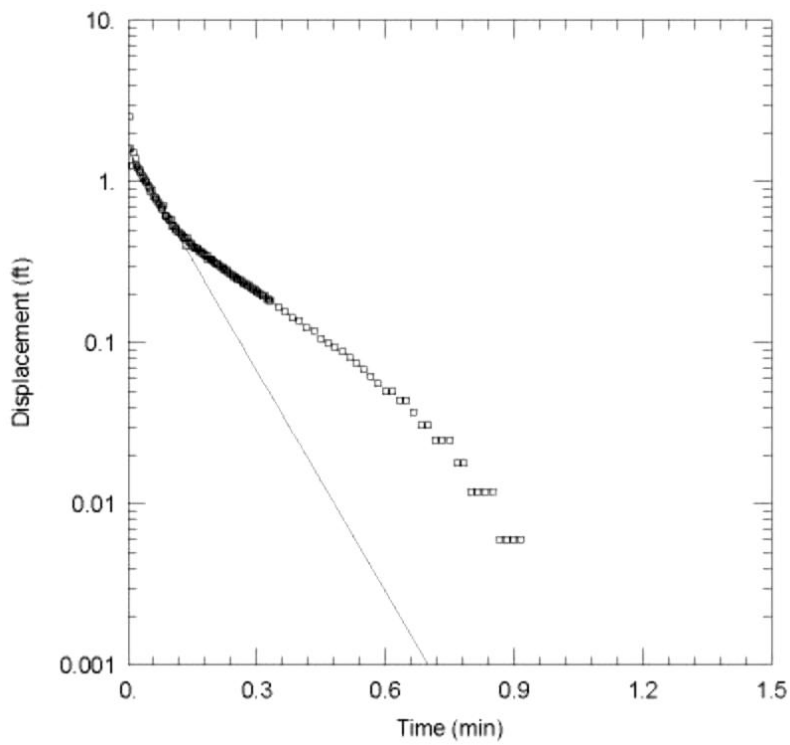


Observed slug test water level response and interpretive straight-line fit to the measured data for MW51Z2, Test 4, slug out.

FIGURE A.6 (Cont.)

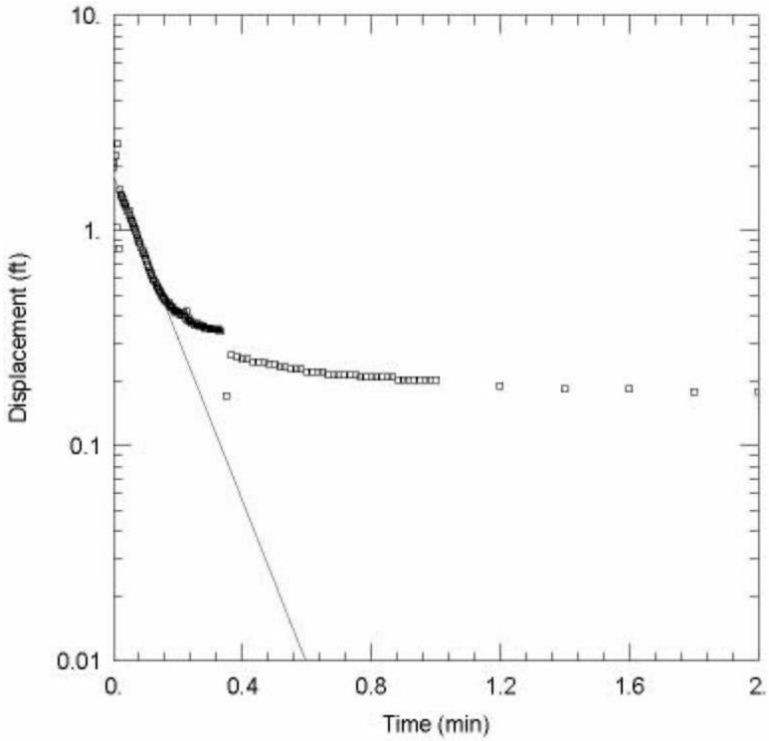


Observed slug test water level response and interpretive straight-line fit to the early data for MW45Z2, Test 2, slug out.

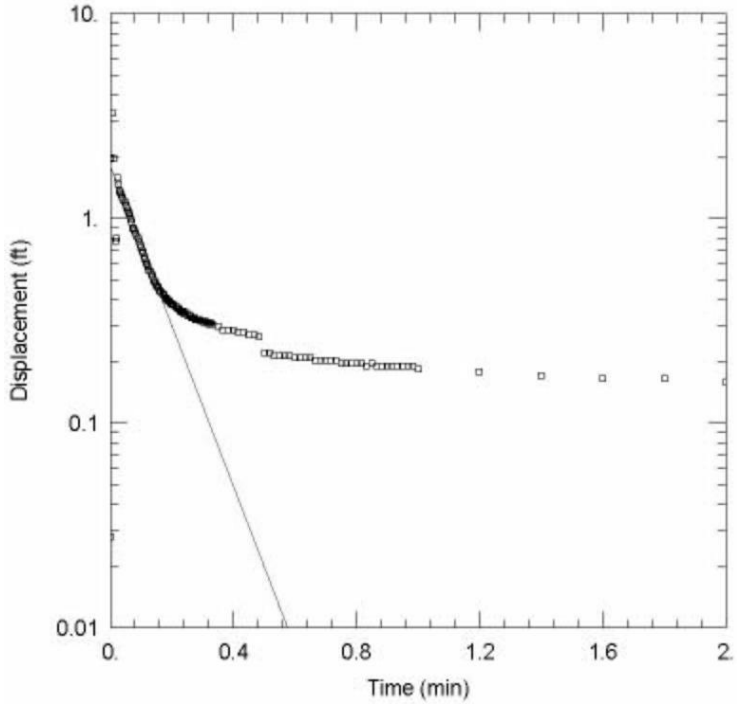


Observed slug test water level response and interpretive straight-line fit to the early data for MW45Z2, Test 4, slug out.

FIGURE A.7 Observed slug test water level response and interpretive fit for the early recovery data for MW45Z2.

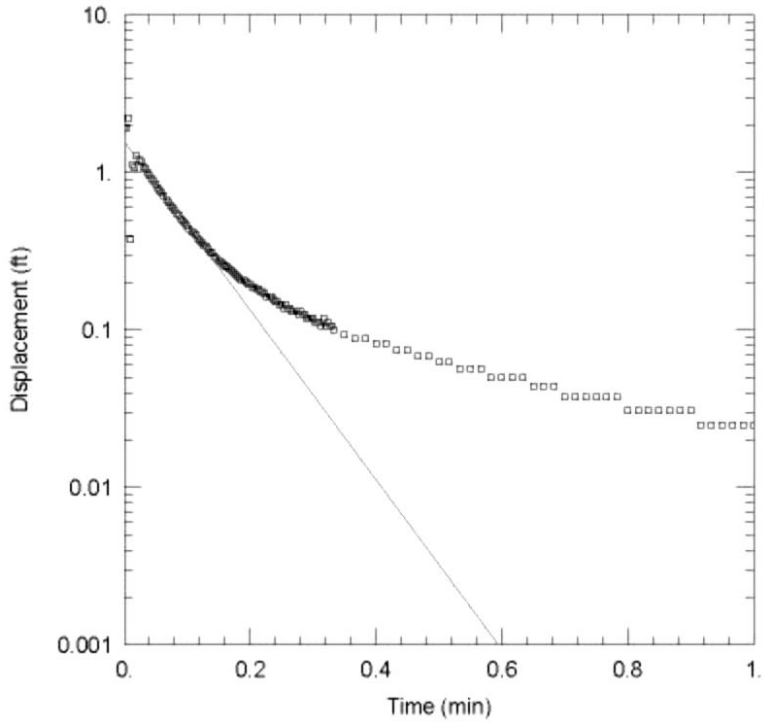


Observed slug test water level response and interpretive straight-line fit to the early data for MW49Z2, Test 2, slug out.

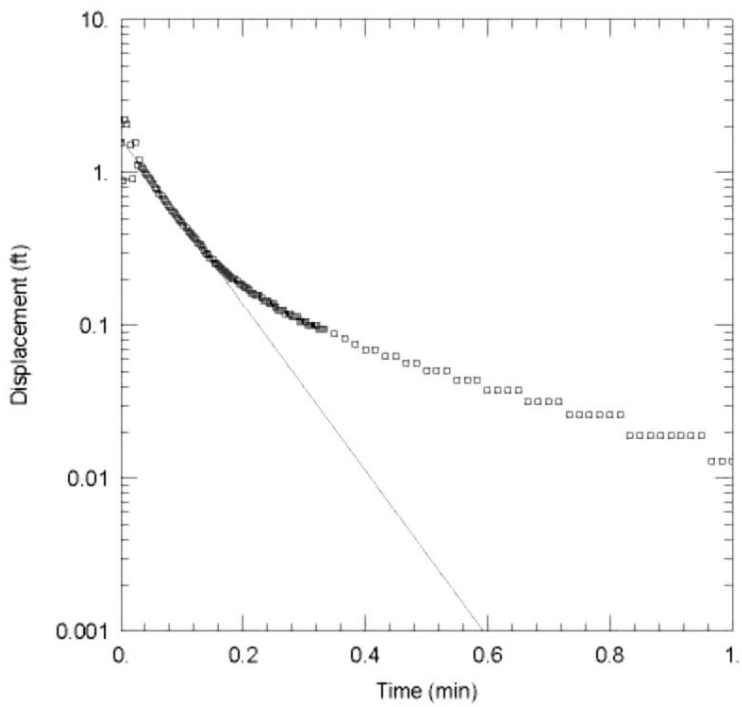


Observed slug test water level response and interpretive straight-line fit to the early data for MW49Z2, Test 4, slug out.

FIGURE A.8 Observed slug test water level response and interpretive fit for the early recovery data for MW49Z2.



Observed slug test water level response and interpretive straight-line fit to the early data for MW50Z2, Test 2, slug out.



Observed slug test water level response and interpretive straight-line fit to the early data for MW50Z2, Test 4, slug out.

FIGURE A.9 Observed slug test water level response and interpretive fit for the early recovery data for MW50Z2.

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Supplement 6:

Preliminary Summary of Pumping Test Results for Selected Zone 1 Wells at Hanover, Kansas

Argonne NATIONAL LABORATORY

ANL/EVS/AGEM/CHRON-1321

Preliminary Summary of Pumping Test Results for Selected Zone 1 Wells at Hanover, Kansas

Environmental Science Division

USDA United States Department of Agriculture

Work sponsored by Commodity Credit Corporation,
United States Department of Agriculture

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ANL/EVS/AGEM/CHRON-1321

Preliminary Summary of Pumping Test Results for Selected Zone 1 Wells at Hanover, Kansas

by
Environmental Science Division, Argonne National Laboratory

January 2010

United States Department of Agriculture

Work sponsored by Commodity Credit Corporation,
United States Department of Agriculture

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A.3 Chronologic summary of measurements obtained during the step testing of well MW10

A.4 Summary of water level measurements recorded in monitoring wells during the step testing program

A.5 Summary of barometric pressure measurements recorded at Hanover during the step testing program

Notation

CCC	Commodity Credit Corporation
ft	foot (feet)
gal	gallon(s)
gpf	gallon(s) per foot
gpm	gallon(s) per minute
hr	hour(s)
in.	inch(es)
KDHE	Kansas Department of Health and Environment
min	minute(s)
ROI	radius of influence
sec	second(s)
TOC	top of casing
USDA	U.S. Department of Agriculture
V	volt(s)

Preliminary Summary of Pumping Test Results for Selected Zone 1 Wells at Hanover, Kansas

1 Background

"Addendum 3" (Argonne 2009a) to the *Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas* (Argonne 2008), outlines a program of hydraulic investigation, consisting of single-well step-drawdown testing and possibly constant-rate pumping tests, to determine the specific capacity and potential radius of influence (ROI) of selected existing wells at this site. As part of this program, "step" pumping tests were performed on November 23-25, 2009, at existing monitoring wells MW09, MW05, and MW10 (Figure 1a).

With the approval of the KDHE (2009), wells MW09 and MW05 were selected (Argonne 2009a) as the initial locations for step-drawdown testing (Figure 1a-c). Wells MW09 and MW05 are located near the north central boundary of the former CCC/USDA facility; they lie within the portion of the Zone 1 water-bearing unit exhibiting both the highest observed carbon tetrachloride concentrations in groundwater and the highest estimated hydraulic conductivities determined by slug testing (Argonne 2009b). The available data suggest that wells in this area (including MW09 and MW05) might have the greatest probability of sustaining pumping rates that are sufficient to induce significant groundwater drawdown in other nearby monitoring wells, and hence to facilitate potential "hot-spot" groundwater extraction in this area as a remedial alternative.

Well MW10 is located near the southern boundary of the former CCC/USDA facility, as well as near the southern, downgradient limit of the highest carbon tetrachloride concentrations identified in the Zone 1 groundwater (Figures 1a,d). Slug testing at this location (Argonne 2009b) identified relatively moderate hydraulic conductivity. Specific-capacity testing at well MW10 was therefore conducted to assess the potential for groundwater pumping in this area, as a possible means for hydraulically constraining further downgradient migration of the carbon tetrachloride in Zone 1.

This document presents a summary of the data obtained from the step-drawdown tests, along with preliminary observations regarding the pumping capacity of the tested wells. The work reported here was conducted by Argonne National Laboratory on behalf of the Commodity

Credit Corporation of the U.S. Department of Agriculture (CCC/USDA). The work is under the oversight of the Kansas Department of Health and Environment (KDHE).

2 Implementation of the Step Testing Program

2.1 Pumping and Monitoring of Wells MW09, MW05, and MW10

The step tests were conducted at Hanover on November 23-25, 2009, in accord with the investigative program approved by the KDHE (2009). A Geotech Environmental Equipment, Inc., SS Geosub™ 12-V (direct current) sampling pump equipped with 0.25-in.-diameter discharge tubing and a Geotech alternating current controller were used to perform the tests. This pumping configuration, together with a ¼-turn ball valve installed at the outlet of the discharge tubing, permitted relatively precise control of the flow from the pump at rates ranging from < 0.1 gpm (gallons per minute) to approximately 1.25 gpm. In each well, the pump was installed so that the pump inlet was approximately 0.3 ft above the measured bottom of the well. The pump is 1.1 ft in length.

As proposed in "Addendum 3" (Argonne 2009a), the specific pumping rates employed for the step testing at each targeted monitoring well were selected in the field. The pumping rates were measured by using a stop watch to periodically determine the time required to fill a calibrated 0.5-gal, or 1-gal, container placed at the discharge outfall. Each test was started at a target initial flow rate of approximately 0.1 gpm. The flow rates for each subsequent step were selected on the basis of the water level response observed during the preceding step of the test.

The wastewater generated during the tests was containerized at the site and held for subsequent sampling, analysis, and disposal as outlined in "Addendum 3" (Argonne 2009a).

Groundwater levels in each pumped well were monitored (1) manually, by periodically measuring the depth to water from the top of the well casing with the aid of an electronic water level meter, and (2) by using a downhole pressure transducer and data logger. The downhole loggers were programmed to record readings at 10-sec intervals in wells MW09 and MW10 and at 15-sec intervals in well MW05. In each well, the automatic water level readings were recorded as the height of groundwater in the well above the pressure sensor. In well MW09, the pressure sensor was installed approximately 1.4 ft above the pump intake. In wells MW05 and MW10, the pressure sensors were installed approximately 1.2 ft above the pump intakes.

The Geosub™ pump and downhole transducer were installed in well MW09 on November 23 at approximately 17:00, and the well was allowed to reequilibrate overnight. The

step testing of MW09 began at 9:25 on November 24, and the pumping was terminated at 12:20. The residual drawdown in MW09 was subsequently monitored until approximately 90% recovery had been achieved. The pump was then removed, decontaminated, and installed at well MW05.

Manual measurements indicated that the groundwater level in well MW05 returned to within 0.01 ft of static within 20 min following installation of the pump and transducer. The test pumping of MW05 began at 14:40 (on November 24) and was concluded at 18:11. The residual drawdown in well MW05 was monitored until approximately 80% recovery was observed. The pump was then removed, decontaminated, and moved to well MW10.

The pump and downhole transducer were installed in well MW10 at approximately 19:20 on November 24, and the well was allowed to reequilibrate overnight. Test pumping of MW10 began the next morning (on November 25) at 8:25 and ended at 11:39. The residual drawdown in MW10 was monitored until approximately 98% recovery had been achieved.

The detailed sequence of events for each step test and the groundwater levels and discharge rates determined for each pumping well are in Appendix A, Tables A.1-A.3.

2.2 Monitoring of Water Levels in Selected Observation Wells

In accord with the proposed testing program (Argonne 2009a), groundwater levels were measured in existing monitoring wells adjacent to each pumping well (MW05, MW09, MW10) to identify potential drawdown responses. The specific wells observed for each test are as follows (Figures 1a-d):

Pumping Well	Monitored Wells
MW09	MW02, MW05, MW11, MW13, MW34
MW05	MW01, MW02, MW09, MW11, MW12, MW13
MW10	MW01, MW04, MW07, MW18, MW19, MW20

To improve the spatial coverage of monitoring points for the well MW05 and well MW10 testing, wells MW13 and MW19 were added, respectively, as observation points.

Downhole pressure transducers and data loggers were employed to record the water level responses in the targeted monitoring wells. In each well, water level readings were recorded as

the height of groundwater in the well above the installed pressure sensor. Except for wells MW09 and MW05, the recorders were installed on November 23, approximately 18 hr prior to the beginning of pumping, and were programmed to collect data continuously, at 5-min intervals, throughout the step testing program. The recorders in wells MW09 and MW05 were set to a faster recording rate, as noted above, during the actual pumping of these wells and were then reset to a 5-min interval for continuous monitoring during the remainder of the testing program.

To facilitate interpretation of the monitoring well data, a barometric pressure sensor-data logger was also placed at the site (near well MW09) on November 23. This data logger was programmed to collect measurements of the local atmospheric pressure, at 15-min intervals, throughout the testing program.

The results of the continuous water level and barometric pressure measurements are in Tables A.4 and A.5.

3 Results and Discussion

The results of the step pumping tests conducted in wells MW09, MW05, and MW10 are summarized in Figures 2-13. In this section, the observed water level responses in the pumped wells are discussed first. The water level variations recorded in the network of nearby monitoring wells during each pumping test are then reviewed, in the context of the concurrent variations in barometric pressure that were identified at the site during the testing period.

3.1 Groundwater Level Responses in the Pumping Wells

3.1.1 Well MW09 Results

The water level variations observed in well MW09 in response to the pumping of this well are illustrated in Figure 2. Very close agreement is apparent in the patterns of water levels measured by hand or recorded automatically by the data logger during the well MW09 test. Figure 2 shows, however, that for two time intervals during the MW09 test, sufficient drawdown was generated by the pumping to drop the transient water level in the well below the position of the installed pressure transducer, while manual measurements could continue to be made. For this reason, only the hydrograph depicting the hand-measured water levels is included in the subsequent diagrams related to this well test.

Figure 3 shows the detailed relationship of the stepped pumping rates and drawdown observed at well MW09. Although some variability occurred, a time-weighted average pumping rate of approximately 0.08 gpm was achieved during the initial pumping step (64 min), resulting in an observed drawdown of approximately 0.8-0.9 ft. An initial attempt to increase the pumping rate to approximately 0.3 gpm resulted in very rapid drawdown, so the target rate for the second pumping step was reduced to approximately 0.23 gpm. Despite this decrease, the water level in the well fell to the top of the pump (drawdown = 2.45 ft) after 17 min. Further reduction of the flow rate to approximately 0.16 gpm for the remainder of the pumping step (38 min) resulted in a relatively stable drawdown of approximately 1.9 ft. An attempt was made to conduct a third pumping step at a flow rate of approximately 0.18 gpm; however, after 50 min the water level in the well again fell to the top of the pump (drawdown = 2.45 ft), and the pumping was terminated. The results of the testing therefore demonstrate a sustainable pumping rate in well MW09 of < 0.2 gpm.

Figure 3 shows that the groundwater level in well MW09 recovered by 1.12 ft (approximately 46% of the total drawdown) during the first 3 min following the end of pumping, and by 1.96 ft (80%) after 25 min. Because the static water level (and the level under pumping conditions) at the time of testing fell within the screened interval, the observed groundwater recovery represents groundwater recharge to both the well casing and the surrounding gravel pack at well MW09. The calculated volume of the (2-in.-diameter) casing is 0.163 gallons per foot (gpf), and that of the surrounding (4-in.-diameter) gravel pack is 0.147 gpf (assuming 30% porosity). The initial, most rapid water level recovery noted above (during the first 3 min, starting from the maximum available drawdown) therefore suggests a maximum rate of natural recharge to this well of approximately 0.12 gpm.

3.1.2 Well MW05 Results

The water level drawdown and recovery responses observed in well MW05 are shown in Figure 4. Very close agreement was again observed between the water levels measured by hand and those recorded automatically by the data logger. The more continuous water level readings obtained by the automatic recorder are therefore employed in the additional figures pertaining to this test.

Figure 5 summarizes the stepped pumping rates and drawdown observed during the well MW05 step test. The initial pumping step (30 min), conducted at a time-weighted average pumping rate of approximately 0.1 gpm, generated < 0.1 ft of drawdown. The pumping rate was therefore increased to approximately 0.18 gpm and maintained at this rate for 60 min; this resulted in a relatively stable drawdown of 0.11-0.15 ft. The pumping rate was then increased to approximately 0.62 gpm for 60 min. Although the water level did not completely stabilize at this flow rate, an increase in drawdown of only approximately 0.1 ft (from 0.5 ft to 0.6 ft) occurred over the last 40 min of this pumping step. The final, fourth pumping step was conducted at a time-weighted average flow rate of approximately 1.14 gpm, for 61 min. The observed water level again did not completely stabilize during this flow period; however, an incremental increase in drawdown of only approximately 0.1 ft (from approximately 1.3 ft to 1.4 ft) was recorded during the last 30 min of this step.

The head of groundwater above the top of the pump at the start of the well MW05 step test was 4.23 ft. The maximum drawdown achieved at the end of the final pumping step (1.4 ft) therefore represented only approximately 33% of the total available drawdown in this well at the

time of testing. Because the pump and discharge tubing had been configured to permit fine control of the pump discharge rates down to anticipated low levels (≤ 0.1 gpm), additional higher pumping rates (> 1.25 gpm) could not be readily achieved during this test.

The groundwater level in well MW05 recovered by 0.97 ft (approximately 70% of the total drawdown) during the initial 3-min period of most rapid recharge following the termination of pumping, and by 1.11 ft (80%) after approximately 19 min. The water level during the initial (3-min) recovery period fell within the screened interval; the recovery during this interval therefore reflects recharge to both the (2-in.-diameter) well casing and the surrounding (4-in.-diameter) gravel pack. The calculated initial rate of natural recharge to this well, under the observed drawdown conditions (starting from approximately 33% of the maximum available drawdown), was approximately 0.1 gpm. A higher initial natural recharge rate would have been expected in well MW05 if greater drawdown had been achieved during pumping.

3.1.3 Well MW10 Results

The water level responses observed in well MW10 are shown in Figure 6. The water levels measured by hand and those recorded automatically by the data logger are in very close agreement. The data logger readings are therefore presented in the additional diagrams related to this test.

Figure 7 shows the pumping rates used and the drawdown observed during the well MW10 step test. The initial pumping step (62 min), performed at a time-weighted average pumping rate of approximately 0.09 gpm, resulted in a stable drawdown of approximately 1 ft. The pumping rate was then increased to approximately 0.26 gpm; however, after 10 min this rate was reduced to approximately 0.23 gpm to prevent excessive drawdown in the well. The latter rate (0.23 gpm) was maintained for 48 min. Figure 7 indicates that the drawdown did not completely stabilize at this rate during the pumping period; the water level in the well decreased by approximately 0.15 ft during the last 15 min of the pumping step. An attempt was made to conduct a third pumping step at approximately 0.3 gpm; however, the pumping rate was reduced to 0.27 gpm for the final (52-min) pumping period because of the rapid drawdown observed at the flow rate of 0.3 gpm. A relatively stable drawdown of 6.6-6.8 ft was observed at the flow rate of 0.27 gpm, reaching to within 0.4 ft of the top of the pump. The results of the testing therefore demonstrate a sustainable pumping rate in well MW10 of < 0.3 gpm.

The groundwater level in well MW10 recovered by 2.35 ft (approximately 35% of the total drawdown) during the initial 3-min period of most rapid recharge following the termination of pumping, and by 5.36 ft (80%) after approximately 9 min. The water level in well MW10 fell within the screened interval under pumping conditions; the observed initial groundwater recovery therefore reflects recharge to both the (2-in.-diameter) well casing and surrounding (4-in.-diameter) gravel pack. The calculated initial rate of natural recharge to this well (during the first 3 min, starting from near the maximum available drawdown) was approximately 0.24 gpm, or roughly twice the recovery rate observed at well MW09.

3.1.4 Estimation of Specific Capacity for Wells MW09, MW05, and MW10

Specific capacity is defined as the observed flow rate (for a specific pumping condition) divided by the resulting drawdown created in the well by that pumping rate. The specific capacity is not a constant; its value decreases with increasing time as the well is pumped at a constant rate, and also as the pumping rate itself increases (Kruseman and deRidder 1991). The measurements obtained during the step testing of wells MW09, MW05, and MW10 can be used to estimate values of the specific capacity for each well, on the basis of *nominal 1-hr pumping steps*. Figure 8 illustrates the relationships determined for each well.

Figure 8 shows that, for both wells MW09 and MW10, the physical limits on pumping rates imposed by the configuration of the pump installation and water levels in these wells were effectively reached. *The specific capacity relationships observed for wells MW09 and MW10 were very similar; they indicate a sustainable flow rate (at maximum drawdown under the conditions present during the step tests) of < 0.3 gpm for these wells.*

Significantly higher flow rates, with comparatively less associated drawdown, were achieved during the pumping of well MW05. As noted in Section 3.1.2, the physical limits on drawdown could not be achieved in this well during the present step testing program, because of the measures employed to achieve control of the pump flow at low rates. Figure 8 shows a conservative projection (dashed line) of the specific capacity relationship for MW05, based on the trends of the available step test data. The resulting estimate suggests a potential maximum flow rate from this well, *for a 1-hr period*, on the order of 2.5 gpm. Figure 5 indicates that a stable drawdown level was not completely achieved in MW05 during the third and fourth (1 hr each) steps of the pumping test, suggesting a probable *sustainable* flow rate for this well (at maximum available drawdown) of ≤ 2.5 gpm.

3.2 Groundwater Level Responses in the Monitored Wells

3.2.1 Overview of Water Level Trends during the Step Testing Field Session

Groundwater levels in monitoring wells MW01, MW02, MW04, MW07, MW11, MW12, MW13, MW18, MW19, MW20, and MW34 (Figure 1a) were measured continuously, at 5-min intervals, throughout the step testing field session, from 15:00 on November 23 until 14:30 on November 25, 2009. Groundwater levels were also monitored at 5-min intervals in wells MW09 and MW05 when these wells were not being actively pumped. The local barometric pressure was recorded at 15-min intervals throughout the field session, by using an absolute pressure sensor and data logger installed at a surface location near MW09. The complete results of these monitoring efforts are in Appendix A, Tables A.4 and A.5, and are summarized in Figures 9 and 10a,b. The characteristics of the longer-term (November 23-25) trends observed in these data sets are briefly reviewed in this section, as they serve as the background against which the short-term variations observed at each well during the step pumping tests must be evaluated.

As noted in Section 2.2, groundwater levels were recorded as the measured head of water above the pressure sensor installed in each well. This approach was used to eliminate the need for field calibration of each recorder to a specific reference point or elevation; the approach was considered appropriate, as the technical objective of the monitoring was to identify potential drawdown in the monitoring wells as a result of the groundwater pumping at wells MW09, MW05, or MW10. Table A.4 shows that the range of heads measured in this manner during the field session differed by up to approximately 10 ft among the monitored wells. To facilitate comparison of these data — and the readings obtained from the barometric sensor — on a common scale, the results from each monitored point are *normalized* in Figures 9 and 10a,b to show changes in values from the initial reading determined for each sensor.

The normalized data for all monitored points are in Figure 9. As shown, a very large spike in the groundwater level in well MW34 occurred from approximately midnight November 23 to 1:00 November 24; no clear evidence of a similar increase is observed for the hydrographs for any of the other monitored wells. Well MW34 is located at the base of a small slope near the north edge of the study area (Figure 1a), and the flush-mount housing of the well was found to be partially flooded with water both at the beginning and at the end of the field session. On the nights of November 23 and November 24, light rains fell at Hanover (0.07 in. and 0.01 in., respectively, as reported for the nearest National Weather Service station in Beatrice, Nebraska). The result was wet ground, particularly in the vicinity of MW34 on the

morning of November 24. The apparent spike in water level observed at MW34 is believed to reflect flooding of the flush-mount housing during the November 23 rainfall event. The apparent water level in MW34 steadily declined throughout the remainder of the monitoring period, showing no clear relationship to the trends observed at the other monitored points.

The water level trace for well MW34 is omitted from Figures 10a,b, so that the variations observed at the remaining monitoring points can be illustrated at a larger scale. Figure 10 shows that both the local barometric pressure and the groundwater levels at all monitored points (except for well MW12) were relatively stable from November 23 until the early morning of November 24. At that time, the hydrographs appear to diverge along several complex trends.

Figure 10a indicates that the water levels in monitoring wells MW01, MW02, MW04, MW07, MW10, and MW11, all located in approximately the central portion of the study area (Figure 1a), began a relatively steady decline on November 24 (starting at approximately 6:00-7:30). This decline continued throughout the remainder of the field session. The hydrograph for well MW05 also appears to have started to decline prior to the onset of the pumping in this well (see below), but at a slightly later time (approximately 8:30) than the wells noted above. In contrast, the hydrographs for monitoring wells MW12, MW13, MW18, MW19, and MW20 and the local barometric pressure display increasing trends during this time period (Figure 10b).

The hydrographs for wells MW01, MW04, MW05, MW07, MW10, MW11, MW18, and MW19 — and possibly MW20 — all appear to show a consistent inverse relationship to the patterns of short-term variations in barometric pressure recorded at the site. Such an inverse relationship is characteristic of the *barometric efficiency* that is frequently observed in confined aquifers underlying relatively rigid overburden materials. At each of these wells, the barometric response appears to be superimposed on the more predominant rising, or falling, water level trends noted above.

The hydrographs for wells MW12, MW13, and MW19 are all unique (Figure 10b). The water levels in wells MW12 and MW13 appear to show a quasi-positive relationship to the local barometric pressure trend, while the trace for MW19 shows a virtually linear increase in water level throughout the monitoring period. The net changes in water levels at each of these locations were, however, < 0.05 ft throughout the period of the step test pumping (from the start of the well MW09 test at 9:25 on November 24 until the end of the well MW10 test at 11:39 on November 25; see Section 2.1).

3.2.2 Evaluation of Potential Responses to the Pumping of Well MW09

The groundwater level data recorded during the step testing of well MW09 at adjacent monitoring wells MW02, MW05, MW11, and MW13 are shown in Figures 11a,b, with the local barometric pressure trend. No data for nearby monitoring well MW34 are included in these figures because of the presence of the anomalous water level spike in the record for MW34, as discussed in Section 3.2.1.

The maximum net change in groundwater levels observed at any of the wells monitored during the well MW09 test was 0.03 ft, at well MW11. Apparently declining water levels were observed at wells MW02, MW05, and MW11 during the MW09 pumping, while an initial rise, then a decrease, in water level was detected at well MW13. Figure 11a indicates that the apparently falling trends depicted at wells MW02, MW05, and MW11 began prior to the onset of pumping at MW09 and showed no evidence of "recovery" following the termination of pumping. The recorded data therefore provide no indication of detectable drawdown at any of the monitored wells in response to the pumping of well MW09. Monitoring well MW11 is the closest observation point to well MW09; the absence of clear drawdown at MW11 indicates a maximum potential ROI for the pumping of this well (under the step test conditions described in Section 3.1.1) of < 124 ft.

3.2.3 Evaluation of Potential Responses to the Pumping of Well MW05

The groundwater levels recorded during the step testing of well MW05 at nearby wells MW01, MW02, MW09, MW11, MW12, and MW13 are shown in Figures 12a,b, along with the local barometric pressure trend. No data for nearby monitoring well MW34 are included in these figures because of the presence of the anomalous water level spike in the record for this well, as discussed in Section 3.2.1.

The maximum drawdown observed at any of the wells monitored during the well MW05 test was approximately 0.07 ft, at well MW02. The apparently falling trends depicted at wells MW01 and MW11 began prior to the onset of pumping at well MW05; they showed no evidence of "recovery" following the termination of pumping and displayed a clear inverse relationship to the local barometric pressure trend. The water level traces for monitoring wells MW09, MW12, and MW13 all showed increasing values during the well MW05 pumping period. The data suggest that any potential drawdown at MW09 associated with the pumping of MW05 was

effectively masked by continued recovery (by approximately 0.11 ft) at well MW09, following its pumping 140 min prior to the pumping of MW05. The recorded data for wells MW01, MW09, MW11, and MW12 therefore provide no evidence of drawdown at these locations in response to the pumping of well MW05.

The water level data for well MW02 are problematic. As noted in Section 3.2.2, the water level in this well began falling prior to the onset of pumping at well MW09 and continued to fall at a relatively constant rate prior to the pumping of well MW05 (Figure 12a). The rate and extent of apparent drawdown at well MW02 increased significantly during the pumping of MW05 (Figure 12b); however, no recovery was subsequently observed at MW02 during the 20 hr of continuous monitoring that followed (Figure 12a). Well MW02 is the closest available monitoring well to MW05; the results of the current testing therefore *tentatively suggest* a potential ROI for the pumping of MW05 (under the conditions of the step test described in Section 3.1.2) of approximately 106 ft, in the direction of MW02.

3.2.4 Evaluation of Potential Responses to the Pumping of Well MW10

The groundwater levels recorded during the step testing of well MW10 at nearby wells MW01, MW04, MW07, MW18, MW19, and MW20 are shown in Figures 13a,b, with the local barometric pressure trend.

The maximum apparent drawdown observed at any of the wells monitored during the well MW10 test was 0.08 ft, at well MW04. Declining water levels were observed at wells MW01 and MW07 during the well MW10 pumping, while little net rise or fall (< 0.01 ft) was detected at wells MW18, MW19, and MW20. Figure 13a indicates that the apparently falling trends at wells MW01 and MW07 began before the onset of pumping at well MW10 and show a strong inverse correlation to the barometric pressure trend. The hydrographs for wells MW01, MW07, MW18, MW19, and MW20 therefore provide no evidence of drawdown in response to the pumping of well MW10 at these locations.

The hydrograph for well MW04 also displays a continuously declining trend that began before the onset of the well MW10 pumping (Figure 13a); however, the rate of the water level decline at well MW04 clearly increased during the MW10 pumping event (Figure 13b). The increased rate of apparent drawdown continued at MW04 for approximately 40 min after the pumping at MW10 ended. At this time, increasing water levels were observed in well MW04, as

well as at wells MW01, MW07, and MW18. In this group of wells, the rising water levels appear to be a response to a decrease in the barometric pressure that began just as the pumping at well MW10 ended; therefore, the origin of the apparent "recovery" observed at well MW04 is uncertain. Monitoring wells MW01, MW07, and MW19, which are all closer to well MW10 (at distances of 163-194 ft) than is well MW04 (at 229 ft), showed no drawdown response to the well MW10 pumping. If the declining water levels observed at well MW04 are in fact a result of the MW10 pumping, they suggest that the hydraulic connectivity within the Zone 1 water-bearing unit in this portion of the Hanover site may be highly heterogeneous and unpredictable. The apparent drawdown response at MW04 *tentatively suggests* a highly directional ROI for the pumping of MW10 (toward well MW04, under the conditions of the step test described in Section 3.1.3) of approximately 229 ft.

4 Summary

The primary results of the step pumping tests conducted at wells MW09, MW05, and MW10 are as follows:

- The testing of well MW09 showed that the sustainable rate of pumping at this well is < 0.2 gpm. The water level recovery observed at MW09 upon termination of pumping indicated a maximum natural recharge rate to this well, at maximum drawdown, of approximately 0.12 gpm. The observed recharge rate is thus consistent with the pumping rate achieved at maximum drawdown.

- No evidence of induced drawdown was observed at neighboring wells MW02, MW05, MW11, or MW13 in response to the pumping at well MW09. The results indicate a *maximum potential ROI* for the pumping of this well (under the conditions of the step test described in Section 3.1.1) that is *less than the distance from well MW09 to the closest presently available observation point (< 124 ft).*

- A maximum pumping rate of approximately 1.14 gpm was employed during the step testing of well MW05. Because the pump and discharge tubing had been configured to permit fine control of the pumping at very low rates (≤ 0.1 gpm), higher pumping rates (> 1.25 gpm) could not be readily achieved during this test. The maximum drawdown achieved at the end of the final pumping step (1.4 ft) therefore represented only approximately 33% of the total available drawdown in this well at the time of testing.

- A conservative projection based on the specific capacity data obtained for well MW05 suggests a potential maximum flow rate from this well, for a 1-hr period, on the order of 2.5 gpm. Because the specific capacity of all wells decreases with the duration of pumping, the available test results suggest a probable sustainable flow rate for this well (at maximum available drawdown) of ≤ 2.5 gpm.

- The data recorded for monitoring wells MW01, MW09, MW11, and MW12 provide no evidence of drawdown at these locations in response to the

pumping of well MW05. The test results suggest, however, that approximately 0.07 ft of drawdown might have occurred at the observation point closest to MW05 (well MW02, located approximately 106 ft east of MW05), in response to the pumping of MW05. The water level response observed at well MW02 appears unusual, however, as no subsequent recovery was detected at MW02 over a 20-hr period following the pumping event.

- The results of the testing at well MW10 demonstrate a sustainable pumping rate for this well of < 0.3 gpm. The calculated initial rate of natural recharge to this well (starting from near the maximum available drawdown) was approximately 0.24 gpm, a value comparable to the maximum pumping rate achievable during the step test.

- Hydrographs recorded at monitoring wells MW01, MW07, and MW19 provide no evidence of drawdown in response to the pumping of well MW10 at these locations. The distances from MW10 to wells MW01, MW07, and MW19 range from 163 ft to 194 ft. Drawdown of approximately 0.8 ft was observed, however, at more distant well MW04 (229 ft from MW10), while no drawdown was detected at a similar distance (234 ft) at MW18. The present observations therefore demonstrate that the hydraulic response of the Zone 1 water-bearing unit to pumping at MW10 (under the conditions of the step test described in Section 3.1.1) is highly heterogeneous and unpredictable.

5 Recommendations

As outlined in "Addendum 3" (Argonne 2009a), the primary technical objective of the step testing conducted at Hanover was to assess whether groundwater extraction might represent a potentially viable option for consideration in the development of candidate remedial alternatives for the Zone 1 water-bearing unit. With the approval of the KDHE (2009), wells MW09, MW05, and MW10 were selected (Argonne 2009a) for step-drawdown testing. These wells were selected because they lie within the portions of the Zone 1 water-bearing unit exhibiting the highest estimated hydraulic conductivities, as determined by slug testing (Argonne 2009b), and hence also exhibiting the highest expected capability to support groundwater pumping wells.

The pumping experiments performed at wells MW09 and MW10 yielded maximum measured groundwater pumping rates at these locations, for nominal 1-hr pumping steps, of < 0.3 gpm. At these rates, the physical limits on pumping imposed by the available water column in each well were effectively achieved. The testing showed that precise control of the pump discharge at these very low rates is required to maintain a steady flow, for even a 1-hr pumping interval, at these locations, without incurring excessive drawdown or complete dewatering of the pumping wells. Pumping rates *lower than the observed step test maximum rates* would be required to sustain pumping for a longer period at these wells. The step test results therefore demonstrate that the groundwater production capacity at wells MW09 and MW10 is extremely limited.

No drawdown was detected at any of the existing monitoring wells in response to the pumping at well MW09. The minimum distance from MW09 to the nearest observation point is 124 ft.

Drawdown (< 0.1 ft) was apparently detected at one monitoring point (well MW04, at a distance of 229 ft) in response to the pumping of MW10; however, the results of this test indicate that the hydraulic connectivity of the Zone 1 water-bearing unit in this portion of the Hanover site is highly unpredictable.

The pumping experiments conducted at MW05 demonstrated the capacity to pump groundwater continuously at this location at a rate of > 1 gpm (and possibly up to several gallons per minute) without risk of dewatering. The present results suggest that a small but measurable drawdown (< 0.1 ft) might have been induced at the observation well nearest to MW05 (well

MW02, at a distance of approximately 106 ft) in response to the step-drawdown pumping; however, no drawdown was observed in any other nearby monitoring wells.

On the basis of the hydraulic testing conducted to date, we do not believe that groundwater extraction represents a logistically or hydraulically practical mechanism for potential restoration of the entire areal extent of the carbon tetrachloride contamination in the Zone 1 water-bearing unit. The present results further suggest that groundwater extraction is not a viable mechanism for even localized ("hot-spot'") restoration of the Zone 1 water-bearing unit at the MW09 or MW10 locations. Because the full pumping capacity at MW05 could not be explored, however, in the existing step-drawdown testing (with the physical configuration of the pump employed), the potential might exist for greater drawdown, and greater groundwater (and contaminant) capture over a wider portion of the Zone 1 water-bearing unit, in response to longer-term pumping at this location at a higher rate.

For these reasons, we recommend proceeding with a constant-rate pumping test at well MW05, for a period of up to 24 hr, for further evaluation of the potential effectiveness of localized groundwater extraction in this portion of the Hanover site. The proposed constant-rate test will be conducted in accord with the procedures outlined in Section 2.3 of "Addendum 3" (Argonne 2009a), as previously approved by the KDHE.

6 References

Argonne, 2008, *Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas*, ANL/EVS/AGEM/TR-08-10, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, November.

Argonne, 2009a, Final Addendum 3 to *Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas*, for Performance Testing for Selected Groundwater Zone 1 Wells," ANL/EVS/AGEM/CHRON-1312, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, November 18.

Argonne, 2009b, *Slug testing of Zone 1 Monitoring Wells at Hanover, Kansas, in August 2009*, ANL/EVS/AGEM/CHRON-1297, prepared for the Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C., by Argonne National Laboratory, Argonne, Illinois, October.

KDHE, 2009, letter from E. Finzer (Bureau of Environmental Remediation, Kansas Department of Health and Environment, Topeka, Kansas) to C. Roe (Commodity Credit Corporation, U.S. Department of Agriculture, Washington, D.C.), regarding draft "Addendum 3," November 17.

Kruseman, G., and N. deRidder, 1991, *Analysis and Evaluation of Pumping Test Data, Second Edition*, Publication 47, International Institute for Land Reclamation and Improvement, Wageningen, the Netherlands.

NAIP, 2008, aerial photograph of Hanover, Kansas, ortho_1-1_1m_j_ks201_2008_2, National Agricultural Imagery Program, Field Service Agency, U.S. Department of Agriculture, Salt Lake City, Utah, October 30 (linked at http://www.fsa.usda.gov/FSA/).

FIGURE 1a Wells used for step-drawdown pumping and monitoring, with carbon tetrachloride distribution in groundwater Zone 1. Wells MW05 and MW09 were alternately used as pumping and monitoring wells in the three tests.

FIGURE 1b Locations of well MW09 and the wells monitored during pumping of MW09.

FIGURE 1c Locations of well MW05 and the wells monitored during pumping of MW05.

FIGURE 1d Locations of well MW10 and the wells monitored during pumping of MW10.

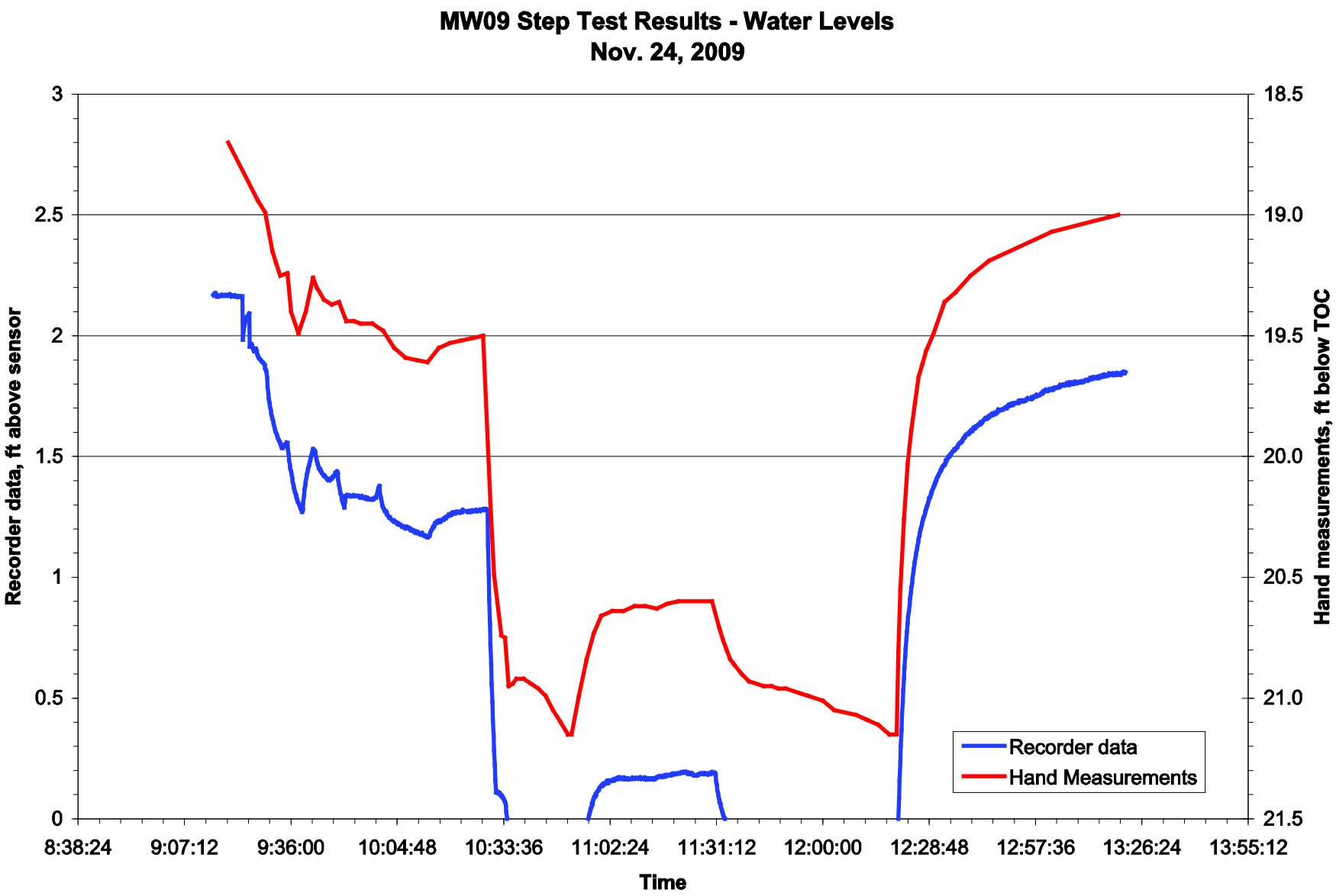

FIGURE 2 Water levels measured manually and automatically in MW09 during the step test pumping of this well, November 24, 2009.

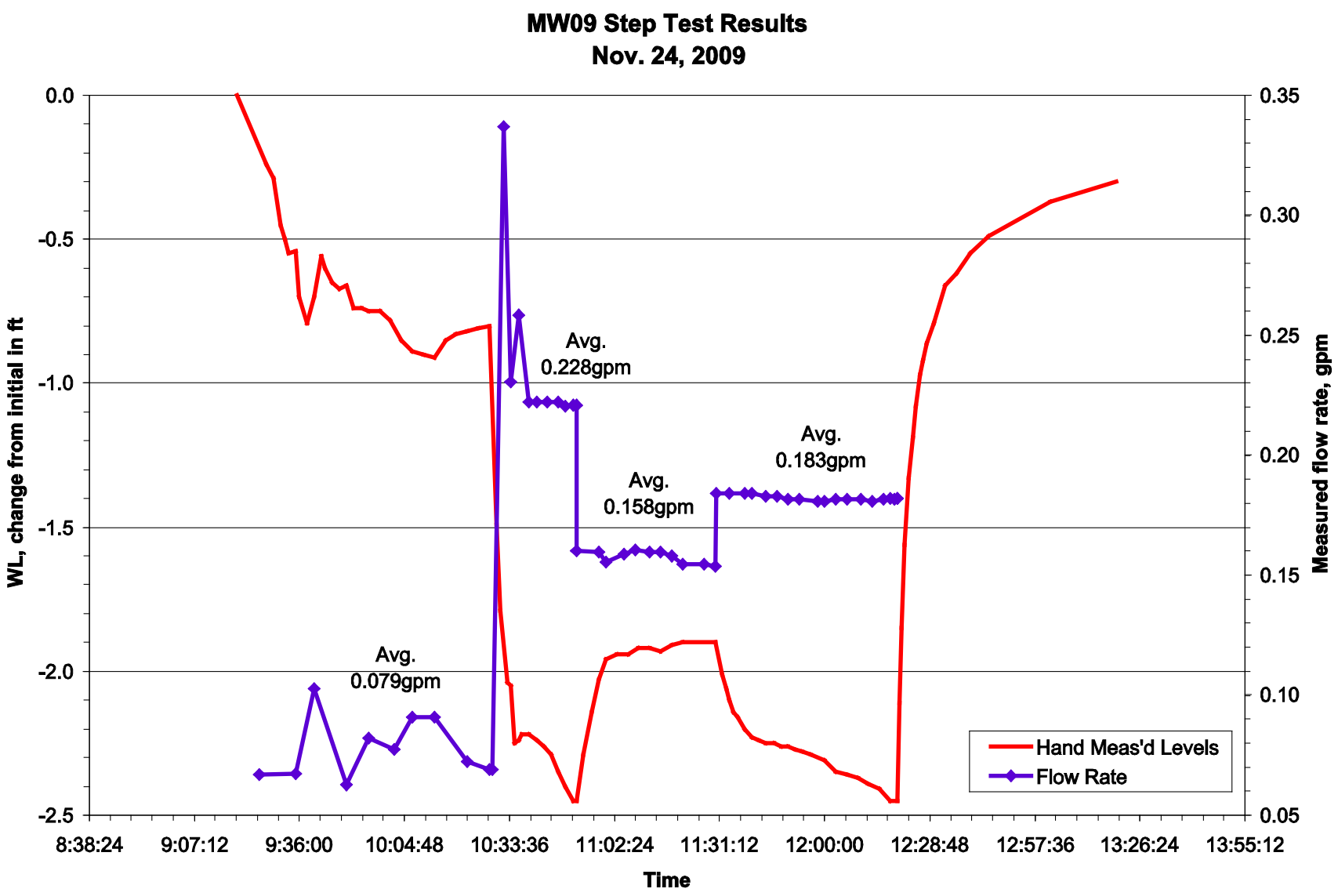

FIGURE 3 Time-weighted average pumping rates and water level responses for well MW09, November 24, 2009.

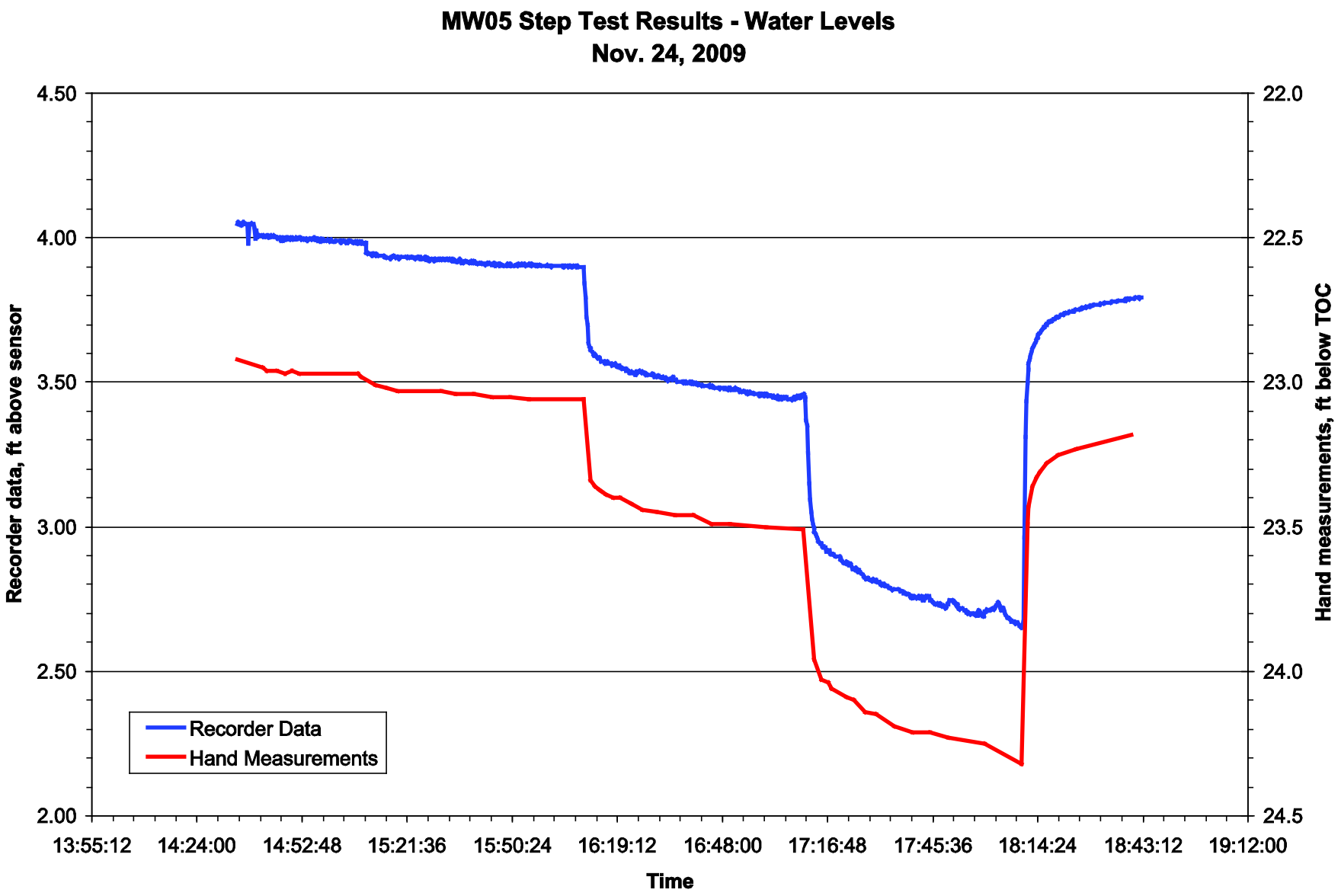

FIGURE 4 Water levels measured manually and automatically in MW05 during the step test pumping of this well, November 24, 2009.

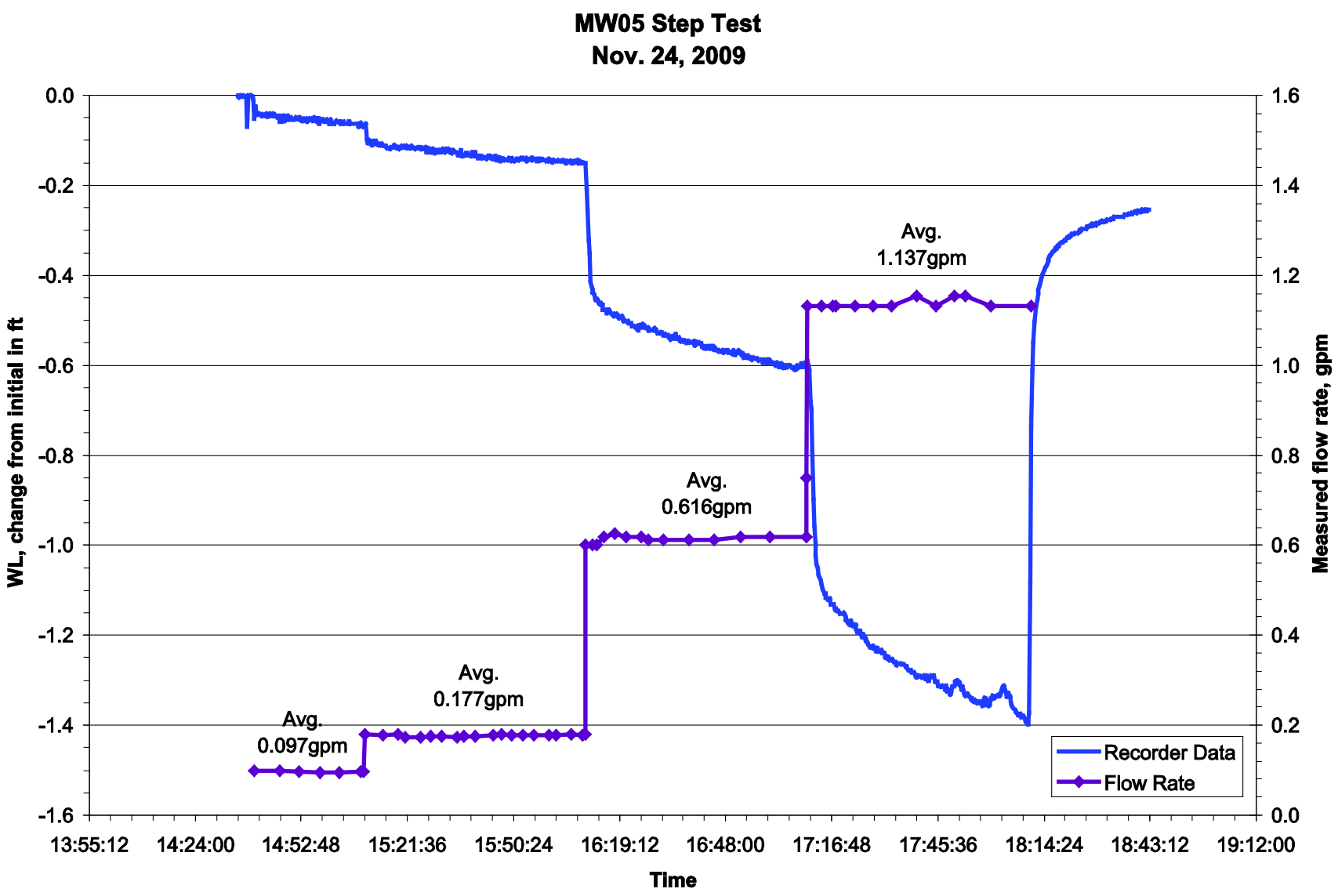

FIGURE 5 Time-weighted average pumping rates and water level responses for well MW05, November 24, 2009.

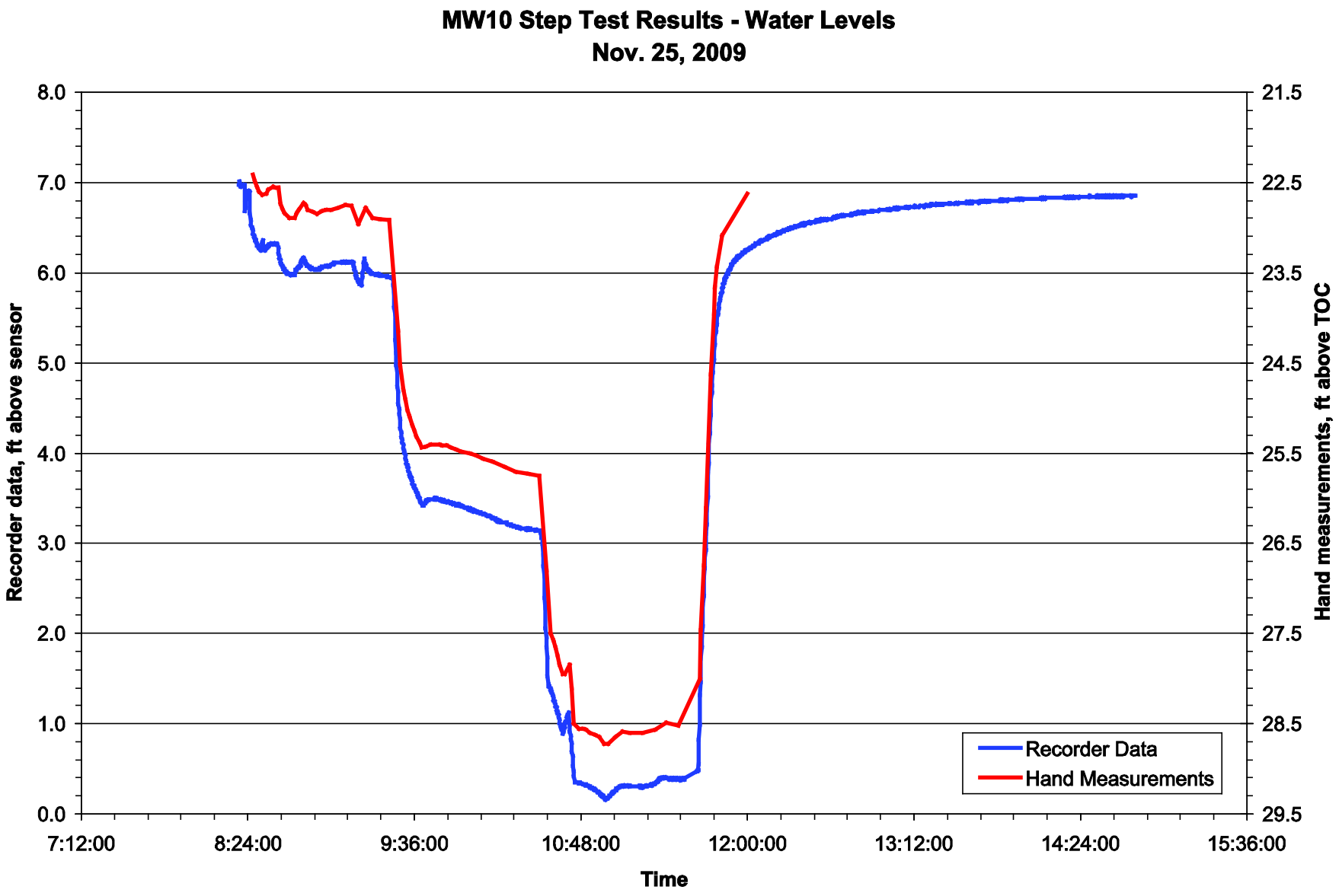

FIGURE 6 Water levels measured manually and automatically in MW10 during the step test pumping of this well, November 25, 2009.

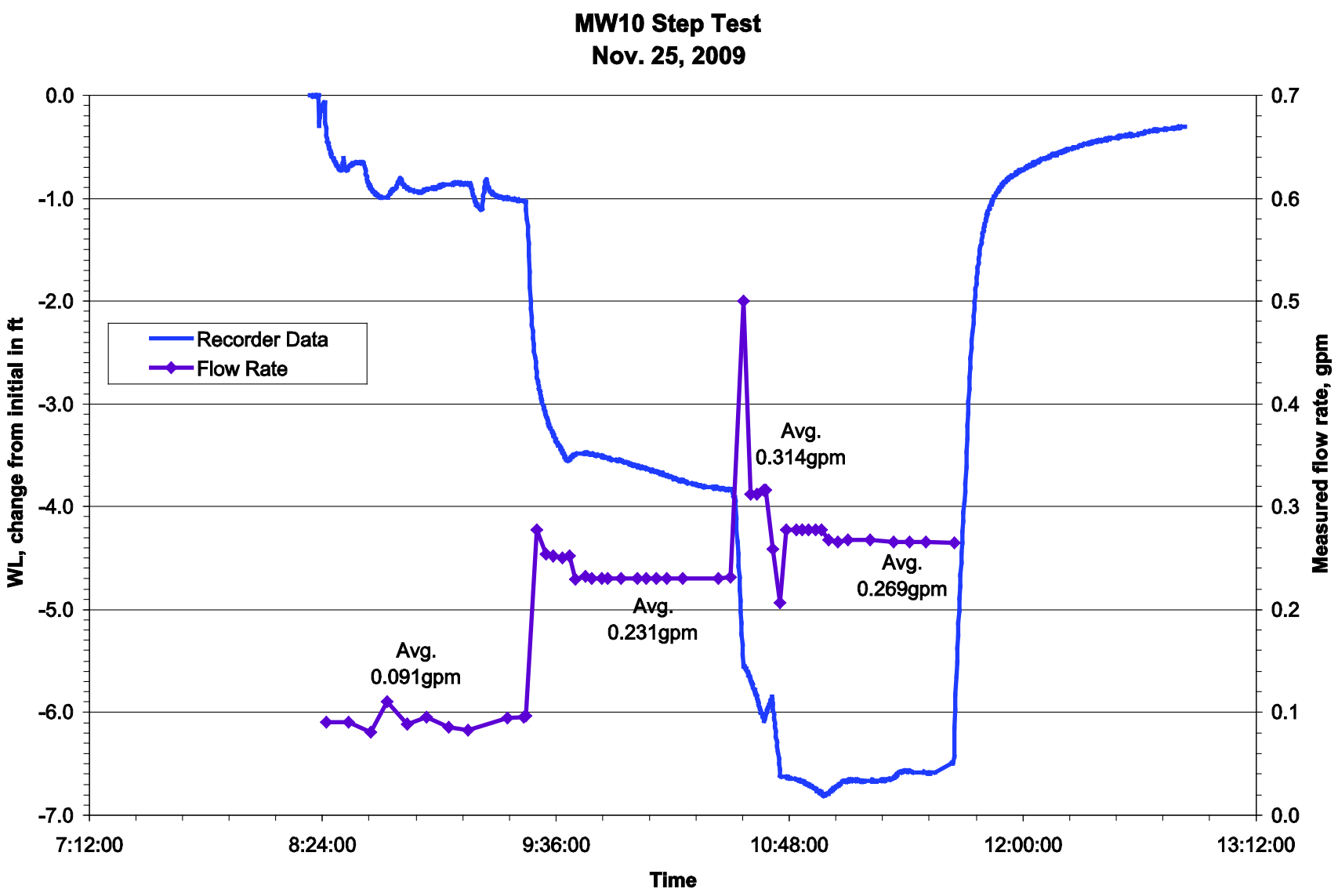

FIGURE 7 Time-weighted average pumping rates and water level responses for well MW10, November 25, 2009.

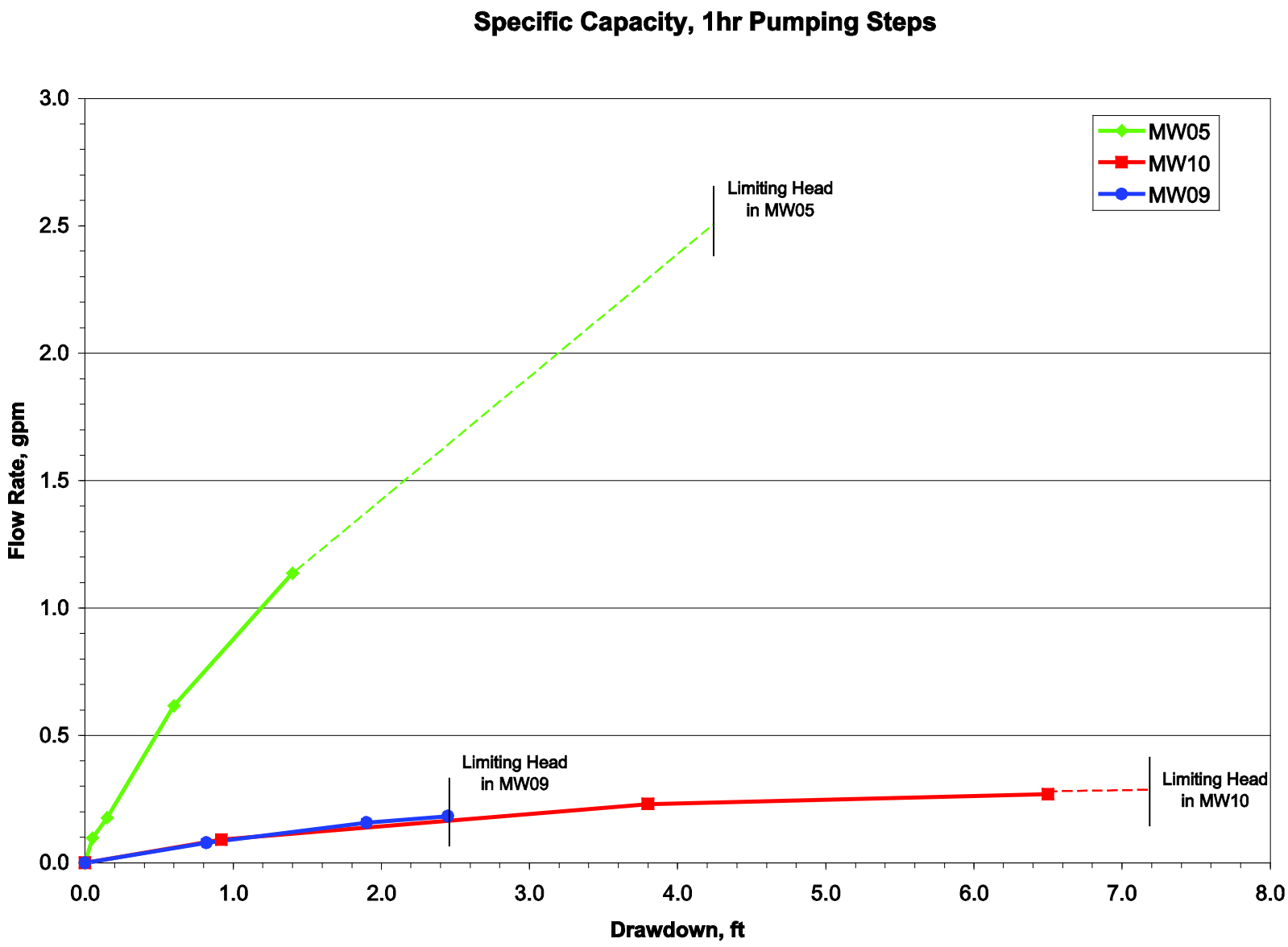

FIGURE 8 Specific capacity estimates for wells MW09, MW05, and MW10, calculated on the basis of 1-hr pumping steps.

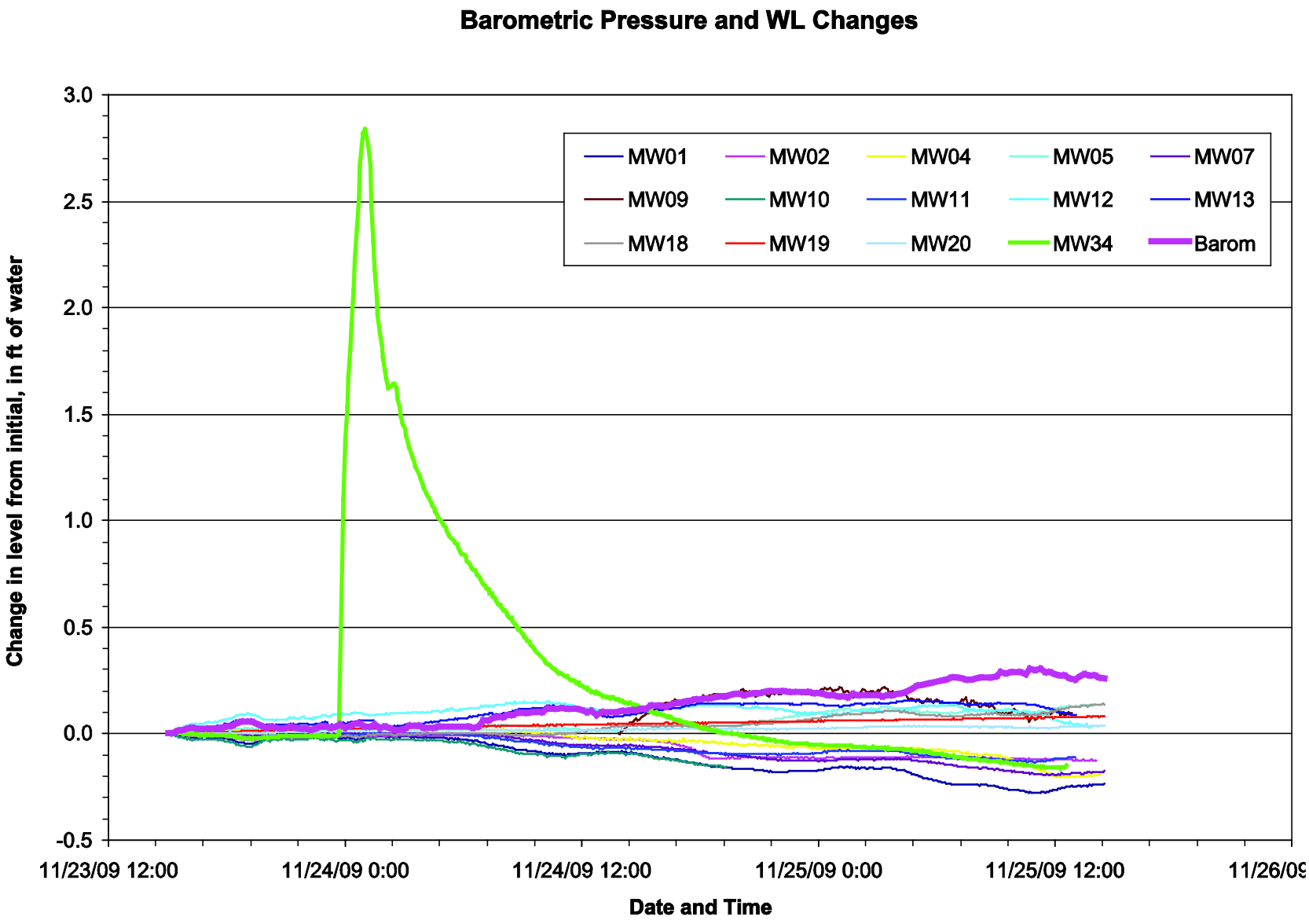

FIGURE 9 Normalized water level changes in all wells monitored during the step testing, with local barometric pressure.

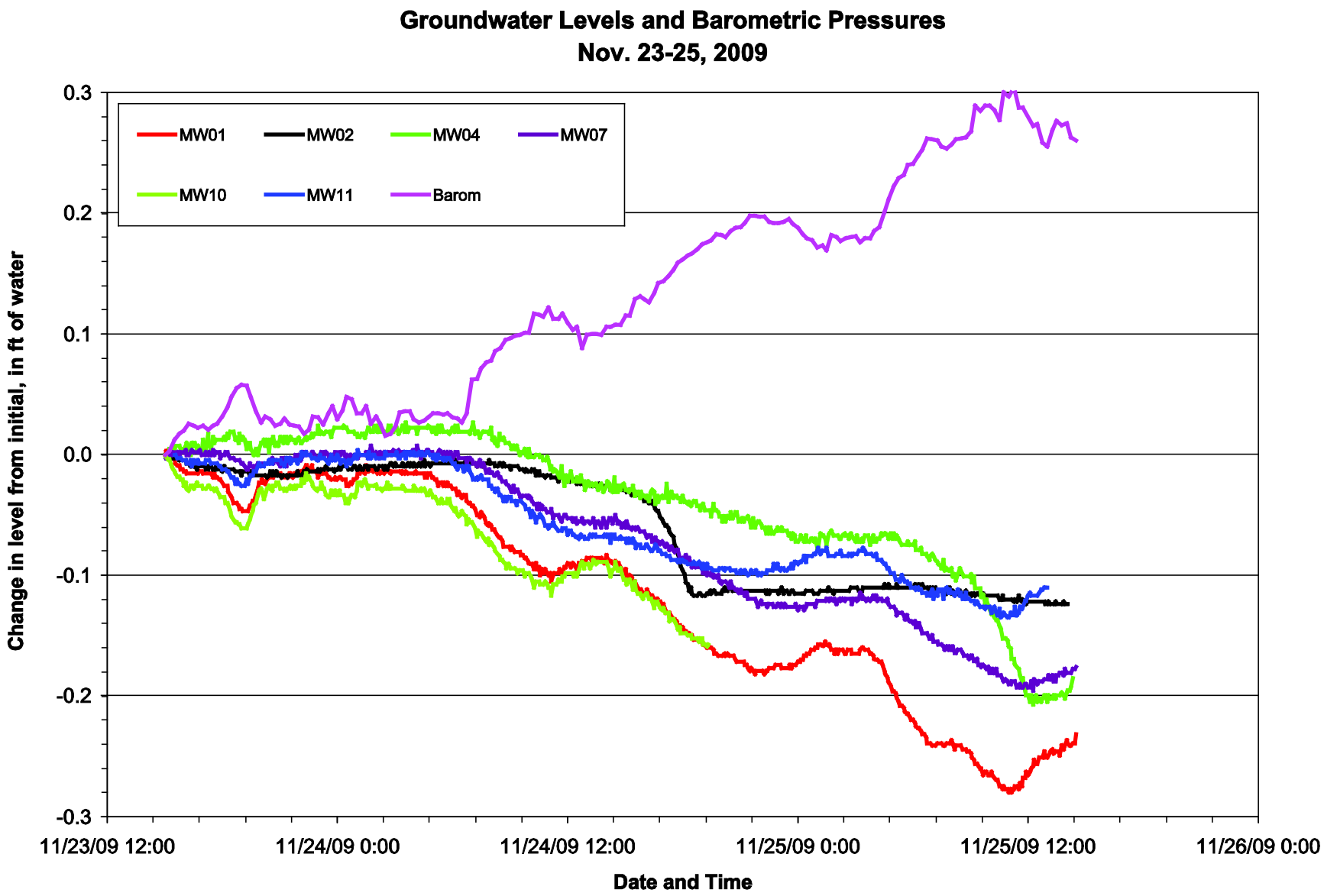

FIGURE 10a Normalized water level changes in monitored wells that showed generally declining trends during the November 23-25 field session, on an expanded scale and without the anomalous observations for well MW34, with barometric pressure.

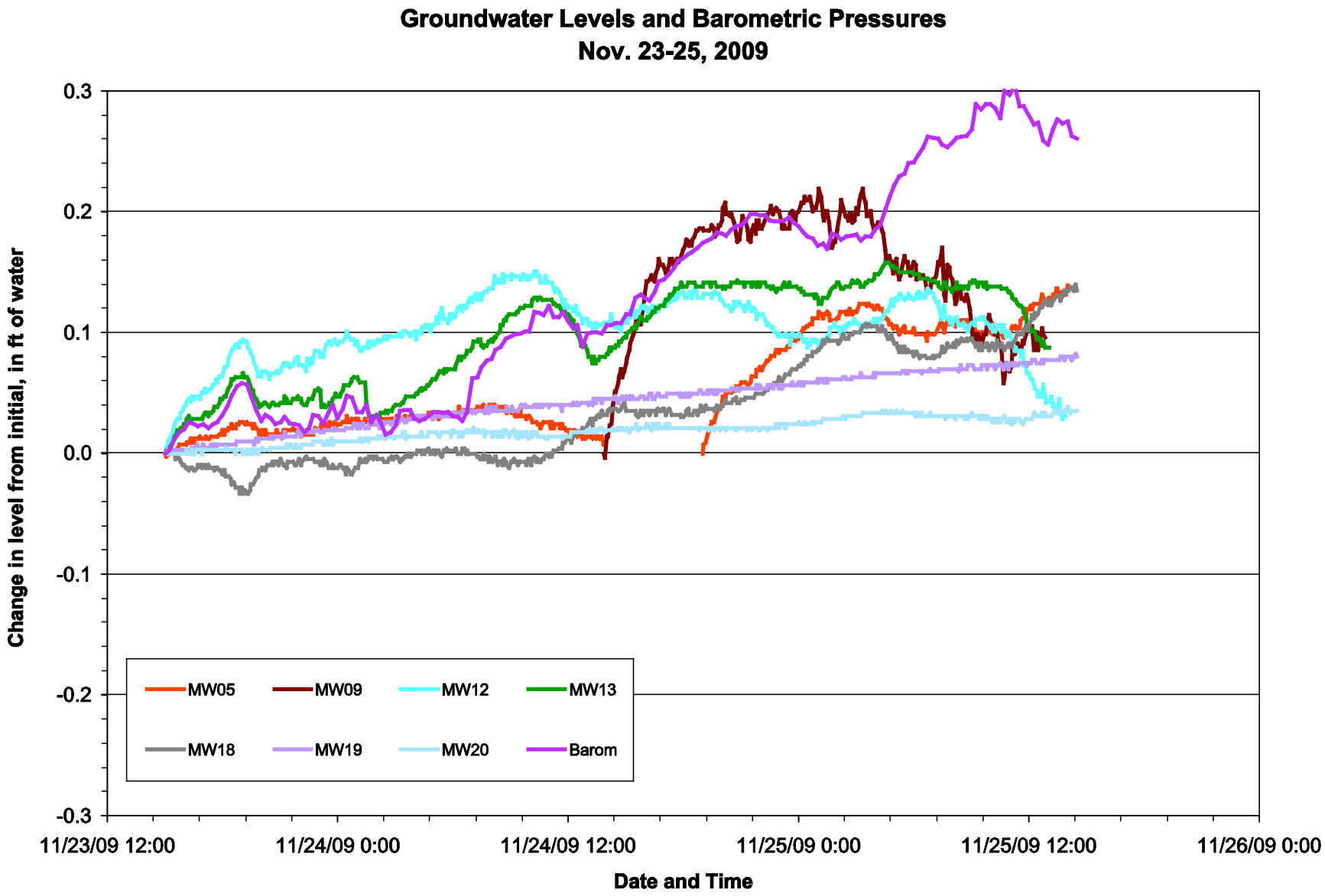

FIGURE 10b Normalized water level changes in monitored wells that showed generally increasing trends during the November 23-25 field session, on an expanded scale and without the anomalous observations for well MW34, with barometric pressure.

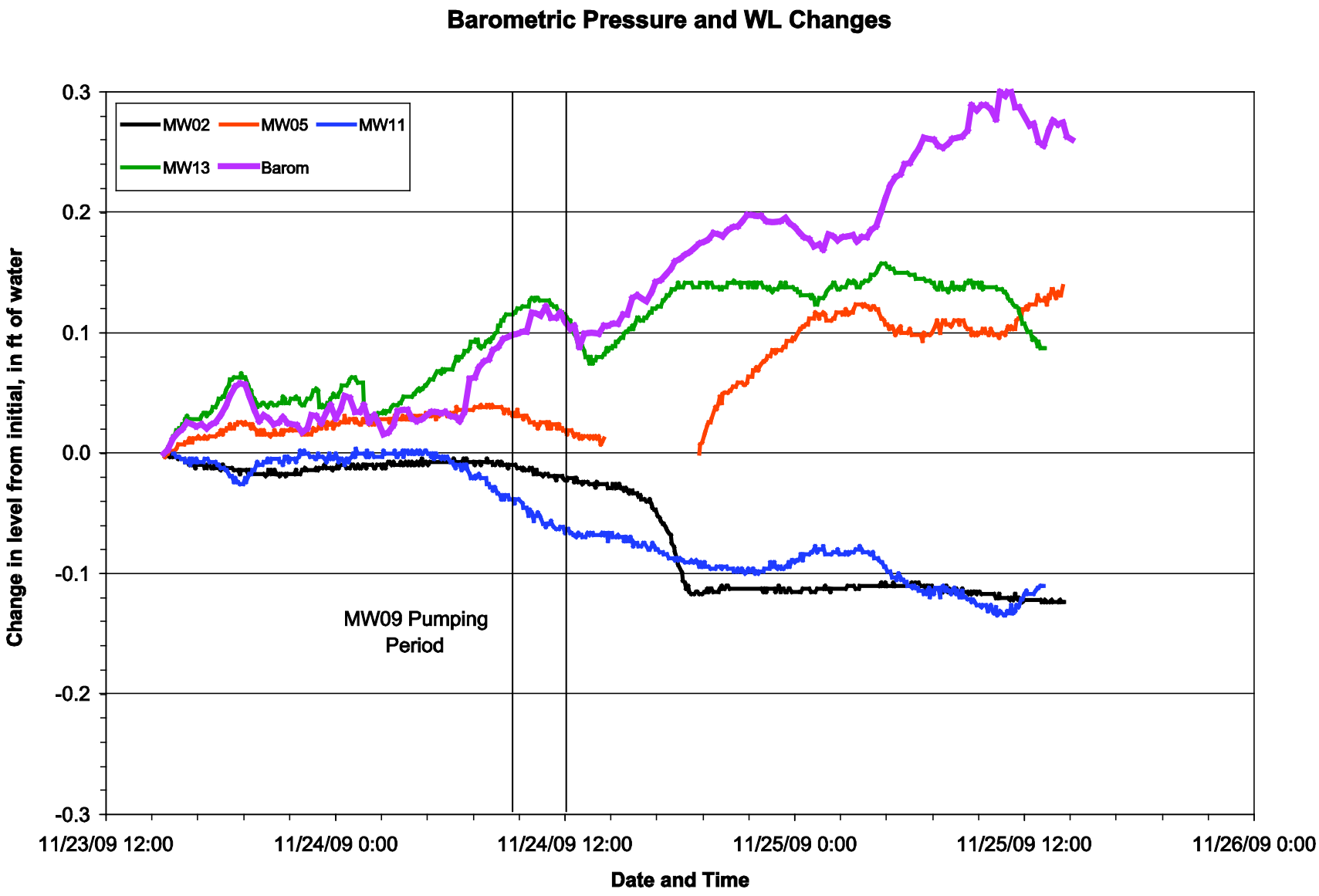

FIGURE 11a Normalized water level changes throughout the November 23-25 field session for wells used as observation points during the step testing of well MW09, with barometric pressure.

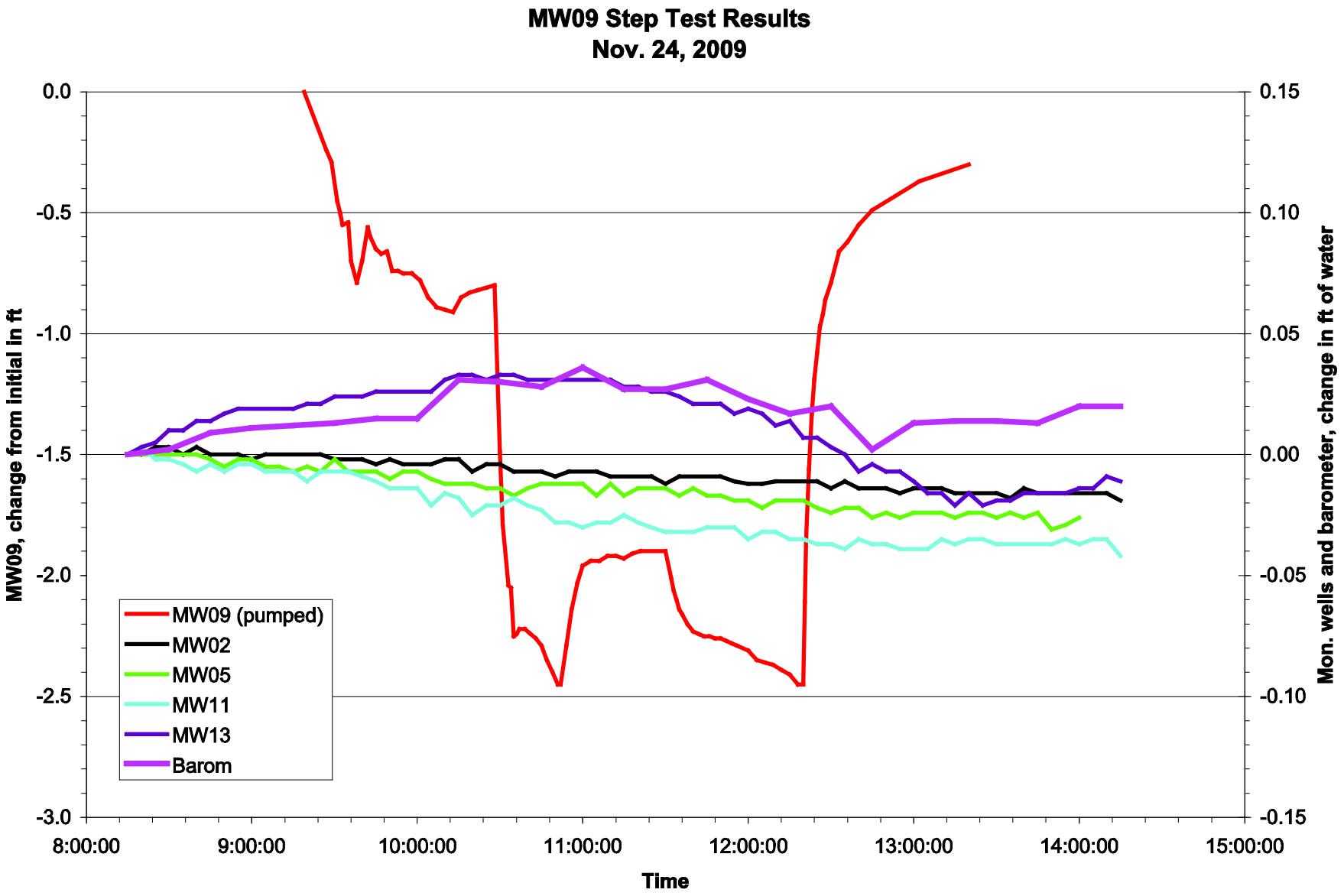

FIGURE 11b Normalized water level changes in wells monitored during step testing of well MW09, with barometric pressure.

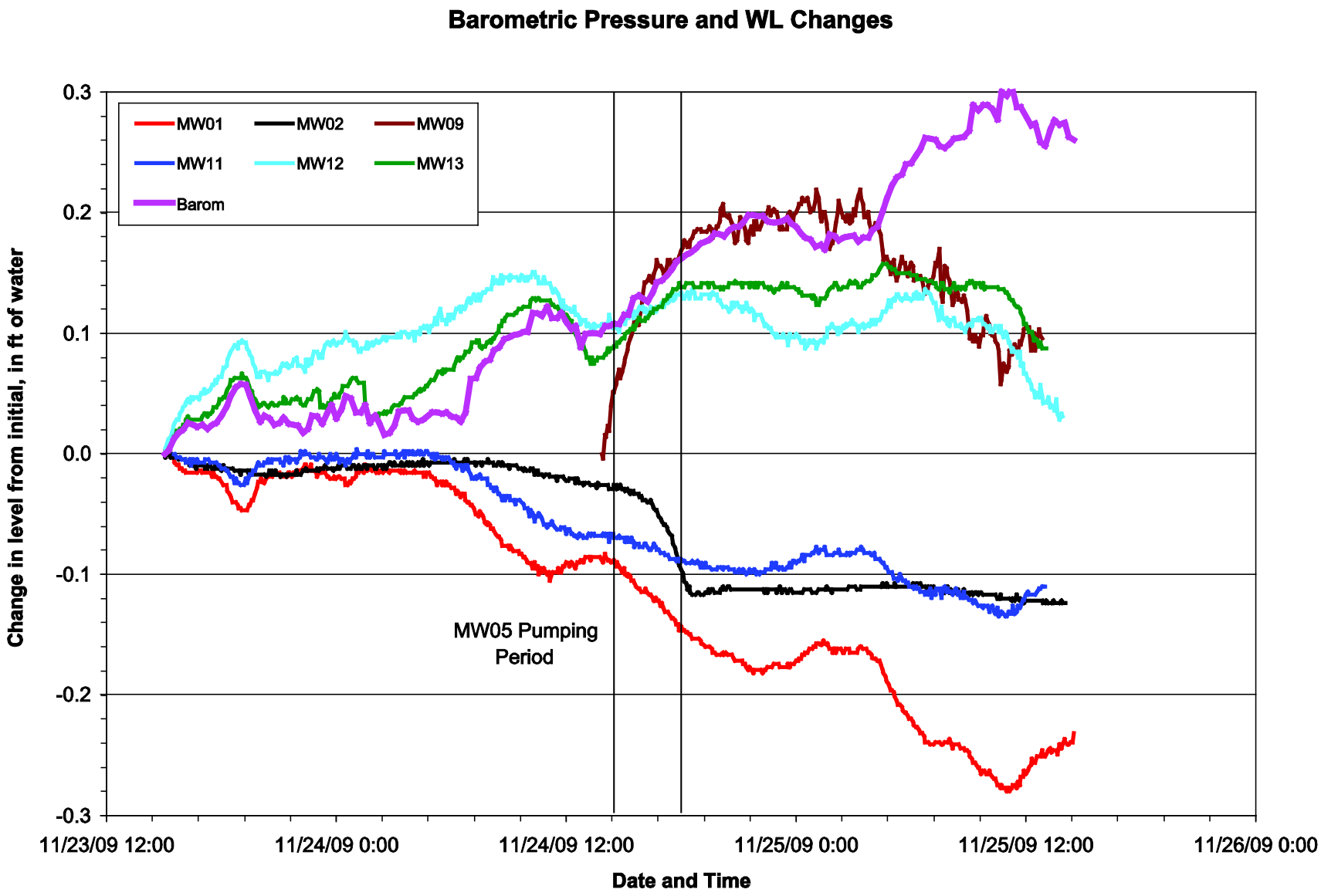

FIGURE 12a Normalized water level changes throughout the November 23-25 field session for wells used as observation points during the step testing of well MW05, with barometric pressure.

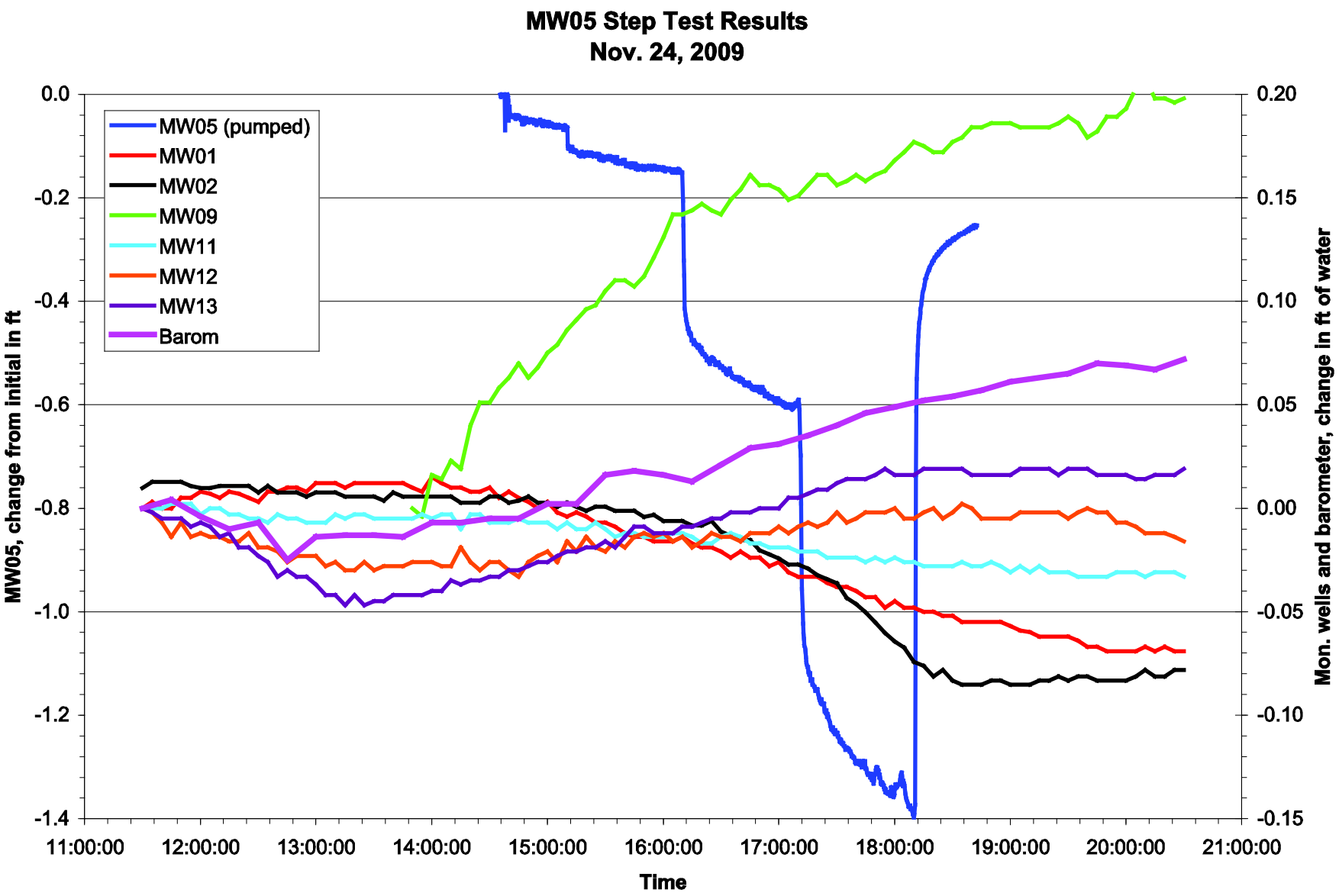

FIGURE 12b Normalized water level changes in wells monitored during step testing of well MW05, with barometric pressure.

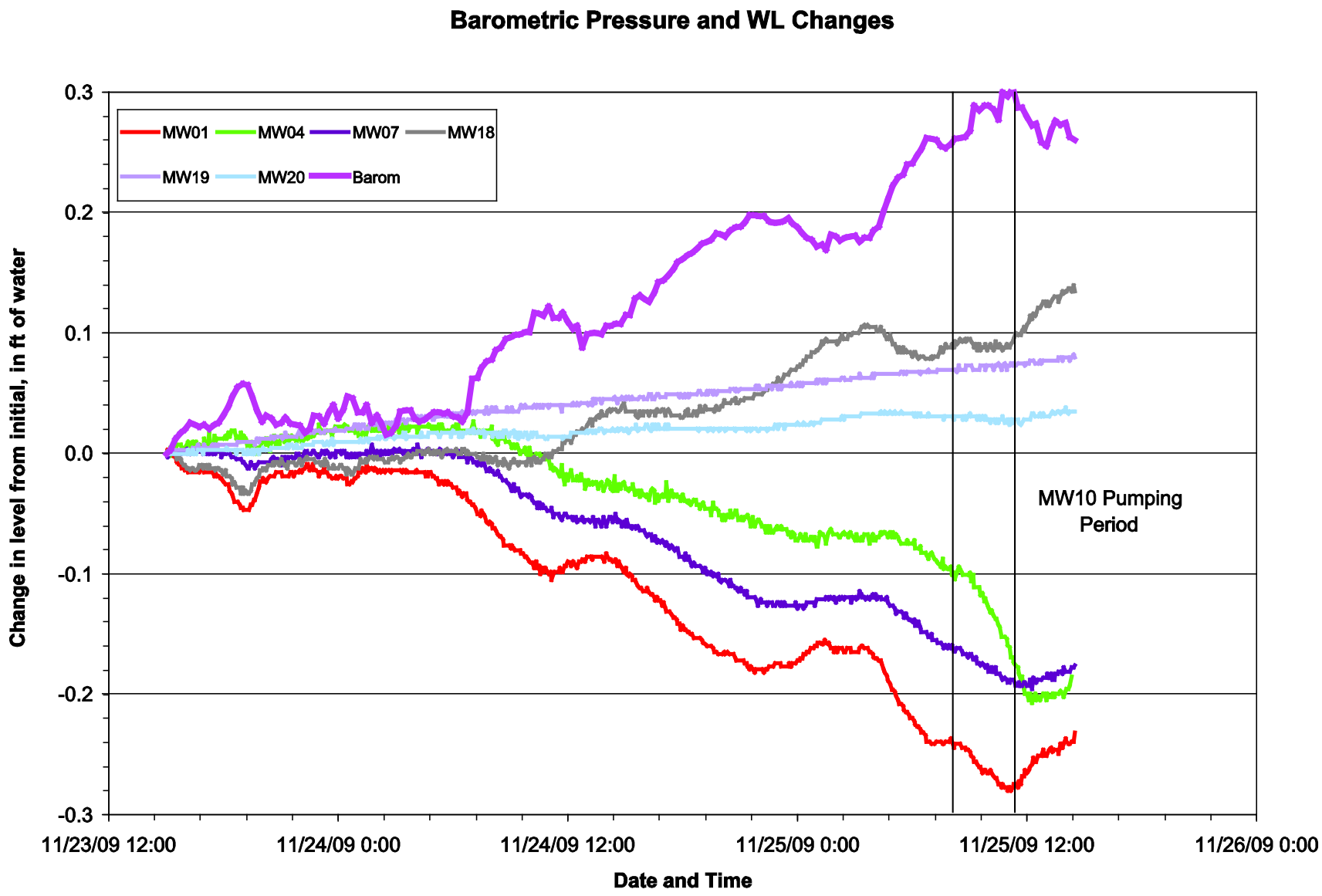

FIGURE 13a Normalized water level changes throughout the November 23-25 field session, for wells used as observation points during the step testing of well MW10, with barometric pressure.

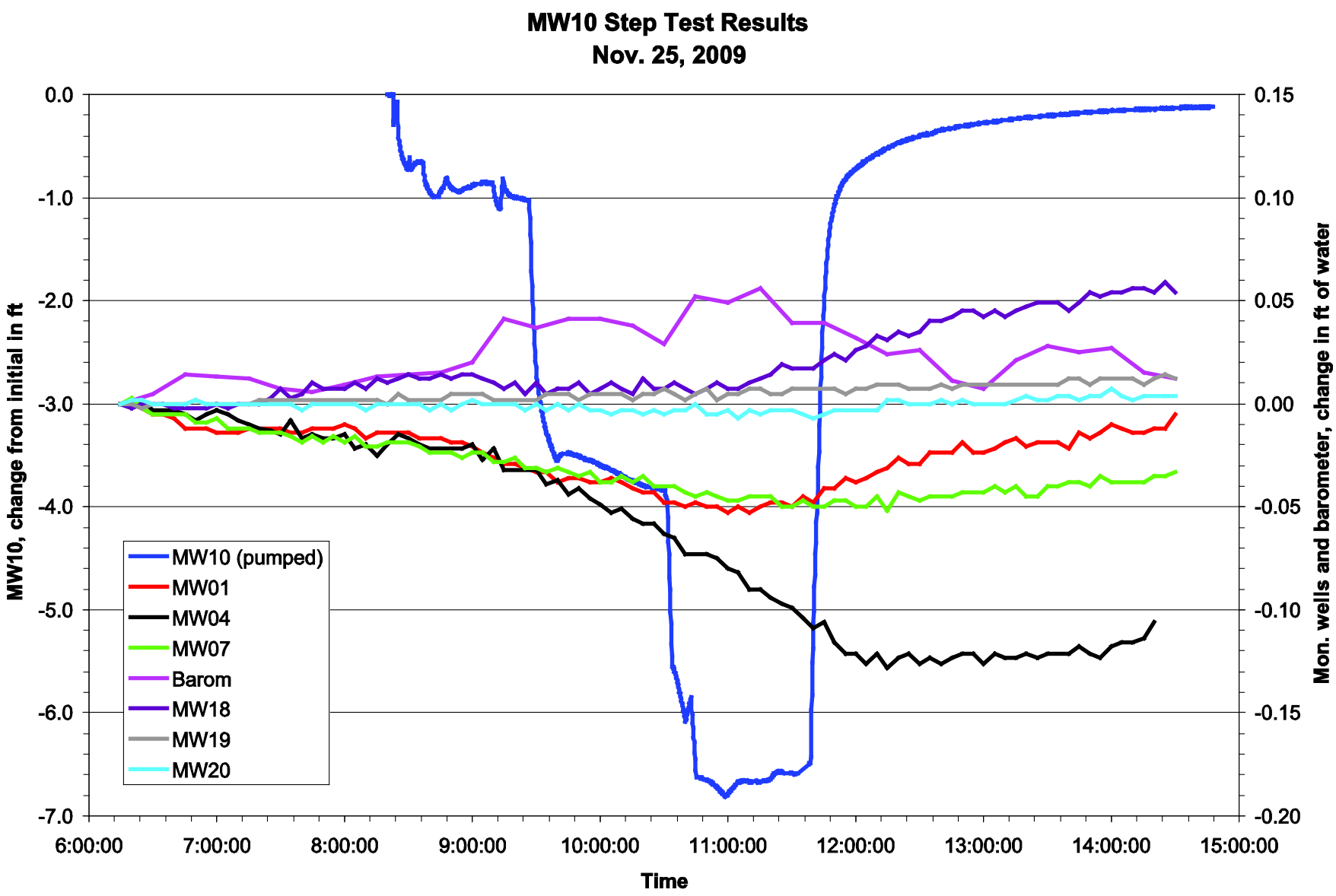

FIGURE 13b Normalized water level changes in wells monitored during step testing of well MW10, with barometric pressure.

Appendix A:

Detailed Step Test Results

Table A.1 Chronologic summary of measurements obtained during the step testing of well MW09

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 9:15:00	2.169			top of pump 21.15ft TOC
11/24/09 9:15:10	2.171			
11/24/09 9:15:20	2.167			
11/24/09 9:15:30	2.176			
11/24/09 9:15:40	2.169			
11/24/09 9:15:50	2.164			
11/24/09 9:16:00	2.169			
11/24/09 9:16:10	2.167			
11/24/09 9:16:20	2.164			
11/24/09 9:16:30	2.167			
11/24/09 9:16:40	2.167			
11/24/09 9:16:50	2.167			
11/24/09 9:17:00	2.169			
11/24/09 9:17:10	2.167			
11/24/09 9:17:20	2.169			
11/24/09 9:17:30	2.167			
11/24/09 9:17:40	2.167			
11/24/09 9:17:50	2.167			
11/24/09 9:18:00	2.169			
11/24/09 9:18:10	2.167			
11/24/09 9:18:20	2.167			
11/24/09 9:18:30	2.167			
11/24/09 9:18:40	2.169			
11/24/09 9:18:50	2.167			
11/24/09 9:19:00	2.167	18.70		
11/24/09 9:19:10	2.169			
11/24/09 9:19:20	2.169			
11/24/09 9:19:30	2.171			
11/24/09 9:19:40	2.169			
11/24/09 9:19:50	2.164			
11/24/09 9:20:00	2.167			
11/24/09 9:20:10	2.167			
11/24/09 9:20:20	2.167			
11/24/09 9:20:30	2.167			
11/24/09 9:20:40	2.164			
11/24/09 9:20:50	2.164			
11/24/09 9:21:00	2.167			
11/24/09 9:21:10	2.164			
11/24/09 9:21:20	2.164			
11/24/09 9:21:30	2.164			
11/24/09 9:21:40	2.162			
11/24/09 9:21:50	2.164			
11/24/09 9:22:00	2.164			
11/24/09 9:22:10	2.162			
11/24/09 9:22:20	2.16			
11/24/09 9:22:30	2.162			
11/24/09 9:22:40	2.164			
11/24/09 9:22:50	2.164			
11/24/09 9:23:00	1.983			start pump, valve closed
11/24/09 9:23:10	2.022			
11/24/09 9:23:20	2.036			
11/24/09 9:23:30	2.05			
11/24/09 9:23:40	2.06			
11/24/09 9:23:50	2.067			
11/24/09 9:24:00	2.076			
11/24/09 9:24:10	2.081			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 9:24:20	2.083			
11/24/09 9:24:30	2.088			
11/24/09 9:24:40	2.092			
11/24/09 9:24:50	1.955			
11/24/09 9:25:00	1.967			open valve, adjust
11/24/09 9:25:10	1.964			
11/24/09 9:25:20	1.962			
11/24/09 9:25:30	1.957			
11/24/09 9:25:40	1.948			
11/24/09 9:25:50	1.943			
11/24/09 9:26:00	1.936			
11/24/09 9:26:10	1.936			
11/24/09 9:26:20	1.946			
11/24/09 9:26:30	1.946			
11/24/09 9:26:40	1.939			
11/24/09 9:26:50	1.927			
11/24/09 9:27:00	1.92	18.94		
11/24/09 9:27:10	1.913			
11/24/09 9:27:20	1.908			
11/24/09 9:27:30	1.906			
11/24/09 9:27:40	1.901			
11/24/09 9:27:50	1.899			
11/24/09 9:28:00	1.894			
11/24/09 9:28:10	1.892			
11/24/09 9:28:20	1.89			
11/24/09 9:28:30	1.885			
11/24/09 9:28:40	1.883			
11/24/09 9:28:50	1.878			
11/24/09 9:29:00	1.864	18.99		
11/24/09 9:29:10	1.857			
11/24/09 9:29:20	1.85			
11/24/09 9:29:30	1.827			
11/24/09 9:29:40	1.787			
11/24/09 9:29:50	1.762			
11/24/09 9:30:00	1.738			
11/24/09 9:30:10	1.722			
11/24/09 9:30:20	1.706			
11/24/09 9:30:30	1.692			
11/24/09 9:30:40	1.676			
11/24/09 9:30:50	1.664			
11/24/09 9:31:00	1.655	19.15		
11/24/09 9:31:10	1.645			
11/24/09 9:31:20	1.634			
11/24/09 9:31:30	1.622			
11/24/09 9:31:40	1.613			
11/24/09 9:31:50	1.601			
11/24/09 9:32:00	1.599	19.20		
11/24/09 9:32:10	1.59			
11/24/09 9:32:20	1.585			
11/24/09 9:32:30	1.573			
11/24/09 9:32:40	1.569			
11/24/09 9:32:50	1.564			
11/24/09 9:33:00	1.559	19.25		
11/24/09 9:33:10	1.55			
11/24/09 9:33:20	1.543			
11/24/09 9:33:30	1.536			
11/24/09 9:33:40	1.536			
11/24/09 9:33:50	1.538			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 9:34:00	1.543			
11/24/09 9:34:10	1.545			
11/24/09 9:34:20	1.55			
11/24/09 9:34:30	1.55			
11/24/09 9:34:40	1.552			
11/24/09 9:34:50	1.559			
11/24/09 9:35:00	1.557	19.24	0.5gal/7m25s	
11/24/09 9:35:10	1.531			
11/24/09 9:35:20	1.508			
11/24/09 9:35:30	1.485			
11/24/09 9:35:40	1.466			
11/24/09 9:35:50	1.448			
11/24/09 9:36:00	1.438	19.40		
11/24/09 9:36:10	1.427			
11/24/09 9:36:20	1.41			
11/24/09 9:36:30	1.394			
11/24/09 9:36:40	1.382			
11/24/09 9:36:50	1.368			
11/24/09 9:37:00	1.357			
11/24/09 9:37:10	1.35			
11/24/09 9:37:20	1.343			
11/24/09 9:37:30	1.331			
11/24/09 9:37:40	1.322			
11/24/09 9:37:50	1.315			
11/24/09 9:38:00	1.308	19.49		
11/24/09 9:38:10	1.301			
11/24/09 9:38:20	1.296			
11/24/09 9:38:30	1.289			
11/24/09 9:38:40	1.282			
11/24/09 9:38:50	1.278			
11/24/09 9:39:00	1.271			
11/24/09 9:39:10	1.278			
11/24/09 9:39:20	1.313			
11/24/09 9:39:30	1.34			
11/24/09 9:39:40	1.364			
11/24/09 9:39:50	1.382			
11/24/09 9:40:00	1.399	19.40	0.5gal/4m52s	
11/24/09 9:40:10	1.415			
11/24/09 9:40:20	1.429			
11/24/09 9:40:30	1.438			
11/24/09 9:40:40	1.452			
11/24/09 9:40:50	1.461			
11/24/09 9:41:00	1.471			
11/24/09 9:41:10	1.482			
11/24/09 9:41:20	1.492			
11/24/09 9:41:30	1.503			
11/24/09 9:41:40	1.513			
11/24/09 9:41:50	1.524			
11/24/09 9:42:00	1.531	19.26		
11/24/09 9:42:10	1.522			
11/24/09 9:42:20	1.52			
11/24/09 9:42:30	1.522			
11/24/09 9:42:40	1.51			
11/24/09 9:42:50	1.496			
11/24/09 9:43:00	1.485	19.30		
11/24/09 9:43:10	1.475			
11/24/09 9:43:20	1.466			
11/24/09 9:43:30	1.457			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 9:43:40	1.45			
11/24/09 9:43:50	1.448			
11/24/09 9:44:00	1.441			
11/24/09 9:44:10	1.438			
11/24/09 9:44:20	1.434			
11/24/09 9:44:30	1.429			
11/24/09 9:44:40	1.427			
11/24/09 9:44:50	1.424			
11/24/09 9:45:00	1.42	19.35		
11/24/09 9:45:10	1.42			
11/24/09 9:45:20	1.415			
11/24/09 9:45:30	1.413			
11/24/09 9:45:40	1.408			
11/24/09 9:45:50	1.406			
11/24/09 9:46:00	1.406			
11/24/09 9:46:10	1.401			
11/24/09 9:46:20	1.401			
11/24/09 9:46:30	1.401			
11/24/09 9:46:40	1.406			
11/24/09 9:46:50	1.408			
11/24/09 9:47:00	1.408	19.37		
11/24/09 9:47:10	1.41			
11/24/09 9:47:20	1.417			
11/24/09 9:47:30	1.417			
11/24/09 9:47:40	1.42			
11/24/09 9:47:50	1.424			
11/24/09 9:48:00	1.431			
11/24/09 9:48:10	1.431			
11/24/09 9:48:20	1.434			
11/24/09 9:48:30	1.438			
11/24/09 9:48:40	1.431			
11/24/09 9:48:50	1.401			
11/24/09 9:49:00	1.382	19.36	0.5gal/8m0s	
11/24/09 9:49:10	1.373			
11/24/09 9:49:20	1.354			
11/24/09 9:49:30	1.345			
11/24/09 9:49:40	1.338			
11/24/09 9:49:50	1.322			
11/24/09 9:50:00	1.313			
11/24/09 9:50:10	1.306			
11/24/09 9:50:20	1.296			
11/24/09 9:50:30	1.289			
11/24/09 9:50:40	1.315			
11/24/09 9:50:50	1.336			
11/24/09 9:51:00	1.34	19.44		
11/24/09 9:51:10	1.338			
11/24/09 9:51:20	1.34			
11/24/09 9:51:30	1.338			
11/24/09 9:51:40	1.338			
11/24/09 9:51:50	1.338			
11/24/09 9:52:00	1.336			
11/24/09 9:52:10	1.338			
11/24/09 9:52:20	1.336			
11/24/09 9:52:30	1.336			
11/24/09 9:52:40	1.336			
11/24/09 9:52:50	1.336			
11/24/09 9:53:00	1.34	19.44		
11/24/09 9:53:10	1.338			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 9:53:20	1.338			
11/24/09 9:53:30	1.338			
11/24/09 9:53:40	1.338			
11/24/09 9:53:50	1.336			
11/24/09 9:54:00	1.336			
11/24/09 9:54:10	1.336			
11/24/09 9:54:20	1.336			
11/24/09 9:54:30	1.333			
11/24/09 9:54:40	1.331			
11/24/09 9:54:50	1.333			
11/24/09 9:55:00	1.333	19.45	0.5gal/6m6s	
11/24/09 9:55:10	1.336			
11/24/09 9:55:20	1.331			
11/24/09 9:55:30	1.331			
11/24/09 9:55:40	1.329			
11/24/09 9:55:50	1.329			
11/24/09 9:56:00	1.327			
11/24/09 9:56:10	1.331			
11/24/09 9:56:20	1.329			
11/24/09 9:56:30	1.324			
11/24/09 9:56:40	1.327			
11/24/09 9:56:50	1.324			
11/24/09 9:57:00	1.327			
11/24/09 9:57:10	1.324			
11/24/09 9:57:20	1.324			
11/24/09 9:57:30	1.322			
11/24/09 9:57:40	1.322			
11/24/09 9:57:50	1.322			
11/24/09 9:58:00	1.324	19.45		
11/24/09 9:58:10	1.322			
11/24/09 9:58:20	1.322			
11/24/09 9:58:30	1.324			
11/24/09 9:58:40	1.327			
11/24/09 9:58:50	1.329			
11/24/09 9:59:00	1.329			
11/24/09 9:59:10	1.336			
11/24/09 9:59:20	1.345			
11/24/09 9:59:30	1.354			
11/24/09 9:59:40	1.364			
11/24/09 9:59:50	1.373			
11/24/09 10:00:00	1.378			
11/24/09 10:00:10	1.345			
11/24/09 10:00:20	1.331			
11/24/09 10:00:30	1.322			
11/24/09 10:00:40	1.306			
11/24/09 10:00:50	1.296			
11/24/09 10:01:00	1.289	19.48		
11/24/09 10:01:10	1.285			
11/24/09 10:01:20	1.278			
11/24/09 10:01:30	1.273			
11/24/09 10:01:40	1.273			
11/24/09 10:01:50	1.271			
11/24/09 10:02:00	1.261		0.5gal/6m28s	
11/24/09 10:02:10	1.257			
11/24/09 10:02:20	1.254			
11/24/09 10:02:30	1.25			
11/24/09 10:02:40	1.247			
11/24/09 10:02:50	1.247			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 10:03:00	1.243			
11/24/09 10:03:10	1.24			
11/24/09 10:03:20	1.238			
11/24/09 10:03:30	1.236			
11/24/09 10:03:40	1.236			
11/24/09 10:03:50	1.236			
11/24/09 10:04:00	1.231	19.55		
11/24/09 10:04:10	1.231			
11/24/09 10:04:20	1.229			
11/24/09 10:04:30	1.226			
11/24/09 10:04:40	1.224			
11/24/09 10:04:50	1.226			
11/24/09 10:05:00	1.224			
11/24/09 10:05:10	1.222			
11/24/09 10:05:20	1.219			
11/24/09 10:05:30	1.219			
11/24/09 10:05:40	1.217			
11/24/09 10:05:50	1.215			
11/24/09 10:06:00	1.21			
11/24/09 10:06:10	1.21			
11/24/09 10:06:20	1.21			
11/24/09 10:06:30	1.21			
11/24/09 10:06:40	1.205			
11/24/09 10:06:50	1.208			
11/24/09 10:07:00	1.203	19.59	0.5gal/5m30s	
11/24/09 10:07:10	1.205			
11/24/09 10:07:20	1.208			
11/24/09 10:07:30	1.208			
11/24/09 10:07:40	1.205			
11/24/09 10:07:50	1.203			
11/24/09 10:08:00	1.203			
11/24/09 10:08:10	1.201			
11/24/09 10:08:20	1.201			
11/24/09 10:08:30	1.196			
11/24/09 10:08:40	1.196			
11/24/09 10:08:50	1.196			
11/24/09 10:09:00	1.196			
11/24/09 10:09:10	1.192			
11/24/09 10:09:20	1.192			
11/24/09 10:09:30	1.187			
11/24/09 10:09:40	1.185			
11/24/09 10:09:50	1.189			
11/24/09 10:10:00	1.185	19.60		
11/24/09 10:10:10	1.182			
11/24/09 10:10:20	1.187			
11/24/09 10:10:30	1.185			
11/24/09 10:10:40	1.182			
11/24/09 10:10:50	1.18			
11/24/09 10:11:00	1.178			
11/24/09 10:11:10	1.178			
11/24/09 10:11:20	1.18			
11/24/09 10:11:30	1.182			
11/24/09 10:11:40	1.178			
11/24/09 10:11:50	1.175			
11/24/09 10:12:00	1.173			
11/24/09 10:12:10	1.171			
11/24/09 10:12:20	1.171			
11/24/09 10:12:30	1.168			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 10:12:40	1.171			
11/24/09 10:12:50	1.168			
11/24/09 10:13:00	1.168	19.61	0.5gal/5m30s	
11/24/09 10:13:10	1.166			
11/24/09 10:13:20	1.168			
11/24/09 10:13:30	1.171			
11/24/09 10:13:40	1.18			
11/24/09 10:13:50	1.187			
11/24/09 10:14:00	1.194			
11/24/09 10:14:10	1.198			
11/24/09 10:14:20	1.203			
11/24/09 10:14:30	1.208			
11/24/09 10:14:40	1.21			
11/24/09 10:14:50	1.217			
11/24/09 10:15:00	1.226			
11/24/09 10:15:10	1.222			
11/24/09 10:15:20	1.226			
11/24/09 10:15:30	1.231			
11/24/09 10:15:40	1.229			
11/24/09 10:15:50	1.229			
11/24/09 10:16:00	1.236	19.55		
11/24/09 10:16:10	1.231			
11/24/09 10:16:20	1.231			
11/24/09 10:16:30	1.231			
11/24/09 10:16:40	1.233			
11/24/09 10:16:50	1.236			
11/24/09 10:17:00	1.238			
11/24/09 10:17:10	1.238			
11/24/09 10:17:20	1.238			
11/24/09 10:17:30	1.243			
11/24/09 10:17:40	1.245			
11/24/09 10:17:50	1.247			
11/24/09 10:18:00	1.245			
11/24/09 10:18:10	1.25			
11/24/09 10:18:20	1.252			
11/24/09 10:18:30	1.254			
11/24/09 10:18:40	1.259			
11/24/09 10:18:50	1.257			
11/24/09 10:19:00	1.259	19.53		
11/24/09 10:19:10	1.259			
11/24/09 10:19:20	1.264			
11/24/09 10:19:30	1.261			
11/24/09 10:19:40	1.264			
11/24/09 10:19:50	1.264			
11/24/09 10:20:00	1.268			
11/24/09 10:20:10	1.268			
11/24/09 10:20:20	1.268			
11/24/09 10:20:30	1.271			
11/24/09 10:20:40	1.266			
11/24/09 10:20:50	1.268			
11/24/09 10:21:00	1.271			
11/24/09 10:21:10	1.268			
11/24/09 10:21:20	1.268			
11/24/09 10:21:30	1.268			
11/24/09 10:21:40	1.271			
11/24/09 10:21:50	1.268			
11/24/09 10:22:00	1.271	19.52	0.5gal/6m55s	
11/24/09 10:22:10	1.271			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 10:22:20	1.271			
11/24/09 10:22:30	1.278			
11/24/09 10:22:40	1.273			
11/24/09 10:22:50	1.273			
11/24/09 10:23:00	1.273			
11/24/09 10:23:10	1.273			
11/24/09 10:23:20	1.273			
11/24/09 10:23:30	1.273			
11/24/09 10:23:40	1.273			
11/24/09 10:23:50	1.271			
11/24/09 10:24:00	1.271			
11/24/09 10:24:10	1.271			
11/24/09 10:24:20	1.271			
11/24/09 10:24:30	1.273			
11/24/09 10:24:40	1.273			
11/24/09 10:24:50	1.275			
11/24/09 10:25:00	1.275	19.51		
11/24/09 10:25:10	1.273			
11/24/09 10:25:20	1.275			
11/24/09 10:25:30	1.273			
11/24/09 10:25:40	1.275			
11/24/09 10:25:50	1.275			
11/24/09 10:26:00	1.275			
11/24/09 10:26:10	1.278			
11/24/09 10:26:20	1.273			
11/24/09 10:26:30	1.273			
11/24/09 10:26:40	1.275			
11/24/09 10:26:50	1.275			
11/24/09 10:27:00	1.275			
11/24/09 10:27:10	1.278			
11/24/09 10:27:20	1.275			
11/24/09 10:27:30	1.278			
11/24/09 10:27:40	1.28			
11/24/09 10:27:50	1.28			
11/24/09 10:28:00	1.28	19.50	0.5gal/7m14s	
11/24/09 10:28:10	1.282			
11/24/09 10:28:20	1.282			
11/24/09 10:28:30	1.28			
11/24/09 10:28:40	1.28			
11/24/09 10:28:50	1.282			
11/24/09 10:29:00	1.28			open valve further
11/24/09 10:29:10	1.278			
11/24/09 10:29:20	1.136			
11/24/09 10:29:30	1.017			
11/24/09 10:29:40	0.908			
11/24/09 10:29:50	0.807			
11/24/09 10:30:00	0.721	20.19		further adjust valve
11/24/09 10:30:10	0.64			
11/24/09 10:30:20	0.558			
11/24/09 10:30:30	0.482			
11/24/09 10:30:40	0.412			
11/24/09 10:30:50	0.344			
11/24/09 10:31:00	0.284	20.49		
11/24/09 10:31:10	0.223			
11/24/09 10:31:20	0.163			
11/24/09 10:31:30	0.109			
11/24/09 10:31:40	0.112			
11/24/09 10:31:50	0.109			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 10:32:00	0.112		0.5gal/1m29s	further adjust valve
11/24/09 10:32:10	0.109			
11/24/09 10:32:20	0.105			
11/24/09 10:32:30	0.105			
11/24/09 10:32:40	0.1			
11/24/09 10:32:50	0.098			
11/24/09 10:33:00	0.098	20.74		
11/24/09 10:33:10	0.091			
11/24/09 10:33:20	0.091			
11/24/09 10:33:30	0.086			
11/24/09 10:33:40	0.081			
11/24/09 10:33:50	0.074			
11/24/09 10:34:00	0.07	20.75	0.5gal/2m10s	
11/24/09 10:34:10	0.058			
11/24/09 10:34:20	0.028			
11/24/09 10:34:30	0.005			
11/24/09 10:34:40	-0.016			
11/24/09 10:34:50	-0.016			
11/24/09 10:35:00	-0.016	20.95		
11/24/09 10:35:10	-0.014			
11/24/09 10:35:20	-0.014			
11/24/09 10:35:30	-0.012			
11/24/09 10:35:40	-0.012			
11/24/09 10:35:50	-0.009			
11/24/09 10:36:00	-0.007	20.94	0.5gal/1m56s	
11/24/09 10:36:10	-0.007			
11/24/09 10:36:20	-0.005			
11/24/09 10:36:30	-0.005			
11/24/09 10:36:40	-0.007			
11/24/09 10:36:50	-0.007			
11/24/09 10:37:00	-0.007	20.92		
11/24/09 10:37:10	-0.005			
11/24/09 10:37:20	-0.014			
11/24/09 10:37:30	-0.009			
11/24/09 10:37:40	-0.012			
11/24/09 10:37:50	-0.012			
11/24/09 10:38:00	-0.012			
11/24/09 10:38:10	-0.012			
11/24/09 10:38:20	-0.012			
11/24/09 10:38:30	-0.012			
11/24/09 10:38:40	-0.012			
11/24/09 10:38:50	-0.007			
11/24/09 10:39:00	-0.012	20.92	0.5gal/2m15s	
11/24/09 10:39:10	-0.012			
11/24/09 10:39:20	-0.009			
11/24/09 10:39:30	-0.012			
11/24/09 10:39:40	-0.009			
11/24/09 10:39:50	-0.012			
11/24/09 10:40:00	-0.012			
11/24/09 10:40:10	-0.009			
11/24/09 10:40:20	-0.009			
11/24/09 10:40:30	-0.012			
11/24/09 10:40:40	-0.012			
11/24/09 10:40:50	-0.012			
11/24/09 10:41:00	-0.009	20.94	0.5gal/2m15s	
11/24/09 10:41:10	-0.009			
11/24/09 10:41:20	-0.009			
11/24/09 10:41:30	-0.009			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 10:41:40	-0.012			
11/24/09 10:41:50	-0.009			
11/24/09 10:42:00	-0.012			
11/24/09 10:42:10	-0.009			
11/24/09 10:42:20	-0.012			
11/24/09 10:42:30	-0.009			
11/24/09 10:42:40	-0.009			
11/24/09 10:42:50	-0.009			
11/24/09 10:43:00	-0.021	20.96		
11/24/09 10:43:10	-0.019			
11/24/09 10:43:20	-0.019			
11/24/09 10:43:30	-0.016			
11/24/09 10:43:40	-0.016			
11/24/09 10:43:50	-0.019			
11/24/09 10:44:00	-0.019		0.5gal/2m15s	
11/24/09 10:44:10	-0.019			
11/24/09 10:44:20	-0.014			
11/24/09 10:44:30	-0.016			
11/24/09 10:44:40	-0.016			
11/24/09 10:44:50	-0.016			
11/24/09 10:45:00	-0.009	20.99		
11/24/09 10:45:10	-0.012			
11/24/09 10:45:20	-0.007			
11/24/09 10:45:30	-0.012			
11/24/09 10:45:40	-0.012			
11/24/09 10:45:50	-0.012			
11/24/09 10:46:00	-0.012			
11/24/09 10:46:10	-0.014			
11/24/09 10:46:20	-0.014			
11/24/09 10:46:30	-0.012			
11/24/09 10:46:40	-0.009			
11/24/09 10:46:50	-0.016			
11/24/09 10:47:00	-0.014	21.05	0.5gal/2m15s	
11/24/09 10:47:10	-0.012			
11/24/09 10:47:20	-0.012			
11/24/09 10:47:30	-0.016			
11/24/09 10:47:40	-0.012			
11/24/09 10:47:50	-0.016			
11/24/09 10:48:00	-0.016			
11/24/09 10:48:10	-0.014			
11/24/09 10:48:20	-0.012			
11/24/09 10:48:30	-0.016			
11/24/09 10:48:40	-0.012			
11/24/09 10:48:50	-0.014			
11/24/09 10:49:00	-0.016	21.10	0.5gal/2m16s	
11/24/09 10:49:10	-0.016			
11/24/09 10:49:20	-0.014			
11/24/09 10:49:30	-0.014			
11/24/09 10:49:40	-0.014			
11/24/09 10:49:50	-0.014			
11/24/09 10:50:00	-0.014			
11/24/09 10:50:10	-0.014			
11/24/09 10:50:20	-0.016			
11/24/09 10:50:30	-0.016			
11/24/09 10:50:40	-0.019			
11/24/09 10:50:50	-0.019			
11/24/09 10:51:00	-0.019	21.15		drop line hits top of pump
11/24/09 10:51:10	-0.019			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 10:51:20	-0.014			
11/24/09 10:51:30	-0.016			
11/24/09 10:51:40	-0.016			
11/24/09 10:51:50	-0.019			
11/24/09 10:52:00	-0.014	21.15		close valve slightly
11/24/09 10:52:10	-0.014			
11/24/09 10:52:20	-0.019			
11/24/09 10:52:30	-0.021			
11/24/09 10:52:40	-0.019			
11/24/09 10:52:50	-0.021			
11/24/09 10:53:00	-0.021			
11/24/09 10:53:10	-0.019			
11/24/09 10:53:20	-0.021			
11/24/09 10:53:30	-0.021			
11/24/09 10:53:40	-0.023			
11/24/09 10:53:50	-0.021			
11/24/09 10:54:00	-0.026	20.99		
11/24/09 10:54:10	-0.026			
11/24/09 10:54:20	-0.023			
11/24/09 10:54:30	-0.021			
11/24/09 10:54:40	-0.028			
11/24/09 10:54:50	-0.021			
11/24/09 10:55:00	-0.026			
11/24/09 10:55:10	-0.026			
11/24/09 10:55:20	-0.03			
11/24/09 10:55:30	-0.026			
11/24/09 10:55:40	-0.026			
11/24/09 10:55:50	-0.023			
11/24/09 10:56:00	-0.026	20.84		
11/24/09 10:56:10	-0.019			
11/24/09 10:56:20	-0.009			
11/24/09 10:56:30	0			
11/24/09 10:56:40	0.014			
11/24/09 10:56:50	0.021			
11/24/09 10:57:00	0.032			
11/24/09 10:57:10	0.042			
11/24/09 10:57:20	0.049			
11/24/09 10:57:30	0.063			
11/24/09 10:57:40	0.063			
11/24/09 10:57:50	0.077			
11/24/09 10:58:00	0.084	20.73	0.5gal/3m8s	
11/24/09 10:58:10	0.091			
11/24/09 10:58:20	0.093			
11/24/09 10:58:30	0.1			
11/24/09 10:58:40	0.1			
11/24/09 10:58:50	0.109			
11/24/09 10:59:00	0.114			
11/24/09 10:59:10	0.116			
11/24/09 10:59:20	0.119			
11/24/09 10:59:30	0.126			
11/24/09 10:59:40	0.13			
11/24/09 10:59:50	0.133			
11/24/09 11:00:00	0.137	20.66	0.5gal/3m13s	
11/24/09 11:00:10	0.137			
11/24/09 11:00:20	0.142			
11/24/09 11:00:30	0.142			
11/24/09 11:00:40	0.147			
11/24/09 11:00:50	0.147			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 11:01:00	0.147			
11/24/09 11:01:10	0.149			
11/24/09 11:01:20	0.151			
11/24/09 11:01:30	0.153			
11/24/09 11:01:40	0.158			
11/24/09 11:01:50	0.149			
11/24/09 11:02:00	0.156			
11/24/09 11:02:10	0.156			
11/24/09 11:02:20	0.158			
11/24/09 11:02:30	0.158			
11/24/09 11:02:40	0.158			
11/24/09 11:02:50	0.158			
11/24/09 11:03:00	0.16	20.64		
11/24/09 11:03:10	0.16			
11/24/09 11:03:20	0.163			
11/24/09 11:03:30	0.165			
11/24/09 11:03:40	0.16			
11/24/09 11:03:50	0.163			
11/24/09 11:04:00	0.165			
11/24/09 11:04:10	0.167			
11/24/09 11:04:20	0.165			
11/24/09 11:04:30	0.17			
11/24/09 11:04:40	0.17			
11/24/09 11:04:50	0.172			
11/24/09 11:05:00	0.17		0.5gal/3m9s	
11/24/09 11:05:10	0.17			
11/24/09 11:05:20	0.167			
11/24/09 11:05:30	0.167			
11/24/09 11:05:40	0.17			
11/24/09 11:05:50	0.17			
11/24/09 11:06:00	0.167	20.64		
11/24/09 11:06:10	0.165			
11/24/09 11:06:20	0.165			
11/24/09 11:06:30	0.17			
11/24/09 11:06:40	0.167			
11/24/09 11:06:50	0.167			
11/24/09 11:07:00	0.167			
11/24/09 11:07:10	0.165			
11/24/09 11:07:20	0.167			
11/24/09 11:07:30	0.165			
11/24/09 11:07:40	0.165			
11/24/09 11:07:50	0.165			
11/24/09 11:08:00	0.165		0.5gal/3m7s	
11/24/09 11:08:10	0.167			
11/24/09 11:08:20	0.17			
11/24/09 11:08:30	0.167			
11/24/09 11:08:40	0.17			
11/24/09 11:08:50	0.17			
11/24/09 11:09:00	0.17	20.62		
11/24/09 11:09:10	0.17			
11/24/09 11:09:20	0.167			
11/24/09 11:09:30	0.167			
11/24/09 11:09:40	0.167			
11/24/09 11:09:50	0.167			
11/24/09 11:10:00	0.167			
11/24/09 11:10:10	0.17			
11/24/09 11:10:20	0.17			
11/24/09 11:10:30	0.167			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 11:10:40	0.172			
11/24/09 11:10:50	0.167			
11/24/09 11:11:00	0.167			
11/24/09 11:11:10	0.167			
11/24/09 11:11:20	0.167			
11/24/09 11:11:30	0.17			
11/24/09 11:11:40	0.167			
11/24/09 11:11:50	0.17			
11/24/09 11:12:00	0.167	20.62	0.5gal/3m8s	
11/24/09 11:12:10	0.167			
11/24/09 11:12:20	0.163			
11/24/09 11:12:30	0.165			
11/24/09 11:12:40	0.165			
11/24/09 11:12:50	0.167			
11/24/09 11:13:00	0.165			
11/24/09 11:13:10	0.165			
11/24/09 11:13:20	0.167			
11/24/09 11:13:30	0.167			
11/24/09 11:13:40	0.165			
11/24/09 11:13:50	0.167			
11/24/09 11:14:00	0.165			
11/24/09 11:14:10	0.167			
11/24/09 11:14:20	0.167			
11/24/09 11:14:30	0.165			
11/24/09 11:14:40	0.167			
11/24/09 11:14:50	0.17			
11/24/09 11:15:00	0.172	20.63	0.5gal/3m8s	
11/24/09 11:15:10	0.172			
11/24/09 11:15:20	0.174			
11/24/09 11:15:30	0.174			
11/24/09 11:15:40	0.174			
11/24/09 11:15:50	0.177			
11/24/09 11:16:00	0.174			
11/24/09 11:16:10	0.174			
11/24/09 11:16:20	0.174			
11/24/09 11:16:30	0.177			
11/24/09 11:16:40	0.174			
11/24/09 11:16:50	0.174			
11/24/09 11:17:00	0.177			
11/24/09 11:17:10	0.179			
11/24/09 11:17:20	0.177			
11/24/09 11:17:30	0.179			
11/24/09 11:17:40	0.179			
11/24/09 11:17:50	0.181			
11/24/09 11:18:00	0.179	20.61	0.5gal/3m10s	
11/24/09 11:18:10	0.179			
11/24/09 11:18:20	0.181			
11/24/09 11:18:30	0.181			
11/24/09 11:18:40	0.181			
11/24/09 11:18:50	0.181			
11/24/09 11:19:00	0.184			
11/24/09 11:19:10	0.181			
11/24/09 11:19:20	0.186			
11/24/09 11:19:30	0.186			
11/24/09 11:19:40	0.184			
11/24/09 11:19:50	0.184			
11/24/09 11:20:00	0.186			
11/24/09 11:20:10	0.186			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 11:20:20	0.186			
11/24/09 11:20:30	0.186			
11/24/09 11:20:40	0.188			
11/24/09 11:20:50	0.188			
11/24/09 11:21:00	0.188	20.60	0.5gal/3m14s	
11/24/09 11:21:10	0.188			
11/24/09 11:21:20	0.188			
11/24/09 11:21:30	0.191			
11/24/09 11:21:40	0.191			
11/24/09 11:21:50	0.193			
11/24/09 11:22:00	0.193			
11/24/09 11:22:10	0.191			
11/24/09 11:22:20	0.193			
11/24/09 11:22:30	0.193			
11/24/09 11:22:40	0.193			
11/24/09 11:22:50	0.191			
11/24/09 11:23:00	0.195			
11/24/09 11:23:10	0.191			
11/24/09 11:23:20	0.188			
11/24/09 11:23:30	0.191			
11/24/09 11:23:40	0.186			
11/24/09 11:23:50	0.188			
11/24/09 11:24:00	0.186	20.60		
11/24/09 11:24:10	0.186			
11/24/09 11:24:20	0.188			
11/24/09 11:24:30	0.186			
11/24/09 11:24:40	0.188			
11/24/09 11:24:50	0.184			
11/24/09 11:25:00	0.181			
11/24/09 11:25:10	0.179			
11/24/09 11:25:20	0.179			
11/24/09 11:25:30	0.179			
11/24/09 11:25:40	0.179			
11/24/09 11:25:50	0.179			
11/24/09 11:26:00	0.181			
11/24/09 11:26:10	0.181			
11/24/09 11:26:20	0.181			
11/24/09 11:26:30	0.184			
11/24/09 11:26:40	0.186			
11/24/09 11:26:50	0.186			
11/24/09 11:27:00	0.188	20.60	0.5gal/3m14s	
11/24/09 11:27:10	0.188			
11/24/09 11:27:20	0.186			
11/24/09 11:27:30	0.186			
11/24/09 11:27:40	0.186			
11/24/09 11:27:50	0.188			
11/24/09 11:28:00	0.186			
11/24/09 11:28:10	0.188			
11/24/09 11:28:20	0.186			
11/24/09 11:28:30	0.186			
11/24/09 11:28:40	0.184			
11/24/09 11:28:50	0.186			
11/24/09 11:29:00	0.184			
11/24/09 11:29:10	0.186			
11/24/09 11:29:20	0.188			
11/24/09 11:29:30	0.188			
11/24/09 11:29:40	0.186			
11/24/09 11:29:50	0.191			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 11:30:00	0.193	20.60	0.5gal/3m15s	adjust valve, very small amount
11/24/09 11:30:10	0.191			
11/24/09 11:30:20	0.191			
11/24/09 11:30:30	0.191			
11/24/09 11:30:40	0.191			
11/24/09 11:30:50	0.186			
11/24/09 11:31:00	0.186			
11/24/09 11:31:10	0.156			
11/24/09 11:31:20	0.14			
11/24/09 11:31:30	0.119			
11/24/09 11:31:40	0.105			
11/24/09 11:31:50	0.093			
11/24/09 11:32:00	0.079	20.71		
11/24/09 11:32:10	0.067			
11/24/09 11:32:20	0.063			
11/24/09 11:32:30	0.049			
11/24/09 11:32:40	0.039			
11/24/09 11:32:50	0.03			
11/24/09 11:33:00	0.021	20.76		
11/24/09 11:33:10	0.014			
11/24/09 11:33:20	0.007			
11/24/09 11:33:30	0.002			
11/24/09 11:33:40	-0.005			
11/24/09 11:33:50	-0.014			
11/24/09 11:34:00	-0.016	20.80	0.5gal/2m43s	
11/24/09 11:34:10	-0.021			
11/24/09 11:34:20	-0.028			
11/24/09 11:34:30	-0.035			
11/24/09 11:34:40	-0.042			
11/24/09 11:34:50	-0.047			
11/24/09 11:35:00	-0.051	20.84		
11/24/09 11:35:10	-0.058			
11/24/09 11:35:20	-0.061			
11/24/09 11:35:30	-0.061			
11/24/09 11:35:40	-0.061			
11/24/09 11:35:50	-0.051			
11/24/09 11:36:00	-0.049	20.86		
11/24/09 11:36:10	-0.051			
11/24/09 11:36:20	-0.056			
11/24/09 11:36:30	-0.051			
11/24/09 11:36:40	-0.051			
11/24/09 11:36:50	-0.054			
11/24/09 11:37:00	-0.054			
11/24/09 11:37:10	-0.056			
11/24/09 11:37:20	-0.056			
11/24/09 11:37:30	-0.054			
11/24/09 11:37:40	-0.054			
11/24/09 11:37:50	-0.056			
11/24/09 11:38:00	-0.054	20.90	0.5gal/2m43s	
11/24/09 11:38:10	-0.054			
11/24/09 11:38:20	-0.054			
11/24/09 11:38:30	-0.054			
11/24/09 11:38:40	-0.054			
11/24/09 11:38:50	-0.051			
11/24/09 11:39:00	-0.056			
11/24/09 11:39:10	-0.054			
11/24/09 11:39:20	-0.051			
11/24/09 11:39:30	-0.054			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 11:39:40	-0.058			
11/24/09 11:39:50	-0.058			
11/24/09 11:40:00	-0.058	20.93	0.5gal/2m43s	
11/24/09 11:40:10	-0.058			
11/24/09 11:40:20	-0.056			
11/24/09 11:40:30	-0.058			
11/24/09 11:40:40	-0.058			
11/24/09 11:40:50	-0.058			
11/24/09 11:41:00	-0.061			
11/24/09 11:41:10	-0.058			
11/24/09 11:41:20	-0.061			
11/24/09 11:41:30	-0.061			
11/24/09 11:41:40	-0.058			
11/24/09 11:41:50	-0.058			
11/24/09 11:42:00	-0.058	20.94		
11/24/09 11:42:10	-0.061			
11/24/09 11:42:20	-0.058			
11/24/09 11:42:30	-0.058			
11/24/09 11:42:40	-0.058			
11/24/09 11:42:50	-0.058			
11/24/09 11:43:00	-0.061			
11/24/09 11:43:10	-0.061			
11/24/09 11:43:20	-0.058			
11/24/09 11:43:30	-0.058			
11/24/09 11:43:40	-0.061			
11/24/09 11:43:50	-0.058			
11/24/09 11:44:00	-0.061	20.95	0.5gal/2m44s	
11/24/09 11:44:10	-0.063			
11/24/09 11:44:20	-0.061			
11/24/09 11:44:30	-0.063			
11/24/09 11:44:40	-0.061			
11/24/09 11:44:50	-0.061			
11/24/09 11:45:00	-0.063			
11/24/09 11:45:10	-0.058			
11/24/09 11:45:20	-0.061			
11/24/09 11:45:30	-0.063			
11/24/09 11:45:40	-0.063			
11/24/09 11:45:50	-0.065			
11/24/09 11:46:00	-0.061	20.95		
11/24/09 11:46:10	-0.061			
11/24/09 11:46:20	-0.061			
11/24/09 11:46:30	-0.063			
11/24/09 11:46:40	-0.063			
11/24/09 11:46:50	-0.063			
11/24/09 11:47:00	-0.063		0.5gal/2m44s	
11/24/09 11:47:10	-0.061			
11/24/09 11:47:20	-0.065			
11/24/09 11:47:30	-0.063			
11/24/09 11:47:40	-0.065			
11/24/09 11:47:50	-0.063			
11/24/09 11:48:00	-0.065	20.96		
11/24/09 11:48:10	-0.065			
11/24/09 11:48:20	-0.065			
11/24/09 11:48:30	-0.065			
11/24/09 11:48:40	-0.065			
11/24/09 11:48:50	-0.065			
11/24/09 11:49:00	-0.065			
11/24/09 11:49:10	-0.065			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 11:49:20	-0.068			
11/24/09 11:49:30	-0.068			
11/24/09 11:49:40	-0.063			
11/24/09 11:49:50	-0.065			
11/24/09 11:50:00	-0.063	20.96	0.5gal/2m45s	
11/24/09 11:50:10	-0.065			
11/24/09 11:50:20	-0.063			
11/24/09 11:50:30	-0.063			
11/24/09 11:50:40	-0.058			
11/24/09 11:50:50	-0.065			
11/24/09 11:51:00	-0.068			
11/24/09 11:51:10	-0.065			
11/24/09 11:51:20	-0.063			
11/24/09 11:51:30	-0.063			
11/24/09 11:51:40	-0.065			
11/24/09 11:51:50	-0.063			
11/24/09 11:52:00	-0.068	20.97		
11/24/09 11:52:10	-0.07			
11/24/09 11:52:20	-0.063			
11/24/09 11:52:30	-0.065			
11/24/09 11:52:40	-0.068			
11/24/09 11:52:50	-0.065			
11/24/09 11:53:00	-0.061		0.5gal/2m45s	
11/24/09 11:53:10	-0.068			
11/24/09 11:53:20	-0.065			
11/24/09 11:53:30	-0.065			
11/24/09 11:53:40	-0.065			
11/24/09 11:53:50	-0.065			
11/24/09 11:54:00	-0.068	20.98		
11/24/09 11:54:10	-0.068			
11/24/09 11:54:20	-0.068			
11/24/09 11:54:30	-0.068			
11/24/09 11:54:40	-0.068			
11/24/09 11:54:50	-0.068			
11/24/09 11:55:00	-0.065			
11/24/09 11:55:10	-0.068			
11/24/09 11:55:20	-0.065			
11/24/09 11:55:30	-0.065			
11/24/09 11:55:40	-0.068			
11/24/09 11:55:50	-0.07			
11/24/09 11:56:00	-0.065	20.99		
11/24/09 11:56:10	-0.068			
11/24/09 11:56:20	-0.068			
11/24/09 11:56:30	-0.068			
11/24/09 11:56:40	-0.07			
11/24/09 11:56:50	-0.07			
11/24/09 11:57:00	-0.07			
11/24/09 11:57:10	-0.072			
11/24/09 11:57:20	-0.072			
11/24/09 11:57:30	-0.07			
11/24/09 11:57:40	-0.072			
11/24/09 11:57:50	-0.065			
11/24/09 11:58:00	-0.068		0.5gal/2m46s	
11/24/09 11:58:10	-0.068			
11/24/09 11:58:20	-0.065			
11/24/09 11:58:30	-0.07			
11/24/09 11:58:40	-0.068			
11/24/09 11:58:50	-0.068			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 11:59:00	-0.065			
11/24/09 11:59:10	-0.063			
11/24/09 11:59:20	-0.065			
11/24/09 11:59:30	-0.07			
11/24/09 11:59:40	-0.068			
11/24/09 11:59:50	-0.068			
11/24/09 12:00:00	-0.068	21.01	0.5gal/2m46s	
11/24/09 12:00:10	-0.068			
11/24/09 12:00:20	-0.072			
11/24/09 12:00:30	-0.068			
11/24/09 12:00:40	-0.068			
11/24/09 12:00:50	-0.068			
11/24/09 12:01:00	-0.07			
11/24/09 12:01:10	-0.068			
11/24/09 12:01:20	-0.068			
11/24/09 12:01:30	-0.068			
11/24/09 12:01:40	-0.07			
11/24/09 12:01:50	-0.07			
11/24/09 12:02:00	-0.068			
11/24/09 12:02:10	-0.068			
11/24/09 12:02:20	-0.068			
11/24/09 12:02:30	-0.063			
11/24/09 12:02:40	-0.068			
11/24/09 12:02:50	-0.082			
11/24/09 12:03:00	-0.086	21.05	0.5gal/2m45s	
11/24/09 12:03:10	-0.082			
11/24/09 12:03:20	-0.082			
11/24/09 12:03:30	-0.084			
11/24/09 12:03:40	-0.084			
11/24/09 12:03:50	-0.082			
11/24/09 12:04:00	-0.082			
11/24/09 12:04:10	-0.084			
11/24/09 12:04:20	-0.079			
11/24/09 12:04:30	-0.082			
11/24/09 12:04:40	-0.084			
11/24/09 12:04:50	-0.082			
11/24/09 12:05:00	-0.084			
11/24/09 12:05:10	-0.082			
11/24/09 12:05:20	-0.077			
11/24/09 12:05:30	-0.082			
11/24/09 12:05:40	-0.082			
11/24/09 12:05:50	-0.079			
11/24/09 12:06:00	-0.082	21.06	0.5gal/2m45s	
11/24/09 12:06:10	-0.079			
11/24/09 12:06:20	-0.082			
11/24/09 12:06:30	-0.082			
11/24/09 12:06:40	-0.084			
11/24/09 12:06:50	-0.082			
11/24/09 12:07:00	-0.082			
11/24/09 12:07:10	-0.082			
11/24/09 12:07:20	-0.084			
11/24/09 12:07:30	-0.084			
11/24/09 12:07:40	-0.084			
11/24/09 12:07:50	-0.086			
11/24/09 12:08:00	-0.084			
11/24/09 12:08:10	-0.084			
11/24/09 12:08:20	-0.084			
11/24/09 12:08:30	-0.084			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 12:08:40	-0.084			
11/24/09 12:08:50	-0.086			
11/24/09 12:09:00	-0.086	21.07		
11/24/09 12:09:10	-0.084			
11/24/09 12:09:20	-0.086			
11/24/09 12:09:30	-0.086			
11/24/09 12:09:40	-0.086			
11/24/09 12:09:50	-0.086			
11/24/09 12:10:00	-0.086		0.5gal/2m45s	
11/24/09 12:10:10	-0.086			
11/24/09 12:10:20	-0.086			
11/24/09 12:10:30	-0.086			
11/24/09 12:10:40	-0.086			
11/24/09 12:10:50	-0.086			
11/24/09 12:11:00	-0.086			
11/24/09 12:11:10	-0.089			
11/24/09 12:11:20	-0.089			
11/24/09 12:11:30	-0.089			
11/24/09 12:11:40	-0.089			
11/24/09 12:11:50	-0.089			
11/24/09 12:12:00	-0.089	21.09		
11/24/09 12:12:10	-0.089			
11/24/09 12:12:20	-0.089			
11/24/09 12:12:30	-0.089			
11/24/09 12:12:40	-0.086			
11/24/09 12:12:50	-0.084			
11/24/09 12:13:00	-0.086		0.5gal/2m46s	
11/24/09 12:13:10	-0.086			
11/24/09 12:13:20	-0.086			
11/24/09 12:13:30	-0.084			
11/24/09 12:13:40	-0.086			
11/24/09 12:13:50	-0.086			
11/24/09 12:14:00	-0.084			
11/24/09 12:14:10	-0.086			
11/24/09 12:14:20	-0.086			
11/24/09 12:14:30	-0.084			
11/24/09 12:14:40	-0.086			
11/24/09 12:14:50	-0.086			
11/24/09 12:15:00	-0.089	21.11		
11/24/09 12:15:10	-0.086			
11/24/09 12:15:20	-0.084			
11/24/09 12:15:30	-0.086			
11/24/09 12:15:40	-0.086			
11/24/09 12:15:50	-0.086			
11/24/09 12:16:00	-0.084		0.5gal/2m45s	
11/24/09 12:16:10	-0.084			
11/24/09 12:16:20	-0.086			
11/24/09 12:16:30	-0.086			
11/24/09 12:16:40	-0.086			
11/24/09 12:16:50	-0.084			
11/24/09 12:17:00	-0.084			
11/24/09 12:17:10	-0.084			
11/24/09 12:17:20	-0.082			
11/24/09 12:17:30	-0.084			
11/24/09 12:17:40	-0.084			
11/24/09 12:17:50	-0.086			
11/24/09 12:18:00	-0.086	21.15		drop line hits top of pump
11/24/09 12:18:10	-0.086			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 12:18:20	-0.089			
11/24/09 12:18:30	-0.089			
11/24/09 12:18:40	-0.089			
11/24/09 12:18:50	-0.086			
11/24/09 12:19:00	-0.086		0.5gal/2m45s	
11/24/09 12:19:10	-0.089			
11/24/09 12:19:20	-0.086			
11/24/09 12:19:30	-0.089			
11/24/09 12:19:40	-0.089			
11/24/09 12:19:50	-0.084			
11/24/09 12:20:00	-0.086	21.15		pump off
11/24/09 12:20:10	-0.086			
11/24/09 12:20:20	-0.089			
11/24/09 12:20:30	-0.002	20.81		
11/24/09 12:20:40	0.086			
11/24/09 12:20:50	0.16			
11/24/09 12:21:00	0.235	20.55		
11/24/09 12:21:10	0.302			
11/24/09 12:21:20	0.368			
11/24/09 12:21:30	0.428			
11/24/09 12:21:40	0.484			
11/24/09 12:21:50	0.531			
11/24/09 12:22:00	0.582	20.26		
11/24/09 12:22:10	0.626			
11/24/09 12:22:20	0.675			
11/24/09 12:22:30	0.705			
11/24/09 12:22:40	0.745			
11/24/09 12:22:50	0.773			
11/24/09 12:23:00	0.81	20.03		
11/24/09 12:23:10	0.838			
11/24/09 12:23:20	0.859			
11/24/09 12:23:30	0.887			
11/24/09 12:23:40	0.912			
11/24/09 12:23:50	0.936			
11/24/09 12:24:00	0.956	19.89		
11/24/09 12:24:10	0.975			
11/24/09 12:24:20	0.996			
11/24/09 12:24:30	1.019			
11/24/09 12:24:40	1.036			
11/24/09 12:24:50	1.057			
11/24/09 12:25:00	1.071	19.78		
11/24/09 12:25:10	1.087			
11/24/09 12:25:20	1.103			
11/24/09 12:25:30	1.117			
11/24/09 12:25:40	1.129			
11/24/09 12:25:50	1.145			
11/24/09 12:26:00	1.159	19.67		
11/24/09 12:26:10	1.171			
11/24/09 12:26:20	1.185			
11/24/09 12:26:30	1.199			
11/24/09 12:26:40	1.205			
11/24/09 12:26:50	1.217			
11/24/09 12:27:00	1.229	19.62		
11/24/09 12:27:10	1.238			
11/24/09 12:27:20	1.247			
11/24/09 12:27:30	1.254			
11/24/09 12:27:40	1.266			
11/24/09 12:27:50	1.275			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 12:28:00	1.285	19.56		
11/24/09 12:28:10	1.292			
11/24/09 12:28:20	1.299			
11/24/09 12:28:30	1.308			
11/24/09 12:28:40	1.317			
11/24/09 12:28:50	1.327			
11/24/09 12:29:00	1.331			
11/24/09 12:29:10	1.338			
11/24/09 12:29:20	1.345			
11/24/09 12:29:30	1.354			
11/24/09 12:29:40	1.361			
11/24/09 12:29:50	1.366			
11/24/09 12:30:00	1.373	19.49		
11/24/09 12:30:10	1.38			
11/24/09 12:30:20	1.385			
11/24/09 12:30:30	1.394			
11/24/09 12:30:40	1.399			
11/24/09 12:30:50	1.406			
11/24/09 12:31:00	1.413			
11/24/09 12:31:10	1.415			
11/24/09 12:31:20	1.424			
11/24/09 12:31:30	1.427			
11/24/09 12:31:40	1.434			
11/24/09 12:31:50	1.441			
11/24/09 12:32:00	1.441			
11/24/09 12:32:10	1.448			
11/24/09 12:32:20	1.455			
11/24/09 12:32:30	1.459			
11/24/09 12:32:40	1.462			
11/24/09 12:32:50	1.464			
11/24/09 12:33:00	1.468	19.36		
11/24/09 12:33:10	1.473			
11/24/09 12:33:20	1.485			
11/24/09 12:33:30	1.482			
11/24/09 12:33:40	1.487			
11/24/09 12:33:50	1.494			
11/24/09 12:34:00	1.499			
11/24/09 12:34:10	1.501			
11/24/09 12:34:20	1.501			
11/24/09 12:34:30	1.508			
11/24/09 12:34:40	1.508			
11/24/09 12:34:50	1.513			
11/24/09 12:35:00	1.517			
11/24/09 12:35:10	1.52			
11/24/09 12:35:20	1.522			
11/24/09 12:35:30	1.524			
11/24/09 12:35:40	1.529			
11/24/09 12:35:50	1.529			
11/24/09 12:36:00	1.531	19.32		
11/24/09 12:36:10	1.536			
11/24/09 12:36:20	1.538			
11/24/09 12:36:30	1.543			
11/24/09 12:36:40	1.548			
11/24/09 12:36:50	1.552			
11/24/09 12:37:00	1.555			
11/24/09 12:37:10	1.557			
11/24/09 12:37:20	1.559			
11/24/09 12:37:30	1.562			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 12:37:40	1.564			
11/24/09 12:37:50	1.569			
11/24/09 12:38:00	1.573			
11/24/09 12:38:10	1.576			
11/24/09 12:38:20	1.578			
11/24/09 12:38:30	1.583			
11/24/09 12:38:40	1.587			
11/24/09 12:38:50	1.59			
11/24/09 12:39:00	1.592			
11/24/09 12:39:10	1.592			
11/24/09 12:39:20	1.594			
11/24/09 12:39:30	1.597			
11/24/09 12:39:40	1.597			
11/24/09 12:39:50	1.601			
11/24/09 12:40:00	1.603	19.25		
11/24/09 12:40:10	1.608			
11/24/09 12:40:20	1.606			
11/24/09 12:40:30	1.606			
11/24/09 12:40:40	1.613			
11/24/09 12:40:50	1.62			
11/24/09 12:41:00	1.615			
11/24/09 12:41:10	1.617			
11/24/09 12:41:20	1.622			
11/24/09 12:41:30	1.624			
11/24/09 12:41:40	1.624			
11/24/09 12:41:50	1.627			
11/24/09 12:42:00	1.629			
11/24/09 12:42:10	1.631			
11/24/09 12:42:20	1.631			
11/24/09 12:42:30	1.634			
11/24/09 12:42:40	1.641			
11/24/09 12:42:50	1.638			
11/24/09 12:43:00	1.643			
11/24/09 12:43:10	1.643			
11/24/09 12:43:20	1.645			
11/24/09 12:43:30	1.65			
11/24/09 12:43:40	1.652			
11/24/09 12:43:50	1.655			
11/24/09 12:44:00	1.659			
11/24/09 12:44:10	1.657			
11/24/09 12:44:20	1.657			
11/24/09 12:44:30	1.662			
11/24/09 12:44:40	1.659			
11/24/09 12:44:50	1.662			
11/24/09 12:45:00	1.664	19.19		
11/24/09 12:45:10	1.669			
11/24/09 12:45:20	1.671			
11/24/09 12:45:30	1.671			
11/24/09 12:45:40	1.673			
11/24/09 12:45:50	1.678			
11/24/09 12:46:00	1.673			
11/24/09 12:46:10	1.676			
11/24/09 12:46:20	1.678			
11/24/09 12:46:30	1.68			
11/24/09 12:46:40	1.678			
11/24/09 12:46:50	1.68			
11/24/09 12:47:00	1.683			
11/24/09 12:47:10	1.68			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 12:47:20	1.685			
11/24/09 12:47:30	1.694			
11/24/09 12:47:40	1.69			
11/24/09 12:47:50	1.69			
11/24/09 12:48:00	1.692			
11/24/09 12:48:10	1.692			
11/24/09 12:48:20	1.694			
11/24/09 12:48:30	1.694			
11/24/09 12:48:40	1.694			
11/24/09 12:48:50	1.697			
11/24/09 12:49:00	1.697			
11/24/09 12:49:10	1.699			
11/24/09 12:49:20	1.701			
11/24/09 12:49:30	1.704			
11/24/09 12:49:40	1.704			
11/24/09 12:49:50	1.701			
11/24/09 12:50:00	1.706			
11/24/09 12:50:10	1.713			
11/24/09 12:50:20	1.711			
11/24/09 12:50:30	1.711			
11/24/09 12:50:40	1.715			
11/24/09 12:50:50	1.713			
11/24/09 12:51:00	1.713			
11/24/09 12:51:10	1.713			
11/24/09 12:51:20	1.718			
11/24/09 12:51:30	1.715			
11/24/09 12:51:40	1.715			
11/24/09 12:51:50	1.718			
11/24/09 12:52:00	1.72			
11/24/09 12:52:10	1.72			
11/24/09 12:52:20	1.722			
11/24/09 12:52:30	1.722			
11/24/09 12:52:40	1.722			
11/24/09 12:52:50	1.722			
11/24/09 12:53:00	1.729			
11/24/09 12:53:10	1.727			
11/24/09 12:53:20	1.727			
11/24/09 12:53:30	1.732			
11/24/09 12:53:40	1.732			
11/24/09 12:53:50	1.732			
11/24/09 12:54:00	1.729			
11/24/09 12:54:10	1.732			
11/24/09 12:54:20	1.729			
11/24/09 12:54:30	1.732			
11/24/09 12:54:40	1.732			
11/24/09 12:54:50	1.732			
11/24/09 12:55:00	1.734			
11/24/09 12:55:10	1.738			
11/24/09 12:55:20	1.741			
11/24/09 12:55:30	1.738			
11/24/09 12:55:40	1.738			
11/24/09 12:55:50	1.738			
11/24/09 12:56:00	1.738			
11/24/09 12:56:10	1.738			
11/24/09 12:56:20	1.738			
11/24/09 12:56:30	1.745			
11/24/09 12:56:40	1.743			
11/24/09 12:56:50	1.741			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 12:57:00	1.745			
11/24/09 12:57:10	1.748			
11/24/09 12:57:20	1.748			
11/24/09 12:57:30	1.75			
11/24/09 12:57:40	1.75			
11/24/09 12:57:50	1.755			
11/24/09 12:58:00	1.752			
11/24/09 12:58:10	1.755			
11/24/09 12:58:20	1.755			
11/24/09 12:58:30	1.755			
11/24/09 12:58:40	1.755			
11/24/09 12:58:50	1.757			
11/24/09 12:59:00	1.759			
11/24/09 12:59:10	1.762			
11/24/09 12:59:20	1.762			
11/24/09 12:59:30	1.762			
11/24/09 12:59:40	1.769			
11/24/09 12:59:50	1.766			
11/24/09 13:00:00	1.769			
11/24/09 13:00:10	1.771			
11/24/09 13:00:20	1.776			
11/24/09 13:00:30	1.771			
11/24/09 13:00:40	1.771			
11/24/09 13:00:50	1.771			
11/24/09 13:01:00	1.773			
11/24/09 13:01:10	1.776			
11/24/09 13:01:20	1.778			
11/24/09 13:01:30	1.776			
11/24/09 13:01:40	1.778			
11/24/09 13:01:50	1.78			
11/24/09 13:02:00	1.778	19.07		
11/24/09 13:02:10	1.776			
11/24/09 13:02:20	1.78			
11/24/09 13:02:30	1.783			
11/24/09 13:02:40	1.78			
11/24/09 13:02:50	1.785			
11/24/09 13:03:00	1.785			
11/24/09 13:03:10	1.785			
11/24/09 13:03:20	1.785			
11/24/09 13:03:30	1.787			
11/24/09 13:03:40	1.787			
11/24/09 13:03:50	1.787			
11/24/09 13:04:00	1.79			
11/24/09 13:04:10	1.79			
11/24/09 13:04:20	1.797			
11/24/09 13:04:30	1.794			
11/24/09 13:04:40	1.794			
11/24/09 13:04:50	1.797			
11/24/09 13:05:00	1.794			
11/24/09 13:05:10	1.797			
11/24/09 13:05:20	1.797			
11/24/09 13:05:30	1.794			
11/24/09 13:05:40	1.797			
11/24/09 13:05:50	1.797			
11/24/09 13:06:00	1.797			
11/24/09 13:06:10	1.804			
11/24/09 13:06:20	1.799			
11/24/09 13:06:30	1.801			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 13:06:40	1.801			
11/24/09 13:06:50	1.797			
11/24/09 13:07:00	1.806			
11/24/09 13:07:10	1.804			
11/24/09 13:07:20	1.801			
11/24/09 13:07:30	1.801			
11/24/09 13:07:40	1.804			
11/24/09 13:07:50	1.801			
11/24/09 13:08:00	1.801			
11/24/09 13:08:10	1.808			
11/24/09 13:08:20	1.806			
11/24/09 13:08:30	1.808			
11/24/09 13:08:40	1.804			
11/24/09 13:08:50	1.806			
11/24/09 13:09:00	1.804			
11/24/09 13:09:10	1.806			
11/24/09 13:09:20	1.808			
11/24/09 13:09:30	1.808			
11/24/09 13:09:40	1.811			
11/24/09 13:09:50	1.808			
11/24/09 13:10:00	1.811			
11/24/09 13:10:10	1.808			
11/24/09 13:10:20	1.808			
11/24/09 13:10:30	1.811			
11/24/09 13:10:40	1.811			
11/24/09 13:10:50	1.813			
11/24/09 13:11:00	1.815			
11/24/09 13:11:10	1.815			
11/24/09 13:11:20	1.818			
11/24/09 13:11:30	1.818			
11/24/09 13:11:40	1.815			
11/24/09 13:11:50	1.815			
11/24/09 13:12:00	1.818			
11/24/09 13:12:10	1.82			
11/24/09 13:12:20	1.822			
11/24/09 13:12:30	1.825			
11/24/09 13:12:40	1.825			
11/24/09 13:12:50	1.822			
11/24/09 13:13:00	1.825			
11/24/09 13:13:10	1.822			
11/24/09 13:13:20	1.829			
11/24/09 13:13:30	1.829			
11/24/09 13:13:40	1.827			
11/24/09 13:13:50	1.825			
11/24/09 13:14:00	1.827			
11/24/09 13:14:10	1.827			
11/24/09 13:14:20	1.829			
11/24/09 13:14:30	1.827			
11/24/09 13:14:40	1.825			
11/24/09 13:14:50	1.832			
11/24/09 13:15:00	1.829			
11/24/09 13:15:10	1.832			
11/24/09 13:15:20	1.829			
11/24/09 13:15:30	1.834			
11/24/09 13:15:40	1.836			
11/24/09 13:15:50	1.834			
11/24/09 13:16:00	1.832			
11/24/09 13:16:10	1.839			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 13:16:20	1.836			
11/24/09 13:16:30	1.834			
11/24/09 13:16:40	1.836			
11/24/09 13:16:50	1.836			
11/24/09 13:17:00	1.836			
11/24/09 13:17:10	1.839			
11/24/09 13:17:20	1.836			
11/24/09 13:17:30	1.843			
11/24/09 13:17:40	1.841			
11/24/09 13:17:50	1.841			
11/24/09 13:18:00	1.839			
11/24/09 13:18:10	1.839			
11/24/09 13:18:20	1.839			
11/24/09 13:18:30	1.843			
11/24/09 13:18:40	1.839			
11/24/09 13:18:50	1.841			
11/24/09 13:19:00	1.839			
11/24/09 13:19:10	1.841			
11/24/09 13:19:20	1.841			
11/24/09 13:19:30	1.846			
11/24/09 13:19:40	1.841			
11/24/09 13:19:50	1.843			
11/24/09 13:20:00	1.841	19.00		
11/24/09 13:20:10	1.843			
11/24/09 13:20:20	1.843			
11/24/09 13:20:30	1.843			
11/24/09 13:20:40	1.839			
11/24/09 13:20:50	1.846			
11/24/09 13:21:00	1.846			
11/24/09 13:21:10	1.846			
11/24/09 13:21:20	1.85			
11/24/09 13:21:30	1.846			
11/24/09 13:21:40	1.846			
11/24/09 13:21:50	1.85			
11/24/09 13:22:00	1.848			stop recording

Table A.2 Chronologic summary of measurements obtained during the step testing of well MW05

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 14:35:00	4.048	22.92		top of pump 27.15ft TOC
11/24/09 14:35:15	4.052			
11/24/09 14:35:30	4.048			
11/24/09 14:35:45	4.045			
11/24/09 14:36:00	4.043			
11/24/09 14:36:15	4.045			
11/24/09 14:36:30	4.046			
11/24/09 14:36:45	4.052			
11/24/09 14:37:00	4.045			
11/24/09 14:37:15	4.045			
11/24/09 14:37:30	4.046			
11/24/09 14:37:45	4.043			
11/24/09 14:38:00	3.978			controller on, valve shut
11/24/09 14:38:15	4.045			
11/24/09 14:38:30	4.048			
11/24/09 14:38:45	4.048			
11/24/09 14:39:00	4.05			
11/24/09 14:39:15	4.048			
11/24/09 14:39:30	4.045			
11/24/09 14:39:45	4.036			
11/24/09 14:40:00	3.997			open valve - slightly muddy
11/24/09 14:40:15	4.024			
11/24/09 14:40:30	4.009			
11/24/09 14:40:45	4.005			
11/24/09 14:41:00	4.007			
11/24/09 14:41:15	4.007			
11/24/09 14:41:30	4.007			
11/24/09 14:41:45	4.006			
11/24/09 14:42:00	4.004	22.95		
11/24/09 14:42:15	4.006			
11/24/09 14:42:30	4.004			
11/24/09 14:42:45	4.004			
11/24/09 14:43:00	4.006	22.96		
11/24/09 14:43:15	4.008			
11/24/09 14:43:30	4.001			
11/24/09 14:43:45	4.003			
11/24/09 14:44:00	4.003	22.96		
11/24/09 14:44:15	4.008			
11/24/09 14:44:30	4.003			
11/24/09 14:44:45	4.005			
11/24/09 14:45:00	4.007	22.96		
11/24/09 14:45:15	4.003			
11/24/09 14:45:30	4.005			
11/24/09 14:45:45	4.002			
11/24/09 14:46:00	4	22.96		
11/24/09 14:46:15	3.998			
11/24/09 14:46:30	3.998			
11/24/09 14:46:45	4.002			
11/24/09 14:47:00	3.99		0.5gal/5m5s	
11/24/09 14:47:15	4.002			
11/24/09 14:47:30	3.99			
11/24/09 14:47:45	4			
11/24/09 14:48:00	4.002	22.97		
11/24/09 14:48:15	3.992			
11/24/09 14:48:30	3.995			
11/24/09 14:48:45	4			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 14:49:00	4.002			
11/24/09 14:49:15	3.997			
11/24/09 14:49:30	3.995			
11/24/09 14:49:45	3.999			
11/24/09 14:50:00	3.999	22.96		
11/24/09 14:50:15	3.994			
11/24/09 14:50:30	3.995			
11/24/09 14:50:45	3.994			
11/24/09 14:51:00	3.997			
11/24/09 14:51:15	3.999			
11/24/09 14:51:30	3.997			
11/24/09 14:51:45	3.997			
11/24/09 14:52:00	3.999	22.97	0.5gal/5m7s	
11/24/09 14:52:15	3.999			
11/24/09 14:52:30	3.994			
11/24/09 14:52:45	3.996			
11/24/09 14:53:00	3.992			
11/24/09 14:53:15	3.992			
11/24/09 14:53:30	3.997			
11/24/09 14:53:45	3.994			
11/24/09 14:54:00	3.996	22.97		
11/24/09 14:54:15	3.989			
11/24/09 14:54:30	3.994			
11/24/09 14:54:45	3.996			
11/24/09 14:55:00	3.996			
11/24/09 14:55:15	3.994			
11/24/09 14:55:30	3.996			
11/24/09 14:55:45	3.996			
11/24/09 14:56:00	3.992	22.97		
11/24/09 14:56:15	3.999			
11/24/09 14:56:30	3.994			
11/24/09 14:56:45	3.996			
11/24/09 14:57:00	3.989			
11/24/09 14:57:15	3.996			
11/24/09 14:57:30	3.994			
11/24/09 14:57:45	3.986			
11/24/09 14:58:00	3.996	22.97	0.5gal/5m16s	
11/24/09 14:58:15	3.994			
11/24/09 14:58:30	3.991			
11/24/09 14:58:45	3.994			
11/24/09 14:59:00	3.991			
11/24/09 14:59:15	3.989			
11/24/09 14:59:30	3.989			
11/24/09 14:59:45	3.994			
11/24/09 15:00:00	3.991	22.97		
11/24/09 15:00:15	3.986			
11/24/09 15:00:30	3.991			
11/24/09 15:00:45	3.994			
11/24/09 15:01:00	3.989			
11/24/09 15:01:15	3.986			
11/24/09 15:01:30	3.986			
11/24/09 15:01:45	3.986			
11/24/09 15:02:00	3.989	22.97		
11/24/09 15:02:15	3.991			
11/24/09 15:02:30	3.989			
11/24/09 15:02:45	3.989			
11/24/09 15:03:00	3.989		0.5gal/5m17s	
11/24/09 15:03:15	3.989			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 15:03:30	3.984			
11/24/09 15:03:45	3.989			
11/24/09 15:04:00	3.989	22.97		
11/24/09 15:04:15	3.989			
11/24/09 15:04:30	3.986			
11/24/09 15:04:45	3.984			
11/24/09 15:05:00	3.986			
11/24/09 15:05:15	3.984			
11/24/09 15:05:30	3.989			
11/24/09 15:05:45	3.989			
11/24/09 15:06:00	3.989	22.97		
11/24/09 15:06:15	3.986			
11/24/09 15:06:30	3.986			
11/24/09 15:06:45	3.984			
11/24/09 15:07:00	3.984			
11/24/09 15:07:15	3.986			
11/24/09 15:07:30	3.984			
11/24/09 15:07:45	3.986			
11/24/09 15:08:00	3.984	22.97		
11/24/09 15:08:15	3.979			
11/24/09 15:08:30	3.984			
11/24/09 15:08:45	3.986			
11/24/09 15:09:00	3.988	22.98	0.5gal/5m9s	
11/24/09 15:09:15	3.981			
11/24/09 15:09:30	3.979			
11/24/09 15:09:45	3.981			
11/24/09 15:10:00	3.983			further open valve
11/24/09 15:10:15	3.984			
11/24/09 15:10:30	3.948			
11/24/09 15:10:45	3.943			
11/24/09 15:11:00	3.948			
11/24/09 15:11:15	3.943			
11/24/09 15:11:30	3.943			
11/24/09 15:11:45	3.943			
11/24/09 15:12:00	3.938			
11/24/09 15:12:15	3.946			
11/24/09 15:12:30	3.941			
11/24/09 15:12:45	3.941			
11/24/09 15:13:00	3.946	23.01		
11/24/09 15:13:15	3.939			
11/24/09 15:13:30	3.941			
11/24/09 15:13:45	3.937			
11/24/09 15:14:00	3.937			
11/24/09 15:14:15	3.939			
11/24/09 15:14:30	3.937			
11/24/09 15:14:45	3.939			
11/24/09 15:15:00	3.937		0.5gal/2m48s	
11/24/09 15:15:15	3.935			
11/24/09 15:15:30	3.935			
11/24/09 15:15:45	3.935			
11/24/09 15:16:00	3.932	23.02		
11/24/09 15:16:15	3.93			
11/24/09 15:16:30	3.932			
11/24/09 15:16:45	3.932			
11/24/09 15:17:00	3.928			
11/24/09 15:17:15	3.933			
11/24/09 15:17:30	3.933			
11/24/09 15:17:45	3.933			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 15:18:00	3.937			
11/24/09 15:18:15	3.933			
11/24/09 15:18:30	3.93			
11/24/09 15:18:45	3.933			
11/24/09 15:19:00	3.933	23.03	0.5gal/2m47s	
11/24/09 15:19:15	3.928			
11/24/09 15:19:30	3.93			
11/24/09 15:19:45	3.933			
11/24/09 15:20:00	3.935			
11/24/09 15:20:15	3.933			
11/24/09 15:20:30	3.933			
11/24/09 15:20:45	3.935			
11/24/09 15:21:00	3.933	23.03	0.5gal/2m53s	
11/24/09 15:21:15	3.935			
11/24/09 15:21:30	3.93			
11/24/09 15:21:45	3.933			
11/24/09 15:22:00	3.93			
11/24/09 15:22:15	3.93			
11/24/09 15:22:30	3.93			
11/24/09 15:22:45	3.935			
11/24/09 15:23:00	3.933			
11/24/09 15:23:15	3.931			
11/24/09 15:23:30	3.93			
11/24/09 15:23:45	3.928			
11/24/09 15:24:00	3.93			
11/24/09 15:24:15	3.93			
11/24/09 15:24:30	3.933			
11/24/09 15:24:45	3.933			
11/24/09 15:25:00	3.933	23.03	0.5gal/2m54s	
11/24/09 15:25:15	3.928			
11/24/09 15:25:30	3.931			
11/24/09 15:25:45	3.928			
11/24/09 15:26:00	3.928			
11/24/09 15:26:15	3.928			
11/24/09 15:26:30	3.933			
11/24/09 15:26:45	3.923			
11/24/09 15:27:00	3.931			
11/24/09 15:27:15	3.923			
11/24/09 15:27:30	3.921			
11/24/09 15:27:45	3.928			
11/24/09 15:28:00	3.923	23.03	0.5gal/2m52s	
11/24/09 15:28:15	3.926			
11/24/09 15:28:30	3.928			
11/24/09 15:28:45	3.926			
11/24/09 15:29:00	3.919			
11/24/09 15:29:15	3.926			
11/24/09 15:29:30	3.923			
11/24/09 15:29:45	3.925			
11/24/09 15:30:00	3.926			
11/24/09 15:30:15	3.923			
11/24/09 15:30:30	3.923			
11/24/09 15:30:45	3.926			
11/24/09 15:31:00	3.925	23.03	0.5gal/2m50s	
11/24/09 15:31:15	3.928			
11/24/09 15:31:30	3.926			
11/24/09 15:31:45	3.923			
11/24/09 15:32:00	3.925			
11/24/09 15:32:15	3.928			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 15:32:30	3.928			
11/24/09 15:32:45	3.926			
11/24/09 15:33:00	3.923			
11/24/09 15:33:15	3.926			
11/24/09 15:33:30	3.923			
11/24/09 15:33:45	3.919			
11/24/09 15:34:00	3.926			
11/24/09 15:34:15	3.921			
11/24/09 15:34:30	3.923			
11/24/09 15:34:45	3.921			
11/24/09 15:35:00	3.919	23.04	0.5gal/2m53s	
11/24/09 15:35:15	3.916			
11/24/09 15:35:30	3.916			
11/24/09 15:35:45	3.919			
11/24/09 15:36:00	3.926			
11/24/09 15:36:15	3.919			
11/24/09 15:36:30	3.914			
11/24/09 15:36:45	3.914			
11/24/09 15:37:00	3.916		0.5gal/2m51s	
11/24/09 15:37:15	3.916			
11/24/09 15:37:30	3.919			
11/24/09 15:37:45	3.919			
11/24/09 15:38:00	3.916			
11/24/09 15:38:15	3.916			
11/24/09 15:38:30	3.916			
11/24/09 15:38:45	3.914			
11/24/09 15:39:00	3.914			
11/24/09 15:39:15	3.921			
11/24/09 15:39:30	3.916			
11/24/09 15:39:45	3.914			
11/24/09 15:40:00	3.921	23.04	0.5gal/2m51s	
11/24/09 15:40:15	3.916			
11/24/09 15:40:30	3.914			
11/24/09 15:40:45	3.909			
11/24/09 15:41:00	3.909			
11/24/09 15:41:15	3.914			
11/24/09 15:41:30	3.914			
11/24/09 15:41:45	3.914			
11/24/09 15:42:00	3.909			
11/24/09 15:42:15	3.911			
11/24/09 15:42:30	3.911			
11/24/09 15:42:45	3.909			
11/24/09 15:43:00	3.907			
11/24/09 15:43:15	3.911			
11/24/09 15:43:30	3.914			
11/24/09 15:43:45	3.911			
11/24/09 15:44:00	3.914			
11/24/09 15:44:15	3.909			
11/24/09 15:44:30	3.909			
11/24/09 15:44:45	3.911			
11/24/09 15:45:00	3.907	23.05	0.5gal/2m48s	
11/24/09 15:45:15	3.907			
11/24/09 15:45:30	3.914			
11/24/09 15:45:45	3.904			
11/24/09 15:46:00	3.911			
11/24/09 15:46:15	3.911			
11/24/09 15:46:30	3.909			
11/24/09 15:46:45	3.902			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 15:47:00	3.909		0.5gal/2m46s	
11/24/09 15:47:15	3.907			
11/24/09 15:47:30	3.907			
11/24/09 15:47:45	3.907			
11/24/09 15:48:00	3.904			
11/24/09 15:48:15	3.904			
11/24/09 15:48:30	3.904			
11/24/09 15:48:45	3.904			
11/24/09 15:49:00	3.909			
11/24/09 15:49:15	3.907			
11/24/09 15:49:30	3.907			
11/24/09 15:49:45	3.902			
11/24/09 15:50:00	3.909	23.05	0.5gal/2m49s	
11/24/09 15:50:15	3.904			
11/24/09 15:50:30	3.904			
11/24/09 15:50:45	3.902			
11/24/09 15:51:00	3.904			
11/24/09 15:51:15	3.907			
11/24/09 15:51:30	3.907			
11/24/09 15:51:45	3.904			
11/24/09 15:52:00	3.907			
11/24/09 15:52:15	3.909			
11/24/09 15:52:30	3.907			
11/24/09 15:52:45	3.907			
11/24/09 15:53:00	3.909		0.5gal/2m49s	
11/24/09 15:53:15	3.907			
11/24/09 15:53:30	3.907			
11/24/09 15:53:45	3.909			
11/24/09 15:54:00	3.902			
11/24/09 15:54:15	3.907			
11/24/09 15:54:30	3.907			
11/24/09 15:54:45	3.907			
11/24/09 15:55:00	3.909	23.06		
11/24/09 15:55:15	3.907			
11/24/09 15:55:30	3.904			
11/24/09 15:55:45	3.909			
11/24/09 15:56:00	3.907		0.5gal/2m49s	
11/24/09 15:56:15	3.907			
11/24/09 15:56:30	3.907			
11/24/09 15:56:45	3.902			
11/24/09 15:57:00	3.902			
11/24/09 15:57:15	3.907			
11/24/09 15:57:30	3.904			
11/24/09 15:57:45	3.907			
11/24/09 15:58:00	3.907			
11/24/09 15:58:15	3.904			
11/24/09 15:58:30	3.904			
11/24/09 15:58:45	3.904			
11/24/09 15:59:00	3.904			
11/24/09 15:59:15	3.902			
11/24/09 15:59:30	3.904			
11/24/09 15:59:45	3.902			
11/24/09 16:00:00	3.907	23.06	0.5gal/2m48s	
11/24/09 16:00:15	3.904			
11/24/09 16:00:30	3.902			
11/24/09 16:00:45	3.904			
11/24/09 16:01:00	3.899			
11/24/09 16:01:15	3.902			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 16:01:30	3.904			
11/24/09 16:01:45	3.902			
11/24/09 16:02:00	3.902		0.5gal/2m48s	
11/24/09 16:02:15	3.902			
11/24/09 16:02:30	3.904			
11/24/09 16:02:45	3.902			
11/24/09 16:03:00	3.902			
11/24/09 16:03:15	3.902			
11/24/09 16:03:30	3.904			
11/24/09 16:03:45	3.902			
11/24/09 16:04:00	3.902			
11/24/09 16:04:15	3.899			
11/24/09 16:04:30	3.902			
11/24/09 16:04:45	3.897			
11/24/09 16:05:00	3.902	23.06		
11/24/09 16:05:15	3.902			
11/24/09 16:05:30	3.902			
11/24/09 16:05:45	3.899			
11/24/09 16:06:00	3.902		0.5gal/2m47s	
11/24/09 16:06:15	3.902			
11/24/09 16:06:30	3.897			
11/24/09 16:06:45	3.899			
11/24/09 16:07:00	3.899			
11/24/09 16:07:15	3.902			
11/24/09 16:07:30	3.902			
11/24/09 16:07:45	3.904			
11/24/09 16:08:00	3.897			
11/24/09 16:08:15	3.902			
11/24/09 16:08:30	3.897			
11/24/09 16:08:45	3.897			
11/24/09 16:09:00	3.899		0.5gal/2m48s	
11/24/09 16:09:15	3.897			
11/24/09 16:09:30	3.897			
11/24/09 16:09:45	3.897			
11/24/09 16:10:00	3.897	23.06		further open valve
11/24/09 16:10:15	3.842			
11/24/09 16:10:30	3.794			
11/24/09 16:10:45	3.727			
11/24/09 16:11:00	3.698			
11/24/09 16:11:15	3.634			
11/24/09 16:11:30	3.622			
11/24/09 16:11:45	3.617			
11/24/09 16:12:00	3.61	23.34	0.5gal/50s	
11/24/09 16:12:15	3.608			
11/24/09 16:12:30	3.603			
11/24/09 16:12:45	3.594			
11/24/09 16:13:00	3.596	23.36	0.5gal/50s	
11/24/09 16:13:15	3.594			
11/24/09 16:13:30	3.586			
11/24/09 16:13:45	3.584			
11/24/09 16:14:00	3.587	23.37		
11/24/09 16:14:15	3.582			
11/24/09 16:14:30	3.582			
11/24/09 16:14:45	3.572			
11/24/09 16:15:00	3.572	23.38	1gal/1m37s	
11/24/09 16:15:15	3.572			
11/24/09 16:15:30	3.57			
11/24/09 16:15:45	3.565			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 16:16:00	3.572	23.39		
11/24/09 16:16:15	3.57			
11/24/09 16:16:30	3.568			
11/24/09 16:16:45	3.565			
11/24/09 16:17:00	3.563			
11/24/09 16:17:15	3.563			
11/24/09 16:17:30	3.563			
11/24/09 16:17:45	3.558			
11/24/09 16:18:00	3.561	23.40	1gal/1m36s	
11/24/09 16:18:15	3.56			
11/24/09 16:18:30	3.563			
11/24/09 16:18:45	3.558			
11/24/09 16:19:00	3.553			
11/24/09 16:19:15	3.556			
11/24/09 16:19:30	3.556			
11/24/09 16:19:45	3.558			
11/24/09 16:20:00	3.549	23.40		
11/24/09 16:20:15	3.551			
11/24/09 16:20:30	3.546			
11/24/09 16:20:45	3.546			
11/24/09 16:21:00	3.546		1gal/1m37s	
11/24/09 16:21:15	3.544			
11/24/09 16:21:30	3.546			
11/24/09 16:21:45	3.541			
11/24/09 16:22:00	3.541			
11/24/09 16:22:15	3.541			
11/24/09 16:22:30	3.534			
11/24/09 16:22:45	3.534			
11/24/09 16:23:00	3.536	23.42		
11/24/09 16:23:15	3.534			
11/24/09 16:23:30	3.532			
11/24/09 16:23:45	3.53			
11/24/09 16:24:00	3.534			
11/24/09 16:24:15	3.527			
11/24/09 16:24:30	3.537			
11/24/09 16:24:45	3.532			
11/24/09 16:25:00	3.537		1gal/1m37s	
11/24/09 16:25:15	3.539			
11/24/09 16:25:30	3.537			
11/24/09 16:25:45	3.532			
11/24/09 16:26:00	3.537	23.44		
11/24/09 16:26:15	3.532			
11/24/09 16:26:30	3.532			
11/24/09 16:26:45	3.532			
11/24/09 16:27:00	3.525		1gal/1m38s	
11/24/09 16:27:15	3.529			
11/24/09 16:27:30	3.525			
11/24/09 16:27:45	3.525			
11/24/09 16:28:00	3.527			
11/24/09 16:28:15	3.527			
11/24/09 16:28:30	3.525			
11/24/09 16:28:45	3.53			
11/24/09 16:29:00	3.525			
11/24/09 16:29:15	3.525			
11/24/09 16:29:30	3.52			
11/24/09 16:29:45	3.52			
11/24/09 16:30:00	3.52	23.45		
11/24/09 16:30:15	3.522			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 16:30:30	3.522			
11/24/09 16:30:45	3.52			
11/24/09 16:31:00	3.518		1gal/1m38s	
11/24/09 16:31:15	3.515			
11/24/09 16:31:30	3.515			
11/24/09 16:31:45	3.518			
11/24/09 16:32:00	3.515			
11/24/09 16:32:15	3.513			
11/24/09 16:32:30	3.515			
11/24/09 16:32:45	3.508			
11/24/09 16:33:00	3.506			
11/24/09 16:33:15	3.508			
11/24/09 16:33:30	3.513			
11/24/09 16:33:45	3.512			
11/24/09 16:34:00	3.513			
11/24/09 16:34:15	3.508			
11/24/09 16:34:30	3.518			
11/24/09 16:34:45	3.508			
11/24/09 16:35:00	3.508	23.46		
11/24/09 16:35:15	3.51			
11/24/09 16:35:30	3.503			
11/24/09 16:35:45	3.501			
11/24/09 16:36:00	3.503			
11/24/09 16:36:15	3.501			
11/24/09 16:36:30	3.503			
11/24/09 16:36:45	3.501			
11/24/09 16:37:00	3.501			
11/24/09 16:37:15	3.498			
11/24/09 16:37:30	3.501			
11/24/09 16:37:45	3.498			
11/24/09 16:38:00	3.501		1gal/1m38s	
11/24/09 16:38:15	3.498			
11/24/09 16:38:30	3.498			
11/24/09 16:38:45	3.498			
11/24/09 16:39:00	3.498			
11/24/09 16:39:15	3.501			
11/24/09 16:39:30	3.501			
11/24/09 16:39:45	3.493			
11/24/09 16:40:00	3.496	23.46		
11/24/09 16:40:15	3.498			
11/24/09 16:40:30	3.496			
11/24/09 16:40:45	3.498			
11/24/09 16:41:00	3.496			
11/24/09 16:41:15	3.496			
11/24/09 16:41:30	3.491			
11/24/09 16:41:45	3.491			
11/24/09 16:42:00	3.491			
11/24/09 16:42:15	3.486			
11/24/09 16:42:30	3.491			
11/24/09 16:42:45	3.489			
11/24/09 16:43:00	3.486			
11/24/09 16:43:15	3.486			
11/24/09 16:43:30	3.489			
11/24/09 16:43:45	3.486			
11/24/09 16:44:00	3.489			
11/24/09 16:44:15	3.486			
11/24/09 16:44:30	3.491			
11/24/09 16:44:45	3.484			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 16:45:00	3.484	23.49	1gal/1m38s	
11/24/09 16:45:15	3.486			
11/24/09 16:45:30	3.484			
11/24/09 16:45:45	3.481			
11/24/09 16:46:00	3.479			
11/24/09 16:46:15	3.482			
11/24/09 16:46:30	3.479			
11/24/09 16:46:45	3.479			
11/24/09 16:47:00	3.482			
11/24/09 16:47:15	3.477			
11/24/09 16:47:30	3.482			
11/24/09 16:47:45	3.479			
11/24/09 16:48:00	3.479			
11/24/09 16:48:15	3.482			
11/24/09 16:48:30	3.482			
11/24/09 16:48:45	3.477			
11/24/09 16:49:00	3.477			
11/24/09 16:49:15	3.477			
11/24/09 16:49:30	3.474			
11/24/09 16:49:45	3.479			
11/24/09 16:50:00	3.482	23.49		
11/24/09 16:50:15	3.472			
11/24/09 16:50:30	3.474			
11/24/09 16:50:45	3.472			
11/24/09 16:51:00	3.474			
11/24/09 16:51:15	3.477			
11/24/09 16:51:30	3.482			
11/24/09 16:51:45	3.477			
11/24/09 16:52:00	3.477		1gal/1m37s	
11/24/09 16:52:15	3.472			
11/24/09 16:52:30	3.474			
11/24/09 16:52:45	3.465			
11/24/09 16:53:00	3.467			
11/24/09 16:53:15	3.465			
11/24/09 16:53:30	3.465			
11/24/09 16:53:45	3.47			
11/24/09 16:54:00	3.47			
11/24/09 16:54:15	3.465			
11/24/09 16:54:30	3.462			
11/24/09 16:54:45	3.465			
11/24/09 16:55:00	3.46			
11/24/09 16:55:15	3.463			
11/24/09 16:55:30	3.465			
11/24/09 16:55:45	3.463			
11/24/09 16:56:00	3.463			
11/24/09 16:56:15	3.463			
11/24/09 16:56:30	3.463			
11/24/09 16:56:45	3.46			
11/24/09 16:57:00	3.458			
11/24/09 16:57:15	3.46			
11/24/09 16:57:30	3.46			
11/24/09 16:57:45	3.46			
11/24/09 16:58:00	3.453			
11/24/09 16:58:15	3.46			
11/24/09 16:58:30	3.46			
11/24/09 16:58:45	3.455			
11/24/09 16:59:00	3.458			
11/24/09 16:59:15	3.46			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 16:59:30	3.451			
11/24/09 16:59:45	3.46			
11/24/09 17:00:00	3.458	23.50	1gal/1m37s	
11/24/09 17:00:15	3.453			
11/24/09 17:00:30	3.455			
11/24/09 17:00:45	3.455			
11/24/09 17:01:00	3.451			
11/24/09 17:01:15	3.451			
11/24/09 17:01:30	3.451			
11/24/09 17:01:45	3.448			
11/24/09 17:02:00	3.453			
11/24/09 17:02:15	3.45			
11/24/09 17:02:30	3.446			
11/24/09 17:02:45	3.446			
11/24/09 17:03:00	3.451			
11/24/09 17:03:15	3.448			
11/24/09 17:03:30	3.443			
11/24/09 17:03:45	3.448			
11/24/09 17:04:00	3.448			
11/24/09 17:04:15	3.443			
11/24/09 17:04:30	3.448			
11/24/09 17:04:45	3.448			
11/24/09 17:05:00	3.446			
11/24/09 17:05:15	3.448			
11/24/09 17:05:30	3.448			
11/24/09 17:05:45	3.445			
11/24/09 17:06:00	3.443			
11/24/09 17:06:15	3.443			
11/24/09 17:06:30	3.441			
11/24/09 17:06:45	3.441			
11/24/09 17:07:00	3.439			
11/24/09 17:07:15	3.441			
11/24/09 17:07:30	3.448			
11/24/09 17:07:45	3.443			
11/24/09 17:08:00	3.446			
11/24/09 17:08:15	3.446			
11/24/09 17:08:30	3.451			
11/24/09 17:08:45	3.446			
11/24/09 17:09:00	3.446			
11/24/09 17:09:15	3.451			
11/24/09 17:09:30	3.45			
11/24/09 17:09:45	3.455			
11/24/09 17:10:00	3.455	23.51	1gal/1m20s	further open valve +
11/24/09 17:10:15	3.458			raise controller setting from 60 to 80
11/24/09 17:10:30	3.448			
11/24/09 17:10:45	3.439			
11/24/09 17:11:00	3.367			
11/24/09 17:11:15	3.35			
11/24/09 17:11:30	3.257			
11/24/09 17:11:45	3.149			
11/24/09 17:12:00	3.092			
11/24/09 17:12:15	3.051			
11/24/09 17:12:30	3.025			
11/24/09 17:12:45	3.005			
11/24/09 17:13:00	2.996	23.96		
11/24/09 17:13:15	2.982			
11/24/09 17:13:30	2.977			
11/24/09 17:13:45	2.97			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 17:14:00	2.96		1gal/53s	
11/24/09 17:14:15	2.95			
11/24/09 17:14:30	2.946			
11/24/09 17:14:45	2.941			
11/24/09 17:15:00	2.941	24.03		
11/24/09 17:15:15	2.931			
11/24/09 17:15:30	2.931			
11/24/09 17:15:45	2.927			
11/24/09 17:16:00	2.927			
11/24/09 17:16:15	2.929			
11/24/09 17:16:30	2.915			
11/24/09 17:16:45	2.915			
11/24/09 17:17:00	2.917	24.04	1gal/53s	
11/24/09 17:17:15	2.917			
11/24/09 17:17:30	2.907			
11/24/09 17:17:45	2.907			
11/24/09 17:18:00	2.905	24.06	1gal/53s	
11/24/09 17:18:15	2.903			
11/24/09 17:18:30	2.903			
11/24/09 17:18:45	2.9			
11/24/09 17:19:00	2.895			
11/24/09 17:19:15	2.895			
11/24/09 17:19:30	2.895			
11/24/09 17:19:45	2.895			
11/24/09 17:20:00	2.898			
11/24/09 17:20:15	2.893			
11/24/09 17:20:30	2.886			
11/24/09 17:20:45	2.883			
11/24/09 17:21:00	2.879			
11/24/09 17:21:15	2.876			
11/24/09 17:21:30	2.874			
11/24/09 17:21:45	2.871			
11/24/09 17:22:00	2.879	24.09		
11/24/09 17:22:15	2.874			
11/24/09 17:22:30	2.869			
11/24/09 17:22:45	2.871			
11/24/09 17:23:00	2.869		1gal/53s	
11/24/09 17:23:15	2.871			
11/24/09 17:23:30	2.862			
11/24/09 17:23:45	2.855			
11/24/09 17:24:00	2.855	24.10		
11/24/09 17:24:15	2.852			
11/24/09 17:24:30	2.857			
11/24/09 17:24:45	2.85			
11/24/09 17:25:00	2.845			
11/24/09 17:25:15	2.85			
11/24/09 17:25:30	2.843			
11/24/09 17:25:45	2.845			
11/24/09 17:26:00	2.84			
11/24/09 17:26:15	2.836			
11/24/09 17:26:30	2.833			
11/24/09 17:26:45	2.828			
11/24/09 17:27:00	2.824	24.14		
11/24/09 17:27:15	2.821			
11/24/09 17:27:30	2.821			
11/24/09 17:27:45	2.819			
11/24/09 17:28:00	2.824		1gal/53s	
11/24/09 17:28:15	2.819			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 17:28:30	2.816			
11/24/09 17:28:45	2.816			
11/24/09 17:29:00	2.812			
11/24/09 17:29:15	2.819			
11/24/09 17:29:30	2.816			
11/24/09 17:29:45	2.812			
11/24/09 17:30:00	2.812	24.15		
11/24/09 17:30:15	2.814			
11/24/09 17:30:30	2.807			
11/24/09 17:30:45	2.807			
11/24/09 17:31:00	2.807			
11/24/09 17:31:15	2.8			
11/24/09 17:31:30	2.797			
11/24/09 17:31:45	2.802			
11/24/09 17:32:00	2.797			
11/24/09 17:32:15	2.8			
11/24/09 17:32:30	2.793			
11/24/09 17:32:45	2.795			
11/24/09 17:33:00	2.793		1gal/53s	
11/24/09 17:33:15	2.795			
11/24/09 17:33:30	2.79			
11/24/09 17:33:45	2.788			
11/24/09 17:34:00	2.788			
11/24/09 17:34:15	2.785			
11/24/09 17:34:30	2.781			
11/24/09 17:34:45	2.785			
11/24/09 17:35:00	2.785	24.19		
11/24/09 17:35:15	2.785			
11/24/09 17:35:30	2.785			
11/24/09 17:35:45	2.783			
11/24/09 17:36:00	2.783			
11/24/09 17:36:15	2.783			
11/24/09 17:36:30	2.781			
11/24/09 17:36:45	2.778			
11/24/09 17:37:00	2.778			
11/24/09 17:37:15	2.776			
11/24/09 17:37:30	2.773			
11/24/09 17:37:45	2.769			
11/24/09 17:38:00	2.769			
11/24/09 17:38:15	2.769			
11/24/09 17:38:30	2.766			
11/24/09 17:38:45	2.766			
11/24/09 17:39:00	2.766			
11/24/09 17:39:15	2.764			
11/24/09 17:39:30	2.757			
11/24/09 17:39:45	2.759			
11/24/09 17:40:00	2.754	24.21	1gal/52s	
11/24/09 17:40:15	2.759			
11/24/09 17:40:30	2.759			
11/24/09 17:40:45	2.757			
11/24/09 17:41:00	2.757			
11/24/09 17:41:15	2.754			
11/24/09 17:41:30	2.757			
11/24/09 17:41:45	2.759			
11/24/09 17:42:00	2.752			
11/24/09 17:42:15	2.754			
11/24/09 17:42:30	2.759			
11/24/09 17:42:45	2.752			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 17:43:00	2.747			
11/24/09 17:43:15	2.747			
11/24/09 17:43:30	2.754			
11/24/09 17:43:45	2.759			
11/24/09 17:44:00	2.757			
11/24/09 17:44:15	2.759			
11/24/09 17:44:30	2.759			
11/24/09 17:44:45	2.745			
11/24/09 17:45:00	2.745	24.21	1gal/53s	
11/24/09 17:45:15	2.745			
11/24/09 17:45:30	2.742			
11/24/09 17:45:45	2.737			
11/24/09 17:46:00	2.735			
11/24/09 17:46:15	2.733			
11/24/09 17:46:30	2.733			
11/24/09 17:46:45	2.735			
11/24/09 17:47:00	2.733			
11/24/09 17:47:15	2.733			
11/24/09 17:47:30	2.728			
11/24/09 17:47:45	2.735			
11/24/09 17:48:00	2.728			
11/24/09 17:48:15	2.723			
11/24/09 17:48:30	2.728			
11/24/09 17:48:45	2.723			
11/24/09 17:49:00	2.716			
11/24/09 17:49:15	2.721			
11/24/09 17:49:30	2.733			
11/24/09 17:49:45	2.733			
11/24/09 17:50:00	2.735	24.23	1gal/52s	
11/24/09 17:50:15	2.745			
11/24/09 17:50:30	2.747			
11/24/09 17:50:45	2.745			
11/24/09 17:51:00	2.747			
11/24/09 17:51:15	2.74			
11/24/09 17:51:30	2.742			
11/24/09 17:51:45	2.735			
11/24/09 17:52:00	2.728			
11/24/09 17:52:15	2.733			
11/24/09 17:52:30	2.728			
11/24/09 17:52:45	2.716			
11/24/09 17:53:00	2.714		1gal/52s	
11/24/09 17:53:15	2.716			
11/24/09 17:53:30	2.718			
11/24/09 17:53:45	2.716			
11/24/09 17:54:00	2.714			
11/24/09 17:54:15	2.711			
11/24/09 17:54:30	2.709			
11/24/09 17:54:45	2.704			
11/24/09 17:55:00	2.706			
11/24/09 17:55:15	2.699			
11/24/09 17:55:30	2.704			
11/24/09 17:55:45	2.699			
11/24/09 17:56:00	2.697			
11/24/09 17:56:15	2.699			
11/24/09 17:56:30	2.699			
11/24/09 17:56:45	2.699			
11/24/09 17:57:00	2.697			
11/24/09 17:57:15	2.697			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 17:57:30	2.699			
11/24/09 17:57:45	2.692			
11/24/09 17:58:00	2.694			
11/24/09 17:58:15	2.709			
11/24/09 17:58:30	2.706			
11/24/09 17:58:45	2.699			
11/24/09 17:59:00	2.694			
11/24/09 17:59:15	2.697			
11/24/09 17:59:30	2.69			
11/24/09 17:59:45	2.694			
11/24/09 18:00:00	2.706	24.25	1gal/53s	
11/24/09 18:00:15	2.706			
11/24/09 18:00:30	2.714			
11/24/09 18:00:45	2.711			
11/24/09 18:01:00	2.709			
11/24/09 18:01:15	2.711			
11/24/09 18:01:30	2.714			
11/24/09 18:01:45	2.714			
11/24/09 18:02:00	2.714			
11/24/09 18:02:15	2.716			
11/24/09 18:02:30	2.714			
11/24/09 18:02:45	2.721			
11/24/09 18:03:00	2.728			
11/24/09 18:03:15	2.733			
11/24/09 18:03:30	2.737			
11/24/09 18:03:45	2.73			
11/24/09 18:04:00	2.721			
11/24/09 18:04:15	2.711			
11/24/09 18:04:30	2.721			
11/24/09 18:04:45	2.718			
11/24/09 18:05:00	2.716			
11/24/09 18:05:15	2.711			
11/24/09 18:05:30	2.697			
11/24/09 18:05:45	2.692			
11/24/09 18:06:00	2.687			
11/24/09 18:06:15	2.685			
11/24/09 18:06:30	2.682			
11/24/09 18:06:45	2.678			
11/24/09 18:07:00	2.675			
11/24/09 18:07:15	2.671			
11/24/09 18:07:30	2.673			
11/24/09 18:07:45	2.673			
11/24/09 18:08:00	2.673			
11/24/09 18:08:15	2.666			
11/24/09 18:08:30	2.668			
11/24/09 18:08:45	2.668			
11/24/09 18:09:00	2.666			
11/24/09 18:09:15	2.659			
11/24/09 18:09:30	2.656			
11/24/09 18:09:45	2.659			
11/24/09 18:10:00	2.651	24.32		
11/24/09 18:10:15	2.656			
11/24/09 18:10:30	2.675			
11/24/09 18:10:45	2.965			
11/24/09 18:11:00	3.312			pump off
11/24/09 18:11:15	3.436			
11/24/09 18:11:30	3.498	23.49		
11/24/09 18:11:45	3.544			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 18:12:00	3.563	23.43		
11/24/09 18:12:15	3.58			
11/24/09 18:12:30	3.594			
11/24/09 18:12:45	3.606			
11/24/09 18:13:00	3.616	23.36		
11/24/09 18:13:15	3.625			
11/24/09 18:13:30	3.632			
11/24/09 18:13:45	3.64			
11/24/09 18:14:00	3.649	23.33		
11/24/09 18:14:15	3.654			
11/24/09 18:14:30	3.661			
11/24/09 18:14:45	3.666			
11/24/09 18:15:00	3.671	23.31		
11/24/09 18:15:15	3.675			
11/24/09 18:15:30	3.68			
11/24/09 18:15:45	3.683			
11/24/09 18:16:00	3.69			
11/24/09 18:16:15	3.692			
11/24/09 18:16:30	3.697			
11/24/09 18:16:45	3.699			
11/24/09 18:17:00	3.701	23.28		
11/24/09 18:17:15	3.704			
11/24/09 18:17:30	3.708			
11/24/09 18:17:45	3.708			
11/24/09 18:18:00	3.713			
11/24/09 18:18:15	3.713			
11/24/09 18:18:30	3.715			
11/24/09 18:18:45	3.718			
11/24/09 18:19:00	3.72			
11/24/09 18:19:15	3.722			
11/24/09 18:19:30	3.722			
11/24/09 18:19:45	3.725			
11/24/09 18:20:00	3.727	23.25		
11/24/09 18:20:15	3.727			
11/24/09 18:20:30	3.73			
11/24/09 18:20:45	3.732			
11/24/09 18:21:00	3.732			
11/24/09 18:21:15	3.734			
11/24/09 18:21:30	3.736			
11/24/09 18:21:45	3.736			
11/24/09 18:22:00	3.739			
11/24/09 18:22:15	3.739			
11/24/09 18:22:30	3.739			
11/24/09 18:22:45	3.741			
11/24/09 18:23:00	3.743			
11/24/09 18:23:15	3.743			
11/24/09 18:23:30	3.743			
11/24/09 18:23:45	3.745			
11/24/09 18:24:00	3.745			
11/24/09 18:24:15	3.748			
11/24/09 18:24:30	3.748			
11/24/09 18:24:45	3.75			
11/24/09 18:25:00	3.75	23.23		
11/24/09 18:25:15	3.752			
11/24/09 18:25:30	3.752			
11/24/09 18:25:45	3.752			
11/24/09 18:26:00	3.755			
11/24/09 18:26:15	3.755			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/24/09 18:26:30	3.757			
11/24/09 18:26:45	3.757			
11/24/09 18:27:00	3.757			
11/24/09 18:27:15	3.757			
11/24/09 18:27:30	3.762			
11/24/09 18:27:45	3.759			
11/24/09 18:28:00	3.76			
11/24/09 18:28:15	3.762			
11/24/09 18:28:30	3.76			
11/24/09 18:28:45	3.765			
11/24/09 18:29:00	3.765			
11/24/09 18:29:15	3.765			
11/24/09 18:29:30	3.765			
11/24/09 18:29:45	3.767			
11/24/09 18:30:00	3.767			
11/24/09 18:30:15	3.769			
11/24/09 18:30:30	3.767			
11/24/09 18:30:45	3.767			
11/24/09 18:31:00	3.769			
11/24/09 18:31:15	3.769			
11/24/09 18:31:30	3.772			
11/24/09 18:31:45	3.772			
11/24/09 18:32:00	3.772			
11/24/09 18:32:15	3.772			
11/24/09 18:32:30	3.772			
11/24/09 18:32:45	3.774			
11/24/09 18:33:00	3.774			
11/24/09 18:33:15	3.774			
11/24/09 18:33:30	3.777			
11/24/09 18:33:45	3.777			
11/24/09 18:34:00	3.777			
11/24/09 18:34:15	3.777			
11/24/09 18:34:30	3.777			
11/24/09 18:34:45	3.779			
11/24/09 18:35:00	3.779			
11/24/09 18:35:15	3.779			
11/24/09 18:35:30	3.779			
11/24/09 18:35:45	3.779			
11/24/09 18:36:00	3.779			
11/24/09 18:36:15	3.782			
11/24/09 18:36:30	3.782			
11/24/09 18:36:45	3.782			
11/24/09 18:37:00	3.782			
11/24/09 18:37:15	3.784			
11/24/09 18:37:30	3.784			
11/24/09 18:37:45	3.784			
11/24/09 18:38:00	3.784			
11/24/09 18:38:15	3.787			
11/24/09 18:38:30	3.784			
11/24/09 18:38:45	3.787			
11/24/09 18:39:00	3.789			
11/24/09 18:39:15	3.789			
11/24/09 18:39:30	3.787			
11/24/09 18:39:45	3.791			
11/24/09 18:40:00	3.791	23.18		
11/24/09 18:40:15	3.789			
11/24/09 18:40:30	3.789			
11/24/09 18:40:45	3.789			

	Water Level	Water Level	Flow Rate	
Date/Time	**ft above sensor**	**ft below TOC**	**Timed**	**Notes**
11/24/09 18:41:00	3.794			
11/24/09 18:41:15	3.792			
11/24/09 18:41:30	3.792			
11/24/09 18:41:45	3.794			
11/24/09 18:42:00	3.792			
11/24/09 18:42:15	3.791			
11/24/09 18:42:30	3.794			
11/24/09 18:42:45	3.794			stop recording

Table A.3 Chronologic summary of measurements obtained during the step testing of well MW10

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 8:20:00	6.973	21.91		top of pump at 29.1ft
11/25/09 8:20:10	6.975			
11/25/09 8:20:20	6.975			
11/25/09 8:20:30	7.008			
11/25/09 8:20:40	7.006			
11/25/09 8:20:50	6.973			
11/25/09 8:21:00	6.959			
11/25/09 8:21:10	6.964			
11/25/09 8:21:20	6.966			
11/25/09 8:21:30	6.968			
11/25/09 8:21:40	6.968			
11/25/09 8:21:50	6.971			
11/25/09 8:22:00	6.966			
11/25/09 8:22:10	6.973			
11/25/09 8:22:20	6.971			
11/25/09 8:22:30	6.973			
11/25/09 8:22:40	6.973			
11/25/09 8:22:50	6.682			
11/25/09 8:23:00	6.719			start pump, valve shut
11/25/09 8:23:10	6.766			
11/25/09 8:23:20	6.795			
11/25/09 8:23:30	6.823			
11/25/09 8:23:40	6.841			
11/25/09 8:23:50	6.863			
11/25/09 8:24:00	6.874			
11/25/09 8:24:10	6.881			
11/25/09 8:24:20	6.891			
11/25/09 8:24:30	6.903			
11/25/09 8:24:40	6.9			
11/25/09 8:24:50	6.71			
11/25/09 8:25:00	6.661			open valve
11/25/09 8:25:10	6.581			
11/25/09 8:25:20	6.545			
11/25/09 8:25:30	6.524			
11/25/09 8:25:40	6.508			
11/25/09 8:25:50	6.487			
11/25/09 8:26:00	6.47	22.41		
11/25/09 8:26:10	6.454			
11/25/09 8:26:20	6.428			
11/25/09 8:26:30	6.411			
11/25/09 8:26:40	6.404			
11/25/09 8:26:50	6.386			
11/25/09 8:27:00	6.376	22.49		
11/25/09 8:27:10	6.362			
11/25/09 8:27:20	6.355			
11/25/09 8:27:30	6.341			
11/25/09 8:27:40	6.331			
11/25/09 8:27:50	6.322			
11/25/09 8:28:00	6.315	22.55		
11/25/09 8:28:10	6.306			
11/25/09 8:28:20	6.296			
11/25/09 8:28:30	6.287			
11/25/09 8:28:40	6.28			
11/25/09 8:28:50	6.27			
11/25/09 8:29:00	6.266	22.60		
11/25/09 8:29:10	6.259			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 8:29:20	6.252			
11/25/09 8:29:30	6.249			
11/25/09 8:29:40	6.242			
11/25/09 8:29:50	6.256			
11/25/09 8:30:00	6.282	22.64		
11/25/09 8:30:10	6.315			
11/25/09 8:30:20	6.334			
11/25/09 8:30:30	6.362			
11/25/09 8:30:40	6.303			
11/25/09 8:30:50	6.284			
11/25/09 8:31:00	6.273			adjust valve
11/25/09 8:31:10	6.258			
11/25/09 8:31:20	6.249			
11/25/09 8:31:30	6.247			
11/25/09 8:31:40	6.254			
11/25/09 8:31:50	6.263			
11/25/09 8:32:00	6.273	22.62	0.5gal/5m31s	
11/25/09 8:32:10	6.28			
11/25/09 8:32:20	6.284			
11/25/09 8:32:30	6.289			
11/25/09 8:32:40	6.296			
11/25/09 8:32:50	6.294			
11/25/09 8:33:00	6.303	22.58		
11/25/09 8:33:10	6.305			
11/25/09 8:33:20	6.31			
11/25/09 8:33:30	6.31			
11/25/09 8:33:40	6.31			
11/25/09 8:33:50	6.317			
11/25/09 8:34:00	6.315			
11/25/09 8:34:10	6.319			
11/25/09 8:34:20	6.315			
11/25/09 8:34:30	6.317			
11/25/09 8:34:40	6.317			
11/25/09 8:34:50	6.317			
11/25/09 8:35:00	6.317	22.55		
11/25/09 8:35:10	6.319			
11/25/09 8:35:20	6.322			
11/25/09 8:35:30	6.322			
11/25/09 8:35:40	6.317			
11/25/09 8:35:50	6.315			
11/25/09 8:36:00	6.319	22.56		
11/25/09 8:36:10	6.315			
11/25/09 8:36:20	6.319			
11/25/09 8:36:30	6.315			
11/25/09 8:36:40	6.315			
11/25/09 8:36:50	6.317			
11/25/09 8:37:00	6.277	22.56		
11/25/09 8:37:10	6.24			
11/25/09 8:37:20	6.209			
11/25/09 8:37:30	6.186			
11/25/09 8:37:40	6.16			
11/25/09 8:37:50	6.141			
11/25/09 8:38:00	6.127	22.74		
11/25/09 8:38:10	6.115			
11/25/09 8:38:20	6.101			
11/25/09 8:38:30	6.092			
11/25/09 8:38:40	6.082			
11/25/09 8:38:50	6.075			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 8:39:00	6.063	22.79	0.5gal/6m10s	
11/25/09 8:39:10	6.056			
11/25/09 8:39:20	6.049			
11/25/09 8:39:30	6.042			
11/25/09 8:39:40	6.038			
11/25/09 8:39:50	6.033			
11/25/09 8:40:00	6.023	22.84		
11/25/09 8:40:10	6.016			
11/25/09 8:40:20	6.014			
11/25/09 8:40:30	6.009			
11/25/09 8:40:40	6.005			
11/25/09 8:40:50	6.002			
11/25/09 8:41:00	5.998	22.87		
11/25/09 8:41:10	5.995			
11/25/09 8:41:20	5.988			
11/25/09 8:41:30	5.986			
11/25/09 8:41:40	5.981			
11/25/09 8:41:50	5.986			
11/25/09 8:42:00	5.984	22.89		
11/25/09 8:42:10	5.981			
11/25/09 8:42:20	5.979			
11/25/09 8:42:30	5.981			
11/25/09 8:42:40	5.981			
11/25/09 8:42:50	5.981			
11/25/09 8:43:00	5.977	22.89		
11/25/09 8:43:10	5.979			
11/25/09 8:43:20	5.977			
11/25/09 8:43:30	5.974			
11/25/09 8:43:40	5.974			
11/25/09 8:43:50	5.974			
11/25/09 8:44:00	5.977	22.90	0.5gal/4m33s	
11/25/09 8:44:10	5.974			
11/25/09 8:44:20	5.988			
11/25/09 8:44:30	6.007			
11/25/09 8:44:40	6.017			
11/25/09 8:44:50	6.026			
11/25/09 8:45:00	6.031	22.84		
11/25/09 8:45:10	6.038			
11/25/09 8:45:20	6.049			
11/25/09 8:45:30	6.054			
11/25/09 8:45:40	6.052			
11/25/09 8:45:50	6.056			
11/25/09 8:46:00	6.063	22.81		
11/25/09 8:46:10	6.066			
11/25/09 8:46:20	6.071			
11/25/09 8:46:30	6.07			
11/25/09 8:46:40	6.075			
11/25/09 8:46:50	6.087			
11/25/09 8:47:00	6.108			
11/25/09 8:47:10	6.117			
11/25/09 8:47:20	6.129			
11/25/09 8:47:30	6.139			
11/25/09 8:47:40	6.146			
11/25/09 8:47:50	6.155			
11/25/09 8:48:00	6.164	22.73		adjust valve
11/25/09 8:48:10	6.155			
11/25/09 8:48:20	6.143			
11/25/09 8:48:30	6.129			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 8:48:40	6.12			
11/25/09 8:48:50	6.108			
11/25/09 8:49:00	6.103	22.75		
11/25/09 8:49:10	6.096			
11/25/09 8:49:20	6.089			
11/25/09 8:49:30	6.085			
11/25/09 8:49:40	6.077			
11/25/09 8:49:50	6.073			
11/25/09 8:50:00	6.073	22.81	0.5gal/5m38s	
11/25/09 8:50:10	6.068			
11/25/09 8:50:20	6.066			
11/25/09 8:50:30	6.063			
11/25/09 8:50:40	6.061			
11/25/09 8:50:50	6.059			
11/25/09 8:51:00	6.054			
11/25/09 8:51:10	6.045			
11/25/09 8:51:20	6.049			
11/25/09 8:51:30	6.052			
11/25/09 8:51:40	6.047			
11/25/09 8:51:50	6.045			
11/25/09 8:52:00	6.045	22.83		
11/25/09 8:52:10	6.042			
11/25/09 8:52:20	6.04			
11/25/09 8:52:30	6.038			
11/25/09 8:52:40	6.038			
11/25/09 8:52:50	6.04			
11/25/09 8:53:00	6.04			
11/25/09 8:53:10	6.035			
11/25/09 8:53:20	6.033			
11/25/09 8:53:30	6.028			
11/25/09 8:53:40	6.033			
11/25/09 8:53:50	6.033			
11/25/09 8:54:00	6.026	22.85		
11/25/09 8:54:10	6.028			
11/25/09 8:54:20	6.026			
11/25/09 8:54:30	6.03			
11/25/09 8:54:40	6.035			
11/25/09 8:54:50	6.04			
11/25/09 8:55:00	6.045			
11/25/09 8:55:10	6.047			
11/25/09 8:55:20	6.052			
11/25/09 8:55:30	6.056			
11/25/09 8:55:40	6.059			
11/25/09 8:55:50	6.059			
11/25/09 8:56:00	6.061	22.82	0.5gal/5m13s	
11/25/09 8:56:10	6.061			
11/25/09 8:56:20	6.061			
11/25/09 8:56:30	6.066			
11/25/09 8:56:40	6.066			
11/25/09 8:56:50	6.063			
11/25/09 8:57:00	6.066			
11/25/09 8:57:10	6.066			
11/25/09 8:57:20	6.07			
11/25/09 8:57:30	6.07			
11/25/09 8:57:40	6.068			
11/25/09 8:57:50	6.066			
11/25/09 8:58:00	6.073	22.81		
11/25/09 8:58:10	6.075			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 8:58:20	6.075			
11/25/09 8:58:30	6.068			
11/25/09 8:58:40	6.07			
11/25/09 8:58:50	6.068			
11/25/09 8:59:00	6.07			
11/25/09 8:59:10	6.073			
11/25/09 8:59:20	6.077			
11/25/09 8:59:30	6.08			
11/25/09 8:59:40	6.08			
11/25/09 8:59:50	6.085			
11/25/09 9:00:00	6.092	22.80		
11/25/09 9:00:10	6.089			
11/25/09 9:00:20	6.092			
11/25/09 9:00:30	6.089			
11/25/09 9:00:40	6.092			
11/25/09 9:00:50	6.099			
11/25/09 9:01:00	6.101			
11/25/09 9:01:10	6.103			
11/25/09 9:01:20	6.101			
11/25/09 9:01:30	6.106			
11/25/09 9:01:40	6.108			
11/25/09 9:01:50	6.106			
11/25/09 9:02:00	6.106			
11/25/09 9:02:10	6.106			
11/25/09 9:02:20	6.11			
11/25/09 9:02:30	6.108			
11/25/09 9:02:40	6.106			
11/25/09 9:02:50	6.106			
11/25/09 9:03:00	6.108	22.78	0.5gal/5m49s	
11/25/09 9:03:10	6.11			
11/25/09 9:03:20	6.11			
11/25/09 9:03:30	6.108			
11/25/09 9:03:40	6.108			
11/25/09 9:03:50	6.108			
11/25/09 9:04:00	6.11			
11/25/09 9:04:10	6.113			
11/25/09 9:04:20	6.113			
11/25/09 9:04:30	6.11			
11/25/09 9:04:40	6.113			
11/25/09 9:04:50	6.122			
11/25/09 9:05:00	6.115			
11/25/09 9:05:10	6.117			
11/25/09 9:05:20	6.12			
11/25/09 9:05:30	6.117			
11/25/09 9:05:40	6.122			
11/25/09 9:05:50	6.12			
11/25/09 9:06:00	6.117	22.75		
11/25/09 9:06:10	6.113			
11/25/09 9:06:20	6.115			
11/25/09 9:06:30	6.122			
11/25/09 9:06:40	6.11			
11/25/09 9:06:50	6.113			
11/25/09 9:07:00	6.117			
11/25/09 9:07:10	6.115			
11/25/09 9:07:20	6.113			
11/25/09 9:07:30	6.113			
11/25/09 9:07:40	6.11			
11/25/09 9:07:50	6.115			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 9:08:00	6.115			
11/25/09 9:08:10	6.113			
11/25/09 9:08:20	6.113			
11/25/09 9:08:30	6.115			
11/25/09 9:08:40	6.115			
11/25/09 9:08:50	6.11			
11/25/09 9:09:00	6.12	22.76	0.5gal/6m4s	
11/25/09 9:09:10	6.117			
11/25/09 9:09:20	6.117			
11/25/09 9:09:30	6.113			
11/25/09 9:09:40	6.094			
11/25/09 9:09:50	6.077			
11/25/09 9:10:00	6.059			
11/25/09 9:10:10	6.035			
11/25/09 9:10:20	6.009			
11/25/09 9:10:30	5.995			
11/25/09 9:10:40	5.974			
11/25/09 9:10:50	5.965			
11/25/09 9:11:00	5.948			
11/25/09 9:11:10	5.936			
11/25/09 9:11:20	5.925			
11/25/09 9:11:30	5.913			
11/25/09 9:11:40	5.908			
11/25/09 9:11:50	5.899			
11/25/09 9:12:00	5.892	22.96		
11/25/09 9:12:10	5.882			
11/25/09 9:12:20	5.878			
11/25/09 9:12:30	5.875			
11/25/09 9:12:40	5.868			
11/25/09 9:12:50	5.868			
11/25/09 9:13:00	5.864			
11/25/09 9:13:10	5.875			
11/25/09 9:13:20	5.913			
11/25/09 9:13:30	5.955			
11/25/09 9:13:40	6.002			
11/25/09 9:13:50	6.042			
11/25/09 9:14:00	6.08			
11/25/09 9:14:10	6.11			
11/25/09 9:14:20	6.136			
11/25/09 9:14:30	6.157			
11/25/09 9:14:40	6.12			
11/25/09 9:14:50	6.099			
11/25/09 9:15:00	6.08	22.78		rate varying without any adjustments
11/25/09 9:15:10	6.073			
11/25/09 9:15:20	6.061			
11/25/09 9:15:30	6.047			
11/25/09 9:15:40	6.04			
11/25/09 9:15:50	6.04			
11/25/09 9:16:00	6.033			
11/25/09 9:16:10	6.03			
11/25/09 9:16:20	6.023			
11/25/09 9:16:30	6.021			
11/25/09 9:16:40	6.016			
11/25/09 9:16:50	6.012			
11/25/09 9:17:00	6.007			
11/25/09 9:17:10	6			
11/25/09 9:17:20	5.995			
11/25/09 9:17:30	6			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 9:17:40	5.991			
11/25/09 9:17:50	5.988			
11/25/09 9:18:00	5.988	22.89		
11/25/09 9:18:10	5.988			
11/25/09 9:18:20	5.988			
11/25/09 9:18:30	5.986			
11/25/09 9:18:40	5.981			
11/25/09 9:18:50	5.981			
11/25/09 9:19:00	5.984			
11/25/09 9:19:10	5.981			
11/25/09 9:19:20	5.979			
11/25/09 9:19:30	5.979			
11/25/09 9:19:40	5.972			
11/25/09 9:19:50	5.979			
11/25/09 9:20:00	5.979			
11/25/09 9:20:10	5.974			
11/25/09 9:20:20	5.974			
11/25/09 9:20:30	5.981			
11/25/09 9:20:40	5.976			
11/25/09 9:20:50	5.972			
11/25/09 9:21:00	5.974	22.91	0.5gal/5m16s	
11/25/09 9:21:10	5.974			
11/25/09 9:21:20	5.972			
11/25/09 9:21:30	5.967			
11/25/09 9:21:40	5.969			
11/25/09 9:21:50	5.969			
11/25/09 9:22:00	5.967			
11/25/09 9:22:10	5.965			
11/25/09 9:22:20	5.965			
11/25/09 9:22:30	5.965			
11/25/09 9:22:40	5.96			
11/25/09 9:22:50	5.962			
11/25/09 9:23:00	5.96			
11/25/09 9:23:10	5.965			
11/25/09 9:23:20	5.958			
11/25/09 9:23:30	5.958			
11/25/09 9:23:40	5.962			
11/25/09 9:23:50	5.958			
11/25/09 9:24:00	5.958			
11/25/09 9:24:10	5.96			
11/25/09 9:24:20	5.953			
11/25/09 9:24:30	5.955			
11/25/09 9:24:40	5.953			
11/25/09 9:24:50	5.951			
11/25/09 9:25:00	5.953	22.92		
11/25/09 9:25:10	5.951			
11/25/09 9:25:20	5.953			
11/25/09 9:25:30	5.948			
11/25/09 9:25:40	5.948			
11/25/09 9:25:50	5.951			
11/25/09 9:26:00	5.946		0.5gal/5m13s	
11/25/09 9:26:10	5.948			
11/25/09 9:26:20	5.939			
11/25/09 9:26:30	5.941			
11/25/09 9:26:40	5.939			
11/25/09 9:26:50	5.857			
11/25/09 9:27:00	5.774			open valve further
11/25/09 9:27:10	5.704			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 9:27:20	5.619			
11/25/09 9:27:30	5.533			
11/25/09 9:27:40	5.422			
11/25/09 9:27:50	5.255			
11/25/09 9:28:00	5.112			
11/25/09 9:28:10	4.971			
11/25/09 9:28:20	4.896			
11/25/09 9:28:30	4.816			
11/25/09 9:28:40	4.741			
11/25/09 9:28:50	4.678			
11/25/09 9:29:00	4.609	24.14		
11/25/09 9:29:10	4.548			
11/25/09 9:29:20	4.487			
11/25/09 9:29:30	4.431			
11/25/09 9:29:40	4.379			
11/25/09 9:29:50	4.328			
11/25/09 9:30:00	4.281	24.53	0.5gal/1m48s	adjust valve
11/25/09 9:30:10	4.231			
11/25/09 9:30:20	4.196			
11/25/09 9:30:30	4.173			
11/25/09 9:30:40	4.147			
11/25/09 9:30:50	4.119			
11/25/09 9:31:00	4.097	24.80		
11/25/09 9:31:10	4.074			
11/25/09 9:31:20	4.05			
11/25/09 9:31:30	4.027			
11/25/09 9:31:40	4.006			
11/25/09 9:31:50	3.985			
11/25/09 9:32:00	3.961	24.91		
11/25/09 9:32:10	3.94			
11/25/09 9:32:20	3.919			
11/25/09 9:32:30	3.898			
11/25/09 9:32:40	3.884			
11/25/09 9:32:50	3.865			
11/25/09 9:33:00	3.851	25.02	0.5gal/1m58s	
11/25/09 9:33:10	3.832			
11/25/09 9:33:20	3.818			
11/25/09 9:33:30	3.799			
11/25/09 9:33:40	3.783			
11/25/09 9:33:50	3.771			
11/25/09 9:34:00	3.755	25.09		
11/25/09 9:34:10	3.748			
11/25/09 9:34:20	3.731			
11/25/09 9:34:30	3.722			
11/25/09 9:34:40	3.705			
11/25/09 9:34:50	3.698			
11/25/09 9:35:00	3.687	25.19	0.5gal/1m59s	
11/25/09 9:35:10	3.668			
11/25/09 9:35:20	3.661			
11/25/09 9:35:30	3.651			
11/25/09 9:35:40	3.637			
11/25/09 9:35:50	3.63			
11/25/09 9:36:00	3.621	25.25		
11/25/09 9:36:10	3.609			
11/25/09 9:36:20	3.6			
11/25/09 9:36:30	3.59			
11/25/09 9:36:40	3.581			
11/25/09 9:36:50	3.571			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 9:37:00	3.564	25.31		
11/25/09 9:37:10	3.553			
11/25/09 9:37:20	3.539			
11/25/09 9:37:30	3.536			
11/25/09 9:37:40	3.524			
11/25/09 9:37:50	3.513			
11/25/09 9:38:00	3.501	25.38	0.5gal/2m0s	
11/25/09 9:38:10	3.489			
11/25/09 9:38:20	3.485			
11/25/09 9:38:30	3.471			
11/25/09 9:38:40	3.463			
11/25/09 9:38:50	3.454			
11/25/09 9:39:00	3.447	25.44		
11/25/09 9:39:10	3.438			
11/25/09 9:39:20	3.431			
11/25/09 9:39:30	3.421			
11/25/09 9:39:40	3.419			
11/25/09 9:39:50	3.419			
11/25/09 9:40:00	3.426		0.5gal/1m59s	adjust valve
11/25/09 9:40:10	3.435			
11/25/09 9:40:20	3.442			
11/25/09 9:40:30	3.445			
11/25/09 9:40:40	3.454			
11/25/09 9:40:50	3.456			
11/25/09 9:41:00	3.463	25.43		
11/25/09 9:41:10	3.466			
11/25/09 9:41:20	3.475			
11/25/09 9:41:30	3.473			
11/25/09 9:41:40	3.478			
11/25/09 9:41:50	3.478			
11/25/09 9:42:00	3.48		0.5gal/2m11s	
11/25/09 9:42:10	3.485			
11/25/09 9:42:20	3.487			
11/25/09 9:42:30	3.485			
11/25/09 9:42:40	3.489			
11/25/09 9:42:50	3.487			
11/25/09 9:43:00	3.489	25.40		
11/25/09 9:43:10	3.487			
11/25/09 9:43:20	3.485			
11/25/09 9:43:30	3.487			
11/25/09 9:43:40	3.489			
11/25/09 9:43:50	3.489			
11/25/09 9:44:00	3.489			
11/25/09 9:44:10	3.489			
11/25/09 9:44:20	3.492			
11/25/09 9:44:30	3.489			
11/25/09 9:44:40	3.494			
11/25/09 9:44:50	3.492			
11/25/09 9:45:00	3.494	25.40	0.5gal/2m9s	
11/25/09 9:45:10	3.492			
11/25/09 9:45:20	3.494			
11/25/09 9:45:30	3.489			
11/25/09 9:45:40	3.496			
11/25/09 9:45:50	3.487			
11/25/09 9:46:00	3.489	25.40		
11/25/09 9:46:10	3.489			
11/25/09 9:46:20	3.485			
11/25/09 9:46:30	3.485			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 9:46:40	3.487			
11/25/09 9:46:50	3.482			
11/25/09 9:47:00	3.478	25.40	0.5gal/2m10s	
11/25/09 9:47:10	3.482			
11/25/09 9:47:20	3.485			
11/25/09 9:47:30	3.48			
11/25/09 9:47:40	3.475			
11/25/09 9:47:50	3.482			
11/25/09 9:48:00	3.475	25.41		
11/25/09 9:48:10	3.473			
11/25/09 9:48:20	3.471			
11/25/09 9:48:30	3.473			
11/25/09 9:48:40	3.471			
11/25/09 9:48:50	3.475			
11/25/09 9:49:00	3.471			
11/25/09 9:49:10	3.471			
11/25/09 9:49:20	3.466			
11/25/09 9:49:30	3.468			
11/25/09 9:49:40	3.466			
11/25/09 9:49:50	3.466			
11/25/09 9:50:00	3.463	25.42	0.5gal/2m10s	
11/25/09 9:50:10	3.459			
11/25/09 9:50:20	3.464			
11/25/09 9:50:30	3.461			
11/25/09 9:50:40	3.456			
11/25/09 9:50:50	3.454			
11/25/09 9:51:00	3.454			
11/25/09 9:51:10	3.452			
11/25/09 9:51:20	3.449			
11/25/09 9:51:30	3.449			
11/25/09 9:51:40	3.449			
11/25/09 9:51:50	3.445			
11/25/09 9:52:00	3.447	25.44	0.5gal/2m10s	
11/25/09 9:52:10	3.445			
11/25/09 9:52:20	3.442			
11/25/09 9:52:30	3.442			
11/25/09 9:52:40	3.44			
11/25/09 9:52:50	3.433			
11/25/09 9:53:00	3.438			
11/25/09 9:53:10	3.433			
11/25/09 9:53:20	3.433			
11/25/09 9:53:30	3.433			
11/25/09 9:53:40	3.433			
11/25/09 9:53:50	3.431			
11/25/09 9:54:00	3.428	25.46		
11/25/09 9:54:10	3.426			
11/25/09 9:54:20	3.426			
11/25/09 9:54:30	3.426			
11/25/09 9:54:40	3.421			
11/25/09 9:54:50	3.426			
11/25/09 9:55:00	3.428			
11/25/09 9:55:10	3.421			
11/25/09 9:55:20	3.428			
11/25/09 9:55:30	3.419			
11/25/09 9:55:40	3.424			
11/25/09 9:55:50	3.417			
11/25/09 9:56:00	3.414	25.48	0.5gal/2m10s	
11/25/09 9:56:10	3.416			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 9:56:20	3.417			
11/25/09 9:56:30	3.414			
11/25/09 9:56:40	3.412			
11/25/09 9:56:50	3.407			
11/25/09 9:57:00	3.409			
11/25/09 9:57:10	3.405			
11/25/09 9:57:20	3.4			
11/25/09 9:57:30	3.402			
11/25/09 9:57:40	3.4			
11/25/09 9:57:50	3.395			
11/25/09 9:58:00	3.398			
11/25/09 9:58:10	3.395			
11/25/09 9:58:20	3.398			
11/25/09 9:58:30	3.393			
11/25/09 9:58:40	3.393			
11/25/09 9:58:50	3.393			
11/25/09 9:59:00	3.388			
11/25/09 9:59:10	3.381			
11/25/09 9:59:20	3.388			
11/25/09 9:59:30	3.384			
11/25/09 9:59:40	3.381			
11/25/09 9:59:50	3.374			
11/25/09 10:00:00	3.384	25.51		
11/25/09 10:00:10	3.374			
11/25/09 10:00:20	3.367			
11/25/09 10:00:30	3.37			
11/25/09 10:00:40	3.37			
11/25/09 10:00:50	3.37			
11/25/09 10:01:00	3.36		0.5gal/2m10s	
11/25/09 10:01:10	3.363			
11/25/09 10:01:20	3.365			
11/25/09 10:01:30	3.36			
11/25/09 10:01:40	3.358			
11/25/09 10:01:50	3.36			
11/25/09 10:02:00	3.353			
11/25/09 10:02:10	3.355			
11/25/09 10:02:20	3.353			
11/25/09 10:02:30	3.351			
11/25/09 10:02:40	3.355			
11/25/09 10:02:50	3.353			
11/25/09 10:03:00	3.348	25.53		
11/25/09 10:03:10	3.346			
11/25/09 10:03:20	3.351			
11/25/09 10:03:30	3.346			
11/25/09 10:03:40	3.346			
11/25/09 10:03:50	3.341			
11/25/09 10:04:00	3.344		0.5gal/2m10s	
11/25/09 10:04:10	3.339			
11/25/09 10:04:20	3.339			
11/25/09 10:04:30	3.339			
11/25/09 10:04:40	3.332			
11/25/09 10:04:50	3.332			
11/25/09 10:05:00	3.33			
11/25/09 10:05:10	3.327			
11/25/09 10:05:20	3.332			
11/25/09 10:05:30	3.325			
11/25/09 10:05:40	3.33			
11/25/09 10:05:50	3.325			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 10:06:00	3.32	25.56		
11/25/09 10:06:10	3.32			
11/25/09 10:06:20	3.318			
11/25/09 10:06:30	3.316			
11/25/09 10:06:40	3.318			
11/25/09 10:06:50	3.315			
11/25/09 10:07:00	3.311		0.5gal/2m10s	
11/25/09 10:07:10	3.311			
11/25/09 10:07:20	3.311			
11/25/09 10:07:30	3.304			
11/25/09 10:07:40	3.306			
11/25/09 10:07:50	3.304			
11/25/09 10:08:00	3.301			
11/25/09 10:08:10	3.299			
11/25/09 10:08:20	3.292			
11/25/09 10:08:30	3.294			
11/25/09 10:08:40	3.299			
11/25/09 10:08:50	3.297			
11/25/09 10:09:00	3.299			
11/25/09 10:09:10	3.285			
11/25/09 10:09:20	3.29			
11/25/09 10:09:30	3.28			
11/25/09 10:09:40	3.285			
11/25/09 10:09:50	3.28			
11/25/09 10:10:00	3.278	25.60	0.5gal/2m10s	
11/25/09 10:10:10	3.276			
11/25/09 10:10:20	3.273			
11/25/09 10:10:30	3.276			
11/25/09 10:10:40	3.269			
11/25/09 10:10:50	3.269			
11/25/09 10:11:00	3.269			
11/25/09 10:11:10	3.264			
11/25/09 10:11:20	3.262			
11/25/09 10:11:30	3.264			
11/25/09 10:11:40	3.257			
11/25/09 10:11:50	3.257			
11/25/09 10:12:00	3.254			
11/25/09 10:12:10	3.245			
11/25/09 10:12:20	3.25			
11/25/09 10:12:30	3.252			
11/25/09 10:12:40	3.245			
11/25/09 10:12:50	3.243			
11/25/09 10:13:00	3.243			
11/25/09 10:13:10	3.238			
11/25/09 10:13:20	3.238			
11/25/09 10:13:30	3.233			
11/25/09 10:13:40	3.233			
11/25/09 10:13:50	3.231			
11/25/09 10:14:00	3.231			
11/25/09 10:14:10	3.231			
11/25/09 10:14:20	3.226			
11/25/09 10:14:30	3.226			
11/25/09 10:14:40	3.231			
11/25/09 10:14:50	3.231			
11/25/09 10:15:00	3.229	25.65	0.5gal/2m10s	
11/25/09 10:15:10	3.226			
11/25/09 10:15:20	3.224			
11/25/09 10:15:30	3.226			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 10:15:40	3.224			
11/25/09 10:15:50	3.224			
11/25/09 10:16:00	3.217			
11/25/09 10:16:10	3.217			
11/25/09 10:16:20	3.212			
11/25/09 10:16:30	3.212			
11/25/09 10:16:40	3.207			
11/25/09 10:16:50	3.207			
11/25/09 10:17:00	3.205			
11/25/09 10:17:10	3.203			
11/25/09 10:17:20	3.203			
11/25/09 10:17:30	3.205			
11/25/09 10:17:40	3.198			
11/25/09 10:17:50	3.2			
11/25/09 10:18:00	3.198			
11/25/09 10:18:10	3.196			
11/25/09 10:18:20	3.196			
11/25/09 10:18:30	3.193			
11/25/09 10:18:40	3.193			
11/25/09 10:18:50	3.191			
11/25/09 10:19:00	3.191			
11/25/09 10:19:10	3.186			
11/25/09 10:19:20	3.189			
11/25/09 10:19:30	3.182			
11/25/09 10:19:40	3.186			
11/25/09 10:19:50	3.182			
11/25/09 10:20:00	3.184	25.71		
11/25/09 10:20:10	3.179			
11/25/09 10:20:20	3.179			
11/25/09 10:20:30	3.175			
11/25/09 10:20:40	3.175			
11/25/09 10:20:50	3.175			
11/25/09 10:21:00	3.172			
11/25/09 10:21:10	3.17			
11/25/09 10:21:20	3.168			
11/25/09 10:21:30	3.165			
11/25/09 10:21:40	3.17			
11/25/09 10:21:50	3.17			
11/25/09 10:22:00	3.165			
11/25/09 10:22:10	3.163			
11/25/09 10:22:20	3.165			
11/25/09 10:22:30	3.163			
11/25/09 10:22:40	3.161			
11/25/09 10:22:50	3.161			
11/25/09 10:23:00	3.158			
11/25/09 10:23:10	3.163			
11/25/09 10:23:20	3.158			
11/25/09 10:23:30	3.158			
11/25/09 10:23:40	3.161			
11/25/09 10:23:50	3.163			
11/25/09 10:24:00	3.158			
11/25/09 10:24:10	3.158			
11/25/09 10:24:20	3.158			
11/25/09 10:24:30	3.156			
11/25/09 10:24:40	3.161			
11/25/09 10:24:50	3.156			
11/25/09 10:25:00	3.161	25.73		
11/25/09 10:25:10	3.156			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 10:25:20	3.158			
11/25/09 10:25:30	3.158			
11/25/09 10:25:40	3.158			
11/25/09 10:25:50	3.163			
11/25/09 10:26:00	3.149		0.5gal/2m10s	
11/25/09 10:26:10	3.153			
11/25/09 10:26:20	3.156			
11/25/09 10:26:30	3.153			
11/25/09 10:26:40	3.151			
11/25/09 10:26:50	3.146			
11/25/09 10:27:00	3.151			
11/25/09 10:27:10	3.149			
11/25/09 10:27:20	3.151			
11/25/09 10:27:30	3.151			
11/25/09 10:27:40	3.149			
11/25/09 10:27:50	3.146			
11/25/09 10:28:00	3.146			
11/25/09 10:28:10	3.146			
11/25/09 10:28:20	3.144			
11/25/09 10:28:30	3.146			
11/25/09 10:28:40	3.137			
11/25/09 10:28:50	3.139			
11/25/09 10:29:00	3.139			
11/25/09 10:29:10	3.139			
11/25/09 10:29:20	3.137			
11/25/09 10:29:30	3.142			
11/25/09 10:29:40	3.139			
11/25/09 10:29:50	3.137			
11/25/09 10:30:00	3.135	25.75		open valve further
11/25/09 10:30:10	3.139			
11/25/09 10:30:20	3.142			
11/25/09 10:30:30	3.114			
11/25/09 10:30:40	3.085			
11/25/09 10:30:50	3.078			
11/25/09 10:31:00	3.06			
11/25/09 10:31:10	3.06			
11/25/09 10:31:20	3.038			
11/25/09 10:31:30	2.989			
11/25/09 10:31:40	2.867			
11/25/09 10:31:50	2.742			
11/25/09 10:32:00	2.632			
11/25/09 10:32:10	2.512			
11/25/09 10:32:20	2.399			
11/25/09 10:32:30	2.284			
11/25/09 10:32:40	2.169			
11/25/09 10:32:50	2.059			
11/25/09 10:33:00	1.953	26.80		
11/25/09 10:33:10	1.845			
11/25/09 10:33:20	1.735			
11/25/09 10:33:30	1.634			
11/25/09 10:33:40	1.533			
11/25/09 10:33:50	1.436			
11/25/09 10:34:00	1.425		0.5gal/1m0s	adjust valve
11/25/09 10:34:10	1.42			
11/25/09 10:34:20	1.415			
11/25/09 10:34:30	1.403			
11/25/09 10:34:40	1.399			
11/25/09 10:34:50	1.382			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 10:35:00	1.373	27.50		
11/25/09 10:35:10	1.364			
11/25/09 10:35:20	1.35			
11/25/09 10:35:30	1.328			
11/25/09 10:35:40	1.319			
11/25/09 10:35:50	1.312			
11/25/09 10:36:00	1.291	27.58	0.5gal/1m36s	
11/25/09 10:36:10	1.284			
11/25/09 10:36:20	1.263			
11/25/09 10:36:30	1.251			
11/25/09 10:36:40	1.239			
11/25/09 10:36:50	1.22			
11/25/09 10:37:00	1.202	27.65		
11/25/09 10:37:10	1.192			
11/25/09 10:37:20	1.176			
11/25/09 10:37:30	1.164			
11/25/09 10:37:40	1.147			
11/25/09 10:37:50	1.131			
11/25/09 10:38:00	1.115	27.75	0.5gal/1m36s	
11/25/09 10:38:10	1.098			
11/25/09 10:38:20	1.082			
11/25/09 10:38:30	1.065			
11/25/09 10:38:40	1.046			
11/25/09 10:38:50	1.018			
11/25/09 10:39:00	1.004	27.85		
11/25/09 10:39:10	0.988			
11/25/09 10:39:20	0.967			
11/25/09 10:39:30	0.953			
11/25/09 10:39:40	0.941			
11/25/09 10:39:50	0.931			
11/25/09 10:40:00	0.91	27.95	0.5gal/1m35s	
11/25/09 10:40:10	0.892			
11/25/09 10:40:20	0.91			
11/25/09 10:40:30	0.931			
11/25/09 10:40:40	0.946			
11/25/09 10:40:50	0.96			
11/25/09 10:41:00	0.978	27.95		adjust valve
11/25/09 10:41:10	1			
11/25/09 10:41:20	1.009			
11/25/09 10:41:30	1.021			
11/25/09 10:41:40	1.035			
11/25/09 10:41:50	1.051			
11/25/09 10:42:00	1.065			
11/25/09 10:42:10	1.077			
11/25/09 10:42:20	1.098			
11/25/09 10:42:30	1.105			
11/25/09 10:42:40	1.122			
11/25/09 10:42:50	1.058			
11/25/09 10:43:00	0.995	27.85	0.5gal/1m56s	adjust valve
11/25/09 10:43:10	0.953			
11/25/09 10:43:20	0.906			
11/25/09 10:43:30	0.866			
11/25/09 10:43:40	0.826			
11/25/09 10:43:50	0.786			
11/25/09 10:44:00	0.734	28.11		
11/25/09 10:44:10	0.687			
11/25/09 10:44:20	0.638			
11/25/09 10:44:30	0.586			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 10:44:40	0.527			
11/25/09 10:44:50	0.471			
11/25/09 10:45:00	0.412	28.50	0.5gal/1m25s	adjust valve
11/25/09 10:45:10	0.356			
11/25/09 10:45:20	0.351			
11/25/09 10:45:30	0.349			
11/25/09 10:45:40	0.347			
11/25/09 10:45:50	0.347			
11/25/09 10:46:00	0.347			
11/25/09 10:46:10	0.347			
11/25/09 10:46:20	0.349			
11/25/09 10:46:30	0.349			
11/25/09 10:46:40	0.344			
11/25/09 10:46:50	0.349			
11/25/09 10:47:00	0.344	28.55	0.5gal/1m48s	
11/25/09 10:47:10	0.342			
11/25/09 10:47:20	0.347			
11/25/09 10:47:30	0.344			
11/25/09 10:47:40	0.342			
11/25/09 10:47:50	0.34			
11/25/09 10:48:00	0.335	28.55		
11/25/09 10:48:10	0.337			
11/25/09 10:48:20	0.332			
11/25/09 10:48:30	0.332			
11/25/09 10:48:40	0.33			
11/25/09 10:48:50	0.33			
11/25/09 10:49:00	0.328	28.56		
11/25/09 10:49:10	0.328			
11/25/09 10:49:20	0.323			
11/25/09 10:49:30	0.325			
11/25/09 10:49:40	0.323			
11/25/09 10:49:50	0.325			
11/25/09 10:50:00	0.321	28.57	0.5gal/1m48s	
11/25/09 10:50:10	0.318			
11/25/09 10:50:20	0.318			
11/25/09 10:50:30	0.318			
11/25/09 10:50:40	0.318			
11/25/09 10:50:50	0.316			
11/25/09 10:51:00	0.316			
11/25/09 10:51:10	0.311			
11/25/09 10:51:20	0.309			
11/25/09 10:51:30	0.307			
11/25/09 10:51:40	0.307			
11/25/09 10:51:50	0.302			
11/25/09 10:52:00	0.302	28.60	0.5gal/1m48s	
11/25/09 10:52:10	0.295			
11/25/09 10:52:20	0.293			
11/25/09 10:52:30	0.288			
11/25/09 10:52:40	0.293			
11/25/09 10:52:50	0.285			
11/25/09 10:53:00	0.283			
11/25/09 10:53:10	0.281			
11/25/09 10:53:20	0.276			
11/25/09 10:53:30	0.276			
11/25/09 10:53:40	0.269			
11/25/09 10:53:50	0.271			
11/25/09 10:54:00	0.269	28.62	0.5gal/1m48s	
11/25/09 10:54:10	0.264			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 10:54:20	0.262			
11/25/09 10:54:30	0.26			
11/25/09 10:54:40	0.257			
11/25/09 10:54:50	0.25			
11/25/09 10:55:00	0.25			
11/25/09 10:55:10	0.246			
11/25/09 10:55:20	0.243			
11/25/09 10:55:30	0.243			
11/25/09 10:55:40	0.241			
11/25/09 10:55:50	0.236			
11/25/09 10:56:00	0.231	28.65	0.5gal/1m48s	
11/25/09 10:56:10	0.227			
11/25/09 10:56:20	0.213			
11/25/09 10:56:30	0.22			
11/25/09 10:56:40	0.21			
11/25/09 10:56:50	0.208			
11/25/09 10:57:00	0.208			
11/25/09 10:57:10	0.208			
11/25/09 10:57:20	0.194			
11/25/09 10:57:30	0.199			
11/25/09 10:57:40	0.201			
11/25/09 10:57:50	0.187			
11/25/09 10:58:00	0.182	28.72	0.5gal/1m48s	
11/25/09 10:58:10	0.182			
11/25/09 10:58:20	0.17			
11/25/09 10:58:30	0.17			
11/25/09 10:58:40	0.163			
11/25/09 10:58:50	0.166			
11/25/09 10:59:00	0.168			
11/25/09 10:59:10	0.166			
11/25/09 10:59:20	0.173			
11/25/09 10:59:30	0.177			
11/25/09 10:59:40	0.18			
11/25/09 10:59:50	0.182			
11/25/09 11:00:00	0.182	28.72	0.5gal/1m52s	
11/25/09 11:00:10	0.194			
11/25/09 11:00:20	0.201			
11/25/09 11:00:30	0.201			
11/25/09 11:00:40	0.208			
11/25/09 11:00:50	0.208			
11/25/09 11:01:00	0.222			
11/25/09 11:01:10	0.22			
11/25/09 11:01:20	0.222			
11/25/09 11:01:30	0.231			
11/25/09 11:01:40	0.229			
11/25/09 11:01:50	0.239			
11/25/09 11:02:00	0.243			
11/25/09 11:02:10	0.25			
11/25/09 11:02:20	0.248			
11/25/09 11:02:30	0.253			
11/25/09 11:02:40	0.253			
11/25/09 11:02:50	0.255			
11/25/09 11:03:00	0.26	28.65	0.5gal/1m53s	
11/25/09 11:03:10	0.267			
11/25/09 11:03:20	0.269			
11/25/09 11:03:30	0.276			
11/25/09 11:03:40	0.283			
11/25/09 11:03:50	0.281			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 11:04:00	0.281			
11/25/09 11:04:10	0.293			
11/25/09 11:04:20	0.293			
11/25/09 11:04:30	0.3			
11/25/09 11:04:40	0.302			
11/25/09 11:04:50	0.304			
11/25/09 11:05:00	0.302			
11/25/09 11:05:10	0.307			
11/25/09 11:05:20	0.304			
11/25/09 11:05:30	0.309			
11/25/09 11:05:40	0.302			
11/25/09 11:05:50	0.302			
11/25/09 11:06:00	0.311	28.59	0.5gal/1m52s	
11/25/09 11:06:10	0.307			
11/25/09 11:06:20	0.314			
11/25/09 11:06:30	0.309			
11/25/09 11:06:40	0.314			
11/25/09 11:06:50	0.309			
11/25/09 11:07:00	0.314			
11/25/09 11:07:10	0.311			
11/25/09 11:07:20	0.311			
11/25/09 11:07:30	0.314			
11/25/09 11:07:40	0.314			
11/25/09 11:07:50	0.318			
11/25/09 11:08:00	0.316			
11/25/09 11:08:10	0.314			
11/25/09 11:08:20	0.316			
11/25/09 11:08:30	0.309			
11/25/09 11:08:40	0.311			
11/25/09 11:08:50	0.316			
11/25/09 11:09:00	0.314	28.60		
11/25/09 11:09:10	0.309			
11/25/09 11:09:20	0.309			
11/25/09 11:09:30	0.309			
11/25/09 11:09:40	0.307			
11/25/09 11:09:50	0.307			
11/25/09 11:10:00	0.302			
11/25/09 11:10:10	0.304			
11/25/09 11:10:20	0.307			
11/25/09 11:10:30	0.307			
11/25/09 11:10:40	0.302			
11/25/09 11:10:50	0.302			
11/25/09 11:11:00	0.3			
11/25/09 11:11:10	0.304			
11/25/09 11:11:20	0.304			
11/25/09 11:11:30	0.304			
11/25/09 11:11:40	0.309			
11/25/09 11:11:50	0.307			
11/25/09 11:12:00	0.307			
11/25/09 11:12:10	0.307			
11/25/09 11:12:20	0.304			
11/25/09 11:12:30	0.304			
11/25/09 11:12:40	0.304			
11/25/09 11:12:50	0.307			
11/25/09 11:13:00	0.307	28.60	0.5gal/1m52s	
11/25/09 11:13:10	0.307			
11/25/09 11:13:20	0.304			
11/25/09 11:13:30	0.314			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 11:13:40	0.3			
11/25/09 11:13:50	0.302			
11/25/09 11:14:00	0.297			
11/25/09 11:14:10	0.297			
11/25/09 11:14:20	0.302			
11/25/09 11:14:30	0.302			
11/25/09 11:14:40	0.297			
11/25/09 11:14:50	0.304			
11/25/09 11:15:00	0.304	28.60		
11/25/09 11:15:10	0.304			
11/25/09 11:15:20	0.307			
11/25/09 11:15:30	0.307			
11/25/09 11:15:40	0.307			
11/25/09 11:15:50	0.307			
11/25/09 11:16:00	0.311			
11/25/09 11:16:10	0.309			
11/25/09 11:16:20	0.307			
11/25/09 11:16:30	0.316			
11/25/09 11:16:40	0.311			
11/25/09 11:16:50	0.316			
11/25/09 11:17:00	0.318			
11/25/09 11:17:10	0.311			
11/25/09 11:17:20	0.318			
11/25/09 11:17:30	0.316			
11/25/09 11:17:40	0.311			
11/25/09 11:17:50	0.316			
11/25/09 11:18:00	0.318			
11/25/09 11:18:10	0.316			
11/25/09 11:18:20	0.321			
11/25/09 11:18:30	0.321			
11/25/09 11:18:40	0.318			
11/25/09 11:18:50	0.321			
11/25/09 11:19:00	0.323			
11/25/09 11:19:10	0.321			
11/25/09 11:19:20	0.328			
11/25/09 11:19:30	0.328			
11/25/09 11:19:40	0.332			
11/25/09 11:19:50	0.332			
11/25/09 11:20:00	0.337	28.57	0.5gal/1m53s	
11/25/09 11:20:10	0.34			
11/25/09 11:20:20	0.347			
11/25/09 11:20:30	0.349			
11/25/09 11:20:40	0.351			
11/25/09 11:20:50	0.356			
11/25/09 11:21:00	0.361			
11/25/09 11:21:10	0.365			
11/25/09 11:21:20	0.37			
11/25/09 11:21:30	0.375			
11/25/09 11:21:40	0.384			
11/25/09 11:21:50	0.384			
11/25/09 11:22:00	0.391			
11/25/09 11:22:10	0.386			
11/25/09 11:22:20	0.394			
11/25/09 11:22:30	0.391			
11/25/09 11:22:40	0.396			
11/25/09 11:22:50	0.398			
11/25/09 11:23:00	0.398			
11/25/09 11:23:10	0.405			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 11:23:20	0.398			
11/25/09 11:23:30	0.403			
11/25/09 11:23:40	0.403			
11/25/09 11:23:50	0.405			
11/25/09 11:24:00	0.408			
11/25/09 11:24:10	0.398			
11/25/09 11:24:20	0.405			
11/25/09 11:24:30	0.401			
11/25/09 11:24:40	0.403			
11/25/09 11:24:50	0.401			
11/25/09 11:25:00	0.408	28.49	0.5gal/1m53s	
11/25/09 11:25:10	0.396			
11/25/09 11:25:20	0.398			
11/25/09 11:25:30	0.398			
11/25/09 11:25:40	0.394			
11/25/09 11:25:50	0.396			
11/25/09 11:26:00	0.389			
11/25/09 11:26:10	0.391			
11/25/09 11:26:20	0.386			
11/25/09 11:26:30	0.389			
11/25/09 11:26:40	0.391			
11/25/09 11:26:50	0.389			
11/25/09 11:27:00	0.389			
11/25/09 11:27:10	0.386			
11/25/09 11:27:20	0.389			
11/25/09 11:27:30	0.389			
11/25/09 11:27:40	0.386			
11/25/09 11:27:50	0.389			
11/25/09 11:28:00	0.389			
11/25/09 11:28:10	0.386			
11/25/09 11:28:20	0.391			
11/25/09 11:28:30	0.391			
11/25/09 11:28:40	0.391			
11/25/09 11:28:50	0.391			
11/25/09 11:29:00	0.384			
11/25/09 11:29:10	0.391			
11/25/09 11:29:20	0.386			
11/25/09 11:29:30	0.394			
11/25/09 11:29:40	0.384			
11/25/09 11:29:50	0.384			
11/25/09 11:30:00	0.384	28.52	0.5gal/1m53s	
11/25/09 11:30:10	0.386			
11/25/09 11:30:20	0.382			
11/25/09 11:30:30	0.382			
11/25/09 11:30:40	0.389			
11/25/09 11:30:50	0.377			
11/25/09 11:31:00	0.372			
11/25/09 11:31:10	0.375			
11/25/09 11:31:20	0.377			
11/25/09 11:31:30	0.384			
11/25/09 11:31:40	0.384			
11/25/09 11:31:50	0.389			
11/25/09 11:32:00	0.391			
11/25/09 11:32:10	0.389			
11/25/09 11:32:20	0.386			
11/25/09 11:32:30	0.386			
11/25/09 11:32:40	0.391			
11/25/09 11:32:50	0.386			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 11:33:00	0.389			
11/25/09 11:38:00	0.476			had to restart recorder - missed 5mins
11/25/09 11:38:10	0.478			
11/25/09 11:38:20	0.485			
11/25/09 11:38:30	0.485			
11/25/09 11:38:40	0.487			
11/25/09 11:38:50	0.546			
11/25/09 11:39:00	0.816			shut valve, pump off
11/25/09 11:39:10	0.995			
11/25/09 11:39:20	1.145			
11/25/09 11:39:30	1.321	28.00		rising fast
11/25/09 11:39:40	1.458			
11/25/09 11:39:50	1.599			
11/25/09 11:40:00	1.716	27.46		
11/25/09 11:40:10	1.843			
11/25/09 11:40:20	1.96			
11/25/09 11:40:30	2.08			
11/25/09 11:40:40	2.195			
11/25/09 11:40:50	2.308			
11/25/09 11:41:00	2.421	26.74		
11/25/09 11:41:10	2.526			
11/25/09 11:41:20	2.625			
11/25/09 11:41:30	2.728			
11/25/09 11:41:40	2.832			
11/25/09 11:41:50	2.921			
11/25/09 11:42:00	3.02	26.11		
11/25/09 11:42:10	3.109			
11/25/09 11:42:20	3.203			
11/25/09 11:42:30	3.363			
11/25/09 11:42:40	3.506			
11/25/09 11:42:50	3.637			
11/25/09 11:43:00	3.764			
11/25/09 11:43:10	3.884			
11/25/09 11:43:20	3.994			
11/25/09 11:43:30	4.114			
11/25/09 11:43:40	4.222			
11/25/09 11:43:50	4.321			
11/25/09 11:44:00	4.417	24.63		
11/25/09 11:44:10	4.509			
11/25/09 11:44:20	4.591			
11/25/09 11:44:30	4.673			
11/25/09 11:44:40	4.753			
11/25/09 11:44:50	4.828			
11/25/09 11:45:00	4.896			
11/25/09 11:45:10	4.962			
11/25/09 11:45:20	5.028			
11/25/09 11:45:30	5.089	23.95		
11/25/09 11:45:40	5.141			
11/25/09 11:45:50	5.197			
11/25/09 11:46:00	5.249	23.66		
11/25/09 11:46:10	5.3			
11/25/09 11:46:20	5.34			
11/25/09 11:46:30	5.383			
11/25/09 11:46:40	5.423			
11/25/09 11:46:50	5.463			
11/25/09 11:47:00	5.507	23.44		
11/25/09 11:47:10	5.535			
11/25/09 11:47:20	5.564			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 11:47:30	5.603			
11/25/09 11:47:40	5.632			
11/25/09 11:47:50	5.65			
11/25/09 11:48:00	5.688			
11/25/09 11:48:10	5.702			
11/25/09 11:48:20	5.721			
11/25/09 11:48:30	5.749			
11/25/09 11:48:40	5.768			
11/25/09 11:48:50	5.787			
11/25/09 11:49:00	5.81	23.09		
11/25/09 11:49:10	5.824			
11/25/09 11:49:20	5.838			
11/25/09 11:49:30	5.857			
11/25/09 11:49:40	5.874			
11/25/09 11:49:50	5.89			
11/25/09 11:50:00	5.914			
11/25/09 11:50:10	5.914			
11/25/09 11:50:20	5.923			
11/25/09 11:50:30	5.942			
11/25/09 11:50:40	5.951			
11/25/09 11:50:50	5.963			
11/25/09 11:51:00	5.977			
11/25/09 11:51:10	5.984			
11/25/09 11:51:20	5.989			
11/25/09 11:51:30	5.991			
11/25/09 11:51:40	6.01			
11/25/09 11:51:50	6.022			
11/25/09 11:52:00	6.029			
11/25/09 11:52:10	6.036			
11/25/09 11:52:20	6.045			
11/25/09 11:52:30	6.057			
11/25/09 11:52:40	6.057			
11/25/09 11:52:50	6.066			
11/25/09 11:53:00	6.076			
11/25/09 11:53:10	6.083			
11/25/09 11:53:20	6.09			
11/25/09 11:53:30	6.097			
11/25/09 11:53:40	6.106			
11/25/09 11:53:50	6.106			
11/25/09 11:54:00	6.116			
11/25/09 11:54:10	6.123			
11/25/09 11:54:20	6.125			
11/25/09 11:54:30	6.134			
11/25/09 11:54:40	6.134			
11/25/09 11:54:50	6.141			
11/25/09 11:55:00	6.146			
11/25/09 11:55:10	6.151			
11/25/09 11:55:20	6.158			
11/25/09 11:55:30	6.165			
11/25/09 11:55:40	6.174			
11/25/09 11:55:50	6.17			
11/25/09 11:56:00	6.179			
11/25/09 11:56:10	6.179			
11/25/09 11:56:20	6.181			
11/25/09 11:56:30	6.188			
11/25/09 11:56:40	6.184			
11/25/09 11:56:50	6.191			
11/25/09 11:57:00	6.193			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 11:57:10	6.198			
11/25/09 11:57:20	6.198			
11/25/09 11:57:30	6.205			
11/25/09 11:57:40	6.207			
11/25/09 11:57:50	6.212			
11/25/09 11:58:00	6.221			
11/25/09 11:58:10	6.219			
11/25/09 11:58:20	6.221			
11/25/09 11:58:30	6.224			
11/25/09 11:58:40	6.228			
11/25/09 11:58:50	6.233			
11/25/09 11:59:00	6.24			
11/25/09 11:59:10	6.233			
11/25/09 11:59:20	6.242			
11/25/09 11:59:30	6.24			
11/25/09 11:59:40	6.242			
11/25/09 11:59:50	6.252			
11/25/09 12:00:00	6.254	22.62		stop taking manual measurements
11/25/09 12:00:10	6.254			
11/25/09 12:00:20	6.256			
11/25/09 12:00:30	6.256			
11/25/09 12:00:40	6.263			
11/25/09 12:00:50	6.268			
11/25/09 12:01:00	6.268			
11/25/09 12:01:10	6.271			
11/25/09 12:01:20	6.273			
11/25/09 12:01:30	6.28			
11/25/09 12:01:40	6.28			
11/25/09 12:01:50	6.28			
11/25/09 12:02:00	6.289			
11/25/09 12:02:10	6.287			
11/25/09 12:02:20	6.289			
11/25/09 12:02:30	6.289			
11/25/09 12:02:40	6.296			
11/25/09 12:02:50	6.296			
11/25/09 12:03:00	6.299			
11/25/09 12:03:10	6.301			
11/25/09 12:03:20	6.325			
11/25/09 12:03:30	6.308			
11/25/09 12:03:40	6.313			
11/25/09 12:03:50	6.322			
11/25/09 12:04:00	6.318			
11/25/09 12:04:10	6.32			
11/25/09 12:04:20	6.327			
11/25/09 12:04:30	6.322			
11/25/09 12:04:40	6.327			
11/25/09 12:04:50	6.336			
11/25/09 12:05:00	6.336			
11/25/09 12:05:10	6.341			
11/25/09 12:05:20	6.341			
11/25/09 12:05:30	6.341			
11/25/09 12:05:40	6.353			
11/25/09 12:05:50	6.353			
11/25/09 12:06:00	6.348			
11/25/09 12:06:10	6.355			
11/25/09 12:06:20	6.357			
11/25/09 12:06:30	6.355			
11/25/09 12:06:40	6.357			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 12:06:50	6.36			
11/25/09 12:07:00	6.36			
11/25/09 12:07:10	6.362			
11/25/09 12:07:20	6.364			
11/25/09 12:07:30	6.367			
11/25/09 12:07:40	6.374			
11/25/09 12:07:50	6.374			
11/25/09 12:08:00	6.374			
11/25/09 12:08:10	6.372			
11/25/09 12:08:20	6.379			
11/25/09 12:08:30	6.383			
11/25/09 12:08:40	6.383			
11/25/09 12:08:50	6.388			
11/25/09 12:09:00	6.388			
11/25/09 12:09:10	6.388			
11/25/09 12:09:20	6.4			
11/25/09 12:09:30	6.395			
11/25/09 12:09:40	6.393			
11/25/09 12:09:50	6.397			
11/25/09 12:10:00	6.402			
11/25/09 12:10:10	6.397			
11/25/09 12:10:20	6.397			
11/25/09 12:10:30	6.404			
11/25/09 12:10:40	6.407			
11/25/09 12:10:50	6.409			
11/25/09 12:11:00	6.409			
11/25/09 12:11:10	6.412			
11/25/09 12:11:20	6.419			
11/25/09 12:11:30	6.416			
11/25/09 12:11:40	6.416			
11/25/09 12:11:50	6.419			
11/25/09 12:12:00	6.423			
11/25/09 12:12:10	6.423			
11/25/09 12:12:20	6.428			
11/25/09 12:12:30	6.43			
11/25/09 12:12:40	6.435			
11/25/09 12:12:50	6.43			
11/25/09 12:13:00	6.444			
11/25/09 12:13:10	6.433			
11/25/09 12:13:20	6.44			
11/25/09 12:13:30	6.437			
11/25/09 12:13:40	6.437			
11/25/09 12:13:50	6.44			
11/25/09 12:14:00	6.447			
11/25/09 12:14:10	6.447			
11/25/09 12:14:20	6.449			
11/25/09 12:14:30	6.451			
11/25/09 12:14:40	6.447			
11/25/09 12:14:50	6.454			
11/25/09 12:15:00	6.454			
11/25/09 12:15:10	6.454			
11/25/09 12:15:20	6.461			
11/25/09 12:15:30	6.461			
11/25/09 12:15:40	6.459			
11/25/09 12:15:50	6.47			
11/25/09 12:16:00	6.47			
11/25/09 12:16:10	6.468			
11/25/09 12:16:20	6.468			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 12:16:30	6.473			
11/25/09 12:16:40	6.47			
11/25/09 12:16:50	6.475			
11/25/09 12:17:00	6.475			
11/25/09 12:17:10	6.48			
11/25/09 12:17:20	6.482			
11/25/09 12:17:30	6.482			
11/25/09 12:17:40	6.484			
11/25/09 12:17:50	6.484			
11/25/09 12:18:00	6.489			
11/25/09 12:18:10	6.491			
11/25/09 12:18:20	6.491			
11/25/09 12:18:30	6.491			
11/25/09 12:18:40	6.494			
11/25/09 12:18:50	6.501			
11/25/09 12:19:00	6.496			
11/25/09 12:19:10	6.496			
11/25/09 12:19:20	6.498			
11/25/09 12:19:30	6.501			
11/25/09 12:19:40	6.503			
11/25/09 12:19:50	6.505			
11/25/09 12:20:00	6.508			
11/25/09 12:20:10	6.503			
11/25/09 12:20:20	6.503			
11/25/09 12:20:30	6.505			
11/25/09 12:20:40	6.508			
11/25/09 12:20:50	6.51			
11/25/09 12:21:00	6.515			
11/25/09 12:21:10	6.513			
11/25/09 12:21:20	6.517			
11/25/09 12:21:30	6.515			
11/25/09 12:21:40	6.517			
11/25/09 12:21:50	6.52			
11/25/09 12:22:00	6.517			
11/25/09 12:22:10	6.52			
11/25/09 12:22:20	6.524			
11/25/09 12:22:30	6.529			
11/25/09 12:22:40	6.527			
11/25/09 12:22:50	6.522			
11/25/09 12:23:00	6.529			
11/25/09 12:23:10	6.534			
11/25/09 12:23:20	6.531			
11/25/09 12:23:30	6.527			
11/25/09 12:23:40	6.536			
11/25/09 12:23:50	6.534			
11/25/09 12:24:00	6.541			
11/25/09 12:24:10	6.538			
11/25/09 12:24:20	6.543			
11/25/09 12:24:30	6.531			
11/25/09 12:24:40	6.538			
11/25/09 12:24:50	6.538			
11/25/09 12:25:00	6.543			
11/25/09 12:25:10	6.541			
11/25/09 12:25:20	6.545			
11/25/09 12:25:30	6.543			
11/25/09 12:25:40	6.543			
11/25/09 12:25:50	6.543			
11/25/09 12:26:00	6.55			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 12:26:10	6.543			
11/25/09 12:26:20	6.55			
11/25/09 12:26:30	6.552			
11/25/09 12:26:40	6.552			
11/25/09 12:26:50	6.555			
11/25/09 12:27:00	6.55			
11/25/09 12:27:10	6.555			
11/25/09 12:27:20	6.555			
11/25/09 12:27:30	6.555			
11/25/09 12:27:40	6.557			
11/25/09 12:27:50	6.555			
11/25/09 12:28:00	6.562			
11/25/09 12:28:10	6.562			
11/25/09 12:28:20	6.56			
11/25/09 12:28:30	6.562			
11/25/09 12:28:40	6.56			
11/25/09 12:28:50	6.564			
11/25/09 12:29:00	6.564			
11/25/09 12:29:10	6.562			
11/25/09 12:29:20	6.571			
11/25/09 12:29:30	6.564			
11/25/09 12:29:40	6.574			
11/25/09 12:29:50	6.578			
11/25/09 12:30:00	6.574			
11/25/09 12:30:10	6.571			
11/25/09 12:30:20	6.576			
11/25/09 12:30:30	6.576			
11/25/09 12:30:40	6.576			
11/25/09 12:30:50	6.578			
11/25/09 12:31:00	6.583			
11/25/09 12:31:10	6.576			
11/25/09 12:31:20	6.583			
11/25/09 12:31:30	6.583			
11/25/09 12:31:40	6.588			
11/25/09 12:31:50	6.581			
11/25/09 12:32:00	6.581			
11/25/09 12:32:10	6.588			
11/25/09 12:32:20	6.583			
11/25/09 12:32:30	6.585			
11/25/09 12:32:40	6.585			
11/25/09 12:32:50	6.59			
11/25/09 12:33:00	6.583			
11/25/09 12:33:10	6.595			
11/25/09 12:33:20	6.59			
11/25/09 12:33:30	6.581			
11/25/09 12:33:40	6.578			
11/25/09 12:33:50	6.583			
11/25/09 12:34:00	6.588			
11/25/09 12:34:10	6.592			
11/25/09 12:34:20	6.585			
11/25/09 12:34:30	6.588			
11/25/09 12:34:40	6.59			
11/25/09 12:34:50	6.59			
11/25/09 12:35:00	6.592			
11/25/09 12:35:10	6.592			
11/25/09 12:35:20	6.592			
11/25/09 12:35:30	6.592			
11/25/09 12:35:40	6.599			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 12:35:50	6.597			
11/25/09 12:36:00	6.595			
11/25/09 12:36:10	6.599			
11/25/09 12:36:20	6.599			
11/25/09 12:36:30	6.599			
11/25/09 12:36:40	6.602			
11/25/09 12:36:50	6.606			
11/25/09 12:37:00	6.606			
11/25/09 12:37:10	6.611			
11/25/09 12:37:20	6.611			
11/25/09 12:37:30	6.614			
11/25/09 12:37:40	6.606			
11/25/09 12:37:50	6.616			
11/25/09 12:38:00	6.616			
11/25/09 12:38:10	6.616			
11/25/09 12:38:20	6.616			
11/25/09 12:38:30	6.618			
11/25/09 12:38:40	6.621			
11/25/09 12:38:50	6.623			
11/25/09 12:39:00	6.621			
11/25/09 12:39:10	6.625			
11/25/09 12:39:20	6.625			
11/25/09 12:39:30	6.625			
11/25/09 12:39:40	6.625			
11/25/09 12:39:50	6.625			
11/25/09 12:40:00	6.628			
11/25/09 12:40:10	6.628			
11/25/09 12:40:20	6.637			
11/25/09 12:40:30	6.625			
11/25/09 12:40:40	6.63			
11/25/09 12:40:50	6.628			
11/25/09 12:41:00	6.628			
11/25/09 12:41:10	6.635			
11/25/09 12:41:20	6.632			
11/25/09 12:41:30	6.632			
11/25/09 12:41:40	6.637			
11/25/09 12:41:50	6.635			
11/25/09 12:42:00	6.642			
11/25/09 12:42:10	6.637			
11/25/09 12:42:20	6.635			
11/25/09 12:42:30	6.637			
11/25/09 12:42:40	6.639			
11/25/09 12:42:50	6.637			
11/25/09 12:43:00	6.639			
11/25/09 12:43:10	6.639			
11/25/09 12:43:20	6.642			
11/25/09 12:43:30	6.639			
11/25/09 12:43:40	6.642			
11/25/09 12:43:50	6.644			
11/25/09 12:44:00	6.644			
11/25/09 12:44:10	6.642			
11/25/09 12:44:20	6.644			
11/25/09 12:44:30	6.644			
11/25/09 12:44:40	6.649			
11/25/09 12:44:50	6.649			
11/25/09 12:45:00	6.649			
11/25/09 12:45:10	6.651			
11/25/09 12:45:20	6.644			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 12:45:30	6.651			
11/25/09 12:45:40	6.651			
11/25/09 12:45:50	6.649			
11/25/09 12:46:00	6.653			
11/25/09 12:46:10	6.649			
11/25/09 12:46:20	6.651			
11/25/09 12:46:30	6.656			
11/25/09 12:46:40	6.658			
11/25/09 12:46:50	6.653			
11/25/09 12:47:00	6.656			
11/25/09 12:47:10	6.658			
11/25/09 12:47:20	6.656			
11/25/09 12:47:30	6.658			
11/25/09 12:47:40	6.656			
11/25/09 12:47:50	6.663			
11/25/09 12:48:00	6.668			
11/25/09 12:48:10	6.661			
11/25/09 12:48:20	6.663			
11/25/09 12:48:30	6.663			
11/25/09 12:48:40	6.661			
11/25/09 12:48:50	6.663			
11/25/09 12:49:00	6.665			
11/25/09 12:49:10	6.663			
11/25/09 12:49:20	6.663			
11/25/09 12:49:30	6.663			
11/25/09 12:49:40	6.668			
11/25/09 12:49:50	6.665			
11/25/09 12:50:00	6.668			
11/25/09 12:50:10	6.67			
11/25/09 12:50:20	6.668			
11/25/09 12:50:30	6.665			
11/25/09 12:50:40	6.67			
11/25/09 12:50:50	6.672			
11/25/09 12:51:00	6.67			
11/25/09 12:51:10	6.672			
11/25/09 12:51:20	6.67			
11/25/09 12:51:30	6.675			
11/25/09 12:51:40	6.67			
11/25/09 12:51:50	6.67			
11/25/09 12:52:00	6.675			
11/25/09 12:52:10	6.675			
11/25/09 12:52:20	6.675			
11/25/09 12:52:30	6.672			
11/25/09 12:52:40	6.677			
11/25/09 12:52:50	6.675			
11/25/09 12:53:00	6.675			
11/25/09 12:53:10	6.672			
11/25/09 12:53:20	6.675			
11/25/09 12:53:30	6.675			
11/25/09 12:53:40	6.679			
11/25/09 12:53:50	6.679			
11/25/09 12:54:00	6.677			
11/25/09 12:54:10	6.682			
11/25/09 12:54:20	6.679			
11/25/09 12:54:30	6.686			
11/25/09 12:54:40	6.682			
11/25/09 12:54:50	6.679			
11/25/09 12:55:00	6.679			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 12:55:10	6.682			
11/25/09 12:55:20	6.682			
11/25/09 12:55:30	6.689			
11/25/09 12:55:40	6.684			
11/25/09 12:55:50	6.684			
11/25/09 12:56:00	6.686			
11/25/09 12:56:10	6.686			
11/25/09 12:56:20	6.684			
11/25/09 12:56:30	6.689			
11/25/09 12:56:40	6.686			
11/25/09 12:56:50	6.686			
11/25/09 12:57:00	6.691			
11/25/09 12:57:10	6.691			
11/25/09 12:57:20	6.691			
11/25/09 12:57:30	6.693			
11/25/09 12:57:40	6.691			
11/25/09 12:57:50	6.693			
11/25/09 12:58:00	6.691			
11/25/09 12:58:10	6.693			
11/25/09 12:58:20	6.693			
11/25/09 12:58:30	6.693			
11/25/09 12:58:40	6.693			
11/25/09 12:58:50	6.698			
11/25/09 12:59:00	6.693			
11/25/09 12:59:10	6.696			
11/25/09 12:59:20	6.696			
11/25/09 12:59:30	6.698			
11/25/09 12:59:40	6.696			
11/25/09 12:59:50	6.7			
11/25/09 13:00:00	6.698			
11/25/09 13:00:10	6.698			
11/25/09 13:00:20	6.7			
11/25/09 13:00:30	6.698			
11/25/09 13:00:40	6.703			
11/25/09 13:00:50	6.705			
11/25/09 13:01:00	6.698			
11/25/09 13:01:10	6.7			
11/25/09 13:01:20	6.7			
11/25/09 13:01:30	6.705			
11/25/09 13:01:40	6.703			
11/25/09 13:01:50	6.698			
11/25/09 13:02:00	6.705			
11/25/09 13:02:10	6.705			
11/25/09 13:02:20	6.703			
11/25/09 13:02:30	6.703			
11/25/09 13:02:40	6.703			
11/25/09 13:02:50	6.705			
11/25/09 13:03:00	6.705			
11/25/09 13:03:10	6.707			
11/25/09 13:03:20	6.71			
11/25/09 13:03:30	6.707			
11/25/09 13:03:40	6.705			
11/25/09 13:03:50	6.712			
11/25/09 13:04:00	6.712			
11/25/09 13:04:10	6.707			
11/25/09 13:04:20	6.712			
11/25/09 13:04:30	6.712			
11/25/09 13:04:40	6.715			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 13:04:50	6.71			
11/25/09 13:05:00	6.71			
11/25/09 13:05:10	6.708			
11/25/09 13:05:20	6.715			
11/25/09 13:05:30	6.715			
11/25/09 13:05:40	6.712			
11/25/09 13:05:50	6.712			
11/25/09 13:06:00	6.715			
11/25/09 13:06:10	6.717			
11/25/09 13:06:20	6.717			
11/25/09 13:06:30	6.712			
11/25/09 13:06:40	6.715			
11/25/09 13:06:50	6.717			
11/25/09 13:07:00	6.717			
11/25/09 13:07:10	6.715			
11/25/09 13:07:20	6.719			
11/25/09 13:07:30	6.719			
11/25/09 13:07:40	6.717			
11/25/09 13:07:50	6.719			
11/25/09 13:08:00	6.719			
11/25/09 13:08:10	6.719			
11/25/09 13:08:20	6.719			
11/25/09 13:08:30	6.724			
11/25/09 13:08:40	6.724			
11/25/09 13:08:50	6.724			
11/25/09 13:09:00	6.724			
11/25/09 13:09:10	6.722			
11/25/09 13:09:20	6.726			
11/25/09 13:09:30	6.726			
11/25/09 13:09:40	6.724			
11/25/09 13:09:50	6.726			
11/25/09 13:10:00	6.722			
11/25/09 13:10:10	6.724			
11/25/09 13:10:20	6.726			
11/25/09 13:10:30	6.731			
11/25/09 13:10:40	6.726			
11/25/09 13:10:50	6.726			
11/25/09 13:11:00	6.726			
11/25/09 13:11:10	6.724			
11/25/09 13:11:20	6.726			
11/25/09 13:11:30	6.731			
11/25/09 13:11:40	6.729			
11/25/09 13:11:50	6.731			
11/25/09 13:12:00	6.731			
11/25/09 13:12:10	6.729			
11/25/09 13:12:20	6.738			
11/25/09 13:12:30	6.731			
11/25/09 13:12:40	6.729			
11/25/09 13:12:50	6.733			
11/25/09 13:13:00	6.731			
11/25/09 13:13:10	6.731			
11/25/09 13:13:20	6.733			
11/25/09 13:13:30	6.733			
11/25/09 13:13:40	6.733			
11/25/09 13:13:50	6.733			
11/25/09 13:14:00	6.733			
11/25/09 13:14:10	6.733			
11/25/09 13:14:20	6.733			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 13:14:30	6.736			
11/25/09 13:14:40	6.738			
11/25/09 13:14:50	6.736			
11/25/09 13:15:00	6.736			
11/25/09 13:15:10	6.738			
11/25/09 13:15:20	6.738			
11/25/09 13:15:30	6.736			
11/25/09 13:15:40	6.74			
11/25/09 13:15:50	6.74			
11/25/09 13:16:00	6.74			
11/25/09 13:16:10	6.738			
11/25/09 13:16:20	6.745			
11/25/09 13:16:30	6.733			
11/25/09 13:16:40	6.743			
11/25/09 13:16:50	6.738			
11/25/09 13:17:00	6.74			
11/25/09 13:17:10	6.743			
11/25/09 13:17:20	6.747			
11/25/09 13:17:30	6.745			
11/25/09 13:17:40	6.745			
11/25/09 13:17:50	6.743			
11/25/09 13:18:00	6.743			
11/25/09 13:18:10	6.745			
11/25/09 13:18:20	6.745			
11/25/09 13:18:30	6.743			
11/25/09 13:18:40	6.745			
11/25/09 13:18:50	6.745			
11/25/09 13:19:00	6.747			
11/25/09 13:19:10	6.743			
11/25/09 13:19:20	6.75			
11/25/09 13:19:30	6.757			
11/25/09 13:19:40	6.747			
11/25/09 13:19:50	6.747			
11/25/09 13:20:00	6.754			
11/25/09 13:20:10	6.747			
11/25/09 13:20:20	6.75			
11/25/09 13:20:30	6.75			
11/25/09 13:20:40	6.752			
11/25/09 13:20:50	6.747			
11/25/09 13:21:00	6.75			
11/25/09 13:21:10	6.752			
11/25/09 13:21:20	6.752			
11/25/09 13:21:30	6.757			
11/25/09 13:21:40	6.75			
11/25/09 13:21:50	6.752			
11/25/09 13:22:00	6.752			
11/25/09 13:22:10	6.75			
11/25/09 13:22:20	6.754			
11/25/09 13:22:30	6.752			
11/25/09 13:22:40	6.754			
11/25/09 13:22:50	6.754			
11/25/09 13:23:00	6.757			
11/25/09 13:23:10	6.754			
11/25/09 13:23:20	6.755			
11/25/09 13:23:30	6.754			
11/25/09 13:23:40	6.752			
11/25/09 13:23:50	6.755			
11/25/09 13:24:00	6.757			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 13:24:10	6.757			
11/25/09 13:24:20	6.752			
11/25/09 13:24:30	6.757			
11/25/09 13:24:40	6.757			
11/25/09 13:24:50	6.757			
11/25/09 13:25:00	6.759			
11/25/09 13:25:10	6.759			
11/25/09 13:25:20	6.757			
11/25/09 13:25:30	6.759			
11/25/09 13:25:40	6.759			
11/25/09 13:25:50	6.759			
11/25/09 13:26:00	6.757			
11/25/09 13:26:10	6.762			
11/25/09 13:26:20	6.757			
11/25/09 13:26:30	6.762			
11/25/09 13:26:40	6.764			
11/25/09 13:26:50	6.759			
11/25/09 13:27:00	6.762			
11/25/09 13:27:10	6.764			
11/25/09 13:27:20	6.769			
11/25/09 13:27:30	6.764			
11/25/09 13:27:40	6.764			
11/25/09 13:27:50	6.764			
11/25/09 13:28:00	6.764			
11/25/09 13:28:10	6.764			
11/25/09 13:28:20	6.766			
11/25/09 13:28:30	6.766			
11/25/09 13:28:40	6.766			
11/25/09 13:28:50	6.766			
11/25/09 13:29:00	6.766			
11/25/09 13:29:10	6.766			
11/25/09 13:29:20	6.766			
11/25/09 13:29:30	6.766			
11/25/09 13:29:40	6.764			
11/25/09 13:29:50	6.771			
11/25/09 13:30:00	6.769			
11/25/09 13:30:10	6.773			
11/25/09 13:30:20	6.769			
11/25/09 13:30:30	6.773			
11/25/09 13:30:40	6.769			
11/25/09 13:30:50	6.771			
11/25/09 13:31:00	6.766			
11/25/09 13:31:10	6.769			
11/25/09 13:31:20	6.769			
11/25/09 13:31:30	6.773			
11/25/09 13:31:40	6.769			
11/25/09 13:31:50	6.771			
11/25/09 13:32:00	6.773			
11/25/09 13:32:10	6.771			
11/25/09 13:32:20	6.773			
11/25/09 13:32:30	6.773			
11/25/09 13:32:40	6.771			
11/25/09 13:32:50	6.773			
11/25/09 13:33:00	6.778			
11/25/09 13:33:10	6.771			
11/25/09 13:33:20	6.773			
11/25/09 13:33:30	6.773			
11/25/09 13:33:40	6.776			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 13:33:50	6.776			
11/25/09 13:34:00	6.773			
11/25/09 13:34:10	6.773			
11/25/09 13:34:20	6.773			
11/25/09 13:34:30	6.776			
11/25/09 13:34:40	6.78			
11/25/09 13:34:50	6.776			
11/25/09 13:35:00	6.773			
11/25/09 13:35:10	6.776			
11/25/09 13:35:20	6.778			
11/25/09 13:35:30	6.778			
11/25/09 13:35:40	6.778			
11/25/09 13:35:50	6.778			
11/25/09 13:36:00	6.783			
11/25/09 13:36:10	6.778			
11/25/09 13:36:20	6.783			
11/25/09 13:36:30	6.778			
11/25/09 13:36:40	6.778			
11/25/09 13:36:50	6.778			
11/25/09 13:37:00	6.78			
11/25/09 13:37:10	6.776			
11/25/09 13:37:20	6.78			
11/25/09 13:37:30	6.783			
11/25/09 13:37:40	6.783			
11/25/09 13:37:50	6.78			
11/25/09 13:38:00	6.78			
11/25/09 13:38:10	6.78			
11/25/09 13:38:20	6.783			
11/25/09 13:38:30	6.785			
11/25/09 13:38:40	6.783			
11/25/09 13:38:50	6.78			
11/25/09 13:39:00	6.785			
11/25/09 13:39:10	6.78			
11/25/09 13:39:20	6.78			
11/25/09 13:39:30	6.783			
11/25/09 13:39:40	6.787			
11/25/09 13:39:50	6.785			
11/25/09 13:40:00	6.778			
11/25/09 13:40:10	6.787			
11/25/09 13:40:20	6.787			
11/25/09 13:40:30	6.79			
11/25/09 13:40:40	6.785			
11/25/09 13:40:50	6.785			
11/25/09 13:41:00	6.792			
11/25/09 13:41:10	6.787			
11/25/09 13:41:20	6.787			
11/25/09 13:41:30	6.787			
11/25/09 13:41:40	6.787			
11/25/09 13:41:50	6.785			
11/25/09 13:42:00	6.79			
11/25/09 13:42:10	6.787			
11/25/09 13:42:20	6.787			
11/25/09 13:42:30	6.792			
11/25/09 13:42:40	6.792			
11/25/09 13:42:50	6.792			
11/25/09 13:43:00	6.787			
11/25/09 13:43:10	6.797			
11/25/09 13:43:20	6.79			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 13:43:30	6.79			
11/25/09 13:43:40	6.792			
11/25/09 13:43:50	6.792			
11/25/09 13:44:00	6.792			
11/25/09 13:44:10	6.797			
11/25/09 13:44:20	6.794			
11/25/09 13:44:30	6.79			
11/25/09 13:44:40	6.794			
11/25/09 13:44:50	6.794			
11/25/09 13:45:00	6.797			
11/25/09 13:45:10	6.794			
11/25/09 13:45:20	6.797			
11/25/09 13:45:30	6.794			
11/25/09 13:45:40	6.797			
11/25/09 13:45:50	6.799			
11/25/09 13:46:00	6.799			
11/25/09 13:46:10	6.799			
11/25/09 13:46:20	6.797			
11/25/09 13:46:30	6.797			
11/25/09 13:46:40	6.794			
11/25/09 13:46:50	6.799			
11/25/09 13:47:00	6.799			
11/25/09 13:47:10	6.794			
11/25/09 13:47:20	6.794			
11/25/09 13:47:30	6.797			
11/25/09 13:47:40	6.801			
11/25/09 13:47:50	6.797			
11/25/09 13:48:00	6.799			
11/25/09 13:48:10	6.801			
11/25/09 13:48:20	6.797			
11/25/09 13:48:30	6.801			
11/25/09 13:48:40	6.799			
11/25/09 13:48:50	6.797			
11/25/09 13:49:00	6.799			
11/25/09 13:49:10	6.802			
11/25/09 13:49:20	6.801			
11/25/09 13:49:30	6.802			
11/25/09 13:49:40	6.799			
11/25/09 13:49:50	6.799			
11/25/09 13:50:00	6.799			
11/25/09 13:50:10	6.799			
11/25/09 13:50:20	6.802			
11/25/09 13:50:30	6.799			
11/25/09 13:50:40	6.799			
11/25/09 13:50:50	6.806			
11/25/09 13:51:00	6.802			
11/25/09 13:51:10	6.806			
11/25/09 13:51:20	6.806			
11/25/09 13:51:30	6.804			
11/25/09 13:51:40	6.804			
11/25/09 13:51:50	6.804			
11/25/09 13:52:00	6.804			
11/25/09 13:52:10	6.806			
11/25/09 13:52:20	6.802			
11/25/09 13:52:30	6.801			
11/25/09 13:52:40	6.804			
11/25/09 13:52:50	6.806			
11/25/09 13:53:00	6.804			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 13:53:10	6.802			
11/25/09 13:53:20	6.804			
11/25/09 13:53:30	6.806			
11/25/09 13:53:40	6.809			
11/25/09 13:53:50	6.804			
11/25/09 13:54:00	6.804			
11/25/09 13:54:10	6.806			
11/25/09 13:54:20	6.809			
11/25/09 13:54:30	6.811			
11/25/09 13:54:40	6.806			
11/25/09 13:54:50	6.806			
11/25/09 13:55:00	6.811			
11/25/09 13:55:10	6.811			
11/25/09 13:55:20	6.811			
11/25/09 13:55:30	6.804			
11/25/09 13:55:40	6.809			
11/25/09 13:55:50	6.811			
11/25/09 13:56:00	6.811			
11/25/09 13:56:10	6.809			
11/25/09 13:56:20	6.813			
11/25/09 13:56:30	6.809			
11/25/09 13:56:40	6.811			
11/25/09 13:56:50	6.806			
11/25/09 13:57:00	6.809			
11/25/09 13:57:10	6.811			
11/25/09 13:57:20	6.813			
11/25/09 13:57:30	6.811			
11/25/09 13:57:40	6.813			
11/25/09 13:57:50	6.811			
11/25/09 13:58:00	6.809			
11/25/09 13:58:10	6.813			
11/25/09 13:58:20	6.813			
11/25/09 13:58:30	6.813			
11/25/09 13:58:40	6.816			
11/25/09 13:58:50	6.811			
11/25/09 13:59:00	6.813			
11/25/09 13:59:10	6.816			
11/25/09 13:59:20	6.813			
11/25/09 13:59:30	6.818			
11/25/09 13:59:40	6.816			
11/25/09 13:59:50	6.813			
11/25/09 14:00:00	6.818			
11/25/09 14:00:10	6.816			
11/25/09 14:00:20	6.823			
11/25/09 14:00:30	6.816			
11/25/09 14:00:40	6.816			
11/25/09 14:00:50	6.816			
11/25/09 14:01:00	6.816			
11/25/09 14:01:10	6.82			
11/25/09 14:01:20	6.816			
11/25/09 14:01:30	6.82			
11/25/09 14:01:40	6.818			
11/25/09 14:01:50	6.816			
11/25/09 14:02:00	6.818			
11/25/09 14:02:10	6.816			
11/25/09 14:02:20	6.818			
11/25/09 14:02:30	6.818			
11/25/09 14:02:40	6.82			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 14:02:50	6.818			
11/25/09 14:03:00	6.818			
11/25/09 14:03:10	6.818			
11/25/09 14:03:20	6.823			
11/25/09 14:03:30	6.813			
11/25/09 14:03:40	6.82			
11/25/09 14:03:50	6.818			
11/25/09 14:04:00	6.818			
11/25/09 14:04:10	6.818			
11/25/09 14:04:20	6.818			
11/25/09 14:04:30	6.823			
11/25/09 14:04:40	6.823			
11/25/09 14:04:50	6.82			
11/25/09 14:05:00	6.82			
11/25/09 14:05:10	6.818			
11/25/09 14:05:20	6.82			
11/25/09 14:05:30	6.82			
11/25/09 14:05:40	6.823			
11/25/09 14:05:50	6.82			
11/25/09 14:06:00	6.823			
11/25/09 14:06:10	6.82			
11/25/09 14:06:20	6.823			
11/25/09 14:06:30	6.823			
11/25/09 14:06:40	6.823			
11/25/09 14:06:50	6.83			
11/25/09 14:07:00	6.823			
11/25/09 14:07:10	6.825			
11/25/09 14:07:20	6.825			
11/25/09 14:07:30	6.823			
11/25/09 14:07:40	6.825			
11/25/09 14:07:50	6.825			
11/25/09 14:08:00	6.823			
11/25/09 14:08:10	6.823			
11/25/09 14:08:20	6.825			
11/25/09 14:08:30	6.825			
11/25/09 14:08:40	6.827			
11/25/09 14:08:50	6.823			
11/25/09 14:09:00	6.827			
11/25/09 14:09:10	6.827			
11/25/09 14:09:20	6.827			
11/25/09 14:09:30	6.825			
11/25/09 14:09:40	6.827			
11/25/09 14:09:50	6.827			
11/25/09 14:10:00	6.83			
11/25/09 14:10:10	6.83			
11/25/09 14:10:20	6.83			
11/25/09 14:10:30	6.827			
11/25/09 14:10:40	6.827			
11/25/09 14:10:50	6.827			
11/25/09 14:11:00	6.827			
11/25/09 14:11:10	6.827			
11/25/09 14:11:20	6.832			
11/25/09 14:11:30	6.827			
11/25/09 14:11:40	6.83			
11/25/09 14:11:50	6.83			
11/25/09 14:12:00	6.83			
11/25/09 14:12:10	6.83			
11/25/09 14:12:20	6.83			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 14:12:30	6.83			
11/25/09 14:12:40	6.83			
11/25/09 14:12:50	6.827			
11/25/09 14:13:00	6.832			
11/25/09 14:13:10	6.83			
11/25/09 14:13:20	6.827			
11/25/09 14:13:30	6.827			
11/25/09 14:13:40	6.832			
11/25/09 14:13:50	6.83			
11/25/09 14:14:00	6.83			
11/25/09 14:14:10	6.827			
11/25/09 14:14:20	6.825			
11/25/09 14:14:30	6.832			
11/25/09 14:14:40	6.83			
11/25/09 14:14:50	6.832			
11/25/09 14:15:00	6.832			
11/25/09 14:15:10	6.832			
11/25/09 14:15:20	6.825			
11/25/09 14:15:30	6.832			
11/25/09 14:15:40	6.832			
11/25/09 14:15:50	6.832			
11/25/09 14:16:00	6.832			
11/25/09 14:16:10	6.832			
11/25/09 14:16:20	6.827			
11/25/09 14:16:30	6.834			
11/25/09 14:16:40	6.832			
11/25/09 14:16:50	6.832			
11/25/09 14:17:00	6.834			
11/25/09 14:17:10	6.837			
11/25/09 14:17:20	6.832			
11/25/09 14:17:30	6.834			
11/25/09 14:17:40	6.832			
11/25/09 14:17:50	6.834			
11/25/09 14:18:00	6.83			
11/25/09 14:18:10	6.837			
11/25/09 14:18:20	6.834			
11/25/09 14:18:30	6.834			
11/25/09 14:18:40	6.832			
11/25/09 14:18:50	6.834			
11/25/09 14:19:00	6.837			
11/25/09 14:19:10	6.837			
11/25/09 14:19:20	6.834			
11/25/09 14:19:30	6.837			
11/25/09 14:19:40	6.834			
11/25/09 14:19:50	6.834			
11/25/09 14:20:00	6.837			
11/25/09 14:20:10	6.834			
11/25/09 14:20:20	6.834			
11/25/09 14:20:30	6.839			
11/25/09 14:20:40	6.83			
11/25/09 14:20:50	6.837			
11/25/09 14:21:00	6.837			
11/25/09 14:21:10	6.834			
11/25/09 14:21:20	6.834			
11/25/09 14:21:30	6.837			
11/25/09 14:21:40	6.837			
11/25/09 14:21:50	6.837			
11/25/09 14:22:00	6.837			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 14:22:10	6.839			
11/25/09 14:22:20	6.837			
11/25/09 14:22:30	6.839			
11/25/09 14:22:40	6.837			
11/25/09 14:22:50	6.837			
11/25/09 14:23:00	6.837			
11/25/09 14:23:10	6.832			
11/25/09 14:23:20	6.834			
11/25/09 14:23:30	6.841			
11/25/09 14:23:40	6.839			
11/25/09 14:23:50	6.839			
11/25/09 14:24:00	6.837			
11/25/09 14:24:10	6.839			
11/25/09 14:24:20	6.837			
11/25/09 14:24:30	6.841			
11/25/09 14:24:40	6.839			
11/25/09 14:24:50	6.837			
11/25/09 14:25:00	6.839			
11/25/09 14:25:10	6.839			
11/25/09 14:25:20	6.839			
11/25/09 14:25:30	6.841			
11/25/09 14:25:40	6.837			
11/25/09 14:25:50	6.841			
11/25/09 14:26:00	6.839			
11/25/09 14:26:10	6.841			
11/25/09 14:26:20	6.841			
11/25/09 14:26:30	6.841			
11/25/09 14:26:40	6.841			
11/25/09 14:26:50	6.839			
11/25/09 14:27:00	6.837			
11/25/09 14:27:10	6.844			
11/25/09 14:27:20	6.839			
11/25/09 14:27:30	6.844			
11/25/09 14:27:40	6.846			
11/25/09 14:27:50	6.848			
11/25/09 14:28:00	6.841			
11/25/09 14:28:10	6.837			
11/25/09 14:28:20	6.841			
11/25/09 14:28:30	6.837			
11/25/09 14:28:40	6.844			
11/25/09 14:28:50	6.839			
11/25/09 14:29:00	6.841			
11/25/09 14:29:10	6.841			
11/25/09 14:29:20	6.846			
11/25/09 14:29:30	6.846			
11/25/09 14:29:40	6.844			
11/25/09 14:29:50	6.841			
11/25/09 14:30:00	6.841			
11/25/09 14:30:10	6.841			
11/25/09 14:30:20	6.841			
11/25/09 14:30:30	6.841			
11/25/09 14:30:40	6.844			
11/25/09 14:30:50	6.848			
11/25/09 14:31:00	6.841			
11/25/09 14:31:10	6.841			
11/25/09 14:31:20	6.846			
11/25/09 14:31:30	6.844			
11/25/09 14:31:40	6.848			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 14:31:50	6.844			
11/25/09 14:32:00	6.846			
11/25/09 14:32:10	6.846			
11/25/09 14:32:20	6.841			
11/25/09 14:32:30	6.839			
11/25/09 14:32:40	6.841			
11/25/09 14:32:50	6.851			
11/25/09 14:33:00	6.846			
11/25/09 14:33:10	6.846			
11/25/09 14:33:20	6.846			
11/25/09 14:33:30	6.841			
11/25/09 14:33:40	6.848			
11/25/09 14:33:50	6.844			
11/25/09 14:34:00	6.844			
11/25/09 14:34:10	6.844			
11/25/09 14:34:20	6.844			
11/25/09 14:34:30	6.851			
11/25/09 14:34:40	6.846			
11/25/09 14:34:50	6.851			
11/25/09 14:35:00	6.846			
11/25/09 14:35:10	6.851			
11/25/09 14:35:20	6.846			
11/25/09 14:35:30	6.846			
11/25/09 14:35:40	6.846			
11/25/09 14:35:50	6.846			
11/25/09 14:36:00	6.851			
11/25/09 14:36:10	6.844			
11/25/09 14:36:20	6.841			
11/25/09 14:36:30	6.844			
11/25/09 14:36:40	6.848			
11/25/09 14:36:50	6.848			
11/25/09 14:37:00	6.844			
11/25/09 14:37:10	6.846			
11/25/09 14:37:20	6.846			
11/25/09 14:37:30	6.844			
11/25/09 14:37:40	6.844			
11/25/09 14:37:50	6.851			
11/25/09 14:38:00	6.848			
11/25/09 14:38:10	6.848			
11/25/09 14:38:20	6.844			
11/25/09 14:38:30	6.846			
11/25/09 14:38:40	6.846			
11/25/09 14:38:50	6.846			
11/25/09 14:39:00	6.848			
11/25/09 14:39:10	6.848			
11/25/09 14:39:20	6.848			
11/25/09 14:39:30	6.851			
11/25/09 14:39:40	6.846			
11/25/09 14:39:50	6.846			
11/25/09 14:40:00	6.846			
11/25/09 14:40:10	6.844			
11/25/09 14:40:20	6.844			
11/25/09 14:40:30	6.844			
11/25/09 14:40:40	6.846			
11/25/09 14:40:50	6.848			
11/25/09 14:41:00	6.848			
11/25/09 14:41:10	6.841			
11/25/09 14:41:20	6.846			

Date/Time	Water Level ft above sensor	Water Level ft below TOC	Flow Rate Timed	Notes
11/25/09 14:41:30	6.851			
11/25/09 14:41:40	6.851			
11/25/09 14:41:50	6.848			
11/25/09 14:42:00	6.846			
11/25/09 14:42:10	6.848			
11/25/09 14:42:20	6.846			
11/25/09 14:42:30	6.851			
11/25/09 14:42:40	6.851			
11/25/09 14:42:50	6.848			
11/25/09 14:43:00	6.848			
11/25/09 14:43:10	6.851			
11/25/09 14:43:20	6.848			
11/25/09 14:43:30	6.851			
11/25/09 14:43:40	6.851			
11/25/09 14:43:50	6.848			
11/25/09 14:44:00	6.851			
11/25/09 14:44:10	6.851			
11/25/09 14:44:20	6.856			
11/25/09 14:44:30	6.848			
11/25/09 14:44:40	6.848			
11/25/09 14:44:50	6.851			
11/25/09 14:45:00	6.848			
11/25/09 14:45:10	6.853			
11/25/09 14:45:20	6.853			
11/25/09 14:45:30	6.853			
11/25/09 14:45:40	6.851			
11/25/09 14:45:50	6.846			
11/25/09 14:46:00	6.853			
11/25/09 14:46:10	6.856			
11/25/09 14:46:20	6.851			
11/25/09 14:46:30	6.856			
11/25/09 14:46:40	6.853			
11/25/09 14:46:50	6.853			
11/25/09 14:47:00	6.855			
11/25/09 14:47:10	6.855			
11/25/09 14:47:20	6.853			
11/25/09 14:47:30	6.851			

Table A.4 Summary of water level measurements recorded in monitoring wells during the step testing program

	Water Level, ft Above Pressure Sensor													
Date/Time	**MW01**	**MW02**	**MW04**	**MW05**	**MW07**	**MW09**	**MW10**	**MW11**	**MW12**	**MW13**	**MW18**	**MW19**	**MW20**	**MW34**
11/23/09 15:00	10.249	8.855	8.873	4.598	8.438		7.513		13.191	4.176	7.867	4.906	5.822	
11/23/09 15:05	10.252	8.852	8.873	4.595	8.435		7.511		13.196	4.176	7.869	4.906	5.822	
11/23/09 15:10	10.249	8.855	8.871	4.598	8.438		7.509		13.201	4.178	7.867	4.909	5.822	
11/23/09 15:15	10.249	8.855	8.878	4.598	8.438		7.509		13.203	4.181	7.869	4.909	5.822	
11/23/09 15:20	10.247	8.852	8.878	4.6	8.438		7.504		13.205	4.183	7.871	4.909	5.822	
11/23/09 15:25	10.247	8.855	8.878	4.6	8.44		7.502		13.208	4.185	7.869	4.909	5.822	
11/23/09 15:30	10.245	8.852	8.875	4.6	8.44		7.499	2.413	13.215	4.19	7.867	4.909	5.822	
11/23/09 15:35	10.242	8.852	8.88	4.6	8.44		7.497	2.413	13.217	4.19	7.862	4.909	5.822	
11/23/09 15:40	10.24	8.852	8.88	4.602	8.44		7.495	2.41	13.219	4.195	7.864	4.909	5.822	8.53
11/23/09 15:45	10.24	8.85	8.88	4.605	8.438		7.495	2.41	13.219	4.195	7.862	4.909	5.822	8.527
11/23/09 15:50	10.237	8.85	8.878	4.605	8.44		7.492	2.41	13.224	4.197	7.86	4.909	5.822	8.53
11/23/09 15:55	10.237	8.85	8.878	4.605	8.44		7.492	2.408	13.227	4.197	7.857	4.909	5.822	8.527
11/23/09 16:00	10.235	8.85	8.878	4.605	8.44		7.487	2.408	13.229	4.2	7.857	4.909	5.822	8.527
11/23/09 16:05	10.235	8.85	8.88	4.605	8.442		7.49	2.408	13.231	4.2	7.855	4.909	5.822	8.527
11/23/09 16:10	10.233	8.848	8.883	4.607	8.438		7.485	2.406	13.234	4.204	7.855	4.909	5.825	8.525
11/23/09 16:15	10.233	8.848	8.88	4.607	8.438		7.483	2.406	13.236	4.207	7.853	4.909	5.822	8.525
11/23/09 16:20	10.233	8.845	8.873	4.61	8.44		7.487	2.408	13.234	4.202	7.855	4.909	5.822	8.525
11/23/09 16:25	10.233	8.848	8.883	4.607	8.442		7.487	2.403	13.238	4.204	7.855	4.911	5.825	8.527
11/23/09 16:30	10.233	8.845	8.88	4.607	8.44		7.485	2.408	13.236	4.204	7.853	4.911	5.822	8.525
11/23/09 16:35	10.233	8.845	8.883	4.61	8.44		7.487	2.406	13.238	4.204	7.853	4.911	5.822	8.523
11/23/09 16:40	10.233	8.843	8.878	4.61	8.44		7.49	2.406	13.238	4.204	7.855	4.913	5.825	8.523
11/23/09 16:45	10.233	8.845	8.88	4.61	8.44		7.487	2.408	13.238	4.204	7.857	4.911	5.825	8.523
11/23/09 16:50	10.235	8.845	8.878	4.612	8.442		7.487	2.406	13.236	4.204	7.857	4.911	5.825	8.523
11/23/09 16:55	10.235	8.845	8.875	4.61	8.438		7.487	2.406	13.241	4.204	7.855	4.911	5.822	8.525
11/23/09 17:00	10.233	8.845	8.885	4.61	8.438		7.485	2.406	13.241	4.207	7.857	4.913	5.825	8.523
11/23/09 17:05	10.233	8.845	8.88	4.61	8.438		7.485	2.406	13.245	4.209	7.857	4.911	5.825	8.523
11/23/09 17:10	10.233	8.843	8.878	4.612	8.44		7.485	2.408	13.241	4.209	7.855	4.911	5.825	8.523
11/23/09 17:15	10.233	8.843	8.89	4.61	8.438		7.487	2.408	13.243	4.207	7.857	4.911	5.825	8.525
11/23/09 17:20	10.233	8.845	8.88	4.61	8.44		7.487	2.408	13.243	4.209	7.855	4.911	5.825	8.523
11/23/09 17:25	10.233	8.845	8.878	4.612	8.438		7.485	2.406	13.245	4.209	7.855	4.913	5.825	8.523
11/23/09 17:30	10.23	8.843	8.888	4.612	8.442		7.485	2.406	13.248	4.211	7.855	4.911	5.825	8.523
11/23/09 17:35	10.233	8.843	8.883	4.612	8.438		7.483	2.406	13.248	4.214	7.853	4.913	5.825	8.523
11/23/09 17:40	10.23	8.845	8.885	4.612	8.44		7.485	2.406	13.252	4.214	7.855	4.911	5.825	8.523
11/23/09 17:45	10.23	8.843	8.885	4.612	8.44		7.483	2.406	13.25	4.214	7.855	4.913	5.825	8.523
11/23/09 17:50	10.228	8.843	8.885	4.614	8.44		7.48	2.403	13.255	4.218	7.853	4.913	5.825	8.52
11/23/09 17:55	10.228	8.843	8.885	4.614	8.435		7.478	2.403	13.255	4.221	7.853	4.913	5.825	8.52
11/23/09 18:00	10.226	8.841	8.885	4.617	8.438		7.478	2.401	13.255	4.221	7.85	4.913	5.825	8.518
11/23/09 18:05	10.223	8.845	8.888	4.614	8.438		7.478	2.401	13.262	4.223	7.853	4.913	5.825	8.52
11/23/09 18:10	10.223	8.843	8.885	4.617	8.44		7.473	2.401	13.262	4.223	7.848	4.913	5.827	8.52
11/23/09 18:15	10.223	8.841	8.89	4.617	8.44		7.473	2.399	13.264	4.228	7.848	4.913	5.825	8.518
11/23/09 18:20	10.218	8.843	8.887	4.619	8.438		7.471	2.399	13.269	4.23	7.848	4.913	5.825	8.516
11/23/09 18:25	10.216	8.843	8.892	4.619	8.435		7.466	2.396	13.273	4.232	7.846	4.913	5.825	8.516
11/23/09 18:30	10.214	8.843	8.892	4.622	8.435		7.462	2.394	13.276	4.237	7.841	4.913	5.825	8.513

	Water Level, ft Above Pressure Sensor													
Date/Time	**MW01**	**MW02**	**MW04**	**MW05**	**MW07**	**MW09**	**MW10**	**MW11**	**MW12**	**MW13**	**MW18**	**MW19**	**MW20**	**MW34**
11/23/09 18:35	10.209	8.843	8.892	4.619	8.435		7.459	2.394	13.278	4.237	7.843	4.913	5.825	8.513
11/23/09 18:40	10.209	8.841	8.885	4.619	8.433		7.457	2.389	13.281	4.239	7.839	4.913	5.822	8.511
11/23/09 18:45	10.209	8.841	8.887	4.622	8.433		7.457	2.392	13.281	4.239	7.839	4.916	5.825	8.509
11/23/09 18:50	10.206	8.841	8.883	4.622	8.433		7.455	2.389	13.278	4.239	7.839	4.916	5.825	8.509
11/23/09 18:55	10.204	8.841	8.89	4.624	8.433		7.455	2.389	13.283	4.239	7.834	4.916	5.825	8.509
11/23/09 19:00	10.204	8.838	8.885	4.624	8.431		7.452	2.387	13.283	4.239	7.839	4.916	5.825	8.509
11/23/09 19:05	10.202	8.841	8.888	4.624	8.431		7.452	2.387	13.285	4.242	7.834	4.916	5.822	8.506
11/23/09 19:10	10.202	8.841	8.885	4.622	8.428		7.452	2.387	13.283	4.239	7.836	4.916	5.822	8.506
11/23/09 19:15	10.202	8.841	8.878	4.624	8.426		7.452	2.392	13.283	4.239	7.834	4.916	5.825	8.504
11/23/09 19:20	10.202	8.841	8.883	4.622	8.426		7.455	2.389	13.278	4.237	7.834	4.916	5.822	8.506
11/23/09 19:25	10.206	8.838	8.883	4.622	8.431		7.459	2.394	13.276	4.232	7.836	4.916	5.822	8.506
11/23/09 19:30	10.206	8.841	8.878	4.622	8.428		7.462	2.396	13.273	4.23	7.841	4.916	5.825	8.506
11/23/09 19:35	10.211	8.838	8.875	4.619	8.428		7.466	2.396	13.271	4.228	7.841	4.916	5.822	8.506
11/23/09 19:40	10.211	8.838	8.873	4.622	8.426		7.471	2.399	13.266	4.223	7.843	4.913	5.825	8.506
11/23/09 19:45	10.216	8.838	8.878	4.619	8.428		7.473	2.399	13.262	4.221	7.846	4.918	5.825	8.506
11/23/09 19:50	10.221	8.838	8.873	4.617	8.431		7.48	2.403	13.255	4.218	7.848	4.916	5.822	8.511
11/23/09 19:55	10.226	8.838	8.878	4.614	8.431		7.483	2.406	13.257	4.214	7.853	4.918	5.825	8.511
11/23/09 20:00	10.226	8.838	8.883	4.614	8.431		7.485	2.403	13.255	4.216	7.853	4.918	5.825	8.511
11/23/09 20:05	10.228	8.838	8.883	4.617	8.431		7.483	2.403	13.259	4.216	7.855	4.918	5.827	8.509
11/23/09 20:10	10.226	8.838	8.885	4.614	8.431		7.476	2.403	13.259	4.218	7.855	4.918	5.825	8.511
11/23/09 20:15	10.225	8.838	8.88	4.617	8.431		7.48	2.406	13.259	4.218	7.853	4.918	5.825	8.513
11/23/09 20:20	10.228	8.836	8.885	4.614	8.431		7.485	2.406	13.257	4.216	7.857	4.918	5.825	8.511
11/23/09 20:25	10.23	8.838	8.875	4.614	8.431		7.487	2.408	13.252	4.214	7.857	4.918	5.825	8.511
11/23/09 20:30	10.23	8.841	8.885	4.614	8.433		7.485	2.406	13.257	4.216	7.857	4.92	5.827	8.513
11/23/09 20:35	10.23	8.841	8.883	4.612	8.435		7.483	2.406	13.257	4.218	7.86	4.92	5.827	8.513
11/23/09 20:40	10.23	8.838	8.888	4.614	8.431		7.487	2.408	13.257	4.218	7.857	4.918	5.827	8.516
11/23/09 20:45	10.233	8.838	8.88	4.614	8.433		7.487	2.408	13.257	4.216	7.86	4.92	5.827	8.516
11/23/09 20:50	10.233	8.841	8.883	4.617	8.433		7.49	2.408	13.259	4.216	7.86	4.92	5.827	8.516
11/23/09 20:55	10.233	8.838	8.88	4.614	8.431		7.49	2.408	13.257	4.216	7.857	4.92	5.827	8.516
11/23/09 21:00	10.233	8.838	8.888	4.614	8.428		7.485	2.408	13.259	4.218	7.862	4.92	5.827	8.516
11/23/09 21:05	10.23	8.836	8.885	4.614	8.435		7.485	2.406	13.262	4.218	7.86	4.918	5.827	8.518
11/23/09 21:10	10.23	8.838	8.883	4.617	8.435		7.485	2.406	13.266	4.218	7.857	4.92	5.827	8.516
11/23/09 21:15	10.23	8.838	8.888	4.614	8.433		7.483	2.403	13.264	4.223	7.857	4.923	5.827	8.516
11/23/09 21:20	10.23	8.838	8.888	4.617	8.428		7.483	2.41	13.264	4.221	7.855	4.92	5.829	8.516
11/23/09 21:25	10.23	8.836	8.883	4.617	8.435		7.485	2.408	13.266	4.218	7.86	4.92	5.827	8.518
11/23/09 21:30	10.233	8.838	8.885	4.617	8.435		7.485	2.41	13.262	4.218	7.86	4.92	5.829	8.516
11/23/09 21:35	10.233	8.838	8.888	4.617	8.435		7.487	2.406	13.264	4.218	7.86	4.92	5.829	8.518
11/23/09 21:40	10.23	8.838	8.885	4.619	8.433		7.485	2.408	13.264	4.221	7.86	4.92	5.827	8.516
11/23/09 21:45	10.233	8.838	8.885	4.617	8.435		7.487	2.408	13.269	4.221	7.857	4.92	5.827	8.518
11/23/09 21:50	10.233	8.838	8.883	4.617	8.438		7.485	2.408	13.269	4.221	7.857	4.92	5.829	8.518
11/23/09 21:55	10.233	8.841	8.885	4.617	8.438		7.487	2.406	13.271	4.223	7.86	4.923	5.827	8.518
11/23/09 22:00	10.235	8.838	8.887	4.617	8.435		7.487	2.408	13.264	4.221	7.862	4.925	5.827	8.518
11/23/09 22:05	10.233	8.838	8.883	4.617	8.433		7.487	2.41	13.264	4.221	7.857	4.92	5.827	8.518
11/23/09 22:10	10.235	8.838	8.883	4.617	8.435		7.492	2.415	13.264	4.218	7.86	4.923	5.829	8.518
11/23/09 22:15	10.237	8.841	8.885	4.614	8.44		7.49	2.413	13.262	4.216	7.862	4.923	5.829	8.518

	Water Level, ft Above Pressure Sensor													
Date/Time	**MW01**	**MW02**	**MW04**	**MW05**	**MW07**	**MW09**	**MW10**	**MW11**	**MW12**	**MW13**	**MW18**	**MW19**	**MW20**	**MW34**
11/23/09 22:20	10.24	8.841	8.888	4.614	8.44		7.497	2.415	13.259	4.216	7.864	4.923	5.829	8.52
11/23/09 22:25	10.24	8.843	8.885	4.617	8.438		7.492	2.413	13.269	4.218	7.862	4.925	5.829	8.52
11/23/09 22:30	10.235	8.841	8.887	4.617	8.438		7.495	2.413	13.264	4.221	7.862	4.925	5.829	8.518
11/23/09 22:35	10.237	8.841	8.887	4.614	8.438		7.492	2.413	13.269	4.221	7.862	4.923	5.829	8.52
11/23/09 22:40	10.24	8.841	8.89	4.614	8.44		7.49	2.41	13.266	4.221	7.862	4.923	5.829	8.518
11/23/09 22:45	10.235	8.841	8.888	4.614	8.44		7.487	2.41	13.269	4.223	7.862	4.923	5.832	8.52
11/23/09 22:50	10.235	8.841	8.89	4.619	8.438		7.485	2.41	13.276	4.228	7.86	4.925	5.832	8.52
11/23/09 22:55	10.233	8.841	8.89	4.617	8.435		7.483	2.408	13.276	4.228	7.86	4.925	5.832	8.518
11/23/09 23:00	10.23	8.843	8.897	4.617	8.435		7.485	2.408	13.276	4.23	7.86	4.925	5.832	8.52
11/23/09 23:05	10.233	8.841	8.89	4.619	8.438		7.485	2.413	13.271	4.228	7.857	4.923	5.832	8.518
11/23/09 23:10	10.233	8.843	8.892	4.622	8.44		7.49	2.41	13.273	4.214	7.86	4.923	5.832	8.518
11/23/09 23:15	10.237	8.843	8.89	4.619	8.44		7.485	2.41	13.271	4.214	7.857	4.923	5.829	8.518
11/23/09 23:20	10.233	8.843	8.89	4.622	8.438		7.485	2.41	13.276	4.216	7.862	4.925	5.829	8.518
11/23/09 23:25	10.233	8.845	8.892	4.622	8.44		7.48	2.408	13.281	4.214	7.86	4.925	5.832	8.516
11/23/09 23:30	10.23	8.843	8.892	4.619	8.438		7.478	2.406	13.283	4.216	7.855	4.925	5.829	8.518
11/23/09 23:35	10.23	8.843	8.892	4.624	8.435		7.478	2.408	13.283	4.218	7.855	4.925	5.832	8.518
11/23/09 23:40	10.228	8.843	8.888	4.622	8.438		7.483	2.413	13.281	4.218	7.855	4.925	5.834	8.525
11/23/09 23:45	10.228	8.843	8.892	4.622	8.438		7.48	2.408	13.283	4.221	7.857	4.925	5.829	8.827
11/23/09 23:50	10.228	8.841	8.895	4.624	8.435		7.48	2.41	13.285	4.223	7.855	4.927	5.832	9.306
11/23/09 23:55	10.23	8.843	8.895	4.619	8.44		7.483	2.408	13.283	4.225	7.855	4.925	5.832	9.629
11/24/09 0:00	10.228	8.843	8.895	4.622	8.44		7.48	2.413	13.281	4.223	7.855	4.925	5.832	9.914
11/24/09 0:05	10.23	8.845	8.895	4.622	8.44		7.483	2.408	13.283	4.223	7.857	4.925	5.832	10.063
11/24/09 0:10	10.23	8.843	8.895	4.622	8.438		7.48	2.406	13.283	4.225	7.857	4.925	5.832	10.197
11/24/09 0:15	10.228	8.845	8.895	4.624	8.44		7.48	2.408	13.283	4.228	7.855	4.925	5.832	10.339
11/24/09 0:20	10.228	8.845	8.897	4.624	8.44		7.48	2.408	13.285	4.232	7.855	4.925	5.832	10.458
11/24/09 0:25	10.228	8.845	8.895	4.624	8.435		7.473	2.406	13.288	4.232	7.85	4.927	5.832	10.615
11/24/09 0:30	10.223	8.845	8.895	4.629	8.438		7.476	2.403	13.292	4.232	7.855	4.927	5.832	10.76
11/24/09 0:35	10.223	8.843	8.892	4.624	8.435		7.473	2.408	13.288	4.232	7.853	4.927	5.832	10.898
11/24/09 0:40	10.226	8.843	8.892	4.624	8.438		7.478	2.406	13.285	4.235	7.85	4.927	5.832	11.043
11/24/09 0:45	10.225	8.843	8.892	4.626	8.435		7.48	2.408	13.285	4.237	7.85	4.927	5.832	11.197
11/24/09 0:50	10.228	8.845	8.892	4.626	8.435		7.48	2.41	13.285	4.239	7.853	4.93	5.832	11.295
11/24/09 0:55	10.228	8.845	8.89	4.626	8.438		7.478	2.413	13.281	4.239	7.855	4.93	5.832	11.349
11/24/09 1:00	10.23	8.843	8.89	4.624	8.438		7.483	2.41	13.283	4.239	7.855	4.927	5.832	11.366
11/24/09 1:05	10.233	8.843	8.888	4.626	8.435		7.49	2.417	13.281	4.237	7.855	4.93	5.832	11.342
11/24/09 1:10	10.233	8.845	8.888	4.624	8.438		7.49	2.413	13.276	4.235	7.862	4.927	5.834	11.286
11/24/09 1:15	10.237	8.843	8.89	4.622	8.438		7.487	2.413	13.276	4.235	7.86	4.93	5.832	11.193
11/24/09 1:20	10.235	8.843	8.89	4.622	8.438		7.49	2.413	13.278	4.235	7.86	4.93	5.832	11.008
11/24/09 1:25	10.233	8.845	8.887	4.626	8.438		7.492	2.413	13.278	4.235	7.862	4.927	5.834	10.837
11/24/09 1:30	10.24	8.845	8.89	4.624	8.44		7.49	2.413	13.278	4.218	7.86	4.927	5.834	10.706
11/24/09 1:35	10.235	8.843	8.895	4.624	8.435		7.485	2.41	13.283	4.209	7.862	4.927	5.832	10.592
11/24/09 1:40	10.237	8.845	8.895	4.624	8.438		7.487	2.415	13.278	4.207	7.864	4.93	5.834	10.496
11/24/09 1:45	10.237	8.845	8.892	4.622	8.445		7.487	2.41	13.281	4.207	7.864	4.932	5.834	10.409
11/24/09 1:50	10.235	8.845	8.892	4.624	8.44		7.487	2.413	13.283	4.207	7.862	4.93	5.834	10.349
11/24/09 1:55	10.237	8.845	8.897	4.622	8.438		7.487	2.413	13.281	4.207	7.864	4.93	5.834	10.293
11/24/09 2:00	10.235	8.843	8.897	4.622	8.44		7.488	2.41	13.283	4.207	7.864	4.932	5.834	10.236

	Water Level, ft Above Pressure Sensor													
Date/Time	**MW01**	**MW02**	**MW04**	**MW05**	**MW07**	**MW09**	**MW10**	**MW11**	**MW12**	**MW13**	**MW18**	**MW19**	**MW20**	**MW34**
11/24/09 2:05	10.233	8.843	8.892	4.624	8.438		7.485	2.41	13.285	4.207	7.862	4.932	5.836	10.194
11/24/09 2:10	10.235	8.845	8.895	4.626	8.435		7.485	2.41	13.283	4.207	7.862	4.927	5.834	10.152
11/24/09 2:15	10.233	8.845	8.892	4.626	8.44		7.485	2.41	13.283	4.209	7.862	4.93	5.836	10.155
11/24/09 2:20	10.235	8.845	8.892	4.626	8.438		7.483	2.41	13.285	4.209	7.862	4.932	5.836	10.162
11/24/09 2:25	10.233	8.843	8.892	4.626	8.44		7.485	2.41	13.288	4.209	7.86	4.93	5.834	10.173
11/24/09 2:30	10.235	8.845	8.89	4.626	8.438		7.485	2.415	13.288	4.211	7.86	4.932	5.834	10.171
11/24/09 2:35	10.235	8.843	8.892	4.626	8.438		7.49	2.413	13.285	4.209	7.86	4.932	5.836	10.152
11/24/09 2:40	10.235	8.845	8.897	4.626	8.44		7.485	2.413	13.288	4.211	7.862	4.932	5.836	10.098
11/24/09 2:45	10.233	8.848	8.897	4.626	8.44		7.487	2.413	13.288	4.211	7.862	4.93	5.836	10.063
11/24/09 2:50	10.235	8.848	8.892	4.624	8.438		7.485	2.413	13.288	4.211	7.864	4.932	5.836	10.024
11/24/09 2:55	10.235	8.845	8.892	4.626	8.442		7.485	2.413	13.288	4.214	7.862	4.932	5.834	9.984
11/24/09 3:00	10.235	8.848	8.895	4.626	8.44		7.485	2.413	13.288	4.216	7.864	4.934	5.836	9.96
11/24/09 3:05	10.235	8.845	8.895	4.629	8.44		7.485	2.415	13.288	4.216	7.864	4.93	5.836	9.928
11/24/09 3:10	10.235	8.845	8.89	4.629	8.442		7.485	2.41	13.29	4.216	7.862	4.932	5.836	9.897
11/24/09 3:15	10.235	8.845	8.892	4.626	8.44		7.485	2.41	13.288	4.216	7.86	4.934	5.836	9.869
11/24/09 3:20	10.233	8.845	8.895	4.626	8.44		7.485	2.413	13.288	4.218	7.862	4.934	5.836	9.844
11/24/09 3:25	10.235	8.848	8.897	4.626	8.438		7.487	2.413	13.292	4.218	7.862	4.934	5.839	9.834
11/24/09 3:30	10.233	8.845	8.892	4.629	8.44		7.485	2.415	13.292	4.221	7.864	4.932	5.839	9.806
11/24/09 3:35	10.235	8.845	8.9	4.626	8.44		7.483	2.41	13.292	4.223	7.864	4.932	5.834	9.783
11/24/09 3:40	10.233	8.848	8.892	4.626	8.44		7.483	2.415	13.29	4.223	7.867	4.934	5.836	9.762
11/24/09 3:45	10.233	8.845	8.895	4.629	8.44		7.483	2.415	13.288	4.223	7.864	4.934	5.836	9.741
11/24/09 3:50	10.233	8.848	8.895	4.626	8.44		7.483	2.413	13.29	4.223	7.864	4.934	5.836	9.722
11/24/09 3:55	10.233	8.845	8.895	4.629	8.442		7.483	2.413	13.29	4.223	7.867	4.937	5.836	9.701
11/24/09 4:00	10.233	8.848	8.895	4.626	8.442		7.487	2.415	13.292	4.223	7.867	4.934	5.836	9.682
11/24/09 4:05	10.235	8.845	8.895	4.626	8.438		7.485	2.413	13.285	4.225	7.867	4.934	5.836	9.664
11/24/09 4:10	10.233	8.845	8.89	4.629	8.445		7.483	2.413	13.292	4.225	7.869	4.937	5.836	9.65
11/24/09 4:15	10.233	8.848	8.895	4.629	8.44		7.483	2.415	13.292	4.228	7.869	4.934	5.836	9.633
11/24/09 4:20	10.233	8.845	8.895	4.629	8.435		7.485	2.413	13.29	4.23	7.869	4.937	5.839	9.617
11/24/09 4:25	10.233	8.848	8.895	4.626	8.44		7.483	2.415	13.295	4.228	7.867	4.934	5.836	9.6
11/24/09 4:30	10.233	8.85	8.895	4.629	8.44		7.485	2.413	13.295	4.23	7.867	4.934	5.836	9.584
11/24/09 4:35	10.23	8.845	8.895	4.629	8.44		7.483	2.413	13.297	4.23	7.869	4.937	5.836	9.57
11/24/09 4:40	10.23	8.848	8.895	4.629	8.442		7.48	2.415	13.295	4.232	7.869	4.937	5.836	9.558
11/24/09 4:45	10.233	8.848	8.897	4.631	8.442		7.48	2.415	13.297	4.232	7.871	4.937	5.839	9.542
11/24/09 4:50	10.233	8.845	8.895	4.631	8.44		7.483	2.413	13.292	4.235	7.867	4.937	5.839	9.533
11/24/09 4:55	10.23	8.848	8.892	4.629	8.44		7.48	2.413	13.297	4.237	7.867	4.934	5.839	9.519
11/24/09 5:00	10.23	8.848	8.895	4.629	8.438		7.478	2.41	13.297	4.237	7.869	4.934	5.839	9.509
11/24/09 5:05	10.228	8.848	8.895	4.631	8.438		7.478	2.413	13.299	4.237	7.867	4.937	5.839	9.498
11/24/09 5:10	10.228	8.848	8.89	4.631	8.438		7.476	2.408	13.304	4.239	7.869	4.937	5.839	9.484
11/24/09 5:15	10.223	8.848	8.897	4.626	8.44		7.473	2.413	13.299	4.242	7.869	4.939	5.836	9.463
11/24/09 5:20	10.226	8.848	8.892	4.631	8.442		7.473	2.41	13.306	4.244	7.867	4.937	5.836	9.453
11/24/09 5:25	10.226	8.848	8.897	4.629	8.44		7.476	2.41	13.311	4.244	7.864	4.937	5.839	9.442
11/24/09 5:30	10.223	8.848	8.892	4.631	8.438		7.473	2.408	13.302	4.242	7.869	4.937	5.839	9.432
11/24/09 5:35	10.226	8.848	8.892	4.631	8.44		7.473	2.41	13.302	4.246	7.869	4.939	5.839	9.423
11/24/09 5:40	10.223	8.848	8.892	4.631	8.438		7.473	2.408	13.302	4.244	7.871	4.937	5.839	9.416
11/24/09 5:45	10.226	8.848	8.892	4.631	8.44		7.476	2.41	13.299	4.246	7.869	4.937	5.839	9.402

	Water Level, ft Above Pressure Sensor													
Date/Time	**MW01**	**MW02**	**MW04**	**MW05**	**MW07**	**MW09**	**MW10**	**MW11**	**MW12**	**MW13**	**MW18**	**MW19**	**MW20**	**MW34**
11/24/09 5:50	10.223	8.848	8.89	4.629	8.438		7.476	2.41	13.306	4.246	7.869	4.939	5.839	9.385
11/24/09 5:55	10.223	8.848	8.892	4.629	8.44		7.471	2.408	13.302	4.246	7.869	4.937	5.836	9.376
11/24/09 6:00	10.221	8.848	8.895	4.631	8.435		7.469	2.406	13.306	4.246	7.869	4.939	5.841	9.367
11/24/09 6:05	10.221	8.848	8.892	4.629	8.438		7.466	2.406	13.304	4.246	7.869	4.937	5.839	9.362
11/24/09 6:10	10.221	8.85	8.897	4.631	8.44		7.469	2.403	13.306	4.249	7.871	4.939	5.839	9.339
11/24/09 6:15	10.216	8.848	8.897	4.629	8.44		7.464	2.401	13.311	4.253	7.867	4.939	5.839	9.332
11/24/09 6:20	10.218	8.848	8.892	4.636	8.435		7.462	2.403	13.311	4.256	7.867	4.937	5.836	9.325
11/24/09 6:25	10.216	8.848	8.892	4.634	8.435		7.464	2.403	13.313	4.253	7.867	4.939	5.839	9.304
11/24/09 6:30	10.213	8.848	8.892	4.634	8.435		7.466	2.403	13.309	4.256	7.871	4.941	5.836	9.301
11/24/09 6:35	10.216	8.848	8.892	4.634	8.435		7.464	2.399	13.313	4.256	7.871	4.939	5.839	9.297
11/24/09 6:40	10.216	8.85	8.892	4.634	8.435		7.462	2.403	13.311	4.258	7.867	4.941	5.839	9.276
11/24/09 6:45	10.211	8.848	8.892	4.634	8.431		7.455	2.401	13.313	4.261	7.869	4.939	5.841	9.271
11/24/09 6:50	10.209	8.85	8.892	4.634	8.435		7.459	2.403	13.318	4.261	7.867	4.941	5.841	9.254
11/24/09 6:55	10.209	8.848	8.89	4.634	8.435		7.457	2.399	13.32	4.261	7.867	4.941	5.839	9.248
11/24/09 7:00	10.206	8.848	8.895	4.634	8.433		7.457	2.396	13.316	4.263	7.867	4.939	5.839	9.231
11/24/09 7:05	10.206	8.848	8.9	4.634	8.431		7.455	2.392	13.32	4.268	7.867	4.941	5.843	9.226
11/24/09 7:10	10.204	8.848	8.89	4.634	8.431		7.452	2.392	13.323	4.268	7.867	4.939	5.839	9.21
11/24/09 7:15	10.199	8.845	8.892	4.636	8.428		7.445	2.394	13.318	4.268	7.864	4.941	5.839	9.205
11/24/09 7:20	10.199	8.848	8.892	4.636	8.431		7.45	2.392	13.32	4.27	7.864	4.941	5.841	9.189
11/24/09 7:25	10.197	8.848	8.887	4.636	8.433		7.448	2.394	13.323	4.27	7.862	4.941	5.839	9.189
11/24/09 7:30	10.201	8.848	8.89	4.636	8.428		7.448	2.396	13.318	4.265	7.862	4.941	5.839	9.173
11/24/09 7:35	10.199	8.845	8.892	4.638	8.431		7.445	2.392	13.323	4.263	7.867	4.941	5.841	9.168
11/24/09 7:40	10.197	8.848	8.892	4.636	8.428		7.443	2.392	13.325	4.265	7.862	4.939	5.836	9.154
11/24/09 7:45	10.192	8.848	8.892	4.636	8.423		7.441	2.392	13.325	4.265	7.864	4.944	5.839	9.138
11/24/09 7:50	10.19	8.848	8.892	4.636	8.423		7.443	2.392	13.327	4.268	7.86	4.939	5.839	9.135
11/24/09 7:55	10.192	8.85	8.89	4.638	8.426		7.438	2.387	13.327	4.268	7.864	4.941	5.839	9.121
11/24/09 8:00	10.19	8.848	8.895	4.638	8.423		7.44	2.387	13.327	4.27	7.862	4.944	5.839	9.11
11/24/09 8:05	10.187	8.848	8.885	4.636	8.423		7.438	2.385	13.327	4.268	7.86	4.941	5.836	9.11
11/24/09 8:10	10.187	8.848	8.887	4.638	8.421		7.436	2.385	13.337	4.272	7.862	4.941	5.839	9.096
11/24/09 8:15	10.185	8.845	8.883	4.636	8.421		7.433	2.382	13.332	4.272	7.864	4.944	5.839	9.081
11/24/09 8:20	10.182	8.845	8.88	4.636	8.423		7.431	2.385	13.335	4.275	7.857	4.941	5.836	9.072
11/24/09 8:25	10.18	8.848	8.89	4.636	8.419		7.429	2.38	13.332	4.277	7.86	4.941	5.839	9.072
11/24/09 8:30	10.18	8.848	8.885	4.636	8.419		7.426	2.38	13.332	4.282	7.86	4.941	5.836	9.058
11/24/09 8:35	10.178	8.845	8.885	4.636	8.416		7.426	2.378	13.339	4.282	7.857	4.941	5.836	9.046
11/24/09 8:40	10.173	8.848	8.887	4.636	8.416		7.424	2.375	13.332	4.286	7.862	4.941	5.841	9.037
11/24/09 8:45	10.173	8.845	8.883	4.634	8.416		7.422	2.378	13.337	4.286	7.86	4.941	5.841	9.021
11/24/09 8:50	10.173	8.845	8.883	4.631	8.414		7.419	2.375	13.337	4.289	7.857	4.944	5.839	9.021
11/24/09 8:55	10.173	8.845	8.883	4.634	8.412		7.422	2.378	13.337	4.291	7.855	4.941	5.836	9.007
11/24/09 9:00	10.17	8.843	8.88	4.634	8.409		7.419	2.378	13.335	4.291	7.86	4.941	5.839	8.997
11/24/09 9:05	10.173	8.845	8.878	4.631	8.407		7.419	2.375	13.339	4.291	7.86	4.944	5.839	8.986
11/24/09 9:10	10.17	8.845	8.88	4.631	8.412		7.419	2.375	13.337	4.291	7.862	4.941	5.841	8.974
11/24/09 9:15	10.168	8.845	8.878	4.629	8.407		7.419	2.375	13.337	4.291	7.86	4.941	5.836	8.967
11/24/09 9:20	10.168	8.845	8.88	4.631	8.409		7.417	2.371	13.337	4.293	7.86	4.941	5.839	8.958
11/24/09 9:25	10.168	8.845	8.878	4.629	8.409		7.415	2.375	13.337	4.293	7.857	4.941	5.834	8.948
11/24/09 9:30	10.168	8.843	8.873	4.634	8.404		7.417	2.375	13.335	4.296	7.86	4.944	5.839	8.937

	Water Level, ft Above Pressure Sensor													
Date/Time	**MW01**	**MW02**	**MW04**	**MW05**	**MW07**	**MW09**	**MW10**	**MW11**	**MW12**	**MW13**	**MW18**	**MW19**	**MW20**	**MW34**
11/24/09 9:35	10.166	8.843	8.875	4.629	8.402		7.417	2.375	13.335	4.296	7.86	4.946	5.836	8.93
11/24/09 9:40	10.166	8.843	8.875	4.629	8.404		7.417	2.373	13.339	4.296	7.86	4.944	5.836	8.918
11/24/09 9:45	10.163	8.841	8.878	4.629	8.404		7.412	2.371	13.337	4.298	7.86	4.946	5.839	8.908
11/24/09 9:50	10.163	8.843	8.873	4.626	8.404		7.415	2.368	13.335	4.298	7.857	4.944	5.839	8.899
11/24/09 9:55	10.161	8.841	8.871	4.629	8.402		7.415	2.368	13.337	4.298	7.862	4.944	5.834	8.89
11/24/09 10:00	10.159	8.841	8.878	4.629	8.404		7.415	2.368	13.335	4.298	7.862	4.944	5.836	8.885
11/24/09 10:05	10.158	8.841	8.871	4.626	8.402		7.412	2.361	13.337	4.298	7.857	4.944	5.839	8.876
11/24/09 10:10	10.158	8.843	8.871	4.624	8.4		7.41	2.366	13.337	4.303	7.862	4.944	5.836	8.866
11/24/09 10:15	10.154	8.843	8.871	4.624	8.397		7.403	2.364	13.342	4.305	7.864	4.946	5.839	8.859
11/24/09 10:20	10.159	8.838	8.873	4.624	8.397		7.408	2.357	13.342	4.305	7.86	4.944	5.839	8.852
11/24/09 10:25	10.154	8.841	8.873	4.622	8.393		7.408	2.361	13.337	4.303	7.862	4.946	5.836	8.848
11/24/09 10:30	10.156	8.841	8.873	4.622	8.397		7.408	2.361	13.337	4.305	7.86	4.946	5.836	8.838
11/24/09 10:35	10.149	8.838	8.871	4.619	8.393		7.405	2.364	13.332	4.305	7.86	4.944	5.836	8.834
11/24/09 10:40	10.154	8.838	8.871	4.622	8.395		7.405	2.361	13.332	4.303	7.862	4.944	5.836	8.827
11/24/09 10:45	10.151	8.838	8.868	4.624	8.393		7.405	2.359	13.332	4.303	7.862	4.946	5.836	8.822
11/24/09 10:50	10.154	8.836	8.868	4.624	8.393		7.408	2.354	13.337	4.303	7.867	4.946	5.834	8.815
11/24/09 10:55	10.151	8.838	8.871	4.624	8.39		7.405	2.354	13.332	4.303	7.867	4.946	5.834	8.813
11/24/09 11:00	10.149	8.838	8.868	4.624	8.39		7.403	2.352	13.332	4.303	7.864	4.944	5.836	8.806
11/24/09 11:05	10.151	8.838	8.861	4.619	8.39		7.403	2.354	13.332	4.303	7.867	4.946	5.836	8.803
11/24/09 11:10	10.144	8.836	8.863	4.624	8.393		7.396	2.354	13.332	4.303	7.864	4.946	5.836	8.799
11/24/09 11:15	10.149	8.836	8.859	4.619	8.385		7.405	2.357	13.327	4.3	7.869	4.946	5.836	8.796
11/24/09 11:20	10.151	8.836	8.861	4.622	8.388		7.405	2.354	13.325	4.3	7.869	4.946	5.836	8.792
11/24/09 11:25	10.151	8.836	8.859	4.622	8.388		7.405	2.352	13.327	4.298	7.869	4.946	5.836	8.785
11/24/09 11:30	10.151	8.833	8.856	4.622	8.388		7.41	2.35	13.325	4.298	7.871	4.946	5.836	8.78
11/24/09 11:35	10.154	8.836	8.854	4.619	8.385		7.408	2.35	13.323	4.296	7.871	4.946	5.836	8.778
11/24/09 11:40	10.151	8.836	8.863	4.622	8.383		7.408	2.35	13.318	4.293	7.871	4.941	5.836	8.771
11/24/09 11:45	10.151	8.836	8.856	4.619	8.385		7.412	2.352	13.311	4.293	7.876	4.946	5.834	8.768
11/24/09 11:50	10.156	8.836	8.847	4.619	8.388		7.412	2.352	13.318	4.293	7.876	4.946	5.836	8.766
11/24/09 11:55	10.156	8.834	8.856	4.617	8.388		7.415	2.352	13.311	4.289	7.878	4.946	5.836	8.757
11/24/09 12:00	10.159	8.833	8.851	4.617	8.385		7.415	2.347	13.313	4.291	7.878	4.946	5.836	8.752
11/24/09 12:05	10.158	8.833	8.856	4.614	8.385		7.415	2.35	13.311	4.289	7.878	4.946	5.836	8.749
11/24/09 12:10	10.156	8.834	8.859	4.617	8.385		7.415	2.35	13.311	4.284	7.876	4.946	5.839	8.743
11/24/09 12:15	10.159	8.834	8.851	4.617	8.383		7.415	2.347	13.309	4.286	7.881	4.948	5.839	8.742
11/24/09 12:20	10.158	8.834	8.851	4.617	8.385		7.412	2.347	13.309	4.279	7.883	4.946	5.839	8.736
11/24/09 12:25	10.156	8.834	8.851	4.614	8.385		7.415	2.345	13.313	4.279	7.883	4.946	5.839	8.728
11/24/09 12:30	10.154	8.831	8.854	4.612	8.381		7.412	2.345	13.306	4.275	7.885	4.948	5.839	8.724
11/24/09 12:35	10.159	8.834	8.851	4.614	8.383		7.417	2.343	13.306	4.272	7.885	4.946	5.839	8.724
11/24/09 12:40	10.159	8.831	8.856	4.614	8.383		7.422	2.347	13.304	4.265	7.885	4.948	5.839	8.719
11/24/09 12:45	10.161	8.831	8.851	4.61	8.385		7.424	2.345	13.299	4.268	7.888	4.948	5.839	8.724
11/24/09 12:50	10.161	8.831	8.851	4.612	8.381		7.419	2.345	13.302	4.265	7.885	4.948	5.839	8.719
11/24/09 12:55	10.159	8.829	8.844	4.61	8.383		7.422	2.343	13.302	4.265	7.885	4.948	5.839	8.714
11/24/09 13:00	10.163	8.831	8.847	4.612	8.383		7.422	2.343	13.302	4.261	7.89	4.948	5.841	8.71
11/24/09 13:05	10.163	8.831	8.851	4.612	8.383		7.422	2.343	13.297	4.256	7.892	4.946	5.839	8.705
11/24/09 13:10	10.163	8.831	8.847	4.612	8.381		7.419	2.347	13.299	4.256	7.895	4.948	5.841	8.703
11/24/09 13:15	10.161	8.829	8.849	4.61	8.383		7.422	2.345	13.295	4.251	7.89	4.946	5.841	8.698

	Water Level, ft Above Pressure Sensor													
Date/Time	**MW01**	**MW02**	**MW04**	**MW05**	**MW07**	**MW09**	**MW10**	**MW11**	**MW12**	**MW13**	**MW18**	**MW19**	**MW20**	**MW34**
11/24/09 13:20	10.163	8.829	8.847	4.612	8.385		7.426	2.347	13.295	4.256	7.895	4.951	5.839	8.698
11/24/09 13:25	10.163	8.829	8.849	4.612	8.378		7.424	2.347	13.299	4.251	7.895	4.948	5.839	8.693
11/24/09 13:30	10.163	8.829	8.849	4.61	8.383		7.422	2.345	13.295	4.253	7.897	4.951	5.841	8.698
11/24/09 13:35	10.163	8.827	8.844	4.612	8.383		7.424	2.345	13.297	4.253	7.899	4.951	5.841	8.698
11/24/09 13:40	10.163	8.831	8.847	4.61	8.381		7.424	2.345	13.297	4.256	7.897	4.951	5.843	8.693
11/24/09 13:45	10.163	8.829	8.849	4.612	8.378		7.424	2.345	13.297	4.256	7.902	4.948	5.843	8.689
11/24/09 13:50	10.161	8.829	8.842	4.605	8.385	2.525	7.424	2.345	13.299	4.256	7.899	4.951	5.841	8.691
11/24/09 13:55	10.159	8.829	8.844	4.607	8.383	2.521	7.424	2.347	13.299	4.256	7.899	4.951	5.839	8.686
11/24/09 14:00	10.166	8.829	8.847	4.61	8.378	2.541	7.424	2.345	13.299	4.258	7.899	4.951	5.841	8.684
11/24/09 14:05	10.163	8.829	8.851		8.381	2.539	7.422	2.347	13.297	4.258	7.902	4.951	5.841	8.682
11/24/09 14:10	10.161	8.829	8.849		8.385	2.548	7.417	2.347	13.297	4.263	7.904	4.951	5.841	8.677
11/24/09 14:15	10.161	8.826	8.844		8.385	2.544	7.412	2.34	13.306	4.261	7.902	4.951	5.841	8.675
11/24/09 14:20	10.159	8.826	8.842		8.381	2.565	7.417	2.347	13.299	4.263	7.904	4.951	5.843	8.67
11/24/09 14:25	10.159	8.826	8.854		8.385	2.576	7.419	2.347	13.295	4.263	7.904	4.953	5.841	8.675
11/24/09 14:30	10.161	8.829	8.842		8.388	2.576	7.424	2.343	13.299	4.265	7.904	4.951	5.841	8.67
11/24/09 14:35	10.156	8.829	8.842		8.381	2.583	7.417	2.343	13.299	4.265	7.902	4.948	5.843	8.665
11/24/09 14:40	10.159	8.826	8.847		8.383	2.588	7.417	2.343	13.295	4.268	7.902	4.951	5.841	8.663
11/24/09 14:45	10.156	8.827	8.844		8.381	2.595	7.419	2.345	13.292	4.268	7.904	4.951	5.843	8.658
11/24/09 14:50	10.154	8.829	8.847		8.378	2.588	7.415	2.343	13.299	4.27	7.906	4.953	5.843	8.658
11/24/09 14:55	10.151	8.826	8.849		8.381	2.593	7.41	2.343	13.302	4.272	7.909	4.951	5.841	8.654
11/24/09 15:00	10.154	8.826	8.844		8.378	2.6	7.41	2.343	13.304	4.272	7.902	4.953	5.841	8.651
11/24/09 15:05	10.149	8.824	8.844		8.383	2.604	7.405	2.34	13.299	4.275	7.902	4.951	5.843	8.651
11/24/09 15:10	10.147	8.826	8.842		8.378	2.611	7.408	2.343	13.309	4.277	7.902	4.953	5.839	8.644
11/24/09 15:15	10.149	8.824	8.844		8.378	2.616	7.41	2.34	13.304	4.277	7.902	4.951	5.841	8.644
11/24/09 15:20	10.147	8.822	8.844		8.376	2.621	7.405	2.34	13.311	4.279	7.902	4.953	5.843	8.64
11/24/09 15:25	10.144	8.824	8.847		8.378	2.623	7.401	2.343	13.306	4.279	7.902	4.951	5.843	8.637
11/24/09 15:30	10.144	8.824	8.839		8.378	2.63	7.408	2.34	13.304	4.282	7.902	4.951	5.843	8.635
11/24/09 15:35	10.142	8.822	8.842		8.376	2.635	7.401	2.336	13.309	4.279	7.899	4.951	5.846	8.633
11/24/09 15:40	10.139	8.822	8.842		8.378	2.635	7.398	2.338	13.306	4.284	7.897	4.951	5.841	8.628
11/24/09 15:45	10.137	8.822	8.837		8.374	2.632	7.398	2.338	13.311	4.289	7.902	4.953	5.843	8.63
11/24/09 15:50	10.137	8.819	8.842		8.374	2.637	7.396	2.336	13.313	4.289	7.899	4.953	5.843	8.623
11/24/09 15:55	10.135	8.82	8.839		8.374	2.646	7.394	2.336	13.311	4.286	7.899	4.953	5.843	8.621
11/24/09 16:00	10.135	8.817	8.839		8.374	2.656	7.396	2.336	13.313	4.286	7.902	4.951	5.843	8.619
11/24/09 16:05	10.135	8.817	8.837		8.371	2.667	7.398	2.338	13.309	4.286	7.902	4.951	5.846	8.616
11/24/09 16:10	10.137	8.817	8.839		8.369	2.667	7.398	2.338	13.311	4.289	7.902	4.951	5.846	8.614
11/24/09 16:15	10.134	8.815	8.835		8.371	2.669	7.394	2.336	13.306	4.289	7.899	4.955	5.843	8.612
11/24/09 16:20	10.132	8.815	8.842		8.371	2.672	7.394	2.333	13.309	4.291	7.902	4.955	5.841	8.609
11/24/09 16:25	10.132	8.817	8.844		8.366	2.669	7.391	2.333	13.313	4.293	7.902	4.951	5.846	8.607
11/24/09 16:30	10.13	8.812	8.842		8.366	2.667	7.386	2.336	13.311	4.293	7.902	4.951	5.843	8.605
11/24/09 16:35	10.127	8.81	8.832		8.369	2.674	7.391	2.338	13.311	4.296	7.899	4.953	5.846	8.602
11/24/09 16:40	10.13	8.808	8.839		8.364	2.679	7.391	2.336	13.309	4.296	7.904	4.955	5.843	8.598
11/24/09 16:45	10.127	8.808	8.834		8.366	2.686	7.389	2.333	13.313	4.296	7.902	4.955	5.846	8.595
11/24/09 16:50	10.127	8.803	8.837		8.364	2.681	7.386	2.333	13.313	4.298	7.902	4.953	5.843	8.593
11/24/09 16:55	10.123	8.801	8.839		8.366	2.681	7.384	2.331	13.313	4.298	7.904	4.953	5.843	8.591
11/24/09 17:00	10.125	8.799	8.837		8.364	2.679	7.386	2.331	13.316	4.298	7.904	4.953	5.843	8.588

	Water Level, ft Above Pressure Sensor													
Date/Time	**MW01**	**MW02**	**MW04**	**MW05**	**MW07**	**MW09**	**MW10**	**MW11**	**MW12**	**MW13**	**MW18**	**MW19**	**MW20**	**MW34**
11/24/09 17:05	10.12	8.796	8.837		8.362	2.674	7.382	2.331	13.313	4.303	7.899	4.953	5.846	8.588
11/24/09 17:10	10.118	8.796	8.849		8.364	2.676	7.382	2.329	13.316	4.303	7.902	4.955	5.843	8.583
11/24/09 17:15	10.118	8.794	8.834		8.362	2.681	7.382	2.329	13.318	4.305	7.904	4.955	5.846	8.581
11/24/09 17:20	10.118	8.791	8.837		8.359	2.686	7.375	2.329	13.316	4.307	7.902	4.955	5.843	8.579
11/24/09 17:25	10.115	8.789	8.842		8.362	2.686	7.377	2.326	13.318	4.307	7.899	4.955	5.843	8.574
11/24/09 17:30	10.113	8.787	8.837		8.359	2.681	7.377	2.326	13.323	4.31	7.899	4.955	5.843	8.574
11/24/09 17:35	10.113	8.78	8.839		8.357	2.683	7.375	2.326	13.318	4.312	7.899	4.955	5.843	8.572
11/24/09 17:40	10.111	8.777	8.839		8.359	2.686	7.372	2.326	13.32	4.312	7.899	4.955	5.843	8.57
11/24/09 17:45	10.108	8.773	8.837		8.359	2.683	7.368	2.324	13.323	4.312	7.899	4.955	5.843	8.567
11/24/09 17:50	10.108	8.768	8.837		8.352	2.686	7.37	2.326	13.323	4.314	7.899	4.953	5.843	8.565
11/24/09 17:55	10.103	8.763	8.834		8.352	2.688	7.365	2.324	13.323	4.317	7.897	4.955	5.843	8.563
11/24/09 18:00	10.106	8.759	8.839		8.352	2.693	7.365	2.326	13.325	4.314	7.897	4.953	5.843	8.558
11/24/09 18:05	10.103	8.756	8.834		8.35	2.697	7.365	2.324	13.32	4.314	7.899	4.955	5.843	8.556
11/24/09 18:10	10.103	8.749	8.834		8.355	2.702	7.365	2.324	13.32	4.314	7.902	4.953	5.843	8.553
11/24/09 18:15	10.101	8.747	8.832		8.35	2.7	7.363	2.322	13.323	4.317	7.904	4.955	5.843	8.553
11/24/09 18:20	10.101	8.742	8.834		8.352	2.697	7.363	2.322	13.325	4.317	7.899	4.953	5.843	8.551
11/24/09 18:25	10.099	8.745	8.83		8.347	2.697	7.363	2.322	13.32	4.317	7.899	4.955	5.843	8.548
11/24/09 18:30	10.099	8.74	8.832		8.345	2.702	7.361	2.322	13.323	4.317	7.899	4.955	5.843	8.549
11/24/09 18:35	10.096	8.738	8.835		8.347	2.704	7.361	2.324	13.327	4.317	7.902	4.955	5.843	8.546
11/24/09 18:40	10.096	8.738	8.835		8.345	2.709	7.361	2.322	13.325	4.314	7.902	4.955	5.843	8.544
11/24/09 18:45	10.096	8.738	8.83		8.345	2.709	7.361	2.322	13.32	4.314	7.899	4.955	5.843	8.542
11/24/09 18:50	10.096	8.74	8.83		8.345	2.711	7.358	2.324	13.32	4.314	7.902	4.958	5.841	8.542
11/24/09 18:55	10.096	8.74	8.827		8.345	2.711	7.361	2.322	13.32	4.314	7.906	4.958	5.843	8.539
11/24/09 19:00	10.094	8.738	8.83	4.349	8.343	2.711	7.361	2.319	13.32	4.314	7.902	4.955	5.843	8.539
11/24/09 19:05	10.092	8.738	8.832	4.356	8.34	2.709	7.356	2.322	13.323	4.317	7.902	4.955	5.843	8.537
11/24/09 19:10	10.091	8.738	8.827	4.358	8.343	2.709	7.356	2.319	13.323	4.317	7.906	4.955	5.843	8.534
11/24/09 19:15	10.089	8.74	8.827	4.365	8.338	2.709	7.354	2.322	13.323	4.317	7.904	4.958	5.843	8.534
11/24/09 19:20	10.089	8.74	8.827	4.367	8.34	2.709	7.356	2.319	13.323	4.317	7.904	4.955	5.841	8.532
11/24/09 19:25	10.089	8.742	8.827	4.372	8.338	2.711		2.319	13.323	4.314	7.904	4.958	5.843	8.532
11/24/09 19:30	10.089	8.74	8.822	4.375	8.34	2.714		2.319	13.32	4.317	7.904	4.958	5.843	8.532
11/24/09 19:35	10.087	8.742	8.832	4.375	8.336	2.711		2.317	13.323	4.317	7.904	4.955	5.841	8.532
11/24/09 19:40	10.084	8.742	8.827	4.377	8.338	2.704		2.317	13.325	4.317	7.902	4.958	5.843	8.527
11/24/09 19:45	10.084	8.74	8.827	4.382	8.336	2.707		2.317	13.323	4.314	7.906	4.955	5.843	8.525
11/24/09 19:50	10.082	8.74	8.825	4.387	8.338	2.714		2.317	13.323	4.314	7.904	4.958	5.843	8.527
11/24/09 19:55	10.082	8.74	8.822	4.386	8.333	2.714		2.319	13.318	4.314	7.904	4.958	5.841	8.525
11/24/09 20:00	10.082	8.74	8.822	4.391	8.331	2.718		2.319	13.318	4.314	7.906	4.958	5.843	8.523
11/24/09 20:05	10.082	8.742	8.818	4.396	8.333	2.728		2.319	13.316	4.312	7.906	4.958	5.843	8.523
11/24/09 20:10	10.084	8.745	8.822	4.391	8.333	2.732		2.317	13.313	4.312	7.911	4.958	5.843	8.52
11/24/09 20:15	10.082	8.742	8.818	4.398	8.333	2.723		2.319	13.313	4.314	7.909	4.958	5.841	8.518
11/24/09 20:20	10.084	8.742	8.822	4.399	8.331	2.723		2.319	13.313	4.314	7.909	4.958	5.843	8.518
11/24/09 20:25	10.082	8.745	8.82	4.399	8.328	2.721		2.319	13.311	4.314	7.909	4.958	5.843	8.516
11/24/09 20:30	10.082	8.745	8.825	4.399	8.333	2.723		2.317	13.309	4.317	7.909	4.96	5.843	8.516
11/24/09 20:35	10.082	8.742	8.82	4.401	8.328	2.718		2.317	13.311	4.317	7.911	4.96	5.843	8.513
11/24/09 20:40	10.082	8.742	8.822	4.401	8.328	2.716		2.317	13.316	4.317	7.911	4.96	5.843	8.513
11/24/09 20:45	10.079	8.742	8.825	4.404	8.326	2.707		2.317	13.313	4.317	7.913	4.958	5.841	8.511

	Water Level, ft Above Pressure Sensor													
Date/Time	**MW01**	**MW02**	**MW04**	**MW05**	**MW07**	**MW09**	**MW10**	**MW11**	**MW12**	**MW13**	**MW18**	**MW19**	**MW20**	**MW34**
11/24/09 20:50	10.077	8.742	8.825	4.404	8.326	2.7		2.315	13.316	4.319	7.909	4.96	5.843	8.511
11/24/09 20:55	10.077	8.742	8.818	4.404	8.324	2.702		2.315	13.316	4.317	7.909	4.958	5.843	8.509
11/24/09 21:00	10.077	8.742	8.818	4.408	8.326	2.714		2.317	13.313	4.317	7.911	4.96	5.843	8.506
11/24/09 21:05	10.077	8.742	8.82	4.408	8.324	2.721		2.315	13.313	4.317	7.911	4.96	5.843	8.506
11/24/09 21:10	10.077	8.742	8.818	4.408	8.324	2.718		2.315	13.309	4.314	7.911	4.96	5.843	8.506
11/24/09 21:15	10.075	8.742	8.82	4.408	8.321	2.718		2.317	13.313	4.317	7.913	4.96	5.843	8.504
11/24/09 21:20	10.075	8.742	8.82	4.406	8.324	2.711		2.315	13.311	4.317	7.913	4.96	5.841	8.502
11/24/09 21:25	10.072	8.742	8.822	4.406	8.319	2.702		2.313	13.316	4.317	7.913	4.96	5.843	8.499
11/24/09 21:30	10.07	8.742	8.818	4.408	8.319	2.7		2.315	13.311	4.317	7.913	4.96	5.843	8.502
11/24/09 21:35	10.072	8.742	8.813	4.413	8.319	2.709		2.317	13.309	4.314	7.913	4.96	5.841	8.497
11/24/09 21:40	10.07	8.742	8.82	4.413	8.319	2.714		2.315	13.311	4.317	7.913	4.96	5.843	8.497
11/24/09 21:45	10.067	8.742	8.813	4.413	8.319	2.707		2.315	13.309	4.317	7.916	4.96	5.843	8.497
11/24/09 21:50	10.07	8.742	8.815	4.418	8.317	2.718		2.317	13.302	4.314	7.916	4.962	5.843	8.495
11/24/09 21:55	10.07	8.742	8.818	4.418	8.312	2.718		2.313	13.306	4.317	7.916	4.96	5.841	8.495
11/24/09 22:00	10.07	8.742	8.818	4.42	8.314	2.711		2.315	13.306	4.314	7.916	4.962	5.841	8.492
11/24/09 22:05	10.07	8.742	8.815	4.418	8.317	2.711		2.313	13.306	4.317	7.916	4.96	5.843	8.492
11/24/09 22:10	10.07	8.742	8.813	4.42	8.314	2.714		2.315	13.306	4.317	7.916	4.96	5.843	8.492
11/24/09 22:15	10.067	8.742	8.813	4.423	8.314	2.718		2.315	13.302	4.317	7.918	4.96	5.843	8.49
11/24/09 22:20	10.07	8.74	8.808	4.425	8.314	2.721		2.315	13.297	4.314	7.92	4.96	5.843	8.488
11/24/09 22:25	10.07	8.742	8.813	4.425	8.312	2.723		2.317	13.299	4.314	7.92	4.962	5.841	8.488
11/24/09 22:30	10.072	8.74	8.808	4.427	8.314	2.725		2.317	13.297	4.314	7.923	4.962	5.843	8.485
11/24/09 22:35	10.072	8.742	8.813	4.43	8.314	2.73		2.317	13.295	4.312	7.923	4.962	5.843	8.485
11/24/09 22:40	10.072	8.742	8.808	4.43	8.314	2.723		2.317	13.295	4.314	7.923	4.96	5.843	8.483
11/24/09 22:45	10.072	8.742	8.808	4.43	8.312	2.725		2.322	13.292	4.312	7.925	4.962	5.843	8.481
11/24/09 22:50	10.075	8.742	8.81	4.435	8.312	2.728		2.319	13.29	4.31	7.925	4.962	5.846	8.485
11/24/09 22:55	10.075	8.742	8.813	4.435	8.314	2.725		2.322	13.288	4.312	7.927	4.962	5.846	8.485
11/24/09 23:00	10.075	8.74	8.81	4.432	8.314	2.725		2.319	13.29	4.312	7.93	4.96	5.843	8.483
11/24/09 23:05	10.075	8.742	8.81	4.435	8.312	2.718		2.317	13.288	4.312	7.927	4.962	5.846	8.483
11/24/09 23:10	10.072	8.745	8.813	4.435	8.314	2.711		2.319	13.288	4.314	7.927	4.96	5.846	8.483
11/24/09 23:15	10.072	8.74	8.81	4.435	8.312	2.714		2.319	13.288	4.317	7.93	4.962	5.846	8.481
11/24/09 23:20	10.072	8.742	8.81	4.435	8.314	2.711		2.317	13.29	4.314	7.932	4.962	5.843	8.481
11/24/09 23:25	10.072	8.742	8.81	4.437	8.312	2.711		2.317	13.288	4.314	7.932	4.962	5.846	8.481
11/24/09 23:30	10.072	8.74	8.806	4.437	8.312	2.711		2.319	13.288	4.317	7.932	4.962	5.846	8.478
11/24/09 23:35	10.075	8.74	8.808	4.442	8.312	2.723		2.319	13.281	4.314	7.934	4.962	5.846	8.478
11/24/09 23:40	10.072	8.742	8.803	4.442	8.312	2.725		2.322	13.29	4.314	7.937	4.965	5.846	8.476
11/24/09 23:45	10.075	8.742	8.808	4.442	8.312	2.721		2.319	13.288	4.314	7.937	4.962	5.846	8.476
11/24/09 23:50	10.075	8.74	8.806	4.442	8.312	2.718		2.324	13.288	4.314	7.937	4.962	5.846	8.476
11/24/09 23:55	10.075	8.74	8.801	4.445	8.314	2.723		2.324	13.288	4.314	7.937	4.962	5.846	8.476
11/25/09 0:00	10.077	8.74	8.801	4.444	8.309	2.725		2.322	13.29	4.312	7.939	4.965	5.848	8.476
11/25/09 0:05	10.077	8.74	8.803	4.447	8.312	2.73		2.324	13.288	4.312	7.939	4.962	5.846	8.476
11/25/09 0:10	10.079	8.74	8.806	4.449	8.312	2.732		2.324	13.288	4.31	7.941	4.965	5.846	8.476
11/25/09 0:15	10.079	8.74	8.803	4.452	8.312	2.732		2.326	13.283	4.31	7.941	4.962	5.846	8.474
11/25/09 0:20	10.082	8.74	8.801	4.452	8.309	2.737		2.329	13.283	4.307	7.944	4.965	5.848	8.474
11/25/09 0:25	10.082	8.742	8.806	4.454	8.312	2.735		2.324	13.285	4.307	7.944	4.965	5.846	8.474
11/25/09 0:30	10.084	8.742	8.801	4.454	8.314	2.735		2.329	13.278	4.307	7.948	4.965	5.846	8.474

	Water Level, ft Above Pressure Sensor													
Date/Time	**MW01**	**MW02**	**MW04**	**MW05**	**MW07**	**MW09**	**MW10**	**MW11**	**MW12**	**MW13**	**MW18**	**MW19**	**MW20**	**MW34**
11/25/09 0:35	10.084	8.742	8.801	4.456	8.314	2.737		2.329	13.281	4.307	7.948	4.965	5.846	8.474
11/25/09 0:40	10.087	8.742	8.803	4.456	8.314	2.73		2.329	13.285	4.307	7.948	4.965	5.848	8.474
11/25/09 0:45	10.087	8.742	8.803	4.461	8.314	2.725		2.329	13.283	4.307	7.951	4.965	5.848	8.474
11/25/09 0:50	10.087	8.74	8.801	4.461	8.314	2.728		2.331	13.283	4.305	7.951	4.965	5.846	8.471
11/25/09 0:55	10.089	8.74	8.803	4.461	8.312	2.728		2.331	13.285	4.307	7.951	4.965	5.848	8.471
11/25/09 1:00	10.089	8.74	8.796	4.461	8.317	2.735		2.333	13.283	4.305	7.953	4.967	5.848	8.471
11/25/09 1:05	10.092	8.74	8.796	4.466	8.317	2.744		2.336	13.278	4.3	7.953	4.965	5.848	8.471
11/25/09 1:10	10.092	8.742	8.808	4.464	8.317	2.737		2.331	13.283	4.3	7.955	4.967	5.848	8.474
11/25/09 1:15	10.091	8.742	8.806	4.461	8.317	2.721		2.333	13.285	4.305	7.96	4.967	5.85	8.474
11/25/09 1:20	10.091	8.742	8.806	4.464	8.317	2.718		2.333	13.285	4.305	7.958	4.965	5.85	8.471
11/25/09 1:25	10.094	8.742	8.803	4.464	8.317	2.725		2.333	13.283	4.305	7.96	4.967	5.85	8.471
11/25/09 1:30	10.092	8.742	8.798	4.466	8.319	2.725		2.336	13.288	4.305	7.962	4.965	5.85	8.471
11/25/09 1:35	10.091	8.745	8.806	4.464	8.319	2.716		2.329	13.288	4.307	7.96	4.967	5.85	8.471
11/25/09 1:40	10.092	8.742	8.808	4.459	8.317	2.709		2.329	13.295	4.31	7.96	4.967	5.85	8.471
11/25/09 1:45	10.087	8.742	8.81	4.459	8.319	2.695		2.329	13.295	4.312	7.96	4.967	5.85	8.469
11/25/09 1:50	10.087	8.74	8.806	4.459	8.317	2.7		2.329	13.299	4.314	7.96	4.967	5.85	8.469
11/25/09 1:55	10.084	8.742	8.806	4.459	8.319	2.7		2.329	13.297	4.314	7.96	4.967	5.85	8.469
11/25/09 2:00	10.087	8.742	8.806	4.461	8.314	2.709		2.331	13.295	4.317	7.96	4.967	5.85	8.469
11/25/09 2:05	10.084	8.742	8.806	4.461	8.317	2.716		2.331	13.295	4.317	7.958	4.967	5.85	8.467
11/25/09 2:10	10.087	8.742	8.803	4.466	8.319	2.725		2.331	13.29	4.314	7.96	4.967	5.85	8.467
11/25/09 2:15	10.087	8.742	8.803	4.466	8.317	2.735		2.333	13.295	4.312	7.962	4.967	5.85	8.467
11/25/09 2:20	10.087	8.742	8.806	4.466	8.319	2.728		2.329	13.292	4.312	7.965	4.969	5.853	8.467
11/25/09 2:25	10.084	8.742	8.808	4.466	8.317	2.721		2.329	13.297	4.314	7.962	4.969	5.85	8.464
11/25/09 2:30	10.084	8.742	8.806	4.464	8.319	2.721		2.329	13.295	4.314	7.962	4.967	5.853	8.464
11/25/09 2:35	10.087	8.742	8.806	4.464	8.319	2.718		2.329	13.299	4.314	7.962	4.967	5.853	8.464
11/25/09 2:40	10.087	8.742	8.803	4.468	8.319	2.723		2.331	13.297	4.314	7.965	4.967	5.853	8.464
11/25/09 2:45	10.087	8.745	8.808	4.466	8.319	2.723		2.331	13.299	4.317	7.965	4.967	5.853	8.467
11/25/09 2:50	10.084	8.745	8.806	4.464	8.314	2.716		2.329	13.299	4.319	7.965	4.969	5.853	8.462
11/25/09 2:55	10.084	8.745	8.803	4.466	8.319	2.718		2.331	13.302	4.317	7.967	4.969	5.853	8.462
11/25/09 3:00	10.084	8.745	8.801	4.466	8.319	2.728		2.331	13.299	4.317	7.967	4.969	5.853	8.462
11/25/09 3:05	10.084	8.745	8.806	4.468	8.317	2.723		2.331	13.299	4.319	7.967	4.969	5.853	8.462
11/25/09 3:10	10.084	8.742	8.801	4.473	8.319	2.735		2.333	13.297	4.317	7.967	4.969	5.853	8.462
11/25/09 3:15	10.087	8.742	8.801	4.473	8.324	2.739		2.333	13.292	4.314	7.969	4.972	5.853	8.462
11/25/09 3:20	10.089	8.742	8.803	4.473	8.321	2.744		2.333	13.297	4.314	7.972	4.969	5.855	8.462
11/25/09 3:25	10.089	8.745	8.801	4.473	8.319	2.737		2.336	13.297	4.314	7.972	4.969	5.855	8.46
11/25/09 3:30	10.087	8.745	8.806	4.473	8.319	2.732		2.333	13.299	4.317	7.974	4.969	5.855	8.462
11/25/09 3:35	10.087	8.745	8.806	4.471	8.317	2.721		2.331	13.295	4.317	7.972	4.969	5.855	8.46
11/25/09 3:40	10.087	8.745	8.806	4.473	8.319	2.721		2.331	13.297	4.319	7.974	4.969	5.855	8.46
11/25/09 3:45	10.084	8.745	8.798	4.471	8.317	2.725		2.331	13.299	4.319	7.972	4.969	5.855	8.46
11/25/09 3:50	10.084	8.745	8.803	4.471	8.319	2.716		2.331	13.297	4.319	7.972	4.969	5.855	8.46
11/25/09 3:55	10.082	8.745	8.806	4.468	8.321	2.709		2.329	13.302	4.321	7.972	4.972	5.855	8.457
11/25/09 4:00	10.08	8.745	8.801	4.468	8.319	2.711		2.329	13.299	4.324	7.972	4.969	5.855	8.46
11/25/09 4:05	10.079	8.745	8.801	4.471	8.321	2.714		2.331	13.302	4.324	7.972	4.972	5.855	8.457
11/25/09 4:10	10.079	8.745	8.803	4.471	8.317	2.716		2.326	13.299	4.324	7.969	4.972	5.855	8.457
11/25/09 4:15	10.077	8.745	8.803	4.468	8.319	2.716		2.326	13.302	4.326	7.969	4.972	5.855	8.457

	Water Level, ft Above Pressure Sensor													
Date/Time	**MW01**	**MW02**	**MW04**	**MW05**	**MW07**	**MW09**	**MW10**	**MW11**	**MW12**	**MW13**	**MW18**	**MW19**	**MW20**	**MW34**
11/25/09 4:20	10.077	8.745	8.808	4.468	8.319	2.709		2.326	13.302	4.329	7.972	4.972	5.857	8.455
11/25/09 4:25	10.075	8.745	8.806	4.466	8.317	2.707		2.324	13.304	4.331	7.969	4.972	5.855	8.455
11/25/09 4:30	10.07	8.747	8.808	4.461	8.317	2.693		2.322	13.309	4.333	7.969	4.972	5.855	8.453
11/25/09 4:35	10.067	8.745	8.808	4.461	8.317	2.686		2.322	13.309	4.333	7.965	4.972	5.857	8.453
11/25/09 4:40	10.065	8.745	8.806	4.459	8.319	2.688		2.319	13.309	4.333	7.962	4.972	5.855	8.453
11/25/09 4:45	10.06	8.747	8.803	4.456	8.314	2.688		2.319	13.311	4.333	7.962	4.972	5.855	8.45
11/25/09 4:50	10.058	8.745	8.808	4.456	8.312	2.683		2.315	13.318	4.331	7.965	4.972	5.857	8.45
11/25/09 4:55	10.053	8.745	8.803	4.452	8.312	2.674		2.315	13.313	4.331	7.96	4.972	5.855	8.448
11/25/09 5:00	10.053	8.745	8.808	4.454	8.312	2.683		2.315	13.318	4.329	7.958	4.972	5.855	8.448
11/25/09 5:05	10.051	8.745	8.803	4.454	8.309	2.686		2.31	13.32	4.329	7.958	4.972	5.857	8.45
11/25/09 5:10	10.048	8.747	8.806	4.452	8.305	2.676		2.31	13.318	4.329	7.955	4.972	5.855	8.448
11/25/09 5:15	10.044	8.745	8.803	4.447	8.307	2.669		2.31	13.323	4.326	7.951	4.972	5.855	8.443
11/25/09 5:20	10.041	8.745	8.801	4.449	8.307	2.672		2.308	13.323	4.326	7.955	4.972	5.855	8.446
11/25/09 5:25	10.041	8.745	8.798	4.452	8.307	2.681		2.313	13.32	4.326	7.951	4.974	5.857	8.443
11/25/09 5:30	10.039	8.745	8.798	4.454	8.305	2.688		2.31	13.318	4.326	7.955	4.974	5.855	8.443
11/25/09 5:35	10.036	8.745	8.798	4.449	8.302	2.683		2.308	13.32	4.326	7.951	4.972	5.855	8.443
11/25/09 5:40	10.034	8.745	8.798	4.449	8.305	2.683		2.308	13.32	4.326	7.953	4.972	5.855	8.441
11/25/09 5:45	10.034	8.745	8.801	4.449	8.302	2.676		2.306	13.323	4.326	7.951	4.974	5.855	8.439
11/25/09 5:50	10.032	8.745	8.798	4.449	8.3	2.672		2.306	13.32	4.326	7.951	4.974	5.855	8.436
11/25/09 5:55	10.029	8.745	8.798	4.449	8.3	2.679		2.303	13.32	4.326	7.951	4.974	5.855	8.436
11/25/09 6:00	10.029	8.745	8.798	4.452	8.298	2.683		2.303	13.318	4.324	7.948	4.974	5.855	8.434
11/25/09 6:05	10.027	8.747	8.801	4.447	8.3	2.681		2.303	13.32	4.324	7.951	4.974	5.853	8.434
11/25/09 6:10	10.024	8.745	8.794	4.447	8.295	2.669		2.301	13.323	4.324	7.951	4.974	5.855	8.434
11/25/09 6:15	10.022	8.745	8.794	4.447	8.295	2.672		2.303	13.325	4.324	7.948	4.974	5.853	8.432
11/25/09 6:20	10.022	8.747	8.794	4.447	8.298	2.672		2.301	13.32	4.321	7.946	4.974	5.855	8.429
11/25/09 6:25	10.02	8.747	8.796	4.447	8.293	2.672		2.301	13.323	4.321	7.948	4.972	5.855	8.429
11/25/09 6:30	10.017	8.747	8.791	4.447	8.29	2.672		2.299	13.32	4.321	7.948	4.974	5.853	8.427
11/25/09 6:35	10.017	8.745	8.791	4.447	8.29	2.669		2.299	13.32	4.321	7.948	4.974	5.853	8.425
11/25/09 6:40	10.015	8.745	8.791	4.442	8.29	2.66		2.299	13.325	4.321	7.946	4.974	5.853	8.425
11/25/09 6:45	10.01	8.745	8.789	4.449	8.29	2.658		2.296	13.327	4.321	7.946	4.974	5.853	8.425
11/25/09 6:50	10.01	8.742	8.786	4.447	8.286	2.66		2.296	13.325	4.319	7.946	4.976	5.855	8.422
11/25/09 6:55	10.01	8.745	8.789	4.447	8.286	2.665		2.299	13.325	4.319	7.946	4.974	5.853	8.42
11/25/09 7:00	10.008	8.742	8.791	4.447	8.288	2.669		2.301	13.323	4.319	7.948	4.974	5.853	8.42
11/25/09 7:05	10.008	8.745	8.789	4.447	8.283	2.667		2.294	13.32	4.319	7.946	4.974	5.853	8.418
11/25/09 7:10	10.008	8.745	8.786	4.449	8.283	2.672		2.299	13.316	4.317	7.948	4.974	5.853	8.418
11/25/09 7:15	10.01	8.742	8.784	4.452	8.283	2.683		2.296	13.316	4.317	7.948	4.974	5.853	8.418
11/25/09 7:20	10.01	8.742	8.782	4.454	8.281	2.681		2.301	13.311	4.314	7.948	4.976	5.853	8.415
11/25/09 7:25	10.01	8.742	8.781	4.459	8.281	2.69		2.301	13.302	4.312	7.951	4.976	5.853	8.415
11/25/09 7:30	10.01	8.742	8.779	4.456	8.281	2.695		2.301	13.306	4.312	7.955	4.976	5.853	8.415
11/25/09 7:35	10.008	8.742	8.786	4.449	8.279	2.656		2.294	13.313	4.317	7.951	4.976	5.853	8.411
11/25/09 7:40	10.008	8.742	8.777	4.454	8.276	2.651		2.301	13.304	4.317	7.953	4.976	5.85	8.408
11/25/09 7:45	10.01	8.74	8.779	4.459	8.279	2.681		2.303	13.302	4.312	7.958	4.976	5.853	8.41
11/25/09 7:50	10.01	8.742	8.777	4.459	8.276	2.679		2.299	13.304	4.312	7.955	4.976	5.853	8.41
11/25/09 7:55	10.01	8.745	8.777	4.456	8.279	2.672		2.301	13.299	4.312	7.955	4.976	5.853	8.408
11/25/09 8:00	10.012	8.74	8.779	4.456	8.276	2.669		2.299	13.297	4.31	7.955	4.976	5.853	8.408

	Water Level, ft Above Pressure Sensor													
Date/Time	**MW01**	**MW02**	**MW04**	**MW05**	**MW07**	**MW09**	**MW10**	**MW11**	**MW12**	**MW13**	**MW18**	**MW19**	**MW20**	**MW34**
11/25/09 8:05	10.01	8.742	8.772	4.456	8.279	2.662		2.299	13.302	4.312	7.958	4.976	5.853	8.408
11/25/09 8:10	10.005	8.74	8.774	4.454	8.274	2.649		2.296	13.302	4.314	7.955	4.976	5.85	8.406
11/25/09 8:15	10.008	8.74	8.769	4.456	8.274	2.651		2.299	13.304	4.317	7.96	4.976	5.853	8.406
11/25/09 8:20	10.008	8.74	8.774	4.459	8.276	2.662		2.301	13.297	4.312	7.958	4.974	5.853	8.404
11/25/09 8:25	10.008	8.742	8.779	4.459	8.276	2.658		2.296	13.297	4.314	7.96	4.979	5.853	8.406
11/25/09 8:30	10.008	8.74	8.777	4.459	8.276	2.653		2.299	13.297	4.314	7.962	4.976	5.853	8.403
11/25/09 8:35	10.005	8.74	8.774	4.456	8.274	2.653		2.294	13.299	4.312	7.96	4.976	5.853	8.401
11/25/09 8:40	10.005	8.74	8.772	4.459	8.271	2.651		2.294	13.295	4.314	7.96	4.976	5.85	8.401
11/25/09 8:45	10.005	8.742	8.772	4.459	8.271	2.656		2.299	13.295	4.314	7.962	4.976	5.853	8.401
11/25/09 8:50	10.003	8.74	8.772	4.459	8.271	2.653		2.294	13.292	4.312	7.96	4.979	5.85	8.399
11/25/09 8:55	10.003	8.74	8.772	4.454	8.269	2.644		2.294	13.297	4.317	7.962	4.979	5.853	8.399
11/25/09 9:00	10.001	8.74	8.774	4.452	8.271	2.628		2.292	13.299	4.317	7.962	4.979	5.855	8.399
11/25/09 9:05	9.998	8.738	8.767	4.452	8.271	2.621		2.292	13.299	4.319	7.96	4.979	5.853	8.397
11/25/09 9:10	9.996	8.74	8.772	4.452	8.267	2.623		2.292	13.297	4.319	7.958	4.976	5.853	8.396
11/25/09 9:15	9.993	8.738	8.762	4.447	8.267	2.618		2.289	13.302	4.317	7.955	4.976	5.853	8.399
11/25/09 9:20	9.993	8.74	8.762	4.449	8.269	2.623		2.291	13.302	4.314	7.958	4.976	5.853	8.394
11/25/09 9:25	9.991	8.74	8.762	4.447	8.264	2.618		2.289	13.302	4.317	7.953	4.976	5.85	8.394
11/25/09 9:30	9.989	8.738	8.762	4.449	8.264	2.621		2.287	13.304	4.317	7.958	4.976	5.853	8.392
11/25/09 9:35	9.989	8.74	8.755	4.447	8.262	2.614		2.287	13.302	4.317	7.953	4.979	5.85	8.392
11/25/09 9:40	9.984	8.74	8.757	4.449	8.264	2.623		2.287	13.304	4.314	7.955	4.979	5.853	8.389
11/25/09 9:45	9.986	8.738	8.75	4.449	8.262	2.623		2.285	13.299	4.317	7.955	4.979	5.85	8.387
11/25/09 9:50	9.986	8.738	8.753	4.452	8.26	2.635		2.287	13.299	4.312	7.958	4.976	5.853	8.389
11/25/09 9:55	9.984	8.738	8.748	4.452	8.262	2.639		2.287	13.297	4.314	7.953	4.979	5.85	8.385
11/25/09 10:00	9.984	8.738	8.745	4.449	8.257	2.635		2.287	13.295	4.314	7.955	4.979	5.85	8.385
11/25/09 10:05	9.986	8.738	8.741	4.449	8.257	2.632		2.282	13.297	4.314	7.958	4.979	5.848	8.385
11/25/09 10:10	9.984	8.738	8.743	4.447	8.26	2.625		2.285	13.292	4.314	7.955	4.979	5.85	8.385
11/25/09 10:15	9.981	8.738	8.738	4.452	8.257	2.623		2.287	13.292	4.314	7.953	4.976	5.85	8.382
11/25/09 10:20	9.979	8.738	8.736	4.449	8.26	2.623		2.282	13.295	4.314	7.96	4.979	5.848	8.382
11/25/09 10:25	9.979	8.738	8.736	4.447	8.255	2.618		2.28	13.297	4.314	7.955	4.979	5.85	8.38
11/25/09 10:30	9.974	8.735	8.731	4.447	8.255	2.616		2.285	13.297	4.314	7.955	4.981	5.848	8.38
11/25/09 10:35	9.974	8.735	8.729	4.447	8.255	2.611		2.278	13.292	4.312	7.958	4.979	5.85	8.378
11/25/09 10:40	9.972	8.738	8.721	4.445	8.252	2.583		2.28	13.297	4.312	7.955	4.976	5.85	8.378
11/25/09 10:45	9.974	8.735	8.721	4.447	8.25	2.586		2.282	13.292	4.312	7.953	4.979	5.853	8.378
11/25/09 10:50	9.972	8.735	8.721	4.449	8.252	2.6		2.28	13.288	4.312	7.955	4.981	5.848	8.378
11/25/09 10:55	9.972	8.735	8.719	4.449	8.25	2.597		2.278	13.292	4.31	7.958	4.976	5.848	8.373
11/25/09 11:00	9.969	8.735	8.714	4.447	8.248	2.593		2.278	13.29	4.31	7.955	4.979	5.85	8.375
11/25/09 11:05	9.972	8.735	8.712	4.452	8.248	2.597		2.282	13.283	4.307	7.955	4.979	5.846	8.373
11/25/09 11:10	9.969	8.735	8.704	4.454	8.25	2.611		2.28	13.283	4.305	7.958	4.981	5.85	8.376
11/25/09 11:15	9.972	8.733	8.704	4.452	8.25	2.607		2.28	13.276	4.303	7.96	4.981	5.848	8.375
11/25/09 11:20	9.974	8.735	8.7	4.454	8.25	2.611		2.287	13.278	4.303	7.962	4.979	5.85	8.371
11/25/09 11:25	9.974	8.733	8.697	4.452	8.245	2.616		2.28	13.276	4.3	7.967	4.979	5.85	8.373
11/25/09 11:30	9.972	8.738	8.695	4.452	8.245	2.611		2.282	13.276	4.298	7.965	4.981	5.85	8.371
11/25/09 11:35	9.977	8.735	8.69	4.459	8.248	2.609		2.287	13.271	4.298	7.965	4.981	5.848	8.368
11/25/09 11:40	9.974	8.733	8.685	4.461	8.245	2.618		2.285	13.276	4.296	7.965	4.981	5.846	8.371
11/25/09 11:45	9.981	8.735	8.688	4.461	8.245	2.616		2.287	13.264	4.293	7.969	4.981	5.848	8.369

	Water Level, ft Above Pressure Sensor													
Date/Time	**MW01**	**MW02**	**MW04**	**MW05**	**MW07**	**MW09**	**MW10**	**MW11**	**MW12**	**MW13**	**MW18**	**MW19**	**MW20**	**MW34**
11/25/09 11:50	9.981	8.733	8.678	4.461	8.248	2.623		2.292	13.266	4.289	7.972	4.981	5.85	8.371
11/25/09 11:55	9.986	8.731	8.673	4.468	8.248	2.628		2.292	13.257	4.284	7.969	4.979	5.85	8.371
11/25/09 12:00	9.984	8.733	8.673	4.468	8.245	2.63		2.296	13.257	4.284	7.974	4.981	5.85	8.368
11/25/09 12:05	9.986	8.733	8.668	4.471	8.245	2.63		2.299	13.252	4.279	7.976	4.981	5.85	8.371
11/25/09 12:10	9.989	8.733	8.673	4.468	8.25	2.63		2.296	13.252	4.277	7.981	4.983	5.85	8.368
11/25/09 12:15	9.991	8.733	8.666	4.473	8.243	2.611		2.296	13.248	4.277	7.979	4.983	5.855	8.366
11/25/09 12:20	9.996	8.733	8.671	4.473	8.252	2.618		2.296	13.245	4.277	7.983	4.983	5.855	8.371
11/25/09 12:25	9.993	8.733	8.673	4.473	8.25	2.625		2.296	13.243	4.27	7.981	4.981	5.853	8.371
11/25/09 12:30	9.993	8.733	8.668	4.473	8.248	2.611		2.296	13.238	4.272	7.983	4.981	5.853	8.371
11/25/09 12:35	9.998	8.733	8.671	4.473	8.25	2.618		2.299	13.241	4.27	7.988	4.981	5.853	8.378
11/25/09 12:40	9.998	8.733	8.668	4.48	8.25	2.628		2.301	13.238	4.265	7.988	4.983	5.855	
11/25/09 12:45	9.998	8.733	8.671	4.478	8.25	2.623		2.301	13.248	4.268	7.99	4.981	5.853	
11/25/09 12:50	10.003	8.733	8.673	4.476	8.252	2.621		2.303	13.238	4.263	7.993	4.983	5.855	
11/25/09 12:55	9.998	8.731	8.673	4.476	8.252			2.303	13.233	4.263	7.993	4.983	5.853	
11/25/09 13:00	9.998	8.731	8.668	4.476	8.252			2.303	13.234	4.263	7.99	4.983	5.853	
11/25/09 13:05	10	8.733	8.673	4.478	8.255				13.234	4.263	7.993	4.983	5.853	
11/25/09 13:10	10.003	8.731	8.671	4.473	8.252				13.238		7.99	4.983	5.853	
11/25/09 13:15	10.005	8.731	8.671	4.48	8.255				13.229		7.993	4.983	5.855	
11/25/09 13:20	10.001	8.731	8.673	4.478	8.25				13.231		7.995	4.983	5.857	
11/25/09 13:25	10.003	8.733	8.671	4.485	8.25				13.229		7.997	4.983	5.855	
11/25/09 13:30	10.003	8.731	8.673	4.485	8.255				13.227		7.997	4.983	5.855	
11/25/09 13:35	10.003	8.731	8.673	4.48	8.255				13.236		7.997	4.983	5.857	
11/25/09 13:40	10	8.731	8.673	4.478	8.257				13.224		7.993	4.986	5.857	
11/25/09 13:45	10.008	8.731	8.676	4.483	8.257				13.219		7.997	4.986	5.855	
11/25/09 13:50	10.005	8.733	8.673	4.48	8.255				13.224		8.002	4.983	5.857	
11/25/09 13:55	10.008	8.731	8.671	4.48	8.26				13.222		8	4.986	5.857	
11/25/09 14:00	10.012	8.731	8.676	4.488	8.257						8.002	4.986	5.86	
11/25/09 14:05	10.01	8.731	8.678		8.257						8.002	4.986	5.857	
11/25/09 14:10	10.008		8.678		8.257						8.004	4.986	5.855	
11/25/09 14:15	10.008		8.68		8.257						8.004	4.983	5.857	
11/25/09 14:20	10.01		8.688		8.26						8.002	4.986	5.857	
11/25/09 14:25	10.01				8.26						8.007	4.988	5.857	
11/25/09 14:30	10.017				8.262						8.002	4.986	5.857	

Table A.5 Summary of barometric pressure measurements recorded at Hanover during the step testing program.

Date/Time	Barom, ft H_2O
11/23/09 15:00	32.235
11/23/09 15:15	32.238
11/23/09 15:30	32.247
11/23/09 15:45	32.252
11/23/09 16:00	32.255
11/23/09 16:15	32.261
11/23/09 16:30	32.259
11/23/09 16:45	32.257
11/23/09 17:00	32.259
11/23/09 17:15	32.256
11/23/09 17:30	32.259
11/23/09 17:45	32.261
11/23/09 18:00	32.267
11/23/09 18:15	32.274
11/23/09 18:30	32.283
11/23/09 18:45	32.29
11/23/09 19:00	32.293
11/23/09 19:15	32.292
11/23/09 19:30	32.283
11/23/09 19:45	32.271
11/23/09 20:00	32.262
11/23/09 20:15	32.267
11/23/09 20:30	32.264
11/23/09 20:45	32.259
11/23/09 21:00	32.261
11/23/09 21:15	32.265
11/23/09 21:30	32.26
11/23/09 21:45	32.259
11/23/09 22:00	32.258
11/23/09 22:15	32.252
11/23/09 22:30	32.256
11/23/09 22:45	32.267
11/23/09 23:00	32.266
11/23/09 23:15	32.26
11/23/09 23:30	32.269
11/23/09 23:45	32.275
11/24/09 0:00	32.264
11/24/09 0:15	32.272
11/24/09 0:30	32.283
11/24/09 0:45	32.281
11/24/09 1:00	32.269
11/24/09 1:15	32.269
11/24/09 1:30	32.275
11/24/09 1:45	32.261
11/24/09 2:00	32.267
11/24/09 2:15	32.261
11/24/09 2:30	32.251

Date/Time	Barom, ft H_2O
11/24/09 2:45	32.252
11/24/09 3:00	32.258
11/24/09 3:15	32.27
11/24/09 3:30	32.271
11/24/09 3:45	32.271
11/24/09 4:00	32.264
11/24/09 4:15	32.262
11/24/09 4:30	32.263
11/24/09 4:45	32.266
11/24/09 5:00	32.269
11/24/09 5:15	32.269
11/24/09 5:30	32.268
11/24/09 5:45	32.269
11/24/09 6:00	32.266
11/24/09 6:15	32.265
11/24/09 6:30	32.262
11/24/09 6:45	32.269
11/24/09 7:00	32.297
11/24/09 7:15	32.298
11/24/09 7:30	32.306
11/24/09 7:45	32.311
11/24/09 8:00	32.313
11/24/09 8:15	32.321
11/24/09 8:30	32.323
11/24/09 8:45	32.33
11/24/09 9:00	32.332
11/24/09 9:15	32.333
11/24/09 9:30	32.334
11/24/09 9:45	32.336
11/24/09 10:00	32.336
11/24/09 10:15	32.352
11/24/09 10:30	32.351
11/24/09 10:45	32.349
11/24/09 11:00	32.357
11/24/09 11:15	32.348
11/24/09 11:30	32.348
11/24/09 11:45	32.352
11/24/09 12:00	32.344
11/24/09 12:15	32.338
11/24/09 12:30	32.341
11/24/09 12:45	32.323
11/24/09 13:00	32.334
11/24/09 13:15	32.335
11/24/09 13:30	32.335
11/24/09 13:45	32.334
11/24/09 14:00	32.341
11/24/09 14:15	32.341
11/24/09 14:30	32.343
11/24/09 14:45	32.343
11/24/09 15:00	32.35

Date/Time	Barom, ft H_2O
11/24/09 15:15	32.35
11/24/09 15:30	32.364
11/24/09 15:45	32.366
11/24/09 16:00	32.364
11/24/09 16:15	32.361
11/24/09 16:30	32.369
11/24/09 16:45	32.377
11/24/09 17:00	32.379
11/24/09 17:15	32.383
11/24/09 17:30	32.388
11/24/09 17:45	32.394
11/24/09 18:00	32.397
11/24/09 18:15	32.4
11/24/09 18:30	32.402
11/24/09 18:45	32.405
11/24/09 19:00	32.409
11/24/09 19:15	32.411
11/24/09 19:30	32.413
11/24/09 19:45	32.418
11/24/09 20:00	32.417
11/24/09 20:15	32.415
11/24/09 20:30	32.42
11/24/09 20:45	32.423
11/24/09 21:00	32.424
11/24/09 21:15	32.427
11/24/09 21:30	32.433
11/24/09 21:45	32.433
11/24/09 22:00	32.432
11/24/09 22:15	32.432
11/24/09 22:30	32.428
11/24/09 22:45	32.427
11/24/09 23:00	32.427
11/24/09 23:15	32.428
11/24/09 23:30	32.43
11/24/09 23:45	32.426
11/25/09 0:00	32.423
11/25/09 0:15	32.418
11/25/09 0:30	32.414
11/25/09 0:45	32.413
11/25/09 1:00	32.407
11/25/09 1:15	32.408
11/25/09 1:30	32.404
11/25/09 1:45	32.417
11/25/09 2:00	32.415
11/25/09 2:15	32.412
11/25/09 2:30	32.414
11/25/09 2:45	32.415
11/25/09 3:00	32.416
11/25/09 3:15	32.411
11/25/09 3:30	32.414

Date/Time	Barom, ft H_2O
11/25/09 3:45	32.414
11/25/09 4:00	32.42
11/25/09 4:15	32.424
11/25/09 4:30	32.436
11/25/09 4:45	32.446
11/25/09 5:00	32.457
11/25/09 5:15	32.464
11/25/09 5:30	32.467
11/25/09 5:45	32.475
11/25/09 6:00	32.476
11/25/09 6:15	32.483
11/25/09 6:30	32.488
11/25/09 6:45	32.497
11/25/09 7:00	32.496
11/25/09 7:15	32.495
11/25/09 7:30	32.49
11/25/09 7:45	32.489
11/25/09 8:00	32.492
11/25/09 8:15	32.496
11/25/09 8:30	32.497
11/25/09 8:45	32.498
11/25/09 9:00	32.503
11/25/09 9:15	32.524
11/25/09 9:30	32.52
11/25/09 9:45	32.524
11/25/09 10:00	32.524
11/25/09 10:15	32.521
11/25/09 10:30	32.512
11/25/09 10:45	32.535
11/25/09 11:00	32.532
11/25/09 11:15	32.539
11/25/09 11:30	32.522
11/25/09 11:45	32.522
11/25/09 12:00	32.515
11/25/09 12:15	32.507
11/25/09 12:30	32.509
11/25/09 12:45	32.494
11/25/09 13:00	32.49
11/25/09 13:15	32.504
11/25/09 13:30	32.511
11/25/09 13:45	32.508
11/25/09 14:00	32.51
11/25/09 14:15	32.498
11/25/09 14:30	32.495

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Supplement 7:

Summary of Constant-Rate Pumping Test Results for Zone 1 Monitoring Well MW05 at Hanover, Kansas

Argonne NATIONAL LABORATORY

ANL/EVS/AGEM/CHRON-1361

Summary of Constant-Rate Pumping Test Results for Zone 1 Monitoring Well MW05 at Hanover, Kansas

Environmental Science Division

USDA United States Department of Agriculture

Work sponsored by Commodity Credit Corporation,
United States Department of Agriculture

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ANL/EVS/AGEM/CHRON-1361

Summary of Constant-Rate Pumping Test Results for Zone 1 Monitoring Well MW05 at Hanover, Kansas

by
Applied Geosciences and Environmental Management Section
Environmental Science Division, Argonne National Laboratory

April 2010

United States Department of Agriculture

Work sponsored by Commodity Credit Corporation,
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Notation

BE	barometric efficiency
CCC	Commodity Credit Corporation
CD	compact disc
ft	foot (feet)
gal	gallon(s)
gpm	gallon(s) per minute
hr	hour(s)
in.	inch(es)
KDHE	Kansas Department of Health and Environment
K_h	horizontal hydraulic conductivity
min	minute(s)
ROI	radius of influence
sec	second(s)
T	transmissivity
TD	total depth
TOC	top of casing
USDA	U.S. Department of Agriculture
V	volt(s)

Summary of Constant-Rate Pumping Test Results for Zone 1 Monitoring Well MW05 at Hanover, Kansas

Executive Summary

The primary technical objective of the pumping investigations conducted at Hanover was to assess whether groundwater extraction might represent a potentially viable option for consideration in the development of candidate remedial alternatives for the Zone 1 water-bearing unit. With the approval of the Kansas Department of Health and Environment, wells MW09, MW05, and MW10 were selected for step-drawdown testing, and well MW05 was selected for constant-rate testing. These wells lie within the portions of the Zone 1 water-bearing unit exhibiting the highest estimated hydraulic conductivity values, as determined by slug testing, and hence the highest expected capability to support groundwater pumping wells. A constant-rate pumping test was performed at well MW05 on February 22-24, 2010, to evaluate the potential effectiveness of localized groundwater extraction.

The pumping experiments conducted at MW05 demonstrated that groundwater extraction at this location, at rates of approximately 1 gpm or greater, cannot be sustained because of apparent local dewatering of the Zone 1 unit. The present results suggest that a small drawdown ($\leq$ 0.1 ft) can be induced at the observation well nearest to MW05 (MW02, at a distance of approximately 106 ft) in response to pumping at these rates, but no drawdown was observed in any other nearby monitoring wells.

On the basis of the hydraulic testing conducted to date, we do not believe that groundwater extraction represents a logistically or hydraulically practical mechanism for potential restoration of the entire areal extent of the carbon tetrachloride contamination in the Zone 1 water-bearing unit. The present results further suggest that groundwater extraction is not a viable mechanism for even localized ("hot-spot") restoration of the Zone 1 water-bearing unit at the MW05, MW09, or MW10 locations. This interpretation is a direct consequence of the limited thickness, limited availability of groundwater, and heterogeneous hydraulic conductivity of this interval.

1 Background

This document presents a summary of the data obtained from the constant-rate testing. The work reported here was conducted by Argonne National Laboratory on behalf of the Commodity Credit Corporation of the U.S. Department of Agriculture (CCC/USDA). The work is under the oversight of the Kansas Department of Health and Environment (KDHE).

"Addendum 3" (Argonne 2009a) to the *Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas* (Argonne 2008), outlines a program of hydraulic investigation, consisting of single-well step-drawdown testing and constant-rate pumping tests, to determine the production capacity and potential radius of influence (ROI) of selected existing wells at this site. As part of this program, "step" pumping tests were performed on November 23-25, 2009, at existing monitoring wells MW09, MW05, and MW10 (Figure 1; Argonne 2010).

With the approval of the KDHE (2009), wells MW09 and MW05 were selected (Argonne 2009a) as the initial locations for testing (Figure 1). Wells MW09 and MW05 are located near the north central boundary of the former CCC/USDA facility; they lie within the portion of the Zone 1 water-bearing unit exhibiting both the highest observed carbon tetrachloride concentrations in groundwater and the highest hydraulic conductivity values as estimated from results of slug testing (Argonne 2009b). The available data suggested that wells in this area (including MW09 and MW05) might have the greatest probability of sustaining pumping rates that are sufficient to induce significant groundwater drawdown in other nearby monitoring wells, and hence to facilitate potential "hot-spot" groundwater extraction in this area as a remedial alternative.

Well MW10 is located near the southern boundary of the former CCC/USDA facility, as well as near the southern, downgradient limit of the highest carbon tetrachloride concentrations identified in the Zone 1 groundwater (Figure 1). Slug testing at this location (Argonne 2009b) identified relatively moderate hydraulic conductivity. Specific capacity testing at well MW10 was therefore conducted to assess the potential for groundwater pumping in this area, as a possible means to hydraulically constrain further downgradient migration of the carbon tetrachloride in Zone 1.

The results of the step pumping tests at MW05, MW09, and MW10 were as follows:

- The testing of MW09 showed that the sustainable rate of pumping at this well is < 0.2 gpm (gallons per minute).

- No drawdown was observed at neighboring wells MW02, MW05, MW11, or MW13 in response to the pumping at MW09. The results indicated a maximum potential ROI for the pumping of this well that is less than the distance from MW09 to the closest presently available observation point (< 124 ft).

- The results of the testing at MW10 demonstrated a sustainable pumping rate for this well of < 0.3 gpm.

- No drawdown in response to the pumping of well MW10 was detected at nearby wells MW01, MW07, and MW19. The distances from MW10 to these wells range from 163 ft to 194 ft. Approximately 0.8 ft of drawdown was observed, however, at more distant well MW04 (229 ft from MW10), while no pumping response was detected at a similar distance (234 ft) at MW18. These observations demonstrated that the hydraulic response of the Zone 1 water-bearing unit to pumping at MW10 is highly heterogeneous and unpredictable.

- The step-testing results for wells MW09 and MW10 demonstrate that groundwater extraction is not a viable mechanism for even localized ("hot-spot") restoration of the Zone 1 water-bearing unit at these locations.

- A maximum pumping rate of approximately 1.14 gpm was achieved during the step testing of well MW05, because the test equipment used had been configured to permit fine control of the pumping at very low rates (< 0.1 gpm) during this investigation. The maximum drawdown achieved at the end of the final (1-hr) pumping step (1.4 ft) represented only approximately 33% of the total available drawdown in this well at the time of testing.

- No drawdown was detected at neighboring wells MW01, MW09, MW11, or MW12 in response to the pumping of well MW05. Approximately 0.07 ft of drawdown apparently occurred at MW02, the observation point closest to

MW05 (located approximately 106 ft east of MW05). The water level response observed at MW02 was unusual, however, in that no subsequent recovery was detected at this well over a 20-hr period following the pumping event.

- A conservative projection based on the specific capacity data obtained for MW05 (Figure 2) suggested a potential maximum flow rate from this well, for a 1-hr period, on the order of 2.5 gpm.

Because the full pumping capacity at MW05 could not be explored during the step-drawdown testing (due to the physical configuration of the pumping equipment employed), the potential was recognized for greater drawdown, and hence greater groundwater (and contaminant) capture over a wider portion of the Zone 1 water-bearing unit, in response to longer-term pumping at this location at a higher rate.

For these reasons, a constant-rate pumping test at well MW05 was recommended for further evaluation of the potential effectiveness of localized groundwater extraction in this portion of the Hanover site. With the approval of the KDHE (2010), constant-rate pumping of well MW05 was performed on February 22-24, 2010.

2 Implementation of the Pump Testing Program

The test pumping of well MW05 was conducted at Hanover on February 22-24, 2010, in accord with the investigative approach approved by the KDHE (2009). However, the initial results obtained during this investigation necessitated the implementation of a modified testing program (consisting of two relatively short-duration constant-rate pumping events *in lieu* of the previously recommended 24-hr constant-rate test) to address the specific aquifer response conditions encountered at MW05. The revised testing program, outlined below, was discussed with the KDHE project manager (C. Carey) at the Hanover site on February 23, 2010, and was conducted with verbal KDHE approval.

The revised testing program, the equipment and field procedures used to perform the testing, and the results of the initial constant-rate pumping test were discussed with the KDHE project manager (C. Carey) at the Hanover site following the completion of the initial test on the morning of February 23. With verbal KDHE approval, the second constant-rate pumping event was conducted in the afternoon of the same day (February 23). The KDHE project manager elected not to observe the actual pumping activities.

2.1 Pre-Test Monitoring of Ambient Water Levels and Barometric Pressure

Data obtained in conjunction with the step pumping investigations at wells MW05, MW09, and MW10 (Argonne 2010) strongly suggested that many of the Zone 1 monitoring wells at the Hanover site appear to show groundwater level responses related to fluctuations in the local barometric pressure. This occurrence, commonly termed *barometric efficiency* (BE), is often associated with confined aquifers (but may also appear in unconfined aquifers under certain conditions). The BE can be exhibited as either a *direct* (depth to water in a well increases as the atmospheric pressure increases) or *inverse* (depth to water decreases as atmospheric pressure increases) response to barometric pressure variations, depending on the specific hydraulic characteristics of the water-bearing and overlying sedimentary units (Solinst 2009; Spane 1999; Rasmussen and Crawford 1997). Although the water level fluctuations associated with BE are typically small, the step testing studies suggested that this effect might affect the recognition of potential subtle drawdown responses in the Zone 1 water-bearing unit, as a result of the planned constant-rate pumping of well MW05.

To provide a basis for quantitative evaluation of potential BE responses in the Zone 1 monitoring well network, coincident measurements of the local atmospheric pressure and the ambient groundwater levels in monitoring wells MW01, MW02, and MW04-MW13 (Figure 3) were collected, at 1-hr intervals, during the 6-day period preceding the MW05 pumping (from February 16 to February 22). The barometric readings were obtained by using an absolute-pressure sensor-data logger placed at the site near well MW09.

2.2 Configuration and Monitoring of Wells MW05 and MW02 for the MW05 Pumping Tests

A Geotech Environmental Equipment, Inc., SS GeosubTM 12-V (direct current) sampling pump equipped with 0.375-in. inside-diameter discharge tubing and a Geotech alternating current controller were used to perform the MW05 testing. This pumping configuration, together with a ¼-turn ball valve installed at the outlet of the discharge tubing, permitted relatively precise control of the flow from the pump at rates of up to 2.0-2.5 gpm. The pump was installed in MW05 so that the pump inlet was at a depth of 28.2 ft from the top of the casing (TOC), approximately 0.2 ft above the measured bottom (total depth or TD) of the well. The pump body is 1.0 ft in length.

As proposed in “Addendum 3” (Argonne 2009a), the specific pumping rates employed for the MW05 testing were selected in the field as described in Section 2.4. The pumping rates were measured by using a stop watch to determine the time required to fill a calibrated 1-gal container placed at the discharge outfall. To supplement these measurements, a digital, totalizing flow meter (resolution of 0.03 gpm) was installed in the discharge line to provide a continuous indication of the instantaneous flow rate from MW05. The manually determined and metered flow readings were recorded periodically during each pumping episode.

Monitoring of the water levels in well MW05 and well MW02 (the nearest observation point to MW05, at a distance of 106 ft; Figure 3) during the pumping of well MW05 was performed by using multiple sensing and recording techniques, to ensure redundancy and provide a basis for quality evaluation of the resulting data. During the initial pumping efforts (pre-test pumping and pumping test 1; see Sections 2.4.1 and 2.4.2), MW05 and MW02 were each equipped with a self-contained pressure sensor-data logger unit (Instrumentation Northwest, Inc., Model PT2X^{TM}) and a pressure transducer connected to an aboveground data logger (In-Situ, Inc., Hermit^{TM} Model 1000C). For pumping test 2 (Section 2.4.3), the PT2X^{TM} unit was

removed from MW05 (Section 2.4.2). During all pumping events, periodic measurements of the water level in MW05 were also taken manually, to the near 0.01 ft TOC, by using an electronic water level meter.

The Hermit™ logger employs a logarithmic time schedule for rapid data collection (5 measurements per second) at the beginning of each recording period, with a progressively reduced measurement frequency as the test progresses (reaching three readings per hour after the first 100 min of recording). The PT2X™ units in MW05 and MW02 were programmed for a fixed measurement interval of one reading every 10 sec during the first 4 hr of recording (beginning at 10:00 on February 23) and one reading every minute thereafter, under the original assumption that pumping would continue uninterrupted for 24 hr (see also Section 2.4).

The pressure sensors in well MW02 were installed next to each other, at an approximate depth of 33.6 ft TOC. To prevent mechanical interference between the pressure sensors, pump electrical cable, and pump discharge tubing installed in MW05, the transducer and PT2X™ in this well were stacked vertically as closely as possible above the pump, so that the transducer and PT2X™ sensor inlets were located 1.85 ft and 2.7 ft, respectively, above the well's TD (0.45 ft and 1.30 ft, respectively, above the top of the pump).

2.3 Monitoring of Wells MW01, MW04, and MW06-MW13 for the MW05 Pumping Tests

Groundwater level variations in the network of existing Zone 1 monitoring wells near MW05 (MW01, MW04, MW06-MW13) were monitored continuously throughout the MW05 pumping investigations through the use of self-contained pressure sensor-data loggers (PT2X™). The data loggers in all wells were programmed for a fixed measurement interval of one reading every 10 sec during the first 4 hr of recording (beginning at 10:00 on February 23) and one reading every minute thereafter, under the original assumption that pumping would continue uninterrupted for 24 hr. On the basis of the pumping and drawdown results observed during pumping test 1 (Section 2.4.2), these settings were retained through the remainder of the MW05 pumping investigation, until all records were retrieved from the loggers on February 24.

2.4 Pumping of Well MW05

Well MW05 was pumped in three separate episodes during the current investigation. The wastewater generated during the tests was containerized at the site and held for subsequent sampling, analysis, and disposal as outlined in "Addendum 3" (Argonne 2009a).

The details of these pumping episodes are described in this section and are summarized (for wells MW05 and MW02) in Tables 1-3 and Figures 4-12.

2.4.1 Pre-Test Pumping (February 22, 16:50-17:45)

On February 22, 2010, the pump in well MW05 was operated briefly to establish initial settings for the electronic pump controller and flow metering valve that were to be used for the proposed constant-rate testing of this well. The results of this pumping episode are summarized in Table 1 and Figure 4. The complete MW05 data logger record for this pumping event is on compact disc (CD) in Supplement 1, Table S1.1 (inside the back cover).

The initial static water level in well MW05 at the time of this pumping was 22.84 ft TOC, indicating approximately 5.6 ft of available head in the well above TD. On the basis of the estimates obtained from the MW05 step pumping test (Figure 2), an initial pumping rate of 1.71-1.75 gpm was selected. At this flow rate, the water level in the well fell very quickly and dropped below the position of the PT2X™ pressure sensor, at an indicated drawdown of approximately 3.1 ft. The Hermit™ logger was not programmed to collect continuous data at this time, but periodic readings were obtained manually from the MW05 transducer, as shown in Table 1 and Figure 4.

Reduction of the flow rate to approximately 1.57 gpm caused a transient rebound in the MW05 water level, but a decline was then observed to an indicated drawdown of approximately 3.7 ft (approximately 0.7 ft above the top of the pump). After further reductions in the flow rate to approximately 1.50 gpm and then 1.43 gpm, rebound in the MW05 water level was again observed. A final adjustment to a target flow rate of approximately 1.50 gpm again resulted in rapid drawdown. The pre-test pumping was completed at 17:45, and the well was allowed to recover overnight. The recovery was not monitored. A total of 84 gal of groundwater was extracted.

During each of the pre-test pumping discharge intervals (Figure 4), the rate of water level decline appeared to increase significantly at a drawdown of roughly 2.4 ft, representing a depth to water of approximately 25.2 ft TOC. This apparent transition in the Zone 1 pumping response was not detected during the step pumping test performed at MW05 in November 2009 (Argonne 2010), because drawdowns of this magnitude could not be achieved in MW05 with the pumping configuration and time step interval employed at that time (see Section 1).

On the basis of these observations, a target flow rate of approximately 1.30-1.40 gpm was selected for the constant-rate pumping test planned for the next day (February 23).

2.4.2 Pumping Test 1 (February 23, 10:01-11:32)

The results of this pumping episode (for wells MW05 and MW02) are in Table 2 and Figures 5-8. The complete data logger records for this event (for MW02 and MW05) are in Supplement 1, Tables S1.2-S1.5.

Pumping was initiated in well MW05 at 10:01 on February 23, at a target flow rate of 1.30-1.40 gpm. As Figure 5 indicates, the instantaneous flow rate varied from approximately 1.34 gpm to 1.40 gpm during the pumping period, with a time-weighted average rate of 1.37 gpm.

The initial static water level in well MW05 was 22.92 ft TOC. The water level fell to the maximum recordable drawdown (approximately 3.76 ft, as detected by the Hermit™ transducer) after 86 min, and pumping was terminated after 91 min (11:32). A total of 127 gal of groundwater was produced. A relatively steady rate of decline of the water level in MW05 was observed, from approximately 1 ft to 2.4 ft of drawdown (corresponding to a depth of 25.3 ft TOC), with no indication of leveling off. The rate of drawdown then increased from approximately 2.4 ft of drawdown until the maximum recorded drawdown (3.76 ft) was reached (Figure 5).

An apparent corresponding drawdown of approximately 0.09 ft was observed at well MW02 (Figure 6). Water level responses at the other, more distant monitoring wells during this event are addressed collectively in Section 3.2.

Upon termination, the results of this pumping episode were discussed on-site with Chris Carey, KDHE project manager for the Hanover investigation. In consultation with Carey, a decision was made to conduct a second constant-rate pumping test, at a slightly reduced flow rate, to investigate further the characteristics of the drawdown behavior observed during the first pumping event.

Water level recovery following the termination of pumping was monitored continuously in well MW02 by the Hermit™ and PT2X™ data loggers until 15:00 (3 hr and 28 min following the end of pumping). Monitoring of the water level recovery in well MW05 with the PT2X™ unit was terminated after 38 min (to provide data for discussion with the KDHE) and was temporarily discontinued (after 100 min, for approximately 1 hr; Figure 7) through use of the Hermit™ data logger to permit removal of the PT2X™ recorder. (The PT2X™ was removed to prevent interference encountered with the manual water level probe during pumping test 1, to ensure that manual readings could be used to verify drawdown levels to the top of the well pump in the second pumping test.)

The observed water level in MW05 recovered to within approximately 0.1 ft of the initial static position after 200 min. The water level in well MW02 recovered by an indicated 0.03 ft during this period (Figures 7-8).

2.4.3 Pumping Test 2 and Recovery (February 23, 15:03-18:12)

With the verbal approval of the KDHE project manager, pumping test 2 was initiated at 15:03, at a target pumping rate of approximately 1.20 gpm. The results of this pumping episode (for wells MW05 and MW02) are in Table 3 and Figures 9-12. The complete data logger records for this event (for MW02 and MW05) are in Supplement 1, Tables S1.6-S1.9.

Instantaneous measured flow rates during this test ranged from 1.188 gpm to 1.227 gpm, for a time-weighted average of 1.212 gpm (Figure 9).

The initial static water level in well MW05 was 23.08 ft TOC. The drawdown response during this test showed a very similar pattern to that observed during pumping test 1 (Figure 5), with a marked increase in the rate of water level decline when approximately 2.0-2.4 ft of drawdown was reached in MW05. The maximum recordable drawdown (3.76 ft) was achieved

after 187 min. Pumping was continued for 2 min more, during which time manual measurements confirmed that the water level had dropped below the top of the pump. The target flow rate could no longer be maintained during the final 2 min of pumping, and a distinct increase in sediment load in the discharge was observed. The pumping was terminated at 189 min; approximately 225 gal of groundwater was produced. A maximum corresponding drawdown of approximately 0.13 ft was observed in MW02 (Figure 10).

Recoveries in both MW02 and MW05 were monitored for 14 hr and 20 min following the end of pumping (Figures 11-12).

3 Results and Discussion

In this section, the water level variations recorded in the network of nearby monitoring wells prior to the well MW05 pumping experiments are reviewed first, to provide a framework for interpretation of the data obtained during the MW05 constant-rate pumping and recovery periods. A review of the water level variations observed in the full suite of monitoring wells (excluding MW05) during the MW05 pumping and recovery periods is then presented, followed by a detailed analysis of the pumping test results obtained at wells MW05 and MW02.

3.1 Evaluation of Ambient Water Level Trends and Barometric Efficiency in the Monitored Wells

Background readings were collected for the ambient water levels in wells MW01, MW02, and MW04-MW13, along with the local barometric pressure, from February 16 to February 22 to provide a basis for identification of any pertinent local trends in the Zone 1 water levels, as well as for possible evaluation of BE in the water level responses at each well. The results of the background water level monitoring are summarized in Figures 13-14. The complete data logger records for this period are in Supplement 2, Table S2.1.

Figure 13 presents the results of the background water level monitoring and corresponding barometric pressure monitoring for the pre-testing observation period, February 16-22. Because the actual depths to water in the Zone 1 wells differ significantly, the monitoring data for both water levels and barometric pressure have been *normalized* to a value of zero as the starting point (13:00 on February 16) for each record. (The water level data in Figure 13 and throughout the remainder of this report, are depicted as “drawdown,” reflecting increasing values as the depth to water increases.) In Figure 14, the results for this period are shown in the context of longer-term water level trends for the Zone 1 wells that have been documented as part of ongoing water level monitoring (at 4-hr measurement intervals) for the Zone 1 water-bearing unit.

Figure 14 demonstrates that the water level variations observed during the pre-test monitoring period (February 16-22) were generally consistent with the documented longer-term trends at this site; however, a number of apparently daily “drawdown” events (highlighted by the superimposed vertical lines in Figure 14) were detected on February 11-18. Although the magnitude of these events was small in absolute terms, their presence clearly affected the pre-test

background data (February 16-22) for several wells (MW08, MW09, MW12, MW13; Figure 15). The origin of these "drawdown" responses is presently unidentified; however, no further occurrences of this type were detected during the period from February 19 to 22.

To identify more clearly the detailed patterns of water level and barometric pressure fluctuations during the pre-test monitoring period, the barometric pressure data and groundwater level data were compared for each well. The results of these analyses are in Appendix A. *In general*, decreasing depths to groundwater observed at all of the Zone 1 wells mirrored the identified decreasing barometric pressure trend, although the exact relationship between the rates of water level and barometric pressure change varied from well to well (Table 4). This type of direct relationship is a typical BE response for confined aquifers.

The more detailed BE relationships outlined in Appendix A and summarized in Table 4 reflect variations in the observed groundwater levels at the monitoring wells that are small in absolute magnitude; however, such secondary, fine-scale effects could potentially affect the identification of small drawdown or recovery responses as a result of the MW05 pumping. The BE relationships identified in Table 4 were therefore incorporated, where appropriate, into the analyses of the MW05 pumping test results that are described in Section 3.2.

3.2 Evaluation of the Water Level Responses to Pumping Observed at Wells MW01, MW02, and MW04-MW13

Groundwater levels were monitored continuously throughout the MW05 pumping investigations in the network of existing Zone 1 monitoring wells near MW05 (MW01, MW02, MW04, MW06-MW13; Figure 3). The data loggers in all wells were programmed for a fixed measurement interval of one reading every 10 sec during the first 4 hr of recording (beginning at 10:00 on February 23), and one reading every minute thereafter. The results of this monitoring are summarized in Figures 16-17. The complete data logger records for this period are in Supplement 3, Tables S3.1 and S3.2.

Figure 16 illustrates the barometric pressure variations recorded at the Hanover site immediately prior to and during the MW05 pumping test periods. In keeping with the interpretive approach outlined in Section 3.1, the pressure readings have been normalized to an initial value of zero at 10:00 on February 23, corresponding to the starting point for water level recording in all of the Zone 1 monitoring wells (Section 2.3). As shown, the local barometric

pressure was relatively stable on February 22 but then began to rise at approximately 6:00 on February 23 and continued to rise fairly steadily throughout the remainder of the monitoring period. Figure 17 presents the recorded hydrographs for the Zone 1 monitoring wells (except pumped well MW05), with the local barometric pressure data, in relationship to the MW05 test 1 and test 2 pumping and recovery periods.

As Figure 17 shows, with several clear exceptions (MW01, MW02, MW10, MW13), the monitoring well traces generally display a relatively steady decline in water levels during the monitoring period that roughly mirrors the associated rising trend in barometric pressure. To investigate this apparent relationship, the BE factors developed in Section 3.1 were used in conjunction with the barometric pressure and the water level traces in Figure 17 to generate a "predicted" water level curve for each well (except for pumping well MW05 and observation wells MW01, MW10, and MW13) for the MW05 investigation period. The results of these calculations are in Appendix B. The predicted hydrographs for wells MW04, MW06-MW09, MW11, and MW12 (Appendix B) agree with the measured water levels to within (at maximum) a difference of 0.05 ft, strongly suggesting that there is little or no evidence for induced drawdown or recovery at these wells as a result of the MW05 pumping episodes.

As noted in Sections 2.4.2 and 2.4.3, the analysis in Appendix B indicates that the measured groundwater levels in monitoring well MW02 showed a very distinct temporal pattern of water level decline in association with the pumping of well MW05, along with a slower water level rise during the recovery period following each MW05 pumping event, that cannot be attributed to the predicted water level BE response in this well. These results are consistent with the preliminary observations obtained from the step testing of well MW05 (Argonne 2010), which suggested that hydraulic continuity exists within the Zone 1 water-bearing unit, at minimum between the locations of MW02 and MW05.

3.3 Evaluation of the Water Level Responses to Pumping Observed at Wells MW05 and MW02

The observations presented in Section 3.2 demonstrate that the water level records for wells MW05 and MW02 clearly reflect drawdown, and subsequent recovery, responses that are linked to the constant-rate groundwater pumping events in MW05. The MW05 and MW02 data therefore provide a basis for quantitative estimation of the hydraulic properties of the Zone 1 water-bearing materials at these locations.

To develop these estimates, the pumping and recovery data from wells MW05 and MW02 were analyzed by using the aquifer test interpretive methods provided in the commercial well test software analysis package AqteSolv for Windows (HydroSolve, Inc.). Numerous alternative analysis methods have been developed for the interpretation of aquifer tests conducted under confined or unconfined conditions, as well as for both relatively simple and more complex aquifer and well geometries. For the present study, multiple analysis methods were screened on the basis of (1) the theoretical applicability of the method to the identified characteristics of the Zone 1 unit and the construction features of the MW05 and MW02 wells, (2) the ability to achieve a satisfactory fit to the experimental data with each method within these site-specific constraints, and (3) their level of documentation and general acceptance by the scientific community. The methods used for this study are described in the following sections, in the context of the individual well data sets.

The hydraulic properties calculated for each well location are dependent, in part, on the assumed thickness of the water-bearing interval that responded to the groundwater pumping during each test, as well as on the construction features and the position of the groundwater level within the well itself. On the basis of analysis of the MW05 lithologic log, an inferred thickness of 2 ft was assumed for the Zone 1 interval at the MW02 and MW05 locations. At MW05, the Zone 1 interval occurs at a depth of approximately 25-26 ft below ground level.

3.3.1 Well MW05

The pumping test 1 and pumping test 2 results for well MW05 were evaluated by using several standard interpretive methods. As Figures 18-21 show, analysis of the data suggested that the results for both tests yielded good fits, with one exception, to the theoretical interpretive curves of the Theis (1935) and Cooper-Jacob (1946) analysis methods for fully confined aquifers. For the Theis (1935) method, both the pumping and recovery data obtained for each test can be analyzed simultaneously. For the Cooper-Jacob (1946) method, only the pumping data can be analyzed. Each of these methods returns an estimate of the aquifer transmissivity (T) for the pumping well. (Although a value of aquifer storativity is also generated by each solution technique, these values are invalid when determined from data for a pumping well.) The resulting T values divided by the aquifer thickness (2 ft for the Zone 1 water-bearing interval) gives the estimated horizontal hydraulic conductivity (K_h) at the pumping well location.

The estimated K_h values derived from the Theis (1946) and Cooper-Jacob (1946) analyses of the MW05 data are summarized in Table 5. The calculated estimates for MW05 range from 45 ft/day to 64 ft/day, and thus they are similar in magnitude to the range of K_h values previously estimated from the slug testing (Argonne 2009b) performed at MW05 and nearby wells MW09, MW11, and MW13 (42 ft/day to 102 ft/day).

Figures 18-21 demonstrate that water level responses for both of the MW05 test data sets diverge sharply from the theoretical curves, at drawdowns (and recovery data for the Theis [1935] solution; Figures 18 and 20) that exceed approximately 2.0 ft-2.4 ft, reflecting a rapid increase in the rate of water level decline. The identified drawdown values represent actual water levels within the MW05 well casing of approximately 25-25.4 ft TOC; this very closely corresponds to the subsurface position of the Zone 1 water-bearing interval at this location. These observations together suggest that the change in the rate of drawdown noted in MW05 during both constant-rate pumping tests might reflect a transition from confined to unconfined aquifer conditions. The exact response of a water-bearing unit during such a transition will depend on several site-specific parameters that are not easily predicted; however, as pumping progresses and the water level within the (now unconfined) unit falls, the effective producing thickness of the unit is no longer fixed but decreases as the interval dewaters, resulting in an increased rate of observed drawdown (Kruseman and deRidder 1991).

The rate of drawdown at MW05 might also increase at higher drawdown levels, over the theoretical response curves represented by the Theis (1935) and Cooper-Jacob (1946) solutions, if the expanding cone of depression generated by the pumping encounters possible aquifer “boundary” conditions, such as thinning of the producing thickness or heterogeneous aquifer permeability at some distance from the pumping well (Kruseman and deRidder 1991; Fetter 1994). Data from the slug test investigations (Argonne 2009b) indicate that the K_h value of the Zone 1 interval varies significantly over relatively short distances in the vicinity of MW05, suggesting that influence of aquifer heterogeneity on the observed drawdown in this well cannot be ruled out. An evaluation of possible hypothetical boundary impacts was attempted for the present analysis by using the simulation capabilities included as part of the AqteSolv software package; however, only simple (orthogonal) boundary orientations, types, and K_h distributions can be addressed in this manner, and an improved fit to the observed MW05 data could not be achieved.

Although the observations above indicate that the detailed hydraulic characteristics of the Zone 1 water-bearing unit at MW05 cannot be uniquely determined, the results obtained from the step pumping (Argonne 2010) and constant-rate pumping conducted at MW05 together suggest that the practical limitations on groundwater production at this location have been effectively explored.

3.3.2 MW02

The pumping test 1 and pumping test 2 results for well MW02 were evaluated by using the Theis (1935) method to simultaneous analyze the pumping and recovery data for these tests. Analysis of the MW02 results could not be performed with the Cooper-Jacob (1946) method, as test-specific criteria (pertaining to the duration of pumping and MW05-MW02 separation distance) were not met by these data sets.

As noted in Sections 2.4.2 and 2.4.3, the measured water level responses at MW02 were very small (about 0.1 ft or less) and generally yielded a relatively poor fit to the theoretical interpretive curves. The results of the Theis (1935) analyses are in Figures 22-23 and Table 5. The resulting estimates of K_h, 34 ft/day and 50 ft/day, are again comparable to the slug test results obtained previously (Argonne 2009b) at nearby wells MW05, MW09, MW11, and MW13 but are greater by approximately an order of magnitude than the estimates obtained from the slug testing of MW02 (2.2-4.1 ft/day).

3.4 Comparison of the Step Pumping and Constant-Rate Pumping Results for MW05

The results of the step pumping investigation conducted at MW05 in November 2009 were reported previously (Argonne 2010). As part of that study, the observed water level responses to pumping at MW05 were used to estimate the specific capacity of this well *for 1-hr time steps*. The results of that analysis are shown in Figure 2. A maximum pumping rate of approximately 1.14 gpm was achieved (for a 1-hr period) during the November study because of the configuration of the pumping equipment used. With this limitation, the estimated production behavior of the MW05 well at higher flow rates was estimated on the basis of the data existing at that time.

Figure 24 illustrates use of the drawdown levels observed after 1 hr of pumping during each of the present constant-rate pumping tests to extend the original specific capacity diagram (Figure 2). As shown, the recent pumping results are in relatively close agreement and thus consistent with the previous specific capacity estimates *for 1-hr time steps*. The results presented in Sections 2.4.2, 2.4.3, and 3.3 clearly demonstrate, however, that the production capacity of this well deviates sharply from the apparent relationship in Figure 24 as the duration of pumping and resulting drawdown values increase, because of the inferred characteristics of the Zone 1 water-bearing unit (limited thickness, onset of dewatering, and heterogeneous distribution of K_h values) outlined in Section 3.3.1.

4 Summary

The primary results of the constant-rate pumping tests conducted at well MW05 are as follows:

- A 24-hr constant-rate pumping test of the Zone 1 water-bearing interval at MW05 could not be completed at the rates (> 1 gpm) originally proposed for this investigation, because of the occurrence of rapid drawdown in response to relatively short-duration pumping. At an average flow rate of approximately 1.4 gpm, pumping could be sustained for only 91 min; at an average flow rate of approximately 1.2 gpm, pumping could be sustained for only 189 min. The total volumes of groundwater produced during these events were 127 gal and 225 gal, respectively.

- The results of the MW05 tests strongly suggest that the production capacity of the Zone 1 water-bearing unit is restricted by the effective thickness (approximately 2 ft) and the heterogeneous hydraulic conductivity of this interval, as well as by the limited availability of groundwater within the unit at this location.

- Hydraulic conductivity estimates obtained from the MW05 pumping tests ranged from 34 ft/day to 64 ft/day. Thus, they were comparable to the estimates (42 ft/day to 102 ft/day) obtained from the previous slug testing of wells MW05, MW09, MW11, and MW13. The present results were greater than those obtained from the slug testing of well MW02 (2.2-4.1 ft/day) by approximately an order of magnitude.

- The pumping of well MW05 resulted in observed drawdown responses at well MW02, the closest neighboring monitoring well to MW05 (at a distance of 106 ft), of approximately 0.1 ft or less. No clear evidence of drawdown resulting from the pumping of MW05 was observed at any of the other Zone 1 wells monitored during this investigation (MW01, MW04-MW13).

5 Conclusions

As outlined in "Addendum 3" (Argonne 2009a), the primary technical objective of the pumping investigations at Hanover was to assess whether groundwater extraction might represent a potentially viable option for consideration in the development of candidate remedial alternatives for the Zone 1 water-bearing unit. With the approval of the KDHE (2009), wells MW09, MW05, and MW10 were selected (Argonne 2009a) for step-drawdown testing, and well MW05 was selected for constant-rate testing. The rational for the selection was that these wells lie within the portions of the Zone 1 water-bearing unit exhibiting the highest estimated hydraulic conductivity values as determined by slug testing (Argonne 2009b), and hence the highest expected capability to support groundwater pumping wells.

The step pumping experiments performed at wells MW09 and MW10 yielded maximum measured groundwater pumping rates at these locations, for nominal 1-hr pumping steps, of < 0.3 gpm. At these rates, the physical limits on pumping imposed by the available water column in each well were effectively achieved. The testing showed that precise control of the pump discharge at these very low rates is required to maintain a steady flow, for even a 1-hr pumping interval, at these locations without incurring excessive drawdown or complete dewatering of the pumping wells. Pumping rates *lower than the observed step test maximum rates* would be required to sustain pumping for a longer period at these wells. The step test results therefore demonstrate that the groundwater production capacity at the MW09 and MW10 well locations is extremely limited.

No drawdown was detected at any of the existing monitoring wells in response to the pumping at MW09 (minimum distance from MW09 to the nearest observation point = 124 ft). Drawdown (< 0.1 ft) was apparently detected at one monitoring point (MW04, at a distance of 229 ft) in response to the pumping of MW10; however, the results of this test indicate that the hydraulic connectivity of the Zone 1 water-bearing unit in this portion of the Hanover site is highly unpredictable.

The pumping experiments conducted at MW05 demonstrate that groundwater extraction at this location, at rates of approximately 1 gpm or greater, similarly cannot be sustained due to apparent local dewatering of the Zone 1 unit. The present results suggest that a small drawdown (≤ 0.1 ft) can be induced at the observation well nearest to MW05 (MW02, at a distance of

approximately 106 ft) in response to pumping at these rates, but that no drawdown is observed in any other nearby monitoring wells.

On the basis of the hydraulic investigations (slug testing, step pumping tests, and constant-rate testing) that have been completed, we do not believe that groundwater extraction represents a logistically or hydraulically practical mechanism for potential restoration of the entire areal extent of the carbon tetrachloride contamination in the Zone 1 water-bearing unit. The generally low hydraulic conductivity values and the unpredictable hydraulic connectivity identified within much of Zone 1 restrict the capacity of this unit to produce groundwater to wells. These characteristics are similarly expected to inhibit the potential use of restoration technologies requiring the injection of materials into this interval.

Our results further demonstrate that conventional groundwater extraction is not a viable mechanism for even localized ("hot-spot") restoration of the Zone 1 water-bearing unit at the more permeable MW05, MW09, or MW10 locations. The latter interpretation is a direct consequence of the groundwater pumping responses that have been documented at these wells. Further testing of the Zone 1 water-bearing unit is not recommended.

6 References

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TABLE 1 Chronologic summary of measurements made during the pretest pumping of well MW05 on February 22, 2010.

Time	Elapsed Time (min)	Water Level above Hermit™ Sensor (ft)	Measured Water Level (ft TOC)	Flow Rate		Notes
				Digital Meter Reading	Timed	
16:50	0			1.75	1 gal/34.16 sec	Start pumping, controller set at 104
16:57	7	2.12	25.04			
17:00	10	2.45	25.40		1 gal/35.16 sec	
17:03	13		26.51			Adjust valve to target 1.5 gpm
17:05	15	2.72	25.40			
17:10	20	2.12	24.98	1.57-1.60	1 gal/38.2 sec	
17:15	25	2.37	25.25	1.53-1.57	1 gal/38.12 sec	
17:20	30	3.12	26.10	1.57	1 gal/38.5 sec	
17:23	33	3.70	26.60			Adjust valve slightly, target 1.5 gpm
17:24	34					
17:25	35	3.16	26.00		1 gal/40.2 sec	
17:30	40	2.98	25.85	1.50		Set controller at 100
17:35	45	3.24	26.15	1.50		
17:36	46			1.43		Set controller at 95
~ 17:41	51					Set controller at 98
~ 17:44	54					Pump off

TABLE 2 Chronologic summary of measurements made during MW05 pumping test 1 on February 23, 2010.

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O)		MW05 Measured Water Level (ft TOC)	Flow Rate		Notes
		MW05	MW02		Digital Meter Reading	Timed	
8:50	-71			22.92			
9:55	-6	0.00	0.00				Hermit references set = 0
10:00	-1						Start pump, valve shut
10:01	0				1.39-1.43		Open and adjust valve
10:02	1					1 gal/43.9 sec	
10:03	2			24.10			
10:05	4			24.15			Collect water sample
10:07	6			24.20			
10:08	7				1.39-1.43	1 gal/44.28 sec	Adjust valve
10:10	9			24.25			
10:12	11	1.33	0.00	24.28	1.39-1.43		Adjust valve
10:14	13					1 gal/43.53 sec	
10:15	14	1.38	0.00	24.35	1.39-1.43		
10:18	17					1 gal/44.03 sec	
10:20	19	1.49	0.01	24.47	1.39-1.43		Adjust valve very slightly
10:22	21					1 gal/43.22 sec	
10:25	24	1.55	0.01	24.52	1.39-1.43		
10:28	27				1.39-1.43	1 gal/42.78 sec	Adjust valve very slightly
10:30	29	1.61	0.01	24.59			
10:33	32				1.39-1.43	1 gal/43.53 sec	
10:35	34	1.62	0.01		1.36-1.39		Adjust valve
10:37	36			24.65	1.39-1.43	1 gal/43.72 sec	
10:40	39	1.69	0.02	24.68	1.39-1.43		Adjust valve very slightly
10:43	42					1 gal/43.69 sec	
10:45	44	1.77	0.03	24.75	1.39-1.43		
10:48	47				1.39-1.43	1 gal/43.54 sec	
10:49	48						Adjust valve very slightly
10:50	49	1.86	0.04	24.85			
10:55	54				1.39-1.43	1 gal/43.47 sec	
10:58	57						Adjust valve very slightly
11:00	59	2.03	0.05	25.01		1 gal/43.35 sec	
11:10	69	2.31	0.06	25.29	1.39-1.43	1 gal/43.65 sec	Adjust valve slightly
11:15	74	2.69	0.07	25.79?			Dropline probe catching?
11:18	77				1.39	1 gal/43.78 sec	Adjust valve
11:20	79	3.14	0.08	26.25	1.39		Adjust valve

TABLE 2 (Cont.)

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O)		MW05 Measured Water Level (ft TOC)	Flow Rate		Notes
		MW05	MW02		Digital Meter Reading	Timed	
11:22	81				1.36-1.39	1 gal/43.59 sec	
11:23	82	3.6	0.08	26.45+			Probe catching; can't reach water
11:24	83	3.62	0.08		1.36-1.39		Adjust valve
11:26	85	3.74	0.08		1.36		Adjust valve
11:28	87	3.76	0.08		1.36	1 gal/44.64 sec	Hermit reading at max
11:29	88	3.76	0.08		1.32-1.36		Adjust valve; can't hold rate
11:31	90	3.76	0.08				
11:32	91			23.60			Stop pump; read water level quickly
11:39	0			23.30			Rising
11:42	3	0.34	0.09				
12:08	29	0.25	0.10	23.19			
12:35	56	0.21	0.10				
12:45	66	0.21	0.09	23.16			
12:51	72						Remove PT2X recorder
13:14	95	0.18	0.08	23.12			
14:06	147		0.07	23.10			
15:00	201	0.08	0.07	23.08			

TABLE 3 Chronologic summary of measurements made during MW05 pumping test 2 on February 23, 2010.

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O)		MW05 Measured Water Level (ft TOC)	Flow Rate		Notes
		MW05	MW02		Digital Meter Reading	Timed	
15:00	-3	0.08	0.07	23.08			
15:02	-1						Start pump, valve shut
15:03	0				1.18-1.21	1 gal/49.97 sec	Open valve and adjust
15:05	2			24.00			
15:07	4			24.08	1.18-1.21	1 gal/50.50 sec	
15:10	7			24.13	1.18-1.21	1 gal/50.03 sec	
15:15	12	1.17	0.07	24.19	1.18-1.21		
15:18	15				1.18-1.21	1 gal/49.50 sec	
15:20	17	1.23	0.07				
15:25	22	1.28	0.08	24.30	1.18-1.21		
15:27	24					1 gal/49.75	
15:30	27	1.30	0.08	24.33	1.18-1.21		
15:32	29					1 gal/49.63 sec	
15:35	32	1.33	0.08	24.36	1.18-1.21		
15:37	34					1 gal/50.03 sec	
15:42	39	1.36	0.08	24.39	1.18-1.21		
15:44	41					1 gal/50.12 sec	
15:46	43				1.18-1.21		Adjust valve slightly
15:50	47	1.43	0.09	24.47	1.18-1.21		
15:52	49					1 gal/49.37 sec	
16:00	57	1.48	0.10	24.51	1.18-1.21	1 gal/49.40 sec	
16:10	67	1.52	0.11	24.54	1.18-1.21	1 gal/49.97 sec	
16:14	71						Adjust valve slightly
16:20	77	1.58	0.12	24.61	1.18-1.21	1 gal/48.94 sec	
16:30	87	1.64	0.12	24.67	1.18-1.25	1 gal/48.90 sec	Adjust valve slightly
16:40	97			24.70	1.18-1.21	1 gal/49.22 sec	
16:50	107			24.74	1.18-1.21	1 gal/49.40 sec	
16:53	110	1.73	0.14				
17:00	117	1.75	0.15	24.78	1.18-1.21	1 gal/49.34	
17:10	127	1.80	0.16	24.83	1.18-1.21	1 gal/49.43 sec	
17:21	138	1.88	0.16	24.91	1.18-1.21	1 gal/49.34 sec	
17:30	147	1.94	0.16	24.97	1.18-1.21	1 gal/49.38 sec	
17:41	158	2.04	0.17	25.08	1.18-1.21	1 gal/49.60 sec	
17:50	167	2.40	0.18	25.55	1.18-1.21		
17:53	170					1 gal/49.18 sec	

TABLE 3 (Cont.)

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O)		MW05 Measured Water Level (ft TOC)	Flow Rate		Notes
		MW05	MW02		Digital Meter Reading	Timed	
18:00	177	2.96	0.19	26.03	1.18-1.21	1 gal/49.97 sec	Adjust valve
18:05	182	3.50	0.19	26.69	1.18-1.21	1 gal/49.56 sec	
18:09	186						Adjust valve
18:10	187	3.76	0.20	27.2+	1.18-1.21		Probe hitting top of pump
18:12	189						Stop pump

TABLE 4 Barometric efficiency factors estimated from background barometric pressure readings and groundwater levels.

	Barometric Efficiency	
Well	Based on Data Trends[a]	Based on Small-Scale Fluctuations[b]
MW01	0.92	0.141[c]
MW02	0.38	0.125[c]
MW04	0.69	0.224[d]
MW05	0.31	0.481
MW06	0.54	0.083
MW07	1.31	0.286
MW08	1.00	-0.563
MW09	0.85	-0.345
MW10	1.46	no correlation
MW11	0.31	0.512
MW12	0.92	-0.776[e]
MW13	1.23[f]	-0.768[e]

[a] Trend factor calculated as (drawdown) hydrograph slope/barograph slope.

[b] Small-scale factor calculated as incremental (1-hr) change in drawdown/incremental (1-hr) change in barometric pressure. See Appendix A.

[c] Calculated value based on observed 4-hr time lag in water level readings.

[d] Calculated value based on observed 5-hr time lag in water level readings.

[e] Calculated for data from hour 60 to end of monitoring period.

[f] Calculated for data from hour 63 to end of monitoring period.

TABLE 5 Summary of hydraulic conductivity estimates generated by the Theis (1935) and Cooper-Jacob (1946) methods from the results of the MW05 constant-rate pumping tests.

	Hydraulic Conductivity (ft/day) in Well Indicated		
	MW05		MW02
Test	Theis	Cooper-Jacob	Theis
First	45	48	50
Second	61	64	34

FIGURE 1 Locations of wells MW05, MW09, and MW10, with carbon tetrachloride concentrations in Zone 1 groundwater samples.

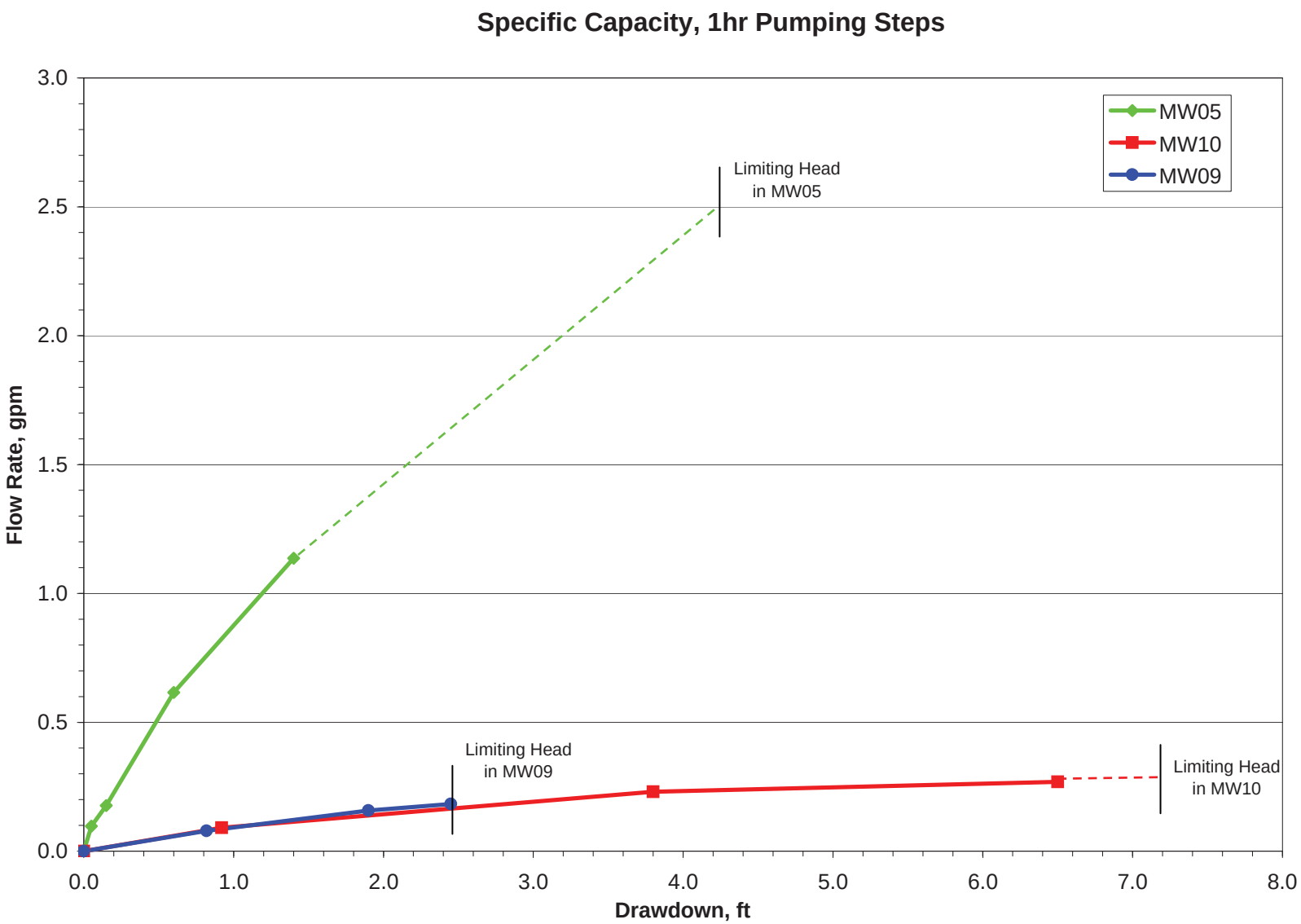

FIGURE 2 Specific capacity estimates for wells MW09, MW05, and MW10, calculated on the basis of 1-hr pumping steps performed on November 24-25, 2009.

FIGURE 3 Locations of Zone 1 monitoring wells MW01, MW02, and MW04-MW13.

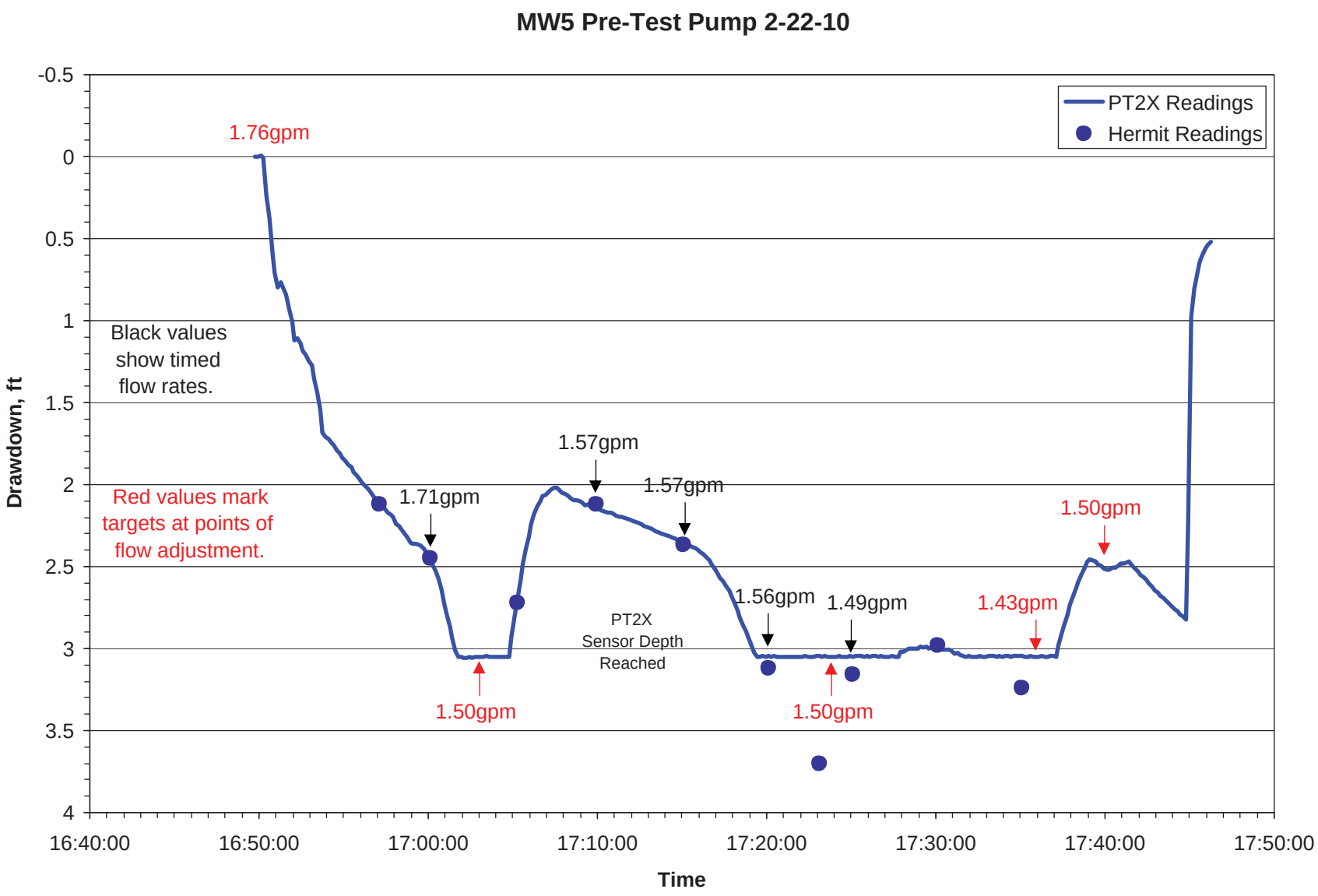

FIGURE 4 Water level responses and measured flow rates during pre-test pumping of well MW05.

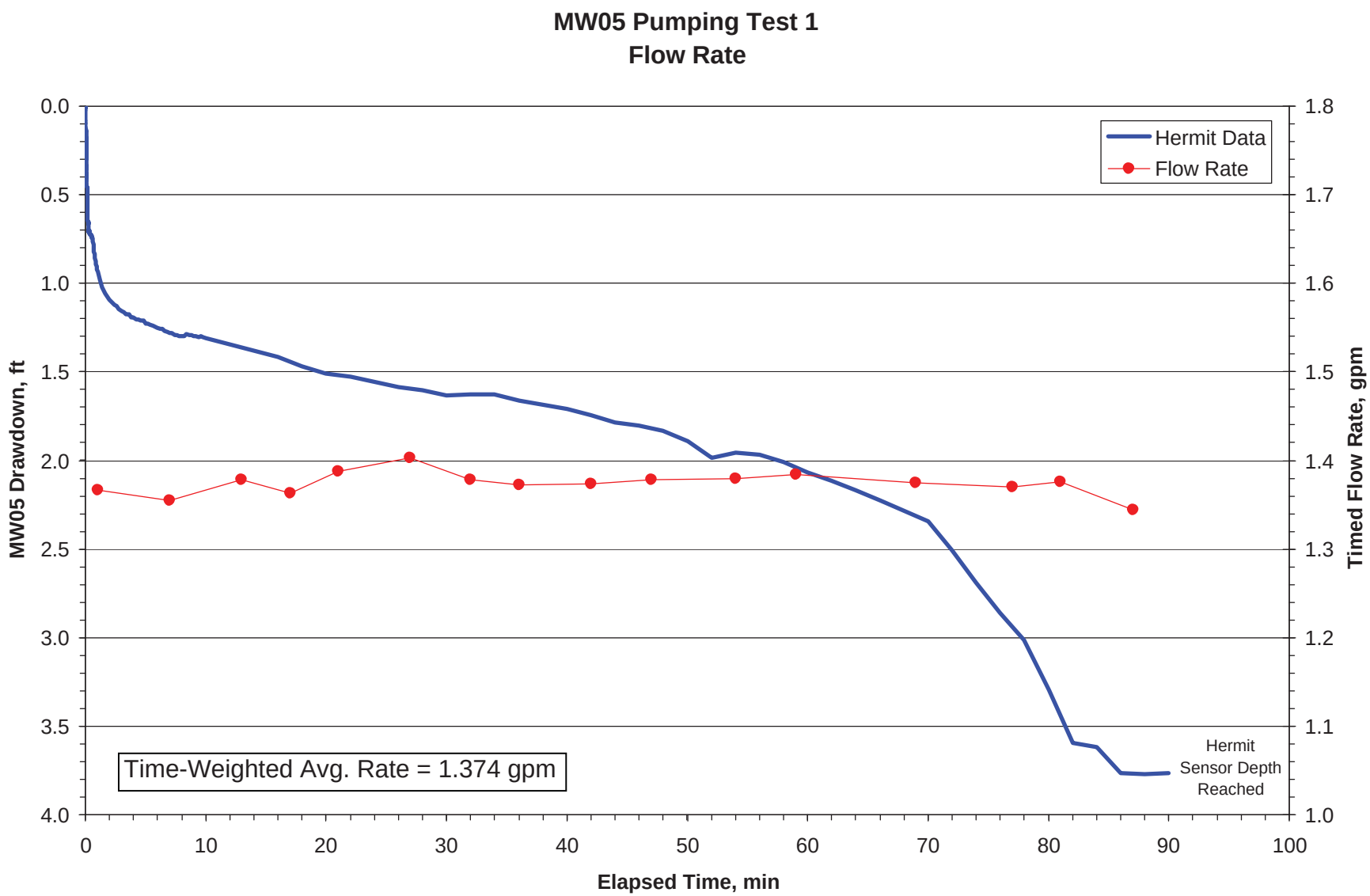

FIGURE 5 Water level responses and measured flow rates in well MW05 during the pumping phase of constant-rate pumping test 1.

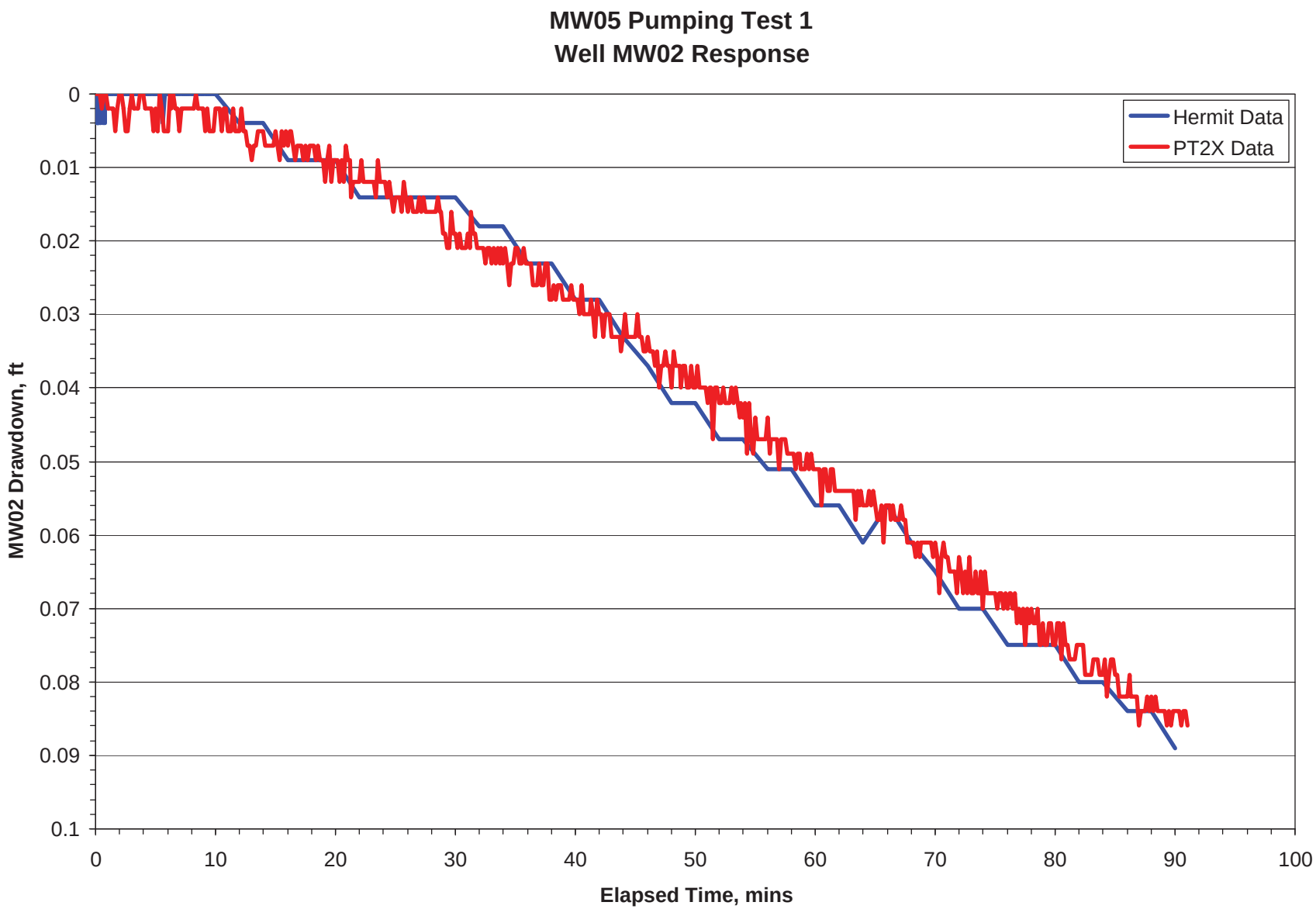

FIGURE 6 Water level responses in well MW02 during the pumping phase of constant-rate pumping test 1.

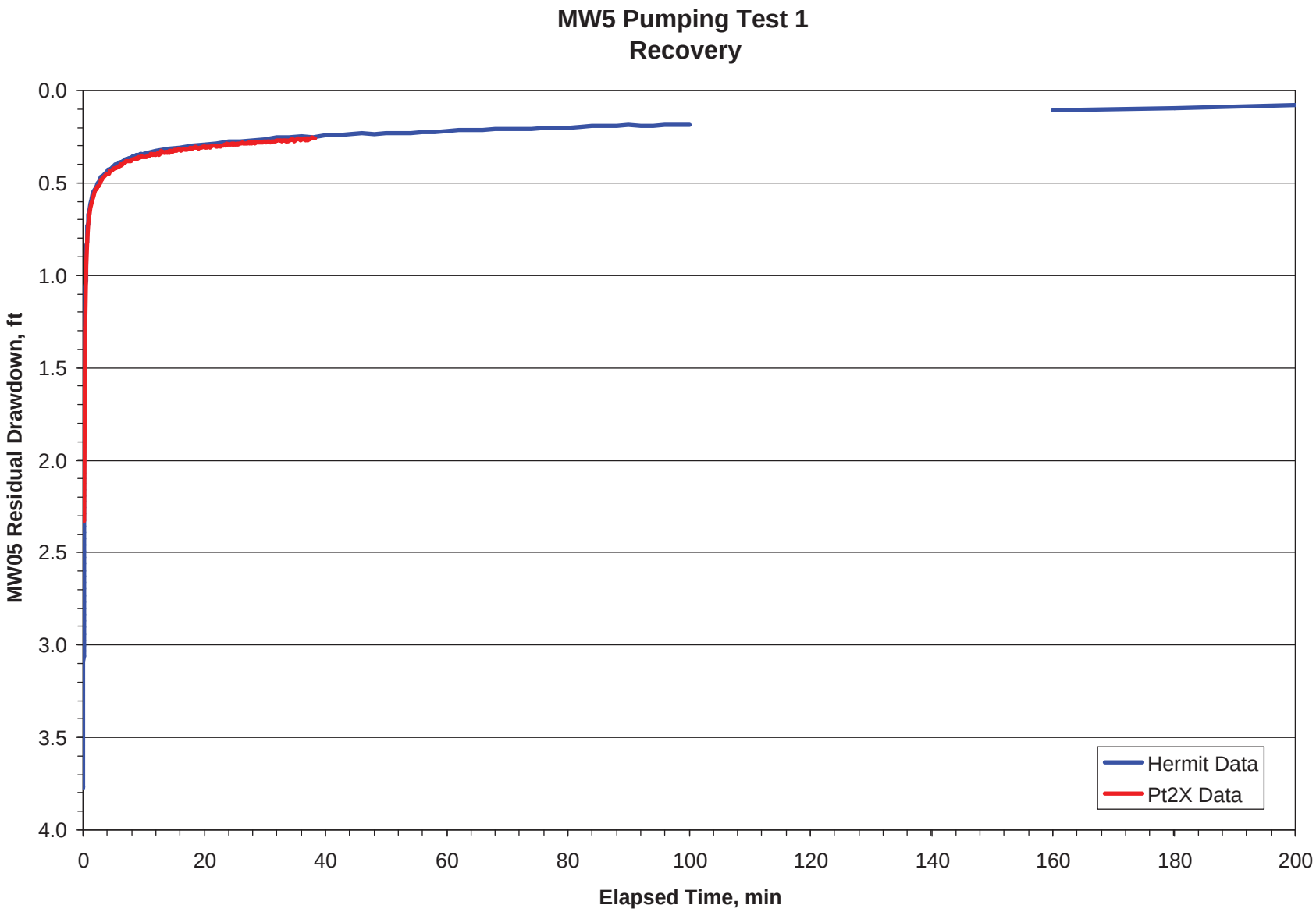

FIGURE 7 Water level responses in well MW05 during the recovery phase of constant-rate pumping test 1.

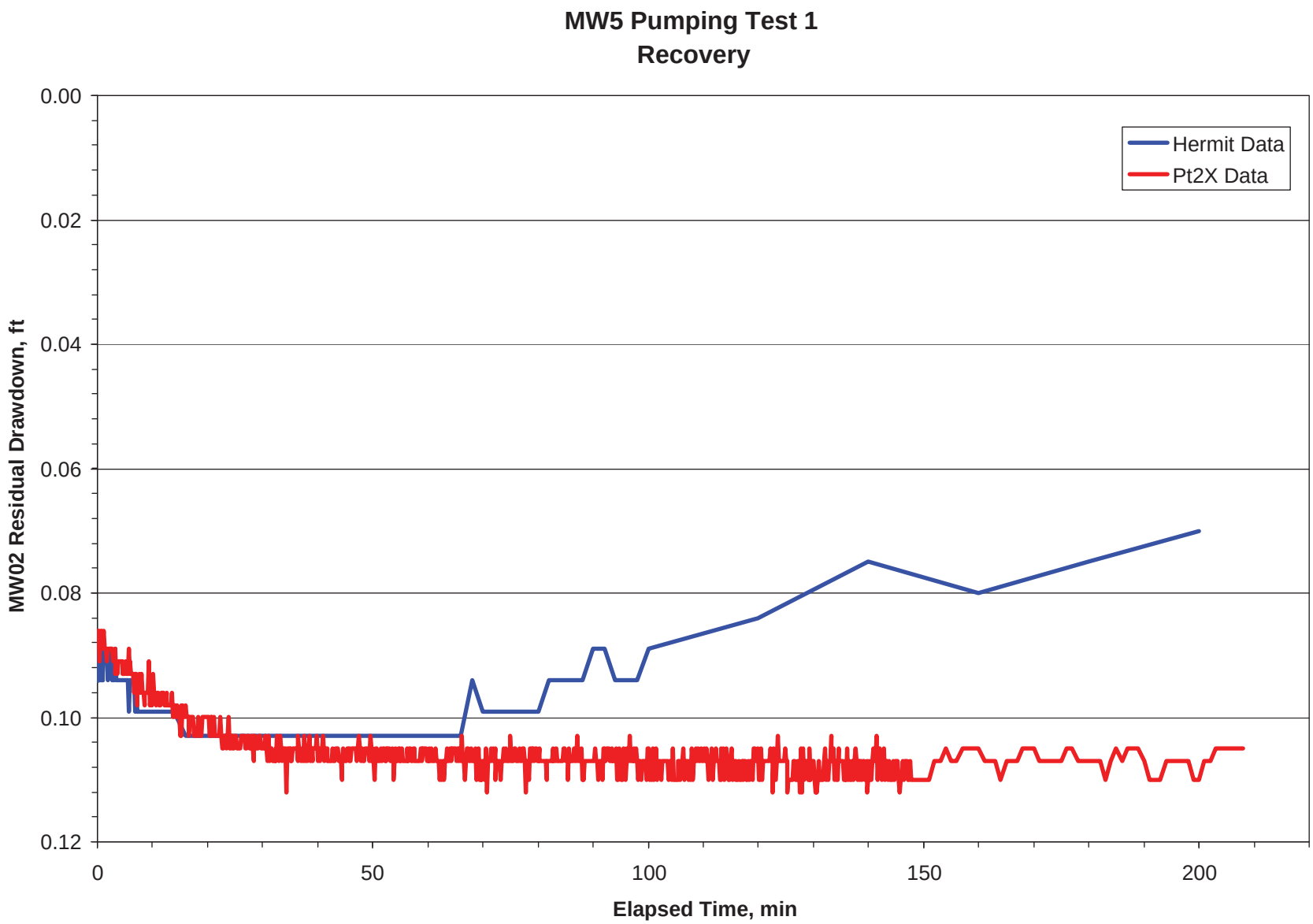

FIGURE 8 Water level responses in well MW02 during the recovery phase of constant-rate pumping test 1.

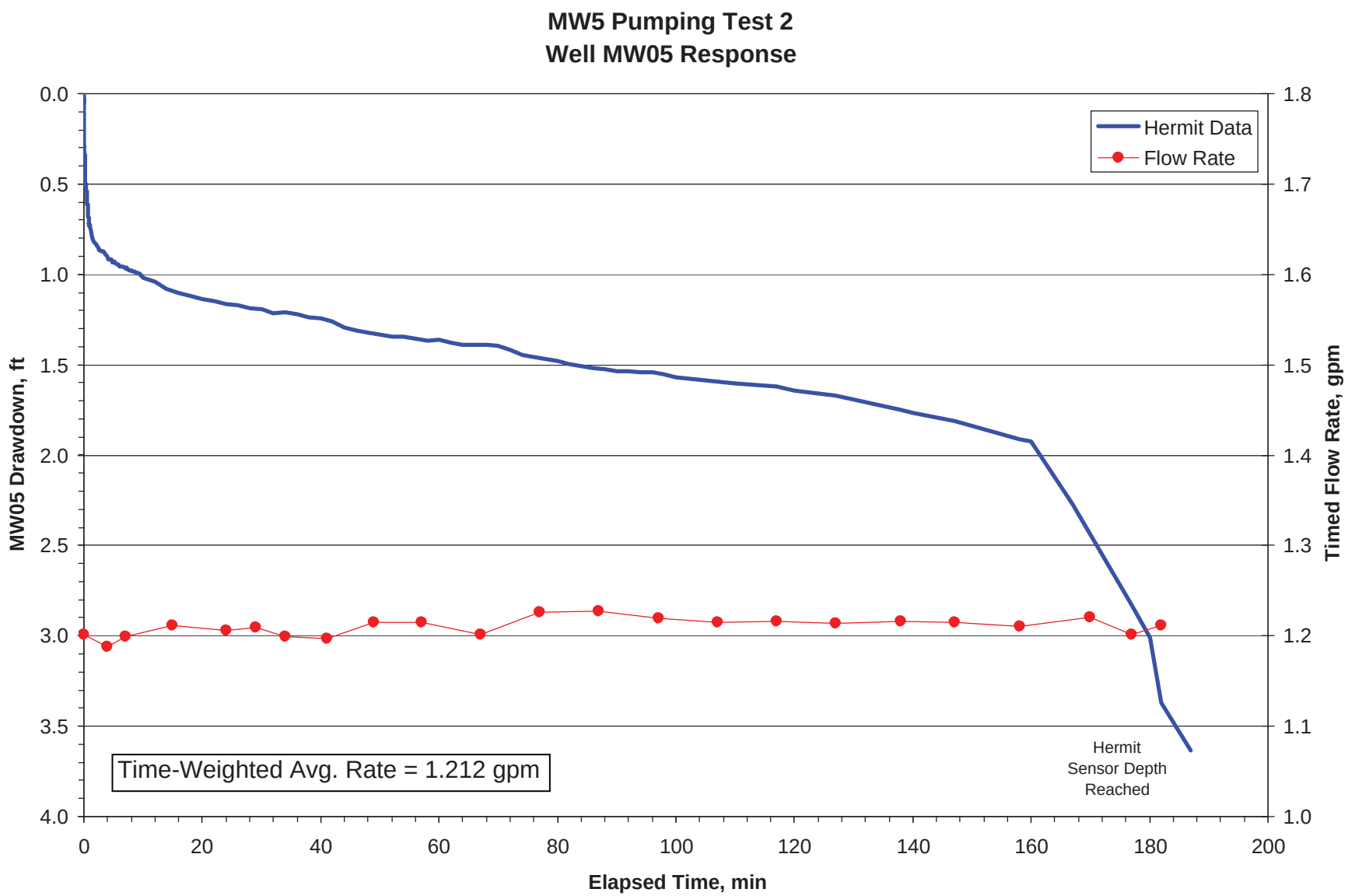

FIGURE 9 Water level responses and measured flow rates in well MW05 during the pumping phase of constant-rate pumping test 2.

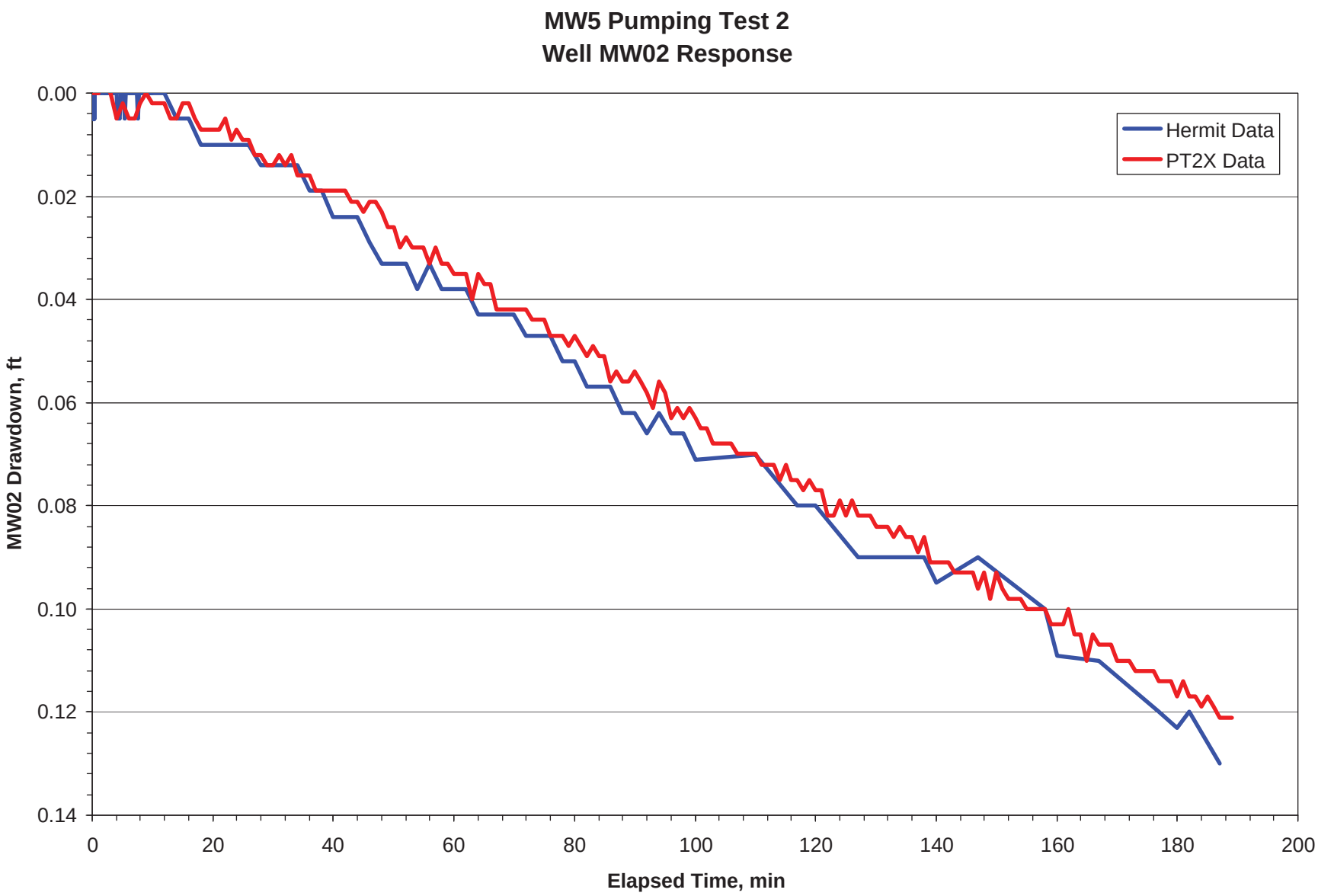

FIGURE 10 Water level responses in well MW02 during the pumping phase of constant-rate pumping test 2.

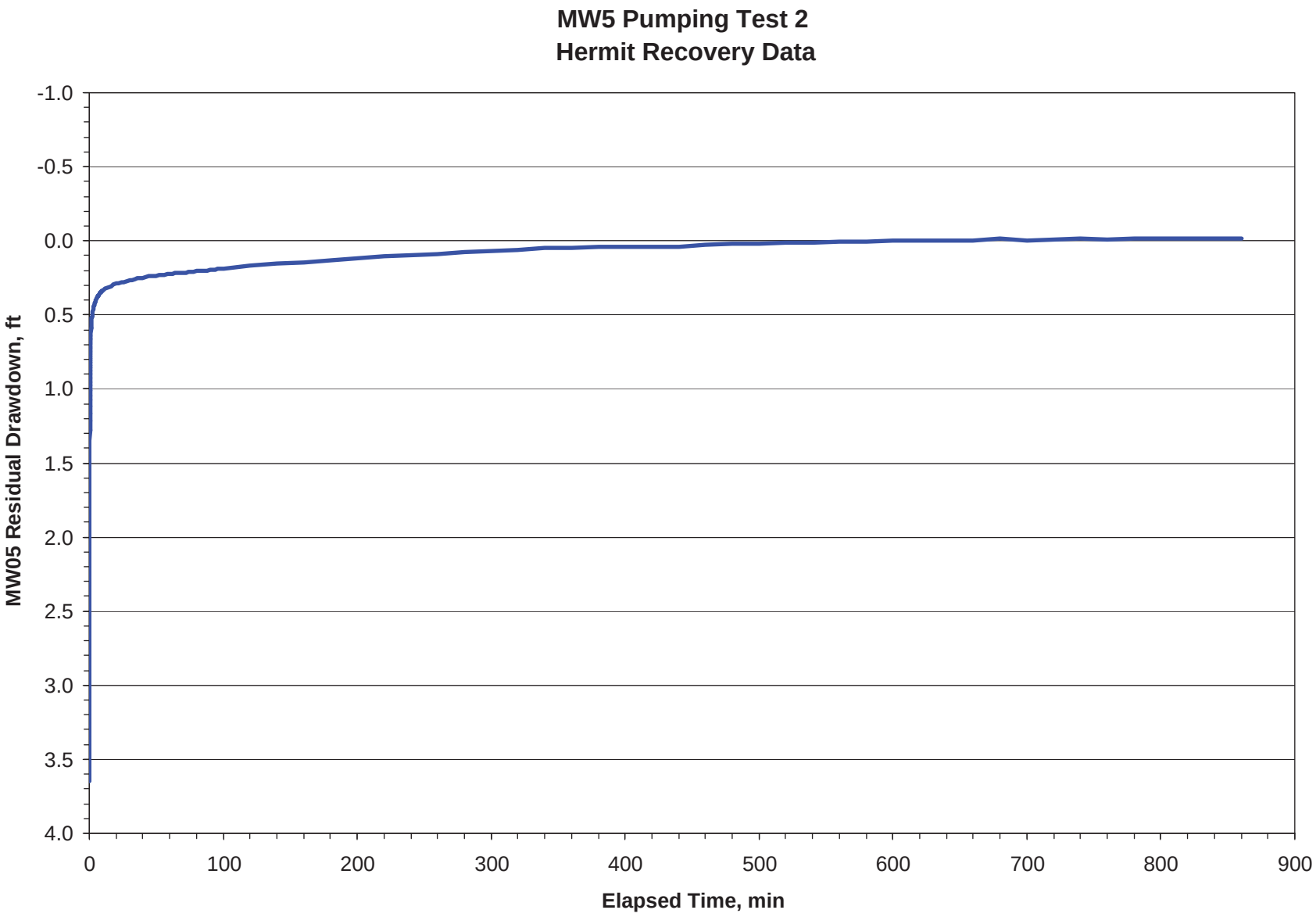

FIGURE 11 Water level responses in well MW05 during the recovery phase of constant-rate pumping test 2.

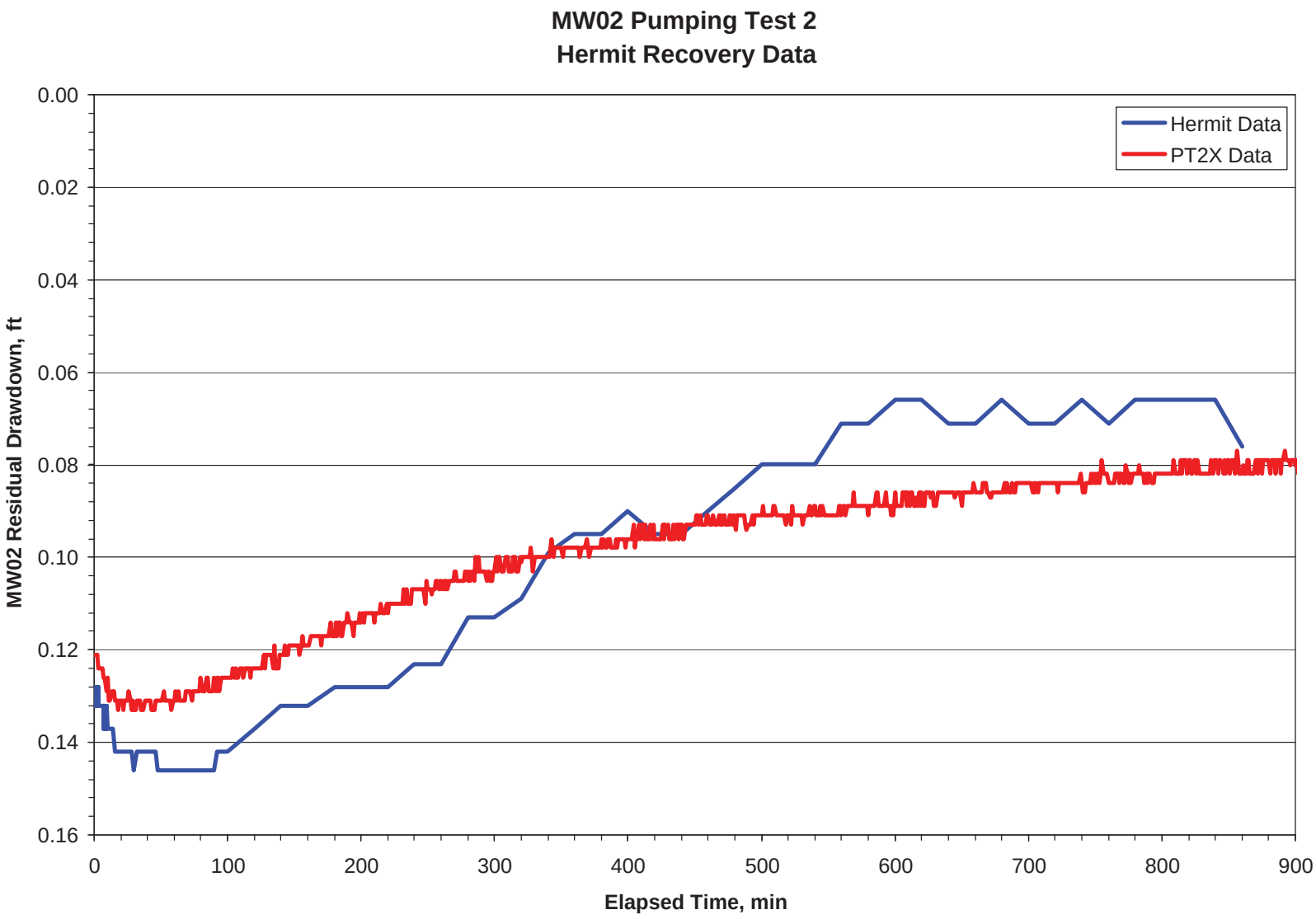

FIGURE 12 Water level responses in well MW02 during the recovery phase of constant-rate pumping test 2.

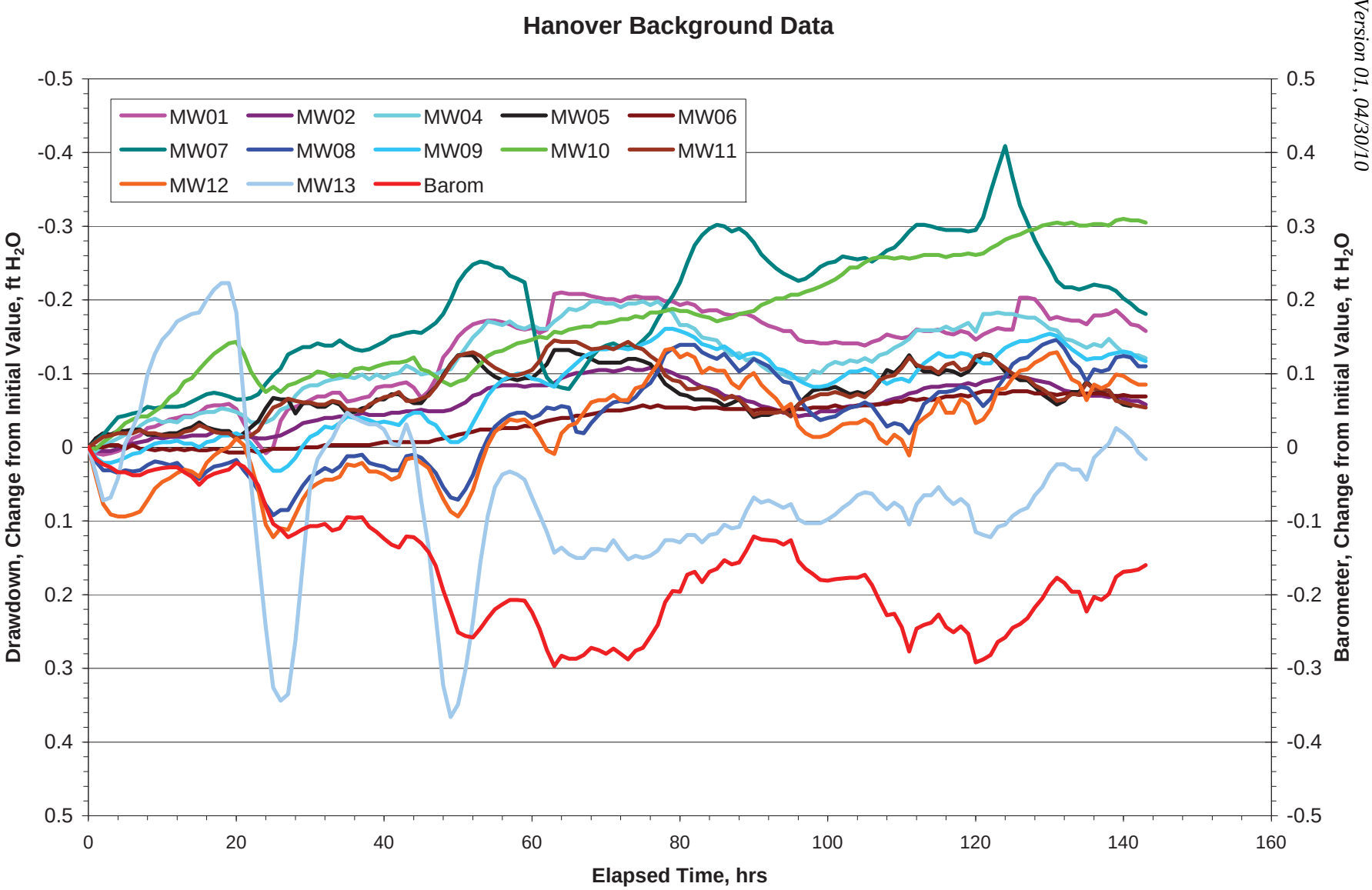

FIGURE 13 Normalized groundwater level variations in monitoring wells and variations in barometric pressure during the pre-test observation period, February 16-22.

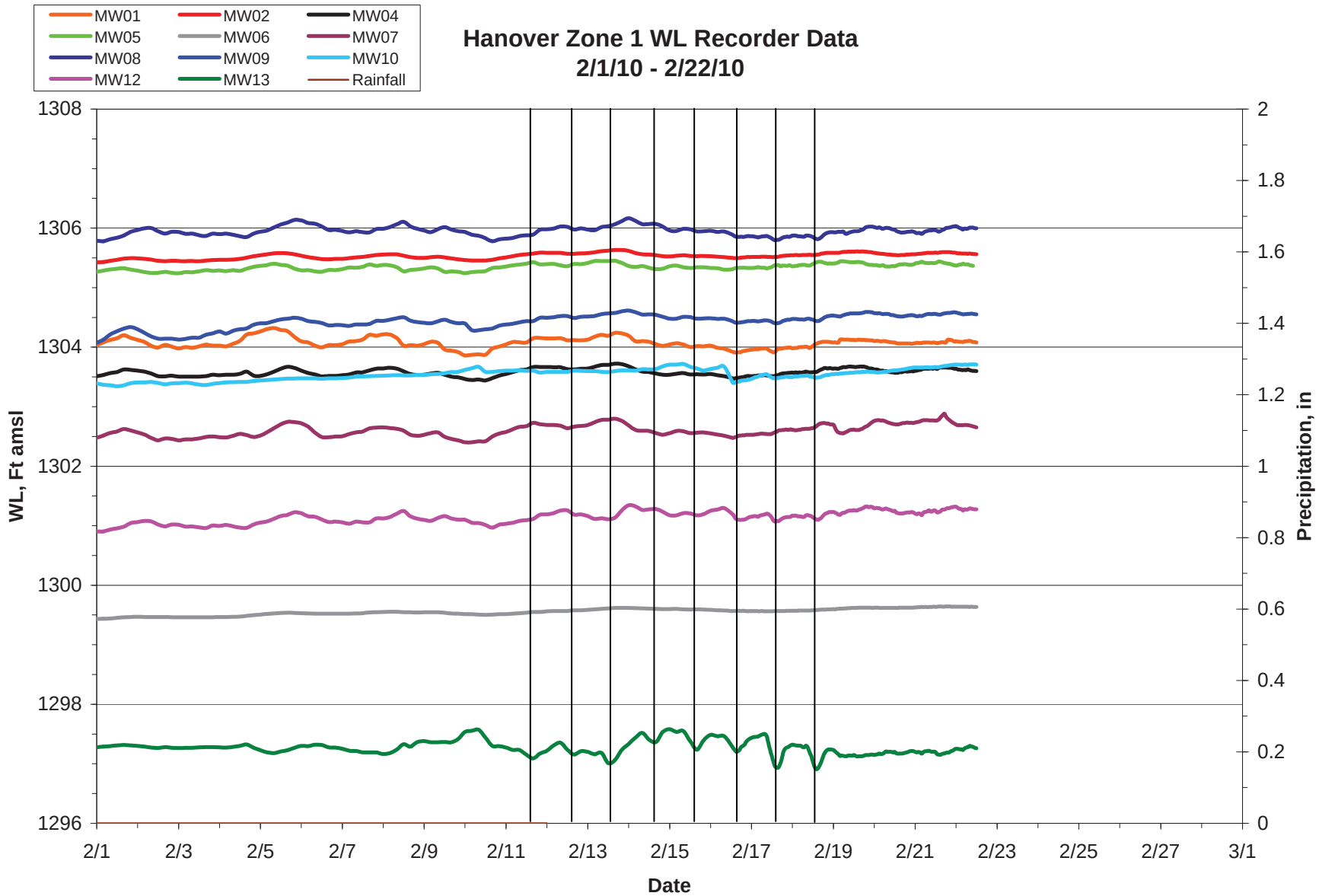

FIGURE 14 Groundwater level variations in monitoring wells, February 1-22. Apparent “drawdown” events are indicated by vertical lines.

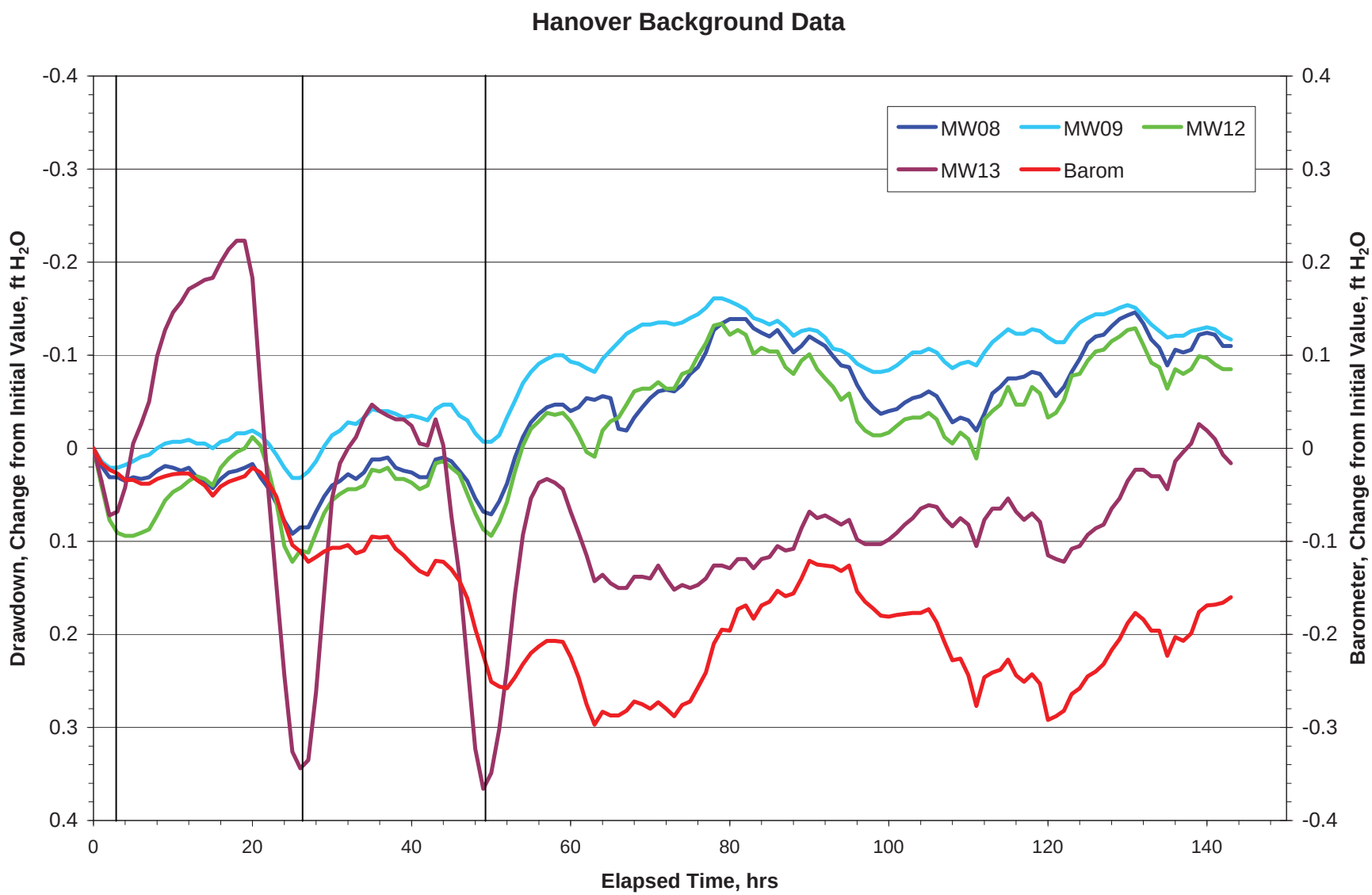

FIGURE 15 Normalized groundwater level variations showing apparent “drawdown” responses (highlighted by vertical lines) in monitoring wells MW08, MW09, MW12, and MW13 during the pre-test monitoring period, February 16-22.

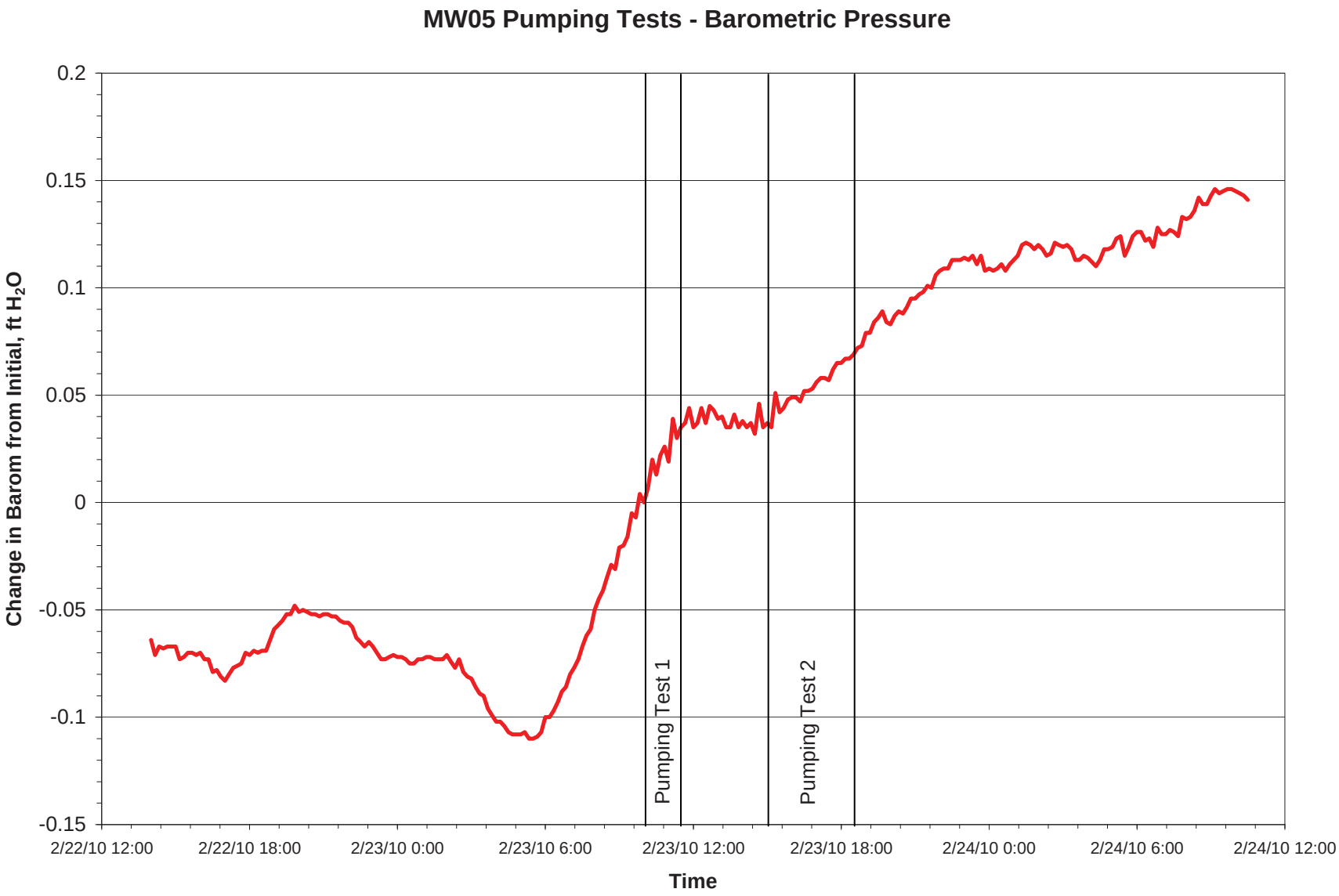

FIGURE 16 Barometric pressure variations prior to and during the MW05 pump testing investigation. Data are normalized to initial readings at 10:00 on February 23, 2010.

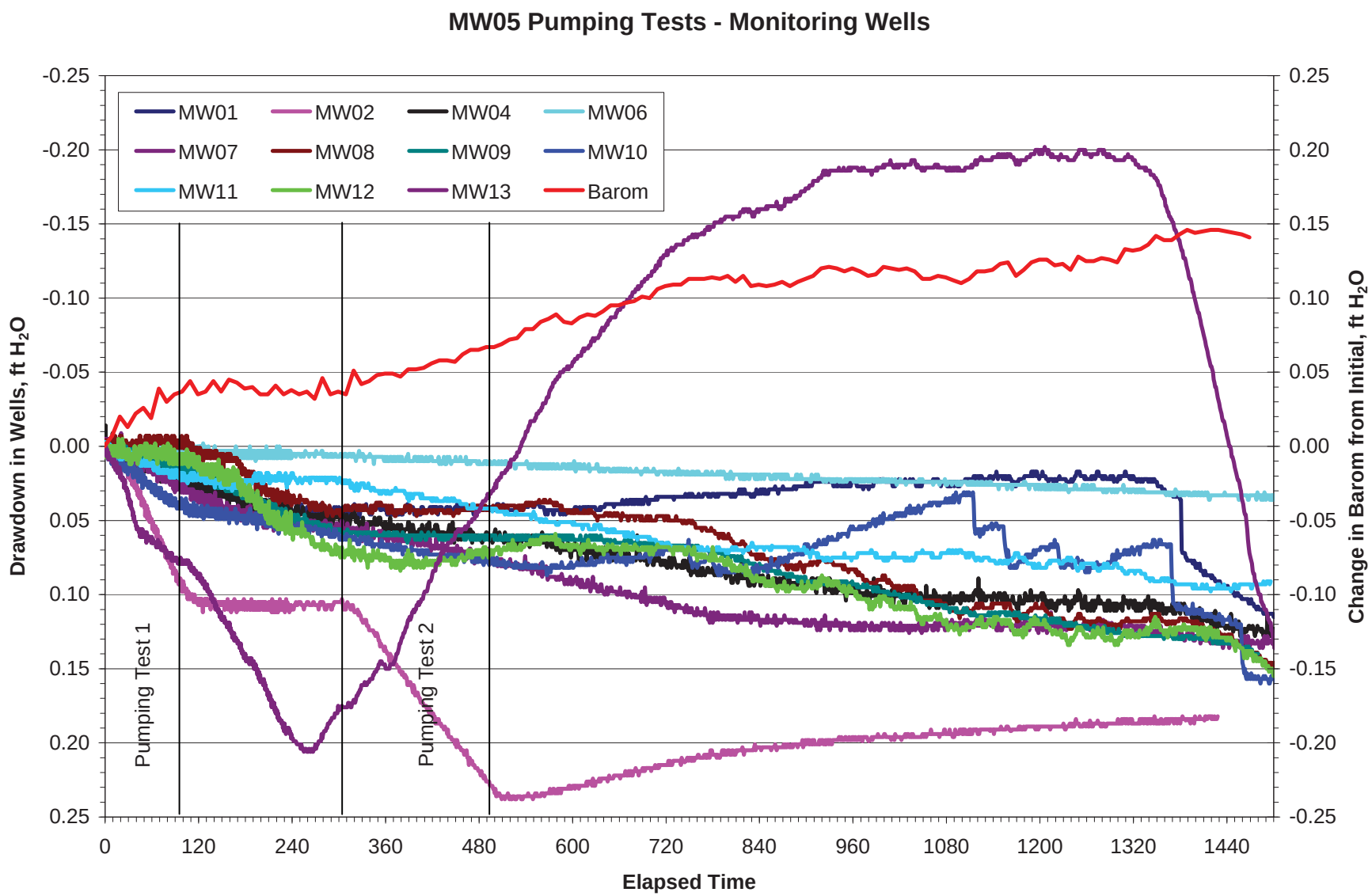

FIGURE 17 Barometric pressure variations and groundwater levels in monitoring wells during the MW05 pumping and recovery periods. Data are normalized to initial readings at 10:00 on February 23, 2010.

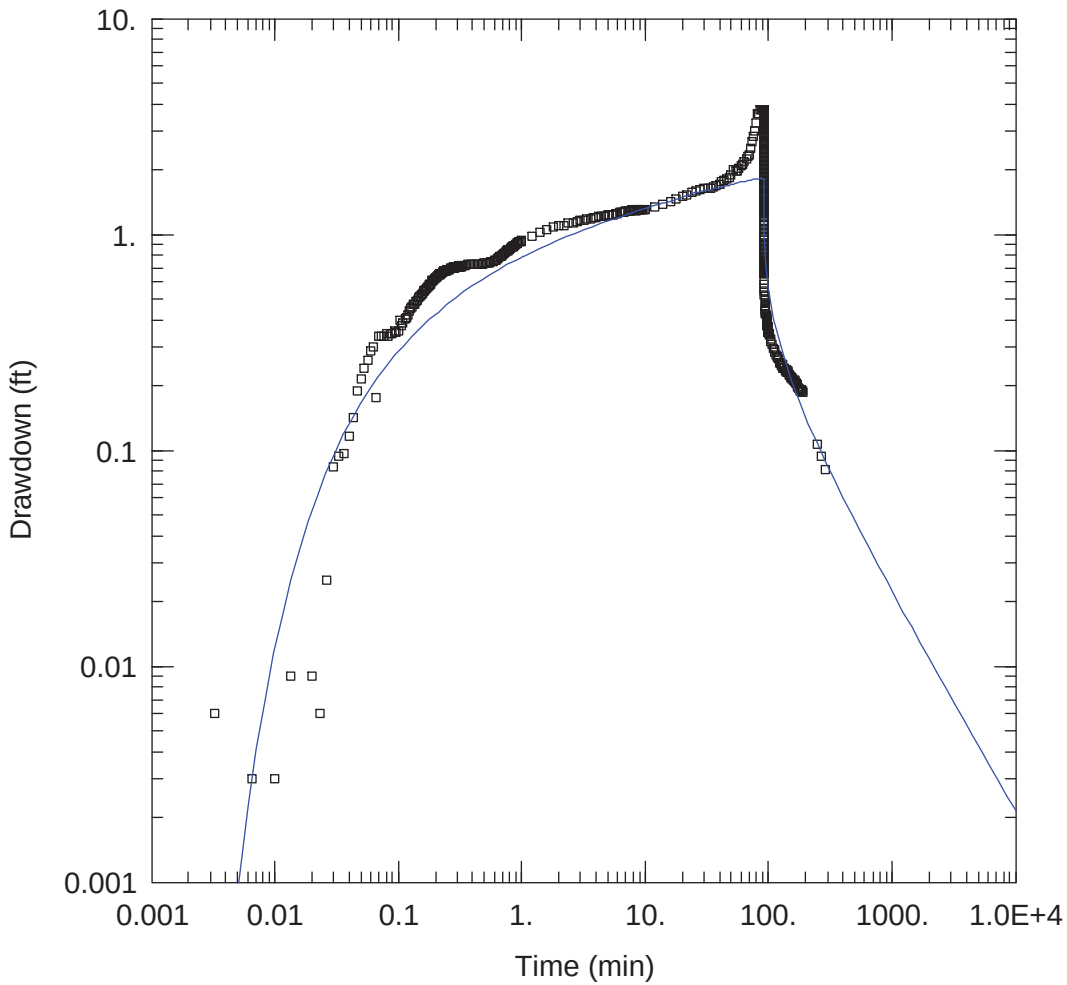

FIGURE 18 Pumping test 1 water level drawdown and recovery data for MW05, with interpretive curve fit for the Theis (1935) method of analysis.

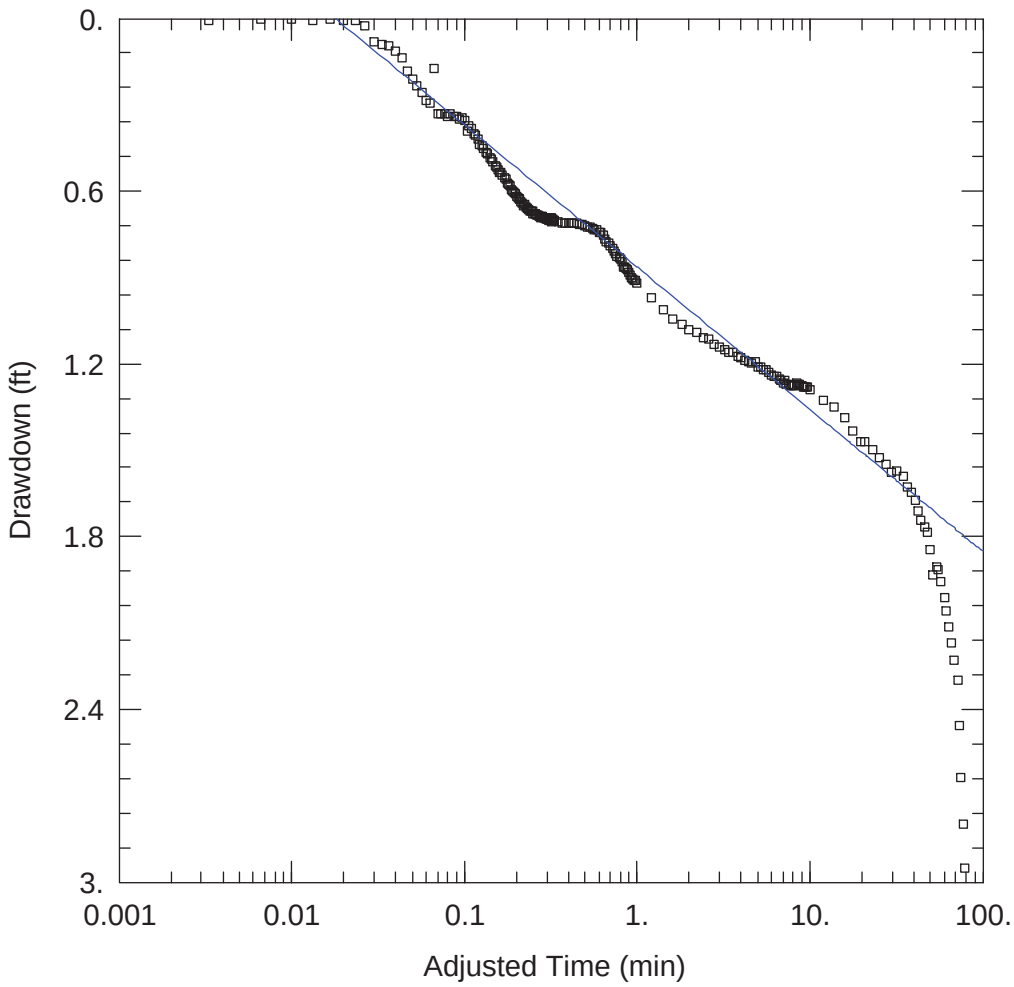

FIGURE 19 Pumping test 1 water level drawdown and recovery data for MW05, with interpretive straight-line fit for the Cooper-Jacob (1946) method of analysis.

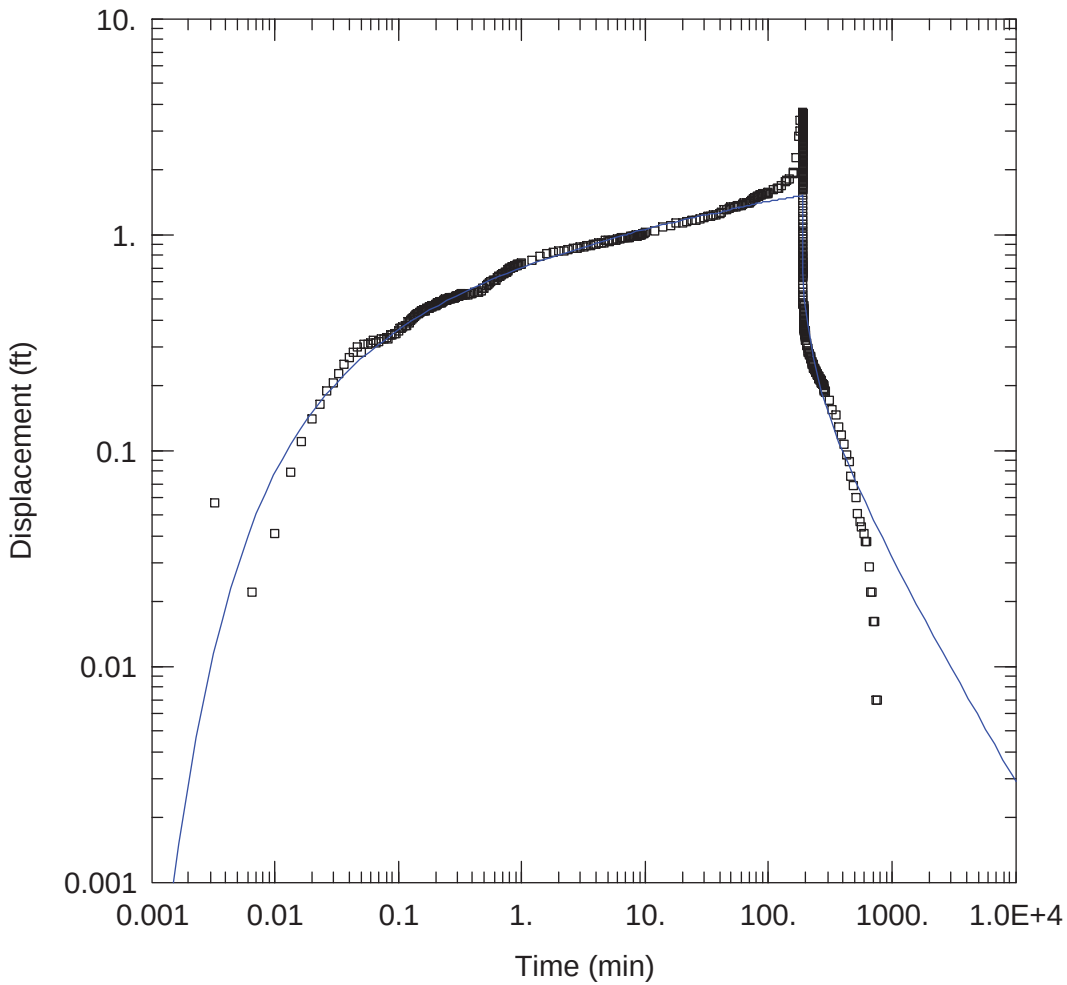

FIGURE 20 Pumping test 2 water level drawdown and recovery data for MW05, with interpretive curve fit for the Theis (1935) method of analysis.

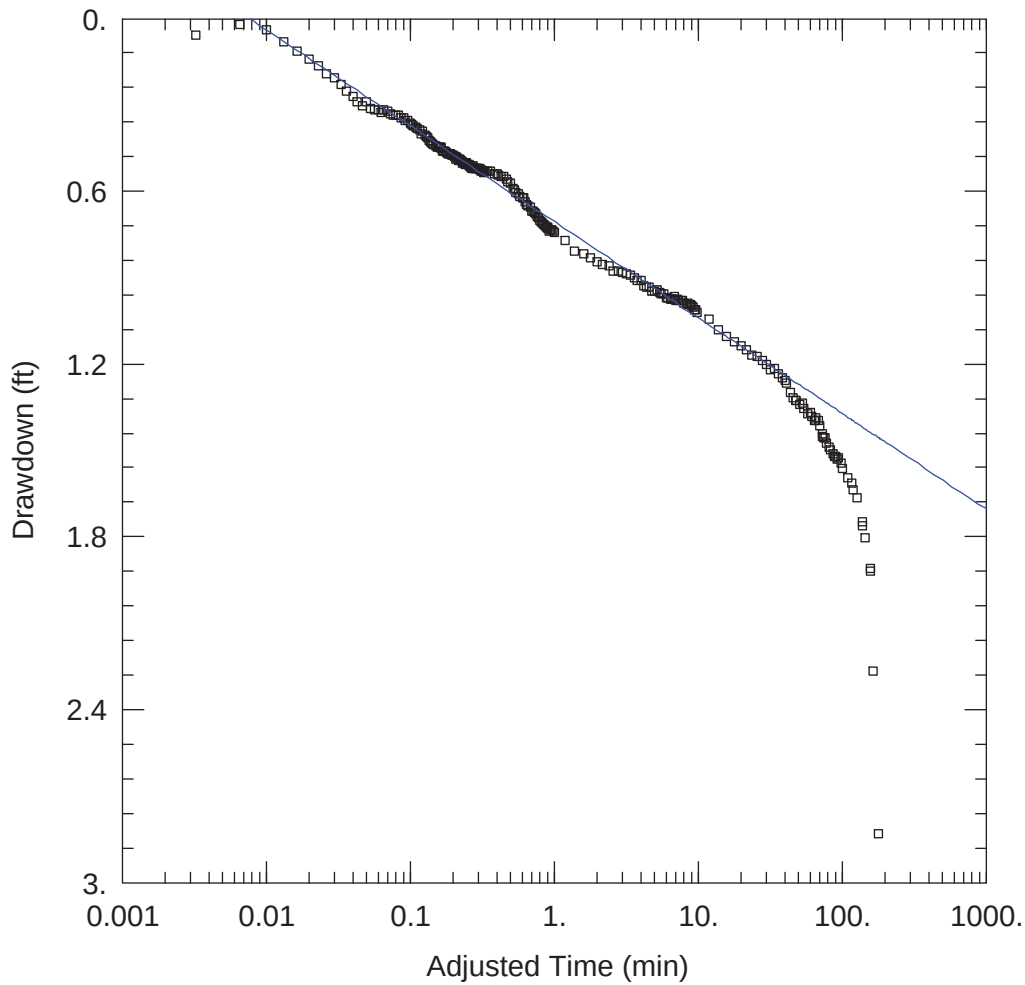

FIGURE 21 Pumping test 2 water level drawdown and recovery data for MW05, with interpretive straight-line fit for the Cooper-Jacob (1946) method of analysis.

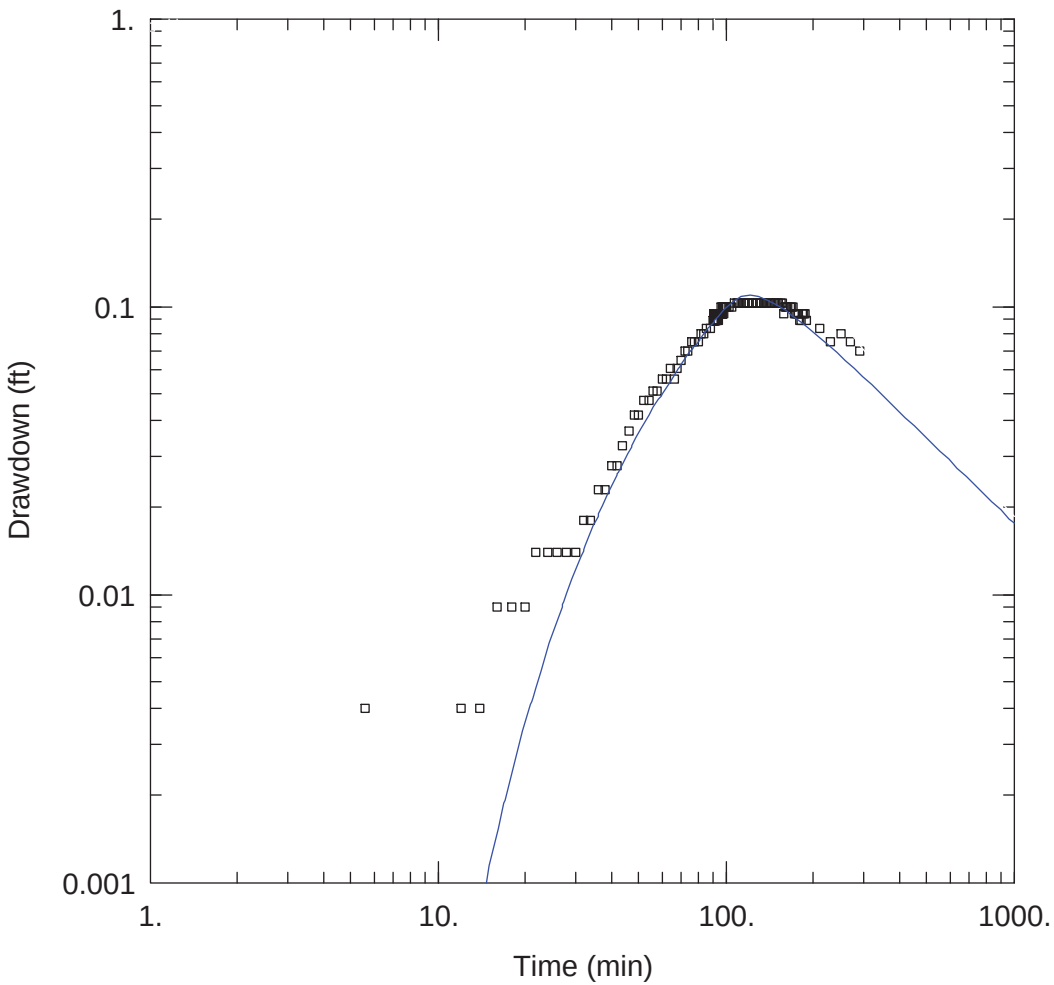

FIGURE 22 Pumping test 1 water level drawdown and recovery data for MW02, with interpretive curve fit for the Theis (1935) method of analysis.

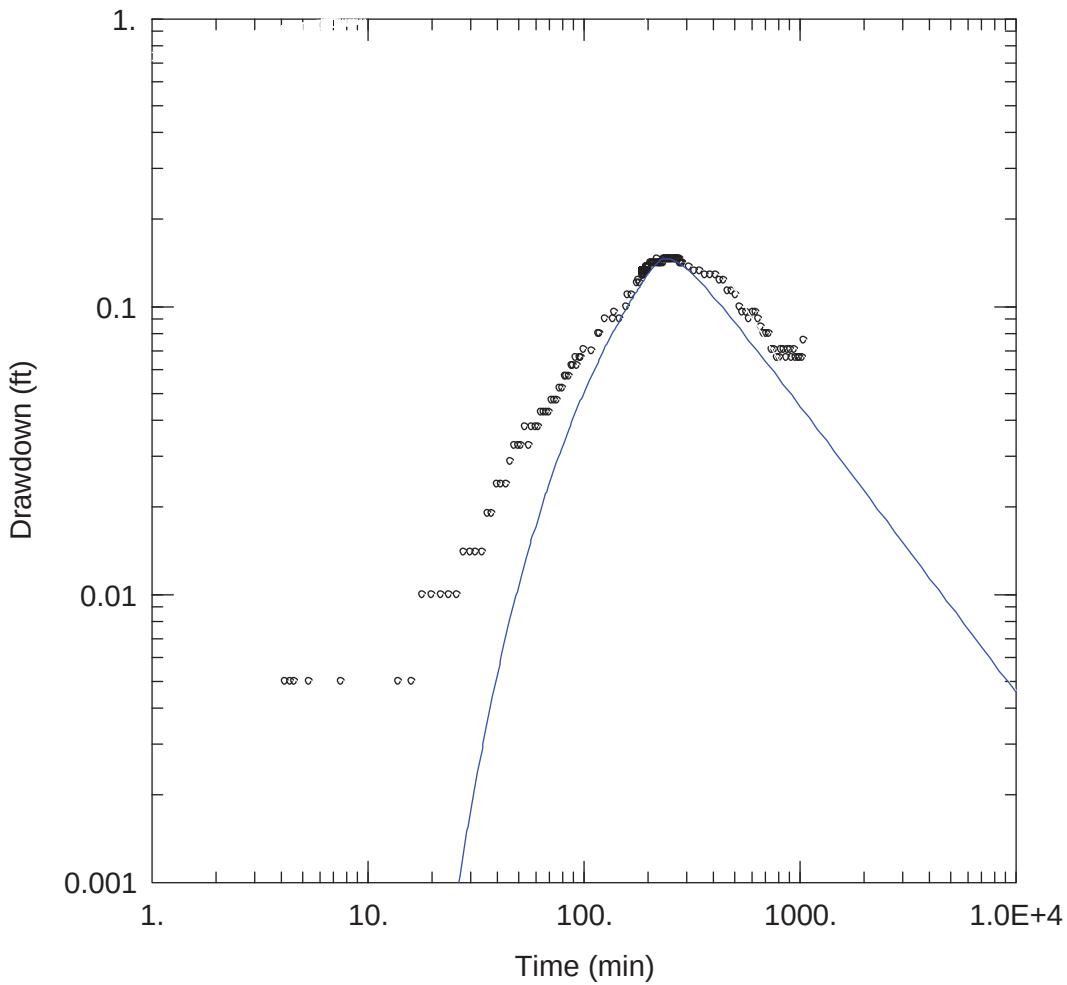

FIGURE 23 Pumping test 2 water level drawdown and recovery data for MW02, with interpretive curve fit for the Theis (1935) method of analysis.

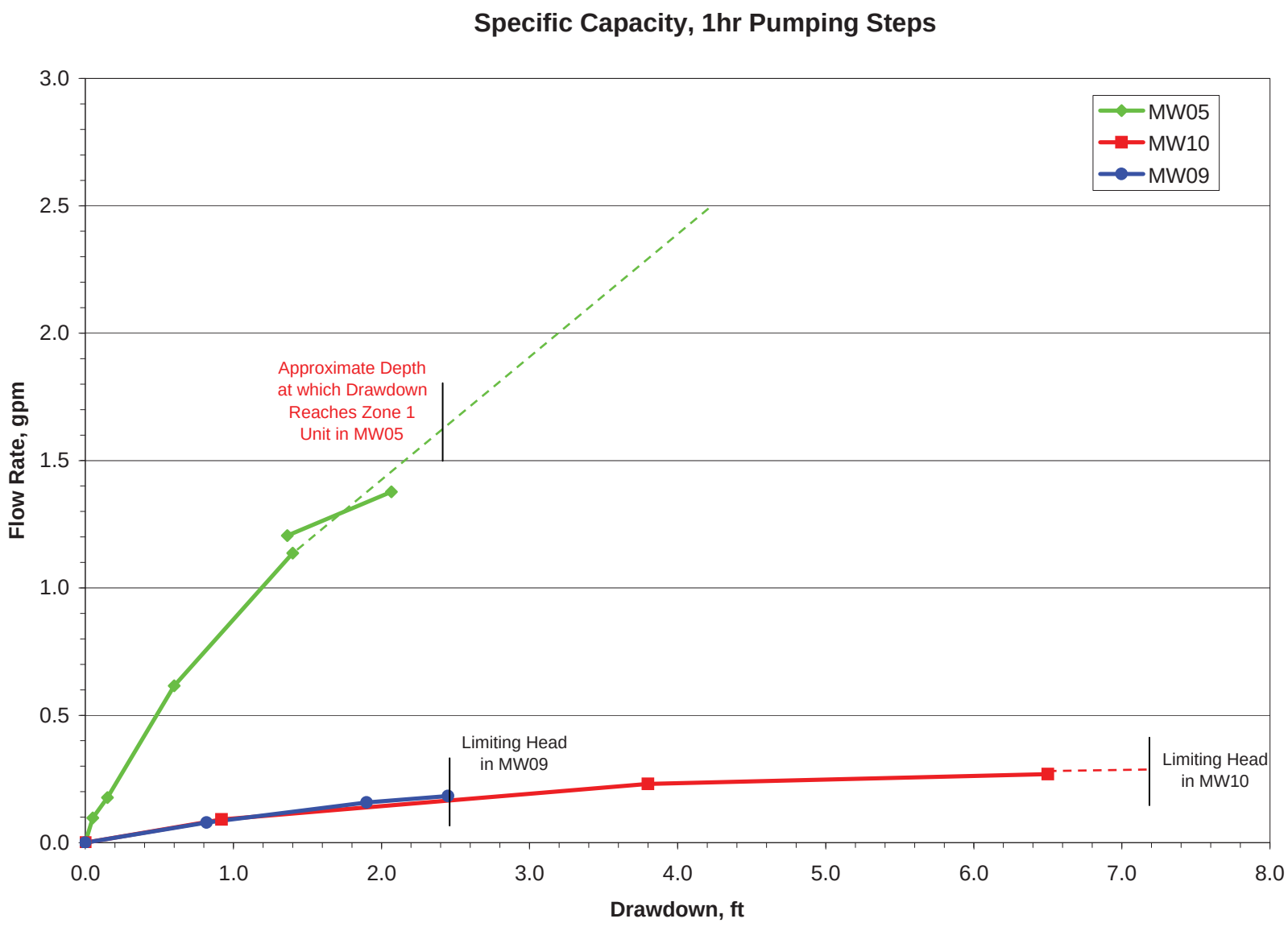

FIGURE 24 Drawdown and flow rate results for well MW05, after 1 hr of pumping during pumping test 1 and pumping test 2, compared to the specific capacity estimates previously obtained for this well.

Appendix A:

Detailed Analysis of Ambient Water Level Trends and Barometric Efficiency

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A.24 Incremental change in barometric pressure versus incremental change in water level at MW13 for each hour during the pre-test monitoring period, February 16-22 ..... A-30

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A.26 Measured water levels, with levels predicted on the basis of calculated BE responses for MW02 during the pre-test monitoring period, February 16-22 ..... A-32

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Appendix A:

Detailed Analysis of Ambient Water Level Trends and Barometric Efficiency

To identify more clearly the detailed patterns of water level and barometric pressure fluctuations during the pre-test monitoring period, the barometric pressure data and groundwater level data discussed in Section 3.1 were compared for each well. The results of these analyses are in Figures A.1-A.12. During the background monitoring period, a general decreasing trend in barometric pressure was apparent, although numerous smaller-scale oscillations were also observed. The corresponding groundwater level traces for all of the Zone 1 wells (Figures A.1-A.12) appeared to show distinct relationships to the barometric pressure in terms of both (1) the net trends in water levels and (2) the characteristics of the smaller-scale fluctuations observed at each well.

Decreasing depths to groundwater observed at all of the Zone 1 wells mirrored the identified *decreasing* barometric pressure trend, although the exact relationship between the rates of water level and barometric pressure change varied from well to well (Table 4). This type of direct relationship is a typical BE response for confined aquifers. At wells MW07 and MW10, the water level increases during the background observation period were greater than the corresponding decreases in barometric pressure, suggesting that the water levels in these wells might have also been influenced by minor localized recharge or other factors that could not be identified from the data acquired during the monitoring period.

For most of the Zone 1 monitoring wells, Figures A.1-A.12 suggest that a finer-scale relationship also exists between barometric pressure fluctuations and the minute water level responses observed. To quantify these apparent relationships, the incremental increase or decrease in water level at each well, during each successive hour of monitoring, was compared to the corresponding incremental barometric pressure change. The results of these analyses are presented in Figures A.13-A.24 and are summarized in Table 4. The results show that at this secondary scale, some wells (MW08, MW09, MW12, MW13) appear to show a *direct* response to the corresponding barometric oscillations, while other wells show an *inverse* response (water level rises as atmospheric pressure rises). An *inverse* BE response is not typical for confined aquifers but has been reported for aquifers in which an increase in atmospheric pressure locally causes slight compaction of the water-bearing or overlying (capillary zone) materials, effectively “squeezing” the contained groundwater upward (Solinst 2009). Figures A.2-A.3 and A.14-A.15 further illustrate that, although a small-scale BE response is apparent in the water level traces for

wells MW01, MW02, and MW04, the response in these wells is delayed by 4-5 hr relative to the associated atmospheric pressure change. A time lag in observed BE response might suggest an influence of wellbore storage on the water levels in these wells (Rasmussen and Crawford 1997; Spane 1999).

To evaluate the validity of the interpreted BE relationships outlined above, the estimated BE factors in Table 4 were used, in conjunction with the recorded barometric pressure data in Table S2.1 (in Supplement 2), to generate a "predicted" water level curve for each monitoring well (except for wells MW07 and MW10, discussed above) for the pre-test background monitoring period (February 16-22). The results of these calculations are in Figures A.25-A.34. For a majority of the wells, the observed agreement between measured and predicted water levels was within 0.1 ft, and frequently within 0.05 ft. The worst predictive fits to the measured levels were, in almost all cases, obtained for the period from 60 hr to 80 hr into the pre-test monitoring. For this interval, the calculated hydrographs generally underpredicted the actual water levels. Weather data available for the nearest National Weather Service monitoring station (in Beatrice, Nebraska) indicate that during this time (1:00 to 21:00 on February 19), approximately 0.13 in. of precipitation fell in the Hanover area; this might, in part, account for the transient higher measured water levels.

The BE relationships outlined above reflect variations in the observed groundwater levels at the monitoring wells that are small in absolute magnitude. The recognized presence of these relationships suggests, however, that similar BE effects could potentially affect the identification of small drawdown or recovery responses at these wells as a result of the MW05 pumping. The BE relationships identified in Table 4 were therefore incorporated, where appropriate, into the analyses of the MW05 pumping test results that are described in Section 3.2.

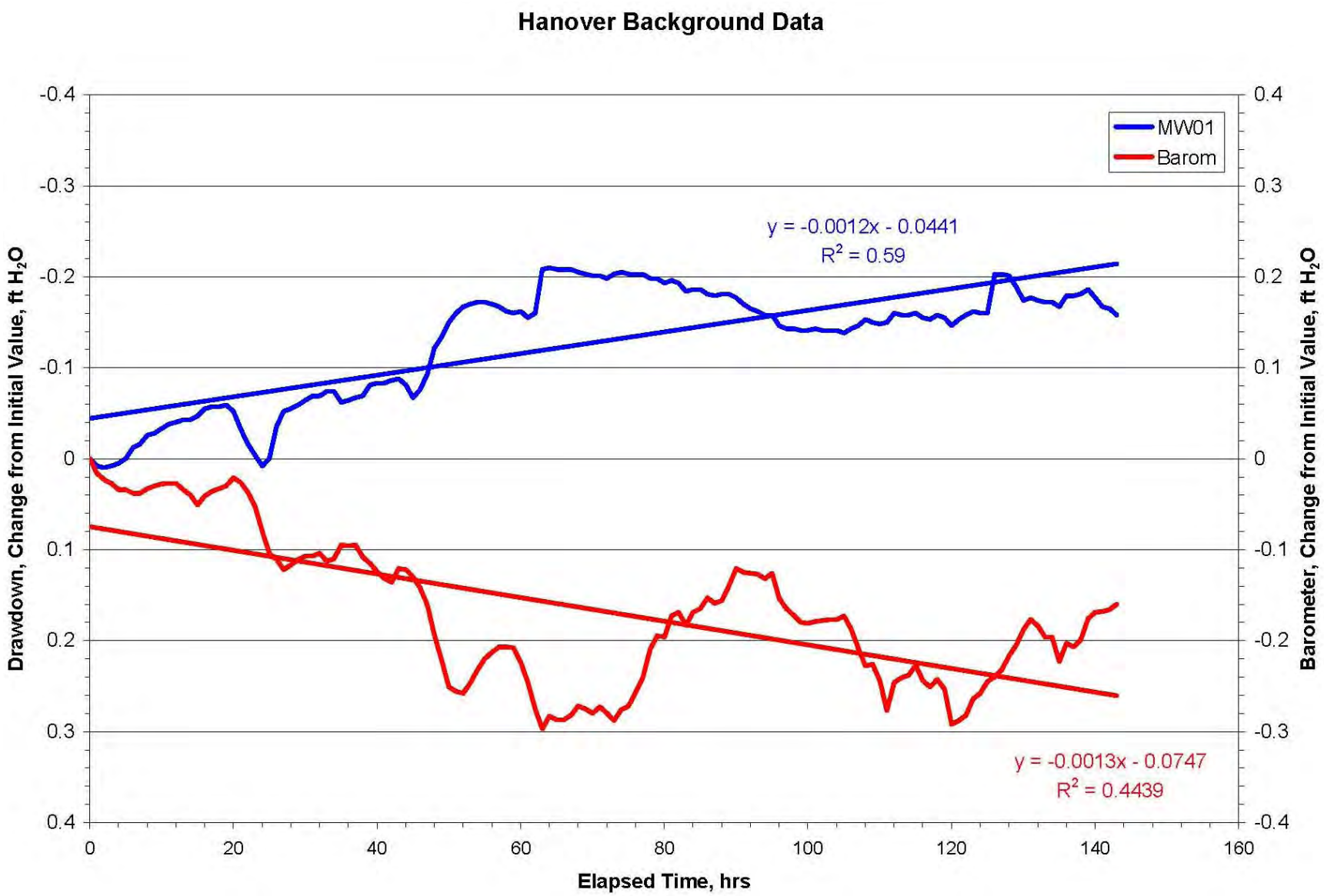

FIGURE A.1 Barometric pressure and MW01 groundwater level trends during the pre-test monitoring period, February 16-22.

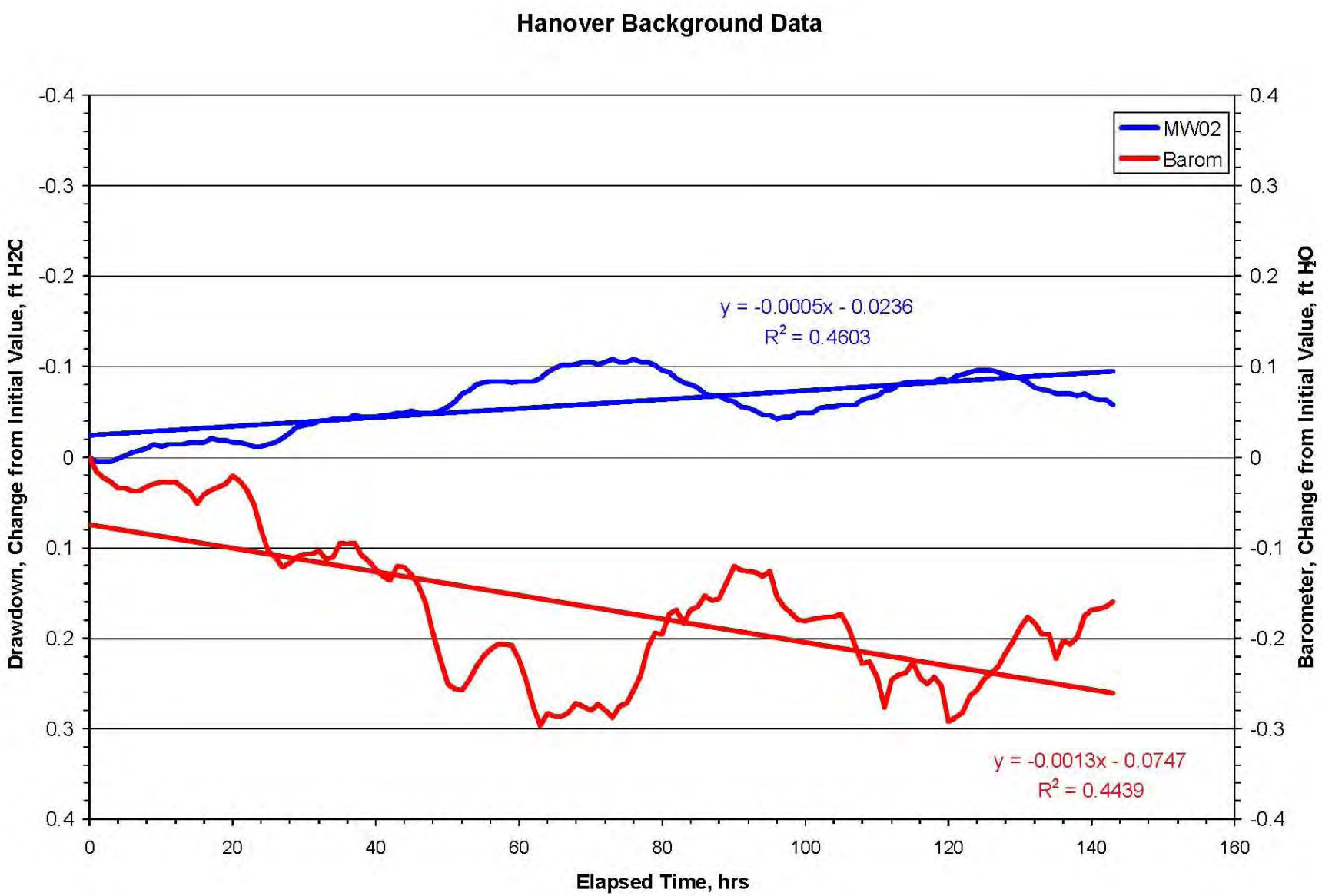

FIGURE A.2 Barometric pressure and MW02 groundwater level trends during the pre-test monitoring period, February 16-22.

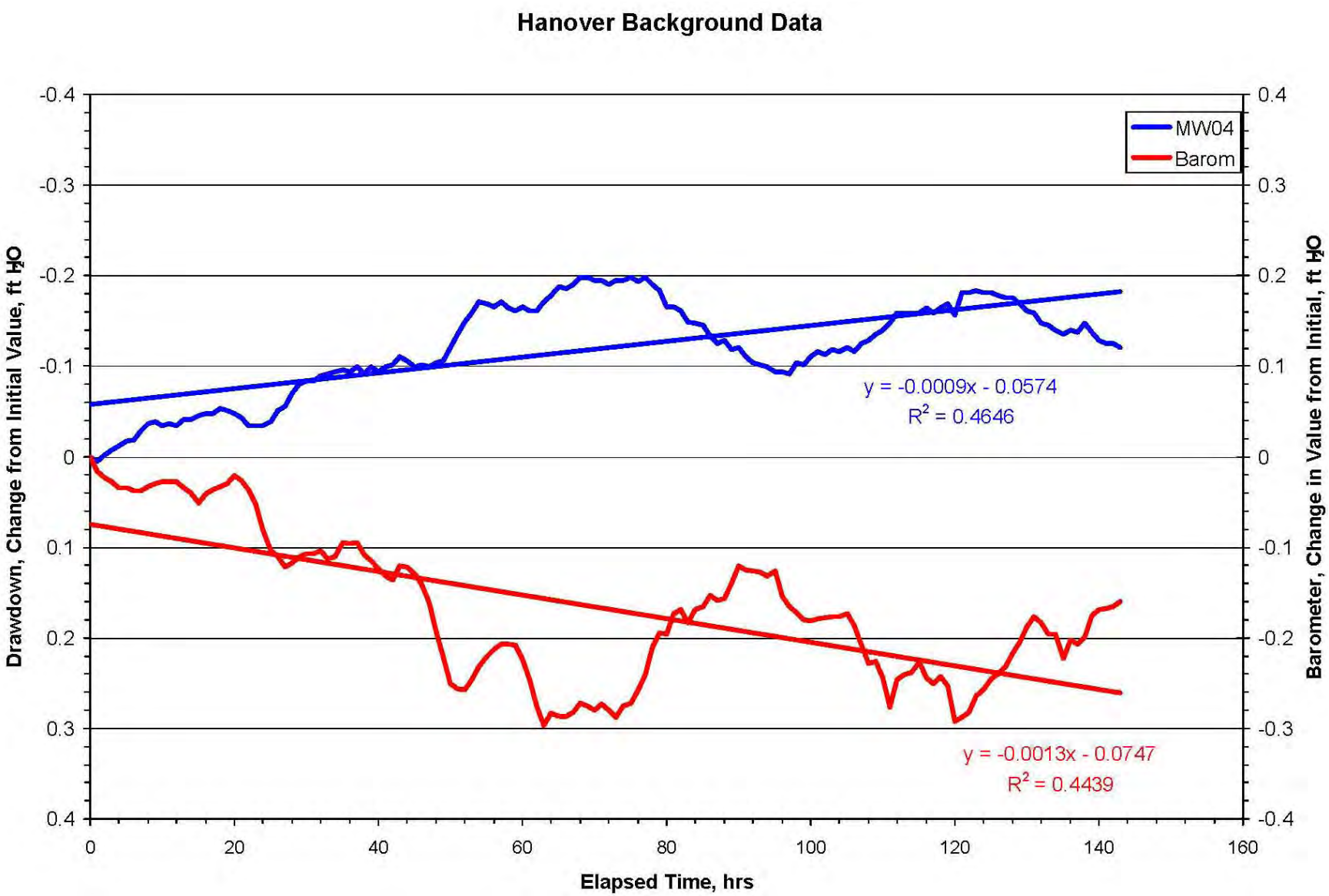

FIGURE A.3 Barometric pressure and MW04 groundwater level trends during the pre-test monitoring period, February 16-22.

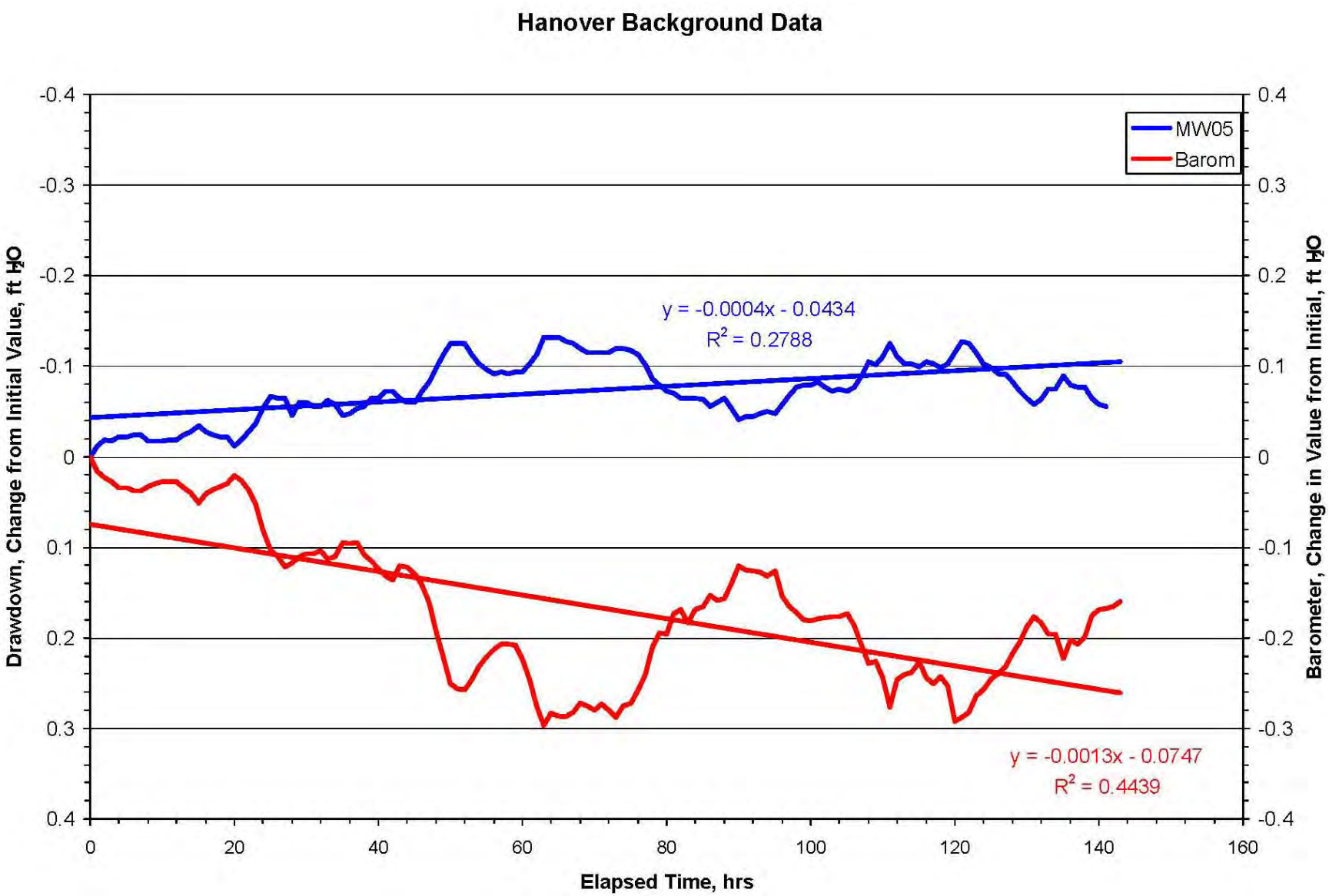

FIGURE A.4 Barometric pressure and MW05 groundwater level trends during the pre-test monitoring period, February 16-22.

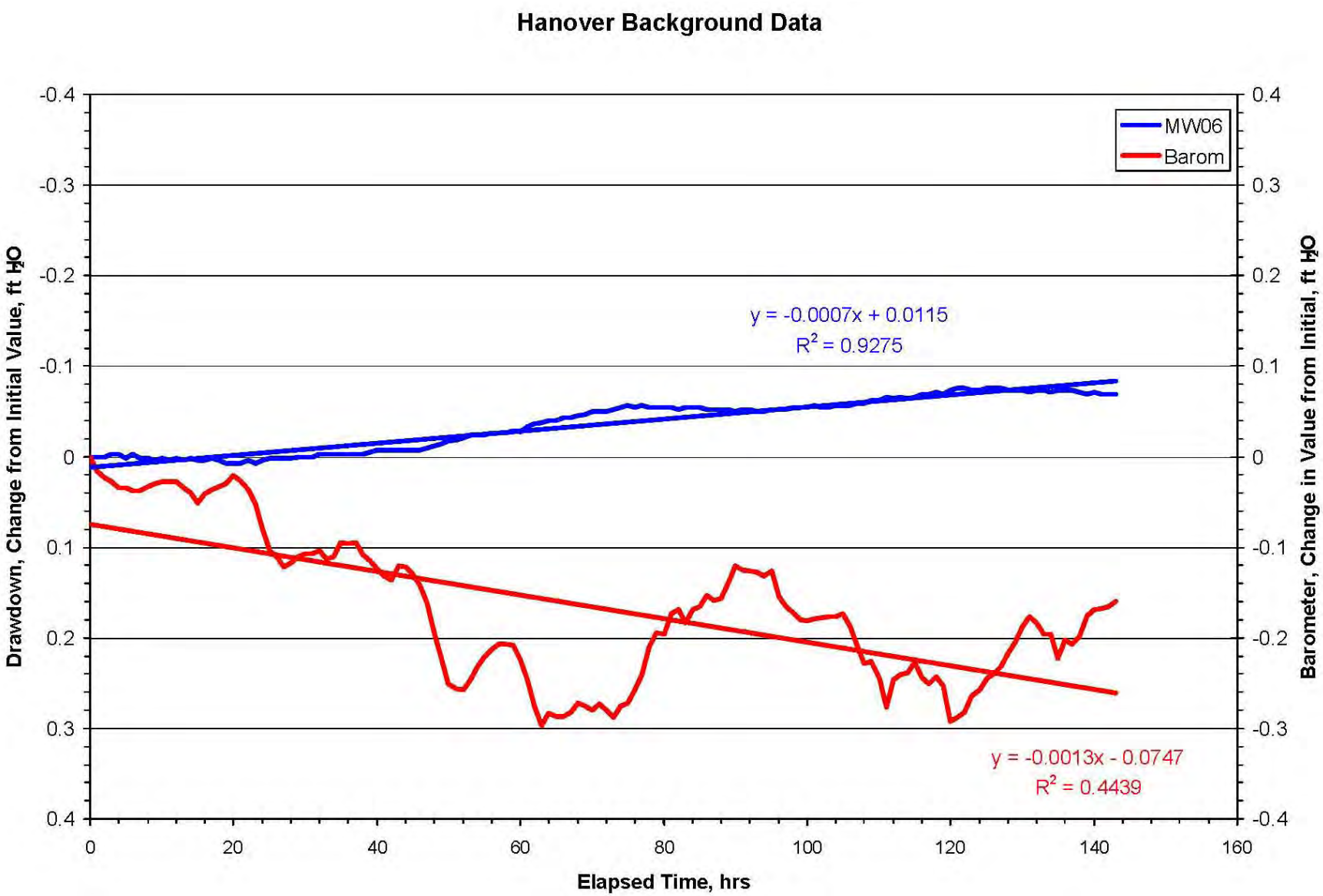

FIGURE A.5 Barometric pressure and MW06 groundwater level trends during the pre-test monitoring period, February 16-22.

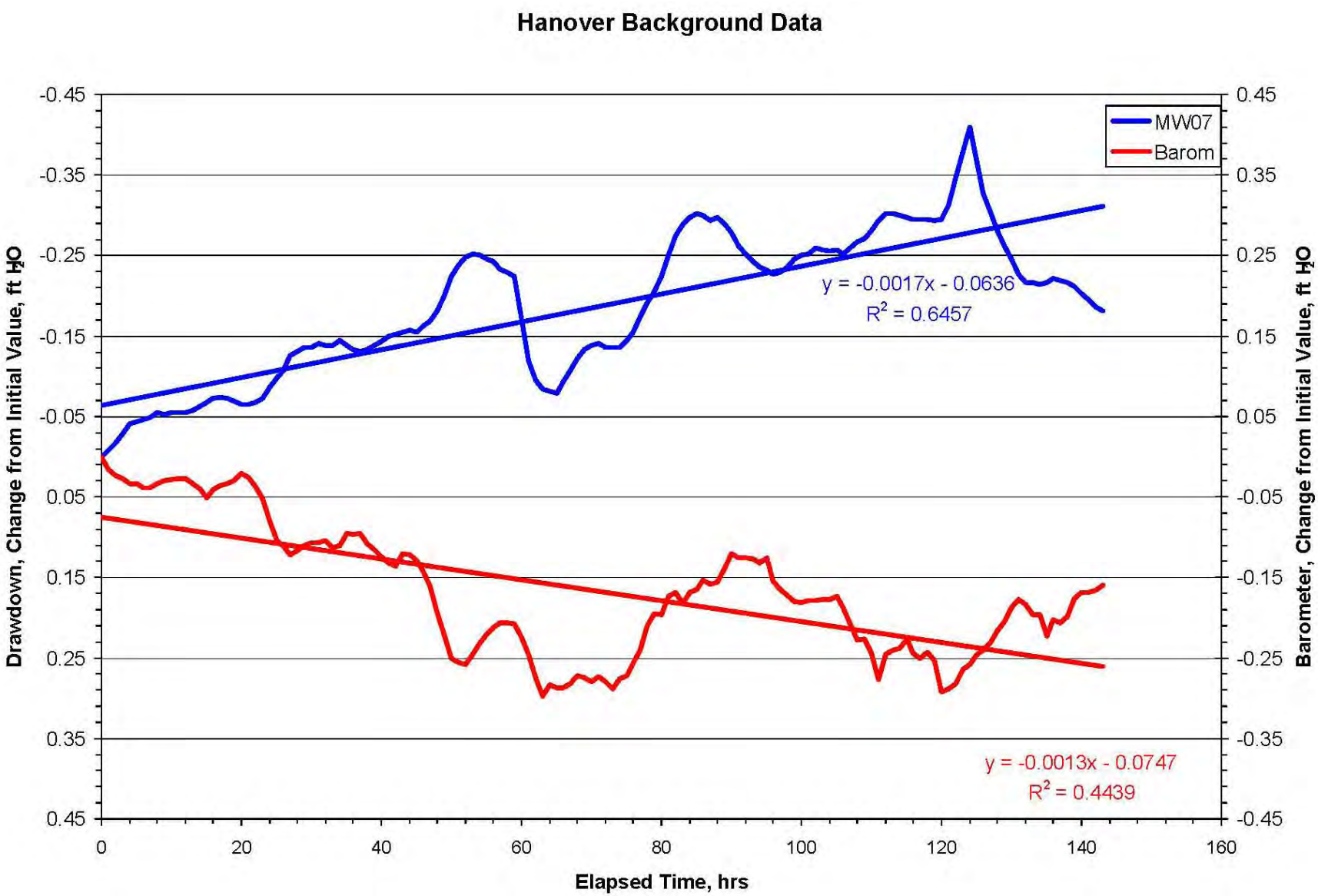

FIGURE A.6 Barometric pressure and MW07 groundwater level trends during the pre-test monitoring period, February 16-22.

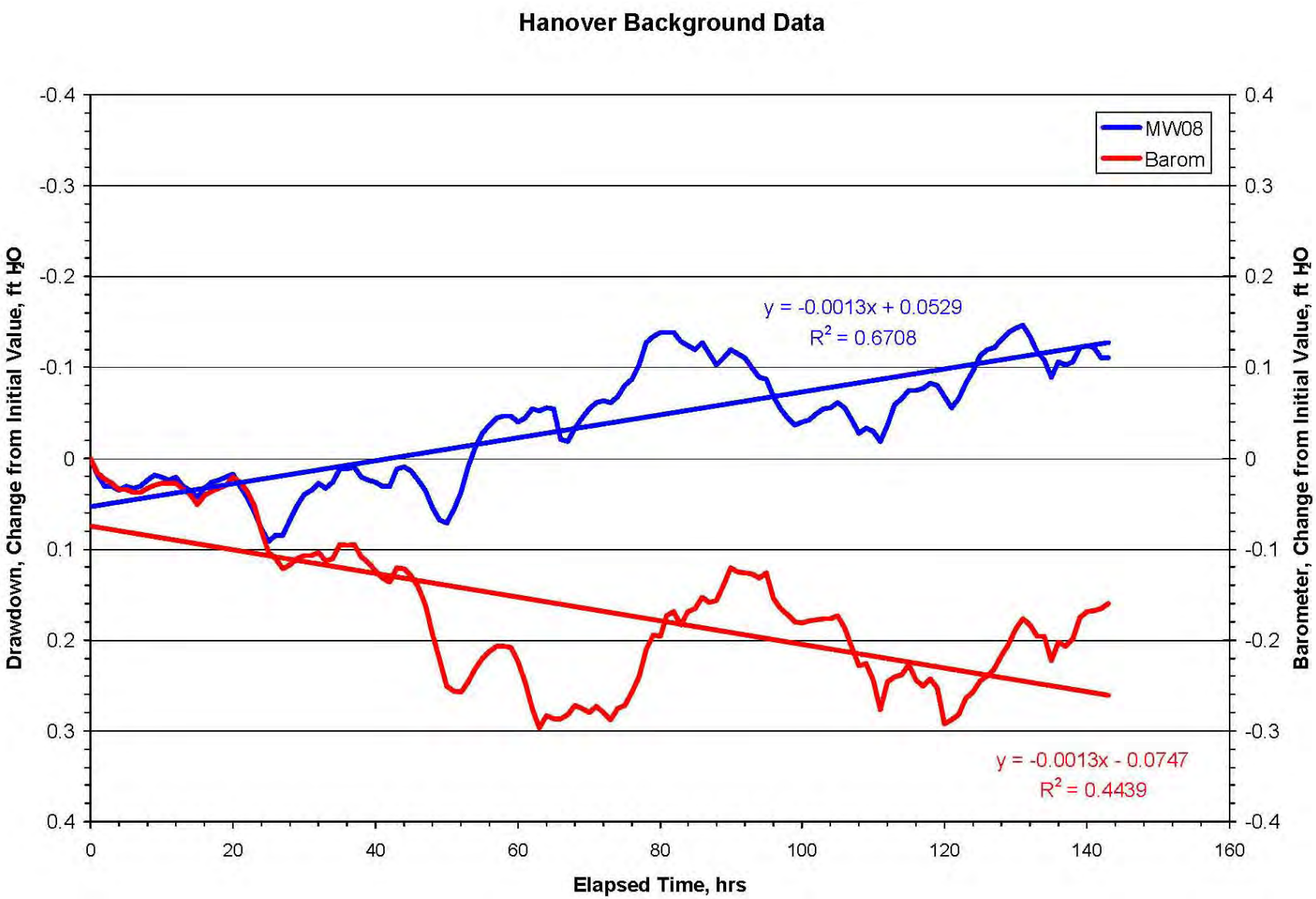

FIGURE A.7 Barometric pressure and MW08 groundwater level trends during the pre-test monitoring period, February 16-22.

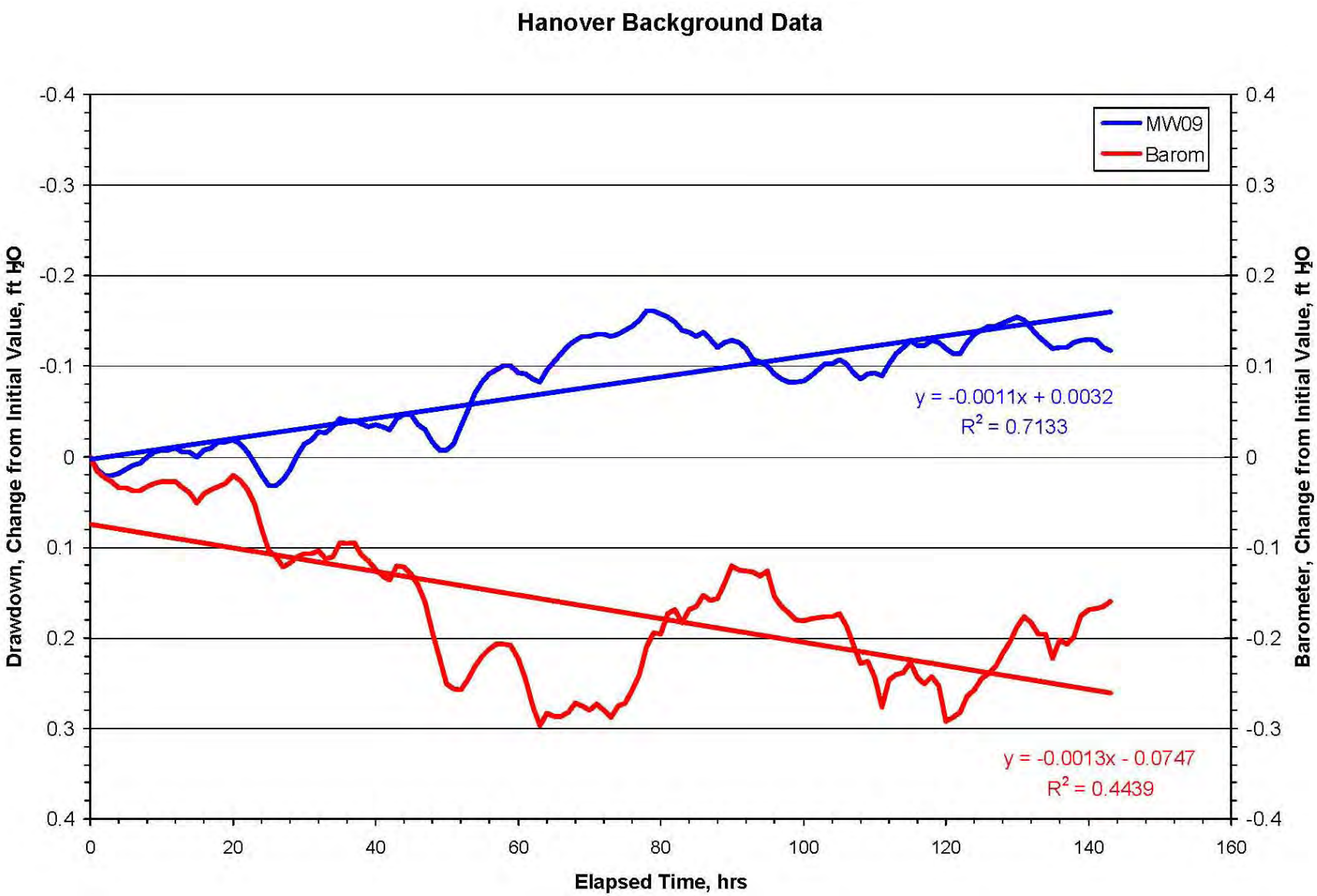

FIGURE A.8 Barometric pressure and MW09 groundwater level trends during the pre-test monitoring period, February 16-22.

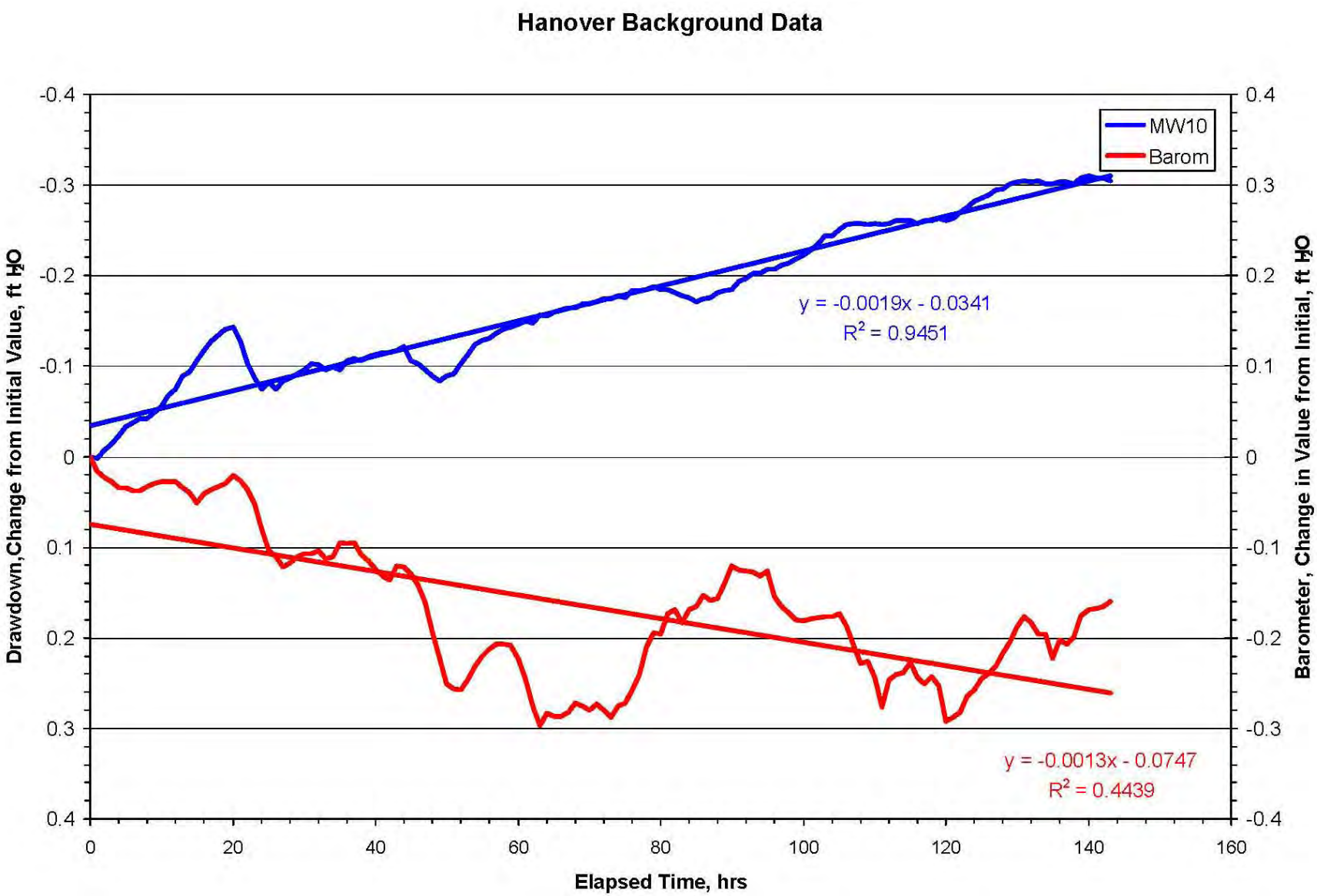

FIGURE A.9 Barometric pressure and MW10 groundwater level trends during the pre-test monitoring period, February 16-22.

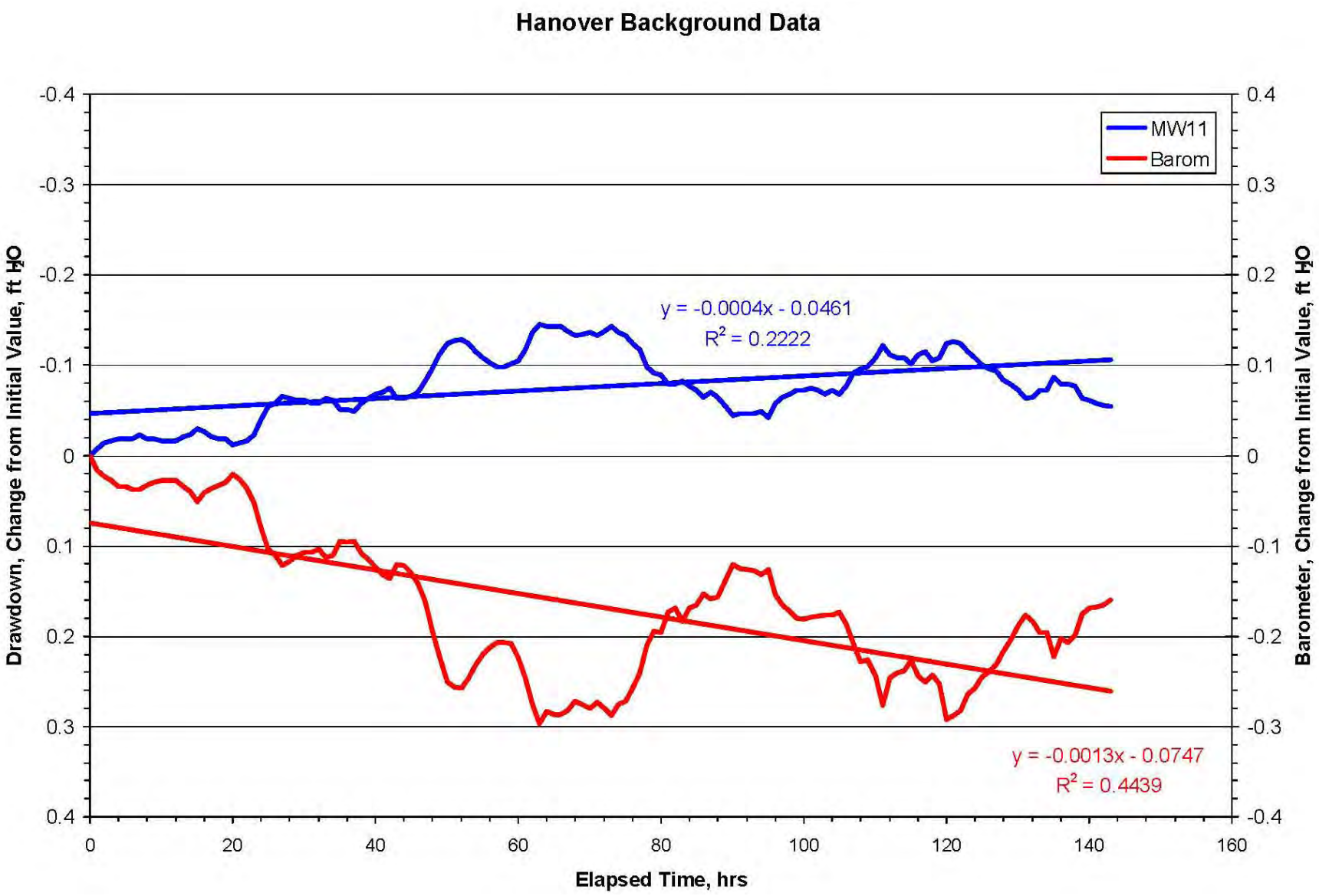

FIGURE A.10 Barometric pressure and MW11 groundwater level trends during the pre-test monitoring period, February 16-22.

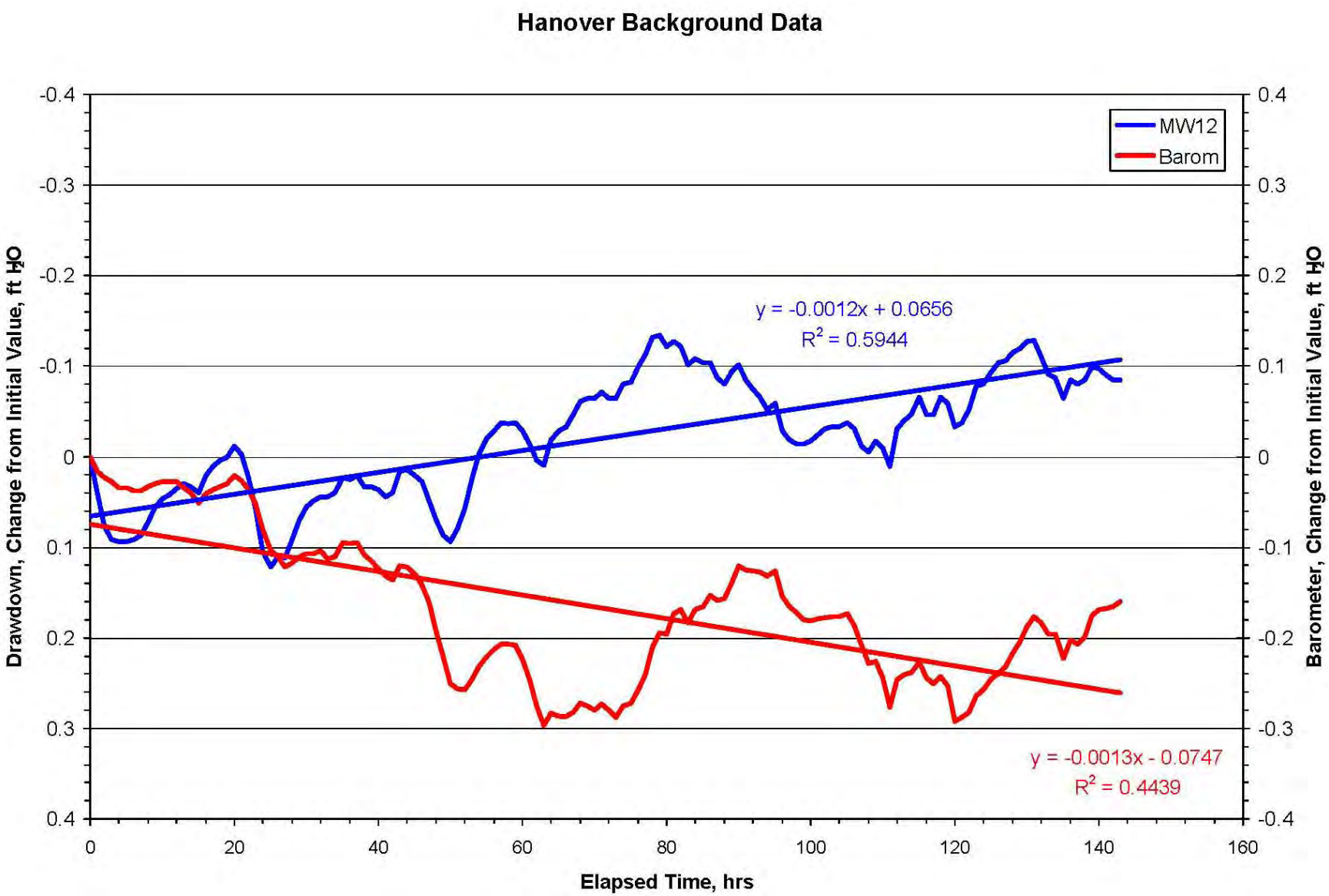

FIGURE A.11 Barometric pressure and MW12 groundwater level trends during the pre-test monitoring period, February 16-22.

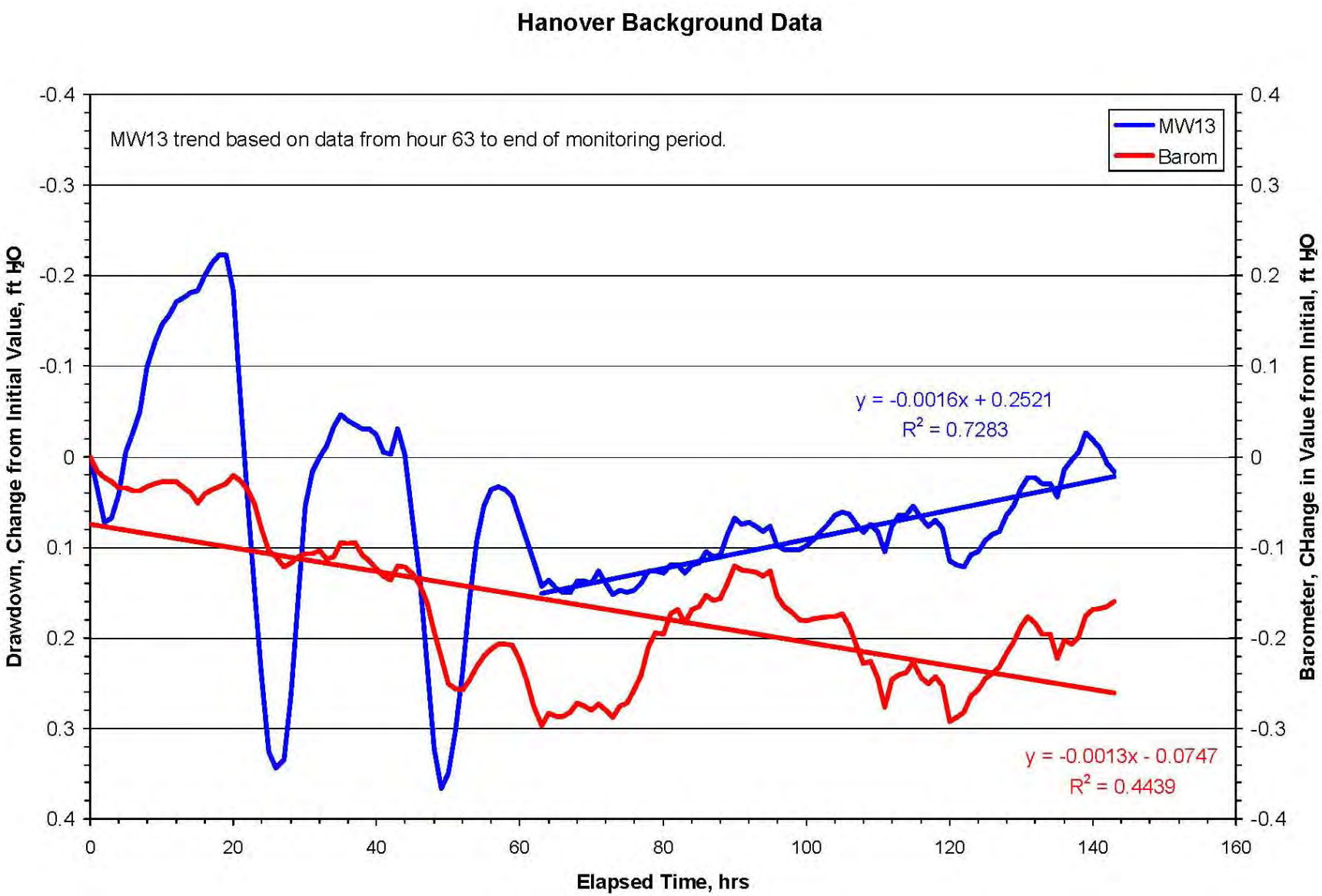

FIGURE A.12 Barometric pressure and MW13 groundwater level trends during the pre-test monitoring period, February 16-22.

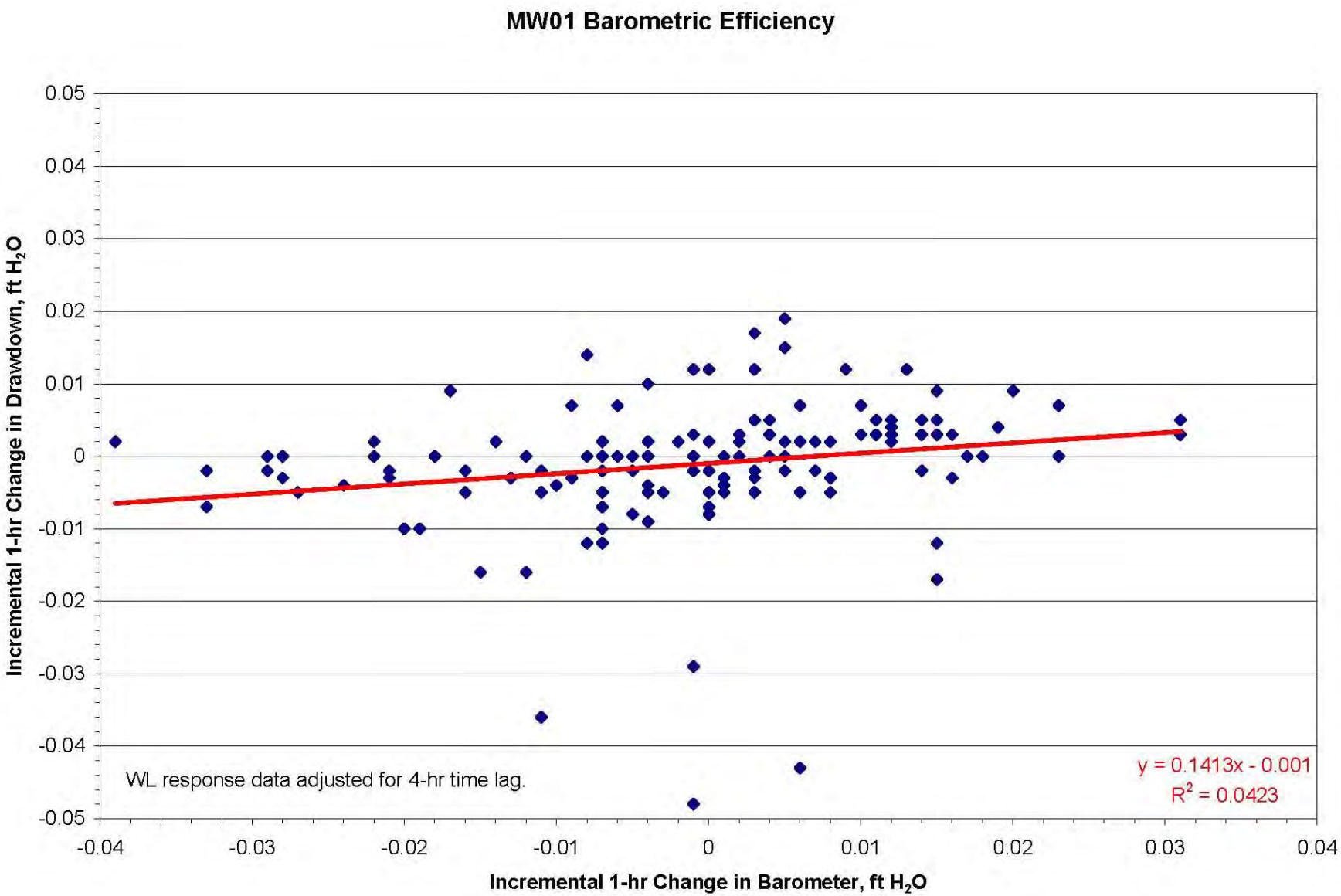

FIGURE A.13 Incremental change in barometric pressure versus incremental change in water level at MW01 for each hour during the pre-test monitoring period, February 16-22.

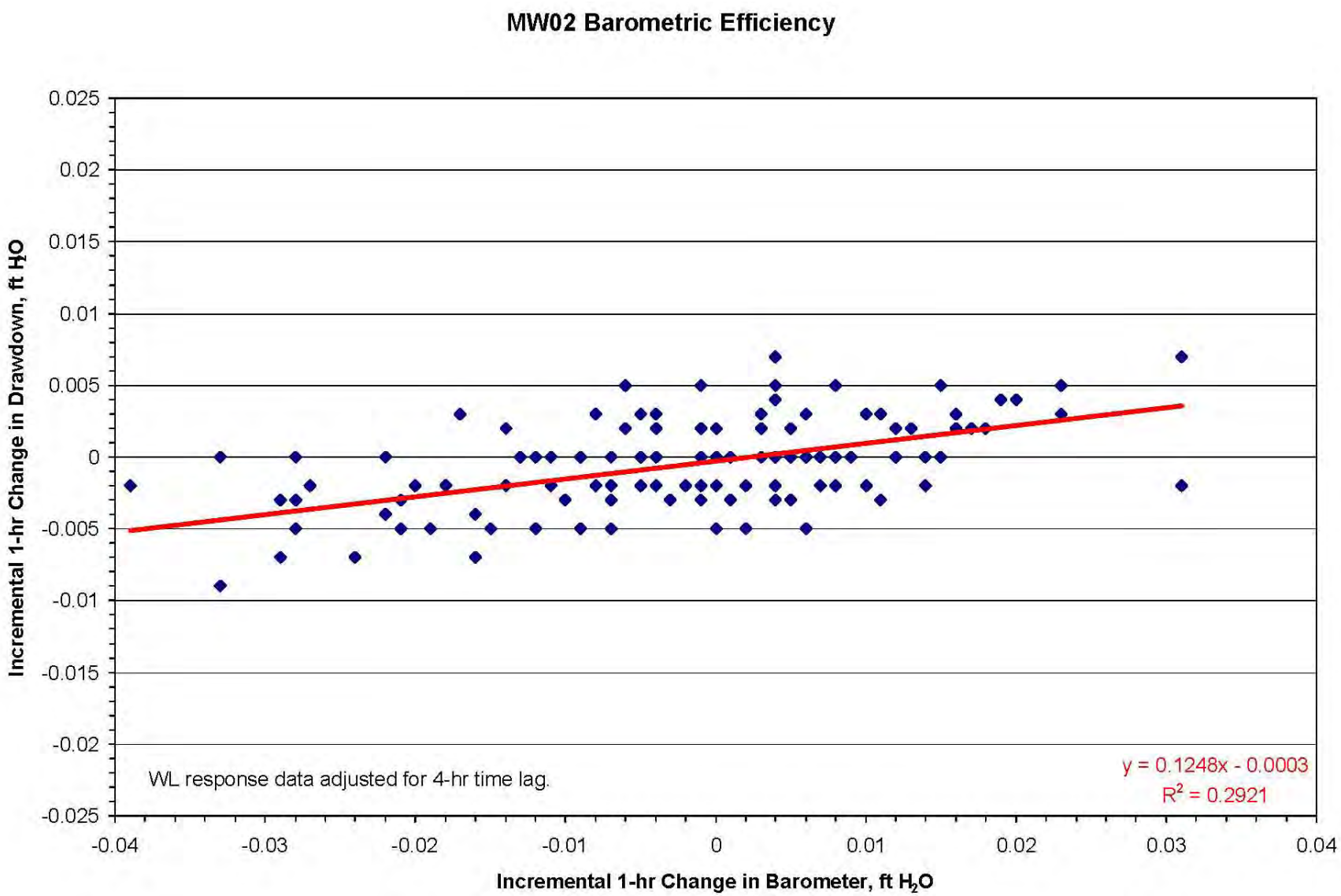

FIGURE A.14 Incremental change in barometric pressure versus incremental change in water level at MW02 for each hour during the pre-test monitoring period, February 16-22.

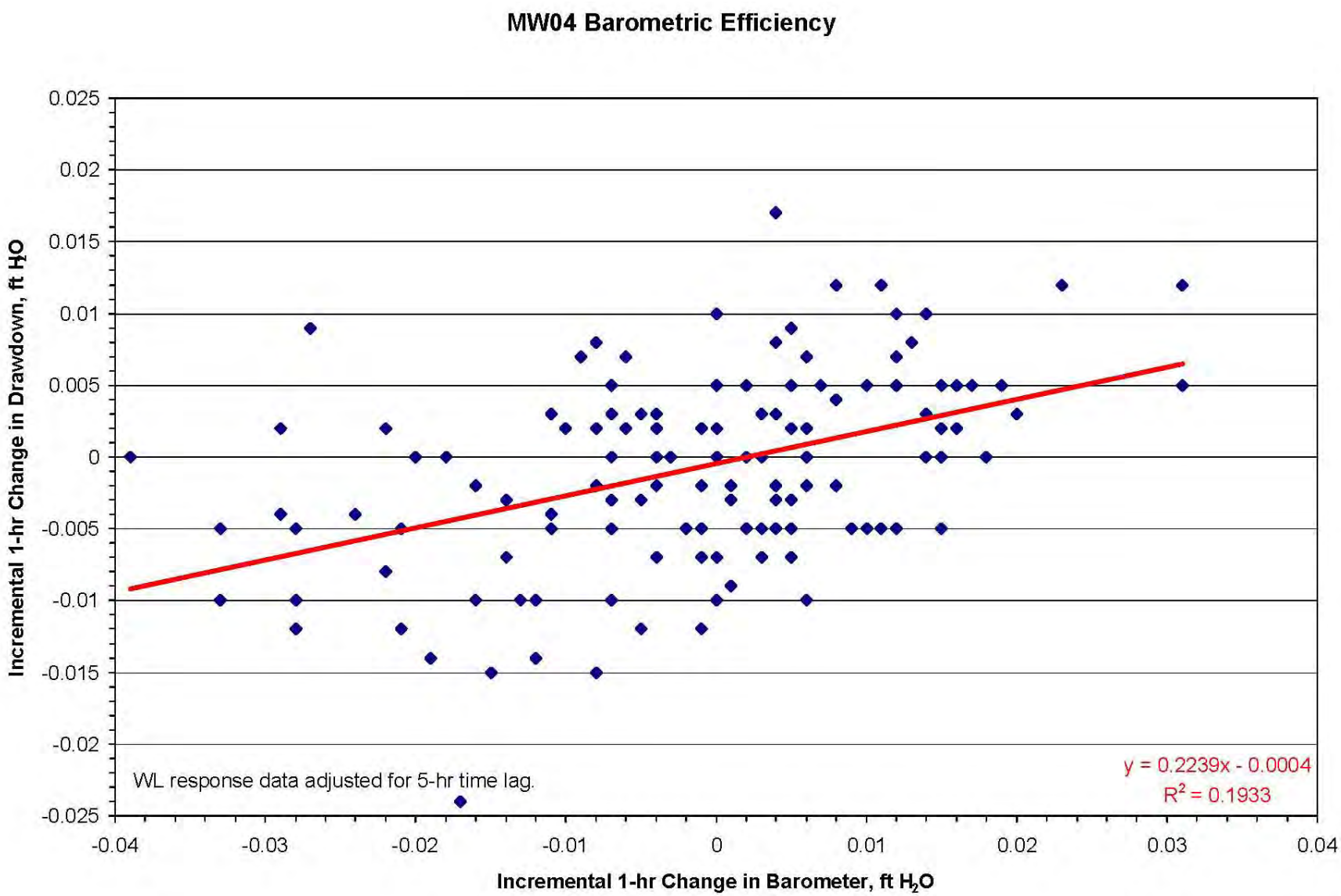

FIGURE A.15 Incremental change in barometric pressure versus incremental change in water level at MW04 for each hour during the pre-test monitoring period, February 16-22.

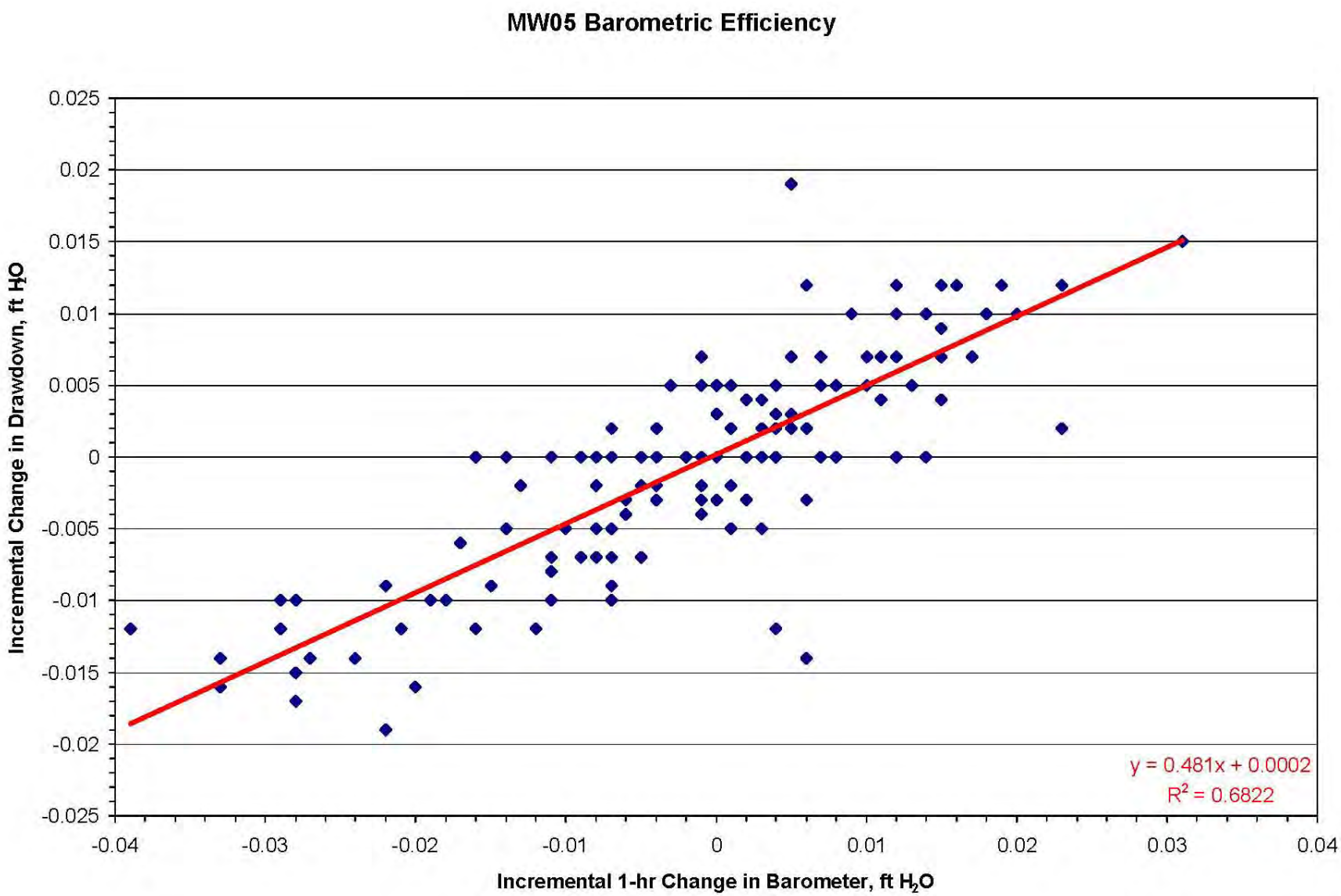

FIGURE A.16 Incremental change in barometric pressure versus incremental change in water level at MW05 for each hour during the pre-test monitoring period, February 16-22.

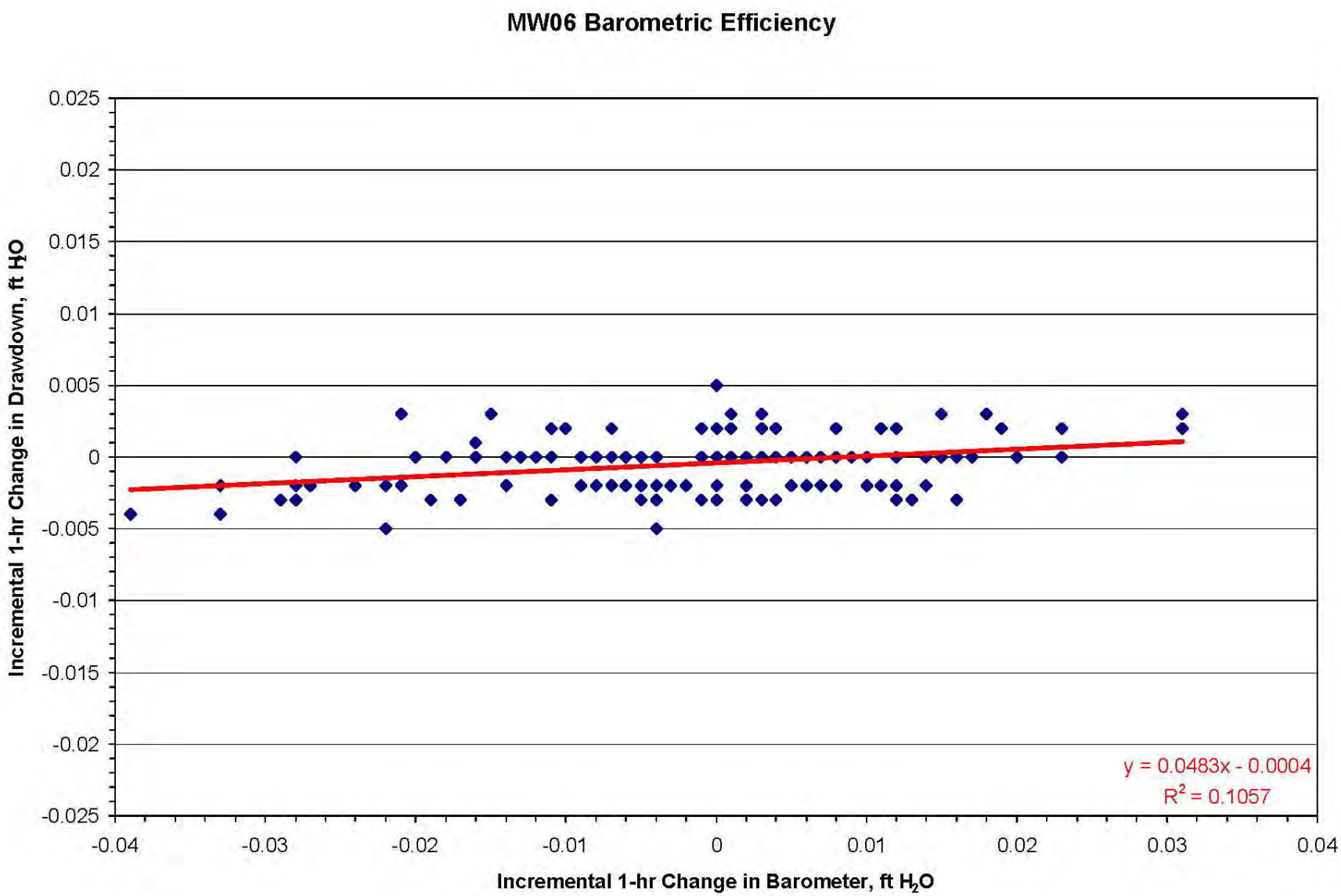

FIGURE A.17 Incremental change in barometric pressure versus incremental change in water level at MW06 for each hour during the pre-test monitoring period, February 16-22.

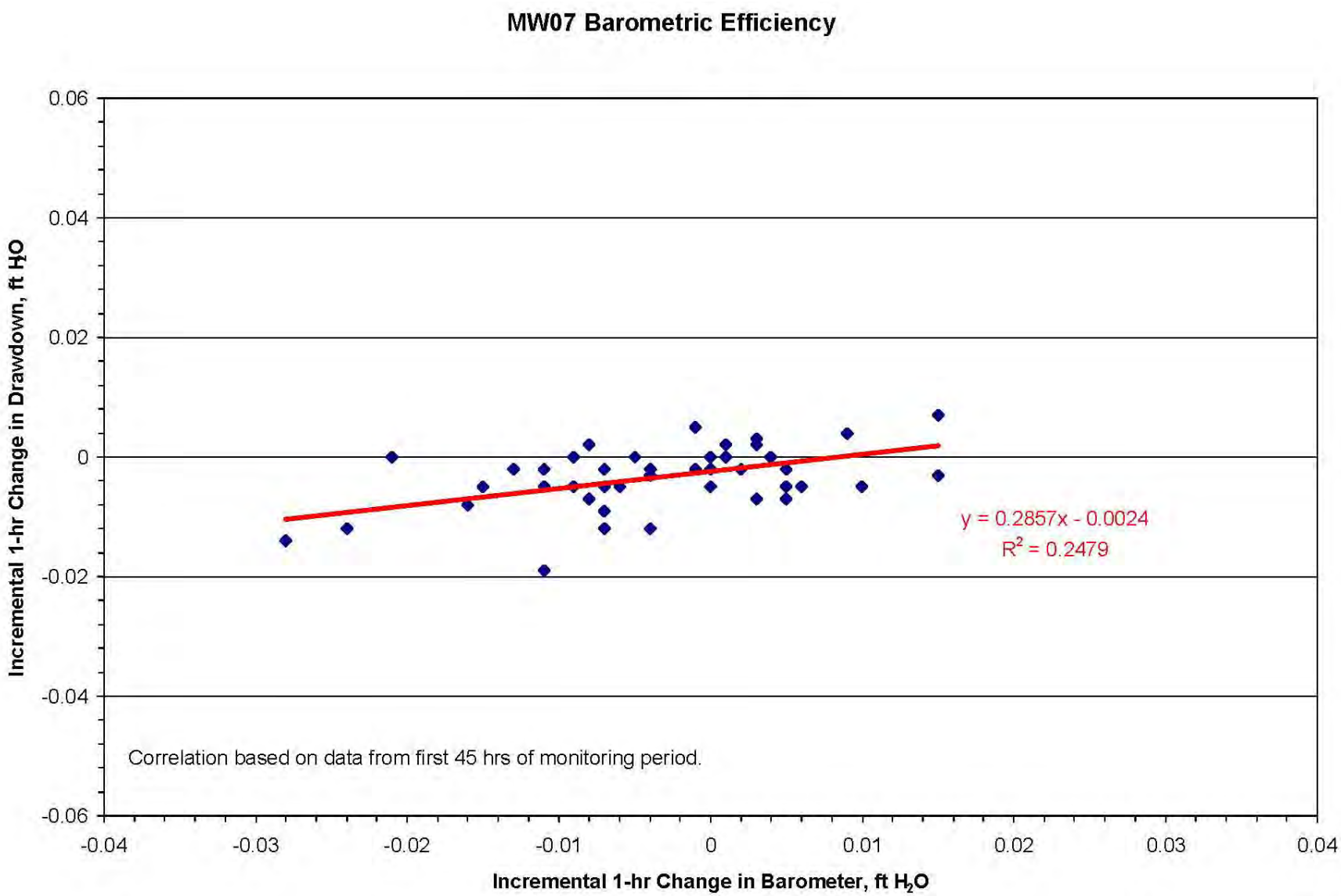

FIGURE A.18 Incremental change in barometric pressure versus incremental change in water level at MW07 for each hour during the pre-test monitoring period, February 16-22.

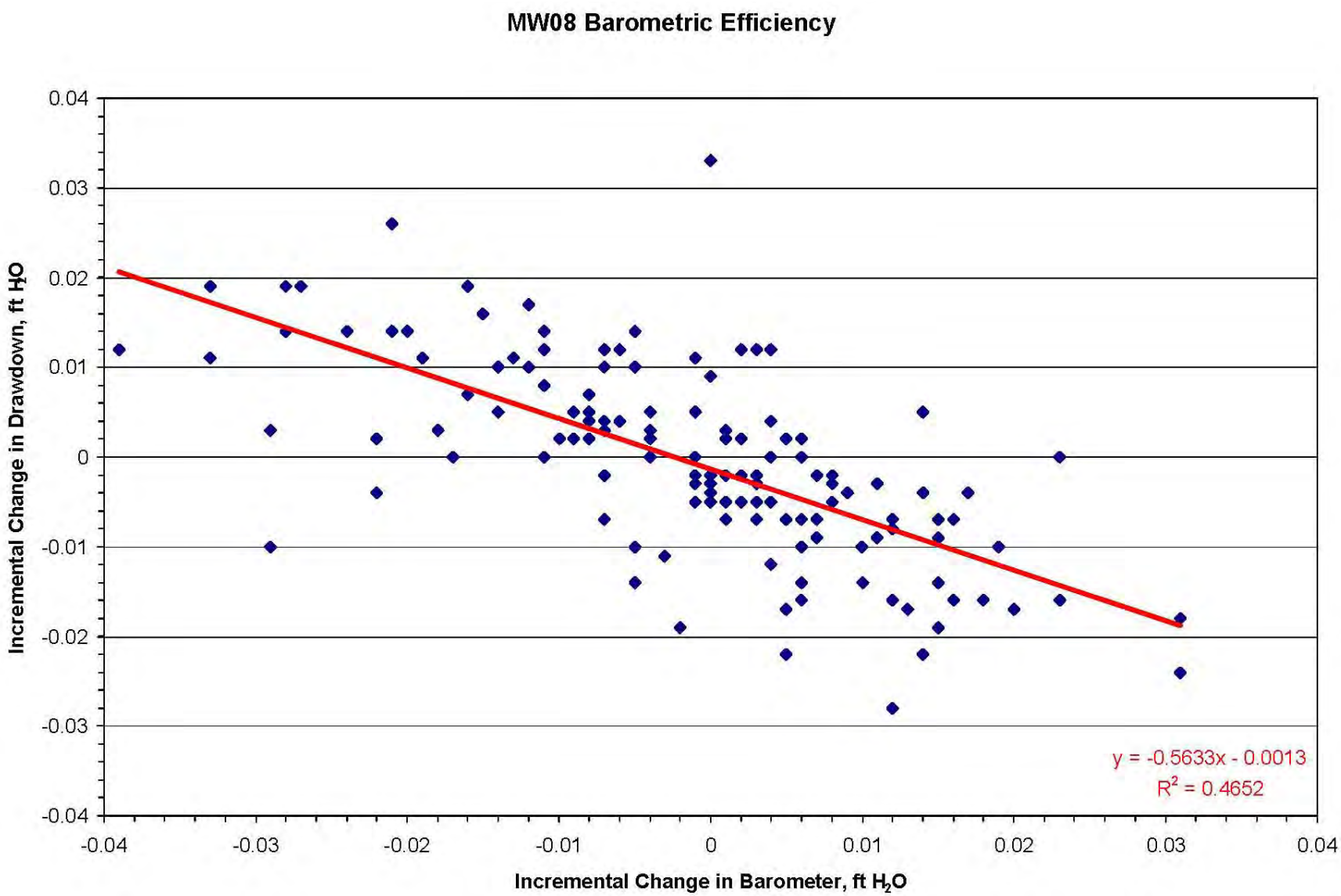

FIGURE A.19 Incremental change in barometric pressure versus incremental change in water level at MW08 for each hour during the pre-test monitoring period, February 16-22.

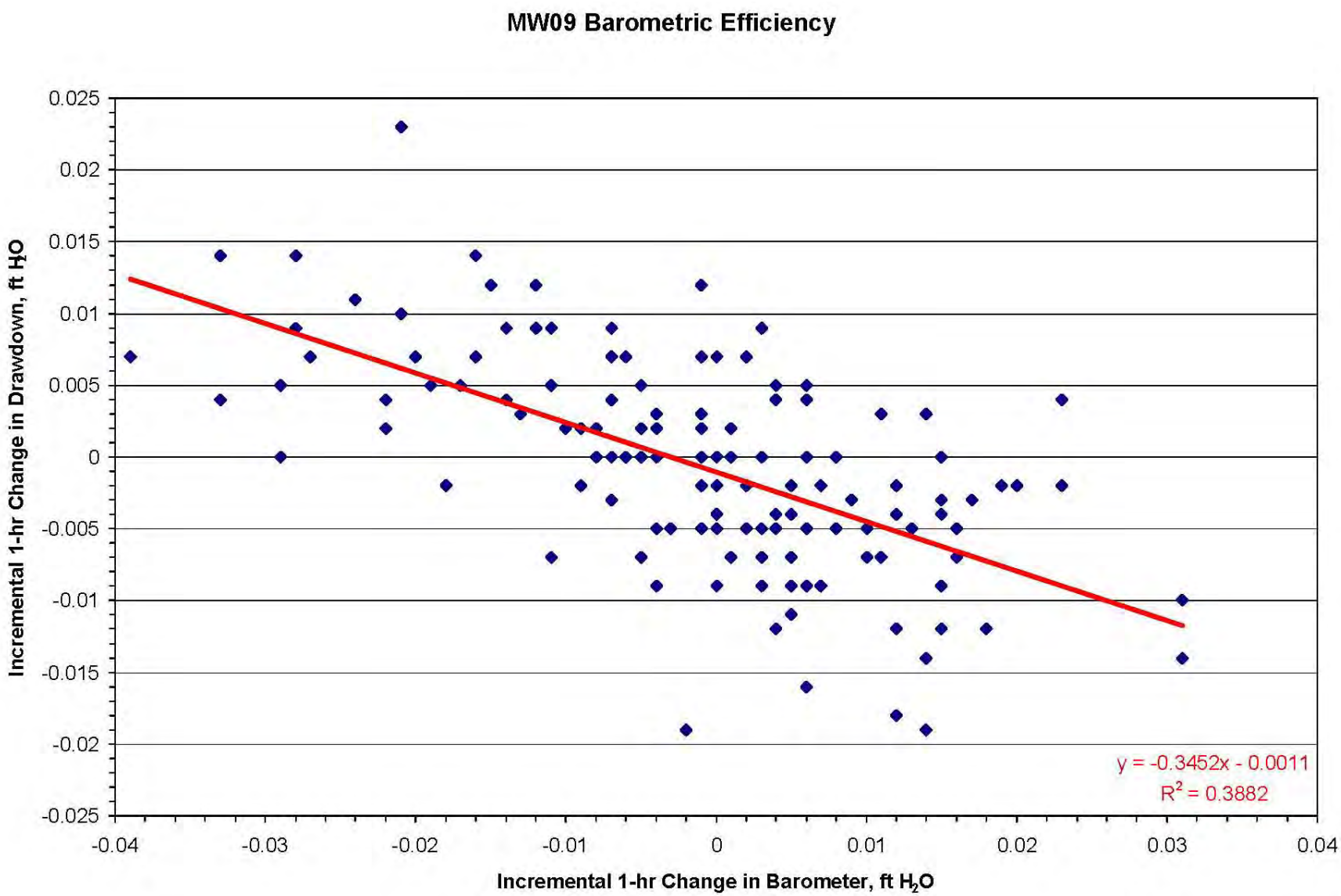

FIGURE A.20 Incremental change in barometric pressure versus incremental change in water level at MW09 for each hour during the pre-test monitoring period, February 16-22.

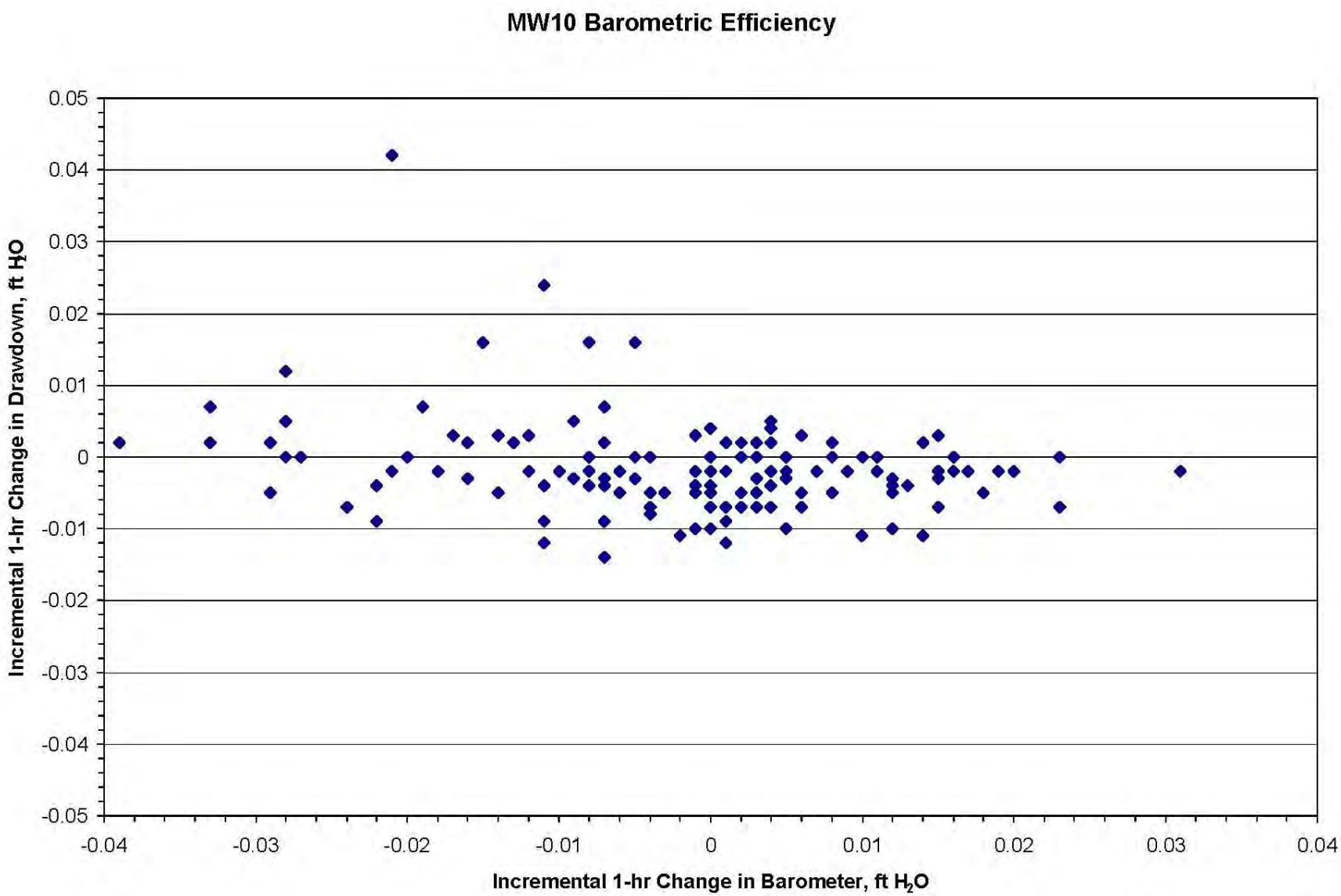

FIGURE A.21 Incremental change in barometric pressure versus incremental change in water level at MW10 for each hour during the pre-test monitoring period, February 16-22.

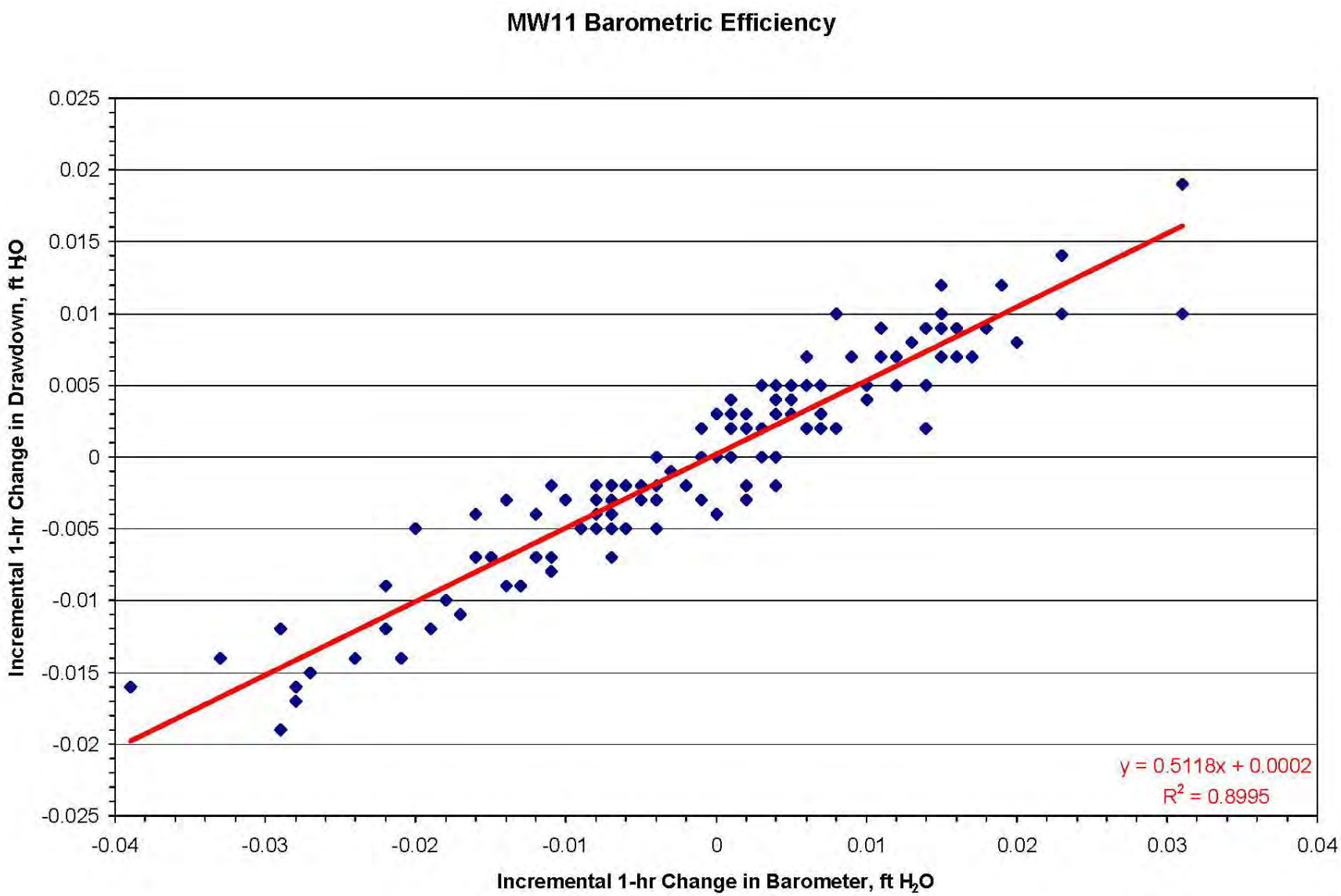

FIGURE A.22 Incremental change in barometric pressure versus incremental change in water level at MW11 for each hour during the pre-test monitoring period, February 16-22.

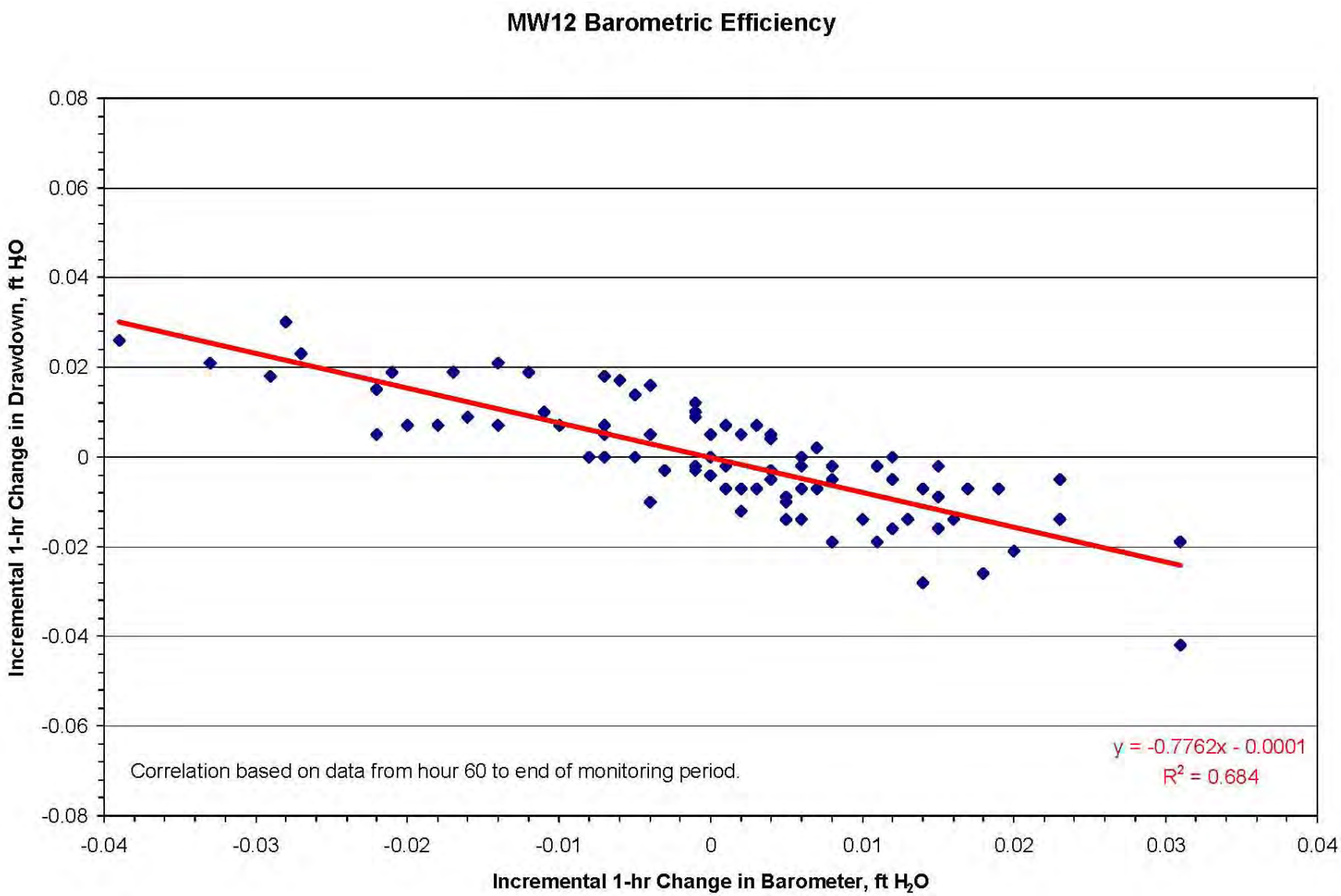

FIGURE A.23 Incremental change in barometric pressure versus incremental change in water level at MW12 for each hour during the pre-test monitoring period, February 16-22.

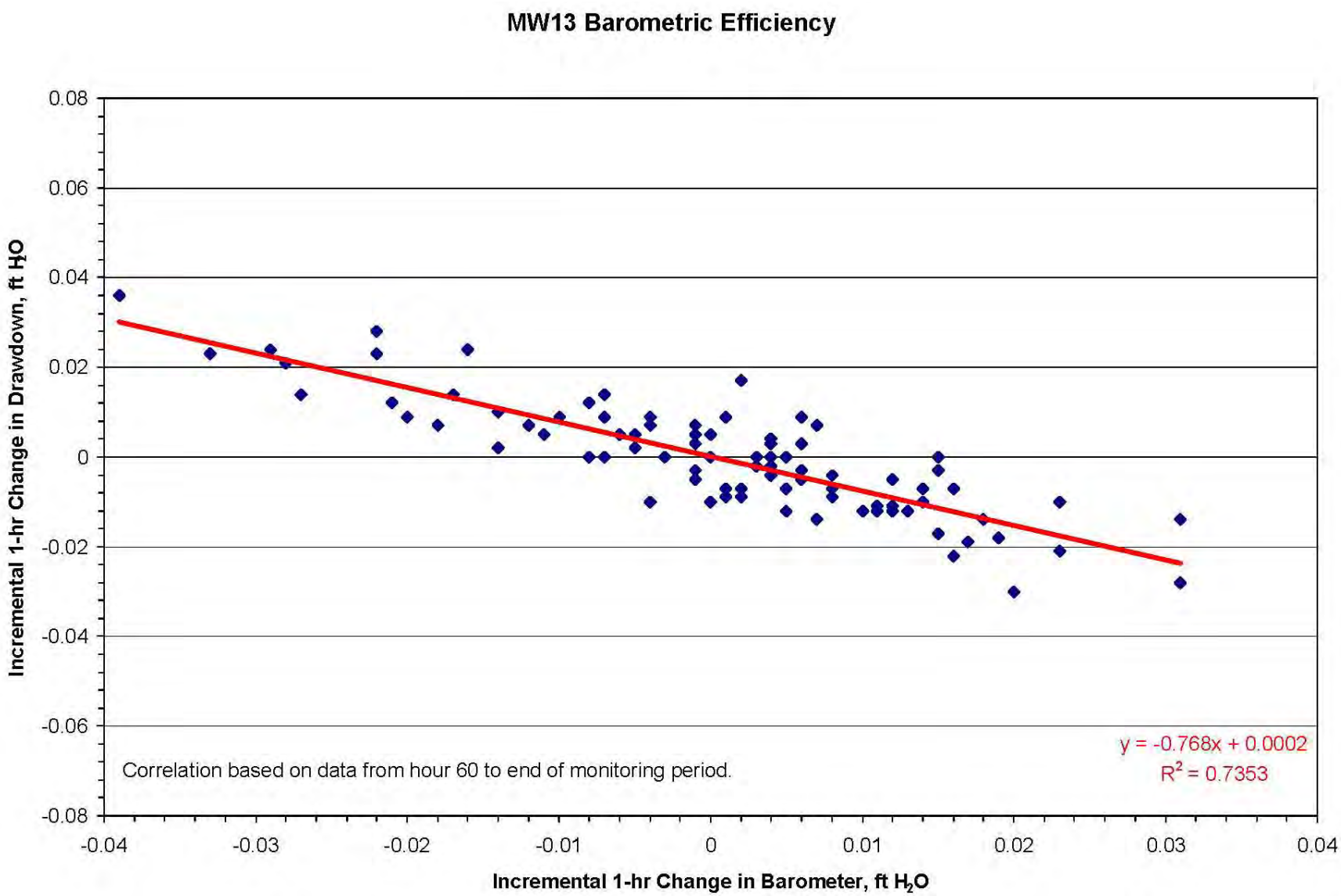

FIGURE A.24 Incremental change in barometric pressure versus incremental change in water level at MW13 for each hour during the pre-test monitoring period, February 16-22.

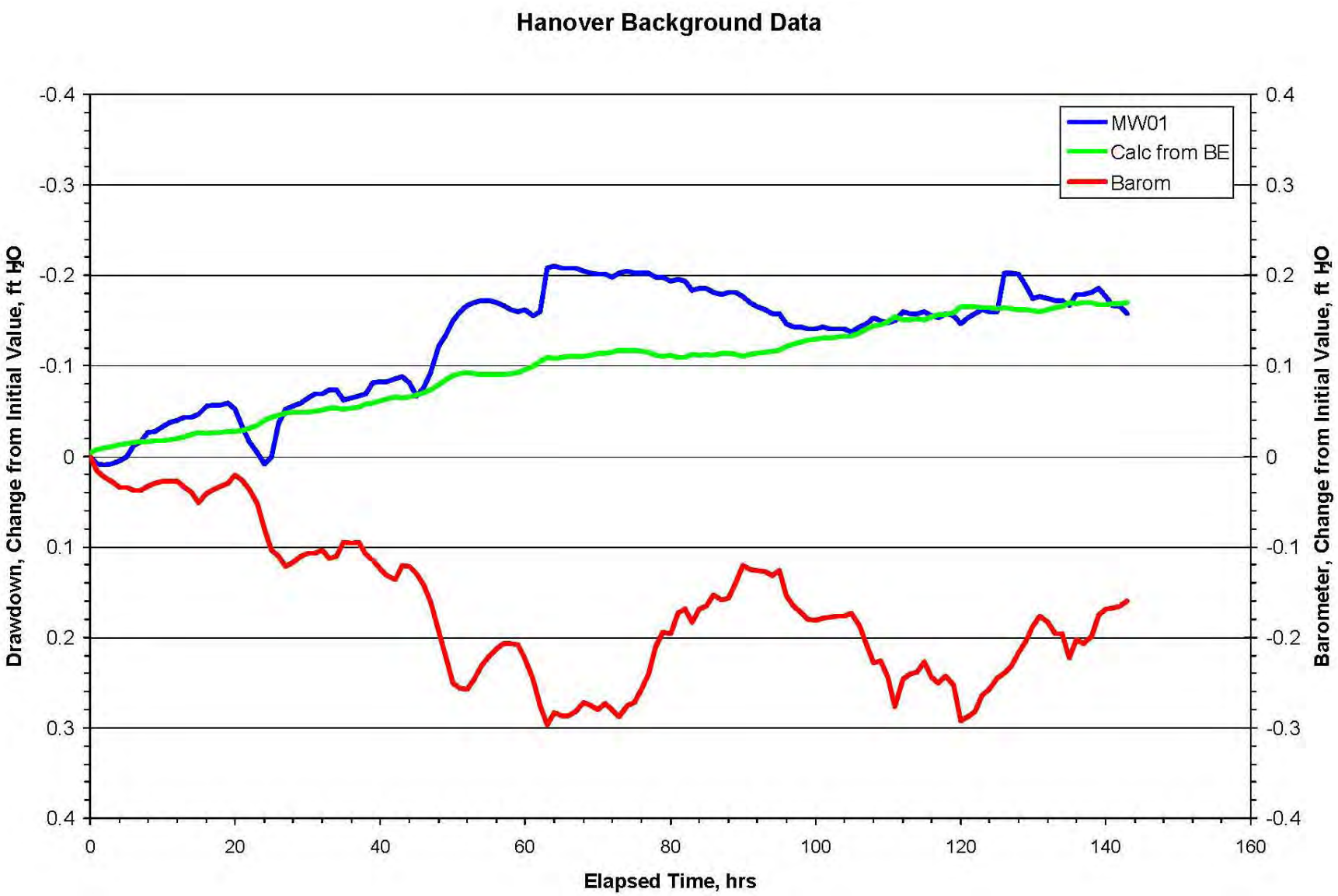

FIGURE A.25 Measured water levels, with levels predicted on the basis of calculated BE responses for MW01 during the pre-test monitoring period, February 16-22.

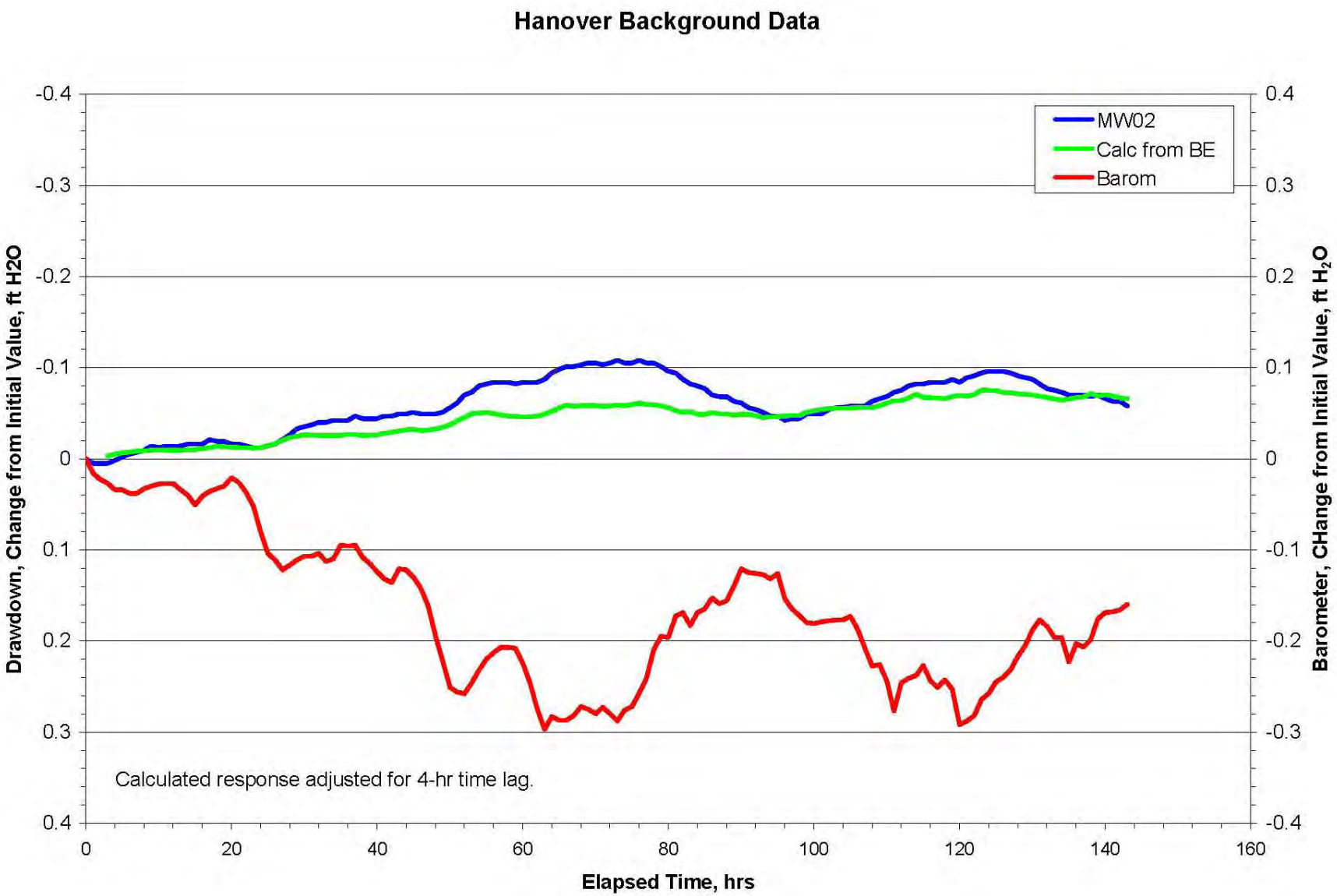

FIGURE A.26 Measured water levels, with levels predicted on the basis of calculated BE responses for MW02 during the pre-test monitoring period, February 16-22.

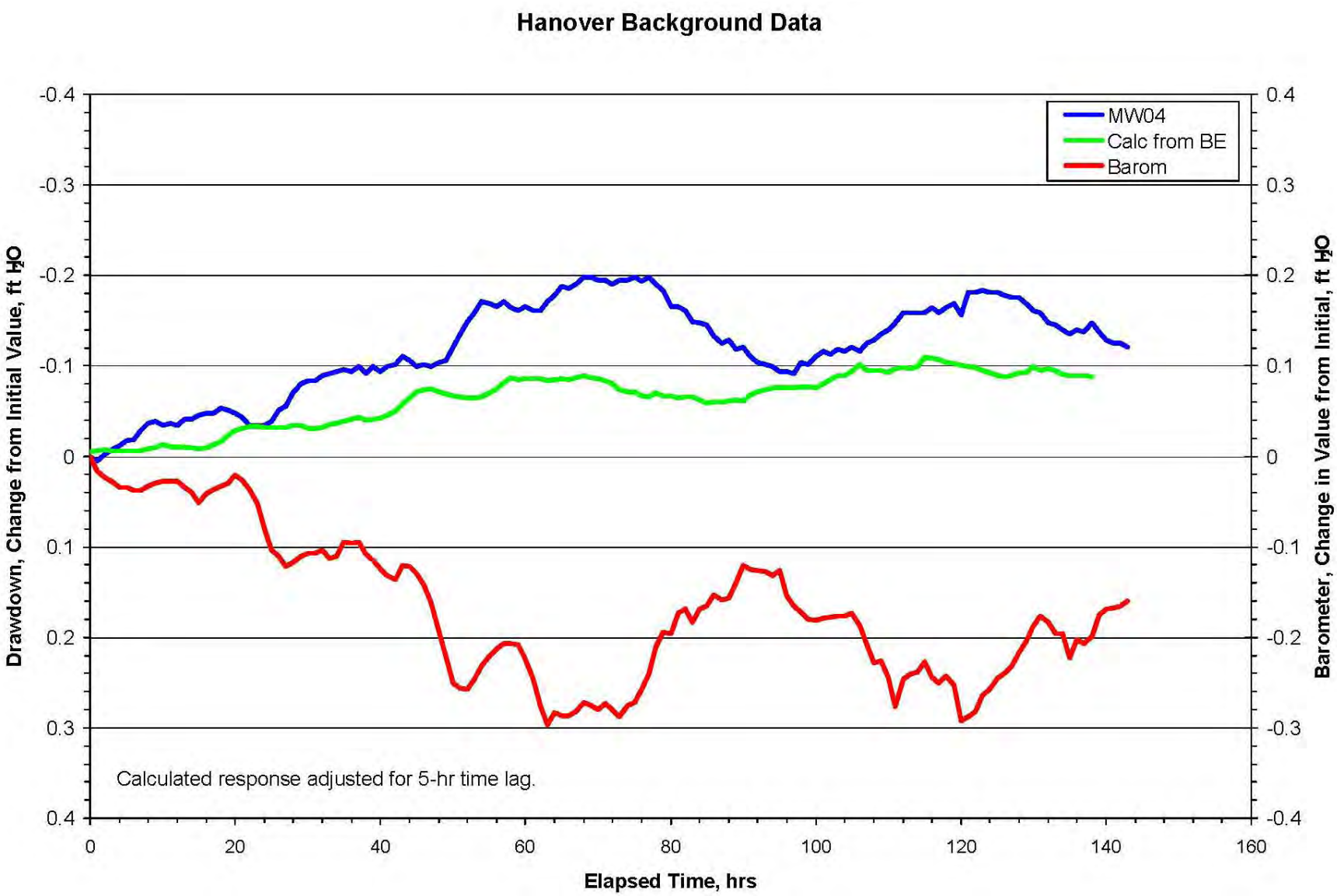

FIGURE A.27 Measured water levels, with levels predicted on the basis of calculated BE responses for MW04 during the pre-test monitoring period, February 16-22.

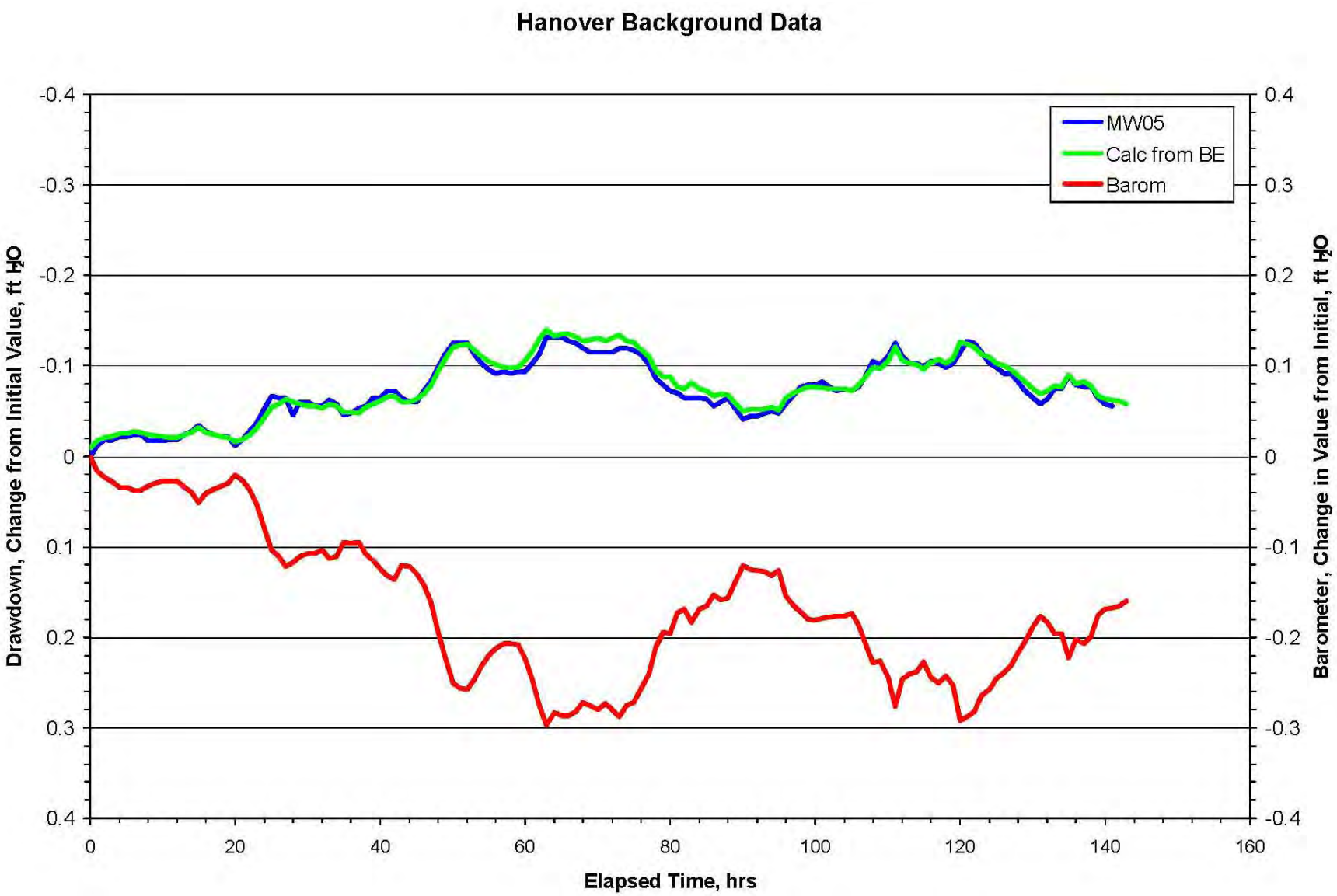

FIGURE A.28 Measured water levels, with levels predicted on the basis of calculated BE responses for MW05 during the pre-test monitoring period, February 16-22.

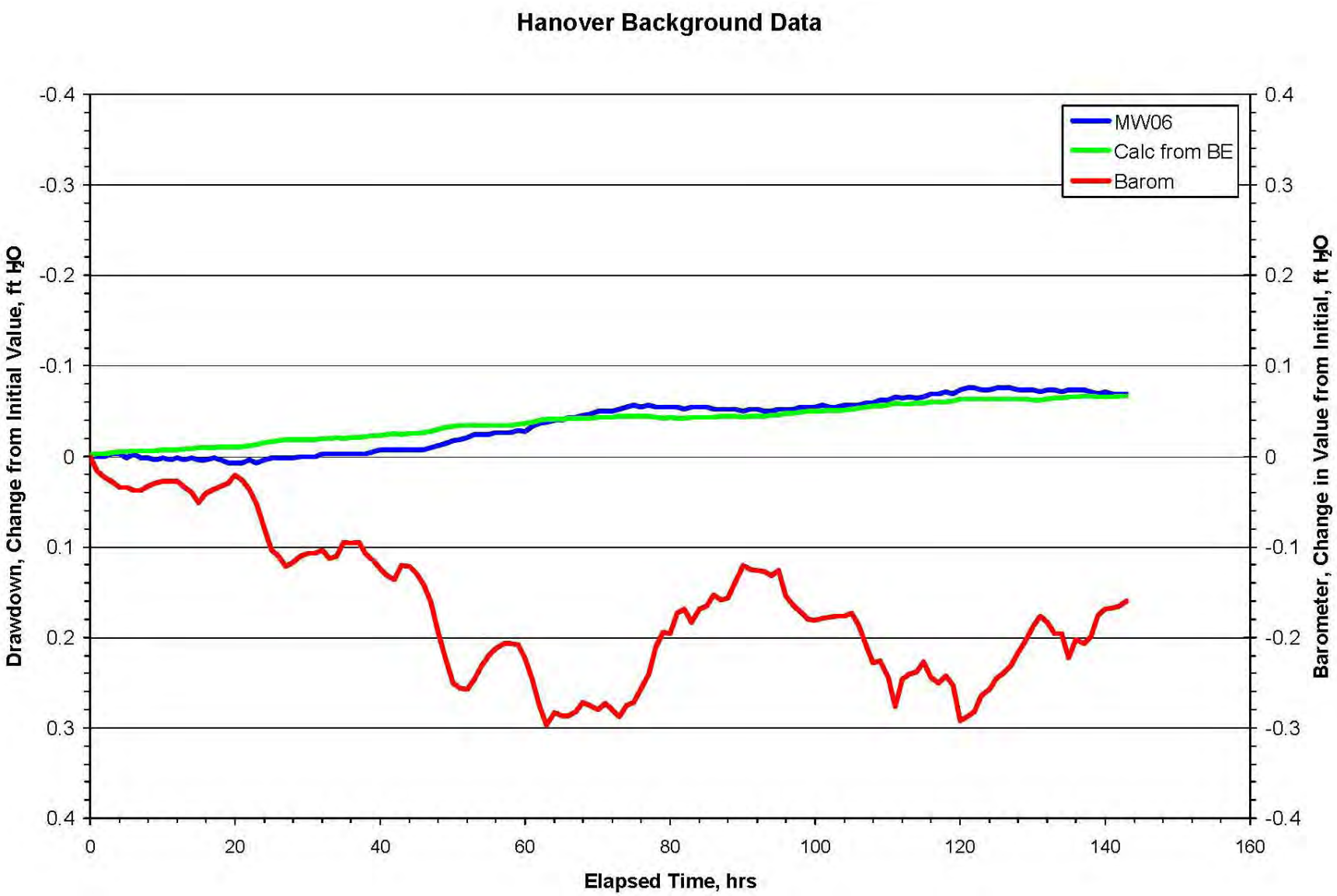

FIGURE A.29 Measured water levels, with levels predicted on the basis of calculated BE responses for MW06 during the pre-test monitoring period, February 16-22.

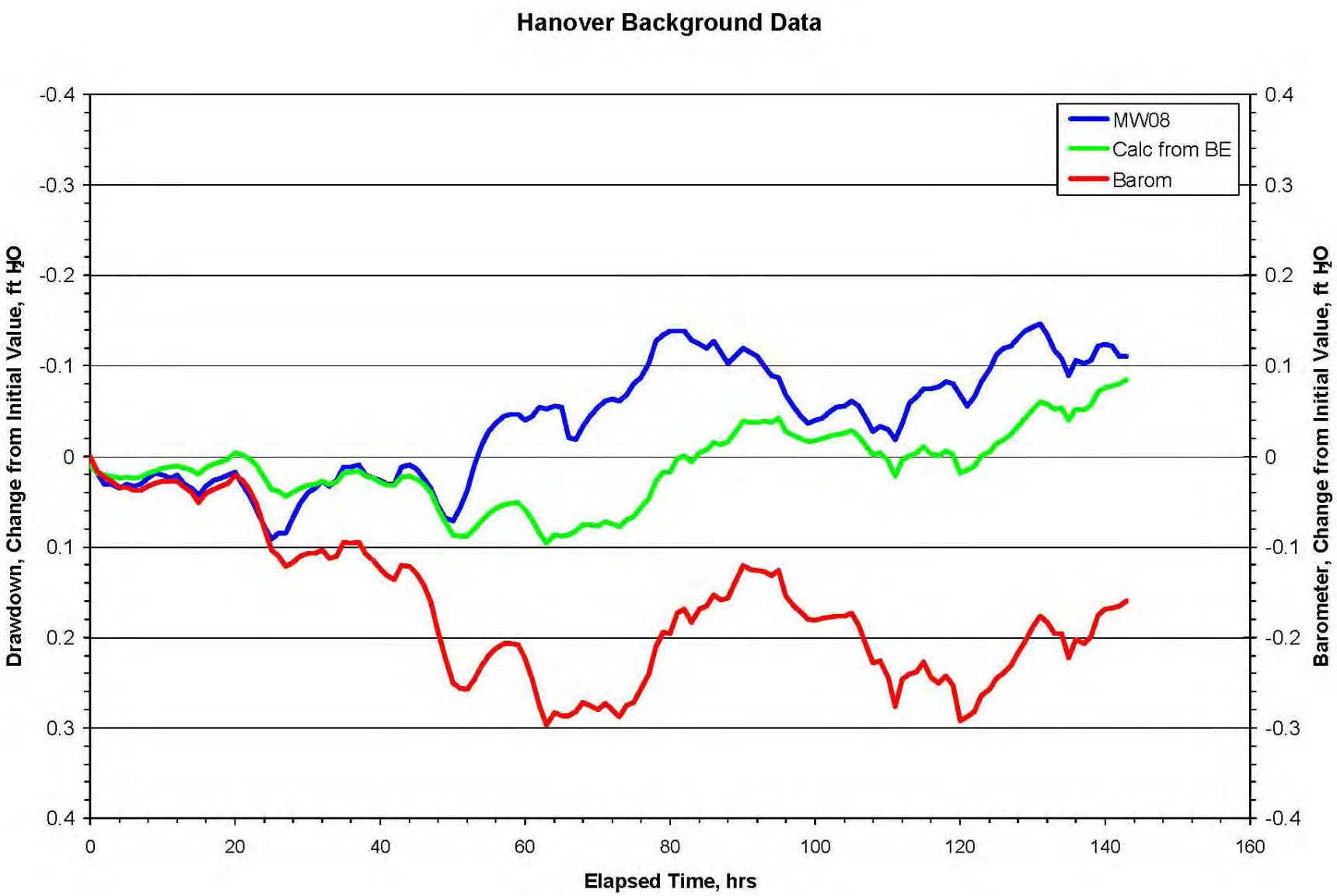

FIGURE A.30 Measured water levels, with levels predicted on the basis of calculated BE responses for MW08 during the pre-test monitoring period, February 16-22.

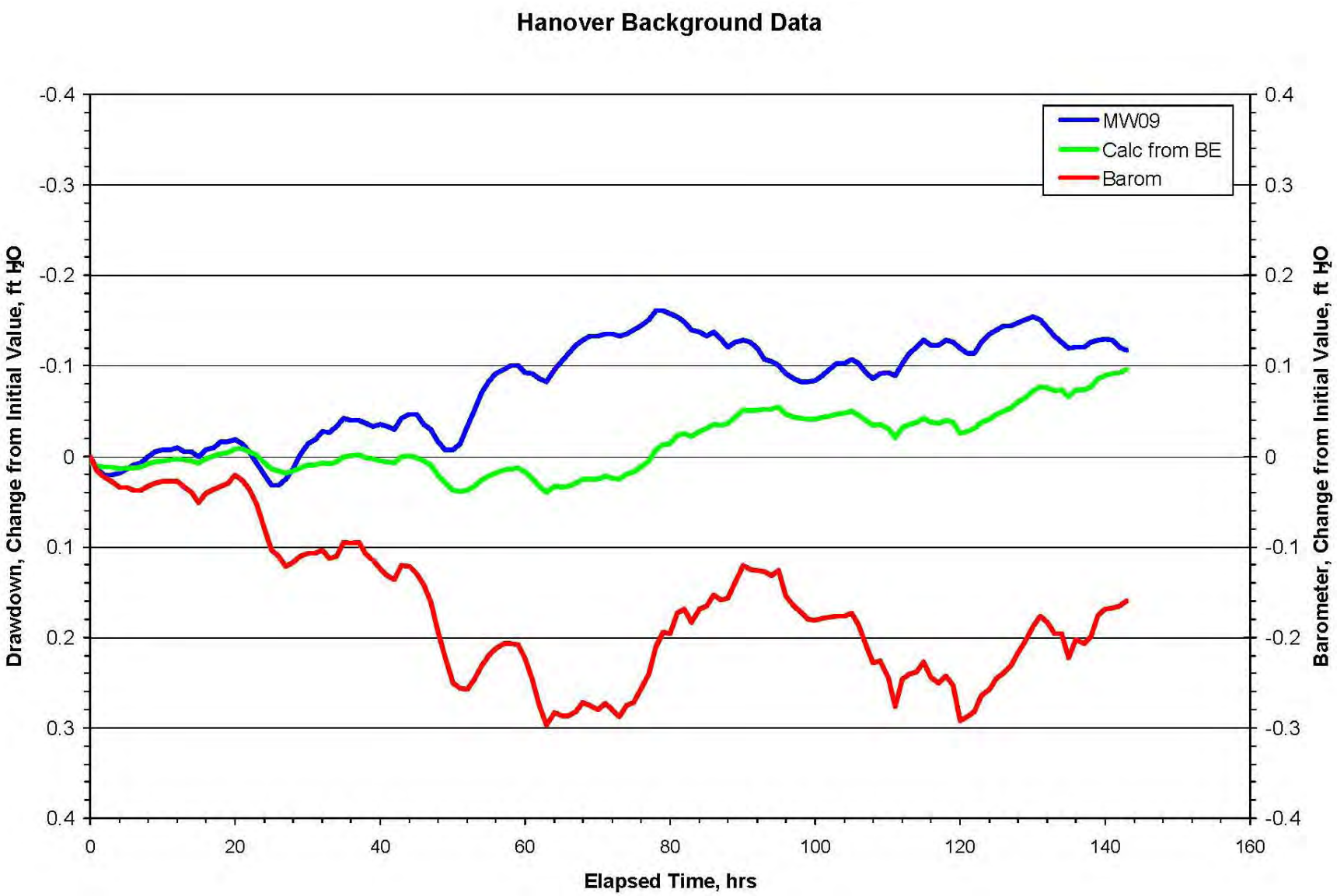

FIGURE A.31 Measured water levels, with levels predicted on the basis of calculated BE responses for MW09 during the pre-test monitoring period, February 16-22.

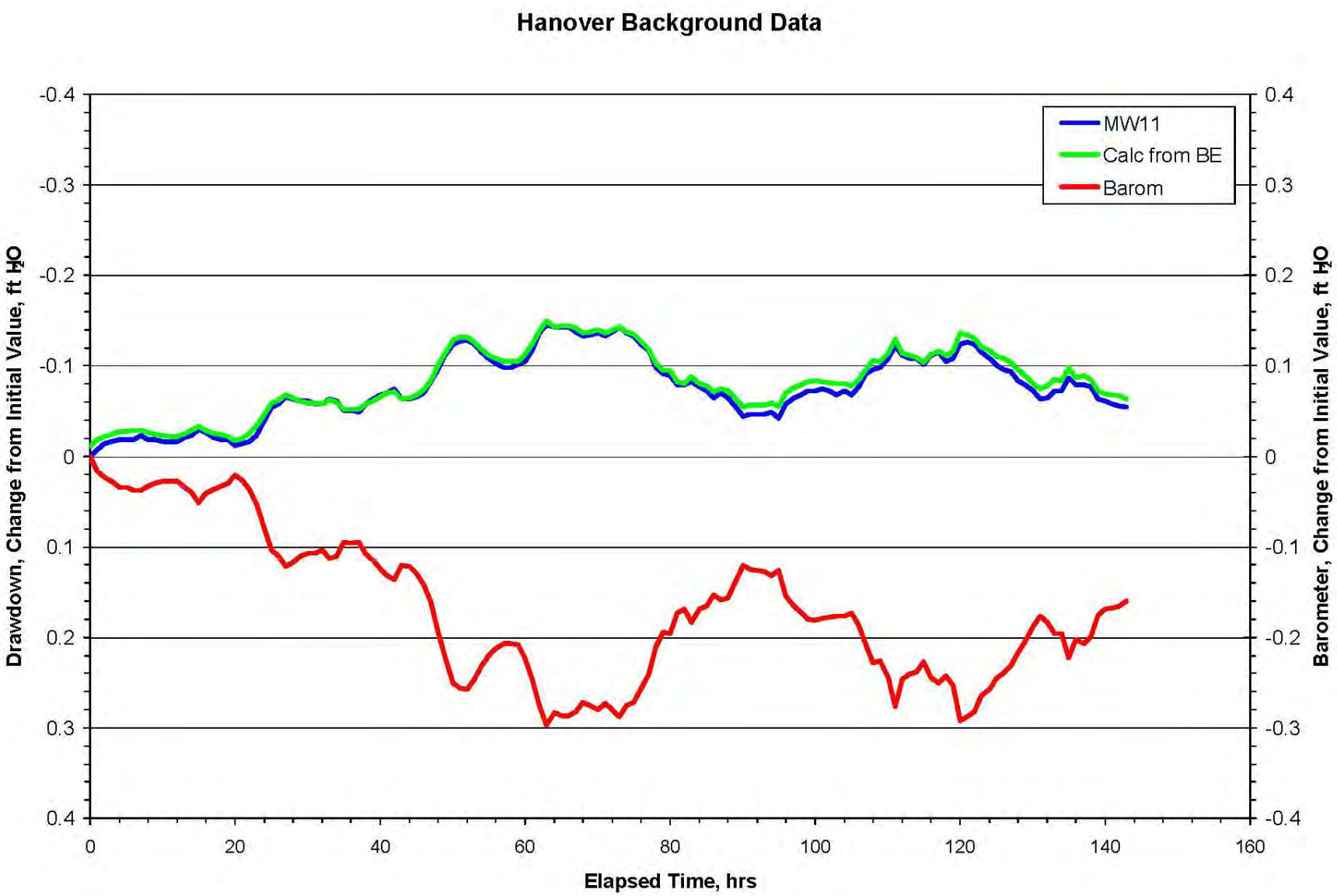

FIGURE A.32 Measured water levels, with levels predicted on the basis of calculated BE responses for MW11 during the pre-test monitoring period, February 16-22.

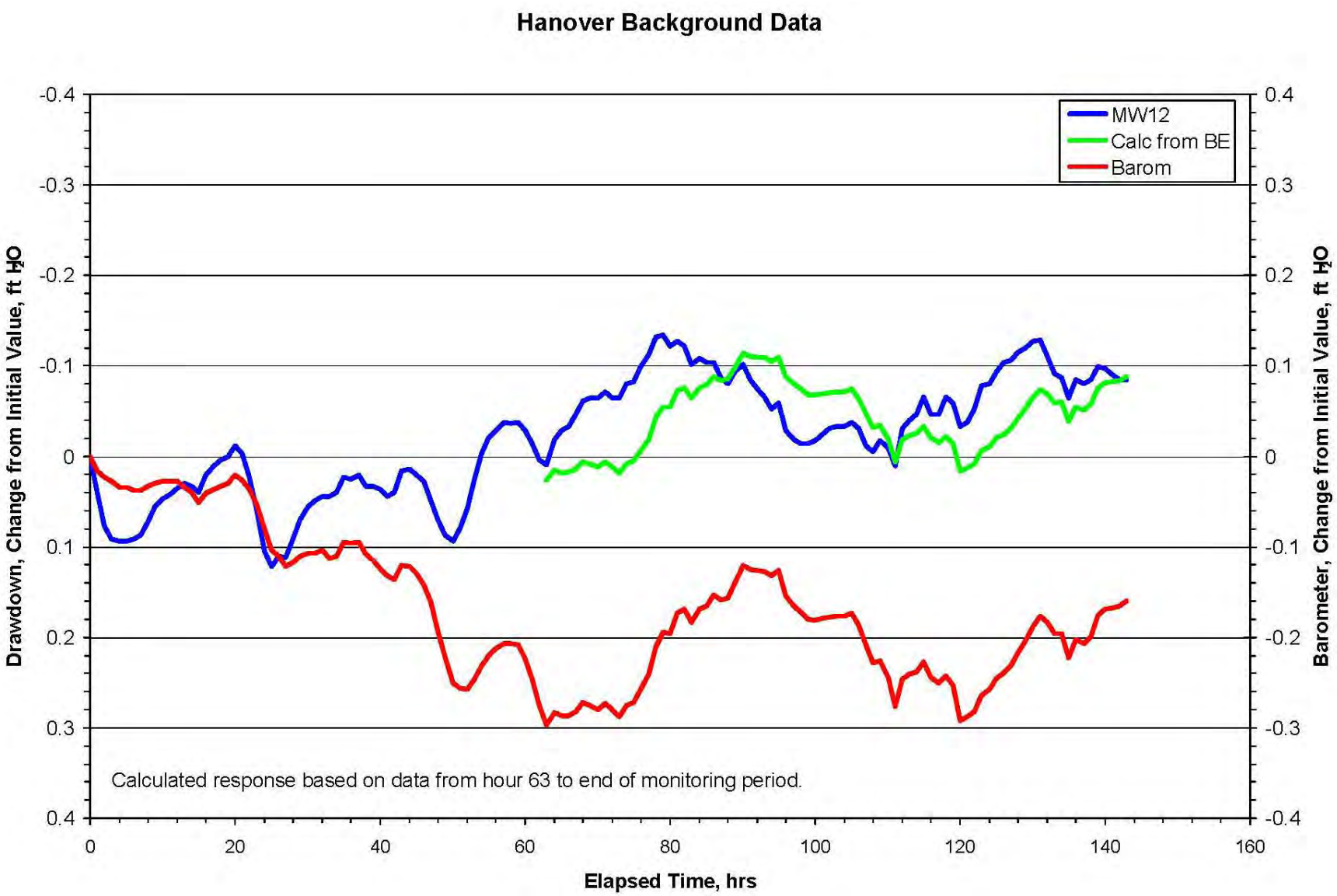

FIGURE A.33 Measured water levels, with levels predicted on the basis of calculated BE responses for MW12 during the pre-test monitoring period, February 16-22.

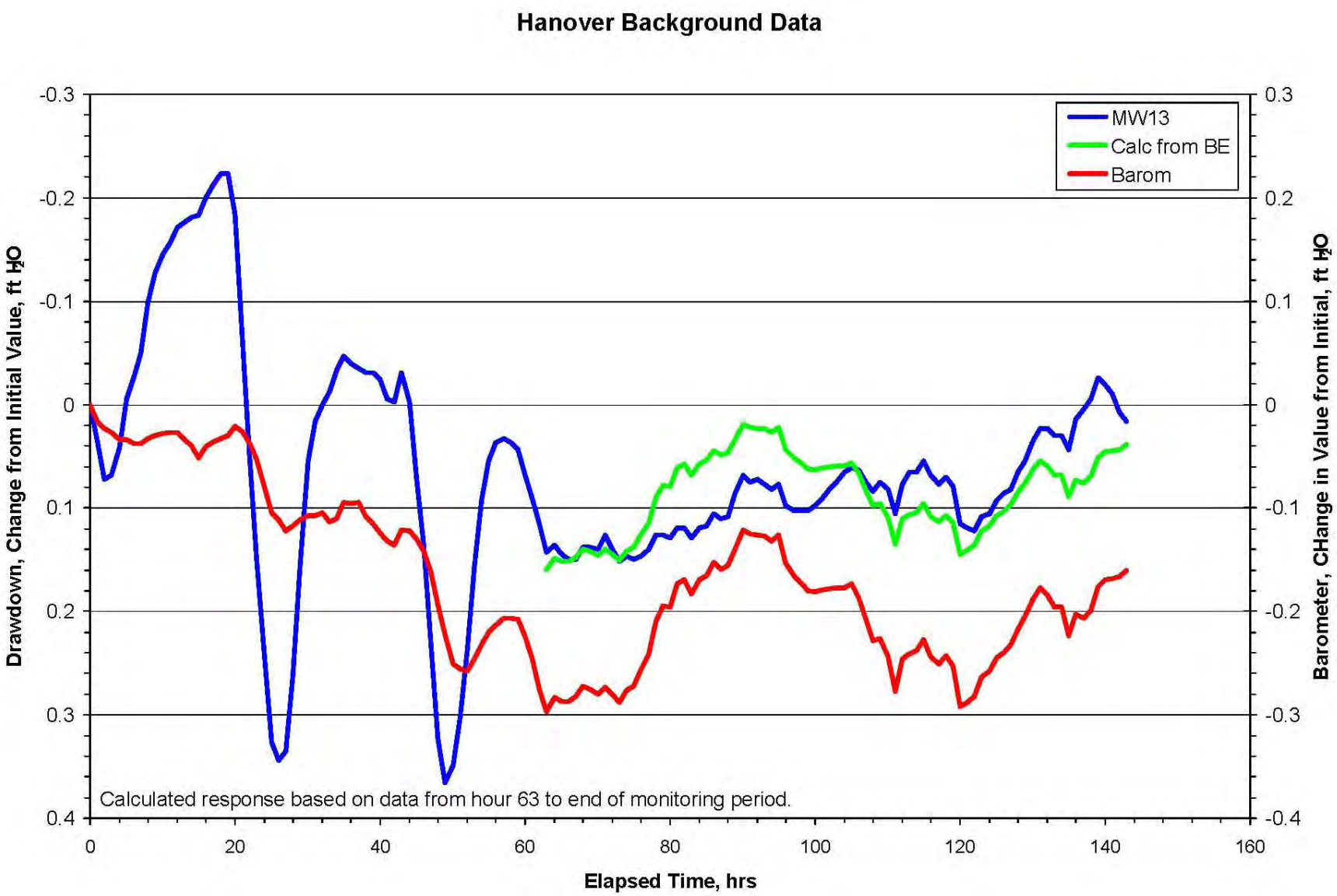

FIGURE A.34 Measured water levels, with levels predicted on the basis of calculated BE responses for MW13 during the pre-test monitoring period, February 16-22.

Appendix B:

Detailed Analysis of Water Level Responses during Pumping of Well MW05

Figures

B.1 Measured water levels for MW01 during the pumping test 1 and pumping test 2 pumping and recovery periods B-5

B.2 Measured water levels, with levels predicted on the basis of calculated BE responses for MW02 during the pumping test 1 and pumping test 2 pumping and recovery periods B-6

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B.6 Measured water levels, with levels predicted on the basis of calculated BE responses for MW08 during the pumping test 1 and pumping test 2 pumping and recovery periods B-10

B.7 Measured water levels, with levels predicted on the basis of calculated BE responses for MW09 during the pumping test 1 and pumping test 2 pumping and recovery periods B-11

B.8 Measured water levels for MW10 during the pumping test 1 and pumping test 2 pumping and recovery periods B-12

B.9 Measured water levels, with levels predicted on the basis of calculated BE responses for MW11 during the pumping test 1 and pumping test 2 pumping and recovery periods B-13

B.10 Measured water levels, with levels predicted on the basis of calculated BE responses for MW12 during the pumping test 1 and pumping test 2 pumping and recovery periods B-14

B.11 Measured water levels for MW13 during the pumping test 1 and pumping test 2 pumping and recovery periods B-15

Appendix B:

Detailed Analysis of Water Level Responses during Pumping of Well MW05

The discussion in Section 3.2 (Figure 17) shows, with several clear exceptions (MW01, MW02, MW10, MW13), the monitoring well traces related to the MW05 pumping test generally display a relatively steady decline in water levels during the monitoring period that roughly mirrors the associated rising trend in barometric pressure. To investigate this apparent relationship, the BE factors developed in Section 3.1 were used in conjunction with the barometric pressure and water level traces in Figure 17 to generate a "predicted" water level curve for each well (except for pumping well MW05 and observation wells MW01, MW10, and MW13; see below) for the MW05 investigation period. The results of these calculations are in Figures B.1-B.11. The predicted hydrographs for wells MW04, MW06-MW09, MW11, and MW12 agree with the measured water levels to within (at maximum) a difference of 0.05 ft, strongly suggesting that there is little or no evidence for induced drawdown or recovery at these wells as a result of the MW05 pumping episodes.

As noted in Sections 2.4.2 and 2.4.3, Figure B.2 indicates that the measured groundwater levels in monitoring well MW02 showed a very distinct temporal pattern of water level decline in association with the pumping of well MW05, along with a slower water level rise during the recovery period following each MW05 pumping event, that cannot be attributed to the predicted water level BE response in this well. These results are consistent with the preliminary observations obtained from the step testing of well MW05 (Argonne 2010), which suggested that hydraulic continuity exists within the Zone 1 water-bearing unit, at minimum between the locations of MW02 and MW05.

The hydrographs for wells MW01 and MW10 (Figures B.1 and B.8) show a very poor correlation to the barometric pressure trend but also show little or no clear relationship to the MW05 pumping or recovery periods, suggesting that the water levels in these wells were influenced during this time period by factors that cannot be identified from the recorded monitoring data. No external events were observed at the site during the MW05 pumping investigation that could account for these observations; however, the MW01 and MW10 hydrographs provide no evidence of induced drawdown or recovery at these locations in response to the MW05 pumping.

The hydrograph for MW13 is very unusual (Figure B.11), as it depicts a relatively dramatic initial drop, rebound, and second drop (approximately one day later) in the water level in this well during the MW05 testing period. These observations are very similar to the apparent "drawdown" events that were identified at this well on February 11-18 during the pre-test monitoring (Section 3.1). As noted in Section 3.1, the potential cause of these apparently frequent "drawdown" events has not been identified; however, they have no relationship to the pumping conducted at MW05.

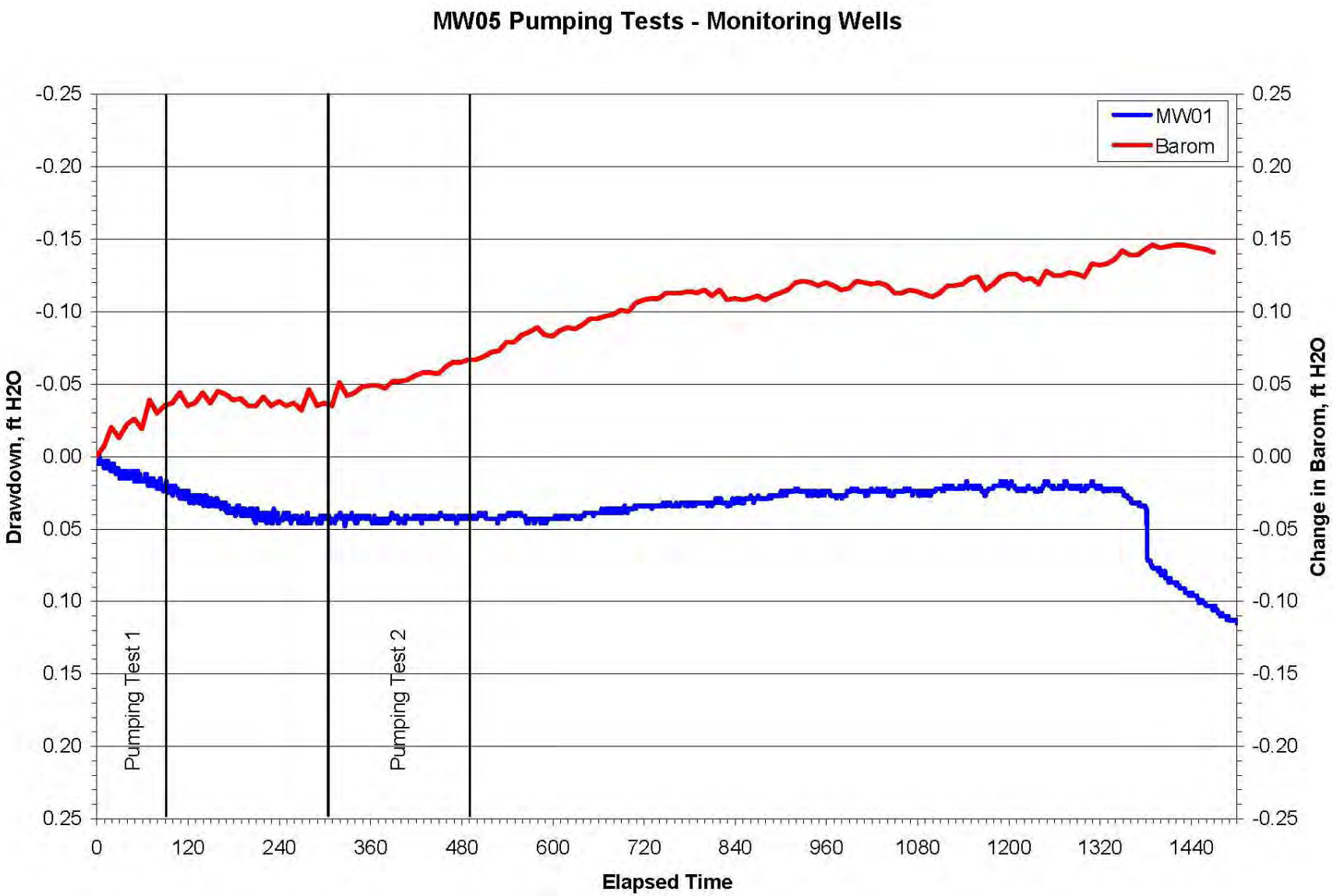

FIGURE B.1 Measured water levels for MW01 during the pumping test 1 and pumping test 2 pumping and recovery periods.

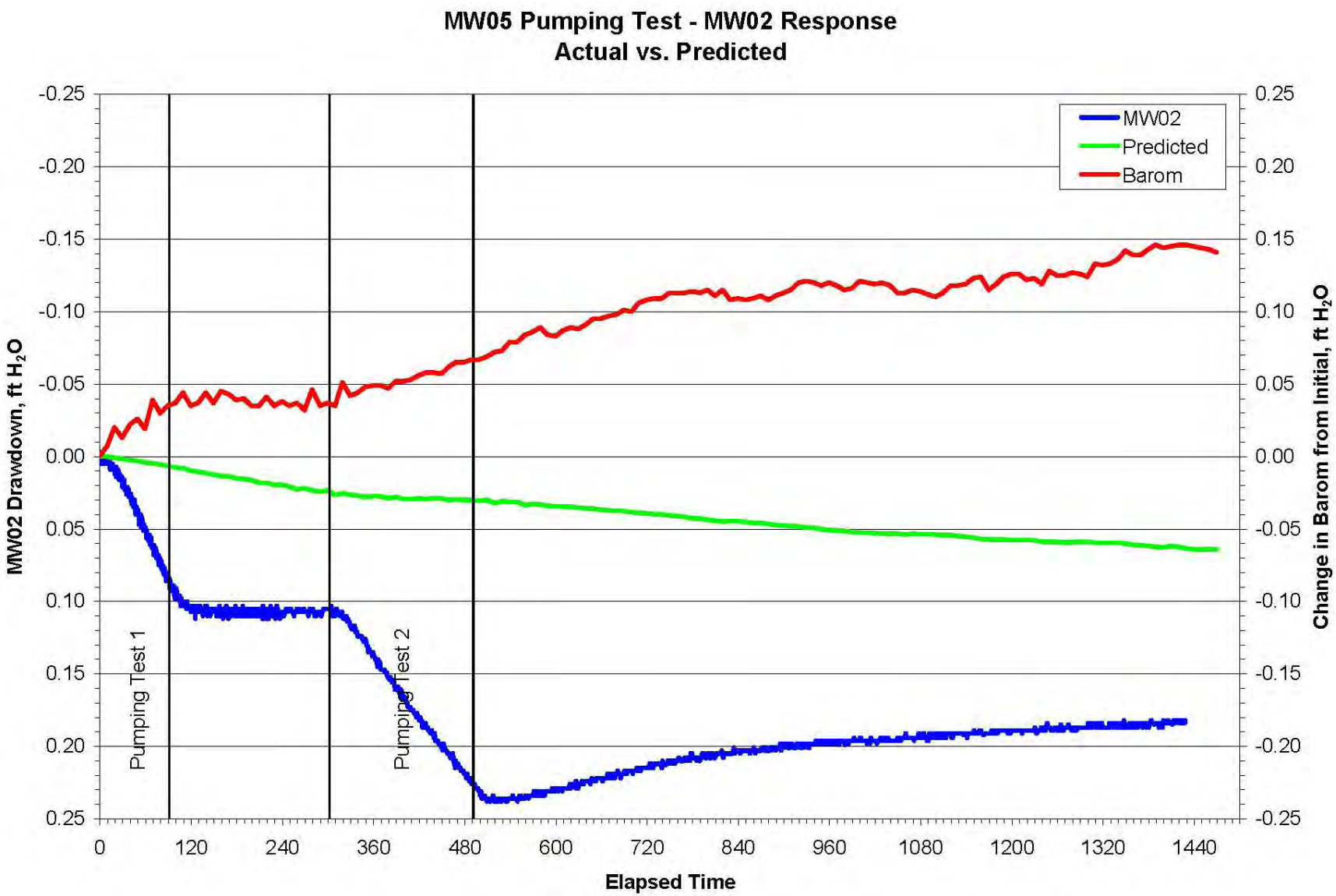

FIGURE B.2 Measured water levels, with levels predicted on the basis of calculated BE responses for MW02 during the pumping test 1 and pumping test 2 pumping and recovery periods.

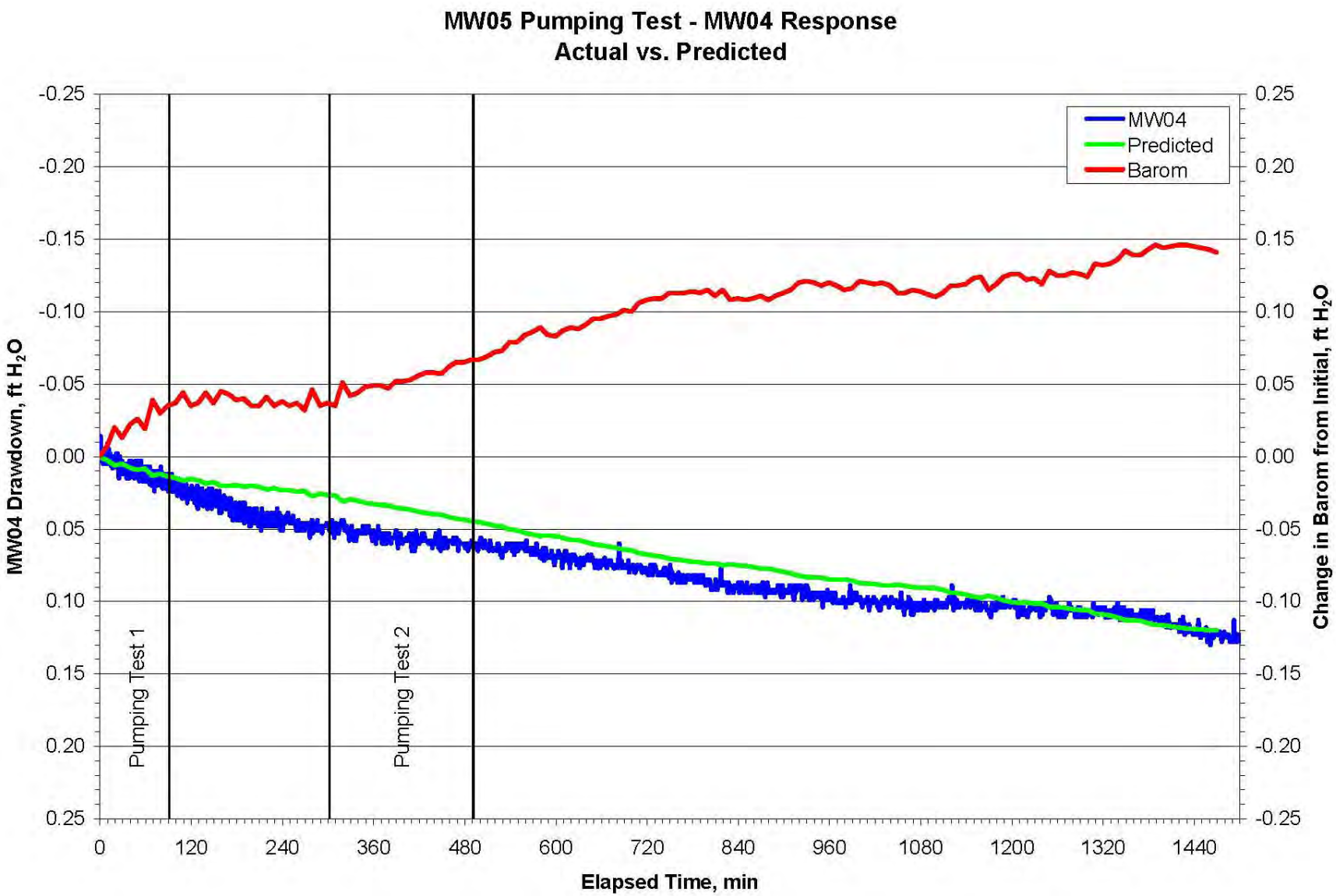

FIGURE B.3 Measured water levels, with levels predicted on the basis of calculated BE responses for MW04 during the pumping test 1 and pumping test 2 pumping and recovery periods.

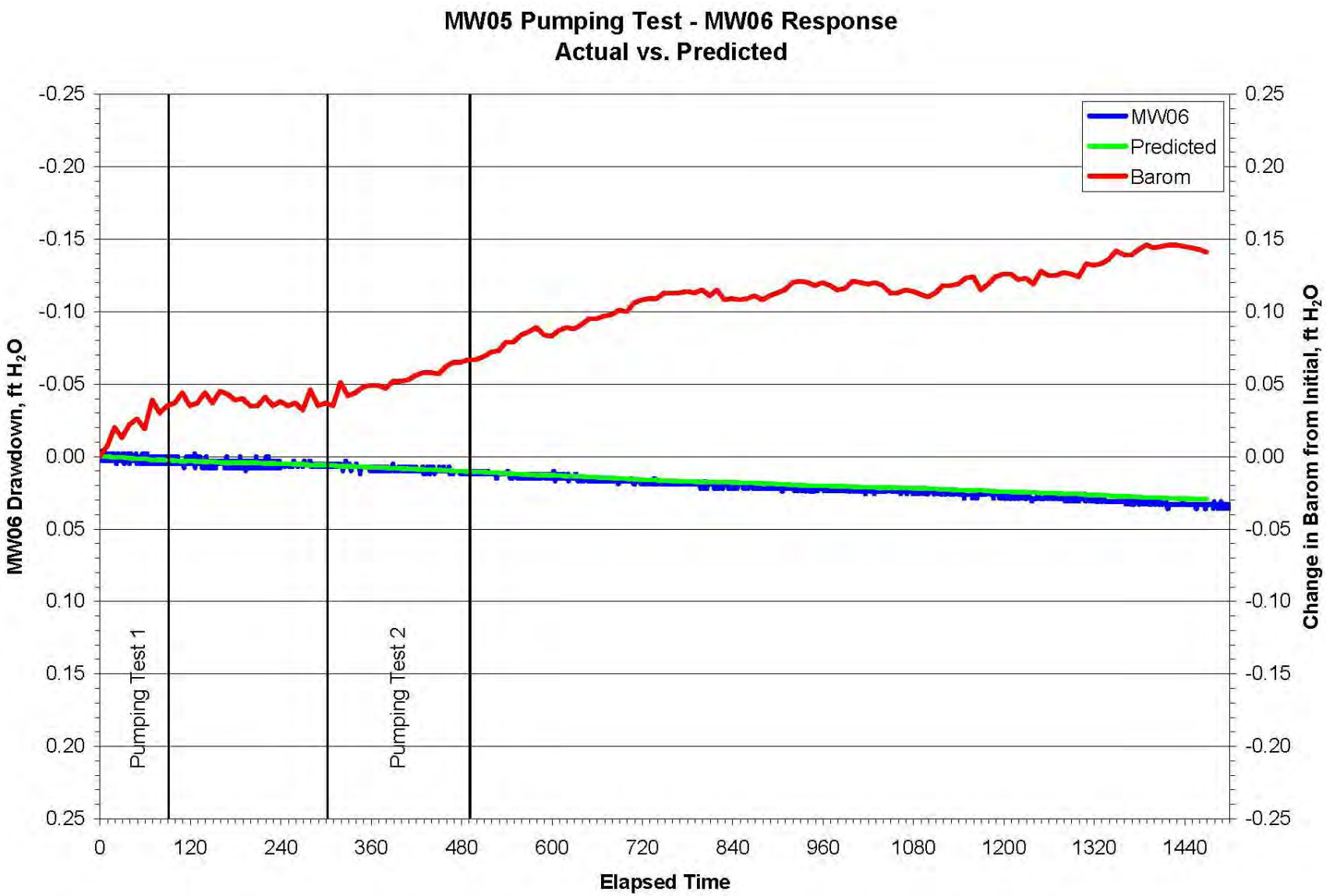

FIGURE B.4 Measured water levels, with levels predicted on the basis of calculated BE responses for MW06 during the pumping test 1 and pumping test 2 pumping and recovery periods.

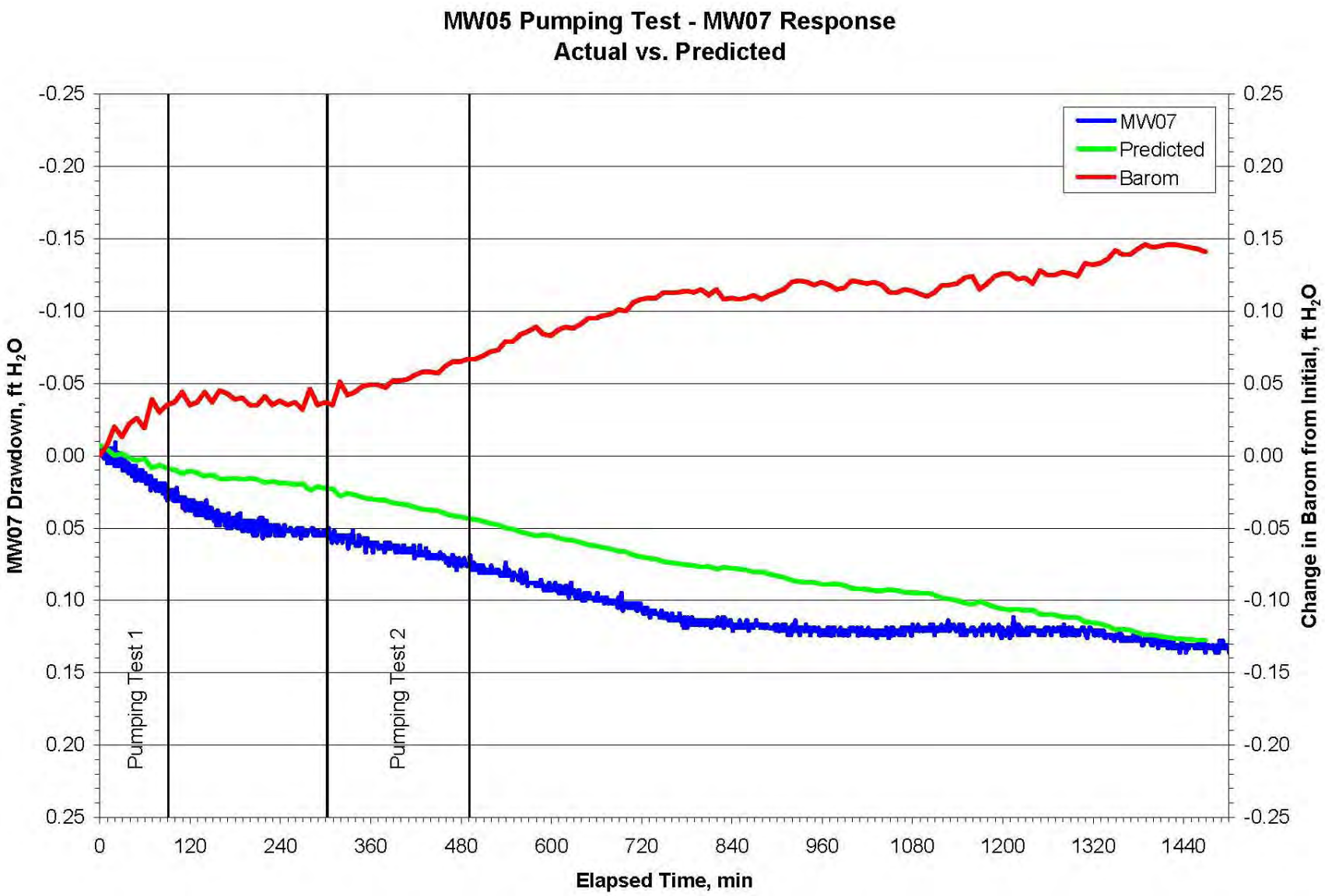

FIGURE B.5 Measured water levels, with levels predicted on the basis of calculated BE responses for MW07 during the pumping test 1 and pumping test 2 pumping and recovery periods.

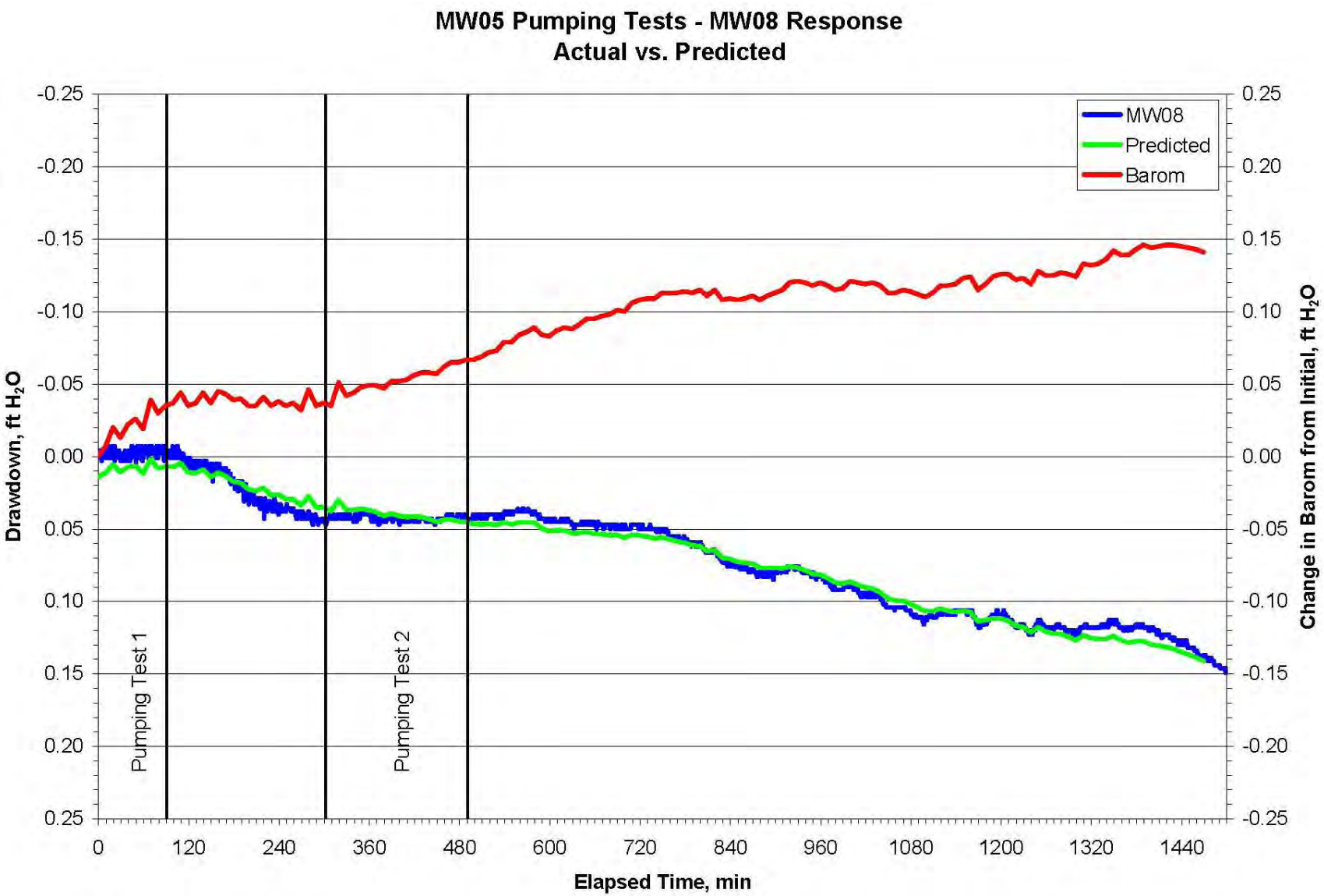

FIGURE B.6 Measured water levels, with levels predicted on the basis of calculated BE responses for MW08 during the pumping test 1 and pumping test 2 pumping and recovery periods.

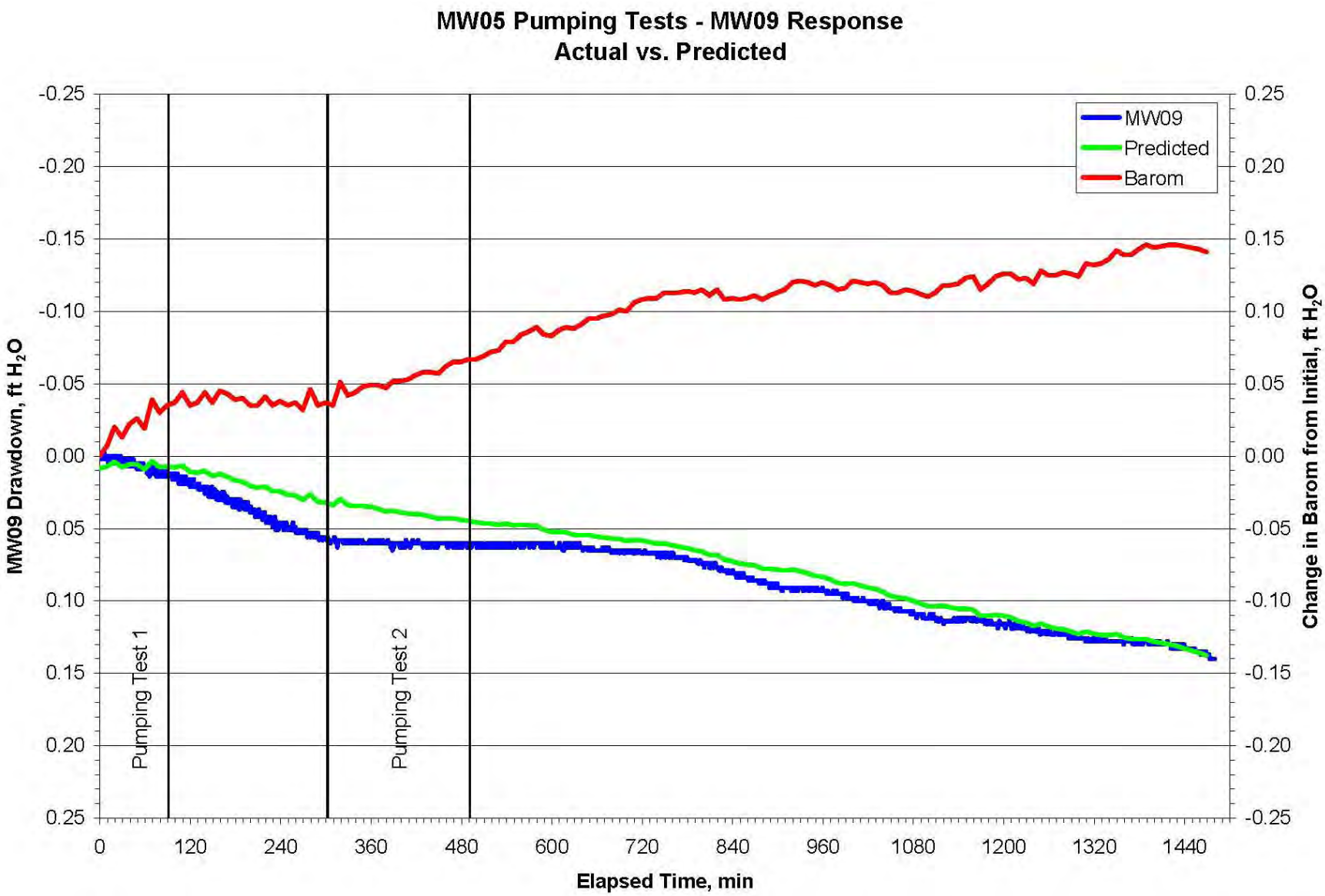

FIGURE B.7 Measured water levels, with levels predicted on the basis of calculated BE responses for MW09 during the pumping test 1 and pumping test 2 pumping and recovery periods.

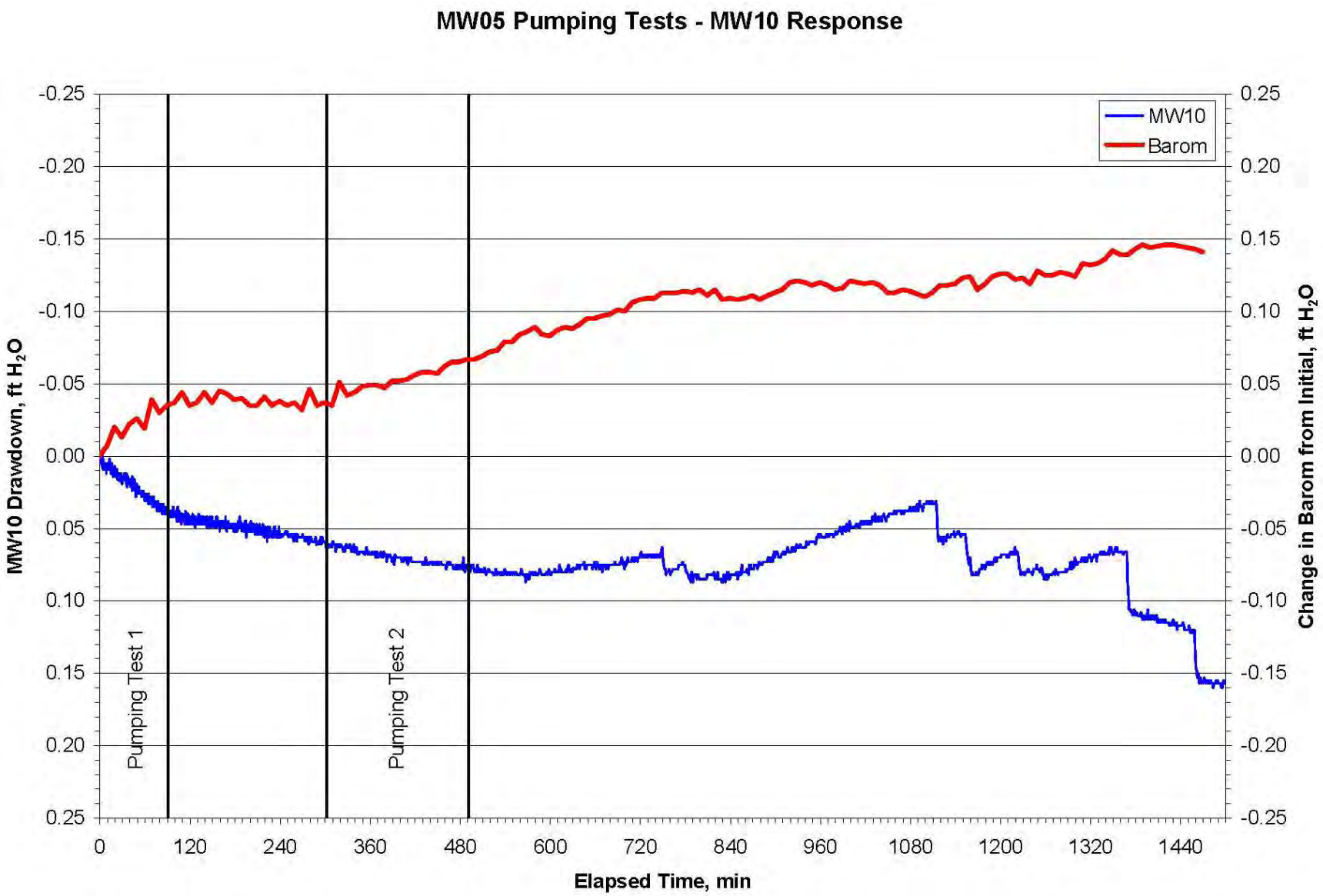

FIGURE B.8 Measured water levels for MW10 during the pumping test 1 and pumping test 2 pumping and recovery periods.

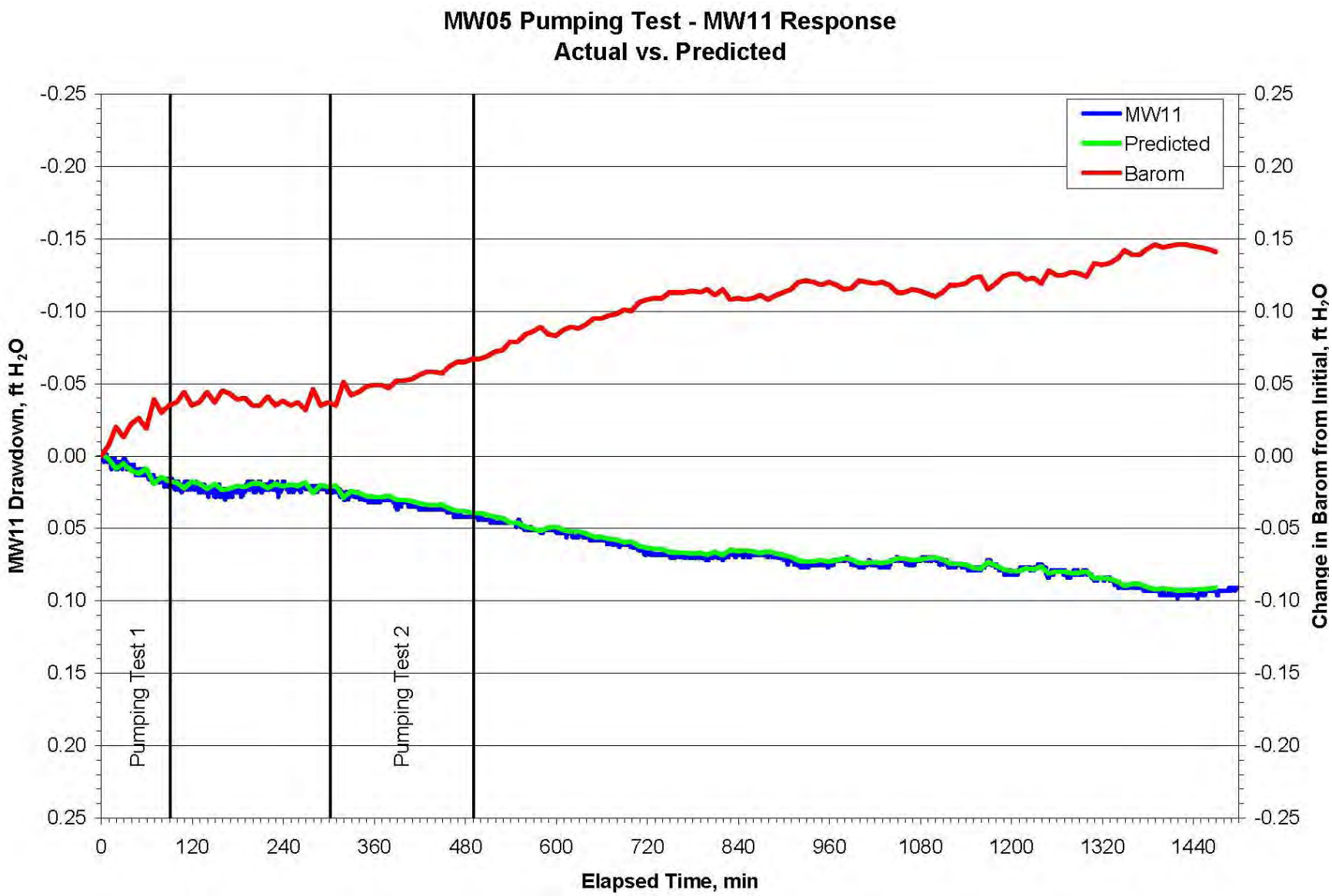

FIGURE B.9 Measured water levels, with levels predicted on the basis of calculated BE responses for MW11 during the pumping test 1 and pumping test 2 pumping and recovery periods.

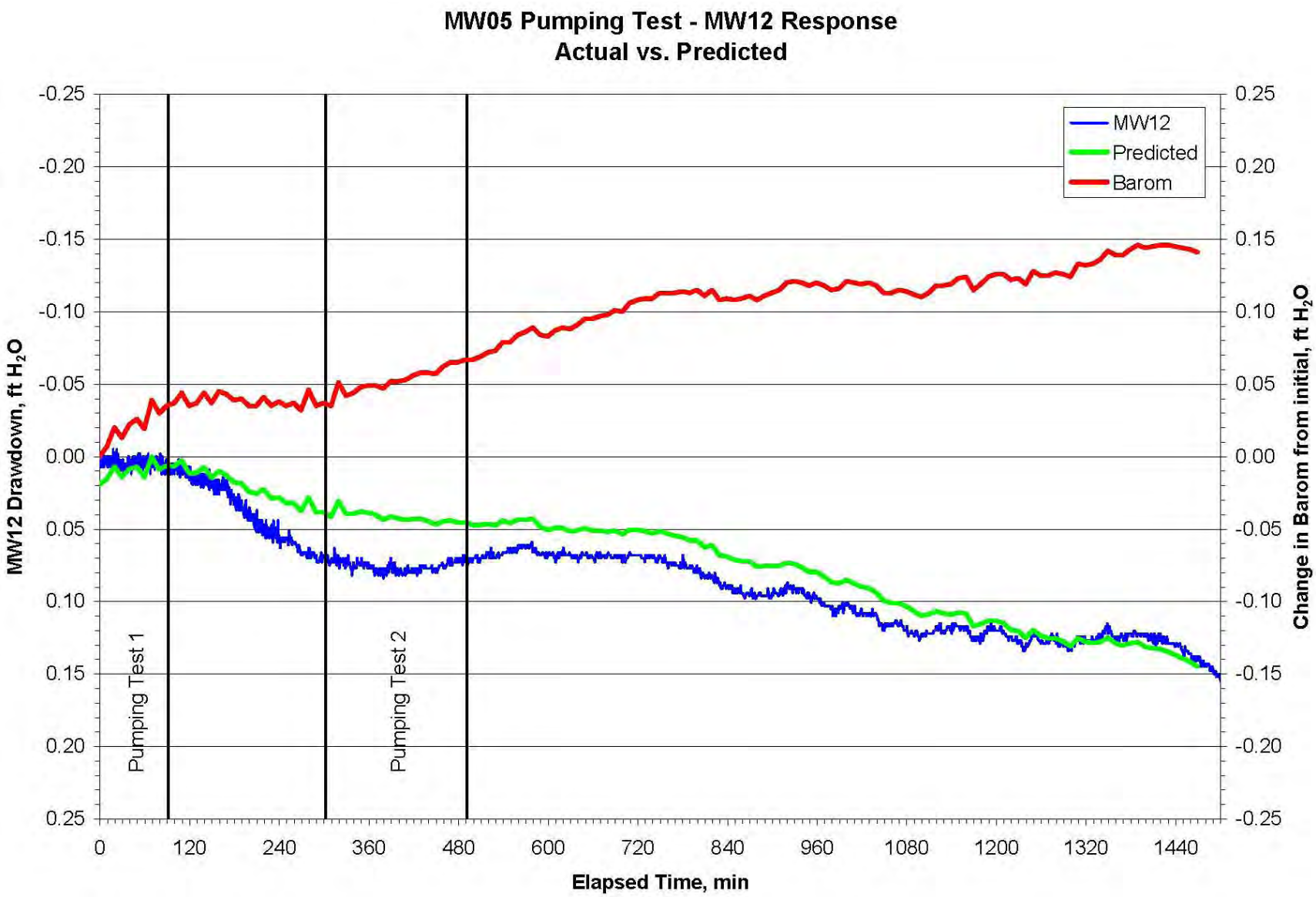

FIGURE B.10 Measured water levels, with levels predicted on the basis of calculated BE responses for MW12 during the pumping test 1 and pumping test 2 pumping and recovery periods.

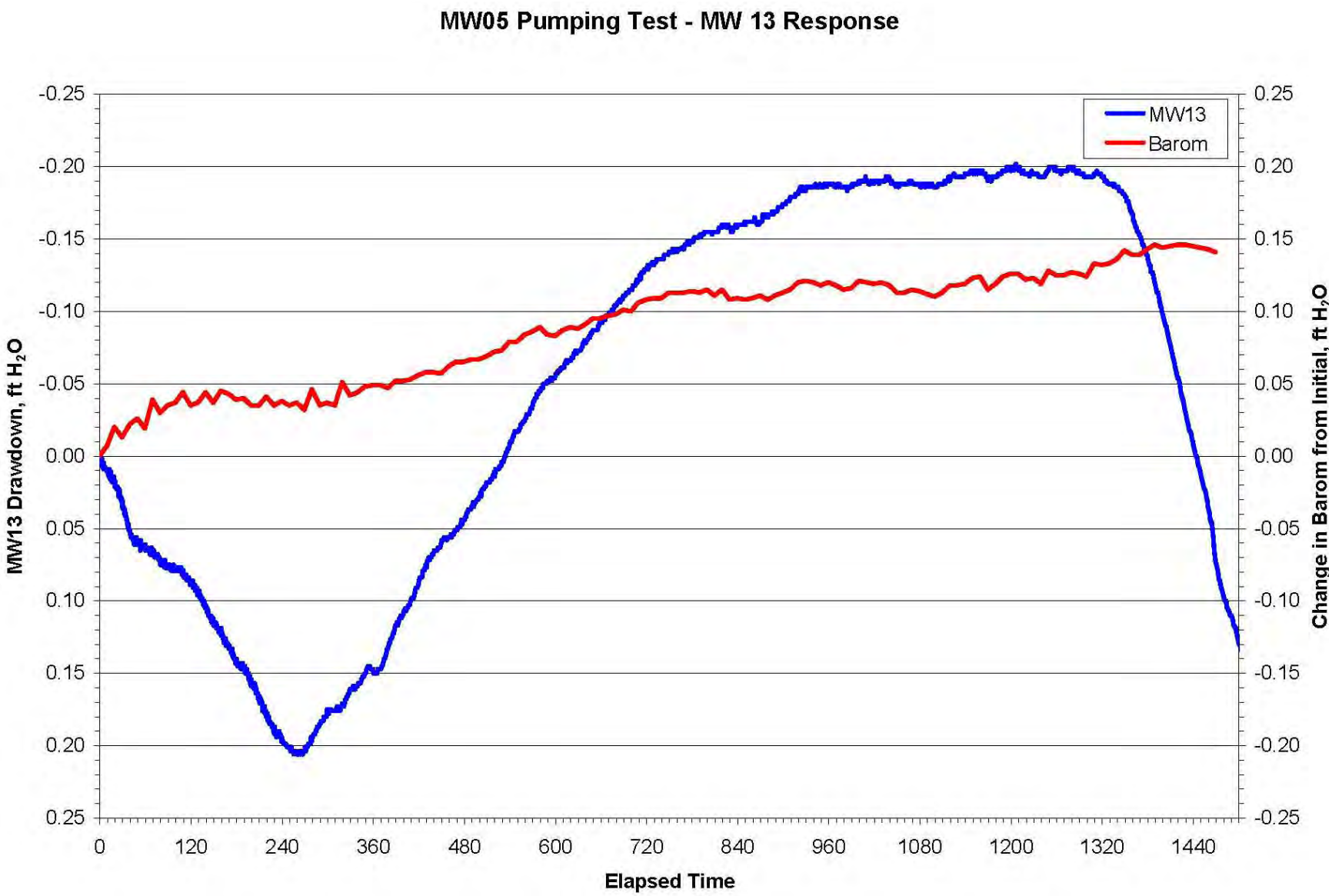

FIGURE B.11 Measured water levels for MW13 during the pumping test 1 and pumping test 2 pumping and recovery periods.

Supplement 1:

Complete Water Level Data for Wells MW02 and MW05 during the Pretest, Pumping, and Recovery Periods on February 22-24, 2010

TABLE S1.1 Water levels recorded by the PT2X data logger in well MW05 during the pretest pumping period, February 22, 2010.

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)
0.000	-0.004	7.667	2.182	15.333	2.583
0.167	0.008	7.833	2.198	15.500	2.487
0.333	0.234	8.000	2.240	15.667	2.394
0.500	0.373	8.167	2.252	15.833	2.319
0.667	0.588	8.333	2.273	16.000	2.242
0.833	0.709	8.500	2.298	16.167	2.180
1.000	0.795	8.667	2.322	16.333	2.133
1.167	0.763	8.833	2.354	16.500	2.100
1.333	0.795	9.000	2.359	16.667	2.070
1.500	0.840	9.167	2.359	16.833	2.065
1.667	0.931	9.333	2.364	17.000	2.042
1.833	1.007	9.500	2.375	17.167	2.030
2.000	1.119	9.667	2.392	17.333	2.021
2.167	1.108	9.833	2.424	17.500	2.021
2.333	1.138	10.000	2.459	17.667	2.035
2.500	1.182	10.167	2.490	17.833	2.051
2.667	1.208	10.333	2.527	18.000	2.058
2.833	1.245	10.500	2.573	18.167	2.072
3.000	1.271	10.667	2.646	18.333	2.084
3.167	1.357	10.833	2.716	18.500	2.093
3.333	1.436	11.000	2.797	18.667	2.096
3.500	1.546	11.167	2.865	18.833	2.100
3.667	1.686	11.333	2.935	19.000	2.105
3.833	1.709	11.500	3.012	19.167	2.126
4.000	1.720	11.667	3.051	19.333	2.119
4.167	1.744	11.833	3.049	19.500	2.131
4.333	1.760	12.000	3.056	19.667	2.138
4.500	1.788	12.167	3.054	19.833	2.140
4.667	1.809	12.333	3.049	20.000	2.154
4.833	1.835	12.500	3.056	20.167	2.159
5.000	1.856	12.667	3.049	20.333	2.166
5.167	1.877	12.833	3.049	20.500	2.168
5.333	1.893	13.000	3.053	20.667	2.170
5.500	1.921	13.167	3.049	20.833	2.180
5.667	1.940	13.333	3.046	21.000	2.187
5.833	1.968	13.500	3.049	21.167	2.194
6.000	1.986	13.667	3.053	21.333	2.198
6.167	2.007	13.833	3.049	21.500	2.203
6.333	2.026	14.000	3.051	21.667	2.210
6.500	2.051	14.167	3.049	21.833	2.217
6.667	2.068	14.333	3.049	22.000	2.219
6.833	2.096	14.500	3.049	22.167	2.226
7.000	2.112	14.667	3.051	22.333	2.233
7.167	2.133	14.833	2.928	22.500	2.243
7.333	2.147	15.000	2.813	22.667	2.252
7.500	2.168	15.167	2.697	22.833	2.259

TABLE S1.1 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)
23.000	2.266	30.833	3.053	38.667	2.997
23.167	2.271	31.000	3.051	38.833	2.997
23.333	2.282	31.167	3.051	39.000	2.990
23.500	2.289	31.333	3.053	39.167	2.995
23.667	2.298	31.500	3.051	39.333	2.990
23.833	2.303	31.667	3.051	39.500	2.997
24.000	2.310	31.833	3.049	39.667	2.993
24.167	2.315	32.000	3.049	39.833	2.997
24.333	2.322	32.167	3.044	40.000	3.000
24.500	2.331	32.333	3.051	40.167	3.004
24.667	2.343	32.500	3.053	40.333	3.004
24.833	2.350	32.667	3.049	40.500	3.007
25.000	2.359	32.833	3.046	40.667	3.009
25.167	2.361	33.000	3.046	40.833	3.014
25.333	2.373	33.167	3.051	41.000	3.030
25.500	2.378	33.333	3.046	41.167	3.028
25.667	2.389	33.500	3.051	41.333	3.037
25.833	2.399	33.667	3.053	41.500	3.046
26.000	2.413	33.833	3.051	41.667	3.051
26.167	2.422	34.000	3.049	41.833	3.046
26.333	2.443	34.167	3.046	42.000	3.049
26.500	2.462	34.333	3.049	42.167	3.049
26.667	2.490	34.500	3.049	42.333	3.051
26.833	2.511	34.667	3.051	42.500	3.046
27.000	2.546	34.833	3.046	*42.667*	3.049
27.167	2.569	35.000	3.051	42.833	3.049
27.333	2.587	35.167	3.046	43.000	3.046
27.500	2.622	35.333	3.046	43.167	3.046
27.667	2.643	35.500	3.046	43.333	3.044
27.833	2.676	35.667	3.049	43.500	3.049
28.000	2.723	35.833	3.046	43.667	3.044
28.167	2.765	36.000	3.049	43.833	3.051
28.333	2.809	36.167	3.046	44.000	3.046
28.500	2.853	36.333	3.046	44.167	3.046
28.667	2.895	36.500	3.049	44.333	3.049
28.833	2.944	36.667	3.046	44.500	3.046
29.000	2.977	36.833	3.049	44.667	3.046
29.167	3.023	37.000	3.051	44.833	3.046
29.333	3.051	37.167	3.051	45.000	3.046
29.500	3.049	37.333	3.046	45.167	3.049
29.667	3.047	37.500	3.051	45.333	3.053
29.833	3.051	37.667	3.049	45.500	3.046
30.000	3.044	37.833	3.021	45.667	3.051
30.167	3.049	38.000	3.016	45.833	3.049
30.333	3.047	38.167	3.004	46.000	3.049
30.500	3.049	38.333	3.002	46.167	3.046
30.667	3.051	38.500	2.997	46.333	3.049

TABLE S1.1 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)
46.500	3.049	54.000	2.758		
46.667	3.046	54.167	2.772		
46.833	3.046	54.333	2.793		
47.000	3.049	54.500	2.804		
47.167	2.979	54.667	2.821		
47.333	2.913	54.833	2.247		
47.500	2.848	55.000	0.977		
47.667	2.790	55.167	0.802		
47.833	2.734	55.333	0.707		
48.000	2.685	55.500	0.646		
48.167	2.634	55.667	0.593		
48.333	2.592	55.833	0.560		
48.500	2.550	56.000	0.541		
48.667	2.510	56.167	0.520		
48.833	2.471				
49.000	2.457				
49.167	2.461				
49.333	2.466				
49.500	2.485				
49.667	2.496				
49.833	2.513				
50.000	2.522				
50.167	2.517				
50.333	2.508				
50.500	2.506				
50.667	2.494				
50.833	2.483				
51.000	2.480				
51.167	2.476				
51.333	2.471				
51.500	2.494				
51.667	2.513				
51.833	2.534				
52.000	2.548				
52.167	2.564				
52.333	2.585				
52.500	2.604				
52.667	2.620				
52.833	2.643				
53.000	2.660				
53.167	2.676				
53.333	2.690				
53.500	2.706				
53.667	2.723				
53.833	2.741				

[a] Elapsed time calculated from 16:50 on 2/22/10 as time zero.

TABLE S1.2 Water levels in wells MW05 and MW02 recorded by the Hermit™ data logger during the test 1 pumping period, February 23, 2010.

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
0.000	0.006	0.000	0.147	0.508	0.000
0.003	0.006	0.000	0.150	0.518	0.000
0.007	0.003	0.000	0.153	0.527	0.000
0.010	0.003	0.000	0.157	0.534	0.000
0.013	0.009	0.000	0.160	0.543	0.000
0.017	0.000	0.000	0.163	0.546	0.000
0.020	0.009	0.000	0.167	0.552	0.000
0.023	0.006	0.000	0.170	0.565	0.000
0.027	0.025	0.000	0.173	0.568	0.000
0.030	0.084	0.000	0.177	0.581	0.000
0.033	0.094	0.000	0.180	0.587	0.000
0.037	0.097	0.000	0.183	0.590	0.000
0.040	0.116	0.000	0.187	0.603	0.004
0.043	0.141	0.000	0.190	0.609	0.000
0.047	0.188	0.000	0.193	0.615	0.000
0.050	0.213	0.000	0.197	0.618	0.004
0.053	0.238	0.000	0.200	0.628	0.004
0.057	0.260	0.000	0.203	0.634	0.004
0.060	0.289	0.000	0.207	0.637	0.004
0.063	0.301	0.000	0.210	0.640	0.004
0.067	0.175	0.000	0.213	0.647	0.004
0.070	0.339	0.000	0.217	0.650	0.004
0.073	0.336	0.000	0.220	0.662	0.004
0.077	0.336	0.000	0.223	0.659	0.004
0.080	0.345	0.000	0.227	0.666	0.004
0.083	0.339	0.000	0.230	0.669	0.004
0.087	0.348	0.000	0.233	0.672	0.004
0.090	0.348	0.000	0.237	0.675	0.004
0.093	0.355	0.000	0.240	0.681	0.004
0.097	0.351	0.000	0.243	0.681	0.004
0.100	0.358	0.000	0.247	0.681	0.004
0.103	0.398	0.000	0.250	0.688	0.004
0.107	0.377	0.000	0.253	0.688	0.004
0.110	0.389	0.000	0.257	0.688	0.004
0.113	0.408	0.000	0.260	0.691	0.004
0.117	0.411	0.000	0.263	0.694	0.004
0.120	0.424	0.004	0.267	0.694	0.004
0.123	0.443	0.000	0.270	0.697	0.004
0.127	0.452	0.000	0.273	0.700	0.004
0.130	0.458	0.004	0.277	0.703	0.004
0.133	0.471	0.004	0.280	0.700	0.004
0.137	0.477	0.004	0.283	0.700	0.004
0.140	0.490	0.000	0.287	0.706	0.004
0.143	0.496	0.004	0.290	0.706	0.004

TABLE S1.2 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
0.293	0.706	0.004	0.900	0.895	0.000
0.297	0.710	0.004	0.917	0.907	0.000
0.300	0.710	0.004	0.933	0.914	0.000
0.303	0.710	0.004	0.950	0.920	0.000
0.307	0.713	0.004	0.967	0.923	0.000
0.310	0.710	0.004	0.983	0.923	0.000
0.313	0.703	0.004	1.0	0.933	0.000
0.317	0.706	0.004	1.2	0.983	0.000
0.320	0.716	0.004	1.4	1.024	0.000
0.323	0.713	0.004	1.6	1.055	0.000
0.327	0.710	0.004	1.8	1.074	0.000
0.330	0.713	0.004	*2.0*	1.093	0.000
0.333	0.713	0.004	2.2	1.102	0.000
0.350	0.719	0.004	2.4	1.121	0.000
0.367	0.722	0.004	2.6	1.127	0.000
0.383	0.725	0.004	2.8	1.146	0.000
0.400	0.725	0.004	3.0	1.156	0.000
0.417	0.725	0.000	3.2	1.165	0.000
0.433	0.722	0.000	3.4	1.174	0.000
0.450	0.725	0.000	3.6	1.174	0.000
0.467	0.728	0.000	3.8	1.190	0.000
0.483	0.728	0.000	4.0	1.193	0.000
0.500	0.732	0.000	4.2	1.203	0.000
0.517	0.738	0.000	4.4	1.206	0.000
0.533	*0.735*	*0.000*	4.6	1.212	0.000
0.550	0.741	0.000	4.8	1.209	0.000
0.567	0.744	0.000	5.0	1.228	0.000
0.583	0.744	0.000	5.2	1.225	0.000
0.600	0.754	0.000	5.4	1.234	0.000
0.617	0.757	0.004	5.6	1.237	0.004
0.633	0.766	0.000	5.8	1.244	0.000
0.650	0.779	0.000	6.0	1.253	0.000
0.667	0.788	0.000	6.2	1.259	0.000
0.683	0.794	0.000	*6.4*	1.259	0.000
0.700	0.804	0.004	6.6	1.266	0.000
0.717	0.813	0.000	6.8	1.272	0.000
0.733	0.823	0.004	7.0	1.281	0.000
0.750	0.832	0.000	7.2	1.278	0.000
0.767	0.841	0.000	7.4	1.291	0.000
0.783	0.845	0.000	7.6	1.291	0.000
0.800	0.848	0.000	7.8	1.297	0.000
0.817	0.860	0.000	8.0	1.297	0.000
0.833	0.876	0.000	8.2	1.297	0.000
0.850	0.879	0.000	8.4	1.288	0.000
0.867	0.885	0.000	8.6	1.294	0.000
0.883	0.889	0.000	8.8	1.294	0.000

TABLE S1.2 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
9.0	1.297	0.000	88	3.769	0.084
9.2	1.300	0.000	90	3.766	0.089
9.4	1.303	0.000	91	end of pumping	
9.6	1.300	0.000			
9.8	1.303	0.000			
10	1.310	0.000			
12	1.347	0.004			
14	1.379	0.004			
16	1.416	0.009			
18	1.467	0.009			
20	1.507	0.009			
22	1.529	0.014			
24	1.558	0.014			
26	1.583	0.014			
28	1.605	0.014			
30	1.630	0.014			
32	1.627	0.018			
34	1.627	0.018			
36	1.665	0.023			
38	1.683	0.023			
40	1.709	0.028			
42	1.746	0.028			
44	1.784	0.033			
46	1.806	0.037			
48	1.831	0.042			
50	1.894	0.042			
52	1.985	0.047			
54	1.954	0.047			
56	1.969	0.051			
58	2.010	0.051			
60	2.067	0.056			
62	2.114	0.056			
64	2.170	0.061			
66	2.227	0.056			
68	2.287	0.061			
70	2.346	0.065			
72	2.510	0.070			
74	2.692	0.070			
76	2.861	0.075			
78	3.015	0.075			
80	3.298	0.075			
82	3.596	0.080			
84	3.618	0.080			
86	3.763	0.084			

[a] Elapsed time calculated from 10:01 on 2/23/10 as time zero.

TABLE S1.3 Water levels recorded by the PT2X data-loggers in wells MW05 and MW02 during the test 1 pumping period, February 23, 2010.

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
0.000	0.003	0.000	7.667	1.306	0.002
0.167	0.578	0.000	7.833	1.313	0.002
0.333	0.728	0.000	8.000	1.313	0.002
0.500	0.742	0.002	8.167	1.313	0.002
0.667	0.800	0.000	8.333	1.301	0.000
0.833	0.891	0.000	8.500	1.303	0.002
1.000	0.947	0.002	8.667	1.306	0.002
1.167	0.989	0.002	8.833	1.310	0.002
1.333	1.028	0.002	9.000	1.320	0.002
1.500	1.054	0.002	9.167	1.320	0.005
1.667	1.070	0.005	9.333	1.317	0.002
1.833	1.089	0.002	9.500	1.320	0.005
2.000	1.119	0.000	9.667	1.317	0.005
2.167	1.121	0.000	9.833	1.338	0.005
2.333	1.133	0.002	10.000	1.329	0.002
2.500	1.145	0.005	10.167	1.322	0.002
2.667	1.152	0.005	10.333	1.338	0.002
2.833	1.168	0.002	10.500	1.331	0.005
3.000	1.166	0.000	10.667	1.338	0.002
3.167	1.182	0.002	10.833	1.345	0.002
3.333	1.180	0.002	11.000	1.345	0.005
3.500	1.187	0.002	11.167	1.345	0.005
3.667	1.198	0.000	11.333	1.343	0.005
3.833	1.196	0.000	11.500	1.345	0.002
4.000	1.208	0.000	11.667	1.352	0.005
4.167	1.210	0.002	11.833	1.357	0.005
4.333	1.219	0.002	12.000	1.359	0.005
4.500	1.217	0.002	12.167	1.359	0.002
4.667	1.226	0.002	12.333	1.366	0.005
4.833	1.233	0.005	12.500	1.375	0.005
5.000	1.240	0.002	12.667	1.375	0.007
5.167	1.245	0.005	12.833	1.378	0.007
5.333	1.247	0.000	13.000	1.389	0.009
5.500	1.254	0.002	13.167	1.387	0.007
5.667	1.259	0.005	13.333	1.389	0.007
5.833	1.266	0.005	13.500	1.394	0.005
6.000	1.261	0.005	13.667	1.396	0.005
6.167	1.271	0.000	13.833	1.399	0.005
6.333	1.273	0.002	14.000	1.394	0.005
6.500	1.282	0.000	14.167	1.410	0.007
6.667	1.285	0.002	14.333	1.410	0.007
6.833	1.285	0.002	14.500	1.406	0.007
7.000	1.287	0.005	14.667	1.406	0.007
7.167	1.296	0.002	14.833	1.408	0.007
7.333	1.296	0.002	15.000	1.415	0.005
7.500	1.299	0.002	15.167	1.417	0.007

TABLE S1.3 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
15.333	1.420	0.009	23.167	1.571	0.012
15.500	1.424	0.005	23.333	1.574	0.014
15.667	1.431	0.007	23.500	1.578	0.009
15.833	1.431	0.005	23.667	1.576	0.012
16.000	1.431	0.007	23.833	1.578	0.012
16.167	1.436	0.005	24.000	1.583	0.012
16.333	1.436	0.005	*24.167*	1.581	0.012
16.500	1.438	0.007	24.333	1.581	0.014
16.667	1.441	0.009	24.500	1.588	0.012
16.833	1.448	0.007	24.667	1.578	0.014
17.000	1.452	0.007	24.833	1.590	0.016
17.167	1.450	0.007	25.000	1.588	0.014
17.333	1.457	0.009	25.167	1.590	0.014
17.500	1.462	0.007	25.333	1.592	0.014
17.667	1.473	0.009	25.500	1.602	0.016
17.833	1.471	0.007	25.667	1.597	0.012
18.000	1.476	0.007	25.833	1.597	0.014
18.167	1.485	0.007	26.000	1.599	0.016
18.333	1.487	0.009	26.167	1.599	0.014
18.500	1.490	0.007	26.333	1.604	0.014
18.667	*1.497*	*0.009*	26.500	1.604	0.016
18.833	1.499	0.009	26.667	1.609	0.016
19.000	1.511	0.009	26.833	1.606	0.016
19.167	1.511	0.012	27.000	1.611	0.014
19.333	1.508	0.009	27.167	1.618	0.016
19.500	1.504	0.007	27.333	1.618	0.014
19.667	1.476	0.012	27.500	1.616	0.016
19.833	1.532	0.009	27.667	1.618	0.016
20.000	1.527	0.009	*27.833*	1.616	0.016
20.167	1.515	0.009	28.000	1.618	0.016
20.333	1.525	0.012	28.167	1.616	0.016
20.500	1.529	0.009	28.333	1.627	0.016
20.667	1.532	0.012	28.500	1.629	0.014
20.833	1.534	0.007	28.667	1.625	0.016
21.000	1.532	0.009	28.833	1.632	0.016
21.167	1.536	0.009	29.000	1.634	0.019
21.333	1.541	0.014	29.167	1.643	0.019
21.500	1.546	0.012	29.333	1.641	0.021
21.667	1.548	0.012	29.500	1.646	0.021
21.833	1.550	0.012	29.667	1.646	0.016
22.000	1.553	0.012	29.833	1.646	0.019
22.167	1.557	0.009	30.000	1.646	0.019
22.333	1.557	0.012	30.167	1.646	0.021
22.500	1.557	0.012	30.333	1.646	0.019
22.667	1.562	0.012	30.500	1.639	0.021
22.833	1.560	0.012	30.667	1.643	0.021
23.000	1.562	0.012	30.833	1.641	0.021

TABLE S1.3 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
31.000	1.641	0.019	38.833	1.718	0.026
31.167	1.648	0.021	39.000	1.718	0.028
31.333	1.648	0.016	39.167	1.723	0.028
31.500	1.653	0.019	39.333	1.723	0.028
31.667	1.648	0.019	39.500	1.723	0.028
31.833	1.653	0.021	39.667	1.725	0.026
32.000	1.650	0.021	39.833	1.730	0.028
32.167	1.655	0.021	40.000	1.730	0.028
32.333	1.655	0.021	40.167	1.732	0.028
32.500	1.655	0.023	40.333	1.734	0.030
32.667	1.660	0.021	40.500	1.737	0.026
32.833	1.664	0.021	40.667	1.748	0.030
33.000	1.667	0.023	40.833	1.748	0.030
33.167	1.667	0.021	41.000	1.748	0.030
33.333	1.678	0.023	41.167	1.753	0.030
33.500	1.662	0.021	41.333	1.762	0.028
33.667	1.650	0.023	41.500	1.762	0.030
33.833	1.653	0.021	41.667	1.772	0.033
34.000	1.648	0.023	41.833	1.767	0.028
34.167	1.655	0.021	42.000	1.772	0.030
34.333	1.650	0.023	42.167	1.772	0.030
34.500	1.653	0.026	42.333	1.776	0.033
34.667	1.653	0.023	42.500	1.776	0.030
34.833	1.653	0.023	42.667	1.781	0.030
35.000	1.664	0.021	42.833	1.781	0.030
35.167	1.664	0.021	43.000	1.786	0.033
35.333	1.671	0.023	43.167	1.788	0.033
35.500	1.674	0.023	43.333	1.788	0.033
35.667	1.676	0.021	43.500	1.800	0.033
35.833	1.681	0.023	43.667	1.793	0.033
36.000	1.683	0.023	43.833	1.809	0.035
36.167	1.688	0.023	44.000	1.800	0.033
36.333	1.688	0.023	44.167	1.800	0.030
36.500	1.692	0.026	44.333	1.807	0.033
36.667	1.695	0.026	44.500	1.809	0.033
36.833	1.699	0.026	44.667	1.814	0.033
37.000	1.697	0.023	44.833	1.818	0.033
37.167	1.697	0.026	45.000	1.814	0.033
37.333	1.699	0.026	45.167	1.825	0.030
37.500	1.706	0.023	45.333	1.821	0.033
37.667	1.704	0.023	45.500	1.818	0.033
37.833	1.706	0.028	45.667	1.821	0.035
38.000	1.709	0.028	45.833	1.828	0.035
38.167	1.702	0.026	46.000	1.825	0.033
38.333	1.709	0.028	46.167	1.832	0.035
38.500	1.713	0.026	46.333	1.832	0.035
38.667	1.711	0.026	46.500	1.837	0.035

TABLE S1.3 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
46.667	1.835	0.037	54.500	1.977	0.042
46.833	1.842	0.035	54.667	1.972	0.047
47.000	1.844	0.040	54.833	1.974	0.049
47.167	1.839	0.037	55.000	1.974	0.044
47.333	1.837	0.037	55.167	1.977	0.047
47.500	1.849	0.035	55.333	1.979	0.047
47.667	1.849	0.037	55.500	1.986	0.047
47.833	1.849	0.037	55.667	1.986	0.047
48.000	1.858	0.040	55.833	1.986	0.047
48.167	1.860	0.035	56.000	1.986	0.044
48.333	1.863	0.037	56.167	1.988	0.049
48.500	1.863	0.037	56.333	1.986	0.047
48.667	1.858	0.037	56.500	1.991	0.047
48.833	1.870	0.040	56.667	1.988	0.047
49.000	1.877	0.037	56.833	1.981	0.047
49.167	1.891	0.037	57.000	1.993	0.051
49.333	1.898	0.040	57.167	1.998	0.047
49.500	1.907	0.040	57.333	1.993	0.047
49.667	1.909	0.037	57.500	2.005	0.047
49.833	1.909	0.040	57.667	2.016	0.049
50.000	1.923	0.040	57.833	2.023	0.049
50.167	1.928	0.037	58.000	2.028	0.049
50.333	1.937	0.040	58.167	2.033	0.049
50.500	1.930	0.040	58.333	2.037	0.051
50.667	1.939	0.040	58.500	2.042	0.049
50.833	1.953	0.040	58.667	2.049	0.049
51.000	1.951	0.042	58.833	2.049	0.051
51.167	1.951	0.040	59.000	2.056	0.051
51.333	1.960	0.040	59.167	2.063	0.051
51.500	1.967	0.047	59.333	2.070	0.049
51.667	1.981	0.040	59.500	2.075	0.051
51.833	1.995	0.040	59.667	2.077	0.049
52.000	2.000	0.042	59.833	2.077	0.051
52.167	2.002	0.042	60.000	2.089	0.051
52.333	2.016	0.040	60.167	2.091	0.051
52.500	2.005	0.042	60.333	2.100	0.051
52.667	1.995	0.042	60.500	2.098	0.056
52.833	1.988	0.042	60.667	2.105	0.051
53.000	1.984	0.040	60.833	2.103	0.051
53.167	1.984	0.042	61.000	2.110	0.054
53.333	1.974	0.040	61.167	2.112	0.054
53.500	1.979	0.042	61.333	2.114	0.051
53.667	1.981	0.044	61.500	2.117	0.051
53.833	1.977	0.042	61.667	2.124	0.054
54.000	1.977	0.044	61.833	2.126	0.054
54.167	1.979	0.042	62.000	2.133	0.054
54.333	1.977	0.049	62.167	2.140	0.054

TABLE S1.3 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
62.333	2.138	0.054	70.167	2.382	0.063
62.500	2.149	0.054	70.333	2.389	0.068
62.667	2.149	0.054	70.500	2.394	0.063
62.833	2.156	0.054	70.667	2.417	0.061
63.000	2.163	0.054	70.833	2.434	0.063
63.167	2.166	0.054	71.000	2.455	0.063
63.333	2.168	0.058	71.167	2.459	0.065
63.500	2.173	0.054	71.333	2.478	0.065
63.667	2.177	0.056	71.500	2.494	0.065
63.833	2.184	0.054	71.667	2.510	0.065
64.000	2.186	0.056	71.833	2.520	0.068
64.167	2.193	0.056	72.000	2.529	0.063
64.333	2.196	0.056	72.167	2.552	0.065
64.500	2.205	0.054	72.333	2.562	0.068
64.667	2.207	0.056	72.500	2.578	0.065
64.833	2.217	0.054	72.667	2.590	0.068
65.000	2.217	0.056	72.833	2.594	0.063
65.167	2.226	0.058	73.000	2.611	0.068
65.333	2.226	0.058	73.167	2.636	0.068
65.500	2.233	0.056	73.333	2.643	0.065
65.667	2.238	0.061	73.500	2.664	0.068
65.833	2.242	0.056	73.667	2.683	0.068
66.000	2.247	0.056	73.833	2.697	0.065
66.167	2.252	0.056	74.000	2.713	0.070
66.333	2.254	0.058	74.167	2.732	0.065
66.500	2.261	0.056	74.333	2.746	0.068
66.667	2.266	0.058	74.500	2.764	0.068
66.833	2.268	0.058	74.667	2.755	0.068
67.000	2.280	0.058	74.833	2.792	0.068
67.167	2.289	0.056	75.000	2.811	0.068
67.333	2.296	0.058	75.167	2.823	0.070
67.500	2.296	0.058	75.333	2.827	0.068
67.667	2.298	0.061	75.500	2.846	0.068
67.833	2.303	0.061	75.667	2.865	0.070
68.000	2.303	0.061	75.833	2.874	0.068
68.167	2.312	0.061	76.000	2.893	0.070
68.333	2.317	0.063	76.167	2.900	0.068
68.500	2.331	0.061	76.333	2.918	0.068
68.667	2.329	0.063	76.500	2.923	0.070
68.833	2.329	0.061	76.667	2.946	0.068
69.000	2.333	0.061	76.833	2.953	0.072
69.167	2.333	0.061	77.000	2.944	0.070
69.333	2.345	0.061	77.167	2.948	0.072
69.500	2.352	0.061	77.333	2.946	0.070
69.667	2.354	0.061	77.500	2.951	0.075
69.833	2.361	0.063	77.667	2.958	0.070
70.000	2.371	0.061	77.833	2.946	0.072

TABLE S1.3 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
78.000	2.948	0.070	85.500	2.948	0.082
78.167	2.948	0.072	85.667	2.951	0.082
78.333	2.948	0.072	85.833	2.946	0.082
78.500	2.951	0.070	86.000	2.948	0.082
78.667	2.951	0.075	86.167	2.951	0.079
78.833	2.948	0.075	86.333	2.953	0.082
79.000	2.951	0.072	86.500	2.946	0.082
79.167	2.953	0.075	86.667	2.946	0.082
79.333	2.948	0.075	86.833	2.955	0.082
79.500	2.944	0.072	87.000	2.944	0.086
79.667	2.958	0.072	87.167	2.944	0.084
79.833	2.944	0.075	87.333	2.946	0.084
80.000	2.951	0.075	87.500	2.941	0.084
80.167	2.946	0.072	87.667	2.946	0.082
80.333	2.948	0.072	87.833	2.946	0.084
80.500	2.946	0.077	88.000	2.948	0.082
80.667	2.953	0.072	88.167	2.948	0.084
80.833	2.948	0.075	88.333	2.951	0.082
81.000	2.955	0.075	88.500	2.951	0.084
81.167	2.953	0.077	88.667	2.948	0.084
81.333	2.953	0.077	88.833	2.948	0.084
81.500	2.953	0.077	89.000	2.944	0.084
81.667	2.948	0.077	89.167	2.948	0.084
81.833	2.946	0.075	89.333	2.951	0.086
82.000	2.951	0.075	89.500	2.946	0.084
82.167	2.951	0.075	89.667	2.951	0.086
82.333	2.946	0.075	89.833	2.951	0.084
82.500	2.944	0.079	90.000	2.948	0.084
82.667	2.944	0.079	90.167	2.946	0.084
82.833	2.951	0.079	90.333	2.951	0.084
83.000	2.948	0.079	90.500	2.946	0.086
83.167	2.951	0.077	90.667	2.953	0.084
83.333	2.951	0.077	90.833	2.948	0.084
83.500	2.948	0.077	91.000	2.944	0.086
83.667	2.948	0.079		end of pumping	
83.833	2.946	0.079			
84.000	2.946	0.079			
84.167	2.951	0.077			
84.333	2.944	0.082			
84.500	2.948	0.079			
84.667	2.951	0.077			
84.833	2.946	0.077			
85.000	2.946	0.079			
85.167	2.958	0.079			
85.333	2.948	0.082			

[a] Elapsed time calculated from 10:01 on 2/23/10 as time zero.

TABLE S1.4 Water levels recorded in wells MW05 and MW02 by the Hermit™ data logger during the test 1 recovery period, February 23, 2010.

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
0.0000	3.763	0.089	0.1466	2.459	0.094
0.0033	3.769	0.089	0.1500	2.425	0.094
0.0066	3.769	0.089	0.1533	2.390	0.094
0.0100	3.766	0.089	0.1566	2.356	0.094
0.0133	3.766	0.094	0.1600	2.324	0.094
0.0166	3.744	0.094	0.1633	2.290	0.094
0.0200	3.709	0.089	0.1666	2.255	0.094
0.0233	3.678	0.089	0.1700	2.224	0.094
0.0266	3.647	0.089	0.1733	2.192	0.094
0.0300	3.609	0.089	0.1766	2.161	0.094
0.0333	3.578	0.089	0.1800	2.129	0.094
0.0366	3.546	0.089	0.1833	2.098	0.094
0.0400	3.508	0.089	0.1866	2.070	0.094
0.0433	3.474	0.089	0.1900	2.038	0.094
0.0466	3.439	0.094	0.1933	2.010	0.094
0.0500	3.405	0.089	0.1966	1.982	0.094
0.0533	3.373	0.089	0.2000	1.957	0.094
0.0566	3.342	0.094	0.2033	1.932	0.094
0.0600	3.311	0.089	0.2066	1.903	0.094
0.0633	3.276	0.094	0.2100	1.878	0.094
0.0666	3.245	0.089	0.2133	1.853	0.094
0.0700	3.213	0.094	0.2166	1.828	0.094
0.0733	3.179	0.094	0.2200	1.803	0.094
0.0766	3.147	0.089	0.2233	1.781	0.094
0.0800	3.119	0.094	0.2266	1.756	0.094
0.0833	3.091	0.094	0.2300	1.734	0.094
0.0866	3.062	0.094	0.2333	1.712	0.094
0.0900	3.031	0.094	0.2366	1.690	0.094
0.0933	3.003	0.094	0.2400	1.668	0.094
0.0966	2.974	0.094	0.2433	1.646	0.094
0.1000	2.940	0.094	0.2466	1.624	0.094
0.1033	2.905	0.094	0.2500	1.602	0.094
0.1066	2.871	0.094	0.2533	1.583	0.094
0.1100	2.833	0.094	0.2566	1.564	0.094
0.1133	2.802	0.094	0.2600	1.545	0.094
0.1166	2.767	0.094	0.2633	1.526	0.094
0.1200	2.733	0.094	0.2666	1.511	0.094
0.1233	2.695	0.094	0.2700	1.492	0.094
0.1266	2.663	0.094	0.2733	1.476	0.094
0.1300	2.629	0.094	0.2766	1.460	0.094
0.1333	2.598	0.094	0.2800	1.445	0.094
0.1366	2.560	0.094	0.2833	1.429	0.094
0.1400	2.528	0.094	0.2866	1.413	0.094
0.1433	2.494	0.094	0.2900	1.398	0.094

TABLE S1.4 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
0.2933	1.385	0.094	0.9000	0.684	0.094
0.2966	1.369	0.094	0.9166	0.678	0.089
0.3000	1.357	0.094	0.9333	0.672	0.089
0.3033	1.344	0.094	0.9500	0.669	0.089
0.3066	1.332	0.094	0.9666	0.666	0.094
0.3100	1.322	0.094	0.9833	0.659	0.089
0.3133	1.310	0.094	1.0	0.653	0.094
0.3166	1.297	0.094	1.2	0.615	0.089
0.3200	1.288	0.094	1.4	0.590	0.089
0.3233	1.278	0.094	1.6	0.565	0.089
0.3266	1.266	0.094	1.8	0.546	0.089
0.3300	1.256	0.094	2.0	0.527	0.094
0.3333	1.247	0.094	2.2	0.515	0.089
0.3500	1.203	0.094	2.4	0.499	0.089
0.3666	1.159	0.094	2.6	0.493	0.094
0.3833	1.124	0.094	2.8	0.483	0.094
0.4000	1.090	0.094	3.0	0.468	0.094
0.4166	1.058	0.094	3.2	0.461	0.089
0.4333	1.027	0.094	3.4	0.455	0.094
0.4500	0.999	0.094	3.6	0.449	0.094
0.4666	0.977	0.094	3.8	0.443	0.094
0.4833	0.955	0.089	4.0	0.439	0.094
0.5000	0.933	0.089	4.2	0.430	0.094
0.5166	0.911	0.094	4.4	0.427	0.094
0.5333	0.892	0.094	4.6	0.424	0.094
0.5500	0.882	0.089	4.8	0.417	0.094
0.5666	0.863	0.089	5.0	0.411	0.094
0.5833	0.848	0.094	5.2	0.405	0.094
0.6000	0.838	0.094	5.4	0.402	0.094
0.6166	0.823	0.094	5.6	0.398	0.094
0.6333	0.813	0.089	5.8	0.395	0.099
0.6500	0.804	0.089	6.0	0.389	0.094
0.6666	0.791	0.094	6.2	0.389	0.094
0.6833	0.779	0.089	6.4	0.386	0.094
0.7000	0.769	0.089	6.6	0.380	0.094
0.7166	0.760	0.089	6.8	0.377	0.099
0.7333	0.750	0.089	7.0	0.373	0.094
0.7500	0.741	0.094	7.2	0.373	0.099
0.7666	0.732	0.094	7.4	0.370	0.099
0.7833	0.725	0.094	7.6	0.367	0.099
0.8000	0.719	0.094	7.8	0.367	0.099
0.8166	0.710	0.094	8.0	0.361	0.099
0.8333	0.706	0.094	8.2	0.355	0.099
0.8500	0.700	0.094	8.4	0.358	0.099
0.8666	0.694	0.094	8.6	0.358	0.099
0.8833	0.691	0.094	8.8	0.351	0.099

TABLE S1.4 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
9.0	0.351	0.099	88	0.191	0.094
9.2	0.351	0.099	90	0.188	0.089
9.4	0.345	0.099	92	0.191	0.089
9.6	0.342	0.099	94	0.191	0.094
9.8	0.348	0.099	96	0.185	0.094
10	0.345	0.099	98	0.188	0.094
12	0.326	0.099	100	0.185	0.089
14	0.317	0.099	120		0.084
16	0.311	0.103	140		0.075
18	0.298	0.103	160	0.106	0.080
20	0.292	0.103	180	0.094	0.075
22	0.285	0.103	200	0.081	0.070
24	0.276	0.103			
26	0.273	0.103			
28	0.270	0.103			
30	0.263	0.103			
32	0.254	0.103			
34	0.254	0.103			
36	0.248	0.103			
38	0.251	0.103			
40	0.241	0.103			
42	0.241	0.103			
44	0.238	0.103			
46	0.232	0.103			
48	0.235	0.103			
50	0.229	0.103			
52	0.232	0.103			
54	0.229	0.103			
56	0.223	0.103			
58	0.223	0.103			
60	0.219	0.103			
62	0.216	0.103			
64	0.216	0.103			
66	0.213	0.103			
68	0.210	0.094			
70	0.210	0.099			
72	0.210	0.099			
74	0.207	0.099			
76	0.204	0.099			
78	0.204	0.099			
80	0.201	0.099			
82	0.197	0.094			
84	0.194	0.094			
86	0.194	0.094			

[a] Elapsed time calculated from 11:32 on 2/23/10 as time zero.

TABLE S1.5 Water levels recorded by the PT2X data loggers in wells MW05 and MW02 during the test 1 recovery period, February 23, 2010.

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
0.000		0.086	7.667	0.383	0.093
0.167	2.331	0.086	7.833	0.380	0.096
0.333	1.284	0.091	8.000	0.378	0.093
0.500	0.953	0.086	8.167	0.371	0.096
0.667	0.811	0.086	8.333	0.373	0.096
0.833	0.720	0.086	8.500	0.373	0.098
1.000	0.676	0.089	8.667	0.371	0.096
1.167	0.634	0.086	8.833	0.364	0.096
1.333	0.611	0.089	9.000	0.369	0.096
1.500	0.592	0.089	9.167	0.362	0.096
1.667	0.574	0.091	9.333	0.364	0.091
1.833	0.553	0.089	9.500	0.362	0.098
2.000	0.536	0.089	9.667	0.357	0.096
2.167	0.534	0.089	9.833	0.362	0.098
2.333	0.518	0.089	10.000	0.359	0.096
2.500	0.518	0.089	10.167	0.359	0.093
2.667	0.506	0.089	10.333	0.359	0.096
2.833	0.497	0.091	10.500	0.359	0.096
3.000	0.485	0.091	10.667	0.355	0.098
3.167	0.483	0.089	10.833	0.355	0.096
3.333	0.473	0.093	11.000	0.355	0.096
3.500	0.469	0.091	11.167	0.345	0.098
3.667	0.459	0.093	11.333	0.345	0.098
3.833	0.457	0.091	11.500	0.348	0.098
4.000	0.452	0.091	11.667	0.343	0.096
4.167	0.448	0.091	11.833	0.350	0.096
4.333	0.448	0.091	12.000	0.348	0.096
4.500	0.436	0.091	12.167	0.341	0.098
4.667	0.436	0.093	12.333	0.338	0.098
4.833	0.432	0.093	12.500	0.348	0.096
5.000	0.422	0.093	12.667	0.341	0.098
5.167	0.422	0.091	12.833	0.329	0.098
5.333	0.422	0.093	13.000	0.336	0.098
5.500	0.418	0.093	13.167	0.334	0.098
5.667	0.415	0.089	13.333	0.336	0.098
5.833	0.413	0.093	13.500	0.336	0.096
6.000	0.408	0.091	13.667	0.331	0.100
6.167	0.401	0.093	13.833	0.336	0.100
6.333	0.404	0.093	14.000	0.334	0.098
6.500	0.397	0.093	14.167	0.327	0.098
6.667	0.394	0.096	14.333	0.336	0.100
6.833	0.392	0.093	14.500	0.327	0.098
7.000	0.385	0.093	14.667	0.329	0.100
7.167	0.385	0.098	14.833	0.331	0.100
7.333	0.380	0.096	15.000	0.327	0.103
7.500	0.385	0.096	15.167	0.322	0.098

TABLE S1.5 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
15.333	0.324	0.103	23.167	0.296	0.103
15.500	0.324	0.098	23.333	0.292	0.103
15.667	0.320	0.100	23.500	0.296	0.105
15.833	0.317	0.100	23.667	0.289	0.103
16.000	0.322	0.098	23.833	0.292	0.100
16.167	0.324	0.100	24.000	0.294	0.105
16.333	0.320	0.100	*24.167*	0.294	0.105
16.500	0.320	0.100	24.333	0.294	0.103
16.667	0.313	0.103	24.500	0.289	0.103
16.833	0.322	0.100	24.667	0.292	0.105
17.000	0.320	0.100	24.833	0.289	0.105
17.167	0.320	0.100	25.000	0.294	0.103
17.333	0.317	0.100	25.167	0.292	0.103
17.500	0.315	0.103	25.333	0.289	0.105
17.667	0.310	0.103	25.500	0.292	0.105
17.833	0.315	0.103	25.667	0.289	0.105
18.000	0.317	0.103	25.833	0.287	0.105
18.167	0.310	0.103	26.000	0.285	0.105
18.333	0.308	0.100	26.167	0.287	0.103
18.500	0.306	0.103	26.333	0.282	0.103
18.667	*0.310*	*0.103*	26.500	0.289	0.103
18.833	0.308	0.103	26.667	0.285	0.103
19.000	0.313	0.100	26.833	0.287	0.105
19.167	0.310	0.100	27.000	0.285	0.105
19.333	0.308	0.100	27.167	0.289	0.103
19.500	0.308	0.100	27.333	0.282	0.103
19.667	0.306	0.100	27.500	0.285	0.103
19.833	0.306	0.100	27.667	0.282	0.105
20.000	0.308	0.100	*27.833*	0.287	0.105
20.167	0.306	0.100	28.000	0.280	0.103
20.333	0.303	0.103	28.167	0.280	0.105
20.500	0.308	0.100	28.333	0.285	0.107
20.667	0.303	0.103	28.500	0.280	0.103
20.833	0.301	0.100	28.667	0.280	0.103
21.000	0.308	0.103	28.833	0.280	0.105
21.167	0.301	0.100	29.000	0.282	0.105
21.333	0.299	0.103	29.167	0.280	0.105
21.500	0.299	0.103	29.333	0.280	0.103
21.667	0.296	0.103	29.500	0.280	0.103
21.833	0.299	0.103	29.667	0.280	0.105
22.000	0.303	0.103	29.833	0.275	0.105
22.167	0.301	0.103	30.000	0.278	0.105
22.333	0.296	0.100	30.167	0.282	0.105
22.500	0.296	0.103	30.333	0.275	0.105
22.667	0.303	0.105	30.500	0.275	0.103
22.833	0.296	0.105	30.667	0.278	0.105
23.000	0.299	0.103	30.833	0.280	0.107

TABLE S1.5 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
31.000	0.273	0.103	38.833		0.105
31.167	0.278	0.103	39.000		0.107
31.333	0.275	0.107	39.167		0.105
31.500	0.275	0.105	39.333		0.105
31.667	0.273	0.105	39.500		0.105
31.833	0.273	0.107	39.667		0.105
32.000	0.271	0.107	39.833		0.103
32.167	0.271	0.107	40.000		0.107
32.333	0.268	0.105	40.167		0.105
32.500	0.271	0.107	40.333		0.107
32.667	0.271	0.103	40.500		0.107
32.833	0.273	0.105	40.667		0.105
33.000	0.268	0.107	40.833		0.105
33.167	0.268	0.103	41.000		0.103
33.333	0.271	0.105	41.167		0.107
33.500	0.273	0.107	41.333		0.105
33.667	0.268	0.105	41.500		0.105
33.833	0.273	0.105	41.667		0.105
34.000	0.271	0.105	41.833		0.107
34.167	0.271	0.105	42.000		0.107
34.333	0.264	0.112	42.167		0.107
34.500	0.264	0.105	42.333		0.107
34.667	0.264	0.105	42.500		0.107
34.833	0.273	0.105	42.667		0.105
35.000	0.271	0.107	42.833		0.107
35.167	0.264	0.105	43.000		0.107
35.333	0.264	0.107	43.167		0.107
35.500	0.257	0.105	43.333		0.105
35.667	0.264	0.105	43.500		0.105
35.833	0.271	0.105	43.667		0.105
36.000	0.266	0.105	43.833		0.107
36.167	0.264	0.105	44.000		0.107
36.333	0.264	0.107	44.167		0.107
36.500	0.261	0.103	44.333		0.110
36.667	0.268	0.105	44.500		0.107
36.833	0.261	0.105	44.667		0.105
37.000	0.264	0.107	44.833		0.107
37.167	0.271	0.105	45.000		0.107
37.333	0.261	0.107	45.167		0.107
37.500	0.264	0.103	45.333		0.105
37.667	0.261	0.107	45.500		0.105
37.833	0.254	0.105	45.667		0.105
38.000	0.261	0.105	45.833		0.107
38.167	0.261	0.107	46.000		0.107
38.333	0.261	0.105	46.167		0.105
38.500		0.103	46.333		0.105
38.667		0.107	46.500		0.105

TABLE S1.5 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
46.667		0.105	54.500		0.107
46.833		0.105	54.667		0.105
47.000		0.107	54.833		0.107
47.167		0.107	55.000		0.105
47.333		0.105	55.167		0.107
47.500		0.103	55.333		0.105
47.667		0.105	55.500		0.107
47.833		0.107	55.667		0.107
48.000		0.105	55.833		0.107
48.167		0.107	56.000		0.107
48.333		0.107	56.167		0.107
48.500		0.107	56.333		0.105
48.667		0.105	56.500		0.107
48.833		0.105	56.667		0.105
49.000		0.105	56.833		0.105
49.167		0.105	57.000		0.107
49.333		0.107	57.167		0.107
49.500		0.103	57.333		0.105
49.667		0.105	57.500		0.105
49.833		0.107	57.667		0.107
50.000		0.105	57.833		0.107
50.167		0.107	58.000		0.107
50.333		0.110	58.167		0.107
50.500		0.105	58.333		0.107
50.667		0.105	58.500		0.107
50.833		0.107	58.667		0.105
51.000		0.107	58.833		0.105
51.167		0.107	59.000		0.107
51.333		0.107	59.167		0.105
51.500		0.105	59.333		0.105
51.667		0.107	59.500		0.105
51.833		0.105	59.667		0.105
52.000		0.105	59.833		0.107
52.167		0.107	60.000		0.107
52.333		0.105	60.167		0.105
52.500		0.107	60.333		0.107
52.667		0.105	60.500		0.107
52.833		0.105	60.667		0.105
53.000		0.105	60.833		0.107
53.167		0.107	61.000		0.107
53.333		0.107	61.167		0.107
53.500		0.105	61.333		0.105
53.667		0.107	61.500		0.107
53.833		0.110	61.667		0.107
54.000		0.107	61.833		0.107
54.167		0.105	62.000		0.107
54.333		0.107	62.167		0.110

TABLE S1.5 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
62.333		0.107	70.167		0.107
62.500		0.110	70.333		0.110
62.667		0.107	70.500		0.105
62.833		0.107	70.667		0.112
63.000		0.110	70.833		0.107
63.167		0.107	71.000		0.107
63.333		0.107	71.167		0.107
63.500		0.105	71.333		0.107
63.667		0.107	71.500		0.105
63.833		0.107	71.667		0.107
64.000		0.105	71.833		0.105
64.167		0.105	72.000		0.107
64.333		0.107	72.167		0.105
64.500		0.105	72.333		0.110
64.667		0.105	72.500		0.107
64.833		0.105	72.667		0.107
65.000		0.105	72.833		0.107
65.167		0.107	73.000		0.107
65.333		0.105	73.167		0.110
65.500		0.105	73.333		0.107
65.667		0.107	73.500		0.107
65.833		0.105	73.667		0.107
66.000		0.107	73.833		0.105
66.167		0.103	74.000		0.107
66.333		0.107	74.167		0.105
66.500		0.107	74.333		0.107
66.667		0.110	74.500		0.107
66.833		0.107	74.667		0.107
67.000		0.107	74.833		0.105
67.167		0.105	75.000		0.103
67.333		0.105	75.167		0.107
67.500		0.107	75.333		0.107
67.667		0.107	75.500		0.107
67.833		0.105	75.667		0.105
68.000		0.107	75.833		0.105
68.167		0.107	76.000		0.107
68.333		0.107	76.167		0.107
68.500		0.107	76.333		0.107
68.667		0.105	76.500		0.107
68.833		0.110	76.667		0.105
69.000		0.108	76.833		0.107
69.167		0.105	77.000		0.107
69.333		0.110	77.167		0.105
69.500		0.110	77.333		0.105
69.667		0.107	77.500		0.107
69.833		0.110	77.667		0.107
70.000		0.107	77.833		0.112

TABLE S1.5 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
78.000		0.107	85.833		0.107
78.167		0.107	86.000		0.107
78.333		0.110	86.167		0.107
78.500		0.105	86.333		0.107
78.667		0.105	86.500		0.105
78.833		0.105	86.667		0.107
79.000		0.107	86.833		0.107
79.167		0.105	87.000		0.107
79.333		0.107	87.167		0.103
79.500		0.105	87.333		0.107
79.667		0.105	87.500		0.107
79.833		0.107	87.667		0.107
80.000		0.107	87.833		0.105
80.167		0.105	88.000		0.110
80.333		0.107	88.167		0.107
80.500		0.107	88.333		0.110
80.667		0.107	88.500		0.107
80.833		0.107	88.667		0.107
81.000		0.107	88.833		0.107
81.167		0.107	89.000		0.107
81.333		0.107	89.167		0.107
81.500		0.110	89.333		0.107
81.667		0.107	89.500		0.107
81.833		0.107	89.667		0.107
82.000		0.107	89.833		0.107
82.167		0.107	90.000		0.107
82.333		0.107	90.167		0.107
82.500		0.107	90.333		0.105
82.667		0.105	90.500		0.107
82.833		0.107	90.667		0.107
83.000		0.107	90.833		0.107
83.167		0.107	91.000		0.110
83.333		0.105	91.167		0.107
83.500		0.107	91.333		0.107
83.667		0.107	91.500		0.107
83.833		0.107	91.667		0.110
84.000		0.107	91.833		0.105
84.167		0.107	92.000		0.105
84.333		0.107	92.167		0.107
84.500		0.107	92.333		0.107
84.667		0.105	92.500		0.105
84.833		0.105	92.667		0.105
85.000		0.107	92.833		0.105
85.167		0.107	93.000		0.107
85.333		0.107	93.167		0.107
85.500		0.110	93.333		0.107
85.667		0.105	93.500		0.105

TABLE S1.5 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
93.667		0.107	101.500		0.105
93.833		0.107	101.667		0.110
94.000		0.107	101.833		0.107
94.167		0.105	102.000		0.107
94.333		0.110	102.167		0.107
94.500		0.110	102.333		0.110
94.667		0.105	102.500		0.107
94.833		0.105	102.667		0.107
95.000		0.107	102.833		0.107
95.167		0.110	103.000		0.107
95.333		0.110	103.167		0.107
95.500		0.105	103.333		0.107
95.667		0.107	103.500		0.107
95.833		0.110	103.667		0.110
96.000		0.107	103.833		0.107
96.167		0.105	104.000		0.107
96.333		0.107	104.167		0.107
96.500		0.107	104.333		0.110
96.667		0.103	104.500		0.105
96.833		0.107	104.667		0.110
97.000		0.107	104.833		0.110
97.167		0.107	105.000		0.110
97.333		0.105	105.167		0.110
97.500		0.107	105.333		0.110
97.667		0.107	105.500		0.107
97.833		0.105	105.667		0.107
98.000		0.107	105.833		0.110
98.167		0.110	106.000		0.107
98.333		0.107	106.167		0.107
98.500		0.107	106.333		0.105
98.667		0.110	106.500		0.110
98.833		0.110	106.667		0.107
99.000		0.107	106.833		0.107
99.167		0.107	107.000		0.107
99.333		0.107	107.167		0.107
99.500		0.107	107.333		0.110
99.667		0.110	107.500		0.107
99.833		0.105	107.667		0.110
100.000		0.105	107.833		0.105
100.167		0.105	108.000		0.107
100.333		0.110	108.167		0.110
100.500		0.107	108.333		0.107
100.667		0.110	108.500		0.107
100.833		0.105	108.667		0.105
101.000		0.110	108.833		0.107
101.167		0.107	109.000		0.105
101.333		0.107	109.167		0.107

TABLE S1.5 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
109.333		0.107	117.167		0.110
109.500		0.107	117.333		0.107
109.667		0.105	117.500		0.107
109.833		0.107	117.667		0.107
110.000		0.107	117.833		0.110
110.167		0.105	118.000		0.110
110.333		0.107	118.167		0.107
110.500		0.105	118.333		0.110
110.667		0.105	118.500		0.107
110.833		0.107	118.667		0.107
111.000		0.110	118.833		0.107
111.167		0.107	119.000		0.110
111.333		0.107	119.167		0.105
111.500		0.105	119.333		0.105
111.667		0.110	119.500		0.107
111.833		0.107	119.667		0.107
112.000		0.107	119.833		0.107
112.167		0.107	120.000		0.105
112.333		0.105	120.167		0.110
112.500		0.107	120.333		0.110
112.667		0.107	120.500		0.105
112.833		0.107	120.667		0.110
113.000		0.110	120.833		0.107
113.167		0.110	121.000		0.107
113.333		0.105	121.167		0.107
113.500		0.107	121.333		0.107
113.667		0.105	121.500		0.107
113.833		0.110	121.667		0.107
114.000		0.107	121.833		0.107
114.167		0.105	122.000		0.107
114.333		0.107	122.167		0.105
114.500		0.110	122.333		0.107
114.667		0.110	122.500		0.107
114.833		0.110	122.667		0.112
115.000		0.107	122.833		0.105
115.167		0.105	123.000		0.110
115.333		0.110	123.167		0.110
115.500		0.107	123.333		0.107
115.667		0.107	123.500		0.103
115.833		0.107	123.667		0.107
116.000		0.110	123.833		0.107
116.167		0.110	124.000		0.107
116.333		0.110	124.167		0.107
116.500		0.107	124.333		0.107
116.667		0.110	124.500		0.107
116.833		0.110	124.667		0.107
117.000		0.107	124.833		0.105

TABLE S1.5 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
125.000		0.107	132.833		0.107
125.167		0.107	133.000		0.107
125.333		0.112	133.167		0.103
125.500		0.110	133.333		0.107
125.667		0.110	133.500		0.107
125.833		0.110	133.667		0.105
126.000		0.110	133.833		0.110
126.167		0.110	134.000		0.107
126.333		0.107	134.167		0.110
126.500		0.107	134.333		0.110
126.667		0.107	134.500		0.105
126.833		0.110	134.667		0.107
127.000		0.110	134.833		0.107
127.167		0.107	135.000		0.107
127.333		0.107	135.167		0.107
127.500		0.112	135.333		0.107
127.667		0.105	135.500		0.110
127.833		0.112	135.667		0.110
128.000		0.107	135.833		0.107
128.167		0.105	136.000		0.110
128.333		0.110	136.167		0.105
128.500		0.107	136.333		0.110
128.667		0.107	136.500		0.107
128.833		0.107	136.667		0.110
129.000		0.110	136.833		0.110
129.167		0.110	137.000		0.107
129.333		0.105	137.167		0.107
129.500		0.110	137.333		0.110
129.667		0.107	137.500		0.107
129.833		0.107	137.667		0.105
130.000		0.107	137.833		0.107
130.167		0.110	138.000		0.110
130.333		0.112	138.167		0.107
130.500		0.110	138.333		0.110
130.667		0.112	138.500		0.107
130.833		0.110	138.667		0.107
131.000		0.107	138.833		0.110
131.167		0.110	139.000		0.107
131.333		0.110	139.167		0.107
131.500		0.110	139.333		0.110
131.667		0.110	139.500		0.110
131.833		0.107	139.667		0.107
132.000		0.107	139.833		0.112
132.167		0.105	140.000		0.110
132.333		0.110	140.167		0.107
132.500		0.107	140.333		0.110
132.667		0.110	140.500		0.110

TABLE S1.5 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
140.667		0.107	151.000		0.110
140.833		0.105	152.000		0.107
141.000		0.107	153.000		0.107
141.167		0.107	154.000		0.105
141.333		0.107	155.000		0.107
141.500		0.103	156.000		0.107
141.667		0.110	157.000		0.105
141.833		0.105	158.000		0.105
142.000		0.105	159.000		0.105
142.167		0.107	160.000		0.105
142.333		0.107	161.000		0.107
142.500		0.110	162.000		0.107
142.667		0.107	163.000		0.107
142.833		0.105	164.000		0.110
143.000		0.110	165.000		0.107
143.167		0.107	166.000		0.107
143.333		0.107	167.000		0.107
143.500		0.110	168.000		0.105
143.667		0.107	169.000		0.105
143.833		0.107	170.000		0.105
144.000		0.110	171.000		0.107
144.167		0.110	172.000		0.107
144.333		0.110	173.000		0.107
144.500		0.107	174.000		0.107
144.667		0.110	175.000		0.107
144.833		0.107	176.000		0.105
145.000		0.107	177.000		0.105
145.167		0.107	178.000		0.107
145.333		0.107	179.000		0.107
145.500		0.110	180.000		0.107
145.667		0.112	181.000		0.107
145.833		0.110	182.000		0.107
146.000		0.110	183.000		0.110
146.167		0.107	184.000		0.107
146.333		0.110	185.000		0.105
146.500		0.110	186.000		0.107
146.667		0.107	187.000		0.105
146.833		0.107	188.000		0.105
147.000		0.107	189.000		0.105
147.167		0.110	190.000		0.107
147.333		0.110	191.000		0.110
147.500		0.107	192.000		0.110
147.667		0.110	193.000		0.110
147.833		0.110	194.000		0.107
148.000		0.110	195.000		0.107
149.000		0.110	196.000		0.107
150.000		0.110	197.000		0.107

TABLE S1.5 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
198.000		0.107			
199.000		0.110			
200.000		0.110			
201.000		0.107			
202.000		0.107			
203.000		0.105			
204.000		0.105			
205.000		0.105			
206.000		0.105			
207.000		0.105			
208.000		0.105			

[a] Elapsed time calculated from 11:32 on 2/23/10 as time zero.

TABLE S1.6 Water levels in wells MW05 and MW02 recorded by the Hermit™ data logger during the test 2 pumping period, February 23, 2010.

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
0.0000	0.128	0.070	0.1466	0.559	0.075
0.0033	0.185	0.070	0.1500	0.565	0.075
0.0066	0.150	0.070	0.1533	0.571	0.075
0.0100	0.169	0.070	0.1566	0.568	0.075
0.0133	0.207	0.070	0.1600	0.571	0.075
0.0166	0.238	0.070	0.1633	0.574	0.070
0.0200	0.267	0.070	0.1666	0.571	0.070
0.0233	0.292	0.070	0.1700	0.581	0.075
0.0266	0.317	0.070	0.1733	0.581	0.075
0.0300	0.333	0.070	0.1766	0.584	0.070
0.0333	0.355	0.070	0.1800	0.587	0.070
0.0366	0.377	0.070	0.1833	0.590	0.075
0.0400	0.395	0.070	0.1866	0.590	0.070
0.0433	0.414	0.070	0.1900	0.593	0.075
0.0466	0.427	0.070	0.1933	0.593	0.075
0.0500	0.414	0.070	0.1966	0.596	0.075
0.0533	0.436	0.070	0.2000	0.596	0.075
0.0566	0.439	0.070	0.2033	0.600	0.075
0.0600	0.443	0.070	0.2066	0.603	0.075
0.0633	0.449	0.070	0.2100	0.609	0.075
0.0666	0.443	0.070	0.2133	0.606	0.075
0.0700	0.446	0.070	0.2166	0.609	0.075
0.0733	0.455	0.070	0.2200	0.615	0.075
0.0766	0.458	0.075	0.2233	0.612	0.075
0.0800	0.461	0.070	0.2266	0.615	0.075
0.0833	0.458	0.075	0.2300	0.618	0.075
0.0866	0.468	0.075	0.2333	0.622	0.075
0.0900	0.468	0.075	0.2366	0.625	0.075
0.0933	0.477	0.075	0.2400	0.628	0.075
0.0966	0.477	0.075	0.2433	0.625	0.075
0.1000	0.486	0.075	0.2466	0.625	0.075
0.1033	0.493	0.075	0.2500	0.625	0.075
0.1066	0.496	0.075	0.2533	0.628	0.075
0.1100	0.499	0.075	0.2566	0.628	0.075
0.1133	0.505	0.075	0.2600	0.634	0.075
0.1166	0.508	0.075	0.2633	0.631	0.070
0.1200	0.521	0.075	0.2666	0.637	0.075
0.1233	0.515	0.075	0.2700	0.640	0.070
0.1266	0.530	0.075	0.2733	0.637	0.070
0.1300	0.534	0.070	0.2766	0.634	0.075
0.1333	0.537	0.075	0.2800	0.640	0.070
0.1366	0.546	0.075	0.2833	0.640	0.070
0.1400	0.552	0.075	0.2866	0.640	0.070
0.1433	0.556	0.075	0.2900	0.640	0.075

TABLE S1.6 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
0.2933	0.644	0.075	0.9000	0.848	0.070
0.2966	0.644	0.070	0.9166	0.845	0.070
0.3000	0.644	0.070	0.9333	0.857	0.070
0.3033	0.644	0.075	0.9500	0.851	0.070
0.3066	0.647	0.075	0.9666	0.854	0.070
0.3100	0.647	0.075	0.9833	0.857	0.070
0.3133	0.650	0.075	1.0	0.863	0.070
0.3166	0.650	0.075	1.2	0.889	0.065
0.3200	0.650	0.075	1.4	0.923	0.070
0.3233	0.656	0.075	1.6	0.936	0.070
0.3266	0.656	0.075	1.8	0.948	0.070
0.3300	0.653	0.075	2.0	0.961	0.070
0.3333	0.653	0.075	2.2	0.970	0.070
0.3500	0.650	0.075	2.4	0.977	0.070
0.3666	0.653	0.070	2.6	0.992	0.070
0.3833	0.659	0.075	2.8	0.995	0.070
0.4000	0.659	0.070	3.0	0.999	0.070
0.4166	0.666	0.070	3.2	1.002	0.070
0.4333	0.669	0.070	3.4	1.008	0.070
0.4500	0.669	0.070	3.6	1.017	0.070
0.4666	0.678	0.070	3.8	1.024	0.070
0.4833	0.688	0.070	4.0	1.027	0.070
0.5000	0.694	0.070	4.2	1.043	0.075
0.5166	0.710	0.070	4.4	1.046	0.075
0.5333	0.713	0.070	4.6	1.046	0.075
0.5500	0.725	0.070	4.8	1.061	0.070
0.5666	0.728	0.070	5.0	1.061	0.070
0.5833	0.738	0.070	5.2	1.058	0.070
0.6000	0.741	0.070	5.4	1.068	0.075
0.6166	0.744	0.070	5.6	1.071	0.070
0.6333	0.757	0.070	5.8	1.071	0.070
0.6500	0.766	0.070	6.0	1.083	0.070
0.6666	0.769	0.070	6.2	1.083	0.070
0.6833	0.776	0.070	6.4	1.087	0.070
0.7000	0.788	0.070	6.6	1.087	0.070
0.7166	0.788	0.070	6.8	1.090	0.070
0.7333	0.794	0.070	7.0	1.093	0.070
0.7500	0.798	0.070	7.2	1.090	0.070
0.7666	0.807	0.070	7.4	1.099	0.070
0.7833	0.813	0.070	7.6	1.102	0.075
0.8000	0.820	0.070	7.8	1.105	0.070
0.8166	0.826	0.070	8.0	1.105	0.070
0.8333	0.829	0.070	8.2	1.112	0.070
0.8500	0.832	0.070	8.4	1.115	0.070
0.8666	0.838	0.070	8.6	1.112	0.070
0.8833	0.841	0.070	8.8	1.118	0.07

TABLE S1.6 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
9.0	1.118	0.070	80	1.605	0.122
9.2	1.121	0.070	82	1.624	0.127
9.4	1.124	0.070	84	1.636	0.127
9.6	1.134	0.070	86	1.646	0.127
9.8	1.134	0.070	88	1.655	0.132
10	1.146	0.070	90	1.665	0.132
12	1.168	0.070	92	1.665	0.136
14	1.206	0.075	94	1.671	0.132
16	1.231	0.075	96	1.668	0.136
18	1.250	0.080	98	1.680	0.136
20	1.262	0.080	100	1.699	0.141
22	1.278	0.080	110[b]	1.730	0.140
24	1.294	0.080	117[b]	1.750	0.150
26	1.297	0.080	120	1.768	0.150
28	1.313	0.084	127[b]	1.800	0.160
30	1.322	0.084	138[b]	1.880	0.160
32	1.341	0.084	140	1.897	0.165
34	1.335	0.084	147[b]	1.940	0.160
36	1.350	0.089	158[b]	2.040	0.170
38	1.363	0.089	160	2.051	0.179
40	1.372	0.094	167[b]	2.400	0.180
42	1.391	0.094	177[b]	2.960	0.190
44	1.423	0.094	180	3.138	0.193
46	1.438	0.099	182[b]	3.500	0.190
48	1.448	0.103	187[b]	3.760	0.200
50	1.460	0.103	189	end of pumping	
52	1.473	0.103			
54	1.470	0.108			
56	1.486	0.103			
58	1.495	0.108			
60	1.492	0.108			
62	1.507	0.108			
64	1.520	0.113			
66	1.520	0.113			
68	1.520	0.113			
70	1.526	0.113			
72	1.548	0.117			
74	1.573	0.117			
76	1.586	0.117			
78	1.599	0.122			

[a] Elapsed time calculated from 15:03 on 2/23/10 as time zero.

[b] Additional readings taken manually from Hermit to supplement programmed recording sequence.

TABLE S1.7 Water levels recorded by the PT2X data-logger in well MW02 during the test 2 pumping period, February 23, 2010.

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)
0	0.105	46	0.126	92	0.163
1	0.105	47	0.126	93	0.166
2	0.103	48	0.128	94	0.161
3	0.105	49	0.131	95	0.163
4	0.110	50	0.131	96	0.168
5	0.107	51	0.135	97	0.166
6	0.110	52	0.133	98	0.168
7	0.110	53	0.135	99	0.166
8	0.107	54	0.135	100	0.168
9	0.105	55	0.135	101	0.170
10	0.107	56	0.138	102	0.170
11	0.107	57	0.135	103	0.173
12	0.107	58	0.138	104	0.173
13	0.110	59	0.138	105	0.173
14	0.110	60	0.140	106	0.173
15	0.107	61	0.140	107	0.175
16	0.107	62	0.140	108	0.175
17	0.110	63	0.145	109	0.175
18	0.112	64	0.140	110	0.175
19	0.112	65	0.142	111	0.177
20	0.112	66	0.142	112	0.177
21	0.112	67	0.147	113	0.177
22	0.110	68	0.147	114	0.180
23	0.114	69	0.147	115	0.177
24	0.112	70	0.147	116	0.180
25	0.114	71	0.147	117	0.180
26	0.114	72	0.147	118	0.182
27	0.117	73	0.149	119	0.180
28	0.117	74	0.149	120	0.182
29	0.119	75	0.149	121	0.182
30	0.119	76	0.152	122	0.187
31	0.117	77	0.152	123	0.187
32	0.119	78	0.152	124	0.184
33	0.117	79	0.154	125	0.187
34	0.121	80	0.152	126	0.184
35	0.121	81	0.154	127	0.187
36	0.121	82	0.156	128	0.187
37	0.124	83	0.154	129	0.187
38	0.124	84	0.156	130	0.189
39	0.124	85	0.156	131	0.189
40	0.124	86	0.161	132	0.189
41	0.124	87	0.159	133	0.191
42	0.124	88	0.161	134	0.189
43	0.126	89	0.161	135	0.191
44	0.126	90	0.159	136	0.191
45	0.128	91	0.161	137	0.194

TABLE S1.7 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)
138	0.191	183	0.222		
139	0.196	184	0.224		
140	0.196	185	0.222		
141	0.196	186	0.224		
142	0.196	187	0.226		
143	0.198	188	0.226		
144	0.198	189	0.226		
145	0.198	end of pumping			
146	0.198				
147	0.201				
148	0.198				
149	0.203				
150	0.198				
151	0.201				
152	0.203				
153	0.203				
154	0.203				
155	0.205				
156	0.205				
157	0.205				
158	*0.205*				
159	0.208				
160	0.208				
161	0.208				
162	0.205				
163	0.210				
164	0.210				
165	0.215				
166	0.210				
167	0.212				
168	0.212				
169	0.212				
170	0.215				
171	0.215				
172	0.215				
173	0.217				
174	0.217				
175	0.217				
176	0.217				
177	0.219				
178	0.219				
179	0.219				
180	0.222				
181	0.219				
182	0.222				

[a] Elapsed time calculated from 15:03 on 2/23/10 as time zero.

TABLE S1.8 Water levels in wells MW05 and MW02 recorded by the Hermit™ data logger during the test 2 recovery period, February 23-24, 2010.

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
0.0000	3.779	0.202	0.1466	3.075	0.202
0.0033	3.763	0.202	0.1500	3.050	0.202
0.0066	3.769	0.202	0.1533	3.022	0.202
0.0100	3.769	0.198	0.1566	3.000	0.202
0.0133	3.769	0.198	0.1600	2.971	0.202
0.0166	3.769	0.202	0.1633	2.946	0.202
0.0200	3.769	0.202	0.1666	2.921	0.202
0.0233	3.766	0.202	0.1700	2.896	0.202
0.0266	3.766	0.202	0.1733	2.871	0.202
0.0300	3.766	0.202	0.1766	2.846	0.202
0.0333	3.766	0.202	0.1800	2.821	0.202
0.0366	3.766	0.202	0.1833	2.795	0.202
0.0400	3.766	0.202	0.1866	2.770	0.202
0.0433	3.766	0.202	0.1900	2.745	0.202
0.0466	3.763	0.202	0.1933	2.720	0.202
0.0500	3.766	0.202	0.1966	2.692	0.202
0.0533	3.763	0.202	0.2000	2.667	0.202
0.0566	3.763	0.202	0.2033	2.642	0.202
0.0600	3.760	0.202	0.2066	2.616	0.202
0.0633	3.760	0.202	0.2100	2.591	0.202
0.0666	3.757	0.202	0.2133	2.566	0.202
0.0700	3.735	0.202	0.2166	2.538	0.202
0.0733	3.706	0.202	0.2200	2.513	0.202
0.0766	3.678	0.202	0.2233	2.488	0.202
0.0800	3.647	0.202	0.2266	2.462	0.202
0.0833	3.618	0.202	0.2300	2.437	0.202
0.0866	3.590	0.202	0.2333	2.412	0.202
0.0900	3.559	0.202	0.2366	2.387	0.202
0.0933	3.530	0.202	0.2400	2.362	0.202
0.0966	3.502	0.202	0.2433	2.337	0.202
0.1000	3.471	0.202	0.2466	2.312	0.202
0.1033	3.439	0.202	0.2500	2.287	0.202
0.1066	3.411	0.202	0.2533	2.261	0.202
0.1100	3.380	0.202	0.2566	2.236	0.202
0.1133	3.351	0.202	0.2600	2.211	0.202
0.1166	3.323	0.202	0.2633	2.189	0.202
0.1200	3.295	0.202	0.2666	2.164	0.202
0.1233	3.267	0.202	0.2700	2.139	0.202
0.1266	3.238	0.202	0.2733	2.117	0.202
0.1300	3.207	0.202	0.2766	2.092	0.202
0.1333	3.179	0.202	0.2800	2.070	0.202
0.1366	3.150	0.202	0.2833	2.045	0.202
0.1400	3.125	0.202	0.2866	2.023	0.202
0.1433	3.100	0.202	0.2900	2.001	0.202

TABLE S1.8 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
0.2933	1.976	0.202	0.9000	0.791	0.202
0.2966	1.954	0.202	0.9166	0.785	0.202
0.3000	1.932	0.202	0.9333	0.782	0.202
0.3033	1.913	0.202	0.9500	0.776	0.202
0.3066	1.891	0.202	0.9666	0.769	0.202
0.3100	1.869	0.202	0.9833	0.766	0.202
0.3133	1.850	0.202	1.0	0.760	0.202
0.3166	1.828	0.202	1.2	0.719	0.198
0.3200	1.809	0.202	1.4	0.688	0.198
0.3233	1.787	0.202	1.6	0.666	0.198
0.3266	1.768	0.202	1.8	0.650	0.198
0.3300	1.749	0.202	2.0	0.637	0.202
0.3333	1.731	0.202	2.2	0.625	0.202
0.3500	1.639	0.202	2.4	0.612	0.202
0.3666	1.555	0.202	2.6	0.603	0.202
0.3833	1.476	0.202	2.8	0.593	0.202
0.4000	1.407	0.202	3.0	0.584	0.202
0.4166	1.344	0.202	3.2	0.578	0.198
0.4333	1.291	0.202	3.4	0.568	0.202
0.4500	1.244	0.202	3.6	0.562	0.202
0.4666	1.206	0.202	3.8	0.556	0.202
0.4833	1.171	0.202	4.0	0.549	0.202
0.5000	1.137	0.202	4.2	0.546	0.202
0.5166	1.105	0.202	4.4	0.540	0.202
0.5333	1.080	0.202	4.6	0.537	0.202
0.5500	1.052	0.202	4.8	0.530	0.202
0.5666	1.030	0.202	5.0	0.527	0.202
0.5833	1.008	0.202	5.2	0.521	0.202
0.6000	0.986	0.202	5.4	0.521	0.202
0.6166	0.967	0.202	5.6	0.515	0.202
0.6333	0.951	0.202	5.8	0.512	0.202
0.6500	0.933	0.202	6.0	0.508	0.202
0.6666	0.920	0.202	6.2	0.505	0.202
0.6833	0.904	0.202	6.4	0.502	0.202
0.7000	0.892	0.202	6.6	0.499	0.202
0.7166	0.879	0.202	6.8	0.496	0.202
0.7333	0.870	0.202	7.0	0.493	0.202
0.7500	0.857	0.202	7.2	0.490	0.207
0.7666	0.848	0.202	7.4	0.486	0.202
0.7833	0.841	0.202	7.6	0.486	0.202
0.8000	0.832	0.202	7.8	0.483	0.202
0.8166	0.823	0.198	8.0	0.477	0.207
0.8333	0.816	0.202	8.2	0.477	0.202
0.8500	0.810	0.202	8.4	0.474	0.202
0.8666	0.804	0.202	8.6	0.471	0.207
0.8833	0.798	0.202	8.8	0.471	0.207

TABLE S1.8 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW05	MW02
			88	0.329	0.216
9.0	0.468	0.202	90	0.326	0.216
9.2	0.468	0.207	92	0.323	0.212
9.4	0.468	0.202	94	0.320	0.212
9.6	0.464	0.202	96	0.317	0.212
9.8	0.464	0.207	98	0.317	0.212
10	0.461	0.207	100	0.314	0.212
12	0.452	0.207	120	0.298	0.207
14	0.443	0.207	140	0.282	0.202
16	0.433	0.212	160	0.273	0.202
18	0.424	0.212	180	0.257	0.198
20	0.417	0.212	200	0.245	0.198
22	0.414	0.212	220	0.235	0.198
24	0.408	0.212	240	0.223	0.193
26	0.405	0.212	260	0.216	0.193
28	0.402	0.212	280	0.204	0.183
30	0.395	0.216	300	0.197	0.183
32	0.392	0.212	320	0.188	0.179
34	0.386	0.212	340	0.179	0.169
36	0.383	0.212	360	0.175	0.165
38	0.377	0.212	380	0.172	0.165
40	0.377	0.212	400	0.169	0.160
42	0.373	0.212	420	0.166	0.165
44	0.367	0.212	440	0.166	0.165
46	0.367	0.212	460	0.157	0.160
48	0.364	0.216	480	0.150	0.155
50	0.364	0.216	500	0.150	0.150
52	0.361	0.216	520	0.144	0.150
54	0.358	0.216	540	0.144	0.150
56	0.358	0.216	560	0.135	0.141
58	0.355	0.216	580	0.135	0.141
60	0.351	0.216	600	0.128	0.136
62	0.351	0.216	620	0.128	0.136
64	0.348	0.216	640	0.128	0.141
66	0.348	0.216	660	0.128	0.141
68	0.342	0.216	680	0.116	0.136
70	0.342	0.216	700	0.125	0.141
72	0.342	0.216	720	0.119	0.141
74	0.339	0.216	740	0.116	0.136
76	0.339	0.216	760	0.119	0.141
78	0.336	0.216	780	0.113	0.136
80	0.333	0.216	800	0.113	0.136
82	0.333	0.216	820	0.116	0.136
84	0.329	0.216	840	0.116	0.136
86	0.329	0.216	860	0.116	0.146

[a] Elapsed time calculated from 18:12 on 2/23/10 as time zero.

TABLE S1.9 Water levels recorded by the PT2X data logger in well MW02 during the test 2 recovery period, February 23-24, 2010.

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)
0	0.121	46	0.131	92	0.126
1	0.121	47	0.131	93	0.126
2	0.121	48	0.131	94	0.129
3	0.124	49	0.131	95	0.126
4	0.124	50	0.131	96	0.126
5	0.124	51	0.131	97	0.126
6	0.124	52	0.129	98	0.126
7	0.126	53	0.131	99	0.126
8	0.126	54	0.131	100	0.126
9	0.129	55	0.131	101	0.126
10	0.126	56	0.131	102	0.126
11	0.131	57	0.131	103	0.126
12	0.131	58	0.133	104	0.124
13	0.129	59	0.131	105	0.126
14	0.129	60	0.131	106	0.124
15	0.129	61	0.129	107	0.126
16	0.131	62	0.131	108	0.126
17	0.131	63	0.129	109	0.124
18	0.133	64	0.131	110	0.124
19	0.131	65	0.131	111	0.124
20	0.131	66	0.131	112	0.126
21	0.131	67	0.131	113	0.124
22	0.133	68	0.131	114	0.124
23	0.131	69	0.129	115	0.124
24	0.131	70	0.129	116	0.124
25	0.131	71	0.129	117	0.126
26	0.129	72	0.129	118	0.124
27	0.131	73	0.131	119	0.124
28	0.133	74	0.129	120	0.124
29	0.131	75	0.129	121	0.124
30	0.133	76	0.129	122	0.124
31	0.133	77	0.129	123	0.124
32	0.131	78	0.129	124	0.124
33	0.131	79	0.129	125	0.124
34	0.131	80	0.126	126	0.124
35	0.133	81	0.129	127	0.121
36	0.133	82	0.129	128	0.124
37	0.133	83	0.129	129	0.121
38	0.131	84	0.126	130	0.121
39	0.131	85	0.126	131	0.121
40	0.131	86	0.129	132	0.121
41	0.131	87	0.129	133	0.121
42	0.131	88	0.129	134	0.124
43	0.133	89	0.129	135	0.119
44	0.133	90	0.126	136	0.124
45	0.133	91	0.129	137	0.124

TABLE S1.9 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)
138	0.124	185	0.117	232	0.107
139	0.121	186	0.117	233	0.110
140	0.121	187	0.114	234	0.107
141	0.121	188	0.114	235	0.110
142	0.121	189	0.114	236	0.110
143	0.119	190	0.112	237	0.110
144	0.121	191	0.114	*238*	0.107
145	0.121	192	0.114	239	0.107
146	0.119	193	0.114	240	0.107
147	0.119	194	0.117	241	0.107
148	0.119	195	0.114	242	0.107
149	0.119	196	0.114	243	0.107
150	0.119	197	0.114	244	0.107
151	0.119	198	0.114	245	0.107
152	0.119	199	0.112	246	0.107
153	0.119	200	0.114	247	0.107
154	0.121	201	0.112	248	0.110
155	0.119	202	0.114	249	0.105
156	0.117	203	0.112	250	0.107
157	0.119	204	0.112	251	0.107
158	*0.119*	205	0.112	252	0.107
159	0.119	206	0.112	253	0.108
160	0.119	207	0.112	254	0.107
161	0.119	208	0.112	255	0.107
162	0.117	209	0.112	256	0.105
163	0.117	210	0.114	257	0.105
164	0.117	211	0.112	258	0.107
165	0.117	212	0.112	259	0.105
166	0.117	213	0.112	*260*	0.105
167	0.117	214	0.112	261	0.107
168	0.117	215	0.110	262	0.105
169	0.117	216	0.112	263	0.107
170	0.119	217	0.112	264	0.105
171	0.117	218	0.112	265	0.107
172	0.117	219	0.110	266	0.105
173	0.117	220	0.112	267	0.105
174	0.117	221	0.110	268	0.105
175	0.117	222	0.110	269	0.105
176	0.117	223	0.110	270	0.103
177	0.114	224	0.110	271	0.103
178	0.117	225	0.110	272	0.105
179	0.117	226	0.110	273	0.105
180	0.117	227	0.110	274	0.105
181	0.114	228	0.110	275	0.105
182	0.117	229	0.110	276	0.105
183	0.114	230	0.110	277	0.105
184	0.114	231	0.110	278	0.103

TABLE S1.9 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)
279	0.103	326	0.100	373	0.098
280	0.105	327	0.098	374	0.098
281	0.103	328	0.100	375	0.098
282	0.105	329	0.103	376	0.098
283	0.103	330	0.100	377	0.098
284	0.103	331	0.100	378	0.098
285	0.105	332	0.100	379	0.098
286	0.100	333	0.100	380	0.096
287	0.103	334	0.100	381	0.098
288	0.100	335	0.100	382	0.096
289	0.103	336	0.100	383	0.098
290	0.103	337	0.100	384	0.098
291	0.103	338	0.100	385	0.096
292	0.103	339	0.100	386	0.096
293	0.103	340	0.100	387	0.098
294	0.105	341	0.100	388	0.098
295	0.103	342	0.098	389	0.098
296	0.103	343	0.096	390	0.098
297	0.105	344	0.100	391	0.096
298	0.105	345	0.098	392	0.098
299	0.103	346	0.098	393	0.096
300	0.103	347	0.098	394	0.096
301	0.100	348	0.098	395	0.096
302	0.103	349	0.098	396	0.096
303	0.100	350	0.098	397	0.096
304	0.100	351	0.100	398	0.098
305	0.103	352	0.098	399	0.096
306	0.103	353	0.098	400	0.096
307	0.103	354	0.098	401	0.096
308	0.100	355	0.098	402	0.096
309	0.100	356	0.098	403	0.096
310	0.100	357	0.098	404	0.093
311	0.103	358	0.098	405	0.098
312	0.103	359	0.098	406	0.096
313	0.103	360	0.098	407	0.096
314	0.100	361	0.098	408	0.093
315	0.100	362	0.098	409	0.096
316	0.103	363	0.098	410	0.093
317	0.103	364	0.100	411	0.093
318	0.103	365	0.098	412	0.096
319	0.100	366	0.098	413	0.093
320	0.101	367	0.098	414	0.096
321	0.100	368	0.098	415	0.096
322	0.100	369	0.096	416	0.096
323	0.100	370	0.098	417	0.093
324	0.100	371	0.100	418	0.096
325	0.100	372	0.098	419	0.093

TABLE S1.9 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)
420	0.096	467	0.093	514	0.091
421	0.096	468	0.091	515	0.091
422	0.096	469	0.093	516	0.091
423	0.096	470	0.091	517	0.091
424	0.096	471	0.093	518	0.093
425	0.096	472	0.091	519	0.091
426	0.093	473	0.093	520	0.091
427	0.096	474	0.093	521	0.091
428	0.093	475	0.093	522	0.093
429	0.094	476	0.091	523	0.089
430	0.093	477	0.091	524	0.091
431	0.096	478	0.093	525	0.091
432	0.096	479	0.091	526	0.091
433	0.096	480	0.093	527	0.091
434	0.093	481	0.094	528	0.091
435	0.096	482	0.091	529	0.091
436	0.093	483	0.091	530	0.091
437	0.093	484	0.091	531	0.093
438	0.096	485	0.091	532	0.091
439	0.093	486	0.091	533	0.091
440	0.093	487	0.091	534	0.091
441	0.096	488	0.093	535	0.091
442	0.096	489	0.094	536	0.089
443	0.093	490	0.093	537	0.091
444	0.093	491	0.093	538	0.091
445	0.093	492	0.093	539	0.089
446	0.093	493	0.091	540	0.089
447	0.093	494	0.093	541	0.091
448	0.093	495	0.091	542	0.091
449	0.093	496	0.091	543	0.091
450	0.093	497	0.091	544	0.089
451	0.091	498	0.091	545	0.091
452	0.091	499	0.091	546	0.089
453	0.093	500	0.091	547	0.091
454	0.091	501	0.089	548	0.091
455	0.093	502	0.091	549	0.091
456	0.093	503	0.091	550	0.091
457	0.093	504	0.091	551	0.091
458	0.093	505	0.091	552	0.091
459	0.091	506	0.091	553	0.091
460	0.091	507	0.091	554	0.091
461	0.093	508	0.091	555	0.091
462	0.093	509	0.089	556	0.091
463	0.093	510	0.089	557	0.091
464	0.091	511	0.091	558	0.089
465	0.093	512	0.091	559	0.089
466	0.093	513	0.091	560	0.091

TABLE S1.9 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)
561	0.089	608	0.086	655	0.086
562	0.089	609	0.089	656	0.086
563	0.091	610	0.086	657	0.086
564	0.089	611	0.089	658	0.086
565	0.089	612	0.086	659	0.084
566	0.089	613	0.086	660	0.086
567	0.089	614	0.089	661	0.086
568	0.089	615	0.089	662	0.086
569	0.086	616	0.087	663	0.086
570	0.089	617	0.089	664	0.086
571	0.089	618	0.086	665	0.086
572	0.089	619	0.089	666	0.084
573	0.089	620	0.086	667	0.084
574	0.089	621	0.089	668	0.084
575	0.089	622	0.089	669	0.086
576	0.089	623	0.086	670	0.086
577	0.089	624	0.086	671	0.087
578	0.089	625	0.086	672	0.087
579	0.089	626	0.086	673	0.086
580	0.091	627	0.087	674	0.086
581	0.089	628	0.086	675	0.086
582	0.089	629	0.089	676	0.086
583	0.089	630	0.089	677	0.086
584	0.089	631	0.089	678	0.086
585	0.089	632	0.086	679	0.086
586	0.086	633	0.086	680	0.086
587	0.086	634	0.086	681	0.086
588	0.089	635	0.086	682	0.084
589	0.089	636	0.086	683	0.086
590	0.089	637	0.086	684	0.084
591	0.089	638	0.086	685	0.086
592	0.089	639	0.086	686	0.086
593	0.086	640	0.086	687	0.086
594	0.089	641	0.086	688	0.084
595	0.089	642	0.086	689	0.086
596	0.089	643	0.086	690	0.086
597	0.091	644	0.086	691	0.084
598	0.089	645	0.087	692	0.084
599	0.091	646	0.086	693	0.084
600	0.086	647	0.086	694	0.084
601	0.089	648	0.086	695	0.084
602	0.089	649	0.086	696	0.084
603	0.089	650	0.089	697	0.084
604	0.089	651	0.086	698	0.084
605	0.089	652	0.086	699	0.084
606	0.086	653	0.086	700	0.084
607	0.086	654	0.086	701	0.084

TABLE S1.9 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)
702	0.084	749	0.082	796	0.082
703	0.086	750	0.084	797	0.082
704	0.084	751	0.084	798	0.082
705	0.086	752	0.082	799	0.082
706	0.084	753	0.084	800	0.082
707	0.086	754	0.082	801	0.082
708	0.084	755	0.079	802	0.082
709	0.084	756	0.082	803	0.082
710	0.084	757	0.082	804	0.082
711	0.084	758	0.082	805	0.082
712	0.084	759	0.082	806	0.082
713	0.084	760	0.084	807	0.082
714	0.084	761	0.084	808	0.082
715	0.084	762	0.084	809	0.079
716	0.084	763	0.084	810	0.082
717	0.084	764	0.084	811	0.082
718	0.084	765	0.082	812	0.082
719	0.084	766	0.082	813	0.082
720	0.084	767	0.082	814	0.079
721	0.084	768	0.084	815	0.082
722	0.086	769	0.082	816	0.079
723	0.084	770	0.082	817	0.079
724	0.084	771	0.084	818	0.079
725	0.084	772	0.084	819	0.082
726	0.084	773	0.080	820	0.079
727	0.084	774	0.082	821	0.079
728	0.084	775	0.084	822	0.082
729	0.084	776	0.082	823	0.082
730	0.084	777	0.084	824	0.079
731	0.084	778	0.082	825	0.079
732	0.084	779	0.082	826	0.082
733	0.084	780	0.082	827	0.079
734	0.084	781	0.082	828	0.082
735	0.084	782	0.082	829	0.082
736	0.084	783	0.080	830	0.082
737	0.084	784	0.082	831	0.082
738	0.084	785	0.082	832	0.082
739	0.082	786	0.082	833	0.082
740	0.084	787	0.084	834	0.082
741	0.086	788	0.082	835	0.082
742	0.086	789	0.084	836	0.082
743	0.084	790	0.082	837	0.079
744	0.084	791	0.082	838	0.082
745	0.084	792	0.084	839	0.079
746	0.084	793	0.084	840	0.079
747	0.082	794	0.084	841	0.079
748	0.084	795	0.082	842	0.082

TABLE S1.9 (Cont.)

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)
843	0.079	888	0.079	933	0.077
844	0.079	889	0.082	934	0.079
845	0.080	890	0.079	935	0.079
846	0.082	891	0.079	936	0.079
847	0.079	892	0.077	937	0.077
848	0.082	893	0.079		
849	0.079	894	0.079		
850	0.079	895	0.079		
851	0.082	896	0.080		
852	0.079	897	0.079		
853	0.080	898	0.079		
854	0.079	899	0.079		
855	0.082	900	0.080		
856	0.077	901	0.079		
857	0.079	902	0.082		
858	0.082	903	0.079		
859	0.082	904	0.079		
860	0.082	905	0.079		
861	0.080	906	0.079		
862	0.082	907	0.082		
863	0.082	908	0.077		
864	0.079	909	0.079		
865	0.079	910	0.079		
866	0.082	911	0.079		
867	0.082	912	0.079		
868	0.082	913	0.079		
869	0.082	914	0.077		
870	0.079	915	0.079		
871	0.079	916	0.079		
872	0.082	917	0.079		
873	0.079	918	0.079		
874	0.079	919	0.079		
875	0.082	920	0.080		
876	0.079	921	0.077		
877	0.079	922	0.077		
878	0.079	923	0.079		
879	0.079	924	0.079		
880	0.079	925	0.077		
881	0.082	926	0.077		
882	0.079	927	0.077		
883	0.079	928	0.077		
884	0.079	929	0.079		
885	0.082	930	0.077		
886	0.079	931	0.079		
887	0.079	932	0.079		

[a] Elapsed time calculated from 18:12 on 2/23/10 as time zero.

Supplement 2:

Complete Ambient Barometric Pressure and Water Level Data for the Set of Wells Monitored during the Background Period on February 16-22, 2010

TABLE S2.1 Barometric pressure readings and ambient water levels in monitoring wells during the background monitoring period, February 16-22, 2010.

Date and Time	Elapsed Time (hr)	Barometric Pressure[a] (ft of H_2O)	Water Level[a] (ft TOC)											
			MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/16/10 13:00	0	32.655	22.075	26.510	24.205	22.908	17.969	23.443	25.107	18.393	21.635	16.249	20.493	14.201
2/16/10 14:00	1	32.639	22.083	26.515	24.210	22.896	17.969	23.435	25.126	18.407	21.637	16.242	20.533	14.236
2/16/10 15:00	2	32.632	22.085	26.515	24.203	22.889	17.969	23.426	25.138	18.414	21.628	16.235	20.570	14.273
2/16/10 16:00	3	32.628	22.083	26.515	24.198	22.891	17.966	23.414	25.138	18.414	21.621	16.233	20.584	14.269
2/16/10 17:00	4	32.621	22.080	26.512	24.193	22.886	17.966	23.402	25.142	18.411	21.612	16.230	20.587	14.243
2/16/10 18:00	5	32.621	22.075	26.508	24.188	22.886	17.971	23.400	25.138	18.407	21.602	16.230	20.587	14.196
2/16/10 19:00	6	32.617	22.063	26.505	24.186	22.884	17.966	23.397	25.140	18.402	21.597	16.230	20.584	14.175
2/16/10 20:00	7	32.617	22.059	26.503	24.176	22.884	17.971	23.395	25.138	18.400	21.593	16.226	20.580	14.151
2/16/10 21:00	8	32.622	22.049	26.501	24.169	22.891	17.971	23.388	25.131	18.393	21.593	16.230	20.565	14.102
2/16/10 22:00	9	32.625	22.047	26.496	24.166	22.891	17.973	23.390	25.126	18.388	21.586	16.230	20.549	14.074
2/16/10 23:00	10	32.627	22.042	26.498	24.171	22.891	17.971	23.388	25.128	18.386	21.579	16.233	20.540	14.055
2/17/10 0:00	11	32.628	22.037	26.496	24.169	22.889	17.973	23.388	25.131	18.386	21.567	16.233	20.535	14.044
2/17/10 1:00	12	32.628	22.035	26.496	24.171	22.889	17.971	23.388	25.128	18.384	21.560	16.233	20.528	14.030
2/17/10 2:00	13	32.621	22.032	26.496	24.164	22.884	17.973	23.386	25.138	18.388	21.546	16.228	20.523	14.025
2/17/10 3:00	14	32.615	22.032	26.494	24.164	22.881	17.971	23.381	25.142	18.388	21.541	16.226	20.526	14.020
2/17/10 4:00	15	32.604	22.028	26.494	24.159	22.874	17.973	23.376	25.150	18.393	21.529	16.219	20.533	14.018
2/17/10 5:00	16	32.614	22.020	26.494	24.157	22.881	17.973	23.371	25.140	18.386	21.518	16.223	20.514	14.001
2/17/10 6:00	17	32.619	22.018	26.489	24.157	22.884	17.971	23.369	25.133	18.384	21.508	16.228	20.504	13.987
2/17/10 7:00	18	32.622	22.018	26.491	24.152	22.886	17.973	23.371	25.131	18.377	21.501	16.230	20.497	13.978
2/17/10 8:00	19	32.625	22.016	26.491	24.154	22.886	17.976	23.374	25.128	18.377	21.494	16.230	20.493	13.978
2/17/10 9:00	20	32.634	22.023	26.494	24.157	22.896	17.976	23.378	25.124	18.374	21.492	16.237	20.481	14.018
2/17/10 10:00	21	32.629	22.042	26.494	24.162	22.889	17.976	23.378	25.138	18.379	21.508	16.235	20.490	14.135
2/17/10 11:00	22	32.618	22.059	26.496	24.171	22.881	17.973	23.376	25.150	18.388	21.532	16.233	20.516	14.248
2/17/10 12:00	23	32.603	22.071	26.498	24.171	22.872	17.976	23.371	25.166	18.400	21.548	16.226	20.551	14.348
2/17/10 13:00	24	32.575	22.083	26.498	24.171	22.855	17.973	23.357	25.185	18.414	21.560	16.209	20.598	14.445
2/17/10 14:00	25	32.551	22.075	26.496	24.166	22.841	17.971	23.345	25.199	18.425	21.553	16.195	20.615	14.527
2/17/10 15:00	26	32.544	22.039	26.494	24.154	22.843	17.971	23.336	25.192	18.425	21.560	16.191	20.603	14.545
2/17/10 16:00	27	32.533	22.023	26.489	24.150	22.843	17.971	23.317	25.192	18.418	21.551	16.183	20.605	14.536
2/17/10 17:00	28	32.538	22.020	26.484	24.135	22.862	17.971	23.312	25.175	18.407	21.548	16.186	20.584	14.463
2/17/10 18:00	29	32.544	22.016	26.477	24.125	22.848	17.969	23.307	25.159	18.391	21.543	16.188	20.563	14.358
2/17/10 19:00	30	32.548	22.011	26.475	24.121	22.848	17.969	23.307	25.147	18.379	21.539	16.188	20.549	14.255
2/17/10 20:00	31	32.548	22.006	26.473	24.121	22.853	17.969	23.302	25.142	18.374	21.532	16.191	20.542	14.217
2/17/10 21:00	32	32.551	22.006	26.470	24.116	22.853	17.966	23.305	25.135	18.365	21.534	16.191	20.537	14.201
2/17/10 22:00	33	32.542	22.001	26.470	24.113	22.846	17.966	23.305	25.140	18.367	21.539	16.186	20.537	14.189
2/17/10 23:00	34	32.545	22.001	26.468	24.111	22.850	17.966	23.298	25.133	18.360	21.536	16.188	20.533	14.168
2/18/10 0:00	35	32.560	22.013	26.468	24.109	22.862	17.966	23.305	25.119	18.351	21.539	16.198	20.516	14.154
2/18/10 1:00	36	32.559	22.011	26.468	24.111	22.860	17.966	23.310	25.119	18.353	21.529	16.198	20.518	14.161
2/18/10 2:00	37	32.560	22.008	26.463	24.106	22.855	17.966	23.312	25.117	18.353	21.527	16.200	20.514	14.166

TABLE S2.1 (Cont.)

Date and Time	Elapsed Time (hr)	Barometric Pressure (ft of H_2O)	Water Level[a] (ft TOC)											
			MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/18/10 3:00	38	32.547	22.006	26.466	24.113	22.853	17.966	23.310	25.128	18.356	21.529	16.191	20.526	14.170
2/18/10 4:00	39	32.540	21.994	26.466	24.106	22.843	17.964	23.305	25.131	18.360	21.525	16.186	20.526	14.170
2/18/10 5:00	40	32.531	21.992	26.466	24.111	22.843	17.962	23.300	25.133	18.358	21.522	16.181	20.530	14.177
2/18/10 6:00	41	32.523	21.992	26.463	24.106	22.836	17.962	23.293	25.138	18.360	21.520	16.179	20.537	14.196
2/18/10 7:00	42	32.519	21.989	26.463	24.104	22.836	17.962	23.291	25.138	18.363	21.520	16.174	20.533	14.198
2/18/10 8:00	43	32.534	21.987	26.461	24.094	22.843	17.962	23.288	25.119	18.351	21.518	16.186	20.509	14.170
2/18/10 9:00	44	32.533	21.994	26.461	24.099	22.848	17.962	23.286	25.117	18.346	21.513	16.186	20.507	14.198
2/18/10 10:00	45	32.525	22.008	26.459	24.106	22.848	17.962	23.288	25.121	18.346	21.529	16.183	20.514	14.273
2/18/10 11:00	46	32.513	21.999	26.461	24.104	22.836	17.962	23.281	25.131	18.358	21.532	16.179	20.521	14.337
2/18/10 12:00	47	32.494	21.982	26.461	24.106	22.826	17.959	23.274	25.142	18.363	21.539	16.167	20.542	14.431
2/18/10 13:00	48	32.461	21.953	26.461	24.101	22.810	17.957	23.262	25.161	18.377	21.546	16.153	20.563	14.524
2/18/10 14:00	49	32.433	21.941	26.459	24.099	22.795	17.955	23.243	25.175	18.386	21.551	16.137	20.580	14.567
2/18/10 15:00	50	32.404	21.925	26.454	24.084	22.783	17.952	23.219	25.178	18.386	21.546	16.125	20.587	14.550
2/18/10 16:00	51	32.399	21.915	26.449	24.070	22.783	17.950	23.205	25.164	18.379	21.543	16.122	20.572	14.503
2/18/10 17:00	52	32.397	21.908	26.440	24.056	22.783	17.948	23.195	25.145	18.360	21.532	16.120	20.551	14.438
2/18/10 18:00	53	32.409	21.905	26.437	24.046	22.795	17.945	23.191	25.117	18.342	21.522	16.125	20.518	14.358
2/18/10 19:00	54	32.423	21.903	26.430	24.034	22.805	17.945	23.193	25.095	18.323	21.511	16.134	20.490	14.294
2/18/10 20:00	55	32.435	21.903	26.428	24.036	22.812	17.945	23.198	25.079	18.311	21.506	16.141	20.472	14.255
2/18/10 21:00	56	32.442	21.905	26.426	24.039	22.817	17.943	23.200	25.070	18.302	21.504	16.146	20.464	14.238
2/18/10 22:00	57	32.448	21.908	26.426	24.034	22.814	17.943	23.210	25.063	18.297	21.499	16.151	20.455	14.234
2/18/10 23:00	58	32.448	21.913	26.426	24.041	22.817	17.943	23.214	25.060	18.293	21.494	16.151	20.457	14.238
2/19/10 0:00	59	32.447	21.915	26.428	24.044	22.814	17.940	23.219	25.060	18.293	21.492	16.148	20.455	14.245
2/19/10 1:00	60	32.431	21.913	26.426	24.039	22.814	17.941	23.271	25.067	18.300	21.489	16.144	20.464	14.269
2/19/10 2:00	61	32.409	21.920	26.426	24.044	22.805	17.936	23.324	25.063	18.302	21.485	16.132	20.479	14.292
2/19/10 3:00	62	32.380	21.915	26.426	24.044	22.795	17.933	23.348	25.053	18.307	21.487	16.113	20.497	14.316
2/19/10 4:00	63	32.358	21.867	26.423	24.034	22.776	17.931	23.359	25.055	18.311	21.478	16.104	20.502	14.344
2/19/10 5:00	64	32.372	21.865	26.416	24.027	22.776	17.929	23.362	25.051	18.297	21.480	16.106	20.474	14.337
2/19/10 6:00	65	32.368	21.867	26.412	24.017	22.776	17.929	23.364	25.053	18.288	21.475	16.106	20.464	14.346
2/19/10 7:00	66	32.368	21.867	26.409	24.019	22.781	17.926	23.350	25.086	18.279	21.473	16.106	20.460	14.351
2/19/10 8:00	67	32.373	21.867	26.409	24.015	22.783	17.926	23.336	25.088	18.270	21.471	16.111	20.446	14.351
2/19/10 9:00	68	32.383	21.870	26.407	24.007	22.788	17.924	23.321	25.074	18.265	21.471	16.116	20.432	14.339
2/19/10 10:00	69	32.380	21.872	26.405	24.007	22.793	17.922	23.310	25.063	18.260	21.466	16.115	20.429	14.339
2/19/10 11:00	70	32.375	21.874	26.405	24.010	22.793	17.919	23.305	25.053	18.260	21.466	16.113	20.429	14.341
2/19/10 12:00	71	32.382	21.874	26.407	24.010	22.793	17.919	23.302	25.046	18.258	21.464	16.116	20.422	14.327
2/19/10 13:00	72	32.375	21.877	26.405	24.015	22.793	17.919	23.307	25.044	18.258	21.461	16.111	20.429	14.341
2/19/10 14:00	73	32.367	21.872	26.402	24.010	22.788	17.917	23.307	25.046	18.260	21.461	16.106	20.429	14.353
2/19/10 15:00	74	32.379	21.870	26.405	24.010	22.788	17.915	23.307	25.039	18.258	21.457	16.113	20.413	14.348
2/19/10 16:00	75	32.383	21.872	26.405	24.007	22.791	17.912	23.298	25.027	18.253	21.459	16.116	20.410	14.351

TABLE S2.1 (Cont.)

Date and Time	Elapsed Time (hr)	Barometric Pressure (ft of H_2O)	Water Leve[a] (ft TOC)											
			MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/19/10 17:00	76	32.398	21.872	26.402	24.012	22.795	17.915	23.288	25.020	18.249	21.452	16.125	20.394	14.348
2/19/10 18:00	77	32.414	21.872	26.405	24.007	22.807	17.912	23.269	25.004	18.242	21.452	16.132	20.380	14.341
2/19/10 19:00	78	32.445	21.877	26.405	24.015	22.822	17.915	23.252	24.980	18.232	21.450	16.151	20.361	14.327
2/19/10 20:00	79	32.460	21.877	26.409	24.022	22.829	17.915	23.238	24.973	18.232	21.447	16.158	20.359	14.327
2/19/10 21:00	80	32.459	21.882	26.414	24.039	22.836	17.915	23.219	24.968	18.235	21.450	16.160	20.371	14.330
2/19/10 22:00	81	32.482	21.879	26.416	24.039	22.838	17.915	23.193	24.968	18.239	21.450	16.170	20.366	14.320
2/19/10 23:00	82	32.486	21.882	26.423	24.044	22.843	17.917	23.169	24.968	18.244	21.454	16.170	20.371	14.320
2/20/10 0:00	83	32.472	21.891	26.428	24.056	22.843	17.915	23.155	24.978	18.253	21.457	16.167	20.392	14.330
2/20/10 1:00	84	32.486	21.889	26.430	24.058	22.843	17.915	23.146	24.983	18.256	21.459	16.172	20.385	14.320
2/20/10 2:00	85	32.490	21.889	26.433	24.060	22.845	17.915	23.141	24.987	18.260	21.464	16.177	20.389	14.318
2/20/10 3:00	86	32.502	21.894	26.440	24.072	22.852	17.917	23.143	24.980	18.256	21.461	16.184	20.389	14.306
2/20/10 4:00	87	32.496	21.896	26.442	24.080	22.848	17.917	23.150	24.992	18.263	21.459	16.179	20.406	14.311
2/20/10 5:00	88	32.499	21.894	26.442	24.077	22.843	17.917	23.146	25.004	18.272	21.454	16.184	20.413	14.309
2/20/10 6:00	89	32.515	21.894	26.447	24.087	22.855	17.917	23.153	24.997	18.267	21.452	16.193	20.399	14.287
2/20/10 7:00	90	32.534	21.898	26.449	24.084	22.867	17.919	23.165	24.987	18.265	21.450	16.205	20.392	14.269
2/20/10 8:00	91	32.530	21.905	26.454	24.094	22.864	17.917	23.181	24.992	18.267	21.442	16.202	20.408	14.276
2/20/10 9:00	92	32.529	21.910	26.456	24.101	22.864	17.917	23.191	24.997	18.274	21.438	16.202	20.418	14.273
2/20/10 10:00	93	32.528	21.913	26.459	24.104	22.860	17.919	23.200	25.008	18.286	21.433	16.202	20.427	14.278
2/20/10 11:00	94	32.523	21.917	26.463	24.106	22.858	17.919	23.207	25.018	18.288	21.433	16.200	20.441	14.283
2/20/10 12:00	95	32.529	21.917	26.463	24.111	22.860	17.917	23.212	25.020	18.293	21.428	16.207	20.434	14.278
2/20/10 13:00	96	32.501	21.929	26.468	24.111	22.850	17.917	23.217	25.039	18.302	21.428	16.191	20.464	14.299
2/20/10 14:00	97	32.490	21.932	26.466	24.113	22.840	17.917	23.214	25.053	18.307	21.424	16.184	20.474	14.304
2/20/10 15:00	98	32.483	21.932	26.466	24.101	22.831	17.915	23.207	25.063	18.311	21.421	16.181	20.479	14.304
2/20/10 16:00	99	32.475	21.934	26.461	24.104	22.829	17.915	23.198	25.070	18.311	21.417	16.177	20.479	14.304
2/20/10 17:00	100	32.474	21.934	26.461	24.094	22.829	17.915	23.193	25.067	18.309	21.412	16.177	20.476	14.299
2/20/10 18:00	101	32.476	21.932	26.461	24.089	22.826	17.912	23.191	25.065	18.304	21.407	16.174	20.469	14.292
2/20/10 19:00	102	32.477	21.934	26.456	24.092	22.831	17.915	23.184	25.058	18.297	21.400	16.177	20.462	14.283
2/20/10 20:00	103	32.478	21.934	26.454	24.087	22.836	17.915	23.186	25.053	18.290	21.391	16.181	20.460	14.276
2/20/10 21:00	104	32.478	21.934	26.454	24.089	22.833	17.912	23.188	25.051	18.290	21.391	16.177	20.460	14.266
2/20/10 22:00	105	32.482	21.937	26.452	24.084	22.836	17.912	23.186	25.046	18.286	21.384	16.181	20.455	14.262
2/20/10 23:00	106	32.468	21.932	26.452	24.089	22.831	17.912	23.191	25.051	18.290	21.379	16.172	20.462	14.264
2/21/10 0:00	107	32.447	21.929	26.452	24.080	22.819	17.910	23.184	25.065	18.300	21.377	16.158	20.481	14.276
2/21/10 1:00	108	32.427	21.922	26.447	24.077	22.803	17.910	23.176	25.079	18.307	21.377	16.153	20.488	14.285
2/21/10 2:00	109	32.429	21.925	26.444	24.070	22.807	17.907	23.172	25.074	18.302	21.379	16.151	20.476	14.276
2/21/10 3:00	110	32.411	21.927	26.442	24.065	22.797	17.907	23.162	25.077	18.300	21.377	16.141	20.483	14.283
2/21/10 4:00	111	32.378	21.925	26.437	24.058	22.783	17.903	23.150	25.088	18.304	21.379	16.127	20.504	14.306
2/21/10 5:00	112	32.409	21.915	26.435	24.046	22.798	17.905	23.141	25.070	18.290	21.377	16.137	20.462	14.278
2/21/10 6:00	113	32.414	21.917	26.430	24.046	22.805	17.903	23.141	25.048	18.279	21.374	16.141	20.453	14.266

TABLE S2.1 (Cont.)

Date and Time	Elapsed Time (hr)	Barometric Pressure (ft of H_2O)	Water Level[a] (ft TOC)											
			MW01	MW02	MW04	MW05	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/21/10 7:00	114	32.417	21.917	26.428	24.046	22.805	17.905	23.143	25.041	18.272	21.374	16.141	20.446	14.266
2/21/10 8:00	115	32.428	21.915	26.428	24.046	22.809	17.903	23.146	25.032	18.265	21.374	16.148	20.427	14.255
2/21/10 9:00	116	32.411	21.920	26.426	24.041	22.803	17.900	23.148	25.032	18.270	21.377	16.137	20.446	14.269
2/21/10 10:00	117	32.404	21.922	26.426	24.046	22.805	17.900	23.148	25.030	18.270	21.374	16.134	20.446	14.278
2/21/10 11:00	118	32.412	21.917	26.426	24.041	22.810	17.898	23.148	25.025	18.265	21.374	16.144	20.427	14.271
2/21/10 12:00	119	32.402	21.920	26.423	24.036	22.805	17.900	23.150	25.027	18.267	21.372	16.141	20.434	14.280
2/21/10 13:00	120	32.363	21.929	26.426	24.048	22.793	17.896	23.148	25.039	18.274	21.374	16.125	20.460	14.316
2/21/10 14:00	121	32.367	21.922	26.421	24.024	22.781	17.893	23.131	25.051	18.279	21.372	16.123	20.455	14.320
2/21/10 15:00	122	32.373	21.917	26.419	24.024	22.783	17.893	23.096	25.041	18.279	21.365	16.125	20.441	14.323
2/21/10 16:00	123	32.391	21.913	26.416	24.022	22.793	17.896	23.065	25.025	18.267	21.360	16.134	20.415	14.309
2/21/10 17:00	124	32.397	21.915	26.414	24.024	22.805	17.896	23.034	25.011	18.258	21.353	16.141	20.413	14.306
2/21/10 18:00	125	32.410	21.915	26.414	24.024	22.810	17.893	23.077	24.994	18.253	21.349	16.149	20.399	14.294
2/21/10 19:00	126	32.415	21.872	26.414	24.027	22.817	17.893	23.115	24.987	18.249	21.346	16.153	20.389	14.287
2/21/10 20:00	127	32.423	21.872	26.416	24.029	22.817	17.893	23.138	24.985	18.249	21.341	16.155	20.387	14.283
2/21/10 21:00	128	32.438	21.874	26.419	24.029	22.826	17.896	23.162	24.976	18.246	21.339	16.165	20.378	14.266
2/21/10 22:00	129	32.450	21.886	26.421	24.036	22.836	17.896	23.181	24.968	18.242	21.334	16.170	20.373	14.255
2/21/10 23:00	130	32.467	21.901	26.423	24.044	22.843	17.896	23.198	24.964	18.239	21.332	16.177	20.366	14.236
2/22/10 0:00	131	32.478	21.898	26.428	24.046	22.850	17.898	23.217	24.961	18.242	21.330	16.186	20.364	14.224
2/22/10 1:00	132	32.471	21.901	26.433	24.058	22.845	17.896	23.226	24.973	18.251	21.332	16.184	20.382	14.224
2/22/10 2:00	133	32.459	21.903	26.435	24.060	22.833	17.896	23.226	24.990	18.260	21.330	16.177	20.401	14.231
2/22/10 3:00	134	32.459	21.903	26.437	24.065	22.833	17.898	23.229	24.999	18.267	21.334	16.177	20.406	14.231
2/22/10 4:00	135	32.432	21.908	26.440	24.070	22.819	17.896	23.226	25.018	18.274	21.334	16.162	20.429	14.245
2/22/10 5:00	136	32.452	21.896	26.440	24.065	22.829	17.896	23.222	25.001	18.272	21.332	16.170	20.408	14.215
2/22/10 6:00	137	32.448	21.896	26.440	24.068	22.831	17.896	23.224	25.004	18.272	21.332	16.170	20.413	14.205
2/22/10 7:00	138	32.456	21.894	26.442	24.058	22.831	17.898	23.226	25.001	18.267	21.334	16.172	20.408	14.196
2/22/10 8:00	139	32.479	21.889	26.440	24.068	22.843	17.900	23.231	24.985	18.265	21.327	16.186	20.394	14.175
2/22/10 9:00	140	32.486	21.898	26.444	24.077	22.850	17.898	23.241	24.983	18.263	21.325	16.188	20.396	14.182
2/22/10 10:00	141	32.487	21.908	26.447	24.080	22.852	17.900	23.248	24.985	18.265	21.327	16.191	20.403	14.191
2/22/10 11:00	142	32.489	21.910	26.447	24.080		17.900	23.257	24.997	18.272	21.327	16.193	20.408	14.208
2/22/10 12:00	143	32.495	21.917	26.452	24.084		17.900	23.262	24.997	18.276	21.330	16.195	20.408	14.217

[a] Values measured by using PT2X absolute pressure and water level recorders.

Supplement 3:

Complete Barometric Pressure and Water Level Data for the Set of Wells Monitored during the Pumping and Recovery Periods on February 23-24, 2010

TABLE S3.1 Barometric pressure readings during the well MW05 pumping and recovery periods, February 23-24, 2010.

Date and Time	Elapsed Time[a] (min)	Barometric Pressure[b] (ft of H_2O)	Date and Time	Elapsed Time[a] (min)	Barometric Pressure[b] (ft of H_2O)
2/22/10 14:00	-1201	32.444	2/22/10 22:10	-711	32.450
2/22/10 14:10	-1191	32.437	2/22/10 22:20	-701	32.445
2/22/10 14:20	-1181	32.441	2/22/10 22:30	-691	32.443
2/22/10 14:30	-1171	32.440	2/22/10 22:40	-681	32.441
2/22/10 14:40	-1161	32.441	2/22/10 22:50	-671	32.443
2/22/10 14:50	-1151	32.441	2/22/10 23:00	-661	32.441
2/22/10 15:00	-1141	32.441	2/22/10 23:10	-651	32.438
2/22/10 15:10	-1131	32.435	2/22/10 23:20	-641	32.435
2/22/10 15:20	-1121	32.436	2/22/10 23:30	-631	32.435
2/22/10 15:30	-1111	32.438	2/22/10 23:40	-621	32.436
2/22/10 15:40	-1101	32.438	2/22/10 23:50	-611	32.437
2/22/10 15:50	-1091	32.437	2/23/10 0:00	-601	32.436
2/22/10 16:00	-1081	32.438	2/23/10 0:10	-591	32.436
2/22/10 16:10	-1071	32.435	2/23/10 0:20	-581	32.435
2/22/10 16:20	-1061	32.435	2/23/10 0:30	-571	32.433
2/22/10 16:30	-1051	32.429	2/23/10 0:40	-561	32.433
2/22/10 16:40	-1041	32.430	2/23/10 0:50	-551	32.435
2/22/10 16:50	-1031	32.427	2/23/10 1:00	-541	32.435
2/22/10 17:00	-1021	32.425	2/23/10 1:10	-531	32.436
2/22/10 17:10	-1011	32.428	2/23/10 1:20	-521	32.436
2/22/10 17:20	-1001	32.431	2/23/10 1:30	-511	32.435
2/22/10 17:30	-991	32.432	2/23/10 1:40	-501	32.435
2/22/10 17:40	-981	32.433	2/23/10 1:50	-491	32.435
2/22/10 17:50	-971	32.438	2/23/10 2:00	-481	32.437
2/22/10 18:00	-961	32.437	2/23/10 2:10	-471	32.434
2/22/10 18:10	-951	32.439	2/23/10 2:20	-461	32.431
2/22/10 18:20	-941	32.438	2/23/10 2:30	-451	32.435
2/22/10 18:30	-931	32.439	2/23/10 2:40	-441	32.429
2/22/10 18:40	-921	32.439	2/23/10 2:50	-431	32.427
2/22/10 18:50	-911	32.444	2/23/10 3:00	-421	32.426
2/22/10 19:00	-901	32.449	2/23/10 3:10	-411	32.422
2/22/10 19:10	-891	32.451	2/23/10 3:20	-401	32.419
2/22/10 19:20	-881	32.453	2/23/10 3:30	-391	32.418
2/22/10 19:30	-871	32.456	2/23/10 3:40	-381	32.412
2/22/10 19:40	-861	32.456	2/23/10 3:50	-371	32.409
2/22/10 19:50	-851	32.460	2/23/10 4:00	-361	32.406
2/22/10 20:00	-841	32.457	2/23/10 4:10	-351	32.406
2/22/10 20:10	-831	32.458	2/23/10 4:20	-341	32.404
2/22/10 20:20	-821	32.457	2/23/10 4:30	-331	32.401
2/22/10 20:30	-811	32.456	2/23/10 4:40	-321	32.400
2/22/10 20:40	-801	32.456	2/23/10 4:50	-311	32.400
2/22/10 20:50	-791	32.455	2/23/10 5:00	-301	32.400
2/22/10 21:00	-781	32.456	2/23/10 5:10	-291	32.401
2/22/10 21:10	-771	32.456	2/23/10 5:20	-281	32.398
2/22/10 21:20	-761	32.455	2/23/10 5:30	-271	32.398
2/22/10 21:30	-751	32.455	2/23/10 5:40	-261	32.399
2/22/10 21:40	-741	32.453	2/23/10 5:50	-251	32.401
2/22/10 21:50	-731	32.452	2/23/10 6:00	-241	32.408
2/22/10 22:00	-721	32.452	2/23/10 6:10	-231	32.408

TABLE S3.1 (Cont.)

Date and Time	Elapsed Time[a] (min)	Barometric Pressure[b] (ft of H_2O)
2/23/10 6:20	-221	32.411
2/23/10 6:30	-211	32.415
2/23/10 6:40	-201	32.420
2/23/10 6:50	-191	32.422
2/23/10 7:00	-181	32.428
2/23/10 7:10	-171	32.431
2/23/10 7:20	-161	32.435
2/23/10 7:30	-151	32.441
2/23/10 7:40	-141	32.446
2/23/10 7:50	-131	32.449
2/23/10 8:00	-121	32.458
2/23/10 8:10	-111	32.463
2/23/10 8:20	-101	32.467
2/23/10 8:30	-91	32.473
2/23/10 8:40	-81	32.479
2/23/10 8:50	-71	32.477
2/23/10 9:00	-61	32.487
2/23/10 9:10	-51	32.488
2/23/10 9:20	-41	32.492
2/23/10 9:30	-31	32.503
2/23/10 9:40	-21	32.501
2/23/10 9:50	-11	32.512
2/23/10 10:00	-1	32.508
Pumping Test 1 Started at 10:01		
2/23/10 10:10	9	32.515
2/23/10 10:20	19	32.528
2/23/10 10:30	29	32.521
2/23/10 10:40	39	32.530
2/23/10 10:50	49	32.534
2/23/10 11:00	59	32.527
2/23/10 11:10	69	32.547
2/23/10 11:20	79	32.538
2/23/10 11:30	89	32.543
Pumping Test 1 Recovery started at 11.32		
2/23/10 11:40	99	32.545
2/23/10 11:50	109	32.552
2/23/10 12:00	119	32.543
2/23/10 12:10	129	32.545
2/23/10 12:20	139	32.552
2/23/10 12:30	149	32.545
2/23/10 12:40	159	32.553
2/23/10 12:50	169	32.551
2/23/10 13:00	179	32.547
2/23/10 13:10	189	32.548
2/23/10 13:20	199	32.543
2/23/10 13:30	209	32.543
2/23/10 13:40	219	32.549
2/23/10 13:50	229	32.543
2/23/10 14:00	239	32.546
2/23/10 14:10	249	32.543
2/23/10 14:20	259	32.545
2/23/10 14:30	269	32.540
2/23/10 14:40	279	32.554
2/23/10 14:50	289	32.543
2/23/10 15:00	299	32.545
Pumping Test 2 Started at 15:03		
2/23/10 15:10	309	32.543
2/23/10 15:20	319	32.559
2/23/10 15:30	329	32.550
2/23/10 15:40	339	32.552
2/23/10 15:50	349	32.556
2/23/10 16:00	359	32.557
2/23/10 16:10	369	32.557
2/23/10 16:20	379	32.555
2/23/10 16:30	389	32.560
2/23/10 16:40	399	32.560
2/23/10 16:50	409	32.561
2/23/10 17:00	419	32.564
2/23/10 17:10	429	32.566
2/23/10 17:20	439	32.566
2/23/10 17:30	449	32.565
2/23/10 17:40	459	32.570
2/23/10 17:50	469	32.573
2/23/10 18:00	479	32.573
2/23/10 18:10	489	32.575
Pumping Test 2 Recovery started at 18:12		
2/23/10 18:20	499	32.575
2/23/10 18:30	509	32.577
2/23/10 18:40	519	32.580
2/23/10 18:50	529	32.581
2/23/10 19:00	539	32.587
2/23/10 19:10	549	32.587
2/23/10 19:20	559	32.592
2/23/10 19:30	569	32.594
2/23/10 19:40	579	32.597
2/23/10 19:50	589	32.592
2/23/10 20:00	599	32.591
2/23/10 20:10	609	32.595
2/23/10 20:20	619	32.597
2/23/10 20:30	629	32.596

TABLE S3.1 (Cont.)

Date and Time	Elapsed Time[a] (min)	Barometric Pressure[b] (ft of H_2O)	Date and Time	Elapsed Time[a] (min)	Barometric Pressure[b] (ft of H_2O)
2/23/10 20:40	639	32.599	2/24/10 4:10	1089	32.620
2/23/10 20:50	649	32.603	2/24/10 4:20	1099	32.618
2/23/10 21:00	659	32.603	2/24/10 4:30	1109	32.621
2/23/10 21:10	669	32.605	2/24/10 4:40	1119	32.626
2/23/10 21:20	679	32.606	2/24/10 4:50	1129	32.626
2/23/10 21:30	689	32.609	2/24/10 5:00	1139	32.627
2/23/10 21:40	699	32.608	2/24/10 5:10	1149	32.631
2/23/10 21:50	709	32.614	2/24/10 5:20	1159	32.632
2/23/10 22:00	719	32.616	2/24/10 5:30	1169	32.623
2/23/10 22:10	729	32.617	2/24/10 5:40	1179	32.627
2/23/10 22:20	739	32.617	2/24/10 5:50	1189	32.632
2/23/10 22:30	749	32.621	2/24/10 6:00	1199	32.634
2/23/10 22:40	759	32.621	2/24/10 6:10	1209	32.634
2/23/10 22:50	769	32.621	2/24/10 6:20	1219	32.630
2/23/10 23:00	779	32.622	2/24/10 6:30	1229	32.631
2/23/10 23:10	789	32.621	2/24/10 6:40	1239	32.627
2/23/10 23:20	799	32.623	2/24/10 6:50	1249	32.636
2/23/10 23:30	809	32.619	2/24/10 7:00	1259	32.633
2/23/10 23:40	819	32.623	2/24/10 7:10	1269	32.633
2/23/10 23:50	829	32.616	2/24/10 7:20	1279	32.635
2/24/10 0:00	839	32.617	2/24/10 7:30	1289	32.634
2/24/10 0:10	849	32.616	2/24/10 7:40	1299	32.632
2/24/10 0:20	859	32.617	2/24/10 7:50	1309	32.641
2/24/10 0:30	869	32.619	2/24/10 8:00	1319	32.640
2/24/10 0:40	879	32.616	2/24/10 8:10	1329	32.641
2/24/10 0:50	889	32.619	2/24/10 8:20	1339	32.644
2/24/10 1:00	899	32.621	2/24/10 8:30	1349	32.650
2/24/10 1:10	909	32.623	2/24/10 8:40	1359	32.647
2/24/10 1:20	919	32.628	2/24/10 8:50	1369	32.647
2/24/10 1:30	929	32.629	2/24/10 9:00	1379	32.651
2/24/10 1:40	939	32.628	2/24/10 9:10	1389	32.654
2/24/10 1:50	949	32.626	2/24/10 9:20	1399	32.652
2/24/10 2:00	959	32.628	2/24/10 9:30	1409	32.653
2/24/10 2:10	969	32.626	2/24/10 9:40	1419	32.654
2/24/10 2:20	979	32.623	2/24/10 9:50	1429	32.654
2/24/10 2:30	989	32.624	2/24/10 10:00	1439	32.653
2/24/10 2:40	999	32.629	2/24/10 10:10	1449	32.652
2/24/10 2:50	1009	32.628	2/24/10 10:20	1459	32.651
2/24/10 3:00	1019	32.627	2/24/10 10:30	1469	32.649
2/24/10 3:10	1029	32.628			
2/24/10 3:20	1039	32.626			
2/24/10 3:30	1049	32.621			
2/24/10 3:40	1059	32.621			
2/24/10 3:50	1069	32.623			
2/24/10 4:00	1079	32.622			

[a] Elapsed time calculated from 10:01 on 2/23/10 as time zero.

[b] Values measured by using PT2X™ absolute pressure recorder.

TABLE S3.2 Water levels in monitoring wells during the MW05 pumping and recovery periods, February 23-24, 2010.

Date and Time	Elapsed Time[a] (min)	Water Levelb, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 10:00:00	-1.000	0.009	0.071	-0.025	0.004	0.004	-0.088	-0.044	-0.015	0.039	-0.099	-0.034
2/23/2010 10:00:10	-0.833	0.009	0.071	-0.027	0.004	-0.001	-0.092	-0.044	-0.013	0.039	-0.099	-0.034
2/23/2010 10:00:20	-0.667	0.012	0.068	-0.025	0.004	-0.001	-0.092	-0.044	-0.015	0.039	-0.099	-0.034
2/23/2010 10:00:30	-0.500	0.012	0.073	-0.032	0.002	0.002	-0.090	-0.044	-0.013	0.038	-0.094	-0.034
2/23/2010 10:00:40	-0.333	0.012	0.073	-0.030	0.004	0.002	-0.088	-0.044	-0.015	0.038	-0.094	-0.034
2/23/2010 10:00:50	-0.167	0.012	0.071	-0.032	0.002	-0.001	-0.090	-0.044	-0.010	0.038	-0.097	-0.032
2/23/2010 10:01:00	0.000	0.010	0.071	-0.030	0.004	-0.001	-0.090	-0.044	-0.015	0.038	-0.092	-0.034
2/23/2010 10:01:10	0.167	0.014	0.071	-0.025	0.004	-0.001	-0.090	-0.044	-0.013	0.038	-0.092	-0.034
2/23/2010 10:01:20	0.333	0.010	0.071	-0.022	0.004	-0.001	-0.090	-0.046	-0.015	0.038	-0.094	-0.032
2/23/2010 10:01:30	0.500	0.014	0.073	-0.039	0.002	-0.001	-0.090	-0.044	-0.010	0.036	-0.099	-0.032
2/23/2010 10:01:40	0.667	0.010	0.071	-0.027	0.007	-0.001	-0.090	-0.044	-0.013	0.038	-0.092	-0.032
2/23/2010 10:01:50	0.833	0.012	0.071	-0.022	0.004	0.002	-0.090	-0.042	-0.013	0.038	-0.094	-0.032
2/23/2010 10:02:00	1.000	0.010	0.073	-0.030	0.007	0.004	-0.087	-0.044	-0.013	0.038	-0.094	-0.034
2/23/2010 10:02:10	1.167	0.012	0.073	-0.025	0.002	-0.001	-0.090	-0.044	-0.013	0.038	-0.092	-0.032
2/23/2010 10:02:20	1.333	0.010	0.073	-0.027	0.004	-0.001	-0.090	-0.044	-0.010	0.041	-0.094	-0.032
2/23/2010 10:02:30	1.500	0.012	0.073	-0.027	0.004	-0.001	-0.088	-0.044	-0.013	0.038	-0.097	-0.032
2/23/2010 10:02:40	1.667	0.012	0.076	-0.025	0.002	-0.001	-0.090	-0.044	-0.010	0.041	-0.101	-0.032
2/23/2010 10:02:50	1.833	0.012	0.073	-0.027	0.004	-0.001	-0.087	-0.044	-0.013	0.038	-0.094	-0.032
2/23/2010 10:03:00	2.000	0.012	0.071	-0.022	0.004	0.002	-0.092	-0.044	-0.010	0.038	-0.094	-0.030
2/23/2010 10:03:10	2.167	0.012	0.071	-0.025	0.007	-0.001	-0.092	-0.042	-0.010	0.038	-0.092	-0.027
2/23/2010 10:03:20	2.333	0.007	0.073	-0.022	0.004	0.002	-0.090	-0.042	-0.013	0.038	-0.094	-0.030
2/23/2010 10:03:30	2.500	0.012	0.076	-0.027	0.004	0.004	-0.087	-0.042	-0.010	0.041	-0.094	-0.032
2/23/2010 10:03:40	2.667	0.010	0.076	-0.025	0.000	0.002	-0.090	-0.042	-0.008	0.041	-0.094	-0.030
2/23/2010 10:03:50	2.833	0.012	0.073	-0.027	0.004	0.002	-0.090	-0.044	-0.013	0.041	-0.094	-0.030
2/23/2010 10:04:00	3.000	0.012	0.071	-0.027	0.004	0.002	-0.087	-0.042	-0.010	0.038	-0.092	-0.030
2/23/2010 10:04:10	3.167	0.012	0.073	-0.022	0.004	-0.001	-0.087	-0.042	-0.010	0.041	-0.097	-0.027
2/23/2010 10:04:20	3.333	0.012	0.073	-0.025	0.002	0.002	-0.087	-0.042	-0.010	0.043	-0.099	-0.027
2/23/2010 10:04:30	3.500	0.010	0.073	-0.025	0.004	0.004	-0.087	-0.044	-0.015	0.038	-0.099	-0.030
2/23/2010 10:04:40	3.667	0.014	0.071	-0.027	0.007	0.004	-0.090	-0.044	-0.010	0.038	-0.102	-0.030
2/23/2010 10:04:50	3.833	0.012	0.071	-0.025	0.004	-0.001	-0.085	-0.044	-0.006	0.038	-0.097	-0.027
2/23/2010 10:05:00	4.000	0.012	0.071	-0.025	0.004	-0.001	-0.087	-0.042	-0.013	0.038	-0.097	-0.030
2/23/2010 10:05:10	4.167	0.014	0.073	-0.020	0.002	-0.001	-0.090	-0.044	-0.008	0.038	-0.094	-0.030
2/23/2010 10:05:20	4.333	0.014	0.073	-0.025	0.004	-0.001	-0.087	-0.042	-0.013	0.041	-0.097	-0.025
2/23/2010 10:05:30	4.500	0.014	0.073	-0.022	0.004	0.002	-0.087	-0.042	-0.008	0.041	-0.092	-0.027
2/23/2010 10:05:40	4.667	0.012	0.073	-0.022	0.004	0.002	-0.090	-0.042	-0.010	0.038	-0.092	-0.027
2/23/2010 10:05:50	4.833	0.012	0.076	-0.020	0.002	0.002	-0.087	-0.044	-0.010	0.038	-0.099	-0.027

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 10:06:00	5.000	0.012	0.073	-0.020	0.004	0.002	-0.090	-0.042	-0.010	0.041	-0.097	-0.027
2/23/2010 10:06:10	5.167	0.012	0.076	-0.022	0.004	-0.001	-0.087	-0.044	-0.010	0.038	-0.092	-0.027
2/23/2010 10:06:20	5.333	0.014	0.071	-0.022	0.007	0.004	-0.090	-0.044	-0.006	0.041	-0.094	-0.027
2/23/2010 10:06:30	5.500	0.014	0.073	-0.025	0.004	0.006	-0.087	-0.046	-0.008	0.038	-0.094	-0.025
2/23/2010 10:06:40	5.667	0.014	0.076	-0.020	0.004	-0.001	-0.087	-0.044	-0.010	0.038	-0.094	-0.025
2/23/2010 10:06:50	5.833	0.014	0.076	-0.020	0.007	-0.001	-0.087	-0.042	-0.006	0.041	-0.097	-0.027
2/23/2010 10:07:00	6.000	0.012	0.076	-0.022	0.004	0.004	-0.090	-0.044	-0.010	0.041	-0.094	-0.027
2/23/2010 10:07:10	6.167	0.012	0.071	-0.027	0.004	0.006	-0.090	-0.044	-0.006	0.041	-0.097	-0.027
2/23/2010 10:07:20	6.333	0.014	0.073	-0.022	0.004	0.004	-0.087	-0.042	-0.008	0.038	-0.097	-0.025
2/23/2010 10:07:30	6.500	0.012	0.071	-0.025	0.007	-0.001	-0.087	-0.044	-0.008	0.038	-0.097	-0.025
2/23/2010 10:07:40	6.667	0.014	0.073	-0.022	0.004	0.002	-0.090	-0.042	-0.008	0.038	-0.099	-0.025
2/23/2010 10:07:50	6.833	0.014	0.073	-0.025	0.007	-0.001	-0.090	-0.042	-0.008	0.041	-0.099	-0.025
2/23/2010 10:08:00	7.000	0.012	0.076	-0.020	0.004	-0.001	-0.087	-0.044	-0.008	0.041	-0.097	-0.025
2/23/2010 10:08:10	7.167	0.012	0.073	-0.025	0.007	0.002	-0.092	-0.044	-0.010	0.041	-0.094	-0.025
2/23/2010 10:08:20	7.333	0.012	0.073	-0.027	0.002	0.002	-0.090	-0.044	-0.008	0.041	-0.094	-0.025
2/23/2010 10:08:30	7.500	0.012	0.073	-0.022	0.004	0.004	-0.090	-0.044	-0.010	0.041	-0.099	-0.025
2/23/2010 10:08:40	7.667	0.014	0.073	-0.025	0.004	0.004	-0.087	-0.044	-0.008	0.041	-0.097	-0.025
2/23/2010 10:08:50	7.833	0.014	0.073	-0.025	0.004	0.002	-0.090	-0.042	-0.006	0.041	-0.097	-0.025
2/23/2010 10:09:00	8.000	0.014	0.073	-0.020	0.002	0.004	-0.090	-0.042	-0.006	0.041	-0.094	-0.025
2/23/2010 10:09:10	8.167	0.014	0.073	-0.025	0.004	0.002	-0.092	-0.044	-0.008	0.041	-0.097	-0.025
2/23/2010 10:09:20	8.333	0.014	0.071	-0.025	0.002	0.002	-0.087	-0.044	-0.003	0.041	-0.099	-0.025
2/23/2010 10:09:30	8.500	0.014	0.073	-0.027	0.004	0.002	-0.087	-0.042	-0.008	0.043	-0.097	-0.025
2/23/2010 10:09:40	8.667	0.014	0.073	-0.027	0.004	0.004	-0.090	-0.044	-0.006	0.041	-0.099	-0.025
2/23/2010 10:09:50	8.833	0.017	0.073	-0.025	0.004	0.002	-0.090	-0.044	-0.008	0.043	-0.094	-0.023
2/23/2010 10:10:00	9.000	0.014	0.073	-0.027	0.004	0.004	-0.090	-0.044	-0.006	0.041	-0.097	-0.023
2/23/2010 10:10:10	9.167	0.014	0.076	-0.027	0.004	0.004	-0.090	-0.044	-0.008	0.043	-0.097	-0.023
2/23/2010 10:10:20	9.333	0.017	0.073	-0.022	0.004	0.002	-0.090	-0.042	-0.006	0.041	-0.099	-0.023
2/23/2010 10:10:30	9.500	0.014	0.076	-0.034	0.007	0.004	-0.090	-0.044	-0.006	0.041	-0.097	-0.025
2/23/2010 10:10:40	9.667	0.014	0.076	-0.025	0.007	0.002	-0.087	-0.042	-0.010	0.041	-0.092	-0.025
2/23/2010 10:10:50	9.833	0.014	0.076	-0.022	0.004	0.002	-0.087	-0.042	-0.008	0.041	-0.097	-0.023
2/23/2010 10:11:00	10.000	0.014	0.073	-0.022	0.007	0.002	-0.087	-0.044	-0.006	0.043	-0.092	-0.023
2/23/2010 10:11:10	10.167	0.017	0.073	-0.022	0.004	0.009	-0.087	-0.044	-0.008	0.041	-0.097	-0.023
2/23/2010 10:11:20	10.333	0.014	0.073	-0.020	0.007	0.004	-0.090	-0.042	-0.008	0.041	-0.094	-0.023
2/23/2010 10:11:30	10.500	0.014	0.076	-0.025	0.007	0.004	-0.092	-0.042	-0.010	0.041	-0.094	-0.023
2/23/2010 10:11:40	10.667	0.017	0.073	-0.020	0.004	0.004	-0.090	-0.042	-0.006	0.041	-0.092	-0.023
2/23/2010 10:11:50	10.833	0.014	0.073	-0.025	0.004	0.007	-0.090	-0.044	-0.008	0.041	-0.097	-0.023

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 10:12:00	11.000	0.014	0.076	-0.022	0.002	0.004	-0.087	-0.044	-0.008	0.041	-0.097	-0.023
2/23/2010 10:12:10	11.167	0.014	0.076	-0.022	0.002	0.004	-0.087	-0.044	-0.008	0.041	-0.094	-0.023
2/23/2010 10:12:20	11.333	0.014	0.076	-0.025	0.002	0.009	-0.087	-0.039	-0.006	0.041	-0.097	-0.020
2/23/2010 10:12:30	11.500	0.014	0.073	-0.027	0.004	0.006	-0.090	-0.042	-0.008	0.043	-0.097	-0.023
2/23/2010 10:12:40	11.667	0.014	0.076	-0.025	0.004	0.004	-0.090	-0.042	-0.006	0.041	-0.099	-0.020
2/23/2010 10:12:50	11.833	0.014	0.076	-0.030	0.007	0.004	-0.090	-0.042	-0.006	0.041	-0.097	-0.020
2/23/2010 10:13:00	12.000	0.014	0.076	-0.022	0.004	0.009	-0.090	-0.044	-0.008	0.041	-0.099	-0.020
2/23/2010 10:13:10	12.167	0.014	0.073	-0.025	0.004	0.002	-0.092	-0.044	-0.006	0.041	-0.097	-0.025
2/23/2010 10:13:20	12.333	0.014	0.076	-0.022	0.002	0.004	-0.090	-0.044	-0.008	0.043	-0.094	-0.020
2/23/2010 10:13:30	12.500	0.012	0.076	-0.027	0.007	0.009	-0.092	-0.042	-0.008	0.043	-0.099	-0.023
2/23/2010 10:13:40	12.667	0.014	0.078	-0.022	0.007	0.004	-0.092	-0.042	-0.013	0.043	-0.097	-0.020
2/23/2010 10:13:50	12.833	0.012	0.078	-0.025	0.004	0.004	-0.095	-0.044	-0.008	0.043	-0.097	-0.023
2/23/2010 10:14:00	13.000	0.014	0.080	-0.025	0.004	0.007	-0.087	-0.044	-0.006	0.045	-0.099	-0.020
2/23/2010 10:14:10	13.167	0.014	0.078	-0.025	0.007	0.004	-0.090	-0.042	-0.006	0.048	-0.097	-0.018
2/23/2010 10:14:20	13.333	0.014	0.078	-0.027	0.007	0.009	-0.090	-0.042	-0.008	0.045	-0.094	-0.020
2/23/2010 10:14:30	13.500	0.017	0.076	-0.025	0.007	0.004	-0.090	-0.044	-0.008	0.043	-0.092	-0.020
2/23/2010 10:14:40	13.667	0.014	0.076	-0.022	0.004	0.004	-0.087	-0.042	-0.006	0.045	-0.094	-0.020
2/23/2010 10:14:50	13.833	0.017	0.076	-0.022	0.004	0.004	-0.092	-0.044	-0.006	0.043	-0.097	-0.020
2/23/2010 10:15:00	14.000	0.017	0.076	-0.020	0.004	0.006	-0.087	-0.042	-0.008	0.043	-0.099	-0.020
2/23/2010 10:15:10	14.167	0.012	0.078	-0.025	0.002	0.006	-0.092	-0.042	-0.006	0.045	-0.094	-0.020
2/23/2010 10:15:20	14.333	0.017	0.078	-0.025	0.004	0.002	-0.090	-0.042	-0.003	0.043	-0.094	-0.020
2/23/2010 10:15:30	14.500	0.014	0.078	-0.022	0.004	0.004	-0.087	-0.042	-0.008	0.043	-0.094	-0.023
2/23/2010 10:15:40	14.667	0.017	0.078	-0.022	0.004	0.007	-0.090	-0.042	-0.003	0.043	-0.097	-0.020
2/23/2010 10:15:50	14.833	0.017	0.078	-0.022	0.007	0.002	-0.092	-0.039	-0.008	0.043	-0.094	-0.020
2/23/2010 10:16:00	15.000	0.014	0.076	-0.018	0.007	-0.001	-0.090	-0.042	-0.003	0.045	-0.097	-0.018
2/23/2010 10:16:10	15.167	0.017	0.078	-0.020	0.004	0.004	-0.090	-0.039	-0.006	0.041	-0.097	-0.018
2/23/2010 10:16:20	15.333	0.017	0.080	-0.022	0.004	0.002	-0.087	-0.042	-0.003	0.041	-0.099	-0.020
2/23/2010 10:16:30	15.500	0.017	0.076	-0.022	0.004	0.004	-0.087	-0.042	-0.003	0.043	-0.094	-0.018
2/23/2010 10:16:40	15.667	0.014	0.078	-0.020	0.007	0.004	-0.092	-0.042	-0.006	0.041	-0.097	-0.018
2/23/2010 10:16:50	15.833	0.014	0.076	-0.022	0.007	0.002	-0.090	-0.042	-0.010	0.045	-0.097	-0.016
2/23/2010 10:17:00	16.000	0.014	0.078	-0.025	0.007	0.007	-0.090	-0.042	-0.008	0.043	-0.097	-0.018
2/23/2010 10:17:10	16.167	0.017	0.076	-0.022	0.004	0.006	-0.090	-0.044	-0.003	0.043	-0.092	-0.018
2/23/2010 10:17:20	16.333	0.014	0.076	-0.017	0.004	0.007	-0.092	-0.039	-0.008	0.043	-0.097	-0.018
2/23/2010 10:17:30	16.500	0.017	0.078	-0.025	0.004	-0.001	-0.092	-0.042	-0.008	0.045	-0.097	-0.018
2/23/2010 10:17:40	16.667	0.014	0.080	-0.020	0.004	0.004	-0.090	-0.042	-0.006	0.045	-0.097	-0.020
2/23/2010 10:17:50	16.833	0.017	0.078	-0.022	0.007	0.007	-0.092	-0.042	-0.003	0.045	-0.094	-0.018

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 10:18:00	17.000	0.014	0.078	-0.022	0.004	0.007	-0.090	-0.039	-0.006	0.045	-0.094	-0.018
2/23/2010 10:18:10	17.167	0.014	0.078	-0.022	0.007	0.006	-0.090	-0.042	-0.006	0.043	-0.104	-0.018
2/23/2010 10:18:20	17.333	0.017	0.080	-0.022	0.007	0.009	-0.090	-0.039	-0.001	0.043	-0.094	-0.018
2/23/2010 10:18:30	17.500	0.014	0.078	-0.020	0.004	0.007	-0.087	-0.042	-0.006	0.043	-0.092	-0.016
2/23/2010 10:18:40	17.667	0.019	0.080	-0.022	0.002	0.007	-0.092	-0.044	-0.001	0.041	-0.102	-0.018
2/23/2010 10:18:50	17.833	0.017	0.078	-0.022	0.007	0.007	-0.090	-0.044	-0.006	0.043	-0.097	-0.016
2/23/2010 10:19:00	18.000	0.017	0.078	-0.022	0.004	0.004	-0.092	-0.042	-0.006	0.045	-0.099	-0.016
2/23/2010 10:19:10	18.167	0.017	0.078	-0.020	0.004	0.007	-0.092	-0.044	-0.006	0.045	-0.099	-0.016
2/23/2010 10:19:20	18.333	0.017	0.080	-0.025	0.004	0.007	-0.090	-0.044	-0.006	0.045	-0.101	-0.020
2/23/2010 10:19:30	18.500	0.014	0.078	-0.022	0.007	0.009	-0.090	-0.039	-0.006	0.045	-0.099	-0.016
2/23/2010 10:19:40	18.667	0.017	0.080	-0.020	0.007	0.009	-0.090	-0.044	-0.006	0.045	-0.097	-0.018
2/23/2010 10:19:50	18.833	0.017	0.080	-0.018	0.004	0.004	-0.095	-0.044	-0.006	0.045	-0.097	-0.016
2/23/2010 10:20:00	19.000	0.014	0.080	-0.020	0.004	0.007	-0.090	-0.042	-0.008	0.048	-0.097	-0.016
2/23/2010 10:20:10	19.167	0.017	0.083	-0.018	0.004	0.009	-0.090	-0.042	-0.003	0.045	-0.097	-0.016
2/23/2010 10:20:20	19.333	0.017	0.080	-0.022	0.004	0.004	-0.090	-0.042	-0.003	0.045	-0.099	-0.013
2/23/2010 10:20:30	19.500	0.017	0.078	-0.025	0.004	0.007	-0.087	-0.042	-0.008	0.045	-0.094	-0.016
2/23/2010 10:20:40	19.667	0.014	0.083	-0.025	0.007	0.011	-0.092	-0.042	-0.006	0.043	-0.094	-0.013
2/23/2010 10:20:50	19.833	0.017	0.080	-0.018	0.004	0.006	-0.090	-0.042	-0.003	0.045	-0.094	-0.013
2/23/2010 10:21:00	20.000	0.019	0.080	-0.025	0.007	0.007	-0.090	-0.042	-0.003	0.043	-0.099	-0.016
2/23/2010 10:21:10	20.167	0.017	0.080	-0.020	0.007	0.009	-0.090	-0.039	-0.003	0.045	-0.092	-0.013
2/23/2010 10:21:20	20.333	0.017	0.083	-0.020	0.004	0.009	-0.090	-0.039	-0.001	0.045	-0.101	-0.016
2/23/2010 10:21:30	20.500	0.019	0.080	-0.022	0.007	-0.005	-0.090	-0.039	-0.003	0.045	-0.097	-0.013
2/23/2010 10:21:40	20.667	0.014	0.083	-0.025	0.004	0.009	-0.090	-0.039	-0.003	0.043	-0.102	-0.013
2/23/2010 10:21:50	20.833	0.014	0.078	-0.022	0.007	0.007	-0.090	-0.044	-0.001	0.045	-0.094	-0.013
2/23/2010 10:22:00	21.000	0.014	0.080	-0.022	0.004	0.007	-0.087	-0.042	-0.001	0.045	-0.097	-0.013
2/23/2010 10:22:10	21.167	0.017	0.080	-0.027	0.004	0.009	-0.090	-0.042	-0.003	0.045	-0.099	-0.013
2/23/2010 10:22:20	21.333	0.017	0.085	-0.025	0.007	0.004	-0.095	-0.042	-0.003	0.048	-0.102	-0.013
2/23/2010 10:22:30	21.500	0.017	0.083	-0.027	0.007	0.009	-0.085	-0.042	-0.006	0.045	-0.099	-0.013
2/23/2010 10:22:40	21.667	0.014	0.083	-0.020	0.009	0.007	-0.087	-0.042	-0.003	0.048	-0.092	-0.011
2/23/2010 10:22:50	21.833	0.017	0.083	-0.020	0.007	0.009	-0.090	-0.039	-0.001	0.045	-0.099	-0.013
2/23/2010 10:23:00	22.000	0.017	0.083	-0.022	0.007	0.011	-0.087	-0.039	-0.001	0.045	-0.101	-0.013
2/23/2010 10:23:10	22.167	0.017	0.080	-0.022	0.004	0.011	-0.087	-0.039	-0.006	0.045	-0.104	-0.013
2/23/2010 10:23:20	22.333	0.017	0.083	-0.017	0.007	0.009	-0.090	-0.042	-0.001	0.045	-0.097	-0.013
2/23/2010 10:23:30	22.500	0.019	0.083	-0.020	0.007	0.009	-0.090	-0.042	-0.003	0.045	-0.101	-0.011
2/23/2010 10:23:40	22.667	0.017	0.083	-0.020	0.007	0.009	-0.090	-0.039	-0.006	0.045	-0.097	-0.013
2/23/2010 10:23:50	22.833	0.019	0.083	-0.022	0.004	0.009	-0.090	-0.042	-0.001	0.045	-0.099	-0.011

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 10:24:00	23.000	0.019	0.083	-0.020	0.002	0.009	-0.090	-0.039	-0.001	0.043	-0.094	-0.011
2/23/2010 10:24:10	23.167	0.019	0.083	-0.027	0.004	0.009	-0.090	-0.042	0.001	0.043	-0.092	-0.011
2/23/2010 10:24:20	23.333	0.019	0.085	-0.022	0.004	0.002	-0.087	-0.042	0.001	0.043	-0.101	-0.011
2/23/2010 10:24:30	23.500	0.017	0.080	-0.025	0.004	0.011	-0.090	-0.039	-0.003	0.043	-0.099	-0.011
2/23/2010 10:24:40	23.667	0.019	0.083	-0.022	0.004	0.009	-0.090	-0.039	-0.003	0.043	-0.097	-0.011
2/23/2010 10:24:50	23.833	0.019	0.083	-0.022	0.004	0.006	-0.087	-0.039	-0.001	0.045	-0.097	-0.011
2/23/2010 10:25:00	24.000	0.019	0.083	-0.018	0.007	0.006	-0.090	-0.042	-0.003	0.043	-0.094	-0.011
2/23/2010 10:25:10	24.167	0.019	0.083	-0.020	0.004	0.009	-0.087	-0.042	-0.003	0.043	-0.094	-0.006
2/23/2010 10:25:20	24.333	0.019	0.085	-0.015	0.002	0.007	-0.090	-0.044	-0.003	0.043	-0.094	-0.009
2/23/2010 10:25:30	24.500	0.019	0.083	-0.025	0.004	0.007	-0.090	-0.042	-0.003	0.043	-0.094	-0.009
2/23/2010 10:25:40	24.667	0.021	0.085	-0.020	0.004	0.007	-0.090	-0.039	-0.001	0.043	-0.092	-0.011
2/23/2010 10:25:50	24.833	0.017	0.087	-0.010	0.004	0.011	-0.087	-0.042	-0.003	0.043	-0.094	-0.009
2/23/2010 10:26:00	25.000	0.019	0.085	-0.022	0.004	0.011	-0.090	-0.042	-0.001	0.045	-0.094	-0.011
2/23/2010 10:26:10	25.167	0.019	0.085	-0.020	0.004	0.007	-0.092	-0.039	-0.003	0.043	-0.097	-0.009
2/23/2010 10:26:20	25.333	0.019	0.085	-0.020	0.004	0.011	-0.087	-0.042	-0.001	0.043	-0.094	-0.009
2/23/2010 10:26:30	25.500	0.019	0.087	-0.022	0.007	0.007	-0.090	-0.042	-0.001	0.045	-0.094	-0.011
2/23/2010 10:26:40	25.667	0.019	0.083	-0.025	0.004	0.007	-0.087	-0.042	0.002	0.045	-0.092	-0.009
2/23/2010 10:26:50	25.833	0.017	0.085	-0.020	0.004	0.007	-0.090	-0.039	-0.003	0.045	-0.094	-0.006
2/23/2010 10:27:00	26.000	0.017	0.087	-0.020	0.007	0.009	-0.092	-0.042	-0.003	0.045	-0.094	-0.006
2/23/2010 10:27:10	26.167	0.017	0.085	-0.015	0.007	0.006	-0.090	-0.039	-0.003	0.045	-0.097	-0.006
2/23/2010 10:27:20	26.333	0.019	0.085	-0.022	0.004	0.009	-0.087	-0.039	0.002	0.045	-0.094	-0.006
2/23/2010 10:27:30	26.500	0.019	0.087	-0.015	0.007	0.009	-0.090	-0.039	-0.001	0.043	-0.092	-0.006
2/23/2010 10:27:40	26.667	0.021	0.087	-0.020	0.004	0.007	-0.090	-0.042	-0.001	0.043	-0.092	-0.006
2/23/2010 10:27:50	26.833	0.019	0.087	-0.020	0.007	0.011	-0.092	-0.044	0.001	0.045	-0.094	-0.006
2/23/2010 10:28:00	27.000	0.019	0.085	-0.018	0.004	0.011	-0.092	-0.039	-0.001	0.045	-0.092	-0.004
2/23/2010 10:28:10	27.167	0.017	0.087	-0.015	0.007	0.007	-0.087	-0.037	-0.003	0.048	-0.094	-0.006
2/23/2010 10:28:20	27.333	0.017	0.085	-0.022	0.007	0.009	-0.090	-0.039	-0.001	0.045	-0.092	-0.004
2/23/2010 10:28:30	27.500	0.019	0.087	-0.018	0.004	0.007	-0.090	-0.039	-0.001	0.045	-0.090	-0.004
2/23/2010 10:28:40	27.667	0.017	0.087	-0.015	0.004	0.009	-0.090	-0.039	-0.003	0.045	-0.094	-0.006
2/23/2010 10:28:50	27.833	0.017	0.087	-0.017	0.007	0.009	-0.087	-0.042	-0.001	0.045	-0.092	-0.004
2/23/2010 10:29:00	28.000	0.019	0.087	-0.018	0.004	0.009	-0.088	-0.039	-0.001	0.045	-0.092	-0.004
2/23/2010 10:29:10	28.167	0.021	0.087	-0.018	0.004	0.009	-0.090	-0.042	-0.001	0.045	-0.090	-0.004
2/23/2010 10:29:20	28.333	0.019	0.087	-0.022	0.007	0.009	-0.087	-0.042	-0.001	0.045	-0.094	-0.004
2/23/2010 10:29:30	28.500	0.019	0.085	-0.020	0.007	0.011	-0.090	-0.042	-0.001	0.043	-0.090	-0.004
2/23/2010 10:29:40	28.667	0.021	0.087	-0.018	0.004	0.011	-0.090	-0.042	-0.001	0.045	-0.094	-0.002
2/23/2010 10:29:50	28.833	0.019	0.087	-0.022	0.007	0.009	-0.087	-0.039	-0.001	0.043	-0.094	-0.002

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 10:30:00	29.000	0.019	0.090	-0.020	0.004	0.011	-0.090	-0.039	0.002	0.045	-0.092	-0.002
2/23/2010 10:30:10	29.167	0.021	0.090	-0.018	0.007	0.009	-0.087	-0.039	0.004	0.043	-0.092	0.001
2/23/2010 10:30:20	29.333	0.021	0.092	-0.018	0.004	0.011	-0.085	-0.042	0.001	0.041	-0.092	-0.004
2/23/2010 10:30:30	29.500	0.022	0.092	-0.018	0.007	0.007	-0.087	-0.039	-0.001	0.043	-0.092	-0.002
2/23/2010 10:30:40	29.667	0.021	0.087	-0.013	0.002	0.011	-0.087	-0.039	0.001	0.043	-0.097	0.001
2/23/2010 10:30:50	29.833	0.022	0.090	-0.015	0.007	0.011	-0.087	-0.039	-0.001	0.041	-0.090	-0.002
2/23/2010 10:31:00	30.000	0.024	0.090	-0.017	0.007	0.014	-0.085	-0.042	-0.001	0.043	-0.094	0.001
2/23/2010 10:31:10	30.167	0.021	0.092	-0.020	0.007	0.009	-0.087	-0.039	0.001	0.043	-0.094	0.001
2/23/2010 10:31:20	30.333	0.021	0.090	-0.018	0.004	0.011	-0.087	-0.039	0.001	0.043	-0.097	0.001
2/23/2010 10:31:30	30.500	0.021	0.092	-0.018	0.004	0.011	-0.085	-0.042	0.001	0.043	-0.094	0.003
2/23/2010 10:31:40	30.667	0.021	0.092	-0.015	0.004	0.009	-0.085	-0.042	0.001	0.041	-0.092	0.003
2/23/2010 10:31:50	30.833	0.021	0.092	-0.017	0.004	0.009	-0.087	-0.039	0.001	0.043	-0.092	0.001
2/23/2010 10:32:00	31.000	0.021	0.090	-0.015	0.007	0.011	-0.087	-0.039	-0.001	0.043	-0.090	0.003
2/23/2010 10:32:10	31.167	0.021	0.092	-0.013	0.002	0.009	-0.087	-0.042	0.001	0.043	-0.087	0.003
2/23/2010 10:32:20	31.333	0.019	0.087	-0.017	0.004	0.009	-0.090	-0.039	-0.001	0.043	-0.087	0.003
2/23/2010 10:32:30	31.500	0.021	0.090	-0.013	0.004	0.011	-0.087	-0.042	0.001	0.045	-0.090	0.003
2/23/2010 10:32:40	31.667	0.021	0.090	-0.020	0.009	0.011	-0.087	-0.039	-0.003	0.045	-0.094	0.006
2/23/2010 10:32:50	31.833	0.024	0.092	-0.020	0.004	0.009	-0.085	-0.042	-0.001	0.043	-0.090	0.005
2/23/2010 10:33:00	32.000	0.021	0.092	-0.013	0.007	0.009	-0.087	-0.042	-0.001	0.043	-0.090	0.006
2/23/2010 10:33:10	32.167	0.019	0.092	-0.015	0.007	0.009	-0.087	-0.042	-0.001	0.045	-0.090	0.006
2/23/2010 10:33:20	32.333	0.021	0.092	-0.015	0.002	0.011	-0.087	-0.039	-0.001	0.043	-0.092	0.003
2/23/2010 10:33:30	32.500	0.022	0.094	-0.017	0.004	0.011	-0.087	-0.039	0.001	0.045	-0.092	0.005
2/23/2010 10:33:40	32.667	0.021	0.092	-0.020	0.004	0.014	-0.085	-0.039	0.001	0.045	-0.094	0.003
2/23/2010 10:33:50	32.833	0.024	0.092	-0.015	0.004	0.004	-0.085	-0.037	0.001	0.045	-0.090	0.006
2/23/2010 10:34:00	33.000	0.021	0.094	-0.020	0.004	0.009	-0.085	-0.039	-0.001	0.043	-0.092	0.006
2/23/2010 10:34:10	33.167	0.022	0.092	-0.020	0.004	0.014	-0.085	-0.039	0.001	0.043	-0.087	0.005
2/23/2010 10:34:20	33.333	0.021	0.094	-0.015	0.004	0.009	-0.087	-0.039	-0.001	0.045	-0.094	0.006
2/23/2010 10:34:30	33.500	0.024	0.092	-0.013	0.007	0.011	-0.085	-0.042	0.001	0.045	-0.092	0.008
2/23/2010 10:34:40	33.667	0.021	0.094	-0.015	0.004	0.009	-0.087	-0.039	0.002	0.045	-0.087	0.008
2/23/2010 10:34:50	33.833	0.021	0.092	-0.015	0.004	0.004	-0.090	-0.042	-0.001	0.048	-0.092	0.008
2/23/2010 10:35:00	34.000	0.021	0.094	-0.020	0.007	0.009	-0.085	-0.042	-0.003	0.048	-0.092	0.008
2/23/2010 10:35:10	34.167	0.021	0.092	-0.020	0.007	0.009	-0.087	-0.039	0.001	0.045	-0.092	0.008
2/23/2010 10:35:20	34.333	0.019	0.094	-0.018	0.004	0.011	-0.087	-0.039	-0.001	0.048	-0.092	0.008
2/23/2010 10:35:30	34.500	0.019	0.097	-0.015	0.007	0.014	-0.087	-0.042	-0.001	0.045	-0.092	0.008
2/23/2010 10:35:40	34.667	0.019	0.094	-0.018	0.004	0.011	-0.087	-0.042	-0.001	0.045	-0.094	0.008
2/23/2010 10:35:50	34.833	0.019	0.094	-0.010	0.004	0.009	-0.087	-0.039	0.001	0.045	-0.092	0.010

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 10:36:00	35.000	0.024	0.092	-0.020	0.004	0.011	-0.092	-0.042	0.001	0.045	-0.092	0.010
2/23/2010 10:36:10	35.167	0.019	0.092	-0.017	0.004	0.014	-0.087	-0.039	0.004	0.045	-0.094	0.010
2/23/2010 10:36:20	35.333	0.021	0.094	-0.015	0.004	0.014	-0.087	-0.042	-0.003	0.048	-0.094	0.010
2/23/2010 10:36:30	35.500	0.021	0.094	-0.013	0.004	0.011	-0.085	-0.039	0.001	0.048	-0.094	0.013
2/23/2010 10:36:40	35.667	0.019	0.092	-0.018	0.004	0.011	-0.090	-0.039	0.004	0.045	-0.092	0.010
2/23/2010 10:36:50	35.833	0.021	0.094	-0.018	0.007	0.011	-0.087	-0.042	0.002	0.045	-0.090	0.010
2/23/2010 10:37:00	36.000	0.021	0.094	-0.017	0.004	0.011	-0.090	-0.039	0.006	0.045	-0.090	0.013
2/23/2010 10:37:10	36.167	0.021	0.094	-0.015	0.004	0.011	-0.087	-0.039	0.001	0.045	-0.090	0.013
2/23/2010 10:37:20	36.333	0.024	0.094	-0.015	0.004	0.014	-0.087	-0.039	-0.001	0.045	-0.094	0.013
2/23/2010 10:37:30	36.500	0.021	0.097	-0.018	0.004	0.014	-0.085	-0.039	-0.001	0.045	-0.092	0.013
2/23/2010 10:37:40	36.667	0.021	0.097	-0.015	0.004	0.009	-0.087	-0.042	0.001	0.045	-0.092	0.015
2/23/2010 10:37:50	36.833	0.021	0.097	-0.018	0.004	0.011	-0.085	-0.037	0.001	0.048	-0.094	0.013
2/23/2010 10:38:00	37.000	0.021	0.094	-0.020	0.002	0.014	-0.087	-0.042	0.004	0.045	-0.090	0.015
2/23/2010 10:38:10	37.167	0.019	0.097	-0.015	0.007	0.011	-0.090	-0.039	0.004	0.048	-0.092	0.013
2/23/2010 10:38:20	37.333	0.024	0.097	-0.017	0.004	0.009	-0.087	-0.039	0.004	0.048	-0.097	0.013
2/23/2010 10:38:30	37.500	0.019	0.094	-0.010	0.004	0.011	-0.087	-0.039	-0.001	0.048	-0.094	0.015
2/23/2010 10:38:40	37.667	0.024	0.094	-0.017	0.004	0.016	-0.090	-0.039	0.002	0.048	-0.099	0.015
2/23/2010 10:38:50	37.833	0.024	0.099	-0.015	0.007	0.014	-0.087	-0.039	0.004	0.048	-0.097	0.017
2/23/2010 10:39:00	38.000	0.021	0.099	-0.020	0.007	0.014	-0.090	-0.042	0.004	0.048	-0.097	0.017
2/23/2010 10:39:10	38.167	0.019	0.097	-0.010	0.007	0.014	-0.090	-0.039	0.001	0.048	-0.092	0.017
2/23/2010 10:39:20	38.333	0.021	0.099	-0.015	0.007	0.011	-0.090	-0.039	0.004	0.048	-0.099	0.017
2/23/2010 10:39:30	38.500	0.019	0.097	-0.022	0.009	0.011	-0.090	-0.042	0.002	0.048	-0.097	0.017
2/23/2010 10:39:40	38.667	0.021	0.097	-0.015	0.007	0.011	-0.087	-0.039	0.004	0.048	-0.094	0.017
2/23/2010 10:39:50	38.833	0.021	0.097	-0.015	0.007	0.014	-0.090	-0.039	0.002	0.048	-0.097	0.017
2/23/2010 10:40:00	39.000	0.022	0.099	-0.017	0.007	0.014	-0.087	-0.039	0.001	0.048	-0.092	0.017
2/23/2010 10:40:10	39.167	0.019	0.099	-0.013	0.007	0.011	-0.090	-0.042	0.001	0.048	-0.092	0.017
2/23/2010 10:40:20	39.333	0.019	0.099	-0.015	0.004	0.011	-0.090	-0.039	0.002	0.048	-0.090	0.017
2/23/2010 10:40:30	39.500	0.024	0.099	-0.022	0.007	0.014	-0.087	-0.039	0.004	0.048	-0.092	0.020
2/23/2010 10:40:40	39.667	0.021	0.097	-0.018	0.004	0.014	-0.092	-0.039	0.002	0.048	-0.092	0.020
2/23/2010 10:40:50	39.833	0.021	0.099	-0.015	0.007	0.014	-0.087	-0.039	0.004	0.048	-0.094	0.020
2/23/2010 10:41:00	40.000	0.019	0.099	-0.022	0.004	0.011	-0.090	-0.042	0.001	0.048	-0.094	0.020
2/23/2010 10:41:10	40.167	0.021	0.099	-0.013	0.007	0.011	-0.090	-0.042	0.004	0.048	-0.092	0.020
2/23/2010 10:41:20	40.333	0.019	0.101	-0.015	0.007	0.014	-0.090	-0.039	0.004	0.048	-0.094	0.020
2/23/2010 10:41:30	40.500	0.022	0.097	-0.020	0.004	0.016	-0.087	-0.039	0.006	0.048	-0.092	0.022
2/23/2010 10:41:40	40.667	0.021	0.101	-0.018	0.004	0.011	-0.085	-0.042	0.004	0.048	-0.092	0.022
2/23/2010 10:41:50	40.833	0.024	0.101	-0.020	0.002	0.014	-0.087	-0.037	0.004	0.048	-0.092	0.022

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 10:42:00	41.000	0.021	0.101	-0.017	0.004	0.014	-0.090	-0.037	0.002	0.048	-0.094	0.022
2/23/2010 10:42:10	41.167	0.022	0.101	-0.015	0.007	0.011	-0.090	-0.039	0.004	0.045	-0.094	0.020
2/23/2010 10:42:20	41.333	0.021	0.099	-0.015	0.004	0.011	-0.090	-0.039	0.002	0.048	-0.092	0.022
2/23/2010 10:42:30	41.500	0.024	0.101	-0.020	0.004	0.014	-0.085	-0.042	0.006	0.048	-0.090	0.022
2/23/2010 10:42:40	41.667	0.024	0.104	-0.015	0.004	0.016	-0.087	-0.037	0.004	0.048	-0.087	0.022
2/23/2010 10:42:50	41.833	0.024	0.099	-0.015	0.004	0.014	-0.085	-0.039	0.004	0.045	-0.092	0.022
2/23/2010 10:43:00	42.000	0.021	0.101	-0.015	0.004	0.011	-0.087	-0.039	0.006	0.045	-0.097	0.022
2/23/2010 10:43:10	42.167	0.021	0.101	-0.018	0.007	0.011	-0.087	-0.037	0.004	0.048	-0.094	0.022
2/23/2010 10:43:20	42.333	0.024	0.104	-0.015	0.004	0.014	-0.087	-0.039	0.002	0.045	-0.092	0.022
2/23/2010 10:43:30	42.500	0.021	0.101	-0.015	0.007	0.016	-0.087	-0.039	0.009	0.045	-0.094	0.022
2/23/2010 10:43:40	42.667	0.021	0.101	-0.013	0.007	0.014	-0.090	-0.039	0.004	0.048	-0.097	0.022
2/23/2010 10:43:50	42.833	0.021	0.101	-0.013	0.004	0.018	-0.090	-0.039	0.004	0.048	-0.097	0.022
2/23/2010 10:44:00	43.000	0.021	0.104	-0.020	0.007	0.016	-0.090	-0.039	0.006	0.050	-0.094	0.022
2/23/2010 10:44:10	43.167	0.021	0.104	-0.015	0.007	0.014	-0.087	-0.042	-0.001	0.048	-0.090	0.022
2/23/2010 10:44:20	43.333	0.024	0.104	-0.017	0.007	0.014	-0.090	-0.042	0.006	0.048	-0.094	0.024
2/23/2010 10:44:30	43.500	0.021	0.104	-0.018	0.004	0.014	-0.090	-0.039	0.006	0.050	-0.094	0.022
2/23/2010 10:44:40	43.667	0.021	0.104	-0.018	0.007	0.016	-0.090	-0.042	0.004	0.050	-0.092	0.024
2/23/2010 10:44:50	43.833	0.021	0.106	-0.015	0.004	0.011	-0.087	-0.039	0.004	0.048	-0.097	0.022
2/23/2010 10:45:00	44.000	0.024	0.104	-0.017	0.004	0.016	-0.090	-0.039	0.006	0.050	-0.099	0.024
2/23/2010 10:45:10	44.167	0.022	0.101	-0.015	0.004	0.016	-0.095	-0.042	0.004	0.050	-0.099	0.024
2/23/2010 10:45:20	44.333	0.021	0.104	-0.020	0.007	0.014	-0.090	-0.039	0.006	0.050	-0.094	0.024
2/23/2010 10:45:30	44.500	0.021	0.104	-0.015	0.007	0.011	-0.090	-0.039	0.004	0.050	-0.097	0.027
2/23/2010 10:45:40	44.667	0.021	0.104	-0.010	0.004	0.014	-0.092	-0.039	0.004	0.050	-0.099	0.024
2/23/2010 10:45:50	44.833	0.021	0.104	-0.018	0.007	0.016	-0.092	-0.039	0.001	0.048	-0.092	0.022
2/23/2010 10:46:00	45.000	0.021	0.104	-0.018	0.007	0.016	-0.090	-0.037	0.006	0.050	-0.094	0.024
2/23/2010 10:46:10	45.167	0.021	0.101	-0.015	0.004	0.016	-0.095	-0.037	0.004	0.052	-0.094	0.024
2/23/2010 10:46:20	45.333	0.021	0.104	-0.013	0.007	0.016	-0.090	-0.037	0.006	0.050	-0.097	0.022
2/23/2010 10:46:30	45.500	0.022	0.104	-0.020	0.007	0.016	-0.092	-0.037	0.006	0.050	-0.099	0.024
2/23/2010 10:46:40	45.667	0.019	0.106	-0.015	0.004	0.014	-0.090	-0.039	0.004	0.052	-0.099	0.024
2/23/2010 10:46:50	45.833	0.021	0.106	-0.022	0.007	0.016	-0.090	-0.037	0.009	0.050	-0.097	0.022
2/23/2010 10:47:00	46.000	0.021	0.104	-0.015	0.007	0.016	-0.092	-0.037	0.001	0.050	-0.097	0.027
2/23/2010 10:47:10	46.167	0.021	0.106	-0.018	0.004	0.014	-0.092	-0.037	0.006	0.050	-0.097	0.024
2/23/2010 10:47:20	46.333	0.021	0.106	-0.020	0.007	0.014	-0.090	-0.037	0.009	0.052	-0.097	0.024
2/23/2010 10:47:30	46.500	0.021	0.106	-0.020	0.004	0.021	-0.090	-0.039	0.006	0.050	-0.099	0.024
2/23/2010 10:47:40	46.667	0.021	0.108	-0.013	0.004	0.016	-0.092	-0.037	0.006	0.050	-0.099	0.024
2/23/2010 10:47:50	46.833	0.021	0.106	-0.015	0.004	0.016	-0.092	-0.037	0.006	0.050	-0.094	0.024

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 10:48:00	47.000	0.021	0.111	-0.018	0.004	0.014	-0.090	-0.039	0.006	0.050	-0.094	0.024
2/23/2010 10:48:10	47.167	0.019	0.108	-0.018	0.004	0.014	-0.092	-0.037	0.009	0.052	-0.099	0.022
2/23/2010 10:48:20	47.333	0.019	0.108	-0.020	0.002	0.016	-0.090	-0.037	0.006	0.052	-0.094	0.027
2/23/2010 10:48:30	47.500	0.019	0.106	-0.015	0.007	0.016	-0.090	-0.039	0.013	0.050	-0.094	0.027
2/23/2010 10:48:40	47.667	0.021	0.108	-0.015	0.007	0.018	-0.092	-0.037	0.006	0.050	-0.094	0.024
2/23/2010 10:48:50	47.833	0.021	0.108	-0.017	0.007	0.011	-0.090	-0.037	0.009	0.050	-0.094	0.024
2/23/2010 10:49:00	48.000	0.021	0.111	-0.017	0.004	0.016	-0.092	-0.039	0.009	0.050	-0.094	0.022
2/23/2010 10:49:10	48.167	0.024	0.106	-0.015	0.007	0.021	-0.090	-0.037	0.009	0.052	-0.097	0.027
2/23/2010 10:49:20	48.333	0.019	0.108	-0.018	0.004	0.014	-0.090	-0.037	0.013	0.050	-0.097	0.024
2/23/2010 10:49:30	48.500	0.021	0.108	-0.018	0.004	0.018	-0.090	-0.037	0.006	0.050	-0.097	0.024
2/23/2010 10:49:40	48.667	0.024	0.108	-0.022	0.007	0.016	-0.092	-0.037	0.009	0.050	-0.094	0.024
2/23/2010 10:49:50	48.833	0.021	0.111	-0.015	0.007	0.014	-0.090	-0.035	0.004	0.050	-0.094	0.024
2/23/2010 10:50:00	49.000	0.021	0.108	-0.018	0.009	0.018	-0.090	-0.037	0.011	0.050	-0.097	0.024
2/23/2010 10:50:10	49.167	0.026	0.108	-0.020	0.004	0.016	-0.090	-0.037	0.004	0.050	-0.094	0.027
2/23/2010 10:50:20	49.333	0.021	0.111	-0.022	0.007	0.016	-0.090	-0.039	0.009	0.050	-0.094	0.024
2/23/2010 10:50:30	49.500	0.024	0.111	-0.015	0.007	0.016	-0.083	-0.037	0.011	0.050	-0.094	0.024
2/23/2010 10:50:40	49.667	0.024	0.108	-0.010	0.007	0.018	-0.090	-0.037	0.009	0.050	-0.094	0.027
2/23/2010 10:50:50	49.833	0.024	0.111	-0.018	0.007	0.016	-0.090	-0.037	0.009	0.050	-0.097	0.024
2/23/2010 10:51:00	50.000	0.026	0.111	-0.013	0.004	0.016	-0.087	-0.037	0.011	0.050	-0.099	0.024
2/23/2010 10:51:10	50.167	0.021	0.108	-0.013	0.007	0.014	-0.090	-0.037	0.009	0.050	-0.094	0.027
2/23/2010 10:51:20	50.333	0.024	0.111	-0.015	0.007	0.016	-0.092	-0.037	0.006	0.048	-0.094	0.027
2/23/2010 10:51:30	50.500	0.024	0.111	-0.017	0.007	0.016	-0.090	-0.035	0.011	0.050	-0.094	0.024
2/23/2010 10:51:40	50.667	0.024	0.111	-0.010	0.007	0.018	-0.090	-0.037	0.006	0.050	-0.094	0.027
2/23/2010 10:51:50	50.833	0.024	0.111	-0.018	0.004	0.018	-0.092	-0.037	0.009	0.052	-0.094	0.027
2/23/2010 10:52:00	51.000	0.021	0.113	-0.010	0.007	0.018	-0.090	-0.037	0.009	0.052	-0.099	0.027
2/23/2010 10:52:10	51.167	0.021	0.111	-0.017	0.007	0.016	-0.092	-0.037	0.006	0.050	-0.094	0.027
2/23/2010 10:52:20	51.333	0.024	0.111	-0.013	0.007	0.018	-0.090	-0.037	0.009	0.050	-0.101	0.024
2/23/2010 10:52:30	51.500	0.026	0.118	-0.013	0.004	0.016	-0.090	-0.039	0.011	0.052	-0.094	0.027
2/23/2010 10:52:40	51.667	0.021	0.111	-0.008	0.007	0.018	-0.092	-0.039	0.006	0.048	-0.092	0.027
2/23/2010 10:52:50	51.833	0.021	0.111	-0.015	0.004	0.014	-0.095	-0.037	0.009	0.050	-0.097	0.027
2/23/2010 10:53:00	52.000	0.024	0.113	-0.015	0.007	0.018	-0.090	-0.039	0.009	0.050	-0.092	0.027
2/23/2010 10:53:10	52.167	0.024	0.113	-0.018	0.007	0.014	-0.092	-0.037	0.009	0.052	-0.092	0.027
2/23/2010 10:53:20	52.333	0.022	0.111	-0.010	0.007	0.016	-0.092	-0.037	0.009	0.052	-0.092	0.027
2/23/2010 10:53:30	52.500	0.024	0.113	-0.010	0.007	0.016	-0.092	-0.037	0.009	0.050	-0.094	0.027
2/23/2010 10:53:40	52.667	0.024	0.113	-0.017	0.004	0.018	-0.090	-0.039	0.009	0.050	-0.099	0.029
2/23/2010 10:53:50	52.833	0.024	0.113	-0.013	0.004	0.016	-0.092	-0.039	0.009	0.052	-0.099	0.027

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 10:54:00	53.000	0.024	0.111	-0.017	0.007	0.018	-0.092	-0.037	0.009	0.052	-0.097	0.031
2/23/2010 10:54:10	53.167	0.021	0.113	-0.010	0.009	0.018	-0.092	-0.039	0.009	0.052	-0.099	0.027
2/23/2010 10:54:20	53.333	0.019	0.111	-0.018	0.004	0.016	-0.095	-0.037	0.009	0.052	-0.101	0.027
2/23/2010 10:54:30	53.500	0.022	0.113	-0.022	0.004	0.014	-0.095	-0.035	0.011	0.052	-0.097	0.029
2/23/2010 10:54:40	53.667	0.019	0.115	-0.020	0.004	0.016	-0.090	-0.037	0.009	0.052	-0.094	0.024
2/23/2010 10:54:50	53.833	0.024	0.113	-0.018	0.007	0.018	-0.090	-0.035	0.009	0.052	-0.097	0.027
2/23/2010 10:55:00	54.000	0.024	0.115	-0.017	0.007	0.018	-0.090	-0.039	0.011	0.052	-0.097	0.027
2/23/2010 10:55:10	54.167	0.024	0.113	-0.013	0.007	0.016	-0.092	-0.037	0.009	0.052	-0.094	0.027
2/23/2010 10:55:20	54.333	0.024	0.120	-0.013	0.004	0.021	-0.090	-0.037	0.009	0.052	-0.092	0.027
2/23/2010 10:55:30	54.500	0.024	0.113	-0.013	0.007	0.021	-0.090	-0.035	0.009	0.050	-0.097	0.027
2/23/2010 10:55:40	54.667	0.021	0.118	-0.015	0.004	0.018	-0.092	-0.035	0.011	0.052	-0.094	0.027
2/23/2010 10:55:50	54.833	0.024	0.120	-0.017	0.007	0.021	-0.087	-0.035	0.009	0.050	-0.092	0.027
2/23/2010 10:56:00	55.000	0.026	0.115	-0.013	0.004	0.018	-0.087	-0.037	0.011	0.050	-0.094	0.027
2/23/2010 10:56:10	55.167	0.026	0.118	-0.013	0.007	0.016	-0.087	-0.037	0.009	0.052	-0.094	0.029
2/23/2010 10:56:20	55.333	0.026	0.118	-0.010	0.007	0.018	-0.088	-0.035	0.013	0.048	-0.097	0.027
2/23/2010 10:56:30	55.500	0.024	0.118	-0.008	0.004	0.018	-0.095	-0.037	0.011	0.050	-0.092	0.029
2/23/2010 10:56:40	55.667	0.026	0.118	-0.010	0.007	0.021	-0.090	-0.039	0.009	0.048	-0.094	0.027
2/23/2010 10:56:50	55.833	0.026	0.118	-0.013	0.004	0.016	-0.092	-0.035	0.011	0.050	-0.094	0.029
2/23/2010 10:57:00	56.000	0.021	0.115	-0.018	0.002	0.014	-0.090	-0.037	0.011	0.052	-0.097	0.029
2/23/2010 10:57:10	56.167	0.021	0.120	-0.018	0.007	0.014	-0.090	-0.037	0.011	0.052	-0.092	0.027
2/23/2010 10:57:20	56.333	0.024	0.118	-0.015	0.007	0.018	-0.095	-0.037	0.011	0.050	-0.094	0.027
2/23/2010 10:57:30	56.500	0.024	0.118	-0.015	0.004	0.016	-0.090	-0.037	0.011	0.052	-0.094	0.029
2/23/2010 10:57:40	56.667	0.024	0.118	-0.018	0.007	0.021	-0.092	-0.037	0.011	0.050	-0.092	0.027
2/23/2010 10:57:50	56.833	0.024	0.118	-0.013	0.004	0.018	-0.092	-0.035	0.011	0.050	-0.094	0.029
2/23/2010 10:58:00	57.000	0.024	0.122	-0.015	0.007	0.018	-0.090	-0.039	0.011	0.050	-0.099	0.029
2/23/2010 10:58:10	57.167	0.024	0.118	-0.015	0.007	0.021	-0.095	-0.037	0.009	0.052	-0.099	0.029
2/23/2010 10:58:20	57.333	0.024	0.118	-0.013	0.004	0.018	-0.090	-0.035	0.011	0.052	-0.090	0.029
2/23/2010 10:58:30	57.500	0.026	0.118	-0.010	0.009	0.016	-0.092	-0.037	0.013	0.052	-0.097	0.029
2/23/2010 10:58:40	57.667	0.024	0.120	-0.010	0.004	0.016	-0.090	-0.037	0.011	0.052	-0.097	0.027
2/23/2010 10:58:50	57.833	0.024	0.120	-0.010	0.007	0.021	-0.090	-0.037	0.013	0.052	-0.094	0.029
2/23/2010 10:59:00	58.000	0.026	0.120	-0.013	0.007	0.021	-0.087	-0.035	0.009	0.050	-0.094	0.029
2/23/2010 10:59:10	58.167	0.026	0.120	-0.013	0.007	0.021	-0.085	-0.035	0.013	0.050	-0.094	0.029
2/23/2010 10:59:20	58.333	0.026	0.122	-0.018	0.009	0.016	-0.090	-0.035	0.011	0.050	-0.094	0.029
2/23/2010 10:59:30	58.500	0.026	0.120	-0.010	0.007	0.016	-0.090	-0.037	0.011	0.050	-0.097	0.029
2/23/2010 10:59:40	58.667	0.026	0.120	-0.013	0.004	0.021	-0.090	-0.037	0.011	0.050	-0.099	0.029
2/23/2010 10:59:50	58.833	0.026	0.122	-0.008	0.007	0.021	-0.090	-0.035	0.013	0.050	-0.097	0.029

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 11:00:00	59.000	0.026	0.122	-0.013	0.004	0.021	-0.087	-0.035	0.013	0.050	-0.092	0.029
2/23/2010 11:00:10	59.167	0.026	0.122	-0.008	0.004	0.021	-0.090	-0.035	0.011	0.050	-0.097	0.029
2/23/2010 11:00:20	59.333	0.024	0.120	-0.015	0.007	0.018	-0.090	-0.035	0.013	0.052	-0.092	0.031
2/23/2010 11:00:30	59.500	0.026	0.122	-0.015	0.007	0.018	-0.090	-0.037	0.013	0.052	-0.092	0.029
2/23/2010 11:00:40	59.667	0.026	0.120	-0.010	0.007	0.018	-0.090	-0.035	0.016	0.050	-0.094	0.029
2/23/2010 11:00:50	59.833	0.026	0.122	-0.015	0.002	0.018	-0.090	-0.035	0.016	0.050	-0.094	0.031
2/23/2010 11:01:00	60.000	0.024	0.122	-0.013	0.004	0.018	-0.090	-0.037	0.013	0.052	-0.094	0.027
2/23/2010 11:01:10	60.167	0.026	0.122	-0.010	0.004	0.018	-0.090	-0.037	0.011	0.050	-0.097	0.031
2/23/2010 11:01:20	60.333	0.024	0.122	-0.008	0.009	0.016	-0.090	-0.035	0.013	0.052	-0.097	0.031
2/23/2010 11:01:30	60.500	0.026	0.127	-0.010	0.004	0.021	-0.092	-0.037	0.013	0.052	-0.094	0.031
2/23/2010 11:01:40	60.667	0.026	0.122	-0.013	0.007	0.018	-0.090	-0.035	0.013	0.052	-0.092	0.029
2/23/2010 11:01:50	60.833	0.026	0.122	-0.015	0.007	0.021	-0.090	-0.037	0.013	0.052	-0.092	0.031
2/23/2010 11:02:00	61.000	0.024	0.125	-0.013	0.007	0.021	-0.092	-0.035	0.013	0.052	-0.094	0.029
2/23/2010 11:02:10	61.167	0.026	0.125	-0.008	0.004	0.021	-0.092	-0.035	0.016	0.052	-0.097	0.031
2/23/2010 11:02:20	61.333	0.026	0.122	-0.008	0.007	0.023	-0.092	-0.035	0.016	0.052	-0.097	0.029
2/23/2010 11:02:30	61.500	0.024	0.122	-0.013	0.007	0.023	-0.092	-0.035	0.013	0.052	-0.092	0.031
2/23/2010 11:02:40	61.667	0.024	0.125	-0.008	0.009	0.021	-0.090	-0.035	0.013	0.052	-0.094	0.031
2/23/2010 11:02:50	61.833	0.026	0.125	-0.010	0.007	0.021	-0.090	-0.037	0.011	0.050	-0.097	0.031
2/23/2010 11:03:00	62.000	0.026	0.125	-0.010	0.007	0.018	-0.090	-0.035	0.013	0.050	-0.097	0.029
2/23/2010 11:03:10	62.167	0.026	0.125	-0.010	0.009	0.021	-0.090	-0.035	0.013	0.052	-0.094	0.031
2/23/2010 11:03:20	62.333	0.026	0.125	-0.013	0.002	0.021	-0.092	-0.032	0.016	0.055	-0.099	0.031
2/23/2010 11:03:30	62.500	0.026	0.125	-0.013	0.009	0.021	-0.090	-0.035	0.013	0.052	-0.099	0.031
2/23/2010 11:03:40	62.667	0.026	0.125	-0.013	0.007	0.018	-0.095	-0.035	0.011	0.055	-0.097	0.031
2/23/2010 11:03:50	62.833	0.024	0.125	-0.018	0.004	0.018	-0.092	-0.035	0.013	0.052	-0.092	0.031
2/23/2010 11:04:00	63.000	0.024	0.125	-0.015	0.004	0.018	-0.092	-0.035	0.013	0.055	-0.092	0.031
2/23/2010 11:04:10	63.167	0.026	0.125	-0.010	0.009	0.023	-0.092	-0.035	0.013	0.055	-0.099	0.031
2/23/2010 11:04:20	63.333	0.026	0.129	-0.018	0.007	0.021	-0.092	-0.037	0.016	0.055	-0.092	0.031
2/23/2010 11:04:30	63.500	0.021	0.125	-0.015	0.007	0.021	-0.092	-0.037	0.013	0.055	-0.094	0.031
2/23/2010 11:04:40	63.667	0.026	0.127	-0.010	0.009	0.021	-0.092	-0.035	0.013	0.052	-0.094	0.031
2/23/2010 11:04:50	63.833	0.026	0.125	-0.013	0.007	0.021	-0.090	-0.032	0.016	0.052	-0.094	0.031
2/23/2010 11:05:00	64.000	0.026	0.127	-0.008	0.007	0.021	-0.090	-0.035	0.016	0.052	-0.094	0.031
2/23/2010 11:05:10	64.167	0.026	0.127	-0.015	0.007	0.021	-0.092	-0.035	0.013	0.052	-0.097	0.031
2/23/2010 11:05:20	64.333	0.021	0.127	-0.010	0.004	0.018	-0.092	-0.032	0.018	0.052	-0.101	0.031
2/23/2010 11:05:30	64.500	0.026	0.125	-0.013	0.007	0.021	-0.092	-0.037	0.016	0.052	-0.094	0.031
2/23/2010 11:05:40	64.667	0.024	0.127	-0.013	0.007	0.021	-0.090	-0.035	0.013	0.052	-0.099	0.031
2/23/2010 11:05:50	64.833	0.026	0.125	-0.013	0.009	0.018	-0.090	-0.035	0.011	0.055	-0.097	0.031

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 11:06:00	65.000	0.024	0.127	-0.006	0.009	0.023	-0.090	-0.035	0.018	0.055	-0.094	0.031
2/23/2010 11:06:10	65.167	0.026	0.129	-0.008	0.007	0.023	-0.092	-0.032	0.013	0.052	-0.092	0.031
2/23/2010 11:06:20	65.333	0.021	0.129	-0.018	0.007	0.021	-0.090	-0.035	0.016	0.052	-0.097	0.031
2/23/2010 11:06:30	65.500	0.026	0.127	-0.008	0.007	0.023	-0.092	-0.037	0.016	0.052	-0.094	0.034
2/23/2010 11:06:40	65.667	0.026	0.132	-0.013	0.004	0.021	-0.090	-0.035	0.016	0.055	-0.094	0.031
2/23/2010 11:06:50	65.833	0.024	0.127	-0.015	0.004	0.021	-0.090	-0.030	0.013	0.055	-0.092	0.034
2/23/2010 11:07:00	66.000	0.024	0.127	-0.013	0.007	0.021	-0.090	-0.035	0.013	0.055	-0.094	0.031
2/23/2010 11:07:10	66.167	0.026	0.127	-0.013	0.004	0.021	-0.090	-0.035	0.016	0.055	-0.090	0.034
2/23/2010 11:07:20	66.333	0.024	0.129	-0.013	0.009	0.021	-0.092	-0.032	0.016	0.055	-0.097	0.034
2/23/2010 11:07:30	66.500	0.026	0.127	-0.015	0.007	0.018	-0.087	-0.035	0.013	0.055	-0.094	0.031
2/23/2010 11:07:40	66.667	0.026	0.129	-0.010	0.007	0.023	-0.090	-0.035	0.016	0.055	-0.094	0.031
2/23/2010 11:07:50	66.833	0.026	0.129	-0.013	0.007	0.021	-0.095	-0.035	0.013	0.055	-0.094	0.034
2/23/2010 11:08:00	67.000	0.026	0.129	-0.006	0.007	0.026	-0.092	-0.037	0.016	0.052	-0.094	0.031
2/23/2010 11:08:10	67.167	0.029	0.127	-0.010	0.007	0.028	-0.090	-0.035	0.016	0.052	-0.087	0.034
2/23/2010 11:08:20	67.333	0.029	0.129	-0.013	0.004	0.018	-0.090	-0.032	0.016	0.057	-0.092	0.034
2/23/2010 11:08:30	67.500	0.026	0.129	-0.010	0.007	0.021	-0.090	-0.035	0.016	0.055	-0.094	0.031
2/23/2010 11:08:40	67.667	0.026	0.132	-0.013	0.007	0.021	-0.090	-0.035	0.016	0.055	-0.097	0.031
2/23/2010 11:08:50	67.833	0.026	0.132	-0.010	0.007	0.021	-0.092	-0.032	0.016	0.055	-0.092	0.029
2/23/2010 11:09:00	68.000	0.024	0.132	-0.013	0.004	0.023	-0.090	-0.035	0.018	0.055	-0.092	0.034
2/23/2010 11:09:10	68.167	0.026	0.132	-0.010	0.004	0.021	-0.090	-0.032	0.016	0.052	-0.092	0.031
2/23/2010 11:09:20	68.333	0.026	0.134	-0.013	0.007	0.023	-0.092	-0.035	0.013	0.055	-0.094	0.034
2/23/2010 11:09:30	68.500	0.024	0.132	-0.005	0.007	0.023	-0.092	-0.035	0.016	0.055	-0.092	0.034
2/23/2010 11:09:40	68.667	0.026	0.134	-0.010	0.007	0.026	-0.090	-0.037	0.016	0.055	-0.092	0.031
2/23/2010 11:09:50	68.833	0.026	0.132	-0.013	0.009	0.023	-0.092	-0.035	0.013	0.055	-0.097	0.034
2/23/2010 11:10:00	69.000	0.024	0.132	-0.015	0.004	0.023	-0.095	-0.032	0.013	0.057	-0.097	0.031
2/23/2010 11:10:10	69.167	0.024	0.132	-0.013	0.007	0.023	-0.092	-0.035	0.016	0.057	-0.097	0.034
2/23/2010 11:10:20	69.333	0.024	0.132	-0.010	0.004	0.023	-0.095	-0.035	0.013	0.055	-0.097	0.034
2/23/2010 11:10:30	69.500	0.024	0.132	-0.013	0.007	0.026	-0.092	-0.035	0.016	0.055	-0.097	0.034
2/23/2010 11:10:40	69.667	0.026	0.132	-0.008	0.007	0.023	-0.092	-0.032	0.020	0.055	-0.097	0.031
2/23/2010 11:10:50	69.833	0.029	0.134	-0.010	0.007	0.023	-0.092	-0.035	0.016	0.057	-0.097	0.031
2/23/2010 11:11:00	70.000	0.026	0.132	-0.010	0.007	0.021	-0.092	-0.032	0.020	0.055	-0.094	0.034
2/23/2010 11:11:10	70.167	0.026	0.134	-0.010	0.007	0.026	-0.092	-0.035	0.016	0.055	-0.097	0.034
2/23/2010 11:11:20	70.333	0.029	0.139	-0.013	0.007	0.023	-0.092	-0.035	0.016	0.055	-0.092	0.034
2/23/2010 11:11:30	70.500	0.026	0.134	-0.013	0.007	0.023	-0.090	-0.035	0.016	0.055	-0.097	0.034
2/23/2010 11:11:40	70.667	0.024	0.132	-0.010	0.007	0.021	-0.092	-0.032	0.013	0.055	-0.097	0.031
2/23/2010 11:11:50	70.833	0.026	0.134	-0.013	0.007	0.023	-0.092	-0.035	0.016	0.055	-0.097	0.034

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 11:12:00	71.000	0.026	0.134	-0.015	0.007	0.026	-0.095	-0.035	0.016	0.055	-0.097	0.034
2/23/2010 11:12:10	71.167	0.026	0.136	-0.010	0.009	0.021	-0.090	-0.032	0.018	0.055	-0.092	0.034
2/23/2010 11:12:20	71.333	0.026	0.136	-0.008	0.009	0.026	-0.095	-0.035	0.020	0.055	-0.094	0.034
2/23/2010 11:12:30	71.500	0.026	0.136	-0.001	0.009	0.023	-0.090	-0.037	0.013	0.055	-0.094	0.034
2/23/2010 11:12:40	71.667	0.026	0.136	-0.013	0.009	0.026	-0.090	-0.032	0.018	0.055	-0.097	0.034
2/23/2010 11:12:50	71.833	0.026	0.139	-0.008	0.004	0.026	-0.092	-0.032	0.020	0.055	-0.097	0.036
2/23/2010 11:13:00	72.000	0.026	0.134	-0.015	0.007	0.023	-0.092	-0.032	0.016	0.055	-0.094	0.034
2/23/2010 11:13:10	72.167	0.029	0.136	-0.005	0.007	0.026	-0.092	-0.032	0.018	0.055	-0.094	0.034
2/23/2010 11:13:20	72.333	0.024	0.139	-0.013	0.004	0.026	-0.092	-0.035	0.018	0.055	-0.094	0.034
2/23/2010 11:13:30	72.500	0.026	0.136	-0.008	0.004	0.021	-0.090	-0.032	0.018	0.055	-0.097	0.034
2/23/2010 11:13:40	72.667	0.026	0.139	-0.015	0.007	0.026	-0.090	-0.035	0.018	0.055	-0.097	0.034
2/23/2010 11:13:50	72.833	0.029	0.134	-0.008	0.007	0.023	-0.090	-0.035	0.018	0.057	-0.097	0.034
2/23/2010 11:14:00	73.000	0.026	0.139	-0.008	0.009	0.023	-0.092	-0.032	0.020	0.057	-0.092	0.034
2/23/2010 11:14:10	73.167	0.026	0.139	-0.010	0.007	0.026	-0.090	-0.032	0.018	0.055	-0.090	0.036
2/23/2010 11:14:20	73.333	0.026	0.136	-0.010	0.007	0.023	-0.092	-0.032	0.018	0.055	-0.092	0.034
2/23/2010 11:14:30	73.500	0.026	0.139	-0.008	0.007	0.026	-0.090	-0.032	0.018	0.055	-0.094	0.034
2/23/2010 11:14:40	73.667	0.024	0.139	-0.010	0.007	0.023	-0.090	-0.032	0.016	0.055	-0.094	0.034
2/23/2010 11:14:50	73.833	0.029	0.136	-0.010	0.007	0.028	-0.092	-0.032	0.018	0.055	-0.097	0.036
2/23/2010 11:15:00	74.000	0.029	0.141	-0.013	0.007	0.021	-0.092	-0.035	0.020	0.055	-0.094	0.034
2/23/2010 11:15:10	74.167	0.026	0.136	-0.005	0.009	0.023	-0.092	-0.035	0.020	0.055	-0.094	0.034
2/23/2010 11:15:20	74.333	0.029	0.139	-0.013	0.007	0.023	-0.090	-0.035	0.020	0.055	-0.097	0.034
2/23/2010 11:15:30	74.500	0.026	0.139	-0.013	0.004	0.023	-0.092	-0.030	0.020	0.057	-0.099	0.034
2/23/2010 11:15:40	74.667	0.026	0.139	-0.010	0.004	0.023	-0.092	-0.035	0.018	0.055	-0.092	0.034
2/23/2010 11:15:50	74.833	0.026	0.139	-0.013	0.004	0.023	-0.092	-0.032	0.020	0.055	-0.097	0.036
2/23/2010 11:16:00	75.000	0.026	0.139	-0.013	0.007	0.023	-0.092	-0.032	0.018	0.055	-0.097	0.036
2/23/2010 11:16:10	75.167	0.029	0.141	-0.013	0.007	0.025	-0.092	-0.032	0.020	0.055	-0.097	0.036
2/23/2010 11:16:20	75.333	0.026	0.139	-0.010	0.004	0.023	-0.092	-0.032	0.020	0.057	-0.094	0.034
2/23/2010 11:16:30	75.500	0.026	0.139	-0.013	0.007	0.023	-0.090	-0.032	0.018	0.055	-0.097	0.036
2/23/2010 11:16:40	75.667	0.026	0.141	-0.013	0.007	0.023	-0.092	-0.032	0.018	0.055	-0.094	0.036
2/23/2010 11:16:50	75.833	0.026	0.139	-0.010	0.007	0.026	-0.092	-0.032	0.018	0.055	-0.099	0.036
2/23/2010 11:17:00	76.000	0.026	0.141	-0.013	0.007	0.023	-0.092	-0.032	0.020	0.055	-0.092	0.034
2/23/2010 11:17:10	76.167	0.029	0.139	-0.015	0.007	0.023	-0.092	-0.032	0.018	0.055	-0.092	0.036
2/23/2010 11:17:20	76.333	0.026	0.139	-0.008	0.009	0.026	-0.092	-0.032	0.023	0.055	-0.092	0.034
2/23/2010 11:17:30	76.500	0.029	0.141	-0.008	0.007	0.028	-0.092	-0.032	0.018	0.057	-0.094	0.036
2/23/2010 11:17:40	76.667	0.026	0.139	-0.010	0.009	0.026	-0.087	-0.032	0.018	0.057	-0.092	0.036
2/23/2010 11:17:50	76.833	0.026	0.143	-0.006	0.009	0.026	-0.092	-0.032	0.020	0.057	-0.094	0.036

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 11:18:00	77.000	0.029	0.141	-0.013	0.009	0.028	-0.092	-0.032	0.018	0.057	-0.094	0.036
2/23/2010 11:18:10	77.167	0.026	0.143	-0.008	0.007	0.028	-0.092	-0.030	0.020	0.055	-0.092	0.036
2/23/2010 11:18:20	77.333	0.026	0.141	-0.013	0.007	0.023	-0.090	-0.035	0.016	0.055	-0.092	0.036
2/23/2010 11:18:30	77.500	0.029	0.146	-0.010	0.007	0.028	-0.092	-0.032	0.020	0.055	-0.092	0.038
2/23/2010 11:18:40	77.667	0.029	0.141	-0.010	0.009	0.028	-0.095	-0.030	0.020	0.055	-0.097	0.038
2/23/2010 11:18:50	77.833	0.029	0.143	-0.008	0.007	0.023	-0.092	-0.032	0.020	0.055	-0.090	0.036
2/23/2010 11:19:00	78.000	0.029	0.141	-0.010	0.004	0.028	-0.090	-0.035	0.023	0.055	-0.097	0.038
2/23/2010 11:19:10	78.167	0.029	0.143	-0.006	0.007	0.026	-0.090	-0.032	0.020	0.055	-0.094	0.036
2/23/2010 11:19:20	78.333	0.029	0.143	-0.013	0.009	0.028	-0.092	-0.032	0.018	0.055	-0.092	0.036
2/23/2010 11:19:30	78.500	0.029	0.141	-0.010	0.009	0.026	-0.092	-0.032	0.020	0.055	-0.092	0.038
2/23/2010 11:19:40	78.667	0.031	0.146	-0.010	0.007	0.028	-0.095	-0.032	0.020	0.055	-0.092	0.038
2/23/2010 11:19:50	78.833	0.029	0.146	-0.008	0.007	0.026	-0.087	-0.032	0.020	0.055	-0.094	0.038
2/23/2010 11:20:00	79.000	0.031	0.143	-0.010	0.007	0.028	-0.095	-0.032	0.020	0.055	-0.094	0.041
2/23/2010 11:20:10	79.167	0.029	0.146	-0.008	0.007	0.026	-0.092	-0.035	0.018	0.055	-0.092	0.038
2/23/2010 11:20:20	79.333	0.029	0.146	-0.006	0.007	0.026	-0.092	-0.032	0.023	0.055	-0.092	0.038
2/23/2010 11:20:30	79.500	0.031	0.143	-0.008	0.007	0.026	-0.092	-0.035	0.020	0.057	-0.094	0.038
2/23/2010 11:20:40	79.667	0.029	0.143	-0.005	0.004	0.026	-0.092	-0.032	0.023	0.057	-0.097	0.038
2/23/2010 11:20:50	79.833	0.031	0.146	-0.018	0.007	0.028	-0.092	-0.035	0.020	0.055	-0.094	0.041
2/23/2010 11:21:00	80.000	0.029	0.146	-0.008	0.007	0.026	-0.092	-0.032	0.018	0.057	-0.094	0.038
2/23/2010 11:21:10	80.167	0.029	0.143	-0.010	0.007	0.023	-0.095	-0.032	0.023	0.057	-0.097	0.041
2/23/2010 11:21:20	80.333	0.029	0.143	-0.015	0.007	0.026	-0.095	-0.032	0.020	0.055	-0.092	0.038
2/23/2010 11:21:30	80.500	0.026	0.148	-0.013	0.009	0.026	-0.092	-0.035	0.023	0.057	-0.094	0.038
2/23/2010 11:21:40	80.667	0.029	0.143	-0.006	0.007	0.028	-0.092	-0.032	0.020	0.057	-0.101	0.038
2/23/2010 11:21:50	80.833	0.029	0.146	-0.008	0.007	0.026	-0.092	-0.030	0.020	0.057	-0.097	0.041
2/23/2010 11:22:00	81.000	0.029	0.146	-0.010	0.007	0.028	-0.090	-0.032	0.020	0.057	-0.092	0.038
2/23/2010 11:22:10	81.167	0.029	0.148	-0.010	0.007	0.026	-0.092	-0.032	0.023	0.055	-0.092	0.038
2/23/2010 11:22:20	81.333	0.029	0.148	-0.010	0.009	0.023	-0.092	-0.032	0.020	0.057	-0.097	0.041
2/23/2010 11:22:30	81.500	0.026	0.148	-0.008	0.007	0.026	-0.092	-0.030	0.018	0.057	-0.094	0.038
2/23/2010 11:22:40	81.667	0.031	0.148	-0.010	0.009	0.028	-0.090	-0.032	0.023	0.057	-0.094	0.038
2/23/2010 11:22:50	81.833	0.029	0.146	-0.010	0.007	0.026	-0.092	-0.032	0.020	0.057	-0.092	0.041
2/23/2010 11:23:00	82.000	0.029	0.146	-0.008	0.007	0.025	-0.090	-0.030	0.023	0.057	-0.092	0.038
2/23/2010 11:23:10	82.167	0.029	0.146	-0.003	0.007	0.028	-0.092	-0.035	0.023	0.057	-0.094	0.038
2/23/2010 11:23:20	82.333	0.029	0.146	-0.008	0.007	0.028	-0.092	-0.032	0.025	0.057	-0.087	0.041
2/23/2010 11:23:30	82.500	0.026	0.150	-0.008	0.007	0.028	-0.092	-0.032	0.020	0.057	-0.099	0.041
2/23/2010 11:23:40	82.667	0.031	0.150	-0.013	0.007	0.026	-0.090	-0.035	0.018	0.057	-0.097	0.038
2/23/2010 11:23:50	82.833	0.031	0.150	-0.010	0.009	0.028	-0.090	-0.032	0.020	0.060	-0.094	0.038

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 11:24:00	83.000	0.029	0.150	-0.013	0.004	0.026	-0.092	-0.032	0.020	0.060	-0.092	0.041
2/23/2010 11:24:10	83.167	0.024	0.148	-0.013	0.007	0.026	-0.090	-0.030	0.020	0.059	-0.094	0.038
2/23/2010 11:24:20	83.333	0.026	0.148	-0.013	0.007	0.026	-0.090	-0.030	0.018	0.057	-0.090	0.041
2/23/2010 11:24:30	83.500	0.031	0.148	-0.010	0.009	0.030	-0.092	-0.035	0.023	0.057	-0.092	0.041
2/23/2010 11:24:40	83.667	0.026	0.150	-0.005	0.009	0.028	-0.090	-0.032	0.020	0.057	-0.099	0.041
2/23/2010 11:24:50	83.833	0.029	0.150	-0.013	0.007	0.028	-0.092	-0.032	0.023	0.059	-0.094	0.041
2/23/2010 11:25:00	84.000	0.029	0.150	-0.008	0.007	0.023	-0.092	-0.032	0.018	0.057	-0.090	0.041
2/23/2010 11:25:10	84.167	0.031	0.148	-0.008	0.007	0.026	-0.090	-0.030	0.023	0.057	-0.092	0.041
2/23/2010 11:25:20	84.333	0.029	0.153	-0.008	0.007	0.030	-0.090	-0.032	0.018	0.057	-0.092	0.041
2/23/2010 11:25:30	84.500	0.029	0.150	-0.008	0.009	0.028	-0.092	-0.035	0.023	0.057	-0.094	0.041
2/23/2010 11:25:40	84.667	0.031	0.148	-0.008	0.007	0.026	-0.092	-0.032	0.023	0.057	-0.092	0.041
2/23/2010 11:25:50	84.833	0.031	0.148	-0.008	0.009	0.028	-0.092	-0.032	0.020	0.060	-0.094	0.041
2/23/2010 11:26:00	85.000	0.029	0.150	-0.010	0.007	0.028	-0.092	-0.032	0.020	0.057	-0.094	0.041
2/23/2010 11:26:10	85.167	0.029	0.150	-0.010	0.004	0.030	-0.092	-0.032	0.023	0.057	-0.094	0.043
2/23/2010 11:26:20	85.333	0.029	0.153	-0.006	0.007	0.028	-0.092	-0.032	0.020	0.057	-0.092	0.038
2/23/2010 11:26:30	85.500	0.031	0.153	-0.008	0.009	0.030	-0.090	-0.032	0.020	0.055	-0.094	0.041
2/23/2010 11:26:40	85.667	0.031	0.153	-0.005	0.004	0.028	-0.095	-0.032	0.020	0.055	-0.094	0.041
2/23/2010 11:26:50	85.833	0.031	0.153	-0.008	0.007	0.023	-0.092	-0.032	0.023	0.057	-0.090	0.038
2/23/2010 11:27:00	86.000	0.031	0.153	-0.008	0.007	0.028	-0.092	-0.030	0.020	0.059	-0.092	0.043
2/23/2010 11:27:10	86.167	0.031	0.150	-0.013	0.007	0.028	-0.092	-0.032	0.025	0.059	-0.090	0.043
2/23/2010 11:27:20	86.333	0.031	0.153	-0.003	0.004	0.028	-0.090	-0.032	0.020	0.057	-0.087	0.041
2/23/2010 11:27:30	86.500	0.029	0.153	-0.006	0.007	0.028	-0.092	-0.030	0.020	0.057	-0.094	0.041
2/23/2010 11:27:40	86.667	0.031	0.153	-0.008	0.007	0.028	-0.090	-0.032	0.025	0.057	-0.092	0.043
2/23/2010 11:27:50	86.833	0.031	0.153	-0.008	0.007	0.030	-0.092	-0.032	0.023	0.057	-0.087	0.041
2/23/2010 11:28:00	87.000	0.029	0.157	-0.008	0.007	0.030	-0.092	-0.035	0.020	0.057	-0.090	0.041
2/23/2010 11:28:10	87.167	0.033	0.155	-0.006	0.007	0.026	-0.085	-0.032	0.020	0.060	-0.087	0.041
2/23/2010 11:28:20	87.333	0.029	0.155	-0.010	0.004	0.028	-0.090	-0.030	0.023	0.060	-0.094	0.041
2/23/2010 11:28:30	87.500	0.031	0.155	-0.013	0.007	0.030	-0.090	-0.032	0.023	0.057	-0.090	0.041
2/23/2010 11:28:40	87.667	0.029	0.153	-0.013	0.007	0.033	-0.087	-0.032	0.023	0.057	-0.094	0.043
2/23/2010 11:28:50	87.833	0.029	0.155	-0.008	0.007	0.028	-0.087	-0.032	0.023	0.057	-0.092	0.041
2/23/2010 11:29:00	88.000	0.031	0.153	-0.003	0.009	0.030	-0.087	-0.032	0.023	0.057	-0.090	0.043
2/23/2010 11:29:10	88.167	0.031	0.155	-0.005	0.004	0.028	-0.092	-0.032	0.023	0.057	-0.092	0.043
2/23/2010 11:29:20	88.333	0.031	0.153	-0.006	0.007	0.028	-0.090	-0.030	0.023	0.060	-0.094	0.043
2/23/2010 11:29:30	88.500	0.031	0.155	-0.006	0.007	0.028	-0.090	-0.032	0.023	0.057	-0.092	0.043
2/23/2010 11:29:40	88.667	0.031	0.155	-0.008	0.007	0.028	-0.095	-0.032	0.025	0.055	-0.097	0.041
2/23/2010 11:29:50	88.833	0.029	0.155	-0.008	0.004	0.028	-0.090	-0.030	0.025	0.057	-0.090	0.043

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 11:30:00	89.000	0.031	0.155	-0.008	0.007	0.033	-0.092	-0.030	0.023	0.060	-0.092	0.043
2/23/2010 11:30:10	89.167	0.031	0.155	-0.008	0.007	0.028	-0.092	-0.030	0.020	0.057	-0.090	0.041
2/23/2010 11:30:20	89.333	0.031	0.157	-0.006	0.009	0.030	-0.090	-0.030	0.023	0.057	-0.092	0.043
2/23/2010 11:30:30	89.500	0.031	0.155	-0.001	0.004	0.030	-0.092	-0.030	0.023	0.060	-0.087	0.041
2/23/2010 11:30:40	89.667	0.031	0.157	-0.006	0.009	0.035	-0.092	-0.032	0.023	0.057	-0.092	0.041
2/23/2010 11:30:50	89.833	0.031	0.155	-0.003	0.007	0.030	-0.090	-0.030	0.025	0.057	-0.090	0.041
2/23/2010 11:31:00	90.000	0.031	0.155	-0.008	0.009	0.030	-0.090	-0.032	0.025	0.057	-0.090	0.041
2/23/2010 11:31:10	90.167	0.031	0.155	-0.008	0.009	0.033	-0.092	-0.032	0.020	0.057	-0.092	0.043
2/23/2010 11:31:20	90.333	0.031	0.155	-0.005	0.007	0.028	-0.090	-0.032	0.023	0.057	-0.090	0.041
2/23/2010 11:31:30	90.500	0.033	0.157	-0.003	0.009	0.030	-0.090	-0.030	0.025	0.055	-0.090	0.043
2/23/2010 11:31:40	90.667	0.031	0.155	-0.008	0.007	0.030	-0.090	-0.032	0.023	0.057	-0.092	0.043
2/23/2010 11:31:50	90.833	0.031	0.155	-0.008	0.009	0.028	-0.092	-0.030	0.025	0.057	-0.094	0.043
2/23/2010 11:32:00	91.000	0.026	0.157	-0.010	0.007	0.028	-0.090	-0.032	0.025	0.057	-0.092	0.043
2/23/2010 11:32:10	91.167	0.031	0.157	-0.003	0.004	0.030	-0.092	-0.030	0.023	0.057	-0.092	0.043
2/23/2010 11:32:20	91.333	0.031	0.162	-0.008	0.007	0.028	-0.087	-0.032	0.025	0.055	-0.092	0.043
2/23/2010 11:32:30	91.500	0.033	0.157	-0.003	0.007	0.033	-0.092	-0.030	0.023	0.057	-0.090	0.043
2/23/2010 11:32:40	91.667	0.031	0.157	-0.003	0.009	0.030	-0.090	-0.030	0.025	0.057	-0.092	0.043
2/23/2010 11:32:50	91.833	0.033	0.157	-0.005	0.004	0.030	-0.090	-0.030	0.025	0.057	-0.092	0.041
2/23/2010 11:33:00	92.000	0.031	0.160	-0.008	0.007	0.030	-0.090	-0.032	0.027	0.057	-0.092	0.043
2/23/2010 11:33:10	92.167	0.031	0.157	-0.005	0.004	0.030	-0.090	-0.030	0.023	0.057	-0.092	0.043
2/23/2010 11:33:20	92.333	0.031	0.160	-0.006	0.004	0.033	-0.092	-0.030	0.025	0.057	-0.090	0.043
2/23/2010 11:33:30	92.500	0.031	0.160	-0.003	0.009	0.030	-0.090	-0.032	0.023	0.057	-0.092	0.043
2/23/2010 11:33:40	92.667	0.031	0.162	-0.008	0.007	0.028	-0.092	-0.032	0.023	0.057	-0.092	0.043
2/23/2010 11:33:50	92.833	0.033	0.160	-0.006	0.009	0.028	-0.090	-0.032	0.025	0.057	-0.087	0.043
2/23/2010 11:34:00	93.000	0.031	0.160	-0.010	0.009	0.028	-0.090	-0.032	0.023	0.055	-0.092	0.045
2/23/2010 11:34:10	93.167	0.034	0.160	-0.005	0.007	0.028	-0.090	-0.030	0.023	0.057	-0.092	0.045
2/23/2010 11:34:20	93.333	0.031	0.160	-0.010	0.007	0.028	-0.092	-0.030	0.025	0.060	-0.087	0.045
2/23/2010 11:34:30	93.500	0.031	0.160	-0.008	0.007	0.033	-0.090	-0.032	0.027	0.057	-0.090	0.043
2/23/2010 11:34:40	93.667	0.031	0.160	-0.008	0.009	0.028	-0.090	-0.030	0.025	0.057	-0.090	0.043
2/23/2010 11:34:50	93.833	0.031	0.162	-0.005	0.007	0.030	-0.087	-0.032	0.025	0.057	-0.090	0.043
2/23/2010 11:35:00	94.000	0.029	0.162	-0.003	0.009	0.033	-0.090	-0.030	0.023	0.057	-0.087	0.043
2/23/2010 11:35:10	94.167	0.031	0.160	-0.001	0.007	0.030	-0.087	-0.032	0.023	0.057	-0.090	0.043
2/23/2010 11:35:20	94.333	0.031	0.164	-0.013	0.007	0.028	-0.090	-0.030	0.023	0.060	-0.092	0.043
2/23/2010 11:35:30	94.500	0.031	0.162	-0.008	0.009	0.033	-0.092	-0.030	0.023	0.057	-0.090	0.045
2/23/2010 11:35:40	94.667	0.031	0.164	-0.001	0.007	0.030	-0.090	-0.030	0.023	0.060	-0.094	0.043
2/23/2010 11:35:50	94.833	0.031	0.162	-0.006	0.007	0.028	-0.090	-0.032	0.025	0.060	-0.092	0.045

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 11:36:00	95.000	0.029	0.162	-0.003	0.007	0.030	-0.090	-0.030	0.027	0.059	-0.092	0.043
2/23/2010 11:36:10	95.167	0.031	0.162	-0.006	0.007	0.030	-0.092	-0.030	0.025	0.057	-0.092	0.043
2/23/2010 11:36:20	95.333	0.031	0.162	-0.005	0.007	0.030	-0.090	-0.030	0.023	0.060	-0.092	0.043
2/23/2010 11:36:30	95.500	0.034	0.162	-0.005	0.009	0.030	-0.090	-0.032	0.025	0.057	-0.092	0.043
2/23/2010 11:36:40	95.667	0.031	0.164	-0.003	0.009	0.030	-0.092	-0.032	0.025	0.060	-0.092	0.045
2/23/2010 11:36:50	95.833	0.031	0.164	-0.006	0.009	0.030	-0.090	-0.030	0.023	0.057	-0.092	0.043
2/23/2010 11:37:00	96.000	0.031	0.164	-0.003	0.004	0.030	-0.087	-0.028	0.025	0.060	-0.090	0.043
2/23/2010 11:37:10	96.167	0.031	0.162	-0.010	0.007	0.033	-0.090	-0.030	0.025	0.060	-0.092	0.043
2/23/2010 11:37:20	96.333	0.033	0.164	-0.001	0.009	0.033	-0.092	-0.030	0.025	0.057	-0.092	0.043
2/23/2010 11:37:30	96.500	0.031	0.164	-0.003	0.007	0.030	-0.090	-0.030	0.025	0.060	-0.090	0.045
2/23/2010 11:37:40	96.667	0.033	0.160	-0.003	0.007	0.033	-0.090	-0.030	0.025	0.057	-0.087	0.045
2/23/2010 11:37:50	96.833	0.029	0.164	-0.001	0.004	0.030	-0.090	-0.028	0.023	0.062	-0.092	0.043
2/23/2010 11:38:00	97.000	0.029	0.162	-0.003	0.007	0.033	-0.090	-0.030	0.025	0.057	-0.092	0.041
2/23/2010 11:38:10	97.167	0.033	0.164	-0.003	0.007	0.033	-0.092	-0.030	0.027	0.057	-0.094	0.045
2/23/2010 11:38:20	97.333	0.031	0.164	-0.001	0.009	0.030	-0.090	-0.030	0.020	0.060	-0.090	0.045
2/23/2010 11:38:30	97.500	0.034	0.164	-0.003	0.004	0.035	-0.087	-0.030	0.025	0.059	-0.092	0.043
2/23/2010 11:38:40	97.667	0.031	0.167	-0.001	0.009	0.030	-0.090	-0.030	0.025	0.060	-0.090	0.043
2/23/2010 11:38:50	97.833	0.029	0.164	-0.006	0.007	0.033	-0.090	-0.028	0.020	0.062	-0.090	0.043
2/23/2010 11:39:00	98.000	0.034	0.164	-0.006	0.007	0.028	-0.090	-0.028	0.025	0.060	-0.090	0.043
2/23/2010 11:39:10	98.167	0.031	0.169	-0.006	0.007	0.030	-0.090	-0.032	0.025	0.059	-0.092	0.045
2/23/2010 11:39:20	98.333	0.033	0.167	-0.008	0.007	0.035	-0.095	-0.030	0.025	0.060	-0.094	0.043
2/23/2010 11:39:30	98.500	0.031	0.167	-0.003	0.007	0.033	-0.090	-0.030	0.023	0.060	-0.090	0.045
2/23/2010 11:39:40	98.667	0.033	0.164	-0.010	0.009	0.030	-0.087	-0.028	0.025	0.057	-0.094	0.045
2/23/2010 11:39:50	98.833	0.029	0.167	-0.006	0.007	0.030	-0.090	-0.030	0.025	0.059	-0.090	0.043
2/23/2010 11:40:00	99.000	0.033	0.164	-0.003	0.009	0.033	-0.090	-0.030	0.025	0.060	-0.090	0.043
2/23/2010 11:40:10	99.167	0.031	0.167	-0.006	0.007	0.030	-0.090	-0.030	0.023	0.057	-0.090	0.043
2/23/2010 11:40:20	99.333	0.031	0.167	-0.003	0.009	0.033	-0.090	-0.030	0.025	0.060	-0.092	0.045
2/23/2010 11:40:30	99.500	0.031	0.169	-0.001	0.007	0.033	-0.090	-0.030	0.025	0.060	-0.087	0.045
2/23/2010 11:40:40	99.667	0.031	0.167	-0.001	0.007	0.033	-0.090	-0.030	0.025	0.060	-0.090	0.043
2/23/2010 11:40:50	99.833	0.036	0.167	-0.005	0.004	0.030	-0.090	-0.030	0.025	0.060	-0.092	0.045
2/23/2010 11:41:00	100.000	0.031	0.167	-0.006	0.009	0.035	-0.087	-0.030	0.025	0.062	-0.094	0.045
2/23/2010 11:41:10	100.167	0.031	0.167	-0.008	0.007	0.033	-0.090	-0.030	0.027	0.059	-0.092	0.045
2/23/2010 11:41:20	100.333	0.034	0.162	-0.008	0.009	0.035	-0.087	-0.030	0.027	0.060	-0.094	0.043
2/23/2010 11:41:30	100.500	0.033	0.169	-0.006	0.009	0.033	-0.090	-0.028	0.025	0.060	-0.092	0.045
2/23/2010 11:41:40	100.667	0.034	0.167	-0.006	0.009	0.033	-0.090	-0.030	0.027	0.060	-0.094	0.045
2/23/2010 11:41:50	100.833	0.033	0.169	-0.003	0.007	0.030	-0.087	-0.028	0.027	0.060	-0.092	0.043

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 11:42:00	101.000	0.034	0.167	-0.001	0.009	0.033	-0.087	-0.030	0.027	0.060	-0.090	0.045
2/23/2010 11:42:10	101.167	0.031	0.164	-0.001	0.007	0.035	-0.090	-0.030	0.023	0.060	-0.090	0.045
2/23/2010 11:42:20	101.333	0.031	0.167	-0.001	0.007	0.033	-0.087	-0.028	0.025	0.057	-0.090	0.045
2/23/2010 11:42:30	101.500	0.031	0.167	-0.010	0.007	0.033	-0.087	-0.028	0.027	0.059	-0.092	0.045
2/23/2010 11:42:40	101.667	0.033	0.169	-0.006	0.009	0.033	-0.090	-0.030	0.023	0.060	-0.090	0.043
2/23/2010 11:42:50	101.833	0.033	0.167	0.002	0.007	0.033	-0.090	-0.028	0.027	0.060	-0.094	0.043
2/23/2010 11:43:00	102.000	0.034	0.167	-0.006	0.009	0.026	-0.090	-0.028	0.025	0.062	-0.092	0.045
2/23/2010 11:43:10	102.167	0.031	0.169	-0.003	0.007	0.035	-0.087	-0.028	0.025	0.060	-0.092	0.045
2/23/2010 11:43:20	102.333	0.033	0.169	-0.006	0.007	0.033	-0.092	-0.028	0.027	0.059	-0.090	0.045
2/23/2010 11:43:30	102.500	0.034	0.169	-0.010	0.007	0.030	-0.090	-0.032	0.030	0.060	-0.092	0.043
2/23/2010 11:43:40	102.667	0.029	0.167	-0.006	0.004	0.033	-0.092	-0.030	0.025	0.062	-0.090	0.043
2/23/2010 11:43:50	102.833	0.031	0.167	0.002	0.007	0.030	-0.092	-0.028	0.025	0.062	-0.092	0.043
2/23/2010 11:44:00	103.000	0.033	0.167	-0.003	0.007	0.033	-0.092	-0.030	0.025	0.060	-0.090	0.043
2/23/2010 11:44:10	103.167	0.031	0.169	-0.003	0.009	0.030	-0.090	-0.028	0.025	0.059	-0.090	0.043
2/23/2010 11:44:20	103.333	0.031	0.169	-0.006	0.007	0.035	-0.090	-0.030	0.027	0.062	-0.092	0.043
2/23/2010 11:44:30	103.500	0.031	0.167	-0.006	0.007	0.033	-0.090	-0.028	0.025	0.062	-0.092	0.043
2/23/2010 11:44:40	103.667	0.031	0.169	-0.003	0.007	0.033	-0.095	-0.028	0.020	0.062	-0.087	0.045
2/23/2010 11:44:50	103.833	0.031	0.169	-0.005	0.009	0.035	-0.090	-0.030	0.027	0.060	-0.090	0.043
2/23/2010 11:45:00	104.000	0.033	0.169	-0.005	0.007	0.033	-0.090	-0.030	0.027	0.060	-0.092	0.043
2/23/2010 11:45:10	104.167	0.033	0.169	-0.008	0.007	0.035	-0.092	-0.028	0.025	0.062	-0.092	0.045
2/23/2010 11:45:20	104.333	0.031	0.169	0.002	0.007	0.033	-0.090	-0.030	0.030	0.060	-0.094	0.043
2/23/2010 11:45:30	104.500	0.031	0.167	-0.003	0.009	0.035	-0.090	-0.025	0.023	0.060	-0.090	0.045
2/23/2010 11:45:40	104.667	0.031	0.171	0.002	0.009	0.035	-0.090	-0.030	0.027	0.060	-0.092	0.043
2/23/2010 11:45:50	104.833	0.031	0.171	-0.006	0.007	0.035	-0.090	-0.030	0.027	0.062	-0.097	0.043
2/23/2010 11:46:00	105.000	0.033	0.169	-0.003	0.009	0.033	-0.090	-0.028	0.027	0.060	-0.097	0.043
2/23/2010 11:46:10	105.167	0.031	0.169	-0.003	0.007	0.033	-0.090	-0.028	0.023	0.060	-0.094	0.043
2/23/2010 11:46:20	105.333	0.031	0.171	-0.001	0.009	0.035	-0.095	-0.030	0.025	0.062	-0.092	0.043
2/23/2010 11:46:30	105.500	0.033	0.169	-0.006	0.007	0.035	-0.090	-0.028	0.030	0.062	-0.090	0.045
2/23/2010 11:46:40	105.667	0.033	0.171	0.002	0.007	0.035	-0.090	-0.030	0.025	0.062	-0.092	0.045
2/23/2010 11:46:50	105.833	0.033	0.171	-0.005	0.007	0.033	-0.090	-0.028	0.025	0.064	-0.087	0.043
2/23/2010 11:47:00	106.000	0.033	0.174	-0.001	0.009	0.033	-0.090	-0.030	0.027	0.060	-0.090	0.043
2/23/2010 11:47:10	106.167	0.031	0.169	-0.003	0.007	0.035	-0.087	-0.025	0.027	0.062	-0.092	0.045
2/23/2010 11:47:20	106.333	0.033	0.174	-0.008	0.007	0.035	-0.092	-0.028	0.027	0.062	-0.090	0.043
2/23/2010 11:47:30	106.500	0.033	0.169	-0.001	0.009	0.033	-0.092	-0.028	0.025	0.062	-0.090	0.043
2/23/2010 11:47:40	106.667	0.033	0.171	-0.003	0.007	0.033	-0.092	-0.028	0.027	0.062	-0.092	0.045
2/23/2010 11:47:50	106.833	0.036	0.171	-0.008	0.009	0.035	-0.087	-0.030	0.027	0.059	-0.085	0.043

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 11:48:00	107.000	0.036	0.169	0.002	0.007	0.033	-0.090	-0.028	0.027	0.060	-0.087	0.045
2/23/2010 11:48:10	107.167	0.033	0.171	-0.008	0.009	0.033	-0.090	-0.028	0.027	0.062	-0.090	0.045
2/23/2010 11:48:20	107.333	0.036	0.171	0.002	0.009	0.035	-0.087	-0.028	0.030	0.062	-0.090	0.045
2/23/2010 11:48:30	107.500	0.034	0.171	-0.003	0.009	0.035	-0.087	-0.028	0.030	0.059	-0.090	0.045
2/23/2010 11:48:40	107.667	0.036	0.174	-0.003	0.007	0.035	-0.087	-0.028	0.030	0.059	-0.094	0.045
2/23/2010 11:48:50	107.833	0.036	0.171	-0.003	0.007	0.035	-0.090	-0.030	0.027	0.059	-0.087	0.045
2/23/2010 11:49:00	108.000	0.036	0.171	0.004	0.007	0.035	-0.087	-0.025	0.025	0.059	-0.092	0.045
2/23/2010 11:49:10	108.167	0.036	0.171	0.002	0.009	0.035	-0.090	-0.028	0.032	0.059	-0.094	0.048
2/23/2010 11:49:20	108.333	0.033	0.171	-0.003	0.009	0.033	-0.087	-0.025	0.027	0.060	-0.092	0.045
2/23/2010 11:49:30	108.500	0.033	0.174	-0.001	0.009	0.035	-0.087	-0.025	0.027	0.059	-0.090	0.048
2/23/2010 11:49:40	108.667	0.036	0.174	-0.001	0.007	0.033	-0.087	-0.030	0.027	0.060	-0.087	0.048
2/23/2010 11:49:50	108.833	0.036	0.174	-0.003	0.009	0.035	-0.087	-0.028	0.027	0.059	-0.087	0.045
2/23/2010 11:50:00	109.000	0.033	0.174	0.002	0.007	0.035	-0.090	-0.028	0.025	0.062	-0.087	0.045
2/23/2010 11:50:10	109.167	0.038	0.174	-0.001	0.007	0.035	-0.090	-0.025	0.025	0.062	-0.087	0.048
2/23/2010 11:50:20	109.333	0.033	0.171	-0.005	0.007	0.035	-0.087	-0.028	0.027	0.060	-0.090	0.045
2/23/2010 11:50:30	109.500	0.036	0.174	-0.003	0.007	0.033	-0.090	-0.028	0.025	0.060	-0.087	0.048
2/23/2010 11:50:40	109.667	0.036	0.174	0.002	0.007	0.035	-0.087	-0.028	0.027	0.060	-0.094	0.048
2/23/2010 11:50:50	109.833	0.036	0.174	-0.003	0.007	0.035	-0.090	-0.028	0.027	0.057	-0.087	0.045
2/23/2010 11:51:00	110.000	0.036	0.171	0.002	0.007	0.037	-0.087	-0.028	0.027	0.060	-0.090	0.048
2/23/2010 11:51:10	110.167	0.036	0.171	-0.003	0.007	0.040	-0.087	-0.025	0.030	0.059	-0.090	0.048
2/23/2010 11:51:20	110.333	0.036	0.171	-0.006	0.007	0.035	-0.087	-0.028	0.030	0.059	-0.087	0.050
2/23/2010 11:51:30	110.500	0.036	0.171	-0.001	0.007	0.035	-0.090	-0.028	0.027	0.060	-0.090	0.048
2/23/2010 11:51:40	110.667	0.036	0.171	-0.003	0.007	0.033	-0.087	-0.028	0.027	0.059	-0.094	0.048
2/23/2010 11:51:50	110.833	0.034	0.171	0.002	0.007	0.033	-0.087	-0.028	0.027	0.059	-0.087	0.048
2/23/2010 11:52:00	111.000	0.036	0.171	-0.003	0.009	0.037	-0.087	-0.028	0.030	0.060	-0.087	0.050
2/23/2010 11:52:10	111.167	0.036	0.171	-0.001	0.007	0.033	-0.085	-0.025	0.030	0.057	-0.090	0.048
2/23/2010 11:52:20	111.333	0.036	0.174	-0.003	0.012	0.035	-0.087	-0.028	0.027	0.059	-0.087	0.048
2/23/2010 11:52:30	111.500	0.033	0.171	0.002	0.007	0.035	-0.085	-0.030	0.030	0.059	-0.087	0.048
2/23/2010 11:52:40	111.667	0.036	0.174	-0.003	0.007	0.035	-0.090	-0.028	0.027	0.057	-0.092	0.048
2/23/2010 11:52:50	111.833	0.036	0.171	0.002	0.007	0.035	-0.087	-0.028	0.027	0.062	-0.092	0.050
2/23/2010 11:53:00	112.000	0.033	0.174	-0.003	0.007	0.033	-0.087	-0.028	0.027	0.060	-0.092	0.048
2/23/2010 11:53:10	112.167	0.036	0.171	-0.003	0.009	0.037	-0.087	-0.028	0.030	0.062	-0.092	0.050
2/23/2010 11:53:20	112.333	0.038	0.174	-0.001	0.007	0.037	-0.090	-0.028	0.027	0.060	-0.090	0.050
2/23/2010 11:53:30	112.500	0.036	0.174	0.002	0.007	0.037	-0.085	-0.028	0.030	0.062	-0.092	0.048
2/23/2010 11:53:40	112.667	0.036	0.174	0.004	0.009	0.035	-0.085	-0.028	0.032	0.060	-0.092	0.048
2/23/2010 11:53:50	112.833	0.036	0.174	-0.006	0.007	0.035	-0.087	-0.028	0.027	0.060	-0.090	0.050

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 11:54:00	113.000	0.036	0.174	0.002	0.007	0.033	-0.087	-0.025	0.030	0.060	-0.092	0.050
2/23/2010 11:54:10	113.167	0.033	0.174	0.002	0.009	0.037	-0.087	-0.025	0.025	0.059	-0.087	0.048
2/23/2010 11:54:20	113.333	0.036	0.171	-0.003	0.007	0.035	-0.085	-0.030	0.025	0.060	-0.092	0.048
2/23/2010 11:54:30	113.500	0.036	0.174	-0.001	0.009	0.037	-0.085	-0.028	0.030	0.059	-0.094	0.050
2/23/2010 11:54:40	113.667	0.034	0.176	-0.001	0.007	0.040	-0.085	-0.025	0.023	0.060	-0.090	0.048
2/23/2010 11:54:50	113.833	0.036	0.176	-0.005	0.009	0.037	-0.087	-0.028	0.030	0.057	-0.087	0.048
2/23/2010 11:55:00	114.000	0.036	0.174	-0.001	0.009	0.042	-0.085	-0.028	0.030	0.060	-0.087	0.050
2/23/2010 11:55:10	114.167	0.036	0.174	-0.001	0.007	0.035	-0.087	-0.025	0.030	0.062	-0.085	0.052
2/23/2010 11:55:20	114.333	0.038	0.174	-0.001	0.004	0.037	-0.087	-0.025	0.027	0.060	-0.085	0.050
2/23/2010 11:55:30	114.500	0.036	0.176	0.007	0.007	0.040	-0.085	-0.025	0.030	0.057	-0.090	0.050
2/23/2010 11:55:40	114.667	0.038	0.174	0.002	0.009	0.035	-0.085	-0.028	0.027	0.060	-0.087	0.050
2/23/2010 11:55:50	114.833	0.038	0.171	0.002	0.007	0.037	-0.087	-0.028	0.027	0.062	-0.087	0.052
2/23/2010 11:56:00	115.000	0.036	0.176	-0.003	0.009	0.035	-0.080	-0.028	0.030	0.060	-0.085	0.050
2/23/2010 11:56:10	115.167	0.038	0.176	0.004	0.007	0.037	-0.087	-0.025	0.030	0.059	-0.087	0.050
2/23/2010 11:56:20	115.333	0.033	0.174	0.002	0.004	0.035	-0.087	-0.028	0.030	0.060	-0.087	0.050
2/23/2010 11:56:30	115.500	0.036	0.174	0.004	0.007	0.035	-0.087	-0.025	0.030	0.059	-0.090	0.052
2/23/2010 11:56:40	115.667	0.038	0.176	-0.003	0.007	0.040	-0.087	-0.028	0.027	0.059	-0.085	0.050
2/23/2010 11:56:50	115.833	0.036	0.176	0.002	0.007	0.037	-0.087	-0.028	0.030	0.060	-0.090	0.050
2/23/2010 11:57:00	116.000	0.036	0.174	0.002	0.007	0.037	-0.085	-0.028	0.030	0.059	-0.085	0.050
2/23/2010 11:57:10	116.167	0.038	0.174	-0.001	0.007	0.037	-0.085	-0.025	0.032	0.060	-0.090	0.052
2/23/2010 11:57:20	116.333	0.036	0.176	0.002	0.007	0.035	-0.087	-0.028	0.030	0.060	-0.087	0.050
2/23/2010 11:57:30	116.500	0.036	0.176	0.004	0.007	0.037	-0.087	-0.028	0.030	0.059	-0.087	0.052
2/23/2010 11:57:40	116.667	0.036	0.176	0.002	0.009	0.035	-0.085	-0.028	0.025	0.060	-0.087	0.050
2/23/2010 11:57:50	116.833	0.036	0.176	-0.001	0.007	0.035	-0.085	-0.028	0.030	0.059	-0.085	0.050
2/23/2010 11:58:00	117.000	0.033	0.176	-0.003	0.007	0.037	-0.085	-0.025	0.030	0.062	-0.085	0.052
2/23/2010 11:58:10	117.167	0.038	0.174	0.002	0.007	0.037	-0.085	-0.028	0.027	0.060	-0.085	0.052
2/23/2010 11:58:20	117.333	0.036	0.174	0.004	0.007	0.035	-0.085	-0.025	0.027	0.060	-0.087	0.052
2/23/2010 11:58:30	117.500	0.036	0.174	-0.001	0.007	0.040	-0.087	-0.025	0.030	0.060	-0.092	0.052
2/23/2010 11:58:40	117.667	0.038	0.174	-0.003	0.007	0.037	-0.085	-0.025	0.025	0.060	-0.085	0.052
2/23/2010 11:58:50	117.833	0.036	0.176	-0.003	0.007	0.035	-0.085	-0.025	0.030	0.062	-0.087	0.052
2/23/2010 11:59:00	118.000	0.038	0.176	-0.001	0.007	0.040	-0.087	-0.028	0.027	0.059	-0.087	0.052
2/23/2010 11:59:10	118.167	0.036	0.174	-0.001	0.007	0.035	-0.087	-0.028	0.032	0.060	-0.087	0.052
2/23/2010 11:59:20	118.333	0.036	0.174	-0.001	0.007	0.037	-0.087	-0.028	0.027	0.060	-0.085	0.052
2/23/2010 11:59:30	118.500	0.036	0.174	-0.003	0.004	0.035	-0.085	-0.025	0.027	0.059	-0.087	0.055
2/23/2010 11:59:40	118.667	0.038	0.176	0.002	0.009	0.035	-0.085	-0.025	0.027	0.060	-0.085	0.052
2/23/2010 11:59:50	118.833	0.038	0.176	0.002	0.007	0.035	-0.087	-0.028	0.032	0.059	-0.087	0.052

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 12:00:00	119.000	0.038	0.174	-0.001	0.007	0.037	-0.085	-0.023	0.032	0.059	-0.085	0.055
2/23/2010 12:00:10	119.167	0.038	0.176	-0.001	0.009	0.037	-0.085	-0.025	0.032	0.059	-0.083	0.052
2/23/2010 12:00:20	119.333	0.038	0.178	-0.001	0.007	0.035	-0.085	-0.025	0.030	0.060	-0.085	0.052
2/23/2010 12:00:30	119.500	0.038	0.174	0.002	0.009	0.037	-0.085	-0.025	0.030	0.060	-0.087	0.055
2/23/2010 12:00:40	119.667	0.036	0.174	-0.001	0.007	0.042	-0.085	-0.025	0.030	0.059	-0.085	0.055
2/23/2010 12:00:50	119.833	0.038	0.176	-0.001	0.007	0.042	-0.085	-0.023	0.032	0.059	-0.085	0.052
2/23/2010 12:01:00	120.000	0.038	0.176	0.002	0.004	0.037	-0.083	-0.025	0.030	0.060	-0.092	0.052
2/23/2010 12:01:10	120.167	0.036	0.176	0.004	0.009	0.042	-0.085	-0.028	0.027	0.060	-0.083	0.052
2/23/2010 12:01:20	120.333	0.036	0.174	0.004	0.007	0.035	-0.083	-0.025	0.027	0.060	-0.092	0.055
2/23/2010 12:01:30	120.500	0.033	0.174	-0.005	0.009	0.037	-0.080	-0.025	0.030	0.057	-0.090	0.055
2/23/2010 12:01:40	120.667	0.038	0.176	0.004	0.007	0.040	-0.085	-0.025	0.030	0.060	-0.085	0.055
2/23/2010 12:01:50	120.833	0.038	0.176	0.004	0.007	0.037	-0.085	-0.025	0.027	0.060	-0.085	0.052
2/23/2010 12:02:00	121.000	0.038	0.176	-0.001	0.007	0.037	-0.083	-0.025	0.027	0.060	-0.087	0.052
2/23/2010 12:02:10	121.167	0.036	0.176	0.002	0.007	0.035	-0.083	-0.028	0.030	0.060	-0.087	0.055
2/23/2010 12:02:20	121.333	0.036	0.176	-0.001	0.009	0.035	-0.087	-0.028	0.030	0.060	-0.087	0.055
2/23/2010 12:02:30	121.500	0.041	0.174	-0.003	0.004	0.037	-0.083	-0.025	0.030	0.060	-0.085	0.055
2/23/2010 12:02:40	121.667	0.036	0.176	0.002	0.004	0.037	-0.085	-0.028	0.030	0.060	-0.085	0.055
2/23/2010 12:02:50	121.833	0.036	0.178	-0.003	0.004	0.040	-0.087	-0.025	0.027	0.062	-0.085	0.055
2/23/2010 12:03:00	122.000	0.038	0.174	-0.001	0.009	0.037	-0.083	-0.025	0.030	0.060	-0.087	0.052
2/23/2010 12:03:10	122.167	0.036	0.174	0.004	0.009	0.040	-0.083	-0.023	0.030	0.062	-0.085	0.055
2/23/2010 12:03:20	122.333	0.036	0.178	0.002	0.007	0.040	-0.083	-0.025	0.027	0.060	-0.087	0.057
2/23/2010 12:03:30	122.500	0.036	0.176	-0.001	0.004	0.037	-0.083	-0.025	0.030	0.059	-0.085	0.057
2/23/2010 12:03:40	122.667	0.038	0.176	0.004	0.009	0.037	-0.083	-0.028	0.030	0.062	-0.083	0.055
2/23/2010 12:03:50	122.833	0.036	0.178	-0.001	0.009	0.037	-0.083	-0.025	0.030	0.062	-0.080	0.055
2/23/2010 12:04:00	123.000	0.038	0.178	0.002	0.007	0.035	-0.085	-0.028	0.032	0.062	-0.085	0.055
2/23/2010 12:04:10	123.167	0.036	0.178	0.002	0.009	0.040	-0.085	-0.025	0.030	0.060	-0.080	0.055
2/23/2010 12:04:20	123.333	0.036	0.176	0.004	0.009	0.037	-0.085	-0.025	0.032	0.060	-0.085	0.055
2/23/2010 12:04:30	123.500	0.038	0.178	0.002	0.007	0.042	-0.083	-0.028	0.025	0.062	-0.080	0.055
2/23/2010 12:04:40	123.667	0.038	0.174	0.002	0.009	0.035	-0.085	-0.025	0.030	0.059	-0.083	0.055
2/23/2010 12:04:50	123.833	0.038	0.176	-0.001	0.009	0.040	-0.080	-0.023	0.030	0.062	-0.087	0.055
2/23/2010 12:05:00	124.000	0.038	0.178	0.004	0.007	0.040	-0.083	-0.025	0.030	0.060	-0.087	0.055
2/23/2010 12:05:10	124.167	0.038	0.174	-0.003	0.009	0.040	-0.083	-0.028	0.032	0.060	-0.083	0.055
2/23/2010 12:05:20	124.333	0.038	0.176	0.002	0.007	0.040	-0.083	-0.025	0.032	0.059	-0.085	0.055
2/23/2010 12:05:30	124.500	0.038	0.178	-0.001	0.009	0.037	-0.083	-0.028	0.032	0.060	-0.087	0.057
2/23/2010 12:05:40	124.667	0.038	0.176	0.007	0.009	0.035	-0.083	-0.025	0.027	0.057	-0.080	0.055
2/23/2010 12:05:50	124.833	0.038	0.176	-0.001	0.007	0.037	-0.083	-0.023	0.030	0.059	-0.085	0.055

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 12:06:00	125.000	0.038	0.176	0.007	0.007	0.040	-0.083	-0.025	0.030	0.060	-0.083	0.057
2/23/2010 12:06:10	125.167	0.038	0.176	0.002	0.009	0.040	-0.080	-0.025	0.030	0.059	-0.083	0.059
2/23/2010 12:06:20	125.333	0.036	0.183	0.002	0.009	0.037	-0.080	-0.025	0.027	0.059	-0.085	0.057
2/23/2010 12:06:30	125.500	0.036	0.176	0.002	0.009	0.037	-0.083	-0.025	0.030	0.062	-0.085	0.057
2/23/2010 12:06:40	125.667	0.038	0.176	0.004	0.009	0.037	-0.085	-0.023	0.030	0.062	-0.083	0.057
2/23/2010 12:06:50	125.833	0.036	0.176	0.002	0.002	0.040	-0.078	-0.025	0.030	0.059	-0.087	0.057
2/23/2010 12:07:00	126.000	0.041	0.178	0.002	0.009	0.040	-0.083	-0.023	0.030	0.062	-0.087	0.057
2/23/2010 12:07:10	126.167	0.038	0.176	0.002	0.012	0.042	-0.083	-0.025	0.027	0.059	-0.083	0.057
2/23/2010 12:07:20	126.333	0.038	0.178	0.004	0.009	0.040	-0.083	-0.025	0.034	0.060	-0.085	0.057
2/23/2010 12:07:30	126.500	0.036	0.176	0.007	0.007	0.042	-0.080	-0.025	0.030	0.060	-0.085	0.059
2/23/2010 12:07:40	126.667	0.036	0.176	-0.001	0.009	0.037	-0.080	-0.023	0.027	0.062	-0.080	0.059
2/23/2010 12:07:50	126.833	0.038	0.176	0.002	0.009	0.045	-0.083	-0.023	0.030	0.059	-0.085	0.057
2/23/2010 12:08:00	127.000	0.036	0.176	0.009	0.007	0.040	-0.080	-0.025	0.032	0.060	-0.085	0.057
2/23/2010 12:08:10	127.167	0.036	0.176	0.004	0.007	0.037	-0.083	-0.025	0.030	0.059	-0.087	0.059
2/23/2010 12:08:20	127.333	0.036	0.178	0.002	0.009	0.040	-0.080	-0.025	0.027	0.060	-0.085	0.059
2/23/2010 12:08:30	127.500	0.041	0.174	0.004	0.009	0.040	-0.083	-0.025	0.030	0.060	-0.085	0.059
2/23/2010 12:08:40	127.667	0.038	0.176	-0.003	0.007	0.040	-0.083	-0.023	0.030	0.062	-0.083	0.059
2/23/2010 12:08:50	127.833	0.038	0.176	-0.005	0.009	0.037	-0.083	-0.023	0.030	0.062	-0.080	0.057
2/23/2010 12:09:00	128.000	0.041	0.178	-0.003	0.009	0.040	-0.080	-0.023	0.027	0.059	-0.083	0.059
2/23/2010 12:09:10	128.167	0.038	0.176	0.007	0.009	0.037	-0.083	-0.025	0.030	0.062	-0.080	0.062
2/23/2010 12:09:20	128.333	0.036	0.178	-0.003	0.007	0.040	-0.085	-0.023	0.030	0.064	-0.083	0.059
2/23/2010 12:09:30	128.500	0.038	0.174	0.002	0.004	0.040	-0.085	-0.023	0.030	0.062	-0.080	0.059
2/23/2010 12:09:40	128.667	0.036	0.178	0.011	0.009	0.037	-0.083	-0.025	0.030	0.062	-0.085	0.059
2/23/2010 12:09:50	128.833	0.038	0.176	0.004	0.009	0.040	-0.083	-0.023	0.030	0.059	-0.083	0.059
2/23/2010 12:10:00	129.000	0.038	0.176	0.004	0.007	0.040	-0.083	-0.023	0.030	0.062	-0.083	0.062
2/23/2010 12:10:10	129.167	0.038	0.178	-0.001	0.007	0.037	-0.083	-0.023	0.030	0.060	-0.080	0.059
2/23/2010 12:10:20	129.333	0.036	0.176	-0.001	0.007	0.040	-0.085	-0.023	0.030	0.060	-0.085	0.059
2/23/2010 12:10:30	129.500	0.038	0.174	0.004	0.007	0.040	-0.085	-0.025	0.030	0.059	-0.083	0.062
2/23/2010 12:10:40	129.667	0.036	0.178	-0.001	0.009	0.042	-0.083	-0.023	0.032	0.062	-0.085	0.062
2/23/2010 12:10:50	129.833	0.038	0.176	0.002	0.007	0.040	-0.085	-0.023	0.030	0.062	-0.080	0.062
2/23/2010 12:11:00	130.000	0.038	0.178	0.002	0.009	0.040	-0.083	-0.023	0.030	0.062	-0.080	0.059
2/23/2010 12:11:10	130.167	0.038	0.176	0.004	0.009	0.040	-0.083	-0.025	0.030	0.062	-0.083	0.059
2/23/2010 12:11:20	130.333	0.038	0.176	0.007	0.007	0.040	-0.083	-0.023	0.030	0.062	-0.085	0.059
2/23/2010 12:11:30	130.500	0.036	0.176	0.002	0.009	0.040	-0.083	-0.021	0.030	0.064	-0.083	0.062
2/23/2010 12:11:40	130.667	0.038	0.176	0.004	0.009	0.042	-0.085	-0.021	0.030	0.062	-0.085	0.062
2/23/2010 12:11:50	130.833	0.038	0.174	0.004	0.009	0.037	-0.080	-0.023	0.027	0.062	-0.085	0.059

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 12:12:00	131.000	0.038	0.178	0.004	0.007	0.040	-0.085	-0.023	0.027	0.062	-0.083	0.062
2/23/2010 12:12:10	131.167	0.038	0.176	0.002	0.007	0.042	-0.085	-0.025	0.030	0.062	-0.087	0.062
2/23/2010 12:12:20	131.333	0.038	0.178	0.004	0.007	0.045	-0.085	-0.025	0.025	0.062	-0.080	0.064
2/23/2010 12:12:30	131.500	0.038	0.178	0.004	0.007	0.044	-0.085	-0.023	0.027	0.062	-0.083	0.064
2/23/2010 12:12:40	131.667	0.038	0.176	0.002	0.009	0.040	-0.083	-0.023	0.032	0.062	-0.087	0.062
2/23/2010 12:12:50	131.833	0.038	0.176	0.002	0.009	0.040	-0.085	-0.021	0.027	0.062	-0.083	0.062
2/23/2010 12:13:00	132.000	0.036	0.174	0.004	0.009	0.040	-0.083	-0.023	0.027	0.062	-0.083	0.062
2/23/2010 12:13:10	132.167	0.036	0.178	0.004	0.009	0.040	-0.083	-0.023	0.030	0.062	-0.085	0.062
2/23/2010 12:13:20	132.333	0.038	0.176	0.002	0.007	0.040	-0.083	-0.023	0.030	0.062	-0.085	0.062
2/23/2010 12:13:30	132.500	0.038	0.176	0.002	0.007	0.042	-0.080	-0.021	0.030	0.062	-0.083	0.064
2/23/2010 12:13:40	132.667	0.038	0.176	-0.003	0.004	0.040	-0.083	-0.023	0.030	0.062	-0.083	0.064
2/23/2010 12:13:50	132.833	0.038	0.178	0.002	0.009	0.042	-0.083	-0.023	0.030	0.062	-0.083	0.064
2/23/2010 12:14:00	133.000	0.038	0.178	0.002	0.009	0.037	-0.083	-0.023	0.032	0.062	-0.083	0.064
2/23/2010 12:14:10	133.167	0.038	0.178	0.004	0.007	0.042	-0.083	-0.023	0.027	0.062	-0.085	0.064
2/23/2010 12:14:20	133.333	0.041	0.178	0.002	0.009	0.045	-0.083	-0.021	0.030	0.062	-0.083	0.064
2/23/2010 12:14:30	133.500	0.041	0.178	0.004	0.007	0.040	-0.083	-0.023	0.030	0.059	-0.083	0.064
2/23/2010 12:14:40	133.667	0.041	0.176	0.002	0.009	0.042	-0.083	-0.021	0.032	0.060	-0.083	0.066
2/23/2010 12:14:50	133.833	0.038	0.178	0.004	0.007	0.040	-0.085	-0.023	0.027	0.060	-0.085	0.064
2/23/2010 12:15:00	134.000	0.041	0.178	-0.003	0.009	0.040	-0.083	-0.023	0.032	0.062	-0.083	0.064
2/23/2010 12:15:10	134.167	0.041	0.178	0.004	0.007	0.037	-0.085	-0.023	0.027	0.059	-0.080	0.066
2/23/2010 12:15:20	134.333	0.041	0.176	0.002	0.007	0.042	-0.083	-0.023	0.032	0.062	-0.080	0.066
2/23/2010 12:15:30	134.500	0.036	0.176	0.002	0.007	0.037	-0.080	-0.021	0.027	0.064	-0.085	0.064
2/23/2010 12:15:40	134.667	0.041	0.176	0.002	0.009	0.042	-0.080	-0.023	0.030	0.059	-0.083	0.064
2/23/2010 12:15:50	134.833	0.041	0.178	0.007	0.009	0.044	-0.083	-0.023	0.032	0.062	-0.080	0.066
2/23/2010 12:16:00	135.000	0.038	0.178	0.009	0.009	0.037	-0.080	-0.023	0.030	0.062	-0.078	0.066
2/23/2010 12:16:10	135.167	0.038	0.178	0.004	0.007	0.040	-0.083	-0.021	0.030	0.062	-0.085	0.066
2/23/2010 12:16:20	135.333	0.038	0.181	0.007	0.009	0.045	-0.080	-0.021	0.030	0.062	-0.080	0.066
2/23/2010 12:16:30	135.500	0.038	0.178	0.002	0.012	0.045	-0.080	-0.021	0.032	0.062	-0.080	0.066
2/23/2010 12:16:40	135.667	0.038	0.176	0.002	0.009	0.037	-0.083	-0.021	0.027	0.059	-0.087	0.066
2/23/2010 12:16:50	135.833	0.041	0.178	0.009	0.009	0.040	-0.083	-0.021	0.032	0.062	-0.085	0.066
2/23/2010 12:17:00	136.000	0.038	0.178	0.004	0.009	0.042	-0.080	-0.021	0.032	0.062	-0.085	0.069
2/23/2010 12:17:10	136.167	0.041	0.178	0.004	0.009	0.042	-0.085	-0.021	0.030	0.062	-0.080	0.066
2/23/2010 12:17:20	136.333	0.041	0.176	0.002	0.009	0.040	-0.080	-0.023	0.030	0.064	-0.085	0.066
2/23/2010 12:17:30	136.500	0.038	0.176	0.007	0.009	0.040	-0.080	-0.023	0.030	0.062	-0.085	0.069
2/23/2010 12:17:40	136.667	0.038	0.176	0.004	0.007	0.042	-0.083	-0.021	0.030	0.062	-0.080	0.069
2/23/2010 12:17:50	136.833	0.036	0.178	0.007	0.007	0.040	-0.083	-0.021	0.027	0.062	-0.083	0.066

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 12:18:00	137.000	0.038	0.178	0.004	0.009	0.045	-0.083	-0.023	0.027	0.064	-0.083	0.069
2/23/2010 12:18:10	137.167	0.036	0.176	0.004	0.007	0.042	-0.083	-0.021	0.032	0.062	-0.087	0.066
2/23/2010 12:18:20	137.333	0.038	0.176	0.002	0.007	0.045	-0.083	-0.021	0.030	0.062	-0.085	0.069
2/23/2010 12:18:30	137.500	0.041	0.176	0.002	0.009	0.040	-0.083	-0.023	0.030	0.062	-0.080	0.069
2/23/2010 12:18:40	137.667	0.041	0.176	0.004	0.007	0.042	-0.083	-0.021	0.030	0.062	-0.083	0.069
2/23/2010 12:18:50	137.833	0.038	0.176	0.002	0.009	0.040	-0.083	-0.021	0.032	0.062	-0.087	0.069
2/23/2010 12:19:00	138.000	0.041	0.178	0.002	0.012	0.040	-0.083	-0.023	0.032	0.062	-0.080	0.069
2/23/2010 12:19:10	138.167	0.038	0.178	0.002	0.007	0.042	-0.083	-0.021	0.030	0.062	-0.078	0.071
2/23/2010 12:19:20	138.333	0.038	0.176	0.007	0.007	0.042	-0.083	-0.021	0.032	0.062	-0.085	0.069
2/23/2010 12:19:30	138.500	0.041	0.174	0.004	0.007	0.042	-0.083	-0.021	0.027	0.062	-0.080	0.071
2/23/2010 12:19:40	138.667	0.041	0.176	0.007	0.009	0.042	-0.083	-0.021	0.030	0.062	-0.085	0.071
2/23/2010 12:19:50	138.833	0.041	0.178	-0.001	0.007	0.045	-0.080	-0.021	0.030	0.062	-0.085	0.069
2/23/2010 12:20:00	139.000	0.041	0.176	0.002	0.007	0.040	-0.083	-0.021	0.032	0.062	-0.085	0.071
2/23/2010 12:20:10	139.167	0.038	0.178	0.007	0.007	0.040	-0.083	-0.021	0.030	0.062	-0.083	0.069
2/23/2010 12:20:20	139.333	0.041	0.178	0.007	0.009	0.042	-0.083	-0.018	0.032	0.062	-0.080	0.071
2/23/2010 12:20:30	139.500	0.041	0.178	0.007	0.009	0.042	-0.083	-0.023	0.032	0.062	-0.083	0.071
2/23/2010 12:20:40	139.667	0.038	0.176	0.004	0.009	0.042	-0.080	-0.019	0.030	0.062	-0.085	0.071
2/23/2010 12:20:50	139.833	0.041	0.176	0.002	0.007	0.042	-0.083	-0.021	0.030	0.062	-0.083	0.071
2/23/2010 12:21:00	140.000	0.043	0.176	0.007	0.009	0.045	-0.083	-0.021	0.032	0.062	-0.083	0.071
2/23/2010 12:21:10	140.167	0.041	0.176	-0.001	0.009	0.040	-0.083	-0.021	0.030	0.062	-0.080	0.071
2/23/2010 12:21:20	140.333	0.038	0.178	0.004	0.009	0.042	-0.083	-0.023	0.030	0.062	-0.080	0.071
2/23/2010 12:21:30	140.500	0.041	0.174	0.004	0.004	0.037	-0.083	-0.019	0.030	0.064	-0.083	0.071
2/23/2010 12:21:40	140.667	0.038	0.176	0.002	0.009	0.042	-0.085	-0.019	0.030	0.064	-0.080	0.071
2/23/2010 12:21:50	140.833	0.038	0.178	-0.001	0.009	0.042	-0.083	-0.021	0.030	0.067	-0.080	0.073
2/23/2010 12:22:00	141.000	0.038	0.176	0.004	0.004	0.045	-0.083	-0.019	0.030	0.064	-0.085	0.074
2/23/2010 12:22:10	141.167	0.038	0.178	0.004	0.009	0.035	-0.083	-0.019	0.030	0.064	-0.080	0.073
2/23/2010 12:22:20	141.333	0.038	0.181	0.011	0.007	0.042	-0.080	-0.021	0.032	0.064	-0.080	0.071
2/23/2010 12:22:30	141.500	0.038	0.176	0.002	0.007	0.047	-0.083	-0.019	0.030	0.062	-0.087	0.073
2/23/2010 12:22:40	141.667	0.041	0.176	0.004	0.007	0.040	-0.083	-0.021	0.032	0.062	-0.083	0.074
2/23/2010 12:22:50	141.833	0.041	0.178	0.002	0.007	0.047	-0.080	-0.021	0.027	0.062	-0.083	0.073
2/23/2010 12:23:00	142.000	0.041	0.178	0.009	0.007	0.042	-0.080	-0.019	0.030	0.064	-0.083	0.074
2/23/2010 12:23:10	142.167	0.038	0.178	0.004	0.009	0.040	-0.083	-0.019	0.027	0.062	-0.087	0.074
2/23/2010 12:23:20	142.333	0.041	0.178	0.002	0.009	0.040	-0.083	-0.023	0.032	0.062	-0.085	0.076
2/23/2010 12:23:30	142.500	0.036	0.176	0.004	0.007	0.042	-0.085	-0.021	0.034	0.062	-0.085	0.073
2/23/2010 12:23:40	142.667	0.038	0.178	0.007	0.012	0.044	-0.080	-0.023	0.030	0.062	-0.085	0.073
2/23/2010 12:23:50	142.833	0.041	0.176	0.004	0.009	0.042	-0.085	-0.021	0.032	0.064	-0.083	0.076

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 12:24:00	143.000	0.041	0.176	-0.003	0.009	0.045	-0.083	-0.019	0.030	0.064	-0.080	0.076
2/23/2010 12:24:10	143.167	0.038	0.178	0.004	0.009	0.042	-0.083	-0.021	0.032	0.064	-0.085	0.076
2/23/2010 12:24:20	143.333	0.038	0.176	0.002	0.007	0.042	-0.083	-0.021	0.032	0.064	-0.083	0.076
2/23/2010 12:24:30	143.500	0.041	0.178	0.007	0.009	0.042	-0.080	-0.019	0.032	0.064	-0.080	0.076
2/23/2010 12:24:40	143.667	0.041	0.176	0.007	0.009	0.042	-0.083	-0.019	0.032	0.062	-0.083	0.076
2/23/2010 12:24:50	143.833	0.041	0.176	0.002	0.009	0.045	-0.083	-0.019	0.030	0.064	-0.080	0.076
2/23/2010 12:25:00	144.000	0.036	0.176	0.007	0.012	0.045	-0.080	-0.019	0.030	0.064	-0.083	0.076
2/23/2010 12:25:10	144.167	0.041	0.178	0.004	0.009	0.044	-0.080	-0.016	0.030	0.064	-0.083	0.076
2/23/2010 12:25:20	144.333	0.041	0.178	0.002	0.009	0.040	-0.080	-0.021	0.030	0.062	-0.080	0.076
2/23/2010 12:25:30	144.500	0.041	0.176	0.004	0.009	0.045	-0.080	-0.019	0.030	0.064	-0.080	0.076
2/23/2010 12:25:40	144.667	0.041	0.178	0.004	0.009	0.042	-0.083	-0.016	0.032	0.064	-0.083	0.076
2/23/2010 12:25:50	144.833	0.041	0.181	0.007	0.007	0.042	-0.080	-0.019	0.032	0.062	-0.080	0.076
2/23/2010 12:26:00	145.000	0.043	0.178	0.004	0.009	0.042	-0.080	-0.019	0.034	0.062	-0.087	0.078
2/23/2010 12:26:10	145.167	0.041	0.176	0.004	0.009	0.042	-0.080	-0.019	0.030	0.064	-0.085	0.078
2/23/2010 12:26:20	145.333	0.041	0.178	0.004	0.009	0.047	-0.080	-0.019	0.030	0.062	-0.078	0.076
2/23/2010 12:26:30	145.500	0.041	0.178	0.007	0.007	0.042	-0.080	-0.019	0.034	0.064	-0.078	0.078
2/23/2010 12:26:40	145.667	0.041	0.176	0.004	0.009	0.040	-0.080	-0.016	0.030	0.064	-0.085	0.078
2/23/2010 12:26:50	145.833	0.041	0.178	0.007	0.009	0.042	-0.080	-0.019	0.032	0.062	-0.090	0.076
2/23/2010 12:27:00	146.000	0.043	0.176	0.002	0.009	0.045	-0.078	-0.019	0.027	0.062	-0.076	0.078
2/23/2010 12:27:10	146.167	0.043	0.178	0.009	0.007	0.045	-0.080	-0.019	0.032	0.062	-0.083	0.076
2/23/2010 12:27:20	146.333	0.041	0.176	0.007	0.009	0.047	-0.080	-0.021	0.032	0.062	-0.078	0.078
2/23/2010 12:27:30	146.500	0.043	0.178	0.009	0.007	0.045	-0.080	-0.019	0.030	0.062	-0.080	0.078
2/23/2010 12:27:40	146.667	0.043	0.178	0.011	0.007	0.045	-0.078	-0.019	0.032	0.062	-0.078	0.078
2/23/2010 12:27:50	146.833	0.041	0.178	-0.003	0.009	0.042	-0.078	-0.016	0.032	0.062	-0.078	0.081
2/23/2010 12:28:00	147.000	0.043	0.178	0.009	0.007	0.045	-0.080	-0.019	0.032	0.062	-0.080	0.081
2/23/2010 12:28:10	147.167	0.041	0.178	0.007	0.012	0.045	-0.076	-0.019	0.032	0.062	-0.080	0.078
2/23/2010 12:28:20	147.333	0.043	0.176	0.007	0.012	0.047	-0.080	-0.019	0.030	0.062	-0.083	0.081
2/23/2010 12:28:30	147.500	0.043	0.178	0.004	0.009	0.042	-0.080	-0.016	0.030	0.059	-0.078	0.081
2/23/2010 12:28:40	147.667	0.043	0.176	0.009	0.007	0.045	-0.078	-0.019	0.032	0.059	-0.080	0.081
2/23/2010 12:28:50	147.833	0.041	0.176	0.004	0.009	0.045	-0.080	-0.016	0.034	0.059	-0.078	0.078
2/23/2010 12:29:00	148.000	0.041	0.178	0.004	0.007	0.042	-0.080	-0.016	0.030	0.062	-0.080	0.081
2/23/2010 12:29:10	148.167	0.041	0.178	0.002	0.007	0.047	-0.080	-0.019	0.032	0.062	-0.080	0.081
2/23/2010 12:29:20	148.333	0.041	0.176	0.007	0.007	0.040	-0.083	-0.019	0.030	0.064	-0.083	0.078
2/23/2010 12:29:30	148.500	0.041	0.176	0.009	0.009	0.045	-0.080	-0.023	0.030	0.062	-0.080	0.078
2/23/2010 12:29:40	148.667	0.043	0.178	0.004	0.009	0.045	-0.083	-0.019	0.030	0.067	-0.083	0.078
2/23/2010 12:29:50	148.833	0.038	0.178	0.004	0.009	0.042	-0.080	-0.019	0.032	0.064	-0.078	0.081

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 12:30:00	149.000	0.038	0.178	0.004	0.007	0.042	-0.083	-0.019	0.030	0.064	-0.080	0.078
2/23/2010 12:30:10	149.167	0.041	0.178	0.004	0.012	0.045	-0.080	-0.016	0.027	0.064	-0.080	0.083
2/23/2010 12:30:20	149.333	0.041	0.178	0.007	0.009	0.045	-0.080	-0.019	0.032	0.062	-0.083	0.083
2/23/2010 12:30:30	149.500	0.041	0.178	0.009	0.009	0.044	-0.080	-0.016	0.030	0.064	-0.085	0.081
2/23/2010 12:30:40	149.667	0.041	0.176	0.002	0.009	0.044	-0.080	-0.019	0.030	0.062	-0.083	0.081
2/23/2010 12:30:50	149.833	0.043	0.176	0.007	0.007	0.047	-0.080	-0.019	0.030	0.062	-0.083	0.081
2/23/2010 12:31:00	150.000	0.041	0.178	0.004	0.009	0.047	-0.080	-0.019	0.032	0.064	-0.080	0.083
2/23/2010 12:31:10	150.167	0.041	0.176	0.002	0.009	0.047	-0.083	-0.019	0.032	0.067	-0.080	0.081
2/23/2010 12:31:20	150.333	0.041	0.176	0.004	0.007	0.045	-0.080	-0.019	0.032	0.064	-0.080	0.083
2/23/2010 12:31:30	150.500	0.041	0.176	0.007	0.009	0.045	-0.080	-0.019	0.030	0.064	-0.080	0.081
2/23/2010 12:31:40	150.667	0.041	0.176	0.007	0.007	0.045	-0.080	-0.019	0.030	0.064	-0.083	0.083
2/23/2010 12:31:50	150.833	0.038	0.178	0.004	0.009	0.047	-0.080	-0.019	0.032	0.064	-0.080	0.083
2/23/2010 12:32:00	151.000	0.041	0.178	0.002	0.012	0.044	-0.080	-0.019	0.032	0.064	-0.080	0.083
2/23/2010 12:32:10	151.167	0.041	0.176	0.004	0.009	0.047	-0.080	-0.019	0.032	0.066	-0.078	0.083
2/23/2010 12:32:20	151.333	0.041	0.178	0.009	0.012	0.047	-0.080	-0.016	0.030	0.067	-0.080	0.081
2/23/2010 12:32:30	151.500	0.041	0.178	0.004	0.009	0.045	-0.078	-0.016	0.032	0.067	-0.076	0.081
2/23/2010 12:32:40	151.667	0.041	0.176	0.007	0.012	0.045	-0.083	-0.016	0.032	0.064	-0.078	0.083
2/23/2010 12:32:50	151.833	0.041	0.178	0.004	0.009	0.049	-0.071	-0.019	0.032	0.062	-0.080	0.081
2/23/2010 12:33:00	152.000	0.041	0.178	0.004	0.009	0.047	-0.080	-0.016	0.034	0.064	-0.078	0.081
2/23/2010 12:33:10	152.167	0.041	0.178	0.004	0.009	0.047	-0.078	-0.021	0.030	0.062	-0.080	0.083
2/23/2010 12:33:20	152.333	0.043	0.176	0.007	0.007	0.047	-0.080	-0.016	0.032	0.062	-0.076	0.083
2/23/2010 12:33:30	152.500	0.043	0.178	0.009	0.009	0.047	-0.080	-0.016	0.032	0.064	-0.076	0.083
2/23/2010 12:33:40	152.667	0.043	0.178	0.004	0.012	0.045	-0.080	-0.016	0.032	0.062	-0.073	0.083
2/23/2010 12:33:50	152.833	0.043	0.178	0.007	0.009	0.045	-0.080	-0.019	0.034	0.062	-0.080	0.081
2/23/2010 12:34:00	153.000	0.043	0.178	0.002	0.012	0.045	-0.080	-0.016	0.032	0.062	-0.080	0.083
2/23/2010 12:34:10	153.167	0.043	0.181	-0.001	0.007	0.047	-0.080	-0.016	0.032	0.062	-0.073	0.083
2/23/2010 12:34:20	153.333	0.041	0.178	0.004	0.007	0.045	-0.078	-0.016	0.032	0.064	-0.078	0.085
2/23/2010 12:34:30	153.500	0.041	0.181	0.009	0.009	0.047	-0.078	-0.016	0.032	0.064	-0.073	0.083
2/23/2010 12:34:40	153.667	0.041	0.178	0.004	0.012	0.045	-0.080	-0.019	0.032	0.062	-0.078	0.085
2/23/2010 12:34:50	153.833	0.043	0.178	0.007	0.007	0.047	-0.078	-0.019	0.030	0.062	-0.080	0.085
2/23/2010 12:35:00	154.000	0.043	0.181	0.009	0.007	0.047	-0.078	-0.016	0.032	0.062	-0.073	0.083
2/23/2010 12:35:10	154.167	0.043	0.178	0.007	0.009	0.047	-0.078	-0.016	0.032	0.064	-0.080	0.085
2/23/2010 12:35:20	154.333	0.043	0.178	0.004	0.009	0.047	-0.078	-0.016	0.032	0.062	-0.078	0.085
2/23/2010 12:35:30	154.500	0.041	0.176	0.009	0.007	0.045	-0.081	-0.016	0.032	0.062	-0.076	0.085
2/23/2010 12:35:40	154.667	0.041	0.178	0.007	0.007	0.045	-0.078	-0.014	0.032	0.062	-0.078	0.085
2/23/2010 12:35:50	154.833	0.043	0.178	0.007	0.007	0.052	-0.078	-0.016	0.034	0.064	-0.078	0.085

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 12:36:00	155.000	0.041	0.176	0.007	0.007	0.047	-0.078	-0.014	0.027	0.062	-0.083	0.085
2/23/2010 12:36:10	155.167	0.041	0.176	0.009	0.007	0.047	-0.080	-0.016	0.032	0.059	-0.078	0.085
2/23/2010 12:36:20	155.333	0.041	0.178	0.004	0.009	0.047	-0.080	-0.016	0.032	0.064	-0.078	0.085
2/23/2010 12:36:30	155.500	0.041	0.176	0.009	0.009	0.045	-0.080	-0.016	0.030	0.064	-0.078	0.085
2/23/2010 12:36:40	155.667	0.041	0.176	0.002	0.007	0.047	-0.078	-0.016	0.032	0.064	-0.078	0.085
2/23/2010 12:36:50	155.833	0.041	0.176	0.007	0.009	0.047	-0.078	-0.016	0.027	0.064	-0.078	0.085
2/23/2010 12:37:00	156.000	0.043	0.176	0.002	0.009	0.052	-0.080	-0.019	0.030	0.066	-0.073	0.085
2/23/2010 12:37:10	156.167	0.043	0.178	0.009	0.009	0.042	-0.080	-0.016	0.032	0.067	-0.078	0.088
2/23/2010 12:37:20	156.333	0.041	0.176	0.009	0.009	0.047	-0.083	-0.016	0.032	0.067	-0.080	0.085
2/23/2010 12:37:30	156.500	0.038	0.176	0.004	0.007	0.052	-0.080	-0.014	0.030	0.067	-0.078	0.085
2/23/2010 12:37:40	156.667	0.041	0.178	0.007	0.007	0.047	-0.080	-0.016	0.030	0.067	-0.076	0.085
2/23/2010 12:37:50	156.833	0.041	0.176	0.004	0.009	0.047	-0.080	-0.016	0.030	0.066	-0.083	0.085
2/23/2010 12:38:00	157.000	0.041	0.178	0.014	0.007	0.045	-0.080	-0.016	0.032	0.064	-0.078	0.085
2/23/2010 12:38:10	157.167	0.041	0.174	-0.001	0.009	0.045	-0.080	-0.016	0.032	0.064	-0.080	0.085
2/23/2010 12:38:20	157.333	0.041	0.178	0.002	0.009	0.049	-0.080	-0.016	0.032	0.064	-0.080	0.085
2/23/2010 12:38:30	157.500	0.043	0.178	0.002	0.007	0.045	-0.080	-0.016	0.030	0.064	-0.083	0.085
2/23/2010 12:38:40	157.667	0.041	0.181	0.004	0.009	0.047	-0.080	-0.016	0.030	0.064	-0.080	0.085
2/23/2010 12:38:50	157.833	0.041	0.178	0.009	0.007	0.045	-0.080	-0.014	0.030	0.064	-0.080	0.085
2/23/2010 12:39:00	158.000	0.041	0.178	0.009	0.009	0.049	-0.078	-0.016	0.032	0.064	-0.078	0.088
2/23/2010 12:39:10	158.167	0.041	0.176	0.004	0.009	0.047	-0.080	-0.016	0.030	0.066	-0.080	0.088
2/23/2010 12:39:20	158.333	0.038	0.176	0.004	0.007	0.047	-0.083	-0.014	0.030	0.067	-0.078	0.088
2/23/2010 12:39:30	158.500	0.043	0.178	0.004	0.007	0.047	-0.083	-0.014	0.032	0.067	-0.083	0.085
2/23/2010 12:39:40	158.667	0.041	0.178	0.007	0.009	0.044	-0.080	-0.016	0.032	0.067	-0.078	0.085
2/23/2010 12:39:50	158.833	0.041	0.176	0.007	0.007	0.049	-0.080	-0.016	0.032	0.067	-0.076	0.088
2/23/2010 12:40:00	159.000	0.041	0.178	0.007	0.009	0.049	-0.078	-0.014	0.032	0.064	-0.076	0.088
2/23/2010 12:40:10	159.167	0.043	0.178	0.009	0.009	0.049	-0.080	-0.016	0.034	0.064	-0.080	0.088
2/23/2010 12:40:20	159.333	0.041	0.178	0.014	0.009	0.052	-0.078	-0.016	0.037	0.064	-0.073	0.085
2/23/2010 12:40:30	159.500	0.043	0.178	0.009	0.009	0.047	-0.078	-0.016	0.030	0.064	-0.076	0.090
2/23/2010 12:40:40	159.667	0.041	0.176	0.009	0.007	0.049	-0.078	-0.016	0.034	0.064	-0.080	0.085
2/23/2010 12:40:50	159.833	0.043	0.181	0.004	0.009	0.049	-0.080	-0.016	0.032	0.066	-0.078	0.090
2/23/2010 12:41:00	160.000	0.041	0.179	0.004	0.007	0.047	-0.083	-0.014	0.030	0.064	-0.078	0.088
2/23/2010 12:41:10	160.167	0.043	0.176	0.007	0.009	0.047	-0.078	-0.014	0.030	0.064	-0.080	0.088
2/23/2010 12:41:20	160.333	0.041	0.181	0.007	0.009	0.047	-0.080	-0.016	0.032	0.064	-0.080	0.088
2/23/2010 12:41:30	160.500	0.043	0.181	0.004	0.009	0.045	-0.078	-0.016	0.030	0.064	-0.078	0.088
2/23/2010 12:41:40	160.667	0.043	0.178	0.004	0.007	0.047	-0.083	-0.016	0.030	0.064	-0.078	0.090
2/23/2010 12:41:50	160.833	0.043	0.181	0.004	0.009	0.047	-0.078	-0.014	0.034	0.062	-0.078	0.088

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 12:42:00	161.000	0.043	0.178	0.007	0.009	0.049	-0.080	-0.014	0.032	0.064	-0.080	0.090
2/23/2010 12:42:10	161.167	0.043	0.178	0.009	0.009	0.045	-0.078	-0.014	0.034	0.064	-0.078	0.090
2/23/2010 12:42:20	161.333	0.041	0.181	0.011	0.009	0.049	-0.080	-0.014	0.032	0.064	-0.076	0.090
2/23/2010 12:42:30	161.500	0.043	0.176	0.011	0.007	0.045	-0.080	-0.019	0.034	0.064	-0.076	0.090
2/23/2010 12:42:40	161.667	0.043	0.183	0.011	0.009	0.047	-0.078	-0.014	0.032	0.064	-0.078	0.092
2/23/2010 12:42:50	161.833	0.043	0.178	0.007	0.007	0.045	-0.080	-0.014	0.034	0.064	-0.078	0.092
2/23/2010 12:43:00	162.000	0.043	0.178	0.007	0.009	0.047	-0.078	-0.014	0.032	0.064	-0.078	0.092
2/23/2010 12:43:10	162.167	0.043	0.178	0.004	0.009	0.047	-0.080	-0.014	0.032	0.064	-0.076	0.090
2/23/2010 12:43:20	162.333	0.043	0.178	0.009	0.009	0.047	-0.080	-0.014	0.032	0.064	-0.080	0.092
2/23/2010 12:43:30	162.500	0.041	0.176	0.007	0.009	0.047	-0.080	-0.014	0.032	0.064	-0.078	0.092
2/23/2010 12:43:40	162.667	0.043	0.178	0.009	0.007	0.049	-0.078	-0.014	0.032	0.064	-0.078	0.092
2/23/2010 12:43:50	162.833	0.043	0.176	0.007	0.009	0.049	-0.080	-0.014	0.030	0.064	-0.076	0.092
2/23/2010 12:44:00	163.000	0.043	0.178	0.007	0.009	0.045	-0.078	-0.016	0.032	0.064	-0.080	0.092
2/23/2010 12:44:10	163.167	0.041	0.176	0.002	0.009	0.047	-0.080	-0.014	0.032	0.069	-0.076	0.095
2/23/2010 12:44:20	163.333	0.045	0.181	0.004	0.009	0.049	-0.080	-0.016	0.032	0.064	-0.083	0.095
2/23/2010 12:44:30	163.500	0.041	0.178	0.007	0.009	0.047	-0.080	-0.016	0.030	0.064	-0.083	0.092
2/23/2010 12:44:40	163.667	0.043	0.178	0.009	0.009	0.047	-0.080	-0.014	0.032	0.064	-0.078	0.095
2/23/2010 12:44:50	163.833	0.043	0.178	0.009	0.009	0.049	-0.080	-0.014	0.032	0.062	-0.078	0.095
2/23/2010 12:45:00	164.000	0.043	0.178	0.011	0.009	0.047	-0.078	-0.014	0.032	0.064	-0.076	0.092
2/23/2010 12:45:10	164.167	0.043	0.181	0.004	0.009	0.045	-0.078	-0.016	0.034	0.062	-0.078	0.092
2/23/2010 12:45:20	164.333	0.041	0.178	0.007	0.007	0.047	-0.080	-0.014	0.032	0.064	-0.078	0.095
2/23/2010 12:45:30	164.500	0.043	0.178	0.011	0.009	0.047	-0.080	-0.019	0.032	0.064	-0.076	0.092
2/23/2010 12:45:40	164.667	0.043	0.178	0.007	0.007	0.047	-0.078	-0.016	0.034	0.064	-0.085	0.095
2/23/2010 12:45:50	164.833	0.043	0.176	0.007	0.007	0.049	-0.078	-0.016	0.032	0.064	-0.080	0.095
2/23/2010 12:46:00	165.000	0.041	0.178	0.009	0.009	0.047	-0.078	-0.014	0.030	0.064	-0.078	0.095
2/23/2010 12:46:10	165.167	0.043	0.176	0.011	0.012	0.047	-0.080	-0.014	0.032	0.064	-0.080	0.095
2/23/2010 12:46:20	165.333	0.043	0.178	0.011	0.009	0.047	-0.078	-0.014	0.032	0.066	-0.078	0.095
2/23/2010 12:46:30	165.500	0.043	0.178	0.007	0.009	0.049	-0.078	-0.014	0.032	0.064	-0.080	0.092
2/23/2010 12:46:40	165.667	0.043	0.178	0.009	0.009	0.047	-0.078	-0.016	0.034	0.064	-0.076	0.097
2/23/2010 12:46:50	165.833	0.043	0.176	0.009	0.009	0.047	-0.078	-0.014	0.032	0.064	-0.076	0.095
2/23/2010 12:47:00	166.000	0.043	0.174	0.004	0.009	0.045	-0.078	-0.016	0.032	0.064	-0.080	0.095
2/23/2010 12:47:10	166.167	0.043	0.178	0.011	0.009	0.052	-0.080	-0.014	0.032	0.064	-0.078	0.095
2/23/2010 12:47:20	166.333	0.043	0.178	0.009	0.007	0.047	-0.080	-0.014	0.032	0.064	-0.083	0.095
2/23/2010 12:47:30	166.500	0.041	0.178	0.009	0.007	0.049	-0.078	-0.016	0.030	0.064	-0.083	0.095
2/23/2010 12:47:40	166.667	0.043	0.176	0.011	0.009	0.045	-0.078	-0.012	0.032	0.064	-0.080	0.095
2/23/2010 12:47:50	166.833	0.041	0.176	0.011	0.009	0.049	-0.078	-0.014	0.032	0.067	-0.083	0.095

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 12:48:00	167.000	0.043	0.178	0.007	0.007	0.049	-0.078	-0.014	0.032	0.064	-0.080	0.097
2/23/2010 12:48:10	167.167	0.043	0.178	0.009	0.012	0.052	-0.080	-0.014	0.027	0.064	-0.078	0.097
2/23/2010 12:48:20	167.333	0.041	0.178	0.009	0.009	0.049	-0.078	-0.014	0.032	0.064	-0.080	0.097
2/23/2010 12:48:30	167.500	0.041	0.178	0.011	0.009	0.049	-0.080	-0.014	0.034	0.064	-0.078	0.095
2/23/2010 12:48:40	167.667	0.043	0.176	0.009	0.009	0.047	-0.080	-0.014	0.034	0.064	-0.078	0.097
2/23/2010 12:48:50	167.833	0.043	0.178	0.009	0.004	0.049	-0.078	-0.012	0.032	0.064	-0.076	0.097
2/23/2010 12:49:00	168.000	0.043	0.178	0.007	0.009	0.047	-0.078	-0.014	0.032	0.067	-0.078	0.095
2/23/2010 12:49:10	168.167	0.045	0.176	0.007	0.009	0.047	-0.080	-0.014	0.032	0.064	-0.078	0.097
2/23/2010 12:49:20	168.333	0.041	0.176	0.007	0.012	0.052	-0.078	-0.014	0.030	0.064	-0.080	0.097
2/23/2010 12:49:30	168.500	0.045	0.178	0.009	0.007	0.047	-0.078	-0.016	0.032	0.064	-0.078	0.097
2/23/2010 12:49:40	168.667	0.043	0.178	0.009	0.007	0.047	-0.080	-0.012	0.032	0.066	-0.076	0.097
2/23/2010 12:49:50	168.833	0.046	0.183	0.007	0.009	0.052	-0.078	-0.014	0.032	0.064	-0.078	0.097
2/23/2010 12:50:00	169.000	0.045	0.178	0.009	0.009	0.052	-0.080	-0.014	0.037	0.064	-0.078	0.097
2/23/2010 12:50:10	169.167	0.045	0.178	0.011	0.009	0.054	-0.078	-0.012	0.032	0.066	-0.076	0.097
2/23/2010 12:50:20	169.333	0.041	0.181	0.011	0.009	0.049	-0.076	-0.014	0.032	0.064	-0.078	0.097
2/23/2010 12:50:30	169.500	0.045	0.176	0.011	0.007	0.052	-0.078	-0.014	0.032	0.064	-0.080	0.097
2/23/2010 12:50:40	169.667	0.043	0.176	0.009	0.007	0.045	-0.078	-0.014	0.032	0.067	-0.078	0.097
2/23/2010 12:50:50	169.833	0.043	0.176	0.004	0.009	0.054	-0.076	-0.014	0.030	0.064	-0.083	0.099
2/23/2010 12:51:00	170.000	0.043	0.178	0.004	0.009	0.047	-0.076	-0.012	0.032	0.064	-0.080	0.099
2/23/2010 12:51:10	170.167	0.043	0.176	0.009	0.009	0.045	-0.076	-0.012	0.032	0.067	-0.076	0.099
2/23/2010 12:51:20	170.333	0.043	0.178	0.009	0.009	0.049	-0.078	-0.012	0.030	0.064	-0.078	0.099
2/23/2010 12:51:30	170.500	0.045	0.176	0.007	0.009	0.049	-0.076	-0.012	0.034	0.064	-0.080	0.097
2/23/2010 12:51:40	170.667	0.043	0.176	0.011	0.009	0.049	-0.078	-0.012	0.032	0.064	-0.076	0.099
2/23/2010 12:51:50	170.833	0.043	0.178	0.014	0.009	0.044	-0.076	-0.014	0.034	0.064	-0.073	0.099
2/23/2010 12:52:00	171.000	0.048	0.178	0.011	0.012	0.049	-0.078	-0.012	0.032	0.064	-0.076	0.099
2/23/2010 12:52:10	171.167	0.043	0.176	0.016	0.009	0.049	-0.078	-0.012	0.032	0.064	-0.071	0.099
2/23/2010 12:52:20	171.333	0.043	0.178	0.004	0.009	0.049	-0.078	-0.014	0.034	0.064	-0.076	0.099
2/23/2010 12:52:30	171.500	0.045	0.178	0.011	0.007	0.049	-0.078	-0.014	0.034	0.062	-0.073	0.099
2/23/2010 12:52:40	171.667	0.045	0.178	0.011	0.009	0.047	-0.078	-0.014	0.032	0.064	-0.076	0.099
2/23/2010 12:52:50	171.833	0.043	0.178	0.011	0.009	0.049	-0.076	-0.012	0.032	0.064	-0.076	0.099
2/23/2010 12:53:00	172.000	0.043	0.178	0.004	0.009	0.049	-0.078	-0.012	0.034	0.064	-0.071	0.099
2/23/2010 12:53:10	172.167	0.045	0.178	0.011	0.009	0.049	-0.076	-0.014	0.034	0.064	-0.073	0.099
2/23/2010 12:53:20	172.333	0.043	0.178	0.009	0.007	0.047	-0.078	-0.014	0.034	0.064	-0.071	0.099
2/23/2010 12:53:30	172.500	0.048	0.181	0.009	0.012	0.049	-0.076	-0.012	0.034	0.064	-0.073	0.099
2/23/2010 12:53:40	172.667	0.045	0.178	0.016	0.007	0.049	-0.076	-0.012	0.032	0.067	-0.078	0.102
2/23/2010 12:53:50	172.833	0.045	0.178	0.011	0.009	0.047	-0.073	-0.012	0.032	0.064	-0.073	0.099

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 12:54:00	173.000	0.045	0.178	0.016	0.009	0.049	-0.073	-0.012	0.032	0.064	-0.073	0.102
2/23/2010 12:54:10	173.167	0.043	0.178	0.011	0.009	0.047	-0.076	-0.012	0.032	0.064	-0.073	0.102
2/23/2010 12:54:20	173.333	0.043	0.178	0.014	0.012	0.047	-0.076	-0.014	0.034	0.062	-0.071	0.102
2/23/2010 12:54:30	173.500	0.045	0.178	0.011	0.009	0.047	-0.076	-0.012	0.034	0.062	-0.071	0.102
2/23/2010 12:54:40	173.667	0.045	0.176	0.011	0.007	0.047	-0.076	-0.014	0.034	0.062	-0.076	0.102
2/23/2010 12:54:50	173.833	0.048	0.178	0.011	0.009	0.049	-0.076	-0.012	0.032	0.062	-0.073	0.102
2/23/2010 12:55:00	174.000	0.048	0.178	0.014	0.009	0.052	-0.073	-0.012	0.034	0.062	-0.069	0.102
2/23/2010 12:55:10	174.167	0.048	0.178	0.016	0.009	0.054	-0.073	-0.012	0.034	0.064	-0.076	0.099
2/23/2010 12:55:20	174.333	0.045	0.176	0.014	0.009	0.049	-0.071	-0.014	0.032	0.062	-0.066	0.099
2/23/2010 12:55:30	174.500	0.045	0.178	0.019	0.012	0.054	-0.073	-0.014	0.034	0.064	-0.071	0.104
2/23/2010 12:55:40	174.667	0.048	0.178	0.011	0.009	0.049	-0.073	-0.012	0.032	0.064	-0.073	0.104
2/23/2010 12:55:50	174.833	0.045	0.178	0.011	0.009	0.049	-0.073	-0.012	0.034	0.064	-0.073	0.102
2/23/2010 12:56:00	175.000	0.045	0.178	0.016	0.009	0.049	-0.073	-0.012	0.032	0.062	-0.069	0.104
2/23/2010 12:56:10	175.167	0.046	0.178	0.016	0.009	0.052	-0.071	-0.012	0.032	0.062	-0.069	0.104
2/23/2010 12:56:20	175.333	0.048	0.178	0.011	0.007	0.049	-0.076	-0.012	0.032	0.062	-0.071	0.104
2/23/2010 12:56:30	175.500	0.048	0.178	0.019	0.012	0.052	-0.073	-0.012	0.032	0.062	-0.076	0.104
2/23/2010 12:56:40	175.667	0.045	0.176	0.009	0.009	0.049	-0.073	-0.012	0.034	0.062	-0.071	0.104
2/23/2010 12:56:50	175.833	0.048	0.176	0.011	0.009	0.052	-0.071	-0.009	0.034	0.062	-0.073	0.104
2/23/2010 12:57:00	176.000	0.048	0.178	0.011	0.007	0.049	-0.069	-0.012	0.034	0.062	-0.071	0.106
2/23/2010 12:57:10	176.167	0.045	0.178	0.011	0.009	0.052	-0.071	-0.014	0.034	0.062	-0.069	0.104
2/23/2010 12:57:20	176.333	0.048	0.178	0.014	0.009	0.052	-0.073	-0.012	0.034	0.062	-0.069	0.106
2/23/2010 12:57:30	176.500	0.045	0.181	0.016	0.009	0.049	-0.071	-0.012	0.032	0.062	-0.071	0.104
2/23/2010 12:57:40	176.667	0.048	0.176	0.011	0.009	0.052	-0.071	-0.012	0.032	0.062	-0.069	0.106
2/23/2010 12:57:50	176.833	0.045	0.178	0.016	0.009	0.049	-0.071	-0.012	0.032	0.062	-0.071	0.106
2/23/2010 12:58:00	177.000	0.048	0.178	0.009	0.007	0.047	-0.073	-0.012	0.032	0.064	-0.069	0.106
2/23/2010 12:58:10	177.167	0.048	0.178	0.011	0.009	0.047	-0.071	-0.012	0.034	0.062	-0.069	0.106
2/23/2010 12:58:20	177.333	0.045	0.178	0.014	0.009	0.052	-0.073	-0.012	0.032	0.062	-0.069	0.106
2/23/2010 12:58:30	177.500	0.048	0.176	0.014	0.009	0.049	-0.073	-0.012	0.034	0.064	-0.071	0.106
2/23/2010 12:58:40	177.667	0.045	0.178	0.014	0.009	0.052	-0.071	-0.012	0.032	0.062	-0.071	0.106
2/23/2010 12:58:50	177.833	0.046	0.178	0.011	0.012	0.049	-0.071	-0.012	0.034	0.062	-0.071	0.106
2/23/2010 12:59:00	178.000	0.048	0.178	0.007	0.009	0.047	-0.071	-0.014	0.032	0.062	-0.071	0.106
2/23/2010 12:59:10	178.167	0.046	0.174	0.014	0.009	0.047	-0.071	-0.014	0.034	0.062	-0.071	0.109
2/23/2010 12:59:20	178.333	0.045	0.178	0.014	0.007	0.052	-0.071	-0.012	0.037	0.062	-0.069	0.106
2/23/2010 12:59:30	178.500	0.048	0.178	0.014	0.009	0.049	-0.073	-0.012	0.034	0.062	-0.069	0.106
2/23/2010 12:59:40	178.667	0.045	0.178	0.016	0.012	0.049	-0.071	-0.012	0.034	0.062	-0.069	0.106
2/23/2010 12:59:50	178.833	0.045	0.176	0.016	0.009	0.052	-0.071	-0.009	0.034	0.062	-0.073	0.109

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 13:00:00	179.000	0.045	0.181	0.014	0.009	0.049	-0.071	-0.012	0.034	0.062	-0.066	0.109
2/23/2010 13:00:10	179.167	0.046	0.178	0.011	0.009	0.052	-0.071	-0.012	0.032	0.062	-0.071	0.109
2/23/2010 13:00:20	179.333	0.045	0.181	0.011	0.009	0.052	-0.073	-0.012	0.034	0.062	-0.069	0.109
2/23/2010 13:00:30	179.500	0.045	0.178	0.009	0.009	0.049	-0.069	-0.012	0.032	0.062	-0.066	0.106
2/23/2010 13:00:40	179.667	0.045	0.178	0.014	0.009	0.052	-0.071	-0.014	0.037	0.062	-0.069	0.109
2/23/2010 13:00:50	179.833	0.045	0.178	0.011	0.009	0.052	-0.069	-0.009	0.034	0.064	-0.066	0.109
2/23/2010 13:01:00	180.000	0.045	0.178	0.011	0.009	0.049	-0.071	-0.012	0.032	0.064	-0.066	0.106
2/23/2010 13:01:10	180.167	0.046	0.178	0.014	0.009	0.052	-0.069	-0.012	0.034	0.064	-0.069	0.109
2/23/2010 13:01:20	180.333	0.048	0.178	0.019	0.007	0.049	-0.071	-0.012	0.034	0.064	-0.069	0.109
2/23/2010 13:01:30	180.500	0.046	0.178	0.014	0.009	0.052	-0.071	-0.012	0.032	0.062	-0.069	0.109
2/23/2010 13:01:40	180.667	0.045	0.178	0.016	0.009	0.049	-0.071	-0.009	0.034	0.062	-0.069	0.109
2/23/2010 13:01:50	180.833	0.048	0.178	0.014	0.009	0.047	-0.069	-0.012	0.034	0.062	-0.071	0.111
2/23/2010 13:02:00	181.000	0.045	0.178	0.014	0.009	0.052	-0.071	-0.012	0.037	0.062	-0.069	0.109
2/23/2010 13:02:10	181.167	0.048	0.178	0.016	0.009	0.052	-0.066	-0.012	0.032	0.064	-0.066	0.109
2/23/2010 13:02:20	181.333	0.048	0.176	0.009	0.012	0.052	-0.069	-0.009	0.037	0.062	-0.066	0.109
2/23/2010 13:02:30	181.500	0.048	0.178	0.016	0.009	0.052	-0.069	-0.012	0.034	0.062	-0.064	0.109
2/23/2010 13:02:40	181.667	0.048	0.178	0.016	0.009	0.052	-0.069	-0.012	0.034	0.062	-0.066	0.109
2/23/2010 13:02:50	181.833	0.048	0.178	0.014	0.009	0.052	-0.069	-0.012	0.034	0.064	-0.066	0.111
2/23/2010 13:03:00	182.000	0.048	0.181	0.016	0.012	0.049	-0.069	-0.014	0.034	0.062	-0.066	0.111
2/23/2010 13:03:10	182.167	0.045	0.178	0.009	0.009	0.052	-0.071	-0.012	0.034	0.062	-0.062	0.111
2/23/2010 13:03:20	182.333	0.050	0.178	0.016	0.012	0.054	-0.066	-0.012	0.034	0.062	-0.069	0.111
2/23/2010 13:03:30	182.500	0.045	0.178	0.014	0.009	0.045	-0.069	-0.012	0.032	0.062	-0.066	0.109
2/23/2010 13:03:40	182.667	0.048	0.181	0.014	0.007	0.049	-0.069	-0.012	0.032	0.062	-0.066	0.111
2/23/2010 13:03:50	182.833	0.048	0.176	0.014	0.009	0.052	-0.069	-0.014	0.037	0.062	-0.066	0.109
2/23/2010 13:04:00	183.000	0.046	0.176	0.014	0.009	0.049	-0.071	-0.012	0.032	0.062	-0.064	0.111
2/23/2010 13:04:10	183.167	0.048	0.178	0.007	0.009	0.052	-0.071	-0.012	0.034	0.062	-0.069	0.111
2/23/2010 13:04:20	183.333	0.045	0.178	0.009	0.007	0.049	-0.069	-0.009	0.034	0.064	-0.071	0.111
2/23/2010 13:04:30	183.500	0.045	0.176	0.019	0.007	0.049	-0.071	-0.009	0.034	0.062	-0.066	0.111
2/23/2010 13:04:40	183.667	0.045	0.176	0.007	0.007	0.049	-0.069	-0.014	0.032	0.062	-0.066	0.111
2/23/2010 13:04:50	183.833	0.045	0.176	0.011	0.012	0.052	-0.071	-0.012	0.030	0.064	-0.071	0.111
2/23/2010 13:05:00	184.000	0.045	0.178	0.016	0.009	0.052	-0.069	-0.014	0.032	0.067	-0.064	0.111
2/23/2010 13:05:10	184.167	0.048	0.178	0.011	0.012	0.049	-0.069	-0.014	0.032	0.064	-0.066	0.111
2/23/2010 13:05:20	184.333	0.045	0.178	0.014	0.007	0.049	-0.071	-0.009	0.030	0.064	-0.066	0.111
2/23/2010 13:05:30	184.500	0.043	0.176	0.014	0.009	0.049	-0.069	-0.009	0.030	0.067	-0.066	0.111
2/23/2010 13:05:40	184.667	0.046	0.178	0.016	0.009	0.052	-0.071	-0.012	0.032	0.064	-0.071	0.111
2/23/2010 13:05:50	184.833	0.043	0.178	0.014	0.007	0.052	-0.066	-0.007	0.034	0.064	-0.066	0.111

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 13:06:00	185.000	0.048	0.178	0.014	0.012	0.054	-0.066	-0.012	0.034	0.062	-0.071	0.111
2/23/2010 13:06:10	185.167	0.045	0.176	0.014	0.009	0.052	-0.064	-0.014	0.034	0.062	-0.073	0.113
2/23/2010 13:06:20	185.333	0.048	0.181	0.016	0.007	0.049	-0.071	-0.009	0.032	0.062	-0.073	0.109
2/23/2010 13:06:30	185.500	0.048	0.181	0.014	0.009	0.047	-0.069	-0.012	0.032	0.062	-0.062	0.111
2/23/2010 13:06:40	185.667	0.046	0.176	0.016	0.004	0.052	-0.069	-0.007	0.032	0.062	-0.064	0.111
2/23/2010 13:06:50	185.833	0.048	0.176	0.011	0.009	0.052	-0.066	-0.014	0.032	0.064	-0.066	0.111
2/23/2010 13:07:00	186.000	0.048	0.178	0.014	0.007	0.052	-0.066	-0.012	0.034	0.062	-0.069	0.111
2/23/2010 13:07:10	186.167	0.046	0.181	0.011	0.012	0.044	-0.069	-0.014	0.027	0.066	-0.071	0.111
2/23/2010 13:07:20	186.333	0.048	0.181	0.011	0.009	0.054	-0.066	-0.009	0.034	0.064	-0.066	0.111
2/23/2010 13:07:30	186.500	0.045	0.176	0.019	0.007	0.052	-0.069	-0.012	0.034	0.062	-0.071	0.111
2/23/2010 13:07:40	186.667	0.043	0.178	0.011	0.009	0.049	-0.066	-0.012	0.032	0.064	-0.064	0.109
2/23/2010 13:07:50	186.833	0.048	0.181	0.014	0.009	0.054	-0.069	-0.009	0.034	0.064	-0.066	0.111
2/23/2010 13:08:00	187.000	0.048	0.178	0.007	0.012	0.049	-0.066	-0.009	0.030	0.064	-0.066	0.111
2/23/2010 13:08:10	187.167	0.045	0.176	0.009	0.012	0.052	-0.069	-0.009	0.034	0.064	-0.062	0.111
2/23/2010 13:08:20	187.333	0.045	0.178	0.016	0.009	0.054	-0.066	-0.012	0.032	0.064	-0.066	0.111
2/23/2010 13:08:30	187.500	0.045	0.178	0.011	0.007	0.054	-0.069	-0.012	0.032	0.064	-0.064	0.111
2/23/2010 13:08:40	187.667	0.046	0.174	0.011	0.007	0.054	-0.071	-0.009	0.034	0.062	-0.069	0.111
2/23/2010 13:08:50	187.833	0.046	0.178	0.016	0.009	0.052	-0.069	-0.009	0.032	0.062	-0.069	0.109
2/23/2010 13:09:00	188.000	0.048	0.178	0.016	0.009	0.054	-0.069	-0.012	0.034	0.062	-0.066	0.109
2/23/2010 13:09:10	188.167	0.048	0.178	0.016	0.012	0.054	-0.069	-0.009	0.032	0.062	-0.066	0.113
2/23/2010 13:09:20	188.333	0.048	0.176	0.014	0.009	0.052	-0.069	-0.009	0.034	0.062	-0.064	0.111
2/23/2010 13:09:30	188.500	0.048	0.178	0.016	0.012	0.052	-0.066	-0.009	0.034	0.062	-0.066	0.111
2/23/2010 13:09:40	188.667	0.045	0.178	0.011	0.007	0.052	-0.069	-0.009	0.034	0.064	-0.066	0.111
2/23/2010 13:09:50	188.833	0.048	0.176	0.014	0.007	0.049	-0.069	-0.009	0.034	0.062	-0.066	0.111
2/23/2010 13:10:00	189.000	0.048	0.178	0.014	0.012	0.052	-0.066	-0.009	0.037	0.062	-0.069	0.111
2/23/2010 13:10:10	189.167	0.046	0.181	0.014	0.009	0.056	-0.069	-0.012	0.034	0.062	-0.064	0.113
2/23/2010 13:10:20	189.333	0.048	0.178	0.016	0.007	0.054	-0.066	-0.009	0.034	0.062	-0.062	0.111
2/23/2010 13:10:30	189.500	0.048	0.178	0.014	0.009	0.052	-0.069	-0.009	0.034	0.062	-0.066	0.113
2/23/2010 13:10:40	189.667	0.048	0.181	0.011	0.009	0.049	-0.066	-0.009	0.034	0.062	-0.066	0.111
2/23/2010 13:10:50	189.833	0.048	0.181	0.016	0.007	0.049	-0.066	-0.009	0.034	0.062	-0.062	0.113
2/23/2010 13:11:00	190.000	0.050	0.178	0.021	0.009	0.054	-0.066	-0.009	0.032	0.062	-0.062	0.113
2/23/2010 13:11:10	190.167	0.048	0.178	0.019	0.009	0.052	-0.066	-0.009	0.034	0.062	-0.062	0.113
2/23/2010 13:11:20	190.333	0.050	0.178	0.007	0.009	0.052	-0.066	-0.009	0.032	0.062	-0.064	0.113
2/23/2010 13:11:30	190.500	0.045	0.178	0.016	0.007	0.056	-0.071	-0.009	0.034	0.059	-0.064	0.111
2/23/2010 13:11:40	190.667	0.050	0.181	0.019	0.007	0.052	-0.066	-0.009	0.034	0.062	-0.062	0.111
2/23/2010 13:11:50	190.833	0.048	0.176	0.014	0.012	0.054	-0.064	-0.009	0.032	0.059	-0.064	0.111

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 13:12:00	191.000	0.050	0.176	0.014	0.007	0.052	-0.066	-0.009	0.032	0.062	-0.064	0.116
2/23/2010 13:12:10	191.167	0.050	0.176	0.014	0.007	0.052	-0.064	-0.009	0.032	0.062	-0.064	0.113
2/23/2010 13:12:20	191.333	0.048	0.181	0.011	0.009	0.052	-0.066	-0.009	0.034	0.062	-0.064	0.113
2/23/2010 13:12:30	191.500	0.045	0.178	0.011	0.009	0.052	-0.066	-0.009	0.034	0.062	-0.064	0.116
2/23/2010 13:12:40	191.667	0.050	0.181	0.014	0.007	0.052	-0.064	-0.009	0.034	0.060	-0.062	0.113
2/23/2010 13:12:50	191.833	0.048	0.176	0.019	0.009	0.049	-0.066	-0.007	0.034	0.062	-0.062	0.113
2/23/2010 13:13:00	192.000	0.048	0.181	0.019	0.009	0.052	-0.064	-0.009	0.037	0.059	-0.062	0.113
2/23/2010 13:13:10	192.167	0.048	0.178	0.019	0.009	0.054	-0.066	-0.009	0.034	0.059	-0.062	0.116
2/23/2010 13:13:20	192.333	0.050	0.178	0.016	0.009	0.054	-0.064	-0.012	0.034	0.060	-0.059	0.116
2/23/2010 13:13:30	192.500	0.048	0.176	0.014	0.009	0.054	-0.066	-0.007	0.037	0.062	-0.059	0.116
2/23/2010 13:13:40	192.667	0.050	0.181	0.016	0.009	0.054	-0.066	-0.009	0.037	0.057	-0.064	0.113
2/23/2010 13:13:50	192.833	0.050	0.178	0.019	0.009	0.052	-0.064	-0.009	0.037	0.062	-0.062	0.113
2/23/2010 13:14:00	193.000	0.050	0.178	0.016	0.009	0.052	-0.064	-0.009	0.034	0.059	-0.059	0.116
2/23/2010 13:14:10	193.167	0.048	0.178	0.014	0.014	0.054	-0.064	-0.009	0.032	0.059	-0.057	0.116
2/23/2010 13:14:20	193.333	0.050	0.181	0.019	0.009	0.054	-0.066	-0.007	0.030	0.059	-0.057	0.113
2/23/2010 13:14:30	193.500	0.048	0.178	0.016	0.009	0.054	-0.057	-0.009	0.034	0.060	-0.062	0.116
2/23/2010 13:14:40	193.667	0.048	0.178	0.019	0.009	0.052	-0.062	-0.007	0.034	0.060	-0.062	0.116
2/23/2010 13:14:50	193.833	0.050	0.178	0.019	0.009	0.052	-0.064	-0.009	0.037	0.062	-0.066	0.116
2/23/2010 13:15:00	194.000	0.048	0.178	0.014	0.012	0.052	-0.062	-0.009	0.032	0.060	-0.062	0.116
2/23/2010 13:15:10	194.167	0.048	0.178	0.014	0.009	0.049	-0.064	-0.007	0.032	0.062	-0.062	0.116
2/23/2010 13:15:20	194.333	0.050	0.178	0.016	0.009	0.052	-0.062	-0.007	0.034	0.060	-0.064	0.116
2/23/2010 13:15:30	194.500	0.050	0.178	0.016	0.012	0.052	-0.062	-0.009	0.030	0.062	-0.062	0.116
2/23/2010 13:15:40	194.667	0.050	0.181	0.011	0.012	0.054	-0.064	-0.007	0.034	0.060	-0.064	0.116
2/23/2010 13:15:50	194.833	0.048	0.178	0.014	0.007	0.052	-0.062	-0.009	0.034	0.060	-0.064	0.116
2/23/2010 13:16:00	195.000	0.050	0.178	0.016	0.009	0.054	-0.064	-0.007	0.041	0.062	-0.062	0.118
2/23/2010 13:16:10	195.167	0.045	0.178	0.016	0.009	0.054	-0.069	-0.009	0.034	0.062	-0.062	0.116
2/23/2010 13:16:20	195.333	0.050	0.181	0.019	0.009	0.049	-0.064	-0.007	0.037	0.062	-0.062	0.120
2/23/2010 13:16:30	195.500	0.048	0.176	0.019	0.012	0.054	-0.059	-0.012	0.037	0.060	-0.069	0.116
2/23/2010 13:16:40	195.667	0.050	0.181	0.019	0.007	0.056	-0.062	-0.007	0.037	0.060	-0.059	0.118
2/23/2010 13:16:50	195.833	0.050	0.181	0.019	0.012	0.052	-0.059	-0.007	0.037	0.062	-0.062	0.118
2/23/2010 13:17:00	196.000	0.050	0.181	0.016	0.009	0.056	-0.059	-0.009	0.037	0.060	-0.059	0.118
2/23/2010 13:17:10	196.167	0.050	0.181	0.019	0.007	0.052	-0.059	-0.012	0.037	0.062	-0.057	0.118
2/23/2010 13:17:20	196.333	0.050	0.181	0.019	0.009	0.052	-0.059	-0.007	0.034	0.060	-0.059	0.120
2/23/2010 13:17:30	196.500	0.050	0.178	0.016	0.007	0.052	-0.059	-0.007	0.034	0.057	-0.062	0.118
2/23/2010 13:17:40	196.667	0.050	0.178	0.019	0.009	0.054	-0.064	-0.007	0.037	0.060	-0.059	0.118
2/23/2010 13:17:50	196.833	0.050	0.181	0.023	0.007	0.054	-0.062	-0.007	0.037	0.060	-0.062	0.120

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 13:18:00	197.000	0.050	0.178	0.019	0.009	0.052	-0.064	-0.007	0.034	0.057	-0.059	0.118
2/23/2010 13:18:10	197.167	0.048	0.178	0.019	0.007	0.054	-0.062	-0.009	0.034	0.060	-0.062	0.120
2/23/2010 13:18:20	197.333	0.048	0.176	0.019	0.009	0.054	-0.059	-0.007	0.034	0.060	-0.057	0.120
2/23/2010 13:18:30	197.500	0.050	0.181	0.014	0.009	0.052	-0.062	-0.007	0.034	0.060	-0.059	0.123
2/23/2010 13:18:40	197.667	0.050	0.178	0.019	0.009	0.054	-0.062	-0.007	0.034	0.060	-0.057	0.118
2/23/2010 13:18:50	197.833	0.050	0.178	0.019	0.009	0.054	-0.062	-0.007	0.034	0.062	-0.057	0.123
2/23/2010 13:19:00	198.000	0.050	0.178	0.023	0.009	0.056	-0.062	-0.007	0.032	0.060	-0.055	0.120
2/23/2010 13:19:10	198.167	0.048	0.178	0.011	0.009	0.054	-0.062	-0.007	0.037	0.060	-0.057	0.123
2/23/2010 13:19:20	198.333	0.048	0.181	0.019	0.007	0.052	-0.062	-0.007	0.034	0.060	-0.059	0.120
2/23/2010 13:19:30	198.500	0.050	0.178	0.023	0.007	0.054	-0.062	-0.009	0.034	0.060	-0.057	0.123
2/23/2010 13:19:40	198.667	0.050	0.181	0.016	0.007	0.052	-0.064	-0.009	0.034	0.060	-0.059	0.120
2/23/2010 13:19:50	198.833	0.050	0.176	0.019	0.009	0.056	-0.062	-0.007	0.034	0.059	-0.055	0.125
2/23/2010 13:20:00	199.000	0.050	0.178	0.016	0.012	0.049	-0.062	-0.007	0.034	0.059	-0.055	0.120
2/23/2010 13:20:10	199.167	0.050	0.181	0.016	0.007	0.052	-0.062	-0.007	0.037	0.059	-0.057	0.123
2/23/2010 13:20:20	199.333	0.050	0.178	0.021	0.009	0.052	-0.062	-0.005	0.034	0.060	-0.057	0.123
2/23/2010 13:20:30	199.500	0.050	0.178	0.014	0.009	0.054	-0.062	-0.007	0.034	0.060	-0.057	0.123
2/23/2010 13:20:40	199.667	0.050	0.176	0.016	0.009	0.052	-0.055	-0.007	0.037	0.057	-0.055	0.123
2/23/2010 13:20:50	199.833	0.050	0.178	0.021	0.007	0.054	-0.062	-0.007	0.034	0.060	-0.064	0.125
2/23/2010 13:21:00	200.000	0.050	0.176	0.021	0.012	0.052	-0.062	-0.007	0.034	0.060	-0.057	0.123
2/23/2010 13:21:10	200.167	0.050	0.178	0.019	0.009	0.052	-0.062	-0.007	0.034	0.062	-0.055	0.123
2/23/2010 13:21:20	200.333	0.050	0.178	0.019	0.009	0.054	-0.062	-0.009	0.034	0.062	-0.057	0.123
2/23/2010 13:21:30	200.500	0.050	0.178	0.016	0.009	0.054	-0.062	-0.005	0.032	0.062	-0.057	0.125
2/23/2010 13:21:40	200.667	0.050	0.176	0.019	0.009	0.054	-0.057	-0.007	0.034	0.059	-0.062	0.123
2/23/2010 13:21:50	200.833	0.050	0.178	0.021	0.007	0.052	-0.062	-0.007	0.034	0.064	-0.057	0.125
2/23/2010 13:22:00	201.000	0.048	0.178	0.016	0.009	0.049	-0.062	-0.007	0.034	0.062	-0.057	0.125
2/23/2010 13:22:10	201.167	0.048	0.176	0.016	0.009	0.052	-0.062	-0.007	0.030	0.062	-0.057	0.125
2/23/2010 13:22:20	201.333	0.045	0.178	0.019	0.009	0.052	-0.062	-0.007	0.032	0.062	-0.057	0.125
2/23/2010 13:22:30	201.500	0.048	0.176	0.021	0.012	0.054	-0.059	-0.007	0.037	0.059	-0.057	0.125
2/23/2010 13:22:40	201.667	0.050	0.176	0.019	0.009	0.054	-0.059	-0.005	0.034	0.062	-0.055	0.125
2/23/2010 13:22:50	201.833	0.048	0.178	0.014	0.009	0.056	-0.059	-0.005	0.034	0.060	-0.059	0.125
2/23/2010 13:23:00	202.000	0.050	0.181	0.016	0.009	0.056	-0.059	-0.005	0.034	0.062	-0.055	0.125
2/23/2010 13:23:10	202.167	0.048	0.178	0.016	0.012	0.056	-0.059	-0.005	0.034	0.062	-0.055	0.125
2/23/2010 13:23:20	202.333	0.050	0.178	0.016	0.012	0.052	-0.059	-0.005	0.037	0.060	-0.057	0.125
2/23/2010 13:23:30	202.500	0.050	0.176	0.014	0.009	0.052	-0.059	-0.007	0.034	0.062	-0.055	0.125
2/23/2010 13:23:40	202.667	0.050	0.181	0.016	0.009	0.052	-0.062	-0.007	0.032	0.062	-0.055	0.125
2/23/2010 13:23:50	202.833	0.048	0.178	0.016	0.009	0.054	-0.062	-0.007	0.034	0.062	-0.057	0.127

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 13:24:00	203.000	0.048	0.178	0.016	0.009	0.052	-0.059	-0.005	0.034	0.064	-0.057	0.125
2/23/2010 13:24:10	203.167	0.048	0.178	0.011	0.007	0.054	-0.059	-0.005	0.034	0.062	-0.059	0.127
2/23/2010 13:24:20	203.333	0.048	0.176	0.019	0.009	0.054	-0.062	-0.005	0.032	0.062	-0.057	0.125
2/23/2010 13:24:30	203.500	0.050	0.178	0.016	0.009	0.059	-0.059	-0.005	0.034	0.062	-0.057	0.127
2/23/2010 13:24:40	203.667	0.050	0.178	0.014	0.007	0.054	-0.062	-0.007	0.037	0.062	-0.057	0.123
2/23/2010 13:24:50	203.833	0.048	0.178	0.011	0.009	0.056	-0.059	-0.005	0.037	0.062	-0.059	0.125
2/23/2010 13:25:00	204.000	0.045	0.181	0.014	0.009	0.049	-0.057	-0.007	0.032	0.062	-0.059	0.127
2/23/2010 13:25:10	204.167	0.050	0.181	0.016	0.009	0.054	-0.062	-0.005	0.037	0.062	-0.055	0.127
2/23/2010 13:25:20	204.333	0.050	0.176	0.016	0.009	0.054	-0.059	-0.007	0.034	0.062	-0.059	0.125
2/23/2010 13:25:30	204.500	0.050	0.178	0.014	0.009	0.056	-0.062	-0.005	0.034	0.062	-0.057	0.125
2/23/2010 13:25:40	204.667	0.050	0.176	0.021	0.009	0.054	-0.059	-0.007	0.037	0.062	-0.057	0.125
2/23/2010 13:25:50	204.833	0.050	0.181	0.021	0.007	0.052	-0.057	-0.007	0.034	0.062	-0.055	0.127
2/23/2010 13:26:00	205.000	0.045	0.178	0.016	0.009	0.054	-0.059	-0.005	0.032	0.062	-0.055	0.127
2/23/2010 13:26:10	205.167	0.048	0.176	0.021	0.009	0.052	-0.057	-0.005	0.034	0.062	-0.055	0.127
2/23/2010 13:26:20	205.333	0.048	0.178	0.014	0.007	0.054	-0.062	-0.005	0.037	0.060	-0.052	0.127
2/23/2010 13:26:30	205.500	0.050	0.181	0.014	0.009	0.054	-0.059	-0.005	0.037	0.062	-0.055	0.130
2/23/2010 13:26:40	205.667	0.050	0.181	0.021	0.012	0.054	-0.057	-0.005	0.037	0.059	-0.057	0.127
2/23/2010 13:26:50	205.833	0.048	0.181	0.016	0.009	0.059	-0.059	-0.002	0.034	0.062	-0.059	0.130
2/23/2010 13:27:00	206.000	0.050	0.178	0.019	0.007	0.052	-0.059	-0.002	0.037	0.060	-0.055	0.127
2/23/2010 13:27:10	206.167	0.048	0.176	0.011	0.009	0.056	-0.062	-0.005	0.037	0.062	-0.052	0.127
2/23/2010 13:27:20	206.333	0.050	0.181	0.011	0.009	0.054	-0.059	-0.002	0.037	0.062	-0.052	0.130
2/23/2010 13:27:30	206.500	0.050	0.178	0.019	0.009	0.052	-0.059	-0.005	0.039	0.059	-0.055	0.130
2/23/2010 13:27:40	206.667	0.053	0.178	0.014	0.009	0.052	-0.059	-0.005	0.037	0.059	-0.050	0.130
2/23/2010 13:27:50	206.833	0.053	0.178	0.019	0.012	0.054	-0.055	-0.005	0.037	0.060	-0.055	0.130
2/23/2010 13:28:00	207.000	0.053	0.181	0.016	0.004	0.052	-0.057	-0.002	0.037	0.057	-0.059	0.130
2/23/2010 13:28:10	207.167	0.050	0.181	0.021	0.009	0.052	-0.057	-0.005	0.034	0.060	-0.052	0.130
2/23/2010 13:28:20	207.333	0.053	0.181	0.021	0.009	0.059	-0.059	-0.005	0.034	0.057	-0.052	0.130
2/23/2010 13:28:30	207.500	0.050	0.178	0.021	0.009	0.052	-0.057	-0.005	0.034	0.060	-0.055	0.130
2/23/2010 13:28:40	207.667	0.050	0.181	0.016	0.009	0.054	-0.057	-0.005	0.037	0.060	-0.057	0.130
2/23/2010 13:28:50	207.833	0.050	0.181	0.016	0.009	0.054	-0.059	-0.005	0.037	0.060	-0.055	0.130
2/23/2010 13:29:00	208.000	0.050	0.178	0.019	0.012	0.054	-0.055	-0.005	0.034	0.060	-0.052	0.132
2/23/2010 13:29:10	208.167	0.050	0.181	0.023	0.009	0.054	-0.057	-0.005	0.037	0.057	-0.057	0.132
2/23/2010 13:29:20	208.333	0.050	0.178	0.019	0.012	0.059	-0.059	-0.002	0.034	0.060	-0.050	0.132
2/23/2010 13:29:30	208.500	0.055	0.178	0.023	0.009	0.054	-0.057	-0.005	0.032	0.060	-0.052	0.134
2/23/2010 13:29:40	208.667	0.050	0.178	0.019	0.009	0.056	-0.059	-0.005	0.037	0.060	-0.052	0.132
2/23/2010 13:29:50	208.833	0.050	0.181	0.019	0.009	0.052	-0.059	-0.002	0.039	0.060	-0.050	0.132

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 13:30:00	209.000	0.053	0.181	0.021	0.007	0.054	-0.057	-0.002	0.034	0.057	-0.055	0.134
2/23/2010 13:30:10	209.167	0.050	0.178	0.021	0.012	0.054	-0.057	-0.005	0.034	0.060	-0.047	0.134
2/23/2010 13:30:20	209.333	0.053	0.181	0.021	0.009	0.054	-0.057	-0.005	0.039	0.060	-0.050	0.134
2/23/2010 13:30:30	209.500	0.050	0.178	0.019	0.012	0.054	-0.055	-0.002	0.037	0.057	-0.050	0.134
2/23/2010 13:30:40	209.667	0.048	0.178	0.016	0.012	0.056	-0.057	-0.002	0.034	0.060	-0.057	0.134
2/23/2010 13:30:50	209.833	0.050	0.178	0.023	0.009	0.054	-0.057	-0.005	0.034	0.060	-0.052	0.132
2/23/2010 13:31:00	210.000	0.053	0.181	0.016	0.007	0.049	-0.055	-0.002	0.037	0.060	-0.055	0.134
2/23/2010 13:31:10	210.167	0.050	0.176	0.019	0.009	0.052	-0.057	-0.005	0.037	0.062	-0.062	0.134
2/23/2010 13:31:20	210.333	0.053	0.176	0.016	0.009	0.049	-0.055	-0.005	0.034	0.060	-0.052	0.132
2/23/2010 13:31:30	210.500	0.050	0.178	0.016	0.007	0.052	-0.055	-0.005	0.034	0.062	-0.055	0.137
2/23/2010 13:31:40	210.667	0.048	0.178	0.014	0.009	0.052	-0.057	-0.007	0.034	0.060	-0.055	0.134
2/23/2010 13:31:50	210.833	0.050	0.178	0.021	0.009	0.054	-0.059	-0.002	0.034	0.064	-0.052	0.134
2/23/2010 13:32:00	211.000	0.045	0.176	0.016	0.009	0.054	-0.057	-0.005	0.034	0.062	-0.047	0.134
2/23/2010 13:32:10	211.167	0.048	0.181	0.023	0.009	0.056	-0.059	-0.005	0.037	0.062	-0.050	0.137
2/23/2010 13:32:20	211.333	0.048	0.181	0.019	0.009	0.054	-0.057	-0.005	0.034	0.062	-0.050	0.134
2/23/2010 13:32:30	211.500	0.050	0.176	0.021	0.009	0.054	-0.057	-0.002	0.039	0.064	-0.055	0.137
2/23/2010 13:32:40	211.667	0.050	0.181	0.014	0.009	0.049	-0.057	-0.002	0.034	0.062	-0.052	0.137
2/23/2010 13:32:50	211.833	0.050	0.178	0.026	0.007	0.054	-0.057	-0.005	0.037	0.060	-0.047	0.137
2/23/2010 13:33:00	212.000	0.048	0.178	0.021	0.007	0.054	-0.057	-0.002	0.037	0.060	-0.055	0.137
2/23/2010 13:33:10	212.167	0.050	0.178	0.016	0.012	0.052	-0.057	-0.005	0.037	0.059	-0.055	0.134
2/23/2010 13:33:20	212.333	0.050	0.178	0.016	0.012	0.047	-0.059	-0.005	0.037	0.062	-0.050	0.137
2/23/2010 13:33:30	212.500	0.050	0.178	0.019	0.009	0.056	-0.057	-0.002	0.037	0.060	-0.050	0.137
2/23/2010 13:33:40	212.667	0.048	0.178	0.016	0.007	0.054	-0.059	-0.002	0.037	0.059	-0.052	0.137
2/23/2010 13:33:50	212.833	0.050	0.178	0.011	0.009	0.052	-0.057	-0.002	0.032	0.060	-0.052	0.137
2/23/2010 13:34:00	213.000	0.048	0.178	0.019	0.009	0.054	-0.057	-0.005	0.034	0.060	-0.050	0.137
2/23/2010 13:34:10	213.167	0.050	0.176	0.014	0.009	0.054	-0.057	-0.002	0.037	0.062	-0.050	0.137
2/23/2010 13:34:20	213.333	0.050	0.178	0.023	0.007	0.056	-0.057	-0.002	0.037	0.062	-0.055	0.137
2/23/2010 13:34:30	213.500	0.050	0.178	0.016	0.009	0.054	-0.059	-0.002	0.037	0.062	-0.052	0.137
2/23/2010 13:34:40	213.667	0.050	0.183	0.014	0.009	0.056	-0.055	-0.002	0.039	0.060	-0.052	0.142
2/23/2010 13:34:50	213.833	0.048	0.176	0.023	0.009	0.056	-0.057	-0.002	0.039	0.062	-0.055	0.139
2/23/2010 13:35:00	214.000	0.050	0.181	0.019	0.009	0.054	-0.055	-0.005	0.034	0.060	-0.050	0.137
2/23/2010 13:35:10	214.167	0.050	0.181	0.016	0.009	0.052	-0.057	-0.002	0.039	0.059	-0.050	0.139
2/23/2010 13:35:20	214.333	0.050	0.178	0.019	0.012	0.054	-0.057	-0.002	0.034	0.062	-0.050	0.139
2/23/2010 13:35:30	214.500	0.050	0.174	0.014	0.012	0.049	-0.057	-0.002	0.037	0.062	-0.047	0.139
2/23/2010 13:35:40	214.667	0.050	0.178	0.016	0.007	0.056	-0.057	-0.005	0.034	0.060	-0.055	0.139
2/23/2010 13:35:50	214.833	0.053	0.178	0.016	0.012	0.054	-0.052	-0.002	0.039	0.060	-0.055	0.139

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 13:36:00	215.000	0.048	0.178	0.019	0.009	0.049	-0.055	-0.005	0.037	0.060	-0.052	0.139
2/23/2010 13:36:10	215.167	0.050	0.178	0.014	0.009	0.052	-0.055	-0.002	0.034	0.060	-0.055	0.139
2/23/2010 13:36:20	215.333	0.053	0.178	0.021	0.009	0.056	-0.055	-0.002	0.039	0.060	-0.052	0.139
2/23/2010 13:36:30	215.500	0.053	0.178	0.019	0.007	0.056	-0.057	0.000	0.037	0.062	-0.052	0.139
2/23/2010 13:36:40	215.667	0.048	0.178	0.019	0.009	0.054	-0.055	-0.002	0.034	0.062	-0.052	0.139
2/23/2010 13:36:50	215.833	0.053	0.176	0.019	0.007	0.054	-0.057	0.000	0.034	0.062	-0.052	0.139
2/23/2010 13:37:00	216.000	0.050	0.178	0.019	0.009	0.047	-0.059	-0.002	0.037	0.060	-0.050	0.139
2/23/2010 13:37:10	216.167	0.050	0.178	0.023	0.009	0.061	-0.055	0.000	0.034	0.060	-0.055	0.139
2/23/2010 13:37:20	216.333	0.048	0.183	0.019	0.012	0.056	-0.052	0.000	0.034	0.060	-0.055	0.139
2/23/2010 13:37:30	216.500	0.050	0.181	0.021	0.007	0.056	-0.057	-0.002	0.039	0.060	-0.047	0.139
2/23/2010 13:37:40	216.667	0.048	0.181	0.016	0.007	0.054	-0.055	-0.002	0.034	0.060	-0.052	0.142
2/23/2010 13:37:50	216.833	0.048	0.181	0.021	0.009	0.056	-0.055	-0.002	0.037	0.060	-0.055	0.139
2/23/2010 13:38:00	217.000	0.050	0.181	0.016	0.012	0.054	-0.052	-0.002	0.032	0.060	-0.052	0.142
2/23/2010 13:38:10	217.167	0.053	0.181	0.019	0.009	0.056	-0.052	-0.002	0.037	0.060	-0.050	0.142
2/23/2010 13:38:20	217.333	0.048	0.178	0.019	0.009	0.054	-0.057	-0.002	0.034	0.062	-0.052	0.144
2/23/2010 13:38:30	217.500	0.050	0.178	0.021	0.012	0.056	-0.055	-0.002	0.037	0.062	-0.047	0.144
2/23/2010 13:38:40	217.667	0.050	0.178	0.016	0.009	0.054	-0.055	-0.002	0.037	0.062	-0.045	0.142
2/23/2010 13:38:50	217.833	0.053	0.181	0.019	0.009	0.052	-0.055	0.000	0.037	0.059	-0.047	0.142
2/23/2010 13:39:00	218.000	0.050	0.181	0.016	0.009	0.054	-0.057	-0.002	0.039	0.062	-0.047	0.144
2/23/2010 13:39:10	218.167	0.048	0.178	0.021	0.009	0.054	-0.055	0.000	0.034	0.060	-0.050	0.144
2/23/2010 13:39:20	218.333	0.050	0.178	0.023	0.007	0.056	-0.055	0.000	0.034	0.059	-0.048	0.144
2/23/2010 13:39:30	218.500	0.050	0.183	0.016	0.009	0.056	-0.055	-0.002	0.037	0.062	-0.052	0.144
2/23/2010 13:39:40	218.667	0.050	0.176	0.021	0.009	0.054	-0.057	-0.005	0.041	0.060	-0.052	0.142
2/23/2010 13:39:50	218.833	0.050	0.183	0.016	0.009	0.052	-0.055	0.000	0.037	0.062	-0.050	0.146
2/23/2010 13:40:00	219.000	0.050	0.178	0.019	0.009	0.052	-0.052	0.000	0.034	0.060	-0.045	0.144
2/23/2010 13:40:10	219.167	0.053	0.176	0.019	0.009	0.052	-0.055	0.000	0.039	0.062	-0.050	0.146
2/23/2010 13:40:20	219.333	0.050	0.181	0.016	0.009	0.052	-0.055	0.000	0.041	0.059	-0.045	0.144
2/23/2010 13:40:30	219.500	0.050	0.178	0.014	0.009	0.054	-0.055	-0.002	0.034	0.062	-0.050	0.144
2/23/2010 13:40:40	219.667	0.053	0.178	0.019	0.012	0.049	-0.057	0.000	0.037	0.062	-0.052	0.146
2/23/2010 13:40:50	219.833	0.050	0.178	0.019	0.009	0.054	-0.055	0.000	0.034	0.062	-0.047	0.146
2/23/2010 13:41:00	220.000	0.050	0.181	0.021	0.009	0.056	-0.045	-0.002	0.037	0.060	-0.050	0.146
2/23/2010 13:41:10	220.167	0.050	0.181	0.021	0.012	0.052	-0.055	-0.002	0.039	0.060	-0.050	0.144
2/23/2010 13:41:20	220.333	0.048	0.176	0.023	0.004	0.052	-0.055	0.000	0.039	0.060	-0.050	0.146
2/23/2010 13:41:30	220.500	0.050	0.181	0.021	0.007	0.054	-0.052	0.002	0.037	0.062	-0.052	0.146
2/23/2010 13:41:40	220.667	0.053	0.178	0.014	0.012	0.054	-0.057	0.000	0.037	0.062	-0.050	0.144
2/23/2010 13:41:50	220.833	0.053	0.178	0.016	0.009	0.056	-0.052	0.000	0.037	0.059	-0.052	0.146

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 13:42:00	221.000	0.050	0.178	0.019	0.009	0.054	-0.055	0.002	0.037	0.062	-0.047	0.146
2/23/2010 13:42:10	221.167	0.053	0.181	0.021	0.009	0.054	-0.059	0.002	0.037	0.062	-0.045	0.149
2/23/2010 13:42:20	221.333	0.050	0.183	0.019	0.012	0.049	-0.055	0.000	0.039	0.060	-0.043	0.149
2/23/2010 13:42:30	221.500	0.053	0.181	0.019	0.009	0.056	-0.055	0.000	0.037	0.059	-0.045	0.146
2/23/2010 13:42:40	221.667	0.053	0.183	0.019	0.007	0.056	-0.055	0.000	0.039	0.060	-0.047	0.149
2/23/2010 13:42:50	221.833	0.050	0.181	0.019	0.007	0.056	-0.055	0.002	0.039	0.062	-0.052	0.146
2/23/2010 13:43:00	222.000	0.048	0.178	0.019	0.009	0.052	-0.052	0.000	0.041	0.060	-0.055	0.149
2/23/2010 13:43:10	222.167	0.053	0.181	0.019	0.009	0.054	-0.052	0.002	0.037	0.059	-0.050	0.146
2/23/2010 13:43:20	222.333	0.050	0.181	0.019	0.009	0.059	-0.050	0.000	0.041	0.060	-0.050	0.149
2/23/2010 13:43:30	222.500	0.053	0.181	0.021	0.012	0.054	-0.050	-0.002	0.037	0.057	-0.043	0.149
2/23/2010 13:43:40	222.667	0.053	0.181	0.019	0.009	0.056	-0.057	0.000	0.044	0.060	-0.047	0.149
2/23/2010 13:43:50	222.833	0.053	0.178	0.016	0.009	0.056	-0.050	0.000	0.039	0.060	-0.052	0.149
2/23/2010 13:44:00	223.000	0.048	0.178	0.016	0.009	0.056	-0.052	0.000	0.034	0.057	-0.047	0.151
2/23/2010 13:44:10	223.167	0.055	0.176	0.021	0.009	0.056	-0.055	0.002	0.037	0.057	-0.048	0.149
2/23/2010 13:44:20	223.333	0.050	0.181	0.023	0.009	0.052	-0.050	0.000	0.039	0.057	-0.045	0.149
2/23/2010 13:44:30	223.500	0.053	0.178	0.019	0.009	0.056	-0.052	0.000	0.037	0.057	-0.050	0.149
2/23/2010 13:44:40	223.667	0.053	0.181	0.023	0.009	0.054	-0.055	0.002	0.037	0.060	-0.050	0.151
2/23/2010 13:44:50	223.833	0.050	0.178	0.019	0.004	0.052	-0.050	0.000	0.037	0.060	-0.045	0.149
2/23/2010 13:45:00	224.000	0.050	0.178	0.021	0.009	0.056	-0.055	0.000	0.034	0.060	-0.050	0.151
2/23/2010 13:45:10	224.167	0.053	0.174	0.019	0.009	0.054	-0.055	0.000	0.039	0.060	-0.047	0.151
2/23/2010 13:45:20	224.333	0.050	0.178	0.019	0.007	0.052	-0.055	0.002	0.037	0.057	-0.050	0.151
2/23/2010 13:45:30	224.500	0.050	0.178	0.019	0.007	0.054	-0.052	0.002	0.037	0.057	-0.047	0.151
2/23/2010 13:45:40	224.667	0.050	0.176	0.021	0.009	0.054	-0.055	0.000	0.037	0.057	-0.047	0.151
2/23/2010 13:45:50	224.833	0.050	0.181	0.019	0.009	0.054	-0.052	0.000	0.041	0.059	-0.047	0.151
2/23/2010 13:46:00	225.000	0.050	0.178	0.021	0.007	0.054	-0.055	0.000	0.039	0.059	-0.047	0.151
2/23/2010 13:46:10	225.167	0.050	0.181	0.014	0.009	0.052	-0.055	0.000	0.034	0.060	-0.047	0.151
2/23/2010 13:46:20	225.333	0.050	0.181	0.019	0.009	0.054	-0.052	0.000	0.039	0.062	-0.050	0.151
2/23/2010 13:46:30	225.500	0.050	0.176	0.014	0.009	0.052	-0.055	0.000	0.041	0.062	-0.047	0.151
2/23/2010 13:46:40	225.667	0.050	0.178	0.019	0.012	0.052	-0.057	0.000	0.034	0.060	-0.045	0.151
2/23/2010 13:46:50	225.833	0.050	0.178	0.016	0.009	0.059	-0.055	0.000	0.037	0.060	-0.045	0.151
2/23/2010 13:47:00	226.000	0.050	0.178	0.023	0.012	0.052	-0.057	0.002	0.034	0.060	-0.043	0.151
2/23/2010 13:47:10	226.167	0.050	0.178	0.021	0.007	0.056	-0.057	0.002	0.039	0.059	-0.047	0.151
2/23/2010 13:47:20	226.333	0.050	0.178	0.021	0.012	0.056	-0.055	0.002	0.037	0.062	-0.043	0.153
2/23/2010 13:47:30	226.500	0.053	0.181	0.019	0.009	0.054	-0.055	-0.002	0.039	0.060	-0.045	0.151
2/23/2010 13:47:40	226.667	0.053	0.181	0.016	0.007	0.054	-0.052	0.002	0.037	0.059	-0.047	0.151
2/23/2010 13:47:50	226.833	0.053	0.178	0.023	0.009	0.054	-0.052	0.002	0.037	0.060	-0.045	0.153

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 13:48:00	227.000	0.053	0.181	0.016	0.009	0.054	-0.052	0.000	0.039	0.060	-0.047	0.153
2/23/2010 13:48:10	227.167	0.053	0.176	0.014	0.009	0.052	-0.052	0.000	0.039	0.062	-0.047	0.153
2/23/2010 13:48:20	227.333	0.050	0.181	0.016	0.009	0.052	-0.052	0.000	0.037	0.060	-0.045	0.153
2/23/2010 13:48:30	227.500	0.050	0.178	0.016	0.009	0.052	-0.055	0.002	0.037	0.062	-0.047	0.153
2/23/2010 13:48:40	227.667	0.048	0.181	0.019	0.007	0.054	-0.055	0.002	0.039	0.062	-0.047	0.153
2/23/2010 13:48:50	227.833	0.050	0.181	0.019	0.012	0.056	-0.052	0.002	0.037	0.062	-0.045	0.153
2/23/2010 13:49:00	228.000	0.053	0.178	0.019	0.009	0.056	-0.057	0.000	0.037	0.060	-0.045	0.153
2/23/2010 13:49:10	228.167	0.053	0.178	0.016	0.009	0.054	-0.052	0.002	0.037	0.060	-0.047	0.153
2/23/2010 13:49:20	228.333	0.050	0.181	0.019	0.009	0.054	-0.055	0.002	0.041	0.062	-0.047	0.156
2/23/2010 13:49:30	228.500	0.053	0.178	0.014	0.009	0.056	-0.055	0.002	0.039	0.060	-0.043	0.153
2/23/2010 13:49:40	228.667	0.050	0.176	0.019	0.009	0.056	-0.052	0.002	0.037	0.060	-0.045	0.156
2/23/2010 13:49:50	228.833	0.055	0.178	0.019	0.009	0.054	-0.055	0.002	0.037	0.060	-0.047	0.153
2/23/2010 13:50:00	229.000	0.050	0.181	0.021	0.007	0.054	-0.052	0.002	0.041	0.060	-0.047	0.153
2/23/2010 13:50:10	229.167	0.050	0.178	0.023	0.007	0.054	-0.055	0.002	0.039	0.060	-0.047	0.153
2/23/2010 13:50:20	229.333	0.050	0.181	0.021	0.012	0.056	-0.055	0.002	0.039	0.062	-0.047	0.156
2/23/2010 13:50:30	229.500	0.048	0.178	0.019	0.009	0.054	-0.052	0.005	0.037	0.059	-0.050	0.158
2/23/2010 13:50:40	229.667	0.050	0.178	0.021	0.009	0.056	-0.052	0.002	0.039	0.060	-0.052	0.156
2/23/2010 13:50:50	229.833	0.050	0.181	0.016	0.009	0.056	-0.052	0.000	0.039	0.060	-0.045	0.153
2/23/2010 13:51:00	230.000	0.050	0.178	0.016	0.009	0.054	-0.055	0.000	0.037	0.060	-0.043	0.158
2/23/2010 13:51:10	230.167	0.053	0.178	0.019	0.009	0.056	-0.052	0.000	0.039	0.059	-0.043	0.158
2/23/2010 13:51:20	230.333	0.050	0.181	0.016	0.009	0.056	-0.052	0.002	0.037	0.062	-0.047	0.153
2/23/2010 13:51:30	230.500	0.050	0.181	0.021	0.009	0.056	-0.052	0.002	0.039	0.062	-0.045	0.156
2/23/2010 13:51:40	230.667	0.050	0.178	0.014	0.012	0.054	-0.055	0.005	0.041	0.060	-0.047	0.156
2/23/2010 13:51:50	230.833	0.055	0.183	0.019	0.009	0.056	-0.055	0.002	0.039	0.062	-0.043	0.156
2/23/2010 13:52:00	231.000	0.053	0.181	0.023	0.007	0.056	-0.050	0.002	0.041	0.060	-0.045	0.156
2/23/2010 13:52:10	231.167	0.053	0.178	0.023	0.009	0.054	-0.052	0.002	0.041	0.060	-0.045	0.158
2/23/2010 13:52:20	231.333	0.053	0.181	0.021	0.009	0.056	-0.050	0.002	0.039	0.060	-0.040	0.158
2/23/2010 13:52:30	231.500	0.053	0.181	0.023	0.009	0.054	-0.055	0.002	0.041	0.060	-0.043	0.158
2/23/2010 13:52:40	231.667	0.050	0.178	0.016	0.007	0.052	-0.052	-0.002	0.037	0.057	-0.047	0.156
2/23/2010 13:52:50	231.833	0.048	0.176	0.016	0.009	0.056	-0.055	0.002	0.039	0.060	-0.050	0.158
2/23/2010 13:53:00	232.000	0.050	0.178	0.014	0.009	0.054	-0.050	0.002	0.039	0.062	-0.055	0.156
2/23/2010 13:53:10	232.167	0.050	0.178	0.016	0.009	0.056	-0.055	0.002	0.034	0.062	-0.050	0.160
2/23/2010 13:53:20	232.333	0.048	0.178	0.021	0.009	0.056	-0.052	0.000	0.034	0.064	-0.048	0.156
2/23/2010 13:53:30	232.500	0.050	0.174	0.023	0.007	0.054	-0.057	0.000	0.037	0.064	-0.045	0.158
2/23/2010 13:53:40	232.667	0.045	0.181	0.016	0.007	0.052	-0.052	0.002	0.034	0.064	-0.050	0.158
2/23/2010 13:53:50	232.833	0.048	0.176	0.016	0.009	0.052	-0.057	0.002	0.034	0.064	-0.047	0.156

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 13:54:00	233.000	0.050	0.176	0.011	0.009	0.059	-0.057	0.005	0.037	0.064	-0.047	0.158
2/23/2010 13:54:10	233.167	0.050	0.178	0.016	0.009	0.056	-0.055	0.002	0.037	0.067	-0.050	0.156
2/23/2010 13:54:20	233.333	0.048	0.178	0.014	0.009	0.056	-0.055	0.005	0.034	0.064	-0.050	0.158
2/23/2010 13:54:30	233.500	0.050	0.181	0.019	0.009	0.059	-0.059	0.007	0.039	0.064	-0.045	0.158
2/23/2010 13:54:40	233.667	0.048	0.178	0.016	0.009	0.059	-0.057	0.002	0.039	0.062	-0.047	0.156
2/23/2010 13:54:50	233.833	0.048	0.176	0.019	0.012	0.056	-0.055	0.002	0.039	0.064	-0.047	0.156
2/23/2010 13:55:00	234.000	0.050	0.181	0.014	0.007	0.056	-0.055	0.002	0.039	0.064	-0.047	0.158
2/23/2010 13:55:10	234.167	0.048	0.178	0.019	0.007	0.054	-0.055	0.002	0.039	0.064	-0.047	0.156
2/23/2010 13:55:20	234.333	0.048	0.178	0.019	0.007	0.054	-0.057	0.002	0.037	0.064	-0.045	0.156
2/23/2010 13:55:30	234.500	0.048	0.181	0.016	0.012	0.056	-0.055	0.005	0.041	0.064	-0.047	0.158
2/23/2010 13:55:40	234.667	0.050	0.178	0.014	0.007	0.056	-0.057	0.005	0.039	0.062	-0.045	0.158
2/23/2010 13:55:50	234.833	0.053	0.178	0.023	0.012	0.054	-0.055	0.005	0.041	0.062	-0.043	0.158
2/23/2010 13:56:00	235.000	0.050	0.181	0.016	0.009	0.054	-0.055	0.002	0.039	0.064	-0.045	0.158
2/23/2010 13:56:10	235.167	0.048	0.181	0.021	0.009	0.056	-0.055	0.005	0.039	0.064	-0.048	0.158
2/23/2010 13:56:20	235.333	0.050	0.181	0.019	0.009	0.054	-0.055	0.002	0.039	0.062	-0.045	0.156
2/23/2010 13:56:30	235.500	0.053	0.178	0.019	0.009	0.056	-0.055	0.002	0.041	0.062	-0.047	0.158
2/23/2010 13:56:40	235.667	0.053	0.181	0.019	0.009	0.059	-0.055	0.005	0.041	0.062	-0.050	0.158
2/23/2010 13:56:50	235.833	0.050	0.178	0.014	0.012	0.054	-0.052	0.007	0.039	0.064	-0.048	0.158
2/23/2010 13:57:00	236.000	0.050	0.178	0.021	0.012	0.054	-0.050	0.005	0.037	0.062	-0.045	0.156
2/23/2010 13:57:10	236.167	0.050	0.178	0.019	0.012	0.056	-0.055	0.002	0.037	0.062	-0.047	0.158
2/23/2010 13:57:20	236.333	0.053	0.178	0.021	0.009	0.056	-0.055	0.007	0.039	0.062	-0.043	0.158
2/23/2010 13:57:30	236.500	0.050	0.181	0.023	0.009	0.056	-0.052	0.002	0.039	0.062	-0.045	0.158
2/23/2010 13:57:40	236.667	0.050	0.183	0.023	0.009	0.056	-0.055	0.005	0.039	0.059	-0.047	0.158
2/23/2010 13:57:50	236.833	0.050	0.181	0.019	0.009	0.056	-0.052	0.005	0.041	0.062	-0.045	0.158
2/23/2010 13:58:00	237.000	0.050	0.181	0.023	0.007	0.052	-0.050	0.005	0.037	0.060	-0.040	0.160
2/23/2010 13:58:10	237.167	0.053	0.178	0.021	0.012	0.052	-0.052	0.005	0.039	0.060	-0.047	0.160
2/23/2010 13:58:20	237.333	0.053	0.181	0.026	0.012	0.052	-0.050	0.005	0.041	0.060	-0.047	0.158
2/23/2010 13:58:30	237.500	0.053	0.181	0.023	0.009	0.059	-0.050	0.002	0.037	0.060	-0.043	0.158
2/23/2010 13:58:40	237.667	0.055	0.178	0.019	0.012	0.054	-0.055	0.005	0.041	0.062	-0.045	0.160
2/23/2010 13:58:50	237.833	0.053	0.178	0.019	0.007	0.056	-0.050	0.002	0.039	0.060	-0.052	0.160
2/23/2010 13:59:00	238.000	0.048	0.178	0.021	0.009	0.056	-0.050	0.005	0.039	0.060	-0.040	0.160
2/23/2010 13:59:10	238.167	0.053	0.181	0.016	0.009	0.056	-0.052	0.005	0.039	0.060	-0.055	0.160
2/23/2010 13:59:20	238.333	0.053	0.181	0.021	0.012	0.054	-0.052	0.005	0.034	0.060	-0.043	0.160
2/23/2010 13:59:30	238.500	0.053	0.178	0.021	0.009	0.054	-0.052	0.005	0.041	0.060	-0.043	0.160
2/23/2010 13:59:40	238.667	0.055	0.181	0.021	0.012	0.059	-0.050	0.005	0.039	0.060	-0.040	0.163
2/23/2010 13:59:50	238.833	0.053	0.181	0.021	0.009	0.056	-0.050	0.005	0.041	0.059	-0.043	0.160

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 14:00:00	239.000	0.055	0.181	0.021	0.012	0.054	-0.048	0.005	0.037	0.057	-0.045	0.160
2/23/2010 14:01:00	240.000	0.053	0.181	0.026	0.011	0.054	-0.050	0.005	0.041	0.057	-0.043	0.163
2/23/2010 14:02:00	241.000	0.053	0.181	0.021	0.009	0.059	-0.050	0.005	0.041	0.057	-0.036	0.163
2/23/2010 14:03:00	242.000	0.053	0.181	0.019	0.009	0.056	-0.055	0.005	0.039	0.060	-0.043	0.165
2/23/2010 14:04:00	243.000	0.052	0.178	0.021	0.009	0.056	-0.050	0.002	0.041	0.060	-0.040	0.165
2/23/2010 14:05:00	244.000	0.053	0.178	0.021	0.009	0.059	-0.050	0.007	0.039	0.060	-0.043	0.165
2/23/2010 14:06:00	245.000	0.050	0.176	0.016	0.011	0.052	-0.050	0.005	0.039	0.062	-0.043	0.165
2/23/2010 14:07:00	246.000	0.048	0.178	0.016	0.009	0.056	-0.052	0.005	0.039	0.062	-0.043	0.167
2/23/2010 14:08:00	247.000	0.048	0.178	0.014	0.009	0.056	-0.052	0.002	0.037	0.064	-0.040	0.167
2/23/2010 14:09:00	248.000	0.048	0.176	0.019	0.009	0.056	-0.052	0.005	0.039	0.062	-0.043	0.167
2/23/2010 14:10:00	249.000	0.050	0.176	0.019	0.009	0.056	-0.050	0.005	0.037	0.062	-0.043	0.167
2/23/2010 14:11:00	250.000	0.052	0.176	0.021	0.009	0.056	-0.055	0.007	0.039	0.060	-0.043	0.167
2/23/2010 14:12:00	251.000	0.050	0.176	0.021	0.011	0.056	-0.052	0.005	0.041	0.062	-0.043	0.170
2/23/2010 14:13:00	252.000	0.048	0.178	0.019	0.011	0.056	-0.052	0.005	0.039	0.062	-0.038	0.167
2/23/2010 14:14:00	253.000	0.050	0.178	0.019	0.009	0.054	-0.052	0.005	0.039	0.064	-0.048	0.170
2/23/2010 14:15:00	254.000	0.052	0.178	0.016	0.009	0.056	-0.052	0.007	0.041	0.062	-0.040	0.170
2/23/2010 14:16:00	255.000	0.055	0.181	0.021	0.011	0.056	-0.052	0.007	0.039	0.062	-0.043	0.172
2/23/2010 14:17:00	256.000	0.052	0.178	0.021	0.009	0.056	-0.050	0.002	0.039	0.060	-0.043	0.170
2/23/2010 14:18:00	257.000	0.052	0.178	0.021	0.007	0.059	-0.050	0.007	0.039	0.060	-0.038	0.170
2/23/2010 14:19:00	258.000	0.052	0.178	0.026	0.009	0.059	-0.052	0.007	0.044	0.060	-0.040	0.170
2/23/2010 14:20:00	259.000	0.050	0.176	0.021	0.009	0.056	-0.052	0.005	0.039	0.062	-0.040	0.172
2/23/2010 14:21:00	260.000	0.050	0.176	0.026	0.009	0.059	-0.050	0.009	0.039	0.062	-0.040	0.172
2/23/2010 14:22:00	261.000	0.050	0.176	0.019	0.009	0.059	-0.050	0.009	0.039	0.062	-0.040	0.172
2/23/2010 14:23:00	262.000	0.052	0.178	0.021	0.011	0.054	-0.048	0.007	0.044	0.060	-0.038	0.170
2/23/2010 14:24:00	263.000	0.050	0.178	0.021	0.009	0.054	-0.045	0.009	0.039	0.064	-0.038	0.172
2/23/2010 14:25:00	264.000	0.052	0.178	0.026	0.009	0.056	-0.048	0.009	0.041	0.060	-0.036	0.172
2/23/2010 14:26:00	265.000	0.055	0.178	0.023	0.009	0.054	-0.050	0.007	0.041	0.060	-0.033	0.170
2/23/2010 14:27:00	266.000	0.052	0.178	0.021	0.009	0.056	-0.048	0.007	0.041	0.060	-0.038	0.172
2/23/2010 14:28:00	267.000	0.055	0.176	0.023	0.009	0.061	-0.050	0.007	0.041	0.060	-0.036	0.172
2/23/2010 14:29:00	268.000	0.052	0.176	0.023	0.009	0.056	-0.050	0.009	0.041	0.060	-0.033	0.170
2/23/2010 14:30:00	269.000	0.052	0.178	0.026	0.011	0.054	-0.045	0.009	0.041	0.060	-0.031	0.170
2/23/2010 14:31:00	270.000	0.050	0.178	0.021	0.009	0.059	-0.045	0.007	0.039	0.062	-0.033	0.167
2/23/2010 14:32:00	271.000	0.052	0.178	0.023	0.007	0.059	-0.050	0.009	0.041	0.060	-0.031	0.170
2/23/2010 14:33:00	272.000	0.055	0.178	0.023	0.009	0.059	-0.045	0.007	0.041	0.060	-0.033	0.167
2/23/2010 14:34:00	273.000	0.052	0.178	0.021	0.009	0.056	-0.045	0.009	0.044	0.062	-0.033	0.167
2/23/2010 14:35:00	274.000	0.055	0.181	0.021	0.009	0.056	-0.048	0.007	0.041	0.062	-0.033	0.165

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 14:36:00	275.000	0.052	0.178	0.026	0.009	0.059	-0.048	0.012	0.041	0.060	-0.033	0.165
2/23/2010 14:37:00	276.000	0.055	0.176	0.031	0.009	0.056	-0.045	0.009	0.044	0.060	-0.031	0.165
2/23/2010 14:38:00	277.000	0.048	0.178	0.021	0.009	0.056	-0.045	0.009	0.041	0.062	-0.029	0.165
2/23/2010 14:39:00	278.000	0.052	0.176	0.023	0.007	0.056	-0.045	0.009	0.046	0.060	-0.029	0.160
2/23/2010 14:40:00	279.000	0.055	0.176	0.019	0.007	0.056	-0.050	0.012	0.044	0.060	-0.036	0.163
2/23/2010 14:41:00	280.000	0.052	0.176	0.028	0.011	0.056	-0.048	0.009	0.041	0.062	-0.036	0.160
2/23/2010 14:42:00	281.000	0.055	0.178	0.021	0.011	0.056	-0.048	0.009	0.041	0.060	-0.029	0.158
2/23/2010 14:43:00	282.000	0.052	0.181	0.021	0.009	0.054	-0.048	0.009	0.044	0.060	-0.029	0.158
2/23/2010 14:44:00	283.000	0.053	0.181	0.023	0.009	0.054	-0.045	0.012	0.044	0.060	-0.031	0.158
2/23/2010 14:45:00	284.000	0.052	0.181	0.026	0.011	0.059	-0.043	0.012	0.044	0.064	-0.033	0.156
2/23/2010 14:46:00	285.000	0.052	0.178	0.026	0.009	0.059	-0.041	0.012	0.044	0.060	-0.031	0.156
2/23/2010 14:47:00	286.000	0.052	0.178	0.019	0.011	0.056	-0.045	0.012	0.044	0.062	-0.033	0.153
2/23/2010 14:48:00	287.000	0.052	0.178	0.026	0.011	0.059	-0.043	0.009	0.041	0.060	-0.029	0.153
2/23/2010 14:49:00	288.000	0.052	0.178	0.026	0.011	0.056	-0.048	0.012	0.046	0.062	-0.029	0.153
2/23/2010 14:50:00	289.000	0.052	0.178	0.023	0.009	0.059	-0.045	0.009	0.046	0.060	-0.031	0.151
2/23/2010 14:51:00	290.000	0.055	0.181	0.026	0.011	0.056	-0.045	0.012	0.044	0.060	-0.026	0.151
2/23/2010 14:52:00	291.000	0.055	0.181	0.026	0.009	0.059	-0.045	0.014	0.046	0.060	-0.026	0.149
2/23/2010 14:53:00	292.000	0.055	0.178	0.028	0.011	0.059	-0.041	0.012	0.044	0.060	-0.026	0.149
2/23/2010 14:54:00	293.000	0.052	0.178	0.023	0.011	0.059	-0.043	0.012	0.046	0.062	-0.026	0.149
2/23/2010 14:55:00	294.000	0.050	0.176	0.023	0.011	0.059	-0.043	0.012	0.041	0.060	-0.029	0.149
2/23/2010 14:56:00	295.000	0.055	0.176	0.023	0.009	0.059	-0.043	0.014	0.046	0.062	-0.029	0.146
2/23/2010 14:57:00	296.000	0.052	0.176	0.023	0.009	0.059	-0.043	0.014	0.041	0.060	-0.033	0.146
2/23/2010 14:58:00	297.000	0.050	0.176	0.023	0.011	0.056	-0.045	0.012	0.044	0.062	-0.026	0.146
2/23/2010 14:59:00	298.000	0.052	0.176	0.021	0.011	0.056	-0.043	0.012	0.044	0.064	-0.029	0.146
2/23/2010 15:00:00	299.000	0.052	0.176	0.023	0.011	0.059	-0.045	0.012	0.044	0.062	-0.031	0.141
2/23/2010 15:01:00	300.000	0.050	0.176	0.023	0.011	0.059	-0.045	0.012	0.044	0.062	-0.029	0.144
2/23/2010 15:02:00	301.000	0.052	0.176	0.023	0.011	0.059	-0.045	0.014	0.048	0.060	-0.029	0.144
2/23/2010 15:03:00	302.000	0.052	0.176	0.026	0.009	0.059	-0.041	0.012	0.046	0.062	-0.024	0.142
2/23/2010 15:04:00	303.000	0.052	0.176	0.023	0.009	0.059	-0.043	0.014	0.048	0.062	-0.029	0.142
2/23/2010 15:05:00	304.000	0.052	0.174	0.026	0.011	0.054	-0.045	0.014	0.048	0.064	-0.031	0.141
2/23/2010 15:06:00	305.000	0.050	0.176	0.019	0.011	0.061	-0.045	0.014	0.046	0.064	-0.029	0.142
2/23/2010 15:07:00	306.000	0.052	0.181	0.028	0.011	0.061	-0.045	0.016	0.048	0.062	-0.026	0.142
2/23/2010 15:08:00	307.000	0.055	0.178	0.026	0.009	0.061	-0.045	0.014	0.046	0.062	-0.024	0.142
2/23/2010 15:09:00	308.000	0.052	0.181	0.031	0.009	0.064	-0.048	0.014	0.046	0.064	-0.026	0.142
2/23/2010 15:10:00	309.000	0.052	0.181	0.026	0.009	0.059	-0.045	0.014	0.048	0.062	-0.026	0.142
2/23/2010 15:11:00	310.000	0.052	0.178	0.021	0.011	0.061	-0.045	0.014	0.044	0.062	-0.029	0.142

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 15:12:00	311.000	0.052	0.176	0.026	0.011	0.056	-0.048	0.012	0.046	0.064	-0.026	0.142
2/23/2010 15:13:00	312.000	0.052	0.178	0.026	0.011	0.061	-0.048	0.014	0.046	0.064	-0.026	0.139
2/23/2010 15:14:00	313.000	0.055	0.178	0.026	0.009	0.059	-0.045	0.016	0.046	0.064	-0.026	0.139
2/23/2010 15:15:00	314.000	0.052	0.178	0.028	0.009	0.059	-0.045	0.014	0.051	0.062	-0.036	0.141
2/23/2010 15:16:00	315.000	0.050	0.181	0.023	0.009	0.064	-0.045	0.019	0.046	0.067	-0.026	0.142
2/23/2010 15:17:00	316.000	0.052	0.181	0.021	0.011	0.061	-0.045	0.014	0.048	0.067	-0.029	0.142
2/23/2010 15:18:00	317.000	0.050	0.178	0.023	0.011	0.059	-0.045	0.014	0.046	0.064	-0.024	0.139
2/23/2010 15:19:00	318.000	0.050	0.178	0.019	0.009	0.061	-0.048	0.014	0.048	0.067	-0.031	0.139
2/23/2010 15:20:00	319.000	0.050	0.181	0.019	0.009	0.059	-0.048	0.014	0.046	0.067	-0.029	0.137
2/23/2010 15:21:00	320.000	0.048	0.183	0.019	0.011	0.061	-0.048	0.014	0.048	0.069	-0.022	0.139
2/23/2010 15:22:00	321.000	0.050	0.183	0.021	0.011	0.061	-0.048	0.014	0.046	0.069	-0.029	0.139
2/23/2010 15:23:00	322.000	0.052	0.183	0.026	0.014	0.064	-0.048	0.014	0.048	0.067	-0.026	0.137
2/23/2010 15:24:00	323.000	0.050	0.183	0.026	0.011	0.059	-0.045	0.016	0.048	0.064	-0.026	0.134
2/23/2010 15:25:00	324.000	0.052	0.181	0.023	0.011	0.061	-0.048	0.016	0.051	0.067	-0.026	0.134
2/23/2010 15:26:00	325.000	0.052	0.185	0.026	0.009	0.061	-0.045	0.014	0.048	0.069	-0.029	0.132
2/23/2010 15:27:00	326.000	0.057	0.183	0.028	0.007	0.061	-0.048	0.016	0.051	0.067	-0.024	0.132
2/23/2010 15:28:00	327.000	0.055	0.185	0.028	0.011	0.061	-0.045	0.016	0.048	0.067	-0.026	0.130
2/23/2010 15:29:00	328.000	0.050	0.185	0.033	0.009	0.061	-0.048	0.014	0.046	0.064	-0.022	0.130
2/23/2010 15:30:00	329.000	0.052	0.188	0.026	0.009	0.059	-0.045	0.014	0.048	0.064	-0.029	0.127
2/23/2010 15:31:00	330.000	0.052	0.188	0.028	0.011	0.068	-0.045	0.016	0.048	0.064	-0.024	0.127
2/23/2010 15:32:00	331.000	0.052	0.190	0.023	0.009	0.064	-0.048	0.016	0.048	0.064	-0.024	0.127
2/23/2010 15:33:00	332.000	0.052	0.190	0.028	0.011	0.064	-0.045	0.014	0.048	0.064	-0.031	0.127
2/23/2010 15:34:00	333.000	0.050	0.188	0.028	0.014	0.059	-0.048	0.014	0.046	0.067	-0.026	0.125
2/23/2010 15:35:00	334.000	0.050	0.190	0.033	0.011	0.059	-0.048	0.016	0.048	0.067	-0.026	0.127
2/23/2010 15:36:00	335.000	0.048	0.188	0.028	0.011	0.061	-0.045	0.016	0.051	0.067	-0.022	0.127
2/23/2010 15:37:00	336.000	0.052	0.192	0.028	0.011	0.056	-0.045	0.014	0.048	0.067	-0.022	0.127
2/23/2010 15:38:00	337.000	0.052	0.192	0.033	0.011	0.064	-0.045	0.016	0.048	0.067	-0.017	0.125
2/23/2010 15:39:00	338.000	0.052	0.192	0.026	0.011	0.064	-0.045	0.014	0.046	0.064	-0.022	0.125
2/23/2010 15:40:00	339.000	0.052	0.195	0.026	0.011	0.064	-0.043	0.016	0.051	0.067	-0.026	0.125
2/23/2010 15:41:00	340.000	0.055	0.195	0.026	0.009	0.066	-0.045	0.014	0.051	0.067	-0.022	0.123
2/23/2010 15:42:00	341.000	0.050	0.195	0.028	0.011	0.064	-0.048	0.016	0.048	0.069	-0.022	0.123
2/23/2010 15:43:00	342.000	0.055	0.195	0.028	0.011	0.066	-0.045	0.016	0.048	0.067	-0.024	0.123
2/23/2010 15:44:00	343.000	0.050	0.195	0.026	0.011	0.064	-0.043	0.016	0.053	0.067	-0.022	0.123
2/23/2010 15:45:00	344.000	0.052	0.195	0.028	0.011	0.059	-0.048	0.014	0.051	0.067	-0.029	0.120
2/23/2010 15:46:00	345.000	0.052	0.197	0.028	0.016	0.066	-0.048	0.014	0.053	0.067	-0.026	0.120
2/23/2010 15:47:00	346.000	0.050	0.197	0.023	0.011	0.064	-0.048	0.014	0.051	0.069	-0.026	0.118

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 15:48:00	347.000	0.052	0.199	0.028	0.011	0.064	-0.045	0.016	0.051	0.069	-0.024	0.118
2/23/2010 15:49:00	348.000	0.050	0.197	0.028	0.011	0.064	-0.050	0.014	0.051	0.069	-0.026	0.118
2/23/2010 15:50:00	349.000	0.050	0.197	0.028	0.011	0.064	-0.048	0.016	0.051	0.069	-0.024	0.116
2/23/2010 15:51:00	350.000	0.050	0.199	0.028	0.011	0.064	-0.050	0.016	0.051	0.069	-0.029	0.116
2/23/2010 15:52:00	351.000	0.050	0.202	0.023	0.011	0.061	-0.048	0.016	0.051	0.069	-0.024	0.113
2/23/2010 15:53:00	352.000	0.050	0.202	0.026	0.011	0.064	-0.050	0.016	0.053	0.071	-0.026	0.113
2/23/2010 15:54:00	353.000	0.052	0.206	0.023	0.011	0.071	-0.050	0.016	0.053	0.069	-0.022	0.111
2/23/2010 15:55:00	354.000	0.050	0.204	0.026	0.011	0.061	-0.050	0.016	0.051	0.071	-0.026	0.111
2/23/2010 15:56:00	355.000	0.052	0.206	0.028	0.011	0.061	-0.048	0.016	0.048	0.071	-0.024	0.111
2/23/2010 15:57:00	356.000	0.050	0.206	0.028	0.011	0.064	-0.048	0.016	0.051	0.069	-0.026	0.113
2/23/2010 15:58:00	357.000	0.050	0.206	0.028	0.011	0.064	-0.048	0.016	0.053	0.069	-0.024	0.113
2/23/2010 15:59:00	358.000	0.050	0.209	0.033	0.014	0.066	-0.048	0.014	0.051	0.069	-0.022	0.113
2/23/2010 16:00:00	359.000	0.052	0.206	0.026	0.011	0.064	-0.048	0.016	0.053	0.069	-0.026	0.113
2/23/2010 16:01:00	360.000	0.052	0.209	0.026	0.014	0.066	-0.048	0.016	0.053	0.071	-0.022	0.116
2/23/2010 16:02:00	361.000	0.052	0.209	0.028	0.014	0.064	-0.048	0.016	0.053	0.071	-0.024	0.116
2/23/2010 16:03:00	362.000	0.055	0.211	0.028	0.011	0.068	-0.045	0.016	0.051	0.069	-0.024	0.116
2/23/2010 16:04:00	363.000	0.052	0.211	0.035	0.014	0.071	-0.043	0.014	0.053	0.069	-0.022	0.116
2/23/2010 16:05:00	364.000	0.055	0.211	0.028	0.014	0.064	-0.048	0.016	0.053	0.071	-0.024	0.116
2/23/2010 16:06:00	365.000	0.050	0.216	0.031	0.014	0.066	-0.043	0.014	0.053	0.071	-0.024	0.116
2/23/2010 16:07:00	366.000	0.052	0.211	0.023	0.011	0.066	-0.045	0.016	0.051	0.071	-0.024	0.113
2/23/2010 16:08:00	367.000	0.055	0.213	0.031	0.011	0.066	-0.048	0.016	0.055	0.071	-0.017	0.113
2/23/2010 16:09:00	368.000	0.052	0.213	0.031	0.014	0.064	-0.048	0.016	0.055	0.069	-0.022	0.113
2/23/2010 16:10:00	369.000	0.055	0.218	0.031	0.014	0.066	-0.043	0.016	0.051	0.069	-0.019	0.113
2/23/2010 16:11:00	370.000	0.055	0.218	0.028	0.011	0.068	-0.043	0.014	0.055	0.069	-0.022	0.113
2/23/2010 16:12:00	371.000	0.055	0.218	0.035	0.014	0.068	-0.043	0.014	0.055	0.069	-0.019	0.111
2/23/2010 16:13:00	372.000	0.052	0.218	0.035	0.011	0.066	-0.041	0.016	0.053	0.069	-0.017	0.111
2/23/2010 16:14:00	373.000	0.055	0.218	0.031	0.014	0.066	-0.041	0.016	0.053	0.067	-0.017	0.109
2/23/2010 16:15:00	374.000	0.052	0.218	0.035	0.014	0.066	-0.045	0.014	0.051	0.069	-0.022	0.106
2/23/2010 16:16:00	375.000	0.055	0.220	0.028	0.011	0.068	-0.043	0.014	0.055	0.069	-0.017	0.106
2/23/2010 16:17:00	376.000	0.052	0.220	0.028	0.011	0.066	-0.043	0.016	0.053	0.069	-0.019	0.104
2/23/2010 16:18:00	377.000	0.055	0.220	0.035	0.014	0.068	-0.045	0.016	0.055	0.069	-0.022	0.102
2/23/2010 16:19:00	378.000	0.052	0.223	0.031	0.011	0.071	-0.045	0.016	0.051	0.069	-0.022	0.099
2/23/2010 16:20:00	379.000	0.052	0.223	0.033	0.011	0.064	-0.045	0.016	0.053	0.069	-0.015	0.099
2/23/2010 16:21:00	380.000	0.055	0.223	0.028	0.014	0.068	-0.043	0.016	0.053	0.069	-0.022	0.097
2/23/2010 16:22:00	381.000	0.053	0.225	0.033	0.011	0.068	-0.045	0.016	0.053	0.069	-0.019	0.095
2/23/2010 16:23:00	382.000	0.055	0.223	0.033	0.014	0.064	-0.043	0.014	0.058	0.069	-0.022	0.095

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 16:24:00	383.000	0.052	0.225	0.035	0.014	0.066	-0.045	0.016	0.055	0.069	-0.017	0.092
2/23/2010 16:25:00	384.000	0.052	0.227	0.031	0.014	0.068	-0.045	0.016	0.053	0.069	-0.019	0.092
2/23/2010 16:26:00	385.000	0.053	0.225	0.031	0.014	0.064	-0.048	0.016	0.053	0.071	-0.024	0.090
2/23/2010 16:27:00	386.000	0.052	0.227	0.031	0.014	0.066	-0.045	0.019	0.053	0.071	-0.019	0.088
2/23/2010 16:28:00	387.000	0.050	0.227	0.031	0.011	0.068	-0.045	0.016	0.055	0.071	-0.026	0.088
2/23/2010 16:29:00	388.000	0.048	0.232	0.031	0.011	0.066	-0.045	0.021	0.055	0.074	-0.022	0.085
2/23/2010 16:30:00	389.000	0.050	0.230	0.026	0.009	0.066	-0.045	0.016	0.058	0.071	-0.029	0.083
2/23/2010 16:31:00	390.000	0.050	0.232	0.026	0.014	0.066	-0.048	0.019	0.058	0.076	-0.024	0.083
2/23/2010 16:32:00	391.000	0.050	0.232	0.031	0.014	0.068	-0.043	0.016	0.055	0.071	-0.019	0.081
2/23/2010 16:33:00	392.000	0.052	0.230	0.038	0.014	0.066	-0.048	0.016	0.060	0.071	-0.022	0.083
2/23/2010 16:34:00	393.000	0.052	0.232	0.028	0.014	0.071	-0.045	0.016	0.053	0.071	-0.019	0.081
2/23/2010 16:35:00	394.000	0.050	0.234	0.035	0.014	0.068	-0.045	0.016	0.055	0.074	-0.026	0.078
2/23/2010 16:36:00	395.000	0.050	0.237	0.028	0.014	0.071	-0.045	0.016	0.055	0.074	-0.022	0.078
2/23/2010 16:37:00	396.000	0.052	0.232	0.031	0.014	0.066	-0.045	0.016	0.055	0.071	-0.017	0.076
2/23/2010 16:38:00	397.000	0.055	0.234	0.033	0.011	0.068	-0.045	0.016	0.055	0.071	-0.022	0.078
2/23/2010 16:39:00	398.000	0.052	0.239	0.035	0.011	0.068	-0.045	0.019	0.055	0.071	-0.022	0.076
2/23/2010 16:40:00	399.000	0.052	0.237	0.033	0.011	0.068	-0.043	0.016	0.055	0.071	-0.019	0.076
2/23/2010 16:41:00	400.000	0.052	0.239	0.033	0.014	0.068	-0.041	0.019	0.055	0.071	-0.017	0.073
2/23/2010 16:42:00	401.000	0.052	0.237	0.033	0.014	0.071	-0.043	0.016	0.055	0.071	-0.019	0.073
2/23/2010 16:43:00	402.000	0.052	0.239	0.033	0.011	0.068	-0.045	0.016	0.058	0.071	-0.022	0.071
2/23/2010 16:44:00	403.000	0.055	0.241	0.031	0.014	0.066	-0.043	0.019	0.058	0.071	-0.019	0.073
2/23/2010 16:45:00	404.000	0.055	0.241	0.031	0.014	0.066	-0.043	0.016	0.058	0.071	-0.019	0.071
2/23/2010 16:46:00	405.000	0.055	0.244	0.033	0.011	0.071	-0.043	0.019	0.055	0.074	-0.017	0.071
2/23/2010 16:47:00	406.000	0.050	0.244	0.033	0.014	0.068	-0.043	0.014	0.055	0.074	-0.019	0.069
2/23/2010 16:48:00	407.000	0.052	0.244	0.028	0.011	0.068	-0.043	0.016	0.055	0.071	-0.019	0.069
2/23/2010 16:49:00	408.000	0.050	0.244	0.033	0.014	0.068	-0.045	0.016	0.055	0.074	-0.022	0.069
2/23/2010 16:50:00	409.000	0.052	0.246	0.033	0.014	0.068	-0.043	0.016	0.058	0.074	-0.017	0.066
2/23/2010 16:51:00	410.000	0.052	0.246	0.040	0.014	0.071	-0.045	0.016	0.060	0.074	-0.019	0.064
2/23/2010 16:52:00	411.000	0.052	0.246	0.031	0.014	0.068	-0.043	0.019	0.055	0.074	-0.022	0.064
2/23/2010 16:53:00	412.000	0.052	0.246	0.033	0.011	0.068	-0.043	0.019	0.058	0.074	-0.024	0.064
2/23/2010 16:54:00	413.000	0.052	0.248	0.028	0.014	0.068	-0.043	0.016	0.055	0.074	-0.019	0.064
2/23/2010 16:55:00	414.000	0.052	0.248	0.040	0.014	0.071	-0.045	0.016	0.055	0.074	-0.019	0.062
2/23/2010 16:56:00	415.000	0.052	0.248	0.035	0.014	0.068	-0.045	0.014	0.058	0.074	-0.019	0.059
2/23/2010 16:57:00	416.000	0.052	0.251	0.026	0.014	0.068	-0.045	0.016	0.058	0.074	-0.019	0.057
2/23/2010 16:58:00	417.000	0.050	0.248	0.031	0.011	0.066	-0.045	0.016	0.058	0.074	-0.022	0.057
2/23/2010 16:59:00	418.000	0.050	0.251	0.033	0.011	0.075	-0.045	0.016	0.058	0.074	-0.022	0.057

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 17:00:00	419.000	0.052	0.251	0.035	0.011	0.071	-0.043	0.016	0.058	0.076	-0.019	0.055
2/23/2010 17:01:00	420.000	0.050	0.253	0.035	0.014	0.071	-0.043	0.016	0.058	0.074	-0.022	0.052
2/23/2010 17:02:00	421.000	0.052	0.251	0.033	0.014	0.071	-0.045	0.016	0.058	0.076	-0.019	0.050
2/23/2010 17:03:00	422.000	0.050	0.253	0.031	0.014	0.073	-0.045	0.014	0.058	0.074	-0.019	0.050
2/23/2010 17:04:00	423.000	0.052	0.253	0.033	0.014	0.071	-0.045	0.016	0.058	0.074	-0.022	0.050
2/23/2010 17:05:00	424.000	0.050	0.258	0.028	0.014	0.073	-0.045	0.016	0.058	0.076	-0.017	0.050
2/23/2010 17:06:00	425.000	0.052	0.258	0.033	0.014	0.066	-0.043	0.016	0.058	0.076	-0.019	0.045
2/23/2010 17:07:00	426.000	0.050	0.255	0.028	0.014	0.071	-0.043	0.016	0.058	0.074	-0.022	0.045
2/23/2010 17:08:00	427.000	0.055	0.258	0.031	0.014	0.073	-0.045	0.016	0.058	0.076	-0.019	0.045
2/23/2010 17:09:00	428.000	0.052	0.255	0.033	0.011	0.071	-0.045	0.016	0.058	0.076	-0.024	0.043
2/23/2010 17:10:00	429.000	0.050	0.258	0.033	0.016	0.073	-0.045	0.019	0.058	0.076	-0.019	0.041
2/23/2010 17:11:00	430.000	0.050	0.258	0.033	0.014	0.071	-0.045	0.016	0.060	0.076	-0.024	0.043
2/23/2010 17:12:00	431.000	0.050	0.258	0.033	0.014	0.071	-0.045	0.016	0.060	0.076	-0.024	0.038
2/23/2010 17:13:00	432.000	0.050	0.260	0.035	0.016	0.073	-0.045	0.016	0.058	0.076	-0.024	0.038
2/23/2010 17:14:00	433.000	0.052	0.260	0.033	0.014	0.068	-0.045	0.019	0.060	0.076	-0.022	0.036
2/23/2010 17:15:00	434.000	0.052	0.260	0.033	0.014	0.073	-0.045	0.016	0.055	0.076	-0.022	0.038
2/23/2010 17:16:00	435.000	0.052	0.262	0.033	0.011	0.075	-0.043	0.019	0.060	0.076	-0.024	0.036
2/23/2010 17:17:00	436.000	0.052	0.260	0.035	0.016	0.073	-0.043	0.019	0.060	0.074	-0.022	0.036
2/23/2010 17:18:00	437.000	0.052	0.262	0.038	0.014	0.071	-0.043	0.016	0.060	0.074	-0.022	0.034
2/23/2010 17:19:00	438.000	0.050	0.262	0.035	0.016	0.073	-0.043	0.019	0.060	0.076	-0.022	0.034
2/23/2010 17:20:00	439.000	0.052	0.265	0.033	0.011	0.073	-0.045	0.019	0.058	0.076	-0.022	0.034
2/23/2010 17:21:00	440.000	0.050	0.262	0.035	0.014	0.075	-0.045	0.016	0.058	0.074	-0.022	0.031
2/23/2010 17:22:00	441.000	0.052	0.267	0.031	0.014	0.073	-0.043	0.016	0.058	0.076	-0.022	0.031
2/23/2010 17:23:00	442.000	0.052	0.267	0.028	0.011	0.075	-0.043	0.016	0.058	0.076	-0.022	0.031
2/23/2010 17:24:00	443.000	0.050	0.267	0.033	0.014	0.073	-0.045	0.019	0.060	0.076	-0.022	0.031
2/23/2010 17:25:00	444.000	0.052	0.267	0.035	0.016	0.075	-0.043	0.016	0.058	0.074	-0.024	0.031
2/23/2010 17:26:00	445.000	0.052	0.269	0.038	0.014	0.073	-0.043	0.019	0.058	0.074	-0.019	0.029
2/23/2010 17:27:00	446.000	0.052	0.269	0.026	0.014	0.075	-0.043	0.019	0.060	0.076	-0.022	0.029
2/23/2010 17:28:00	447.000	0.052	0.269	0.035	0.014	0.073	-0.041	0.016	0.060	0.076	-0.022	0.029
2/23/2010 17:29:00	448.000	0.052	0.269	0.040	0.014	0.073	-0.043	0.019	0.060	0.074	-0.022	0.029
2/23/2010 17:30:00	449.000	0.050	0.272	0.031	0.014	0.075	-0.043	0.016	0.058	0.076	-0.019	0.027
2/23/2010 17:31:00	450.000	0.050	0.269	0.033	0.011	0.075	-0.043	0.016	0.060	0.076	-0.022	0.024
2/23/2010 17:32:00	451.000	0.050	0.274	0.033	0.014	0.073	-0.045	0.016	0.060	0.076	-0.019	0.024
2/23/2010 17:33:00	452.000	0.048	0.269	0.031	0.014	0.071	-0.045	0.016	0.060	0.076	-0.022	0.024
2/23/2010 17:34:00	453.000	0.050	0.272	0.038	0.014	0.075	-0.043	0.016	0.058	0.076	-0.022	0.022
2/23/2010 17:35:00	454.000	0.050	0.274	0.031	0.014	0.073	-0.043	0.016	0.058	0.076	-0.024	0.022

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 17:36:00	455.000	0.050	0.274	0.035	0.014	0.075	-0.045	0.016	0.060	0.076	-0.024	0.022
2/23/2010 17:37:00	456.000	0.050	0.274	0.033	0.011	0.075	-0.045	0.016	0.060	0.078	-0.024	0.022
2/23/2010 17:38:00	457.000	0.050	0.276	0.038	0.014	0.073	-0.045	0.016	0.060	0.078	-0.024	0.024
2/23/2010 17:39:00	458.000	0.050	0.276	0.033	0.014	0.075	-0.045	0.016	0.060	0.078	-0.026	0.022
2/23/2010 17:40:00	459.000	0.052	0.276	0.033	0.014	0.075	-0.045	0.016	0.060	0.078	-0.024	0.022
2/23/2010 17:41:00	460.000	0.052	0.276	0.033	0.014	0.078	-0.045	0.016	0.060	0.078	-0.022	0.022
2/23/2010 17:42:00	461.000	0.052	0.279	0.033	0.014	0.075	-0.045	0.019	0.063	0.078	-0.024	0.022
2/23/2010 17:43:00	462.000	0.050	0.279	0.033	0.014	0.075	-0.045	0.016	0.060	0.078	-0.022	0.020
2/23/2010 17:44:00	463.000	0.052	0.279	0.033	0.011	0.075	-0.048	0.019	0.058	0.078	-0.024	0.022
2/23/2010 17:45:00	464.000	0.050	0.276	0.035	0.016	0.080	-0.048	0.016	0.060	0.078	-0.024	0.020
2/23/2010 17:46:00	465.000	0.052	0.281	0.031	0.014	0.078	-0.045	0.016	0.060	0.081	-0.026	0.020
2/23/2010 17:47:00	466.000	0.050	0.281	0.035	0.016	0.078	-0.048	0.016	0.058	0.081	-0.029	0.020
2/23/2010 17:48:00	467.000	0.050	0.286	0.035	0.014	0.078	-0.045	0.016	0.060	0.081	-0.029	0.017
2/23/2010 17:49:00	468.000	0.052	0.281	0.035	0.014	0.073	-0.048	0.016	0.060	0.081	-0.024	0.017
2/23/2010 17:50:00	469.000	0.050	0.283	0.031	0.016	0.073	-0.048	0.019	0.060	0.081	-0.026	0.017
2/23/2010 17:51:00	470.000	0.052	0.283	0.033	0.014	0.075	-0.048	0.016	0.060	0.081	-0.029	0.017
2/23/2010 17:52:00	471.000	0.052	0.283	0.040	0.014	0.080	-0.045	0.016	0.063	0.078	-0.024	0.015
2/23/2010 17:53:00	472.000	0.052	0.286	0.033	0.014	0.075	-0.045	0.019	0.063	0.081	-0.026	0.015
2/23/2010 17:54:00	473.000	0.055	0.286	0.035	0.014	0.078	-0.045	0.016	0.063	0.078	-0.026	0.015
2/23/2010 17:55:00	474.000	0.052	0.286	0.035	0.014	0.083	-0.045	0.019	0.060	0.081	-0.026	0.015
2/23/2010 17:56:00	475.000	0.052	0.288	0.035	0.014	0.078	-0.045	0.016	0.063	0.081	-0.026	0.013
2/23/2010 17:57:00	476.000	0.050	0.288	0.035	0.014	0.080	-0.045	0.019	0.060	0.081	-0.029	0.010
2/23/2010 17:58:00	477.000	0.052	0.288	0.035	0.014	0.075	-0.048	0.019	0.063	0.081	-0.026	0.013
2/23/2010 17:59:00	478.000	0.050	0.288	0.035	0.016	0.078	-0.048	0.019	0.063	0.081	-0.029	0.010
2/23/2010 18:00:00	479.000	0.052	0.290	0.035	0.016	0.080	-0.048	0.016	0.063	0.081	-0.029	0.010
2/23/2010 18:01:00	480.000	0.050	0.290	0.038	0.014	0.080	-0.048	0.016	0.060	0.081	-0.026	0.010
2/23/2010 18:02:00	481.000	0.052	0.290	0.038	0.016	0.080	-0.048	0.019	0.060	0.081	-0.029	0.008
2/23/2010 18:03:00	482.000	0.052	0.293	0.038	0.016	0.078	-0.048	0.016	0.060	0.081	-0.029	0.008
2/23/2010 18:04:00	483.000	0.052	0.290	0.035	0.016	0.078	-0.045	0.016	0.063	0.081	-0.029	0.005
2/23/2010 18:05:00	484.000	0.052	0.293	0.040	0.016	0.075	-0.045	0.016	0.055	0.081	-0.026	0.005
2/23/2010 18:06:00	485.000	0.050	0.293	0.035	0.016	0.078	-0.045	0.016	0.063	0.081	-0.024	0.003
2/23/2010 18:07:00	486.000	0.052	0.295	0.038	0.016	0.078	-0.045	0.016	0.065	0.081	-0.031	0.003
2/23/2010 18:08:00	487.000	0.050	0.293	0.035	0.014	0.080	-0.048	0.019	0.060	0.081	-0.026	0.003
2/23/2010 18:09:00	488.000	0.050	0.295	0.035	0.014	0.080	-0.048	0.019	0.063	0.081	-0.031	0.003
2/23/2010 18:10:00	489.000	0.052	0.297	0.033	0.016	0.080	-0.045	0.016	0.063	0.081	-0.029	0.001
2/23/2010 18:11:00	490.000	0.052	0.297	0.033	0.014	0.080	-0.045	0.016	0.063	0.081	-0.026	0.001

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 18:12:00	491.000	0.050	0.297	0.035	0.016	0.080	-0.045	0.016	0.063	0.081	-0.029	-0.002
2/23/2010 18:13:00	492.000	0.050	0.297	0.035	0.016	0.073	-0.045	0.019	0.060	0.081	-0.024	0.001
2/23/2010 18:14:00	493.000	0.052	0.297	0.035	0.016	0.080	-0.045	0.019	0.065	0.081	-0.026	-0.002
2/23/2010 18:15:00	494.000	0.052	0.300	0.038	0.014	0.083	-0.045	0.016	0.063	0.081	-0.026	-0.002
2/23/2010 18:16:00	495.000	0.050	0.300	0.038	0.016	0.080	-0.045	0.016	0.063	0.081	-0.029	-0.002
2/23/2010 18:17:00	496.000	0.050	0.300	0.035	0.016	0.083	-0.045	0.016	0.060	0.081	-0.029	-0.004
2/23/2010 18:18:00	497.000	0.052	0.300	0.040	0.016	0.078	-0.045	0.016	0.060	0.083	-0.026	-0.004
2/23/2010 18:19:00	498.000	0.050	0.302	0.038	0.016	0.080	-0.048	0.016	0.063	0.081	-0.026	-0.004
2/23/2010 18:20:00	499.000	0.052	0.302	0.035	0.014	0.080	-0.045	0.016	0.065	0.081	-0.029	-0.006
2/23/2010 18:21:00	500.000	0.050	0.305	0.033	0.014	0.083	-0.045	0.019	0.063	0.081	-0.029	-0.006
2/23/2010 18:22:00	501.000	0.050	0.302	0.031	0.016	0.080	-0.045	0.016	0.065	0.081	-0.029	-0.009
2/23/2010 18:23:00	502.000	0.050	0.307	0.035	0.016	0.080	-0.045	0.019	0.063	0.081	-0.029	-0.006
2/23/2010 18:24:00	503.000	0.048	0.307	0.035	0.016	0.080	-0.048	0.019	0.060	0.083	-0.031	-0.011
2/23/2010 18:25:00	504.000	0.048	0.305	0.038	0.016	0.085	-0.048	0.019	0.065	0.083	-0.031	-0.011
2/23/2010 18:26:00	505.000	0.048	0.305	0.035	0.014	0.083	-0.048	0.019	0.065	0.083	-0.031	-0.011
2/23/2010 18:27:00	506.000	0.050	0.305	0.033	0.016	0.080	-0.048	0.019	0.065	0.083	-0.026	-0.013
2/23/2010 18:28:00	507.000	0.050	0.307	0.035	0.016	0.083	-0.048	0.016	0.063	0.083	-0.029	-0.013
2/23/2010 18:29:00	508.000	0.050	0.307	0.038	0.016	0.085	-0.045	0.019	0.065	0.083	-0.026	-0.013
2/23/2010 18:30:00	509.000	0.050	0.309	0.038	0.014	0.080	-0.048	0.019	0.065	0.083	-0.029	-0.016
2/23/2010 18:31:00	510.000	0.050	0.307	0.038	0.016	0.083	-0.045	0.019	0.063	0.083	-0.029	-0.016
2/23/2010 18:32:00	511.000	0.048	0.307	0.038	0.016	0.085	-0.048	0.019	0.065	0.083	-0.029	-0.016
2/23/2010 18:33:00	512.000	0.052	0.307	0.040	0.016	0.085	-0.048	0.019	0.062	0.083	-0.031	-0.016
2/23/2010 18:34:00	513.000	0.052	0.309	0.033	0.014	0.083	-0.048	0.016	0.065	0.085	-0.029	-0.016
2/23/2010 18:35:00	514.000	0.052	0.307	0.038	0.016	0.083	-0.045	0.016	0.067	0.083	-0.029	-0.018
2/23/2010 18:36:00	515.000	0.052	0.307	0.038	0.014	0.085	-0.048	0.019	0.065	0.083	-0.029	-0.018
2/23/2010 18:37:00	516.000	0.052	0.307	0.038	0.016	0.083	-0.045	0.016	0.065	0.083	-0.029	-0.018
2/23/2010 18:38:00	517.000	0.052	0.305	0.040	0.016	0.085	-0.048	0.019	0.063	0.085	-0.033	-0.020
2/23/2010 18:39:00	518.000	0.052	0.307	0.038	0.016	0.083	-0.048	0.019	0.063	0.085	-0.031	-0.020
2/23/2010 18:40:00	519.000	0.052	0.309	0.038	0.016	0.083	-0.048	0.016	0.065	0.085	-0.031	-0.023
2/23/2010 18:41:00	520.000	0.052	0.307	0.038	0.016	0.080	-0.048	0.019	0.065	0.085	-0.033	-0.020
2/23/2010 18:42:00	521.000	0.052	0.309	0.038	0.016	0.085	-0.048	0.019	0.065	0.085	-0.029	-0.025
2/23/2010 18:43:00	522.000	0.052	0.309	0.040	0.016	0.083	-0.048	0.016	0.065	0.085	-0.029	-0.025
2/23/2010 18:44:00	523.000	0.052	0.307	0.035	0.016	0.085	-0.048	0.016	0.065	0.085	-0.036	-0.025
2/23/2010 18:45:00	524.000	0.052	0.307	0.035	0.016	0.085	-0.048	0.019	0.067	0.085	-0.033	-0.025
2/23/2010 18:46:00	525.000	0.052	0.307	0.040	0.016	0.085	-0.048	0.019	0.067	0.085	-0.029	-0.025
2/23/2010 18:47:00	526.000	0.052	0.309	0.038	0.019	0.083	-0.048	0.019	0.067	0.085	-0.033	-0.027

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time, mins Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 18:48:00	527.000	0.055	0.309	0.043	0.019	0.085	-0.045	0.019	0.063	0.083	-0.029	-0.027
2/23/2010 18:49:00	528.000	0.052	0.309	0.043	0.016	0.083	-0.045	0.016	0.065	0.083	-0.029	-0.027
2/23/2010 18:50:00	529.000	0.052	0.307	0.045	0.016	0.085	-0.045	0.019	0.067	0.085	-0.029	-0.030
2/23/2010 18:51:00	530.000	0.050	0.307	0.038	0.016	0.083	-0.048	0.016	0.065	0.085	-0.029	-0.030
2/23/2010 18:52:00	531.000	0.050	0.307	0.038	0.016	0.085	-0.048	0.019	0.065	0.085	-0.031	-0.030
2/23/2010 18:53:00	532.000	0.052	0.307	0.040	0.016	0.087	-0.045	0.019	0.065	0.085	-0.031	-0.032
2/23/2010 18:54:00	533.000	0.050	0.307	0.038	0.016	0.085	-0.048	0.016	0.067	0.085	-0.033	-0.034
2/23/2010 18:55:00	534.000	0.050	0.309	0.040	0.016	0.085	-0.048	0.019	0.065	0.085	-0.029	-0.034
2/23/2010 18:56:00	535.000	0.050	0.309	0.035	0.016	0.087	-0.045	0.016	0.067	0.085	-0.031	-0.037
2/23/2010 18:57:00	536.000	0.052	0.309	0.038	0.016	0.085	-0.048	0.016	0.065	0.085	-0.031	-0.037
2/23/2010 18:58:00	537.000	0.050	0.307	0.038	0.016	0.087	-0.045	0.016	0.067	0.085	-0.031	-0.039
2/23/2010 18:59:00	538.000	0.050	0.307	0.038	0.016	0.085	-0.048	0.019	0.067	0.085	-0.031	-0.039
2/23/2010 19:00:00	539.000	0.050	0.307	0.038	0.016	0.078	-0.048	0.016	0.063	0.085	-0.033	-0.041
2/23/2010 19:01:00	540.000	0.050	0.307	0.035	0.016	0.085	-0.050	0.016	0.065	0.085	-0.033	-0.044
2/23/2010 19:02:00	541.000	0.048	0.307	0.038	0.014	0.087	-0.050	0.019	0.065	0.085	-0.033	-0.044
2/23/2010 19:03:00	542.000	0.048	0.307	0.040	0.016	0.087	-0.048	0.019	0.067	0.085	-0.033	-0.044
2/23/2010 19:04:00	543.000	0.050	0.305	0.035	0.016	0.083	-0.050	0.019	0.067	0.085	-0.033	-0.046
2/23/2010 19:05:00	544.000	0.048	0.307	0.038	0.019	0.085	-0.050	0.016	0.065	0.085	-0.033	-0.048
2/23/2010 19:06:00	545.000	0.048	0.307	0.043	0.016	0.087	-0.048	0.019	0.065	0.085	-0.033	-0.048
2/23/2010 19:07:00	546.000	0.048	0.307	0.040	0.016	0.087	-0.050	0.019	0.067	0.085	-0.036	-0.051
2/23/2010 19:08:00	547.000	0.048	0.307	0.038	0.019	0.087	-0.048	0.019	0.067	0.088	-0.033	-0.051
2/23/2010 19:09:00	548.000	0.048	0.307	0.035	0.019	0.090	-0.050	0.019	0.065	0.085	-0.033	-0.051
2/23/2010 19:10:00	549.000	0.050	0.309	0.038	0.016	0.087	-0.048	0.019	0.067	0.085	-0.036	-0.051
2/23/2010 19:11:00	550.000	0.050	0.307	0.040	0.016	0.085	-0.048	0.016	0.067	0.083	-0.033	-0.051
2/23/2010 19:12:00	551.000	0.050	0.307	0.038	0.016	0.087	-0.048	0.019	0.065	0.085	-0.033	-0.051
2/23/2010 19:13:00	552.000	0.048	0.305	0.035	0.016	0.087	-0.050	0.016	0.067	0.085	-0.033	-0.053
2/23/2010 19:14:00	553.000	0.048	0.307	0.035	0.016	0.087	-0.050	0.016	0.065	0.088	-0.036	-0.053
2/23/2010 19:15:00	554.000	0.048	0.305	0.035	0.019	0.087	-0.050	0.016	0.065	0.088	-0.036	-0.056
2/23/2010 19:16:00	555.000	0.048	0.307	0.038	0.019	0.087	-0.050	0.016	0.067	0.088	-0.033	-0.056
2/23/2010 19:17:00	556.000	0.048	0.307	0.038	0.016	0.090	-0.050	0.016	0.067	0.088	-0.036	-0.056
2/23/2010 19:18:00	557.000	0.048	0.307	0.035	0.016	0.090	-0.052	0.016	0.067	0.088	-0.033	-0.058
2/23/2010 19:19:00	558.000	0.050	0.307	0.035	0.019	0.090	-0.050	0.019	0.067	0.090	-0.033	-0.058
2/23/2010 19:20:00	559.000	0.050	0.307	0.040	0.016	0.083	-0.050	0.016	0.067	0.088	-0.036	-0.058
2/23/2010 19:21:00	560.000	0.050	0.305	0.038	0.016	0.090	-0.050	0.019	0.067	0.088	-0.038	-0.060
2/23/2010 19:22:00	561.000	0.050	0.305	0.033	0.019	0.092	-0.050	0.016	0.063	0.088	-0.036	-0.060
2/23/2010 19:23:00	562.000	0.050	0.305	0.040	0.019	0.087	-0.050	0.016	0.065	0.090	-0.036	-0.063

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 19:24:00	563.000	0.050	0.305	0.038	0.016	0.087	-0.052	0.019	0.067	0.090	-0.038	-0.063
2/23/2010 19:25:00	564.000	0.052	0.307	0.038	0.019	0.090	-0.050	0.016	0.067	0.090	-0.036	-0.063
2/23/2010 19:26:00	565.000	0.055	0.305	0.040	0.016	0.087	-0.052	0.016	0.067	0.088	-0.036	-0.063
2/23/2010 19:27:00	566.000	0.052	0.305	0.038	0.019	0.085	-0.050	0.016	0.067	0.088	-0.038	-0.065
2/23/2010 19:28:00	567.000	0.052	0.305	0.043	0.016	0.090	-0.050	0.016	0.072	0.090	-0.038	-0.067
2/23/2010 19:29:00	568.000	0.055	0.305	0.038	0.019	0.094	-0.050	0.016	0.067	0.090	-0.038	-0.067
2/23/2010 19:30:00	569.000	0.052	0.305	0.040	0.016	0.092	-0.050	0.016	0.067	0.090	-0.036	-0.067
2/23/2010 19:31:00	570.000	0.052	0.305	0.040	0.019	0.092	-0.050	0.019	0.070	0.090	-0.036	-0.070
2/23/2010 19:32:00	571.000	0.052	0.302	0.040	0.016	0.092	-0.052	0.016	0.067	0.090	-0.036	-0.072
2/23/2010 19:33:00	572.000	0.052	0.305	0.040	0.016	0.092	-0.050	0.016	0.070	0.090	-0.038	-0.072
2/23/2010 19:34:00	573.000	0.052	0.305	0.043	0.019	0.092	-0.050	0.016	0.065	0.090	-0.038	-0.074
2/23/2010 19:35:00	574.000	0.052	0.305	0.035	0.019	0.092	-0.050	0.016	0.067	0.090	-0.036	-0.074
2/23/2010 19:36:00	575.000	0.055	0.302	0.043	0.016	0.092	-0.050	0.016	0.065	0.090	-0.036	-0.077
2/23/2010 19:37:00	576.000	0.055	0.302	0.040	0.016	0.092	-0.048	0.019	0.065	0.090	-0.038	-0.077
2/23/2010 19:38:00	577.000	0.052	0.305	0.040	0.019	0.092	-0.050	0.016	0.067	0.090	-0.038	-0.077
2/23/2010 19:39:00	578.000	0.052	0.305	0.040	0.019	0.092	-0.050	0.016	0.065	0.090	-0.040	-0.079
2/23/2010 19:40:00	579.000	0.052	0.305	0.045	0.019	0.094	-0.048	0.016	0.067	0.092	-0.033	-0.079
2/23/2010 19:41:00	580.000	0.052	0.305	0.045	0.016	0.094	-0.050	0.016	0.065	0.092	-0.036	-0.079
2/23/2010 19:42:00	581.000	0.052	0.302	0.043	0.016	0.092	-0.048	0.016	0.067	0.092	-0.036	-0.081
2/23/2010 19:43:00	582.000	0.052	0.305	0.043	0.019	0.092	-0.048	0.016	0.067	0.092	-0.033	-0.081
2/23/2010 19:44:00	583.000	0.052	0.302	0.038	0.019	0.094	-0.048	0.016	0.067	0.090	-0.036	-0.081
2/23/2010 19:45:00	584.000	0.055	0.302	0.047	0.019	0.092	-0.048	0.016	0.067	0.090	-0.033	-0.084
2/23/2010 19:46:00	585.000	0.053	0.305	0.043	0.019	0.092	-0.045	0.019	0.065	0.090	-0.031	-0.084
2/23/2010 19:47:00	586.000	0.052	0.302	0.038	0.019	0.090	-0.048	0.019	0.063	0.090	-0.033	-0.084
2/23/2010 19:48:00	587.000	0.052	0.302	0.040	0.016	0.092	-0.045	0.016	0.065	0.090	-0.033	-0.084
2/23/2010 19:49:00	588.000	0.055	0.302	0.045	0.016	0.094	-0.045	0.019	0.067	0.090	-0.031	-0.084
2/23/2010 19:50:00	589.000	0.052	0.302	0.045	0.016	0.094	-0.045	0.019	0.067	0.090	-0.031	-0.086
2/23/2010 19:51:00	590.000	0.052	0.302	0.043	0.016	0.097	-0.045	0.016	0.067	0.090	-0.031	-0.086
2/23/2010 19:52:00	591.000	0.055	0.302	0.045	0.019	0.094	-0.045	0.019	0.067	0.090	-0.031	-0.086
2/23/2010 19:53:00	592.000	0.052	0.302	0.043	0.019	0.094	-0.045	0.016	0.067	0.090	-0.033	-0.086
2/23/2010 19:54:00	593.000	0.052	0.302	0.045	0.019	0.094	-0.045	0.019	0.067	0.090	-0.033	-0.088
2/23/2010 19:55:00	594.000	0.052	0.302	0.040	0.016	0.097	-0.043	0.016	0.067	0.090	-0.031	-0.088
2/23/2010 19:56:00	595.000	0.052	0.300	0.045	0.019	0.094	-0.045	0.019	0.065	0.090	-0.031	-0.086
2/23/2010 19:57:00	596.000	0.052	0.302	0.045	0.019	0.094	-0.045	0.016	0.067	0.090	-0.029	-0.088
2/23/2010 19:58:00	597.000	0.052	0.300	0.047	0.016	0.092	-0.043	0.019	0.067	0.090	-0.033	-0.088
2/23/2010 19:59:00	598.000	0.052	0.302	0.050	0.019	0.097	-0.043	0.016	0.063	0.090	-0.029	-0.088

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 20:00:00	599.000	0.052	0.302	0.045	0.016	0.097	-0.043	0.019	0.065	0.090	-0.031	-0.088
2/23/2010 20:01:00	600.000	0.052	0.300	0.045	0.019	0.097	-0.043	0.016	0.067	0.092	-0.031	-0.091
2/23/2010 20:02:00	601.000	0.052	0.300	0.043	0.019	0.094	-0.045	0.019	0.067	0.092	-0.033	-0.091
2/23/2010 20:03:00	602.000	0.052	0.300	0.045	0.014	0.094	-0.043	0.019	0.065	0.090	-0.031	-0.091
2/23/2010 20:04:00	603.000	0.050	0.302	0.040	0.019	0.094	-0.045	0.019	0.065	0.092	-0.031	-0.093
2/23/2010 20:05:00	604.000	0.050	0.300	0.043	0.021	0.094	-0.043	0.019	0.065	0.092	-0.031	-0.093
2/23/2010 20:06:00	605.000	0.050	0.300	0.045	0.016	0.092	-0.045	0.019	0.065	0.092	-0.031	-0.093
2/23/2010 20:07:00	606.000	0.052	0.300	0.043	0.019	0.097	-0.045	0.019	0.063	0.092	-0.033	-0.093
2/23/2010 20:08:00	607.000	0.052	0.300	0.043	0.019	0.097	-0.043	0.019	0.065	0.092	-0.031	-0.095
2/23/2010 20:09:00	608.000	0.052	0.302	0.052	0.016	0.094	-0.043	0.019	0.065	0.092	-0.029	-0.095
2/23/2010 20:10:00	609.000	0.050	0.300	0.047	0.019	0.097	-0.043	0.019	0.065	0.092	-0.029	-0.095
2/23/2010 20:11:00	610.000	0.052	0.300	0.045	0.016	0.099	-0.043	0.016	0.065	0.092	-0.026	-0.095
2/23/2010 20:12:00	611.000	0.052	0.300	0.047	0.019	0.094	-0.043	0.019	0.065	0.092	-0.031	-0.095
2/23/2010 20:13:00	612.000	0.052	0.300	0.040	0.019	0.094	-0.043	0.019	0.060	0.092	-0.031	-0.098
2/23/2010 20:14:00	613.000	0.050	0.300	0.040	0.019	0.097	-0.043	0.019	0.065	0.095	-0.033	-0.098
2/23/2010 20:15:00	614.000	0.050	0.300	0.043	0.019	0.099	-0.043	0.021	0.063	0.092	-0.029	-0.100
2/23/2010 20:16:00	615.000	0.050	0.300	0.047	0.016	0.099	-0.045	0.019	0.065	0.092	-0.031	-0.098
2/23/2010 20:17:00	616.000	0.050	0.300	0.043	0.019	0.097	-0.043	0.021	0.065	0.092	-0.033	-0.100
2/23/2010 20:18:00	617.000	0.052	0.300	0.045	0.019	0.099	-0.043	0.016	0.065	0.092	-0.031	-0.100
2/23/2010 20:19:00	618.000	0.050	0.297	0.052	0.019	0.097	-0.043	0.019	0.065	0.092	-0.031	-0.100
2/23/2010 20:20:00	619.000	0.050	0.300	0.045	0.019	0.094	-0.043	0.019	0.065	0.092	-0.031	-0.100
2/23/2010 20:21:00	620.000	0.052	0.297	0.047	0.019	0.094	-0.045	0.019	0.065	0.092	-0.036	-0.100
2/23/2010 20:22:00	621.000	0.050	0.297	0.043	0.016	0.097	-0.043	0.019	0.063	0.095	-0.031	-0.102
2/23/2010 20:23:00	622.000	0.050	0.297	0.043	0.021	0.099	-0.043	0.016	0.065	0.095	-0.033	-0.102
2/23/2010 20:24:00	623.000	0.050	0.297	0.047	0.019	0.102	-0.045	0.016	0.063	0.095	-0.031	-0.102
2/23/2010 20:25:00	624.000	0.050	0.297	0.043	0.019	0.099	-0.045	0.019	0.060	0.095	-0.031	-0.105
2/23/2010 20:26:00	625.000	0.050	0.300	0.045	0.019	0.099	-0.043	0.019	0.063	0.095	-0.031	-0.105
2/23/2010 20:27:00	626.000	0.050	0.295	0.045	0.019	0.092	-0.043	0.016	0.065	0.095	-0.031	-0.107
2/23/2010 20:28:00	627.000	0.050	0.300	0.050	0.019	0.099	-0.043	0.019	0.065	0.095	-0.031	-0.105
2/23/2010 20:29:00	628.000	0.050	0.300	0.047	0.019	0.099	-0.043	0.019	0.063	0.092	-0.033	-0.105
2/23/2010 20:30:00	629.000	0.050	0.300	0.047	0.019	0.099	-0.041	0.016	0.065	0.095	-0.031	-0.107
2/23/2010 20:31:00	630.000	0.052	0.297	0.047	0.019	0.097	-0.041	0.019	0.063	0.092	-0.031	-0.107
2/23/2010 20:32:00	631.000	0.052	0.297	0.052	0.016	0.099	-0.041	0.016	0.062	0.092	-0.029	-0.107
2/23/2010 20:33:00	632.000	0.052	0.297	0.045	0.016	0.102	-0.038	0.019	0.063	0.092	-0.029	-0.107
2/23/2010 20:34:00	633.000	0.052	0.297	0.047	0.019	0.099	-0.041	0.019	0.063	0.092	-0.029	-0.107
2/23/2010 20:35:00	634.000	0.052	0.295	0.047	0.021	0.102	-0.041	0.019	0.063	0.092	-0.031	-0.109

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 20:36:00	635.000	0.050	0.297	0.047	0.021	0.099	-0.041	0.019	0.063	0.095	-0.029	-0.109
2/23/2010 20:37:00	636.000	0.052	0.297	0.050	0.019	0.097	-0.041	0.016	0.060	0.092	-0.029	-0.112
2/23/2010 20:38:00	637.000	0.050	0.295	0.045	0.019	0.097	-0.041	0.019	0.060	0.095	-0.029	-0.112
2/23/2010 20:39:00	638.000	0.050	0.295	0.047	0.019	0.102	-0.041	0.019	0.060	0.095	-0.031	-0.114
2/23/2010 20:40:00	639.000	0.050	0.295	0.047	0.021	0.102	-0.041	0.019	0.063	0.095	-0.029	-0.112
2/23/2010 20:41:00	640.000	0.050	0.295	0.045	0.019	0.102	-0.041	0.019	0.060	0.095	-0.026	-0.112
2/23/2010 20:42:00	641.000	0.050	0.295	0.045	0.021	0.104	-0.041	0.021	0.060	0.095	-0.029	-0.114
2/23/2010 20:43:00	642.000	0.048	0.295	0.043	0.021	0.104	-0.043	0.019	0.060	0.095	-0.029	-0.114
2/23/2010 20:44:00	643.000	0.048	0.295	0.045	0.019	0.102	-0.043	0.019	0.060	0.095	-0.031	-0.116
2/23/2010 20:45:00	644.000	0.048	0.295	0.045	0.019	0.099	-0.043	0.019	0.060	0.097	-0.029	-0.117
2/23/2010 20:46:00	645.000	0.048	0.297	0.047	0.019	0.104	-0.043	0.019	0.058	0.095	-0.033	-0.116
2/23/2010 20:47:00	646.000	0.048	0.295	0.043	0.019	0.102	-0.041	0.019	0.063	0.097	-0.031	-0.119
2/23/2010 20:48:00	647.000	0.048	0.293	0.047	0.019	0.102	-0.043	0.021	0.060	0.097	-0.031	-0.119
2/23/2010 20:49:00	648.000	0.048	0.295	0.045	0.021	0.102	-0.043	0.021	0.063	0.097	-0.031	-0.119
2/23/2010 20:50:00	649.000	0.048	0.295	0.047	0.021	0.099	-0.043	0.019	0.060	0.095	-0.031	-0.121
2/23/2010 20:51:00	650.000	0.048	0.295	0.047	0.021	0.099	-0.041	0.021	0.060	0.095	-0.031	-0.121
2/23/2010 20:52:00	651.000	0.048	0.295	0.052	0.021	0.102	-0.041	0.021	0.060	0.097	-0.033	-0.121
2/23/2010 20:53:00	652.000	0.048	0.295	0.050	0.019	0.102	-0.041	0.021	0.060	0.095	-0.031	-0.121
2/23/2010 20:54:00	653.000	0.050	0.293	0.047	0.021	0.102	-0.043	0.021	0.060	0.097	-0.029	-0.121
2/23/2010 20:55:00	654.000	0.048	0.293	0.050	0.019	0.102	-0.043	0.019	0.060	0.095	-0.031	-0.121
2/23/2010 20:56:00	655.000	0.048	0.293	0.052	0.021	0.102	-0.041	0.021	0.060	0.097	-0.029	-0.121
2/23/2010 20:57:00	656.000	0.048	0.293	0.052	0.021	0.102	-0.041	0.021	0.063	0.097	-0.031	-0.124
2/23/2010 20:58:00	657.000	0.048	0.293	0.047	0.019	0.104	-0.043	0.021	0.060	0.097	-0.031	-0.124
2/23/2010 20:59:00	658.000	0.048	0.293	0.052	0.021	0.104	-0.043	0.021	0.060	0.097	-0.031	-0.126
2/23/2010 21:00:00	659.000	0.048	0.293	0.047	0.019	0.104	-0.041	0.021	0.058	0.097	-0.029	-0.126
2/23/2010 21:01:00	660.000	0.048	0.293	0.047	0.019	0.102	-0.041	0.021	0.060	0.097	-0.029	-0.126
2/23/2010 21:02:00	661.000	0.048	0.295	0.050	0.021	0.099	-0.041	0.021	0.063	0.097	-0.029	-0.126
2/23/2010 21:03:00	662.000	0.048	0.293	0.047	0.019	0.104	-0.038	0.021	0.058	0.097	-0.026	-0.128
2/23/2010 21:04:00	663.000	0.048	0.293	0.047	0.019	0.104	-0.041	0.021	0.060	0.097	-0.031	-0.128
2/23/2010 21:05:00	664.000	0.045	0.293	0.045	0.021	0.104	-0.043	0.021	0.060	0.097	-0.031	-0.128
2/23/2010 21:06:00	665.000	0.048	0.293	0.050	0.021	0.104	-0.041	0.021	0.063	0.097	-0.033	-0.128
2/23/2010 21:07:00	666.000	0.048	0.293	0.047	0.019	0.104	-0.041	0.021	0.060	0.097	-0.031	-0.131
2/23/2010 21:08:00	667.000	0.048	0.293	0.052	0.021	0.102	-0.041	0.019	0.063	0.100	-0.029	-0.131
2/23/2010 21:09:00	668.000	0.048	0.290	0.047	0.021	0.102	-0.041	0.021	0.060	0.097	-0.029	-0.131
2/23/2010 21:10:00	669.000	0.045	0.293	0.050	0.019	0.104	-0.041	0.021	0.065	0.100	-0.033	-0.131
2/23/2010 21:11:00	670.000	0.048	0.293	0.047	0.021	0.106	-0.041	0.021	0.060	0.097	-0.031	-0.133

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 21:12:00	671.000	0.048	0.293	0.050	0.021	0.102	-0.038	0.019	0.060	0.097	-0.029	-0.133
2/23/2010 21:13:00	672.000	0.048	0.290	0.047	0.021	0.104	-0.038	0.021	0.060	0.097	-0.031	-0.133
2/23/2010 21:14:00	673.000	0.045	0.293	0.050	0.021	0.102	-0.041	0.021	0.060	0.100	-0.031	-0.133
2/23/2010 21:15:00	674.000	0.045	0.290	0.050	0.019	0.104	-0.041	0.021	0.063	0.100	-0.031	-0.135
2/23/2010 21:16:00	675.000	0.045	0.290	0.050	0.021	0.104	-0.041	0.019	0.060	0.100	-0.031	-0.135
2/23/2010 21:17:00	676.000	0.048	0.293	0.052	0.021	0.106	-0.041	0.021	0.060	0.100	-0.029	-0.135
2/23/2010 21:18:00	677.000	0.045	0.293	0.052	0.021	0.104	-0.041	0.021	0.063	0.097	-0.031	-0.138
2/23/2010 21:19:00	678.000	0.048	0.290	0.050	0.021	0.104	-0.041	0.021	0.060	0.100	-0.029	-0.138
2/23/2010 21:20:00	679.000	0.045	0.290	0.050	0.021	0.104	-0.041	0.023	0.060	0.100	-0.031	-0.138
2/23/2010 21:21:00	680.000	0.048	0.290	0.050	0.021	0.106	-0.038	0.021	0.060	0.100	-0.033	-0.138
2/23/2010 21:22:00	681.000	0.045	0.288	0.052	0.021	0.104	-0.041	0.021	0.060	0.100	-0.031	-0.140
2/23/2010 21:23:00	682.000	0.045	0.290	0.050	0.019	0.106	-0.041	0.021	0.060	0.100	-0.031	-0.140
2/23/2010 21:24:00	683.000	0.045	0.290	0.035	0.021	0.106	-0.041	0.021	0.060	0.102	-0.031	-0.140
2/23/2010 21:25:00	684.000	0.048	0.290	0.050	0.021	0.106	-0.041	0.023	0.060	0.100	-0.029	-0.142
2/23/2010 21:26:00	685.000	0.045	0.293	0.050	0.021	0.106	-0.041	0.021	0.060	0.100	-0.029	-0.140
2/23/2010 21:27:00	686.000	0.048	0.290	0.047	0.021	0.106	-0.041	0.021	0.058	0.100	-0.029	-0.142
2/23/2010 21:28:00	687.000	0.045	0.290	0.052	0.021	0.104	-0.038	0.021	0.060	0.100	-0.029	-0.142
2/23/2010 21:29:00	688.000	0.048	0.290	0.050	0.023	0.109	-0.041	0.021	0.060	0.100	-0.029	-0.142
2/23/2010 21:30:00	689.000	0.048	0.290	0.050	0.021	0.102	-0.041	0.023	0.060	0.100	-0.031	-0.145
2/23/2010 21:31:00	690.000	0.045	0.288	0.050	0.021	0.106	-0.038	0.023	0.060	0.100	-0.031	-0.145
2/23/2010 21:32:00	691.000	0.048	0.290	0.050	0.021	0.106	-0.038	0.021	0.060	0.100	-0.029	-0.145
2/23/2010 21:33:00	692.000	0.045	0.288	0.052	0.021	0.109	-0.038	0.021	0.060	0.100	-0.029	-0.145
2/23/2010 21:34:00	693.000	0.045	0.290	0.050	0.019	0.099	-0.038	0.021	0.058	0.100	-0.031	-0.147
2/23/2010 21:35:00	694.000	0.043	0.288	0.052	0.021	0.109	-0.038	0.021	0.058	0.100	-0.029	-0.147
2/23/2010 21:36:00	695.000	0.045	0.288	0.047	0.021	0.111	-0.041	0.023	0.055	0.100	-0.031	-0.147
2/23/2010 21:37:00	696.000	0.045	0.288	0.055	0.019	0.106	-0.038	0.023	0.058	0.100	-0.029	-0.147
2/23/2010 21:38:00	697.000	0.048	0.288	0.052	0.021	0.109	-0.041	0.023	0.060	0.100	-0.031	-0.149
2/23/2010 21:39:00	698.000	0.048	0.288	0.052	0.021	0.106	-0.038	0.021	0.058	0.102	-0.029	-0.149
2/23/2010 21:40:00	699.000	0.045	0.288	0.052	0.021	0.106	-0.038	0.023	0.063	0.100	-0.026	-0.149
2/23/2010 21:41:00	700.000	0.045	0.288	0.052	0.021	0.106	-0.041	0.021	0.058	0.102	-0.031	-0.149
2/23/2010 21:42:00	701.000	0.045	0.290	0.050	0.021	0.106	-0.038	0.021	0.060	0.102	-0.029	-0.149
2/23/2010 21:43:00	702.000	0.045	0.288	0.052	0.021	0.109	-0.038	0.021	0.058	0.102	-0.031	-0.152
2/23/2010 21:44:00	703.000	0.045	0.288	0.055	0.021	0.109	-0.038	0.023	0.055	0.102	-0.026	-0.152
2/23/2010 21:45:00	704.000	0.045	0.288	0.055	0.019	0.109	-0.038	0.021	0.058	0.102	-0.029	-0.152
2/23/2010 21:46:00	705.000	0.045	0.288	0.052	0.021	0.106	-0.038	0.021	0.058	0.102	-0.029	-0.152
2/23/2010 21:47:00	706.000	0.045	0.286	0.050	0.021	0.109	-0.038	0.023	0.058	0.102	-0.029	-0.154

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 21:48:00	707.000	0.043	0.288	0.050	0.021	0.109	-0.038	0.021	0.058	0.102	-0.031	-0.156
2/23/2010 21:49:00	708.000	0.043	0.288	0.052	0.023	0.106	-0.041	0.023	0.058	0.104	-0.031	-0.154
2/23/2010 21:50:00	709.000	0.045	0.288	0.052	0.023	0.109	-0.041	0.023	0.055	0.104	-0.033	-0.156
2/23/2010 21:51:00	710.000	0.043	0.286	0.052	0.023	0.109	-0.041	0.023	0.055	0.104	-0.031	-0.156
2/23/2010 21:52:00	711.000	0.043	0.288	0.050	0.021	0.109	-0.041	0.023	0.055	0.104	-0.031	-0.159
2/23/2010 21:53:00	712.000	0.043	0.286	0.052	0.021	0.106	-0.041	0.021	0.058	0.104	-0.031	-0.156
2/23/2010 21:54:00	713.000	0.043	0.286	0.055	0.021	0.111	-0.041	0.023	0.055	0.104	-0.031	-0.161
2/23/2010 21:55:00	714.000	0.043	0.286	0.055	0.021	0.111	-0.041	0.021	0.055	0.104	-0.031	-0.161
2/23/2010 21:56:00	715.000	0.043	0.286	0.052	0.021	0.109	-0.041	0.023	0.055	0.104	-0.031	-0.161
2/23/2010 21:57:00	716.000	0.043	0.286	0.052	0.021	0.106	-0.041	0.021	0.058	0.107	-0.031	-0.161
2/23/2010 21:58:00	717.000	0.043	0.286	0.052	0.021	0.109	-0.041	0.023	0.055	0.107	-0.031	-0.163
2/23/2010 21:59:00	718.000	0.043	0.286	0.055	0.023	0.106	-0.038	0.023	0.055	0.107	-0.031	-0.163
2/23/2010 22:00:00	719.000	0.043	0.286	0.052	0.021	0.109	-0.041	0.023	0.055	0.107	-0.031	-0.163
2/23/2010 22:01:00	720.000	0.043	0.286	0.055	0.021	0.111	-0.041	0.023	0.053	0.104	-0.031	-0.163
2/23/2010 22:02:00	721.000	0.043	0.286	0.057	0.021	0.109	-0.041	0.023	0.051	0.104	-0.031	-0.166
2/23/2010 22:03:00	722.000	0.043	0.286	0.057	0.023	0.113	-0.038	0.023	0.055	0.107	-0.031	-0.163
2/23/2010 22:04:00	723.000	0.043	0.283	0.055	0.023	0.111	-0.041	0.021	0.055	0.104	-0.031	-0.166
2/23/2010 22:05:00	724.000	0.043	0.286	0.050	0.021	0.113	-0.038	0.023	0.053	0.107	-0.031	-0.166
2/23/2010 22:06:00	725.000	0.043	0.283	0.052	0.021	0.109	-0.038	0.023	0.055	0.107	-0.029	-0.166
2/23/2010 22:07:00	726.000	0.043	0.286	0.052	0.021	0.109	-0.038	0.023	0.055	0.106	-0.029	-0.166
2/23/2010 22:08:00	727.000	0.043	0.286	0.057	0.023	0.109	-0.038	0.023	0.055	0.107	-0.029	-0.168
2/23/2010 22:09:00	728.000	0.043	0.286	0.050	0.023	0.113	-0.038	0.023	0.053	0.107	-0.029	-0.166
2/23/2010 22:10:00	729.000	0.043	0.283	0.052	0.021	0.111	-0.038	0.023	0.053	0.107	-0.026	-0.166
2/23/2010 22:11:00	730.000	0.045	0.283	0.050	0.021	0.111	-0.038	0.023	0.055	0.107	-0.031	-0.168
2/23/2010 22:12:00	731.000	0.043	0.283	0.052	0.021	0.116	-0.038	0.023	0.053	0.107	-0.031	-0.168
2/23/2010 22:13:00	732.000	0.043	0.283	0.055	0.021	0.111	-0.038	0.023	0.053	0.107	-0.029	-0.168
2/23/2010 22:14:00	733.000	0.043	0.283	0.055	0.023	0.113	-0.041	0.023	0.053	0.107	-0.031	-0.170
2/23/2010 22:15:00	734.000	0.043	0.283	0.057	0.021	0.111	-0.038	0.023	0.055	0.107	-0.029	-0.170
2/23/2010 22:16:00	735.000	0.043	0.283	0.055	0.023	0.113	-0.038	0.023	0.055	0.107	-0.031	-0.170
2/23/2010 22:17:00	736.000	0.043	0.283	0.055	0.019	0.111	-0.038	0.023	0.053	0.107	-0.029	-0.170
2/23/2010 22:18:00	737.000	0.043	0.283	0.055	0.021	0.111	-0.038	0.023	0.055	0.107	-0.031	-0.170
2/23/2010 22:19:00	738.000	0.043	0.283	0.055	0.023	0.113	-0.038	0.023	0.053	0.107	-0.031	-0.170
2/23/2010 22:20:00	739.000	0.043	0.286	0.057	0.021	0.113	-0.038	0.023	0.055	0.107	-0.029	-0.170
2/23/2010 22:21:00	740.000	0.043	0.281	0.055	0.023	0.113	-0.038	0.026	0.053	0.107	-0.029	-0.170
2/23/2010 22:22:00	741.000	0.043	0.283	0.057	0.021	0.113	-0.036	0.023	0.053	0.107	-0.031	-0.170
2/23/2010 22:23:00	742.000	0.043	0.283	0.052	0.021	0.113	-0.036	0.023	0.055	0.107	-0.029	-0.170

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 22:24:00	743.000	0.043	0.283	0.057	0.021	0.113	-0.038	0.023	0.053	0.107	-0.029	-0.173
2/23/2010 22:25:00	744.000	0.043	0.284	0.052	0.023	0.116	-0.038	0.026	0.053	0.107	-0.026	-0.173
2/23/2010 22:26:00	745.000	0.041	0.283	0.052	0.023	0.113	-0.036	0.026	0.053	0.107	-0.029	-0.173
2/23/2010 22:27:00	746.000	0.043	0.283	0.055	0.021	0.111	-0.036	0.023	0.055	0.107	-0.026	-0.173
2/23/2010 22:28:00	747.000	0.043	0.281	0.057	0.023	0.113	-0.036	0.023	0.053	0.107	-0.029	-0.173
2/23/2010 22:29:00	748.000	0.043	0.281	0.057	0.021	0.116	-0.038	0.026	0.051	0.107	-0.031	-0.173
2/23/2010 22:30:00	749.000	0.041	0.283	0.059	0.023	0.116	-0.038	0.023	0.048	0.107	-0.031	-0.175
2/23/2010 22:31:00	750.000	0.043	0.281	0.050	0.023	0.113	-0.038	0.026	0.058	0.109	-0.029	-0.175
2/23/2010 22:32:00	751.000	0.041	0.281	0.057	0.023	0.116	-0.038	0.026	0.060	0.109	-0.029	-0.175
2/23/2010 22:33:00	752.000	0.043	0.283	0.062	0.023	0.116	-0.036	0.023	0.063	0.109	-0.029	-0.175
2/23/2010 22:34:00	753.000	0.041	0.281	0.055	0.021	0.113	-0.036	0.026	0.063	0.109	-0.026	-0.175
2/23/2010 22:35:00	754.000	0.041	0.283	0.060	0.023	0.116	-0.038	0.023	0.067	0.109	-0.026	-0.177
2/23/2010 22:36:00	755.000	0.043	0.281	0.057	0.021	0.116	-0.036	0.026	0.065	0.109	-0.029	-0.175
2/23/2010 22:37:00	756.000	0.043	0.283	0.060	0.023	0.118	-0.036	0.026	0.065	0.109	-0.031	-0.175
2/23/2010 22:38:00	757.000	0.043	0.281	0.060	0.023	0.116	-0.036	0.026	0.065	0.109	-0.026	-0.177
2/23/2010 22:39:00	758.000	0.043	0.281	0.057	0.023	0.116	-0.033	0.023	0.063	0.107	-0.026	-0.177
2/23/2010 22:40:00	759.000	0.043	0.281	0.057	0.021	0.118	-0.033	0.026	0.065	0.107	-0.026	-0.177
2/23/2010 22:41:00	760.000	0.043	0.281	0.062	0.021	0.113	-0.033	0.026	0.067	0.107	-0.022	-0.175
2/23/2010 22:42:00	761.000	0.043	0.279	0.055	0.023	0.116	-0.033	0.023	0.065	0.107	-0.026	-0.177
2/23/2010 22:43:00	762.000	0.041	0.279	0.062	0.021	0.116	-0.033	0.026	0.065	0.107	-0.026	-0.177
2/23/2010 22:44:00	763.000	0.043	0.281	0.057	0.023	0.116	-0.033	0.026	0.063	0.109	-0.026	-0.177
2/23/2010 22:45:00	764.000	0.043	0.281	0.060	0.023	0.118	-0.033	0.026	0.063	0.107	-0.026	-0.177
2/23/2010 22:46:00	765.000	0.043	0.281	0.062	0.023	0.116	-0.033	0.026	0.063	0.107	-0.024	-0.177
2/23/2010 22:47:00	766.000	0.043	0.281	0.062	0.023	0.116	-0.031	0.026	0.063	0.107	-0.026	-0.178
2/23/2010 22:48:00	767.000	0.043	0.281	0.057	0.023	0.116	-0.033	0.026	0.063	0.109	-0.026	-0.178
2/23/2010 22:49:00	768.000	0.041	0.281	0.060	0.023	0.116	-0.033	0.026	0.063	0.109	-0.024	-0.177
2/23/2010 22:50:00	769.000	0.041	0.279	0.060	0.023	0.118	-0.033	0.026	0.063	0.109	-0.024	-0.177
2/23/2010 22:51:00	770.000	0.041	0.279	0.062	0.023	0.113	-0.033	0.026	0.063	0.109	-0.026	-0.180
2/23/2010 22:52:00	771.000	0.041	0.281	0.060	0.021	0.116	-0.033	0.026	0.060	0.109	-0.024	-0.180
2/23/2010 22:53:00	772.000	0.041	0.279	0.060	0.023	0.118	-0.031	0.026	0.060	0.109	-0.024	-0.180
2/23/2010 22:54:00	773.000	0.041	0.281	0.057	0.021	0.118	-0.031	0.026	0.060	0.107	-0.024	-0.182
2/23/2010 22:55:00	774.000	0.043	0.279	0.057	0.023	0.121	-0.031	0.026	0.060	0.109	-0.024	-0.180
2/23/2010 22:56:00	775.000	0.041	0.279	0.060	0.023	0.118	-0.031	0.026	0.060	0.109	-0.022	-0.182
2/23/2010 22:57:00	776.000	0.043	0.281	0.060	0.023	0.123	-0.031	0.028	0.058	0.109	-0.022	-0.180
2/23/2010 22:58:00	777.000	0.043	0.276	0.060	0.023	0.116	-0.031	0.026	0.060	0.109	-0.026	-0.182
2/23/2010 22:59:00	778.000	0.043	0.279	0.060	0.023	0.118	-0.033	0.028	0.060	0.109	-0.022	-0.182

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 23:00:00	779.000	0.041	0.276	0.060	0.021	0.121	-0.031	0.026	0.060	0.109	-0.024	-0.182
2/23/2010 23:01:00	780.000	0.041	0.279	0.057	0.023	0.123	-0.031	0.028	0.063	0.109	-0.031	-0.182
2/23/2010 23:02:00	781.000	0.041	0.279	0.060	0.023	0.116	-0.031	0.028	0.065	0.109	-0.026	-0.182
2/23/2010 23:03:00	782.000	0.041	0.279	0.062	0.023	0.121	-0.031	0.028	0.065	0.109	-0.022	-0.185
2/23/2010 23:04:00	783.000	0.043	0.279	0.057	0.023	0.118	-0.029	0.028	0.067	0.109	-0.026	-0.185
2/23/2010 23:05:00	784.000	0.043	0.279	0.057	0.023	0.121	-0.029	0.028	0.067	0.109	-0.024	-0.185
2/23/2010 23:06:00	785.000	0.041	0.281	0.062	0.023	0.118	-0.029	0.028	0.070	0.107	-0.022	-0.185
2/23/2010 23:07:00	786.000	0.041	0.279	0.060	0.021	0.116	-0.029	0.028	0.067	0.109	-0.022	-0.185
2/23/2010 23:08:00	787.000	0.043	0.279	0.060	0.023	0.116	-0.029	0.028	0.072	0.109	-0.022	-0.185
2/23/2010 23:09:00	788.000	0.041	0.281	0.062	0.023	0.121	-0.026	0.028	0.065	0.107	-0.022	-0.185
2/23/2010 23:10:00	789.000	0.041	0.281	0.057	0.021	0.118	-0.029	0.028	0.067	0.109	-0.022	-0.185
2/23/2010 23:11:00	790.000	0.041	0.279	0.062	0.023	0.118	-0.029	0.028	0.072	0.109	-0.024	-0.187
2/23/2010 23:12:00	791.000	0.041	0.279	0.062	0.021	0.118	-0.029	0.028	0.067	0.109	-0.022	-0.185
2/23/2010 23:13:00	792.000	0.041	0.276	0.060	0.023	0.121	-0.029	0.028	0.067	0.109	-0.024	-0.187
2/23/2010 23:14:00	793.000	0.041	0.279	0.057	0.023	0.118	-0.026	0.030	0.067	0.109	-0.022	-0.187
2/23/2010 23:15:00	794.000	0.041	0.276	0.060	0.021	0.118	-0.029	0.030	0.067	0.109	-0.022	-0.187
2/23/2010 23:16:00	795.000	0.041	0.276	0.060	0.023	0.118	-0.026	0.030	0.070	0.109	-0.019	-0.187
2/23/2010 23:17:00	796.000	0.041	0.279	0.060	0.023	0.121	-0.026	0.030	0.067	0.109	-0.022	-0.189
2/23/2010 23:18:00	797.000	0.041	0.279	0.064	0.026	0.121	-0.026	0.028	0.067	0.111	-0.022	-0.189
2/23/2010 23:19:00	798.000	0.041	0.279	0.060	0.023	0.118	-0.026	0.030	0.070	0.109	-0.019	-0.189
2/23/2010 23:20:00	799.000	0.041	0.276	0.062	0.023	0.118	-0.026	0.030	0.070	0.109	-0.024	-0.189
2/23/2010 23:21:00	800.000	0.041	0.276	0.062	0.023	0.118	-0.029	0.030	0.070	0.111	-0.019	-0.189
2/23/2010 23:22:00	801.000	0.041	0.276	0.062	0.026	0.121	-0.026	0.030	0.070	0.109	-0.022	-0.189
2/23/2010 23:23:00	802.000	0.041	0.279	0.060	0.023	0.118	-0.026	0.033	0.070	0.109	-0.019	-0.189
2/23/2010 23:24:00	803.000	0.043	0.279	0.062	0.021	0.121	-0.026	0.030	0.070	0.109	-0.022	-0.189
2/23/2010 23:25:00	804.000	0.043	0.279	0.067	0.023	0.121	-0.024	0.030	0.070	0.109	-0.017	-0.189
2/23/2010 23:26:00	805.000	0.041	0.276	0.067	0.023	0.118	-0.024	0.030	0.070	0.107	-0.015	-0.189
2/23/2010 23:27:00	806.000	0.043	0.276	0.067	0.026	0.121	-0.024	0.030	0.070	0.109	-0.017	-0.187
2/23/2010 23:28:00	807.000	0.041	0.279	0.064	0.023	0.118	-0.022	0.030	0.070	0.109	-0.019	-0.189
2/23/2010 23:29:00	808.000	0.043	0.279	0.064	0.023	0.118	-0.022	0.030	0.070	0.107	-0.017	-0.189
2/23/2010 23:30:00	809.000	0.043	0.279	0.064	0.023	0.118	-0.022	0.033	0.067	0.109	-0.015	-0.189
2/23/2010 23:31:00	810.000	0.041	0.276	0.060	0.023	0.121	-0.022	0.033	0.067	0.107	-0.015	-0.189
2/23/2010 23:32:00	811.000	0.041	0.277	0.062	0.023	0.121	-0.022	0.033	0.067	0.109	-0.017	-0.189
2/23/2010 23:33:00	812.000	0.041	0.276	0.067	0.023	0.123	-0.022	0.030	0.067	0.109	-0.015	-0.189
2/23/2010 23:34:00	813.000	0.041	0.276	0.064	0.023	0.118	-0.022	0.033	0.067	0.109	-0.017	-0.189
2/23/2010 23:35:00	814.000	0.038	0.276	0.062	0.023	0.121	-0.022	0.033	0.067	0.109	-0.015	-0.189

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/23/2010 23:36:00	815.000	0.041	0.276	0.064	0.026	0.118	-0.022	0.033	0.067	0.109	-0.019	-0.192
2/23/2010 23:37:00	816.000	0.038	0.276	0.064	0.023	0.121	-0.022	0.030	0.067	0.109	-0.017	-0.192
2/23/2010 23:38:00	817.000	0.041	0.276	0.052	0.023	0.121	-0.024	0.030	0.067	0.109	-0.015	-0.192
2/23/2010 23:39:00	818.000	0.038	0.274	0.064	0.026	0.121	-0.024	0.033	0.065	0.109	-0.017	-0.192
2/23/2010 23:40:00	819.000	0.041	0.276	0.064	0.023	0.121	-0.024	0.033	0.070	0.111	-0.017	-0.194
2/23/2010 23:41:00	820.000	0.038	0.279	0.062	0.026	0.121	-0.022	0.033	0.067	0.109	-0.017	-0.192
2/23/2010 23:42:00	821.000	0.038	0.276	0.064	0.023	0.116	-0.022	0.033	0.067	0.109	-0.015	-0.194
2/23/2010 23:43:00	822.000	0.041	0.276	0.062	0.026	0.121	-0.022	0.035	0.070	0.109	-0.012	-0.194
2/23/2010 23:44:00	823.000	0.041	0.276	0.064	0.023	0.121	-0.019	0.035	0.065	0.109	-0.019	-0.194
2/23/2010 23:45:00	824.000	0.041	0.276	0.062	0.023	0.121	-0.019	0.035	0.070	0.109	-0.015	-0.194
2/23/2010 23:46:00	825.000	0.041	0.276	0.067	0.023	0.121	-0.019	0.033	0.070	0.107	-0.012	-0.192
2/23/2010 23:47:00	826.000	0.041	0.276	0.069	0.026	0.121	-0.017	0.035	0.070	0.109	-0.012	-0.194
2/23/2010 23:48:00	827.000	0.041	0.276	0.062	0.026	0.116	-0.017	0.035	0.070	0.107	-0.015	-0.194
2/23/2010 23:49:00	828.000	0.041	0.276	0.069	0.023	0.118	-0.017	0.035	0.072	0.107	-0.012	-0.192
2/23/2010 23:50:00	829.000	0.043	0.276	0.064	0.023	0.123	-0.015	0.035	0.070	0.107	-0.010	-0.192
2/23/2010 23:51:00	830.000	0.043	0.276	0.067	0.023	0.116	-0.015	0.035	0.072	0.104	-0.012	-0.192
2/23/2010 23:52:00	831.000	0.043	0.276	0.067	0.023	0.121	-0.015	0.035	0.067	0.104	-0.008	-0.189
2/23/2010 23:53:00	832.000	0.041	0.276	0.067	0.023	0.121	-0.015	0.035	0.070	0.107	-0.008	-0.192
2/23/2010 23:54:00	833.000	0.043	0.274	0.069	0.023	0.118	-0.015	0.037	0.072	0.107	-0.008	-0.189
2/23/2010 23:55:00	834.000	0.041	0.272	0.067	0.026	0.121	-0.015	0.035	0.067	0.107	-0.010	-0.192
2/23/2010 23:56:00	835.000	0.041	0.276	0.064	0.023	0.121	-0.015	0.037	0.070	0.107	-0.010	-0.192
2/23/2010 23:57:00	836.000	0.038	0.274	0.064	0.026	0.121	-0.012	0.037	0.065	0.109	-0.012	-0.192
2/23/2010 23:58:00	837.000	0.041	0.274	0.064	0.023	0.118	-0.015	0.037	0.065	0.107	-0.010	-0.194
2/23/2010 23:59:00	838.000	0.041	0.274	0.064	0.026	0.118	-0.012	0.037	0.070	0.107	-0.008	-0.194
2/24/2010 0:00:00	839.000	0.041	0.274	0.064	0.026	0.121	-0.015	0.037	0.070	0.107	-0.010	-0.192
2/24/2010 0:01:00	840.000	0.041	0.274	0.062	0.023	0.121	-0.015	0.035	0.067	0.107	-0.010	-0.194
2/24/2010 0:02:00	841.000	0.038	0.274	0.069	0.023	0.125	-0.015	0.037	0.067	0.107	-0.008	-0.194
2/24/2010 0:03:00	842.000	0.041	0.276	0.067	0.026	0.121	-0.012	0.037	0.067	0.107	-0.010	-0.194
2/24/2010 0:04:00	843.000	0.038	0.274	0.067	0.023	0.121	-0.015	0.037	0.067	0.107	-0.008	-0.194
2/24/2010 0:05:00	844.000	0.038	0.274	0.062	0.023	0.121	-0.015	0.037	0.067	0.107	-0.010	-0.194
2/24/2010 0:06:00	845.000	0.038	0.274	0.067	0.023	0.121	-0.015	0.040	0.067	0.107	-0.008	-0.194
2/24/2010 0:07:00	846.000	0.041	0.274	0.064	0.026	0.123	-0.012	0.040	0.067	0.109	-0.010	-0.194
2/24/2010 0:08:00	847.000	0.038	0.274	0.067	0.023	0.121	-0.012	0.037	0.067	0.107	-0.005	-0.194
2/24/2010 0:09:00	848.000	0.041	0.274	0.069	0.023	0.123	-0.012	0.037	0.065	0.107	-0.008	-0.194
2/24/2010 0:10:00	849.000	0.041	0.274	0.067	0.023	0.121	-0.012	0.040	0.065	0.107	-0.005	-0.196
2/24/2010 0:11:00	850.000	0.041	0.274	0.067	0.023	0.118	-0.012	0.037	0.070	0.107	-0.008	-0.194

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 0:12:00	851.000	0.041	0.274	0.062	0.023	0.123	-0.012	0.040	0.065	0.107	-0.005	-0.196
2/24/2010 0:13:00	852.000	0.038	0.274	0.069	0.023	0.121	-0.012	0.040	0.065	0.107	-0.005	-0.196
2/24/2010 0:14:00	853.000	0.038	0.274	0.067	0.023	0.121	-0.010	0.040	0.067	0.109	-0.008	-0.196
2/24/2010 0:15:00	854.000	0.038	0.274	0.069	0.026	0.121	-0.012	0.037	0.067	0.107	-0.005	-0.196
2/24/2010 0:16:00	855.000	0.038	0.276	0.069	0.026	0.121	-0.012	0.040	0.060	0.109	-0.008	-0.196
2/24/2010 0:17:00	856.000	0.038	0.274	0.069	0.026	0.123	-0.012	0.040	0.065	0.106	-0.005	-0.196
2/24/2010 0:18:00	857.000	0.038	0.274	0.067	0.026	0.121	-0.012	0.040	0.065	0.107	-0.010	-0.196
2/24/2010 0:19:00	858.000	0.038	0.274	0.064	0.023	0.123	-0.010	0.040	0.065	0.107	-0.005	-0.196
2/24/2010 0:20:00	859.000	0.038	0.274	0.064	0.023	0.118	-0.012	0.040	0.065	0.107	-0.005	-0.196
2/24/2010 0:21:00	860.000	0.036	0.272	0.064	0.023	0.118	-0.012	0.040	0.065	0.107	-0.005	-0.196
2/24/2010 0:22:00	861.000	0.038	0.274	0.064	0.026	0.121	-0.012	0.042	0.065	0.107	-0.003	-0.196
2/24/2010 0:23:00	862.000	0.038	0.276	0.067	0.023	0.125	-0.010	0.040	0.063	0.107	-0.003	-0.199
2/24/2010 0:24:00	863.000	0.038	0.274	0.069	0.023	0.121	-0.010	0.042	0.065	0.107	-0.001	-0.196
2/24/2010 0:25:00	864.000	0.041	0.274	0.067	0.023	0.121	-0.008	0.042	0.067	0.107	-0.003	-0.196
2/24/2010 0:26:00	865.000	0.038	0.274	0.067	0.023	0.123	-0.010	0.042	0.060	0.107	-0.005	-0.194
2/24/2010 0:27:00	866.000	0.038	0.274	0.064	0.023	0.121	-0.008	0.040	0.063	0.107	-0.005	-0.196
2/24/2010 0:28:00	867.000	0.038	0.274	0.069	0.026	0.121	-0.010	0.042	0.060	0.107	-0.005	-0.194
2/24/2010 0:29:00	868.000	0.038	0.274	0.069	0.023	0.123	-0.010	0.042	0.063	0.107	-0.005	-0.194
2/24/2010 0:30:00	869.000	0.038	0.274	0.069	0.026	0.121	-0.010	0.042	0.063	0.107	-0.003	-0.196
2/24/2010 0:31:00	870.000	0.036	0.274	0.064	0.023	0.121	-0.010	0.042	0.063	0.107	-0.003	-0.196
2/24/2010 0:32:00	871.000	0.038	0.272	0.067	0.023	0.121	-0.010	0.042	0.063	0.107	-0.005	-0.196
2/24/2010 0:33:00	872.000	0.038	0.274	0.062	0.026	0.118	-0.008	0.042	0.060	0.107	-0.008	-0.196
2/24/2010 0:34:00	873.000	0.038	0.272	0.069	0.023	0.121	-0.008	0.042	0.060	0.107	-0.003	-0.201
2/24/2010 0:35:00	874.000	0.038	0.274	0.069	0.026	0.121	-0.008	0.042	0.060	0.107	-0.001	-0.199
2/24/2010 0:36:00	875.000	0.038	0.274	0.072	0.023	0.121	-0.005	0.044	0.060	0.107	-0.003	-0.199
2/24/2010 0:37:00	876.000	0.038	0.272	0.067	0.023	0.121	-0.008	0.044	0.063	0.107	-0.005	-0.201
2/24/2010 0:38:00	877.000	0.038	0.272	0.069	0.026	0.121	-0.005	0.042	0.060	0.107	-0.001	-0.199
2/24/2010 0:39:00	878.000	0.038	0.274	0.062	0.026	0.123	-0.008	0.044	0.058	0.109	-0.001	-0.199
2/24/2010 0:40:00	879.000	0.038	0.274	0.067	0.026	0.121	-0.008	0.042	0.060	0.107	-0.003	-0.201
2/24/2010 0:41:00	880.000	0.038	0.274	0.067	0.026	0.121	-0.008	0.044	0.060	0.107	-0.003	-0.199
2/24/2010 0:42:00	881.000	0.038	0.274	0.069	0.026	0.121	-0.008	0.042	0.060	0.107	-0.003	-0.201
2/24/2010 0:43:00	882.000	0.038	0.272	0.067	0.026	0.121	-0.008	0.042	0.060	0.107	-0.005	-0.201
2/24/2010 0:44:00	883.000	0.038	0.274	0.069	0.026	0.123	-0.005	0.044	0.058	0.107	-0.005	-0.201
2/24/2010 0:45:00	884.000	0.036	0.272	0.067	0.026	0.123	-0.005	0.044	0.058	0.107	-0.005	-0.201
2/24/2010 0:46:00	885.000	0.036	0.272	0.069	0.026	0.121	-0.005	0.044	0.058	0.109	-0.003	-0.203
2/24/2010 0:47:00	886.000	0.036	0.272	0.067	0.026	0.123	-0.008	0.044	0.058	0.107	-0.003	-0.201

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 0:48:00	887.000	0.038	0.272	0.067	0.023	0.121	-0.005	0.044	0.058	0.107	-0.003	-0.201
2/24/2010 0:49:00	888.000	0.036	0.272	0.069	0.026	0.123	-0.008	0.044	0.058	0.109	-0.003	-0.203
2/24/2010 0:50:00	889.000	0.036	0.274	0.067	0.023	0.123	-0.005	0.047	0.058	0.107	-0.003	-0.203
2/24/2010 0:51:00	890.000	0.036	0.272	0.067	0.026	0.123	-0.008	0.044	0.055	0.109	-0.003	-0.203
2/24/2010 0:52:00	891.000	0.036	0.272	0.067	0.026	0.123	-0.008	0.047	0.055	0.109	-0.003	-0.203
2/24/2010 0:53:00	892.000	0.036	0.272	0.064	0.026	0.123	-0.010	0.047	0.055	0.109	-0.003	-0.203
2/24/2010 0:54:00	893.000	0.036	0.272	0.067	0.023	0.123	-0.008	0.044	0.058	0.109	-0.003	-0.206
2/24/2010 0:55:00	894.000	0.036	0.272	0.069	0.026	0.123	-0.008	0.047	0.058	0.109	-0.008	-0.206
2/24/2010 0:56:00	895.000	0.036	0.269	0.064	0.026	0.123	-0.005	0.047	0.055	0.109	-0.003	-0.206
2/24/2010 0:57:00	896.000	0.036	0.274	0.072	0.026	0.123	-0.005	0.047	0.058	0.109	-0.001	-0.206
2/24/2010 0:58:00	897.000	0.036	0.272	0.067	0.026	0.121	-0.003	0.044	0.055	0.107	-0.003	-0.206
2/24/2010 0:59:00	898.000	0.036	0.272	0.064	0.026	0.125	-0.008	0.047	0.051	0.109	-0.001	-0.206
2/24/2010 1:00:00	899.000	0.036	0.269	0.072	0.026	0.123	-0.008	0.044	0.055	0.109	-0.003	-0.208
2/24/2010 1:01:00	900.000	0.033	0.272	0.067	0.026	0.121	-0.008	0.047	0.051	0.111	-0.005	-0.208
2/24/2010 1:02:00	901.000	0.036	0.269	0.067	0.026	0.121	-0.008	0.047	0.053	0.109	-0.003	-0.208
2/24/2010 1:03:00	902.000	0.036	0.269	0.067	0.026	0.125	-0.008	0.047	0.051	0.111	-0.008	-0.208
2/24/2010 1:04:00	903.000	0.033	0.272	0.067	0.026	0.125	-0.008	0.047	0.053	0.111	-0.005	-0.208
2/24/2010 1:05:00	904.000	0.036	0.269	0.069	0.026	0.123	-0.008	0.047	0.055	0.111	-0.005	-0.210
2/24/2010 1:06:00	905.000	0.033	0.272	0.067	0.028	0.123	-0.010	0.049	0.055	0.114	-0.005	-0.210
2/24/2010 1:07:00	906.000	0.033	0.272	0.069	0.028	0.125	-0.010	0.049	0.055	0.111	-0.005	-0.210
2/24/2010 1:08:00	907.000	0.036	0.272	0.064	0.023	0.121	-0.008	0.047	0.055	0.111	-0.003	-0.210
2/24/2010 1:09:00	908.000	0.033	0.269	0.069	0.026	0.123	-0.008	0.047	0.053	0.109	-0.003	-0.210
2/24/2010 1:10:00	909.000	0.033	0.272	0.064	0.026	0.123	-0.010	0.047	0.053	0.111	-0.003	-0.213
2/24/2010 1:11:00	910.000	0.033	0.269	0.067	0.026	0.121	-0.010	0.047	0.051	0.111	-0.005	-0.213
2/24/2010 1:12:00	911.000	0.033	0.272	0.067	0.026	0.121	-0.010	0.047	0.053	0.111	-0.008	-0.213
2/24/2010 1:13:00	912.000	0.033	0.272	0.072	0.023	0.125	-0.010	0.047	0.051	0.111	-0.005	-0.213
2/24/2010 1:14:00	913.000	0.033	0.272	0.074	0.026	0.123	-0.010	0.047	0.053	0.111	-0.005	-0.213
2/24/2010 1:15:00	914.000	0.033	0.272	0.064	0.026	0.128	-0.008	0.047	0.051	0.114	-0.003	-0.213
2/24/2010 1:16:00	915.000	0.033	0.272	0.069	0.023	0.123	-0.010	0.047	0.051	0.111	-0.008	-0.213
2/24/2010 1:17:00	916.000	0.033	0.272	0.067	0.026	0.123	-0.012	0.047	0.048	0.114	-0.005	-0.215
2/24/2010 1:18:00	917.000	0.033	0.269	0.064	0.026	0.123	-0.010	0.047	0.051	0.114	-0.010	-0.215
2/24/2010 1:19:00	918.000	0.033	0.272	0.067	0.026	0.128	-0.012	0.049	0.051	0.114	-0.005	-0.215
2/24/2010 1:20:00	919.000	0.031	0.269	0.067	0.026	0.125	-0.012	0.049	0.051	0.114	-0.010	-0.215
2/24/2010 1:21:00	920.000	0.031	0.270	0.067	0.026	0.121	-0.012	0.047	0.051	0.114	-0.012	-0.217
2/24/2010 1:22:00	921.000	0.033	0.269	0.064	0.026	0.123	-0.012	0.047	0.051	0.114	-0.010	-0.217
2/24/2010 1:23:00	922.000	0.031	0.272	0.064	0.028	0.125	-0.012	0.047	0.048	0.116	-0.008	-0.220

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 1:24:00	923.000	0.033	0.272	0.067	0.026	0.125	-0.012	0.049	0.048	0.116	-0.008	-0.217
2/24/2010 1:25:00	924.000	0.033	0.272	0.074	0.026	0.118	-0.012	0.049	0.051	0.116	-0.010	-0.217
2/24/2010 1:26:00	925.000	0.033	0.269	0.067	0.026	0.123	-0.010	0.047	0.048	0.114	-0.008	-0.220
2/24/2010 1:27:00	926.000	0.033	0.272	0.069	0.028	0.125	-0.010	0.049	0.051	0.116	-0.008	-0.220
2/24/2010 1:28:00	927.000	0.033	0.269	0.069	0.026	0.125	-0.012	0.047	0.048	0.114	-0.005	-0.217
2/24/2010 1:29:00	928.000	0.033	0.269	0.064	0.026	0.123	-0.010	0.047	0.046	0.114	-0.010	-0.217
2/24/2010 1:30:00	929.000	0.033	0.272	0.072	0.026	0.123	-0.012	0.047	0.048	0.116	-0.008	-0.217
2/24/2010 1:31:00	930.000	0.033	0.269	0.064	0.026	0.128	-0.012	0.047	0.048	0.116	-0.008	-0.220
2/24/2010 1:32:00	931.000	0.033	0.269	0.067	0.026	0.123	-0.012	0.047	0.048	0.116	-0.008	-0.220
2/24/2010 1:33:00	932.000	0.033	0.272	0.067	0.028	0.123	-0.010	0.047	0.048	0.116	-0.005	-0.220
2/24/2010 1:34:00	933.000	0.033	0.272	0.074	0.026	0.123	-0.010	0.047	0.046	0.114	-0.008	-0.220
2/24/2010 1:35:00	934.000	0.033	0.269	0.069	0.028	0.123	-0.010	0.049	0.048	0.114	-0.008	-0.220
2/24/2010 1:36:00	935.000	0.036	0.269	0.074	0.026	0.125	-0.008	0.047	0.048	0.114	-0.005	-0.220
2/24/2010 1:37:00	936.000	0.036	0.269	0.069	0.028	0.125	-0.008	0.047	0.048	0.114	-0.008	-0.220
2/24/2010 1:38:00	937.000	0.033	0.269	0.069	0.028	0.125	-0.008	0.047	0.048	0.114	-0.008	-0.220
2/24/2010 1:39:00	938.000	0.033	0.269	0.072	0.026	0.121	-0.008	0.047	0.048	0.114	-0.008	-0.220
2/24/2010 1:40:00	939.000	0.036	0.269	0.074	0.026	0.123	-0.008	0.047	0.048	0.114	-0.008	-0.220
2/24/2010 1:41:00	940.000	0.036	0.269	0.072	0.026	0.125	-0.008	0.049	0.048	0.114	-0.005	-0.220
2/24/2010 1:42:00	941.000	0.036	0.269	0.069	0.026	0.125	-0.008	0.049	0.044	0.114	-0.008	-0.220
2/24/2010 1:43:00	942.000	0.033	0.267	0.069	0.028	0.123	-0.008	0.049	0.046	0.114	-0.005	-0.222
2/24/2010 1:44:00	943.000	0.033	0.267	0.072	0.028	0.123	-0.008	0.047	0.046	0.114	-0.003	-0.220
2/24/2010 1:45:00	944.000	0.036	0.269	0.069	0.026	0.128	-0.008	0.047	0.046	0.114	-0.003	-0.220
2/24/2010 1:46:00	945.000	0.033	0.267	0.069	0.028	0.125	-0.008	0.047	0.044	0.114	-0.003	-0.220
2/24/2010 1:47:00	946.000	0.036	0.269	0.072	0.028	0.125	-0.008	0.047	0.044	0.114	-0.001	-0.220
2/24/2010 1:48:00	947.000	0.033	0.269	0.069	0.028	0.123	-0.005	0.047	0.044	0.114	-0.005	-0.220
2/24/2010 1:49:00	948.000	0.036	0.269	0.069	0.028	0.125	-0.005	0.049	0.044	0.114	-0.001	-0.222
2/24/2010 1:50:00	949.000	0.036	0.269	0.074	0.028	0.123	-0.008	0.047	0.044	0.111	-0.005	-0.220
2/24/2010 1:51:00	950.000	0.036	0.267	0.074	0.026	0.123	-0.005	0.049	0.044	0.114	-0.001	-0.220
2/24/2010 1:52:00	951.000	0.036	0.267	0.079	0.026	0.125	-0.005	0.047	0.044	0.114	-0.001	-0.220
2/24/2010 1:53:00	952.000	0.033	0.269	0.069	0.028	0.125	-0.005	0.047	0.044	0.114	0.002	-0.220
2/24/2010 1:54:00	953.000	0.036	0.269	0.074	0.026	0.125	-0.005	0.049	0.046	0.114	-0.001	-0.220
2/24/2010 1:55:00	954.000	0.033	0.269	0.069	0.026	0.125	-0.003	0.049	0.044	0.114	-0.003	-0.222
2/24/2010 1:56:00	955.000	0.036	0.267	0.074	0.026	0.123	-0.005	0.049	0.041	0.114	-0.005	-0.220
2/24/2010 1:57:00	956.000	0.033	0.269	0.072	0.026	0.128	-0.005	0.049	0.041	0.114	-0.001	-0.222
2/24/2010 1:58:00	957.000	0.036	0.269	0.067	0.026	0.128	-0.005	0.049	0.039	0.114	-0.001	-0.220
2/24/2010 1:59:00	958.000	0.033	0.269	0.069	0.026	0.125	-0.005	0.049	0.041	0.116	-0.003	-0.222

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 2:00:00	959.000	0.033	0.267	0.074	0.026	0.125	-0.005	0.047	0.041	0.114	-0.001	-0.222
2/24/2010 2:01:00	960.000	0.033	0.269	0.074	0.026	0.125	-0.005	0.049	0.039	0.114	-0.001	-0.222
2/24/2010 2:02:00	961.000	0.033	0.267	0.072	0.028	0.128	-0.005	0.049	0.041	0.114	-0.001	-0.222
2/24/2010 2:03:00	962.000	0.033	0.269	0.072	0.026	0.125	-0.005	0.049	0.041	0.114	-0.001	-0.222
2/24/2010 2:04:00	963.000	0.033	0.267	0.069	0.026	0.128	-0.003	0.049	0.041	0.114	0.002	-0.222
2/24/2010 2:05:00	964.000	0.033	0.269	0.076	0.028	0.125	-0.005	0.049	0.041	0.114	-0.001	-0.222
2/24/2010 2:06:00	965.000	0.036	0.269	0.072	0.026	0.125	-0.003	0.051	0.041	0.114	0.002	-0.222
2/24/2010 2:07:00	966.000	0.036	0.269	0.074	0.028	0.128	-0.001	0.049	0.041	0.111	0.004	-0.222
2/24/2010 2:08:00	967.000	0.036	0.267	0.069	0.026	0.123	-0.003	0.051	0.041	0.111	0.002	-0.220
2/24/2010 2:09:00	968.000	0.036	0.267	0.074	0.028	0.125	-0.003	0.051	0.039	0.111	0.004	-0.220
2/24/2010 2:10:00	969.000	0.036	0.269	0.076	0.026	0.123	-0.001	0.051	0.041	0.111	0.002	-0.220
2/24/2010 2:11:00	970.000	0.036	0.267	0.074	0.026	0.128	-0.001	0.051	0.039	0.111	0.004	-0.220
2/24/2010 2:12:00	971.000	0.036	0.269	0.074	0.028	0.128	-0.001	0.051	0.041	0.111	0.004	-0.222
2/24/2010 2:13:00	972.000	0.036	0.270	0.076	0.026	0.128	-0.001	0.051	0.039	0.111	0.004	-0.220
2/24/2010 2:14:00	973.000	0.038	0.267	0.076	0.028	0.128	0.002	0.049	0.039	0.111	0.004	-0.220
2/24/2010 2:15:00	974.000	0.036	0.267	0.074	0.026	0.123	0.002	0.051	0.039	0.111	0.004	-0.222
2/24/2010 2:16:00	975.000	0.036	0.267	0.076	0.028	0.128	0.002	0.051	0.039	0.111	0.004	-0.220
2/24/2010 2:17:00	976.000	0.036	0.267	0.076	0.026	0.123	0.004	0.051	0.039	0.111	0.004	-0.220
2/24/2010 2:18:00	977.000	0.036	0.267	0.076	0.026	0.125	0.002	0.051	0.041	0.111	0.004	-0.220
2/24/2010 2:19:00	978.000	0.036	0.267	0.072	0.026	0.125	0.002	0.049	0.039	0.111	0.006	-0.220
2/24/2010 2:20:00	979.000	0.036	0.269	0.076	0.028	0.125	0.004	0.051	0.039	0.111	0.006	-0.220
2/24/2010 2:21:00	980.000	0.038	0.270	0.074	0.026	0.125	0.004	0.051	0.037	0.111	0.004	-0.220
2/24/2010 2:22:00	981.000	0.036	0.269	0.079	0.026	0.125	0.004	0.051	0.039	0.111	0.011	-0.220
2/24/2010 2:23:00	982.000	0.036	0.269	0.074	0.028	0.128	0.004	0.051	0.039	0.111	0.006	-0.220
2/24/2010 2:24:00	983.000	0.036	0.269	0.076	0.026	0.125	0.004	0.051	0.037	0.109	0.009	-0.220
2/24/2010 2:25:00	984.000	0.036	0.267	0.076	0.026	0.123	0.004	0.051	0.037	0.109	0.006	-0.217
2/24/2010 2:26:00	985.000	0.036	0.269	0.076	0.026	0.125	0.004	0.051	0.037	0.111	0.011	-0.220
2/24/2010 2:27:00	986.000	0.036	0.267	0.076	0.026	0.125	0.004	0.054	0.034	0.111	0.006	-0.220
2/24/2010 2:28:00	987.000	0.033	0.267	0.064	0.028	0.128	0.004	0.051	0.037	0.111	0.006	-0.220
2/24/2010 2:29:00	988.000	0.033	0.267	0.074	0.026	0.128	0.004	0.051	0.037	0.111	0.009	-0.220
2/24/2010 2:30:00	989.000	0.033	0.267	0.076	0.028	0.125	0.004	0.051	0.039	0.114	0.004	-0.220
2/24/2010 2:31:00	990.000	0.033	0.267	0.072	0.026	0.125	0.004	0.054	0.034	0.111	0.006	-0.222
2/24/2010 2:32:00	991.000	0.033	0.267	0.072	0.028	0.125	0.002	0.051	0.037	0.114	0.004	-0.220
2/24/2010 2:33:00	992.000	0.033	0.265	0.069	0.028	0.125	0.002	0.051	0.034	0.114	0.006	-0.222
2/24/2010 2:34:00	993.000	0.031	0.267	0.072	0.026	0.128	0.002	0.054	0.037	0.114	0.004	-0.222
2/24/2010 2:35:00	994.000	0.033	0.267	0.074	0.028	0.128	0.002	0.054	0.037	0.114	0.002	-0.222

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 2:36:00	995.000	0.031	0.267	0.069	0.028	0.128	0.002	0.054	0.032	0.114	0.009	-0.222
2/24/2010 2:37:00	996.000	0.033	0.267	0.074	0.028	0.125	0.002	0.054	0.034	0.114	0.004	-0.222
2/24/2010 2:38:00	997.000	0.031	0.267	0.074	0.026	0.123	0.002	0.054	0.034	0.114	0.004	-0.222
2/24/2010 2:39:00	998.000	0.031	0.267	0.074	0.028	0.125	-0.001	0.054	0.037	0.114	0.002	-0.222
2/24/2010 2:40:00	999.000	0.031	0.267	0.072	0.028	0.125	0.002	0.054	0.030	0.116	0.002	-0.224
2/24/2010 2:41:00	1000.000	0.031	0.265	0.072	0.026	0.125	0.002	0.054	0.034	0.116	0.004	-0.222
2/24/2010 2:42:00	1001.000	0.033	0.265	0.076	0.028	0.123	-0.001	0.056	0.034	0.114	0.002	-0.224
2/24/2010 2:43:00	1002.000	0.033	0.267	0.074	0.028	0.125	0.002	0.056	0.034	0.116	0.004	-0.224
2/24/2010 2:44:00	1003.000	0.033	0.267	0.079	0.026	0.125	0.002	0.054	0.034	0.116	0.004	-0.224
2/24/2010 2:45:00	1004.000	0.033	0.267	0.076	0.028	0.125	0.004	0.054	0.034	0.114	0.006	-0.224
2/24/2010 2:46:00	1005.000	0.033	0.267	0.076	0.028	0.125	0.004	0.054	0.034	0.116	0.004	-0.224
2/24/2010 2:47:00	1006.000	0.033	0.267	0.074	0.026	0.123	0.002	0.056	0.034	0.114	0.004	-0.224
2/24/2010 2:48:00	1007.000	0.033	0.267	0.076	0.028	0.128	0.004	0.056	0.032	0.114	0.006	-0.224
2/24/2010 2:49:00	1008.000	0.033	0.267	0.076	0.028	0.128	0.004	0.056	0.032	0.114	0.009	-0.227
2/24/2010 2:50:00	1009.000	0.033	0.269	0.074	0.028	0.128	0.004	0.056	0.032	0.114	0.006	-0.224
2/24/2010 2:51:00	1010.000	0.033	0.267	0.072	0.026	0.125	0.006	0.056	0.034	0.114	0.004	-0.224
2/24/2010 2:52:00	1011.000	0.036	0.267	0.076	0.028	0.125	0.006	0.056	0.032	0.114	0.009	-0.224
2/24/2010 2:53:00	1012.000	0.036	0.267	0.081	0.028	0.123	0.006	0.056	0.034	0.111	0.009	-0.222
2/24/2010 2:54:00	1013.000	0.033	0.269	0.074	0.028	0.128	0.009	0.054	0.032	0.111	0.011	-0.222
2/24/2010 2:55:00	1014.000	0.036	0.265	0.076	0.026	0.125	0.006	0.056	0.030	0.114	0.009	-0.222
2/24/2010 2:56:00	1015.000	0.033	0.267	0.076	0.028	0.128	0.006	0.056	0.032	0.114	0.009	-0.224
2/24/2010 2:57:00	1016.000	0.033	0.267	0.074	0.030	0.125	0.009	0.056	0.032	0.114	0.011	-0.224
2/24/2010 2:58:00	1017.000	0.033	0.267	0.076	0.028	0.125	0.006	0.056	0.030	0.114	0.009	-0.222
2/24/2010 2:59:00	1018.000	0.033	0.267	0.072	0.028	0.128	0.006	0.056	0.032	0.114	0.009	-0.224
2/24/2010 3:00:00	1019.000	0.031	0.267	0.074	0.028	0.125	0.006	0.056	0.032	0.114	0.006	-0.222
2/24/2010 3:01:00	1020.000	0.033	0.267	0.074	0.028	0.128	0.006	0.056	0.030	0.114	0.009	-0.224
2/24/2010 3:02:00	1021.000	0.033	0.267	0.074	0.026	0.123	0.009	0.058	0.030	0.114	0.011	-0.224
2/24/2010 3:03:00	1022.000	0.033	0.269	0.076	0.028	0.128	0.009	0.058	0.032	0.114	0.009	-0.224
2/24/2010 3:04:00	1023.000	0.033	0.267	0.079	0.028	0.128	0.009	0.058	0.030	0.114	0.009	-0.224
2/24/2010 3:05:00	1024.000	0.033	0.267	0.076	0.028	0.125	0.009	0.058	0.032	0.114	0.009	-0.224
2/24/2010 3:06:00	1025.000	0.033	0.267	0.081	0.028	0.128	0.006	0.056	0.030	0.114	0.009	-0.224
2/24/2010 3:07:00	1026.000	0.033	0.267	0.076	0.028	0.125	0.006	0.056	0.030	0.116	0.011	-0.222
2/24/2010 3:08:00	1027.000	0.031	0.265	0.081	0.028	0.125	0.006	0.058	0.032	0.114	0.009	-0.224
2/24/2010 3:09:00	1028.000	0.033	0.267	0.076	0.030	0.125	0.009	0.058	0.030	0.116	0.009	-0.224
2/24/2010 3:10:00	1029.000	0.033	0.267	0.074	0.028	0.125	0.009	0.056	0.027	0.116	0.009	-0.224
2/24/2010 3:11:00	1030.000	0.033	0.265	0.074	0.028	0.128	0.006	0.058	0.027	0.114	0.011	-0.224

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 3:12:00	1031.000	0.033	0.265	0.072	0.028	0.125	0.006	0.058	0.027	0.116	0.009	-0.224
2/24/2010 3:13:00	1032.000	0.033	0.267	0.076	0.028	0.130	0.009	0.056	0.030	0.116	0.011	-0.224
2/24/2010 3:14:00	1033.000	0.031	0.267	0.072	0.028	0.125	0.009	0.058	0.025	0.116	0.011	-0.224
2/24/2010 3:15:00	1034.000	0.033	0.267	0.074	0.028	0.125	0.006	0.058	0.030	0.116	0.006	-0.224
2/24/2010 3:16:00	1035.000	0.033	0.265	0.074	0.028	0.125	0.006	0.061	0.030	0.114	0.011	-0.227
2/24/2010 3:17:00	1036.000	0.033	0.267	0.074	0.028	0.128	0.006	0.058	0.030	0.114	0.009	-0.227
2/24/2010 3:18:00	1037.000	0.031	0.265	0.076	0.028	0.125	0.009	0.058	0.027	0.116	0.009	-0.227
2/24/2010 3:19:00	1038.000	0.033	0.267	0.079	0.028	0.125	0.006	0.058	0.027	0.116	0.009	-0.227
2/24/2010 3:20:00	1039.000	0.033	0.267	0.076	0.028	0.125	0.009	0.056	0.030	0.114	0.011	-0.227
2/24/2010 3:21:00	1040.000	0.033	0.267	0.076	0.028	0.128	0.011	0.058	0.027	0.114	0.011	-0.224
2/24/2010 3:22:00	1041.000	0.036	0.267	0.072	0.028	0.125	0.009	0.061	0.030	0.111	0.014	-0.224
2/24/2010 3:23:00	1042.000	0.033	0.267	0.076	0.028	0.125	0.011	0.061	0.027	0.111	0.014	-0.222
2/24/2010 3:24:00	1043.000	0.033	0.267	0.076	0.028	0.125	0.014	0.061	0.027	0.111	0.018	-0.224
2/24/2010 3:25:00	1044.000	0.036	0.267	0.076	0.028	0.125	0.014	0.058	0.025	0.111	0.016	-0.222
2/24/2010 3:26:00	1045.000	0.036	0.267	0.076	0.026	0.123	0.014	0.058	0.027	0.111	0.016	-0.222
2/24/2010 3:27:00	1046.000	0.036	0.267	0.074	0.028	0.128	0.014	0.058	0.027	0.111	0.016	-0.222
2/24/2010 3:28:00	1047.000	0.036	0.267	0.074	0.026	0.125	0.016	0.058	0.030	0.111	0.018	-0.222
2/24/2010 3:29:00	1048.000	0.036	0.267	0.076	0.028	0.130	0.016	0.061	0.027	0.111	0.021	-0.220
2/24/2010 3:30:00	1049.000	0.033	0.265	0.079	0.026	0.125	0.016	0.061	0.027	0.109	0.018	-0.222
2/24/2010 3:31:00	1050.000	0.033	0.265	0.079	0.028	0.128	0.016	0.061	0.027	0.111	0.021	-0.222
2/24/2010 3:32:00	1051.000	0.033	0.267	0.079	0.028	0.123	0.016	0.061	0.025	0.111	0.016	-0.220
2/24/2010 3:33:00	1052.000	0.033	0.265	0.079	0.028	0.128	0.016	0.061	0.025	0.111	0.018	-0.220
2/24/2010 3:34:00	1053.000	0.033	0.265	0.079	0.028	0.128	0.016	0.061	0.025	0.111	0.018	-0.222
2/24/2010 3:35:00	1054.000	0.033	0.267	0.069	0.028	0.123	0.016	0.061	0.025	0.111	0.016	-0.222
2/24/2010 3:36:00	1055.000	0.033	0.265	0.076	0.028	0.128	0.016	0.063	0.025	0.111	0.016	-0.222
2/24/2010 3:37:00	1056.000	0.033	0.265	0.079	0.028	0.125	0.016	0.061	0.025	0.111	0.018	-0.222
2/24/2010 3:38:00	1057.000	0.033	0.265	0.079	0.028	0.125	0.016	0.061	0.025	0.111	0.018	-0.222
2/24/2010 3:39:00	1058.000	0.033	0.265	0.084	0.028	0.125	0.018	0.061	0.023	0.111	0.018	-0.222
2/24/2010 3:40:00	1059.000	0.033	0.265	0.076	0.028	0.125	0.016	0.061	0.023	0.111	0.016	-0.222
2/24/2010 3:41:00	1060.000	0.033	0.262	0.079	0.028	0.125	0.016	0.063	0.025	0.111	0.018	-0.222
2/24/2010 3:42:00	1061.000	0.033	0.265	0.079	0.028	0.125	0.016	0.063	0.025	0.114	0.018	-0.222
2/24/2010 3:43:00	1062.000	0.033	0.265	0.076	0.028	0.128	0.016	0.061	0.023	0.111	0.016	-0.222
2/24/2010 3:44:00	1063.000	0.031	0.265	0.079	0.030	0.125	0.016	0.063	0.023	0.114	0.016	-0.222
2/24/2010 3:45:00	1064.000	0.033	0.265	0.072	0.028	0.128	0.016	0.063	0.023	0.114	0.016	-0.222
2/24/2010 3:46:00	1065.000	0.031	0.265	0.074	0.028	0.123	0.016	0.063	0.023	0.114	0.014	-0.224
2/24/2010 3:47:00	1066.000	0.033	0.265	0.074	0.028	0.123	0.016	0.063	0.023	0.114	0.014	-0.224

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 3:48:00	1067.000	0.031	0.265	0.084	0.028	0.125	0.016	0.063	0.023	0.114	0.016	-0.224
2/24/2010 3:49:00	1068.000	0.031	0.265	0.076	0.028	0.123	0.016	0.063	0.025	0.114	0.018	-0.222
2/24/2010 3:50:00	1069.000	0.031	0.265	0.079	0.028	0.128	0.016	0.063	0.023	0.114	0.018	-0.224
2/24/2010 3:51:00	1070.000	0.033	0.265	0.084	0.028	0.123	0.016	0.063	0.023	0.114	0.016	-0.222
2/24/2010 3:52:00	1071.000	0.033	0.267	0.076	0.030	0.125	0.016	0.063	0.025	0.114	0.016	-0.222
2/24/2010 3:53:00	1072.000	0.033	0.265	0.079	0.028	0.123	0.016	0.063	0.023	0.114	0.014	-0.222
2/24/2010 3:54:00	1073.000	0.036	0.265	0.081	0.028	0.125	0.018	0.063	0.023	0.111	0.018	-0.222
2/24/2010 3:55:00	1074.000	0.033	0.265	0.079	0.028	0.123	0.018	0.063	0.023	0.111	0.018	-0.222
2/24/2010 3:56:00	1075.000	0.033	0.265	0.081	0.028	0.125	0.018	0.063	0.023	0.111	0.018	-0.222
2/24/2010 3:57:00	1076.000	0.033	0.265	0.076	0.028	0.123	0.018	0.065	0.023	0.111	0.021	-0.222
2/24/2010 3:58:00	1077.000	0.033	0.262	0.081	0.028	0.125	0.018	0.065	0.023	0.111	0.021	-0.222
2/24/2010 3:59:00	1078.000	0.033	0.262	0.076	0.026	0.128	0.018	0.065	0.023	0.111	0.021	-0.222
2/24/2010 4:00:00	1079.000	0.033	0.265	0.076	0.030	0.128	0.018	0.063	0.020	0.111	0.021	-0.222
2/24/2010 4:01:00	1080.000	0.033	0.265	0.079	0.028	0.121	0.021	0.065	0.023	0.111	0.018	-0.220
2/24/2010 4:02:00	1081.000	0.036	0.265	0.076	0.030	0.125	0.021	0.065	0.023	0.111	0.023	-0.220
2/24/2010 4:03:00	1082.000	0.036	0.265	0.081	0.028	0.123	0.021	0.065	0.023	0.109	0.025	-0.220
2/24/2010 4:04:00	1083.000	0.033	0.265	0.081	0.028	0.123	0.021	0.065	0.020	0.111	0.023	-0.222
2/24/2010 4:05:00	1084.000	0.036	0.262	0.074	0.028	0.125	0.023	0.068	0.023	0.109	0.023	-0.220
2/24/2010 4:06:00	1085.000	0.033	0.265	0.081	0.028	0.123	0.021	0.065	0.020	0.111	0.023	-0.222
2/24/2010 4:07:00	1086.000	0.036	0.265	0.079	0.028	0.125	0.021	0.065	0.020	0.111	0.021	-0.220
2/24/2010 4:08:00	1087.000	0.033	0.265	0.079	0.030	0.121	0.023	0.065	0.023	0.111	0.023	-0.220
2/24/2010 4:09:00	1088.000	0.033	0.267	0.079	0.028	0.125	0.023	0.065	0.020	0.109	0.023	-0.222
2/24/2010 4:10:00	1089.000	0.033	0.265	0.081	0.028	0.125	0.023	0.065	0.018	0.111	0.023	-0.222
2/24/2010 4:11:00	1090.000	0.036	0.267	0.076	0.028	0.123	0.023	0.065	0.023	0.111	0.025	-0.220
2/24/2010 4:12:00	1091.000	0.033	0.262	0.079	0.028	0.125	0.023	0.065	0.020	0.111	0.023	-0.222
2/24/2010 4:13:00	1092.000	0.033	0.265	0.079	0.028	0.123	0.023	0.068	0.016	0.109	0.021	-0.222
2/24/2010 4:14:00	1093.000	0.033	0.265	0.076	0.030	0.125	0.023	0.065	0.020	0.111	0.021	-0.220
2/24/2010 4:15:00	1094.000	0.036	0.265	0.076	0.028	0.125	0.023	0.068	0.020	0.111	0.023	-0.222
2/24/2010 4:16:00	1095.000	0.033	0.265	0.079	0.030	0.125	0.025	0.068	0.020	0.111	0.025	-0.220
2/24/2010 4:17:00	1096.000	0.036	0.265	0.076	0.028	0.123	0.025	0.068	0.023	0.109	0.025	-0.222
2/24/2010 4:18:00	1097.000	0.036	0.262	0.076	0.028	0.123	0.028	0.068	0.020	0.109	0.028	-0.220
2/24/2010 4:19:00	1098.000	0.033	0.262	0.081	0.030	0.125	0.025	0.068	0.018	0.109	0.025	-0.220
2/24/2010 4:20:00	1099.000	0.033	0.262	0.074	0.030	0.123	0.025	0.068	0.018	0.109	0.025	-0.220
2/24/2010 4:21:00	1100.000	0.033	0.265	0.079	0.028	0.125	0.023	0.068	0.018	0.111	0.023	-0.220
2/24/2010 4:22:00	1101.000	0.033	0.262	0.074	0.028	0.123	0.025	0.068	0.018	0.111	0.025	-0.220
2/24/2010 4:23:00	1102.000	0.033	0.265	0.076	0.028	0.125	0.023	0.065	0.016	0.111	0.023	-0.220

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 4:24:00	1103.000	0.033	0.262	0.076	0.028	0.121	0.023	0.068	0.016	0.111	0.023	-0.220
2/24/2010 4:25:00	1104.000	0.031	0.262	0.079	0.028	0.125	0.023	0.068	0.018	0.111	0.023	-0.222
2/24/2010 4:26:00	1105.000	0.031	0.265	0.076	0.028	0.123	0.021	0.068	0.018	0.114	0.025	-0.222
2/24/2010 4:27:00	1106.000	0.031	0.265	0.076	0.028	0.123	0.021	0.065	0.016	0.114	0.021	-0.222
2/24/2010 4:28:00	1107.000	0.031	0.263	0.076	0.030	0.121	0.021	0.068	0.018	0.111	0.023	-0.222
2/24/2010 4:29:00	1108.000	0.031	0.265	0.079	0.030	0.123	0.023	0.068	0.016	0.111	0.023	-0.222
2/24/2010 4:30:00	1109.000	0.031	0.262	0.079	0.028	0.128	0.023	0.068	0.016	0.114	0.023	-0.222
2/24/2010 4:31:00	1110.000	0.031	0.265	0.076	0.030	0.123	0.023	0.070	0.018	0.111	0.023	-0.222
2/24/2010 4:32:00	1111.000	0.031	0.262	0.076	0.028	0.123	0.023	0.068	0.018	0.111	0.023	-0.222
2/24/2010 4:33:00	1112.000	0.033	0.265	0.076	0.030	0.123	0.023	0.070	0.018	0.111	0.023	-0.224
2/24/2010 4:34:00	1113.000	0.031	0.265	0.076	0.028	0.125	0.023	0.070	0.018	0.111	0.023	-0.222
2/24/2010 4:35:00	1114.000	0.033	0.262	0.079	0.030	0.125	0.023	0.070	0.016	0.111	0.023	-0.224
2/24/2010 4:36:00	1115.000	0.029	0.262	0.074	0.028	0.123	0.021	0.070	0.023	0.114	0.023	-0.224
2/24/2010 4:37:00	1116.000	0.031	0.262	0.074	0.030	0.123	0.021	0.068	0.039	0.114	0.021	-0.224
2/24/2010 4:38:00	1117.000	0.029	0.262	0.072	0.030	0.123	0.021	0.070	0.044	0.116	0.021	-0.227
2/24/2010 4:39:00	1118.000	0.029	0.263	0.074	0.030	0.121	0.018	0.070	0.041	0.116	0.021	-0.224
2/24/2010 4:40:00	1119.000	0.031	0.262	0.074	0.028	0.125	0.018	0.070	0.041	0.114	0.018	-0.224
2/24/2010 4:41:00	1120.000	0.031	0.265	0.076	0.028	0.123	0.021	0.072	0.041	0.114	0.018	-0.227
2/24/2010 4:42:00	1121.000	0.029	0.265	0.064	0.030	0.125	0.021	0.070	0.044	0.114	0.021	-0.227
2/24/2010 4:43:00	1122.000	0.031	0.265	0.076	0.030	0.123	0.021	0.070	0.041	0.114	0.021	-0.227
2/24/2010 4:44:00	1123.000	0.029	0.262	0.081	0.030	0.125	0.018	0.070	0.046	0.116	0.018	-0.227
2/24/2010 4:45:00	1124.000	0.029	0.262	0.072	0.028	0.123	0.018	0.070	0.041	0.116	0.016	-0.229
2/24/2010 4:46:00	1125.000	0.029	0.262	0.076	0.030	0.121	0.018	0.070	0.044	0.116	0.016	-0.229
2/24/2010 4:47:00	1126.000	0.031	0.262	0.074	0.028	0.123	0.018	0.070	0.041	0.116	0.023	-0.227
2/24/2010 4:48:00	1127.000	0.031	0.262	0.074	0.030	0.118	0.021	0.070	0.044	0.114	0.021	-0.227
2/24/2010 4:49:00	1128.000	0.031	0.262	0.079	0.030	0.125	0.021	0.070	0.041	0.114	0.021	-0.227
2/24/2010 4:50:00	1129.000	0.031	0.262	0.076	0.030	0.125	0.021	0.070	0.039	0.114	0.023	-0.227
2/24/2010 4:51:00	1130.000	0.031	0.262	0.079	0.030	0.123	0.021	0.070	0.041	0.114	0.021	-0.227
2/24/2010 4:52:00	1131.000	0.031	0.262	0.079	0.028	0.121	0.021	0.070	0.041	0.114	0.023	-0.227
2/24/2010 4:53:00	1132.000	0.031	0.262	0.076	0.030	0.123	0.021	0.070	0.041	0.114	0.021	-0.227
2/24/2010 4:54:00	1133.000	0.031	0.262	0.076	0.030	0.123	0.021	0.070	0.041	0.114	0.021	-0.227
2/24/2010 4:55:00	1134.000	0.031	0.262	0.076	0.030	0.123	0.021	0.068	0.039	0.114	0.018	-0.227
2/24/2010 4:56:00	1135.000	0.029	0.262	0.076	0.028	0.121	0.021	0.070	0.039	0.116	0.018	-0.227
2/24/2010 4:57:00	1136.000	0.031	0.263	0.076	0.030	0.123	0.021	0.070	0.039	0.116	0.018	-0.227
2/24/2010 4:58:00	1137.000	0.029	0.262	0.076	0.028	0.125	0.021	0.070	0.039	0.116	0.018	-0.227
2/24/2010 4:59:00	1138.000	0.031	0.262	0.079	0.030	0.125	0.018	0.068	0.037	0.116	0.021	-0.227

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 5:00:00	1139.000	0.031	0.262	0.079	0.030	0.123	0.021	0.070	0.041	0.116	0.018	-0.229
2/24/2010 5:01:00	1140.000	0.031	0.262	0.076	0.030	0.123	0.018	0.070	0.039	0.116	0.023	-0.229
2/24/2010 5:02:00	1141.000	0.029	0.265	0.074	0.030	0.123	0.018	0.070	0.039	0.116	0.016	-0.229
2/24/2010 5:03:00	1142.000	0.029	0.262	0.076	0.030	0.121	0.018	0.068	0.039	0.116	0.021	-0.229
2/24/2010 5:04:00	1143.000	0.029	0.262	0.076	0.030	0.125	0.018	0.068	0.037	0.118	0.018	-0.229
2/24/2010 5:05:00	1144.000	0.026	0.262	0.076	0.030	0.128	0.018	0.070	0.037	0.118	0.016	-0.229
2/24/2010 5:06:00	1145.000	0.029	0.262	0.079	0.030	0.125	0.018	0.070	0.039	0.118	0.016	-0.229
2/24/2010 5:07:00	1146.000	0.031	0.262	0.076	0.030	0.128	0.018	0.070	0.039	0.118	0.018	-0.231
2/24/2010 5:08:00	1147.000	0.029	0.262	0.074	0.033	0.121	0.018	0.068	0.041	0.118	0.018	-0.229
2/24/2010 5:09:00	1148.000	0.029	0.262	0.076	0.030	0.125	0.018	0.070	0.039	0.116	0.018	-0.231
2/24/2010 5:10:00	1149.000	0.029	0.262	0.074	0.030	0.128	0.018	0.068	0.039	0.116	0.018	-0.229
2/24/2010 5:11:00	1150.000	0.029	0.260	0.076	0.030	0.125	0.018	0.068	0.039	0.116	0.018	-0.229
2/24/2010 5:12:00	1151.000	0.029	0.262	0.079	0.030	0.128	0.018	0.068	0.039	0.118	0.021	-0.231
2/24/2010 5:13:00	1152.000	0.031	0.262	0.081	0.030	0.125	0.018	0.068	0.039	0.118	0.018	-0.229
2/24/2010 5:14:00	1153.000	0.029	0.262	0.076	0.030	0.125	0.018	0.068	0.039	0.118	0.018	-0.229
2/24/2010 5:15:00	1154.000	0.029	0.262	0.074	0.030	0.125	0.021	0.068	0.046	0.116	0.018	-0.231
2/24/2010 5:16:00	1155.000	0.031	0.262	0.074	0.030	0.125	0.018	0.068	0.051	0.116	0.018	-0.229
2/24/2010 5:17:00	1156.000	0.029	0.262	0.081	0.030	0.125	0.021	0.070	0.055	0.116	0.021	-0.229
2/24/2010 5:18:00	1157.000	0.031	0.260	0.076	0.030	0.125	0.018	0.068	0.058	0.118	0.018	-0.231
2/24/2010 5:19:00	1158.000	0.031	0.260	0.076	0.033	0.123	0.018	0.070	0.060	0.116	0.018	-0.229
2/24/2010 5:20:00	1159.000	0.029	0.260	0.081	0.030	0.125	0.018	0.070	0.055	0.118	0.018	-0.231
2/24/2010 5:21:00	1160.000	0.031	0.262	0.079	0.030	0.125	0.018	0.068	0.060	0.116	0.021	-0.231
2/24/2010 5:22:00	1161.000	0.029	0.262	0.079	0.030	0.123	0.018	0.068	0.067	0.116	0.018	-0.231
2/24/2010 5:23:00	1162.000	0.031	0.263	0.079	0.030	0.125	0.021	0.070	0.065	0.116	0.023	-0.231
2/24/2010 5:24:00	1163.000	0.031	0.263	0.079	0.030	0.128	0.023	0.070	0.067	0.116	0.021	-0.229
2/24/2010 5:25:00	1164.000	0.033	0.262	0.079	0.033	0.128	0.023	0.070	0.067	0.116	0.021	-0.229
2/24/2010 5:26:00	1165.000	0.033	0.262	0.076	0.030	0.125	0.023	0.070	0.067	0.114	0.025	-0.229
2/24/2010 5:27:00	1166.000	0.033	0.262	0.079	0.030	0.125	0.025	0.070	0.067	0.114	0.025	-0.229
2/24/2010 5:28:00	1167.000	0.033	0.262	0.081	0.030	0.125	0.028	0.068	0.065	0.114	0.028	-0.227
2/24/2010 5:29:00	1168.000	0.036	0.262	0.081	0.030	0.125	0.028	0.070	0.067	0.111	0.025	-0.227
2/24/2010 5:30:00	1169.000	0.036	0.262	0.081	0.030	0.125	0.028	0.068	0.065	0.111	0.028	-0.224
2/24/2010 5:31:00	1170.000	0.033	0.262	0.084	0.030	0.123	0.030	0.070	0.067	0.111	0.028	-0.227
2/24/2010 5:32:00	1171.000	0.033	0.262	0.084	0.030	0.123	0.030	0.070	0.065	0.111	0.025	-0.227
2/24/2010 5:33:00	1172.000	0.033	0.262	0.086	0.030	0.128	0.030	0.070	0.063	0.111	0.028	-0.224
2/24/2010 5:34:00	1173.000	0.031	0.260	0.079	0.030	0.121	0.028	0.068	0.063	0.114	0.028	-0.224
2/24/2010 5:35:00	1174.000	0.031	0.262	0.076	0.030	0.125	0.028	0.070	0.063	0.114	0.025	-0.224

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 5:36:00	1175.000	0.031	0.260	0.081	0.030	0.123	0.028	0.072	0.060	0.114	0.025	-0.227
2/24/2010 5:37:00	1176.000	0.031	0.262	0.081	0.030	0.123	0.028	0.070	0.063	0.114	0.028	-0.227
2/24/2010 5:38:00	1177.000	0.031	0.262	0.081	0.030	0.125	0.028	0.072	0.060	0.114	0.028	-0.227
2/24/2010 5:39:00	1178.000	0.031	0.262	0.079	0.030	0.125	0.025	0.072	0.060	0.114	0.030	-0.227
2/24/2010 5:40:00	1179.000	0.031	0.260	0.081	0.028	0.123	0.025	0.070	0.063	0.116	0.023	-0.227
2/24/2010 5:41:00	1180.000	0.029	0.262	0.079	0.030	0.125	0.028	0.070	0.060	0.114	0.028	-0.227
2/24/2010 5:42:00	1181.000	0.029	0.262	0.074	0.028	0.121	0.025	0.072	0.060	0.116	0.025	-0.227
2/24/2010 5:43:00	1182.000	0.029	0.260	0.076	0.030	0.125	0.025	0.072	0.058	0.116	0.028	-0.227
2/24/2010 5:44:00	1183.000	0.029	0.260	0.076	0.030	0.123	0.025	0.070	0.058	0.116	0.023	-0.229
2/24/2010 5:45:00	1184.000	0.029	0.260	0.079	0.030	0.123	0.025	0.072	0.060	0.118	0.021	-0.229
2/24/2010 5:46:00	1185.000	0.029	0.260	0.079	0.030	0.123	0.023	0.072	0.058	0.118	0.021	-0.229
2/24/2010 5:47:00	1186.000	0.029	0.260	0.076	0.033	0.128	0.023	0.072	0.060	0.118	0.023	-0.229
2/24/2010 5:48:00	1187.000	0.029	0.260	0.079	0.030	0.125	0.023	0.072	0.058	0.118	0.023	-0.229
2/24/2010 5:49:00	1188.000	0.029	0.260	0.072	0.030	0.123	0.021	0.072	0.058	0.118	0.018	-0.231
2/24/2010 5:50:00	1189.000	0.026	0.260	0.076	0.030	0.125	0.023	0.072	0.060	0.118	0.021	-0.231
2/24/2010 5:51:00	1190.000	0.029	0.260	0.076	0.030	0.123	0.021	0.072	0.058	0.118	0.018	-0.231
2/24/2010 5:52:00	1191.000	0.026	0.260	0.079	0.030	0.123	0.021	0.072	0.058	0.121	0.021	-0.231
2/24/2010 5:53:00	1192.000	0.029	0.260	0.076	0.030	0.125	0.021	0.075	0.055	0.121	0.021	-0.231
2/24/2010 5:54:00	1193.000	0.026	0.260	0.076	0.030	0.125	0.021	0.072	0.058	0.118	0.016	-0.231
2/24/2010 5:55:00	1194.000	0.026	0.262	0.076	0.033	0.121	0.018	0.070	0.058	0.121	0.021	-0.234
2/24/2010 5:56:00	1195.000	0.029	0.260	0.076	0.030	0.123	0.018	0.072	0.055	0.121	0.021	-0.234
2/24/2010 5:57:00	1196.000	0.026	0.262	0.076	0.030	0.128	0.021	0.072	0.055	0.121	0.018	-0.234
2/24/2010 5:58:00	1197.000	0.029	0.260	0.079	0.030	0.125	0.021	0.072	0.055	0.121	0.018	-0.234
2/24/2010 5:59:00	1198.000	0.029	0.262	0.076	0.033	0.130	0.021	0.072	0.055	0.118	0.021	-0.234
2/24/2010 6:00:00	1199.000	0.031	0.260	0.076	0.030	0.123	0.021	0.072	0.055	0.118	0.021	-0.231
2/24/2010 6:01:00	1200.000	0.029	0.260	0.076	0.030	0.125	0.021	0.072	0.055	0.121	0.021	-0.231
2/24/2010 6:02:00	1201.000	0.029	0.260	0.076	0.033	0.125	0.021	0.072	0.053	0.121	0.021	-0.234
2/24/2010 6:03:00	1202.000	0.029	0.260	0.074	0.033	0.125	0.021	0.075	0.053	0.121	0.021	-0.234
2/24/2010 6:04:00	1203.000	0.026	0.260	0.079	0.030	0.128	0.018	0.072	0.053	0.121	0.021	-0.231
2/24/2010 6:05:00	1204.000	0.029	0.260	0.074	0.030	0.128	0.021	0.072	0.053	0.121	0.021	-0.234
2/24/2010 6:06:00	1205.000	0.029	0.260	0.076	0.033	0.125	0.021	0.072	0.053	0.121	0.018	-0.234
2/24/2010 6:07:00	1206.000	0.029	0.260	0.076	0.033	0.125	0.021	0.072	0.053	0.121	0.018	-0.236
2/24/2010 6:08:00	1207.000	0.029	0.260	0.081	0.030	0.123	0.023	0.070	0.053	0.121	0.021	-0.234
2/24/2010 6:09:00	1208.000	0.031	0.260	0.086	0.033	0.125	0.023	0.072	0.055	0.121	0.023	-0.234
2/24/2010 6:10:00	1209.000	0.031	0.260	0.079	0.033	0.130	0.023	0.072	0.053	0.118	0.021	-0.234
2/24/2010 6:11:00	1210.000	0.031	0.260	0.084	0.033	0.128	0.025	0.075	0.055	0.118	0.023	-0.231

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 6:12:00	1211.000	0.033	0.260	0.081	0.030	0.125	0.025	0.075	0.055	0.118	0.023	-0.234
2/24/2010 6:13:00	1212.000	0.031	0.260	0.084	0.033	0.128	0.025	0.075	0.053	0.116	0.023	-0.231
2/24/2010 6:14:00	1213.000	0.031	0.262	0.079	0.030	0.125	0.025	0.075	0.051	0.118	0.025	-0.231
2/24/2010 6:15:00	1214.000	0.031	0.260	0.079	0.033	0.116	0.025	0.072	0.051	0.116	0.025	-0.229
2/24/2010 6:16:00	1215.000	0.031	0.260	0.079	0.033	0.125	0.028	0.072	0.053	0.116	0.025	-0.231
2/24/2010 6:17:00	1216.000	0.031	0.260	0.084	0.030	0.125	0.028	0.075	0.051	0.116	0.028	-0.231
2/24/2010 6:18:00	1217.000	0.033	0.260	0.084	0.030	0.123	0.028	0.072	0.053	0.116	0.025	-0.229
2/24/2010 6:19:00	1218.000	0.031	0.260	0.084	0.033	0.121	0.028	0.072	0.053	0.116	0.025	-0.229
2/24/2010 6:20:00	1219.000	0.031	0.260	0.081	0.033	0.123	0.030	0.072	0.048	0.116	0.025	-0.229
2/24/2010 6:21:00	1220.000	0.031	0.260	0.086	0.030	0.128	0.030	0.075	0.053	0.116	0.025	-0.229
2/24/2010 6:22:00	1221.000	0.033	0.260	0.084	0.033	0.121	0.030	0.072	0.051	0.116	0.028	-0.229
2/24/2010 6:23:00	1222.000	0.031	0.260	0.081	0.030	0.125	0.030	0.072	0.051	0.116	0.028	-0.229
2/24/2010 6:24:00	1223.000	0.031	0.260	0.079	0.033	0.128	0.030	0.075	0.053	0.116	0.028	-0.229
2/24/2010 6:25:00	1224.000	0.031	0.260	0.081	0.030	0.123	0.028	0.075	0.058	0.116	0.028	-0.227
2/24/2010 6:26:00	1225.000	0.029	0.260	0.081	0.033	0.128	0.028	0.072	0.063	0.118	0.028	-0.229
2/24/2010 6:27:00	1226.000	0.031	0.260	0.079	0.030	0.125	0.028	0.075	0.063	0.118	0.025	-0.229
2/24/2010 6:28:00	1227.000	0.031	0.260	0.079	0.033	0.128	0.028	0.075	0.067	0.118	0.025	-0.231
2/24/2010 6:29:00	1228.000	0.031	0.260	0.079	0.033	0.125	0.028	0.075	0.065	0.118	0.030	-0.229
2/24/2010 6:30:00	1229.000	0.031	0.260	0.079	0.033	0.128	0.028	0.075	0.065	0.118	0.028	-0.229
2/24/2010 6:31:00	1230.000	0.031	0.258	0.079	0.033	0.125	0.028	0.075	0.067	0.116	0.030	-0.229
2/24/2010 6:32:00	1231.000	0.031	0.260	0.081	0.030	0.125	0.030	0.077	0.065	0.116	0.028	-0.229
2/24/2010 6:33:00	1232.000	0.031	0.262	0.076	0.033	0.123	0.030	0.075	0.067	0.116	0.028	-0.229
2/24/2010 6:34:00	1233.000	0.031	0.262	0.081	0.030	0.125	0.032	0.075	0.065	0.116	0.028	-0.229
2/24/2010 6:35:00	1234.000	0.033	0.260	0.081	0.033	0.128	0.032	0.077	0.065	0.116	0.032	-0.229
2/24/2010 6:36:00	1235.000	0.033	0.260	0.079	0.033	0.125	0.032	0.077	0.065	0.114	0.032	-0.229
2/24/2010 6:37:00	1236.000	0.033	0.260	0.079	0.033	0.123	0.032	0.077	0.063	0.114	0.035	-0.227
2/24/2010 6:38:00	1237.000	0.033	0.260	0.086	0.035	0.123	0.035	0.075	0.063	0.114	0.035	-0.227
2/24/2010 6:39:00	1238.000	0.033	0.258	0.084	0.033	0.125	0.032	0.077	0.065	0.116	0.035	-0.227
2/24/2010 6:40:00	1239.000	0.033	0.260	0.081	0.033	0.123	0.035	0.075	0.065	0.116	0.032	-0.227
2/24/2010 6:41:00	1240.000	0.031	0.258	0.084	0.033	0.125	0.032	0.077	0.065	0.114	0.030	-0.227
2/24/2010 6:42:00	1241.000	0.031	0.260	0.079	0.033	0.123	0.035	0.075	0.065	0.116	0.032	-0.227
2/24/2010 6:43:00	1242.000	0.033	0.260	0.081	0.033	0.125	0.032	0.077	0.067	0.116	0.032	-0.227
2/24/2010 6:44:00	1243.000	0.031	0.258	0.079	0.033	0.125	0.032	0.077	0.065	0.116	0.030	-0.227
2/24/2010 6:45:00	1244.000	0.031	0.260	0.081	0.033	0.125	0.030	0.077	0.063	0.116	0.030	-0.227
2/24/2010 6:46:00	1245.000	0.029	0.258	0.076	0.030	0.125	0.032	0.077	0.063	0.116	0.028	-0.229
2/24/2010 6:47:00	1246.000	0.029	0.255	0.079	0.030	0.125	0.028	0.075	0.063	0.121	0.028	-0.229

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 6:48:00	1247.000	0.026	0.258	0.076	0.033	0.125	0.028	0.077	0.063	0.121	0.025	-0.231
2/24/2010 6:49:00	1248.000	0.026	0.258	0.079	0.033	0.128	0.028	0.079	0.060	0.123	0.023	-0.231
2/24/2010 6:50:00	1249.000	0.026	0.258	0.072	0.033	0.125	0.025	0.079	0.063	0.123	0.025	-0.231
2/24/2010 6:51:00	1250.000	0.026	0.258	0.076	0.033	0.125	0.025	0.077	0.063	0.121	0.023	-0.234
2/24/2010 6:52:00	1251.000	0.026	0.260	0.074	0.033	0.125	0.028	0.077	0.063	0.121	0.023	-0.234
2/24/2010 6:53:00	1252.000	0.029	0.260	0.076	0.033	0.125	0.025	0.077	0.065	0.121	0.025	-0.234
2/24/2010 6:54:00	1253.000	0.029	0.260	0.079	0.033	0.128	0.028	0.077	0.065	0.118	0.023	-0.234
2/24/2010 6:55:00	1254.000	0.029	0.260	0.084	0.033	0.125	0.028	0.077	0.062	0.121	0.025	-0.234
2/24/2010 6:56:00	1255.000	0.029	0.260	0.084	0.030	0.128	0.028	0.079	0.063	0.121	0.025	-0.234
2/24/2010 6:57:00	1256.000	0.029	0.258	0.081	0.033	0.123	0.028	0.077	0.067	0.118	0.028	-0.234
2/24/2010 6:58:00	1257.000	0.031	0.258	0.081	0.030	0.125	0.030	0.077	0.067	0.118	0.028	-0.231
2/24/2010 6:59:00	1258.000	0.029	0.258	0.076	0.033	0.125	0.030	0.077	0.070	0.118	0.028	-0.234
2/24/2010 7:00:00	1259.000	0.031	0.260	0.084	0.033	0.123	0.030	0.077	0.070	0.118	0.030	-0.231
2/24/2010 7:01:00	1260.000	0.031	0.258	0.081	0.033	0.123	0.030	0.079	0.067	0.118	0.028	-0.231
2/24/2010 7:02:00	1261.000	0.031	0.258	0.086	0.030	0.123	0.030	0.077	0.070	0.118	0.028	-0.231
2/24/2010 7:03:00	1262.000	0.031	0.260	0.084	0.033	0.125	0.030	0.079	0.067	0.118	0.030	-0.231
2/24/2010 7:04:00	1263.000	0.031	0.260	0.081	0.033	0.125	0.032	0.079	0.070	0.118	0.030	-0.231
2/24/2010 7:05:00	1264.000	0.031	0.256	0.081	0.033	0.128	0.032	0.079	0.067	0.118	0.030	-0.231
2/24/2010 7:06:00	1265.000	0.031	0.258	0.086	0.033	0.125	0.030	0.079	0.067	0.118	0.030	-0.229
2/24/2010 7:07:00	1266.000	0.029	0.260	0.081	0.030	0.125	0.032	0.079	0.067	0.118	0.030	-0.229
2/24/2010 7:08:00	1267.000	0.031	0.258	0.079	0.033	0.123	0.030	0.079	0.067	0.118	0.028	-0.231
2/24/2010 7:09:00	1268.000	0.031	0.260	0.081	0.033	0.125	0.030	0.079	0.067	0.118	0.025	-0.231
2/24/2010 7:10:00	1269.000	0.029	0.258	0.086	0.030	0.125	0.032	0.077	0.067	0.121	0.028	-0.231
2/24/2010 7:11:00	1270.000	0.029	0.258	0.079	0.033	0.125	0.030	0.077	0.065	0.118	0.030	-0.231
2/24/2010 7:12:00	1271.000	0.031	0.258	0.084	0.033	0.125	0.030	0.079	0.065	0.121	0.028	-0.231
2/24/2010 7:13:00	1272.000	0.029	0.258	0.081	0.033	0.125	0.030	0.079	0.067	0.121	0.028	-0.231
2/24/2010 7:14:00	1273.000	0.026	0.258	0.079	0.033	0.123	0.030	0.079	0.063	0.121	0.025	-0.231
2/24/2010 7:15:00	1274.000	0.026	0.256	0.079	0.033	0.125	0.028	0.079	0.065	0.123	0.023	-0.231
2/24/2010 7:16:00	1275.000	0.026	0.258	0.076	0.033	0.123	0.028	0.079	0.065	0.123	0.025	-0.234
2/24/2010 7:17:00	1276.000	0.029	0.258	0.081	0.033	0.123	0.028	0.079	0.067	0.123	0.025	-0.234
2/24/2010 7:18:00	1277.000	0.029	0.258	0.079	0.033	0.123	0.028	0.079	0.065	0.123	0.028	-0.234
2/24/2010 7:19:00	1278.000	0.029	0.260	0.079	0.033	0.128	0.030	0.079	0.065	0.121	0.028	-0.234
2/24/2010 7:20:00	1279.000	0.029	0.258	0.081	0.033	0.128	0.030	0.079	0.065	0.121	0.028	-0.234
2/24/2010 7:21:00	1280.000	0.031	0.260	0.081	0.033	0.128	0.030	0.079	0.065	0.121	0.030	-0.234
2/24/2010 7:22:00	1281.000	0.029	0.258	0.081	0.035	0.121	0.030	0.079	0.065	0.121	0.023	-0.231
2/24/2010 7:23:00	1282.000	0.031	0.258	0.081	0.033	0.125	0.030	0.079	0.065	0.118	0.030	-0.234

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 7:24:00	1283.000	0.029	0.260	0.086	0.033	0.125	0.030	0.077	0.065	0.121	0.032	-0.231
2/24/2010 7:25:00	1284.000	0.029	0.260	0.084	0.035	0.128	0.030	0.079	0.065	0.121	0.030	-0.231
2/24/2010 7:26:00	1285.000	0.031	0.260	0.081	0.033	0.128	0.032	0.079	0.065	0.121	0.032	-0.231
2/24/2010 7:27:00	1286.000	0.031	0.258	0.086	0.035	0.125	0.032	0.082	0.065	0.118	0.030	-0.229
2/24/2010 7:28:00	1287.000	0.031	0.258	0.079	0.033	0.123	0.035	0.082	0.063	0.118	0.030	-0.231
2/24/2010 7:29:00	1288.000	0.031	0.258	0.079	0.033	0.123	0.032	0.079	0.065	0.121	0.030	-0.229
2/24/2010 7:30:00	1289.000	0.031	0.258	0.079	0.033	0.125	0.032	0.079	0.063	0.121	0.030	-0.231
2/24/2010 7:31:00	1290.000	0.029	0.258	0.086	0.033	0.125	0.032	0.082	0.063	0.121	0.032	-0.229
2/24/2010 7:32:00	1291.000	0.031	0.258	0.081	0.033	0.128	0.032	0.082	0.063	0.121	0.028	-0.229
2/24/2010 7:33:00	1292.000	0.031	0.258	0.084	0.035	0.123	0.032	0.082	0.063	0.121	0.030	-0.229
2/24/2010 7:34:00	1293.000	0.029	0.258	0.084	0.033	0.128	0.032	0.082	0.058	0.121	0.032	-0.229
2/24/2010 7:35:00	1294.000	0.029	0.258	0.081	0.033	0.125	0.032	0.079	0.063	0.121	0.032	-0.229
2/24/2010 7:36:00	1295.000	0.033	0.258	0.086	0.033	0.125	0.035	0.082	0.063	0.118	0.032	-0.229
2/24/2010 7:37:00	1296.000	0.031	0.258	0.081	0.035	0.128	0.035	0.082	0.058	0.118	0.035	-0.227
2/24/2010 7:38:00	1297.000	0.031	0.258	0.081	0.033	0.128	0.032	0.082	0.062	0.118	0.035	-0.227
2/24/2010 7:39:00	1298.000	0.031	0.258	0.086	0.033	0.125	0.035	0.082	0.060	0.118	0.032	-0.227
2/24/2010 7:40:00	1299.000	0.033	0.258	0.081	0.035	0.128	0.035	0.082	0.055	0.118	0.032	-0.227
2/24/2010 7:41:00	1300.000	0.031	0.255	0.084	0.033	0.125	0.035	0.082	0.058	0.121	0.035	-0.227
2/24/2010 7:42:00	1301.000	0.029	0.258	0.084	0.033	0.128	0.032	0.079	0.060	0.121	0.032	-0.227
2/24/2010 7:43:00	1302.000	0.031	0.258	0.084	0.033	0.125	0.032	0.082	0.060	0.121	0.030	-0.227
2/24/2010 7:44:00	1303.000	0.031	0.258	0.084	0.033	0.125	0.035	0.082	0.058	0.121	0.030	-0.227
2/24/2010 7:45:00	1304.000	0.029	0.258	0.081	0.033	0.125	0.032	0.082	0.058	0.121	0.032	-0.227
2/24/2010 7:46:00	1305.000	0.029	0.255	0.081	0.033	0.123	0.030	0.082	0.058	0.121	0.030	-0.227
2/24/2010 7:47:00	1306.000	0.029	0.258	0.086	0.033	0.125	0.030	0.082	0.058	0.123	0.028	-0.227
2/24/2010 7:48:00	1307.000	0.029	0.255	0.076	0.030	0.123	0.030	0.082	0.058	0.123	0.028	-0.227
2/24/2010 7:49:00	1308.000	0.029	0.255	0.079	0.035	0.125	0.030	0.084	0.055	0.123	0.025	-0.227
2/24/2010 7:50:00	1309.000	0.026	0.255	0.079	0.033	0.125	0.030	0.082	0.055	0.125	0.025	-0.229
2/24/2010 7:51:00	1310.000	0.026	0.258	0.079	0.033	0.128	0.030	0.084	0.055	0.125	0.028	-0.229
2/24/2010 7:52:00	1311.000	0.029	0.255	0.081	0.033	0.128	0.028	0.084	0.058	0.125	0.025	-0.229
2/24/2010 7:53:00	1312.000	0.029	0.255	0.079	0.033	0.130	0.028	0.082	0.058	0.125	0.030	-0.229
2/24/2010 7:54:00	1313.000	0.029	0.258	0.081	0.033	0.125	0.028	0.084	0.055	0.125	0.025	-0.231
2/24/2010 7:55:00	1314.000	0.029	0.258	0.084	0.035	0.125	0.030	0.084	0.055	0.123	0.028	-0.229
2/24/2010 7:56:00	1315.000	0.031	0.255	0.079	0.033	0.123	0.030	0.084	0.058	0.123	0.025	-0.229
2/24/2010 7:57:00	1316.000	0.029	0.255	0.079	0.033	0.123	0.030	0.084	0.055	0.123	0.030	-0.229
2/24/2010 7:58:00	1317.000	0.031	0.258	0.079	0.035	0.125	0.030	0.084	0.055	0.123	0.028	-0.229
2/24/2010 7:59:00	1318.000	0.029	0.255	0.081	0.033	0.125	0.030	0.082	0.053	0.123	0.025	-0.229

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 8:00:00	1319.000	0.031	0.258	0.081	0.033	0.125	0.030	0.082	0.055	0.123	0.028	-0.227
2/24/2010 8:01:00	1320.000	0.029	0.258	0.084	0.033	0.125	0.030	0.084	0.055	0.123	0.028	-0.227
2/24/2010 8:02:00	1321.000	0.031	0.258	0.079	0.033	0.128	0.030	0.084	0.058	0.123	0.028	-0.227
2/24/2010 8:03:00	1322.000	0.031	0.258	0.079	0.035	0.128	0.030	0.084	0.055	0.125	0.030	-0.227
2/24/2010 8:04:00	1323.000	0.031	0.258	0.086	0.035	0.125	0.030	0.084	0.055	0.123	0.028	-0.224
2/24/2010 8:05:00	1324.000	0.033	0.258	0.086	0.033	0.125	0.030	0.084	0.055	0.123	0.028	-0.224
2/24/2010 8:06:00	1325.000	0.033	0.258	0.081	0.035	0.125	0.030	0.082	0.053	0.123	0.028	-0.224
2/24/2010 8:07:00	1326.000	0.031	0.258	0.086	0.035	0.125	0.030	0.084	0.053	0.123	0.030	-0.224
2/24/2010 8:08:00	1327.000	0.031	0.258	0.086	0.033	0.128	0.030	0.082	0.053	0.123	0.030	-0.222
2/24/2010 8:09:00	1328.000	0.031	0.255	0.081	0.033	0.128	0.030	0.082	0.058	0.123	0.025	-0.222
2/24/2010 8:10:00	1329.000	0.033	0.258	0.084	0.035	0.125	0.030	0.084	0.053	0.123	0.028	-0.222
2/24/2010 8:11:00	1330.000	0.031	0.255	0.086	0.035	0.128	0.030	0.084	0.053	0.125	0.028	-0.222
2/24/2010 8:12:00	1331.000	0.031	0.255	0.084	0.033	0.125	0.030	0.084	0.053	0.125	0.028	-0.222
2/24/2010 8:13:00	1332.000	0.033	0.255	0.081	0.035	0.125	0.030	0.084	0.053	0.125	0.028	-0.222
2/24/2010 8:14:00	1333.000	0.031	0.258	0.084	0.033	0.125	0.028	0.084	0.051	0.125	0.028	-0.222
2/24/2010 8:15:00	1334.000	0.031	0.255	0.084	0.035	0.125	0.030	0.082	0.051	0.125	0.025	-0.222
2/24/2010 8:16:00	1335.000	0.031	0.255	0.079	0.035	0.130	0.028	0.082	0.053	0.125	0.028	-0.220
2/24/2010 8:17:00	1336.000	0.031	0.256	0.079	0.035	0.130	0.030	0.084	0.053	0.128	0.025	-0.222
2/24/2010 8:18:00	1337.000	0.031	0.258	0.081	0.035	0.128	0.028	0.084	0.051	0.128	0.023	-0.220
2/24/2010 8:19:00	1338.000	0.031	0.255	0.079	0.035	0.128	0.028	0.084	0.051	0.128	0.025	-0.220
2/24/2010 8:20:00	1339.000	0.033	0.258	0.076	0.035	0.128	0.028	0.084	0.053	0.128	0.028	-0.220
2/24/2010 8:21:00	1340.000	0.031	0.255	0.084	0.035	0.128	0.028	0.084	0.053	0.128	0.025	-0.220
2/24/2010 8:22:00	1341.000	0.033	0.255	0.081	0.035	0.128	0.028	0.084	0.053	0.130	0.023	-0.220
2/24/2010 8:23:00	1342.000	0.031	0.258	0.088	0.035	0.128	0.030	0.084	0.053	0.128	0.025	-0.217
2/24/2010 8:24:00	1343.000	0.033	0.255	0.079	0.035	0.130	0.025	0.084	0.051	0.128	0.021	-0.217
2/24/2010 8:25:00	1344.000	0.031	0.256	0.084	0.035	0.128	0.028	0.084	0.053	0.128	0.023	-0.217
2/24/2010 8:26:00	1345.000	0.033	0.255	0.079	0.035	0.130	0.028	0.084	0.048	0.128	0.023	-0.217
2/24/2010 8:27:00	1346.000	0.031	0.258	0.081	0.035	0.130	0.025	0.084	0.051	0.130	0.018	-0.217
2/24/2010 8:28:00	1347.000	0.031	0.253	0.079	0.035	0.130	0.025	0.084	0.048	0.130	0.021	-0.215
2/24/2010 8:29:00	1348.000	0.033	0.255	0.084	0.035	0.132	0.025	0.084	0.051	0.130	0.016	-0.215
2/24/2010 8:30:00	1349.000	0.033	0.258	0.081	0.035	0.128	0.025	0.084	0.051	0.130	0.023	-0.215
2/24/2010 8:31:00	1350.000	0.033	0.258	0.081	0.035	0.130	0.025	0.084	0.053	0.130	0.023	-0.213
2/24/2010 8:32:00	1351.000	0.036	0.258	0.084	0.035	0.128	0.028	0.084	0.051	0.130	0.018	-0.213
2/24/2010 8:33:00	1352.000	0.036	0.256	0.086	0.035	0.130	0.025	0.084	0.051	0.130	0.021	-0.210
2/24/2010 8:34:00	1353.000	0.036	0.258	0.081	0.035	0.128	0.025	0.084	0.048	0.130	0.021	-0.210
2/24/2010 8:35:00	1354.000	0.036	0.258	0.084	0.035	0.128	0.028	0.084	0.051	0.130	0.023	-0.210

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 8:36:00	1355.000	0.036	0.255	0.086	0.035	0.125	0.028	0.084	0.048	0.130	0.025	-0.208
2/24/2010 8:37:00	1356.000	0.036	0.255	0.084	0.035	0.130	0.028	0.084	0.051	0.128	0.025	-0.206
2/24/2010 8:38:00	1357.000	0.038	0.258	0.081	0.035	0.132	0.030	0.084	0.051	0.128	0.025	-0.203
2/24/2010 8:39:00	1358.000	0.038	0.258	0.088	0.035	0.128	0.030	0.084	0.051	0.128	0.025	-0.203
2/24/2010 8:40:00	1359.000	0.038	0.258	0.086	0.035	0.132	0.030	0.086	0.051	0.128	0.028	-0.201
2/24/2010 8:41:00	1360.000	0.038	0.258	0.084	0.035	0.130	0.030	0.084	0.051	0.130	0.025	-0.201
2/24/2010 8:42:00	1361.000	0.041	0.255	0.084	0.035	0.130	0.030	0.084	0.051	0.128	0.025	-0.196
2/24/2010 8:43:00	1362.000	0.041	0.255	0.088	0.037	0.130	0.032	0.084	0.051	0.128	0.025	-0.196
2/24/2010 8:44:00	1363.000	0.041	0.258	0.084	0.035	0.130	0.032	0.084	0.053	0.128	0.028	-0.194
2/24/2010 8:45:00	1364.000	0.041	0.255	0.086	0.035	0.132	0.032	0.084	0.053	0.130	0.030	-0.192
2/24/2010 8:46:00	1365.000	0.041	0.255	0.084	0.035	0.130	0.030	0.084	0.051	0.128	0.025	-0.192
2/24/2010 8:47:00	1366.000	0.041	0.258	0.084	0.037	0.130	0.030	0.084	0.051	0.130	0.025	-0.189
2/24/2010 8:48:00	1367.000	0.041	0.255	0.086	0.035	0.130	0.032	0.084	0.051	0.130	0.023	-0.189
2/24/2010 8:49:00	1368.000	0.041	0.255	0.084	0.037	0.132	0.032	0.084	0.051	0.130	0.025	-0.187
2/24/2010 8:50:00	1369.000	0.041	0.255	0.084	0.037	0.132	0.030	0.084	0.072	0.130	0.025	-0.187
2/24/2010 8:51:00	1370.000	0.041	0.255	0.081	0.035	0.130	0.030	0.082	0.081	0.130	0.028	-0.185
2/24/2010 8:52:00	1371.000	0.043	0.255	0.088	0.037	0.130	0.030	0.086	0.091	0.130	0.028	-0.185
2/24/2010 8:53:00	1372.000	0.041	0.258	0.086	0.037	0.132	0.030	0.084	0.091	0.130	0.025	-0.182
2/24/2010 8:54:00	1373.000	0.043	0.255	0.086	0.037	0.128	0.032	0.084	0.091	0.130	0.023	-0.180
2/24/2010 8:55:00	1374.000	0.043	0.255	0.088	0.033	0.130	0.030	0.086	0.093	0.132	0.028	-0.180
2/24/2010 8:56:00	1375.000	0.043	0.255	0.081	0.035	0.128	0.030	0.084	0.093	0.132	0.025	-0.178
2/24/2010 8:57:00	1376.000	0.043	0.258	0.086	0.035	0.128	0.030	0.084	0.095	0.132	0.025	-0.175
2/24/2010 8:58:00	1377.000	0.043	0.255	0.081	0.035	0.132	0.030	0.086	0.093	0.132	0.023	-0.175
2/24/2010 8:59:00	1378.000	0.043	0.255	0.084	0.035	0.132	0.030	0.086	0.091	0.132	0.023	-0.173
2/24/2010 9:00:00	1379.000	0.043	0.255	0.084	0.037	0.132	0.028	0.086	0.093	0.132	0.023	-0.173
2/24/2010 9:01:00	1380.000	0.045	0.258	0.088	0.037	0.132	0.028	0.086	0.095	0.132	0.023	-0.170
2/24/2010 9:02:00	1381.000	0.045	0.255	0.081	0.035	0.130	0.028	0.086	0.093	0.132	0.025	-0.168
2/24/2010 9:03:00	1382.000	0.079	0.255	0.084	0.035	0.130	0.028	0.084	0.095	0.132	0.023	-0.166
2/24/2010 9:04:00	1383.000	0.081	0.253	0.084	0.037	0.132	0.028	0.086	0.095	0.132	0.025	-0.166
2/24/2010 9:05:00	1384.000	0.081	0.255	0.084	0.035	0.132	0.030	0.086	0.095	0.132	0.021	-0.161
2/24/2010 9:06:00	1385.000	0.081	0.255	0.081	0.035	0.135	0.028	0.084	0.095	0.132	0.021	-0.161
2/24/2010 9:07:00	1386.000	0.081	0.255	0.086	0.037	0.135	0.028	0.084	0.095	0.132	0.023	-0.161
2/24/2010 9:08:00	1387.000	0.084	0.256	0.088	0.035	0.132	0.028	0.084	0.093	0.132	0.023	-0.159
2/24/2010 9:09:00	1388.000	0.084	0.255	0.088	0.035	0.132	0.028	0.084	0.095	0.132	0.025	-0.156
2/24/2010 9:10:00	1389.000	0.086	0.255	0.088	0.035	0.130	0.030	0.084	0.098	0.132	0.023	-0.154
2/24/2010 9:11:00	1390.000	0.086	0.255	0.086	0.035	0.130	0.030	0.084	0.095	0.132	0.023	-0.152

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 9:12:00	1391.000	0.086	0.256	0.086	0.037	0.132	0.030	0.084	0.095	0.132	0.023	-0.149
2/24/2010 9:13:00	1392.000	0.086	0.255	0.086	0.035	0.132	0.030	0.086	0.098	0.132	0.023	-0.147
2/24/2010 9:14:00	1393.000	0.086	0.258	0.088	0.037	0.130	0.030	0.084	0.098	0.132	0.025	-0.147
2/24/2010 9:15:00	1394.000	0.086	0.255	0.088	0.037	0.130	0.030	0.084	0.095	0.132	0.023	-0.145
2/24/2010 9:16:00	1395.000	0.086	0.255	0.091	0.037	0.130	0.030	0.086	0.095	0.132	0.023	-0.142
2/24/2010 9:17:00	1396.000	0.088	0.255	0.091	0.037	0.130	0.032	0.086	0.091	0.135	0.023	-0.138
2/24/2010 9:18:00	1397.000	0.088	0.255	0.086	0.035	0.135	0.032	0.086	0.098	0.135	0.025	-0.138
2/24/2010 9:19:00	1398.000	0.086	0.258	0.091	0.037	0.135	0.032	0.086	0.095	0.132	0.023	-0.135
2/24/2010 9:20:00	1399.000	0.088	0.253	0.091	0.035	0.135	0.030	0.086	0.095	0.135	0.025	-0.133
2/24/2010 9:21:00	1400.000	0.091	0.255	0.088	0.035	0.132	0.032	0.084	0.098	0.132	0.023	-0.131
2/24/2010 9:22:00	1401.000	0.088	0.255	0.086	0.037	0.132	0.030	0.084	0.095	0.135	0.023	-0.128
2/24/2010 9:23:00	1402.000	0.091	0.255	0.088	0.037	0.132	0.030	0.084	0.095	0.135	0.023	-0.126
2/24/2010 9:24:00	1403.000	0.091	0.255	0.093	0.035	0.130	0.032	0.084	0.095	0.135	0.028	-0.124
2/24/2010 9:25:00	1404.000	0.091	0.255	0.088	0.035	0.132	0.032	0.086	0.098	0.135	0.028	-0.124
2/24/2010 9:26:00	1405.000	0.088	0.253	0.084	0.037	0.132	0.032	0.086	0.098	0.135	0.025	-0.121
2/24/2010 9:27:00	1406.000	0.093	0.255	0.088	0.037	0.137	0.032	0.086	0.095	0.135	0.025	-0.119
2/24/2010 9:28:00	1407.000	0.093	0.255	0.091	0.037	0.132	0.035	0.084	0.098	0.135	0.023	-0.116
2/24/2010 9:29:00	1408.000	0.093	0.255	0.093	0.035	0.135	0.032	0.086	0.095	0.132	0.028	-0.114
2/24/2010 9:30:00	1409.000	0.093	0.255	0.093	0.037	0.130	0.032	0.086	0.100	0.132	0.028	-0.112
2/24/2010 9:31:00	1410.000	0.096	0.255	0.091	0.037	0.132	0.035	0.086	0.100	0.135	0.030	-0.109
2/24/2010 9:32:00	1411.000	0.093	0.256	0.091	0.037	0.132	0.035	0.086	0.098	0.135	0.023	-0.107
2/24/2010 9:33:00	1412.000	0.093	0.253	0.091	0.035	0.135	0.035	0.086	0.100	0.135	0.025	-0.105
2/24/2010 9:34:00	1413.000	0.096	0.253	0.091	0.037	0.135	0.037	0.086	0.100	0.135	0.032	-0.102
2/24/2010 9:35:00	1414.000	0.096	0.255	0.093	0.037	0.135	0.037	0.086	0.098	0.132	0.028	-0.100
2/24/2010 9:36:00	1415.000	0.096	0.255	0.091	0.035	0.135	0.035	0.086	0.098	0.135	0.030	-0.098
2/24/2010 9:37:00	1416.000	0.096	0.253	0.091	0.037	0.135	0.035	0.086	0.098	0.135	0.025	-0.095
2/24/2010 9:38:00	1417.000	0.096	0.253	0.093	0.040	0.132	0.035	0.084	0.100	0.135	0.023	-0.093
2/24/2010 9:39:00	1418.000	0.096	0.253	0.093	0.040	0.135	0.035	0.086	0.100	0.135	0.028	-0.091
2/24/2010 9:40:00	1419.000	0.096	0.253	0.091	0.037	0.137	0.035	0.086	0.098	0.137	0.023	-0.088
2/24/2010 9:41:00	1420.000	0.098	0.255	0.096	0.037	0.135	0.035	0.086	0.100	0.135	0.028	-0.088
2/24/2010 9:42:00	1421.000	0.096	0.253	0.088	0.037	0.132	0.035	0.086	0.100	0.135	0.025	-0.086
2/24/2010 9:43:00	1422.000	0.098	0.255	0.093	0.037	0.135	0.035	0.089	0.100	0.135	0.030	-0.084
2/24/2010 9:44:00	1423.000	0.098	0.255	0.093	0.037	0.132	0.035	0.086	0.100	0.135	0.028	-0.079
2/24/2010 9:45:00	1424.000	0.098	0.253	0.096	0.037	0.135	0.037	0.086	0.100	0.135	0.025	-0.077
2/24/2010 9:46:00	1425.000	0.100	0.255	0.086	0.037	0.137	0.037	0.086	0.102	0.135	0.028	-0.074
2/24/2010 9:47:00	1426.000	0.100	0.255	0.093	0.037	0.132	0.037	0.086	0.102	0.135	0.030	-0.074

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 9:48:00	1427.000	0.100	0.255	0.098	0.037	0.137	0.037	0.089	0.102	0.135	0.028	-0.070
2/24/2010 9:49:00	1428.000	0.100	0.253	0.091	0.037	0.135	0.039	0.086	0.100	0.132	0.025	-0.067
2/24/2010 9:50:00	1429.000	0.100		0.096	0.037	0.137	0.039	0.089	0.100	0.135	0.030	-0.065
2/24/2010 9:51:00	1430.000	0.100		0.093	0.037	0.137	0.037	0.086	0.098	0.132	0.030	-0.063
2/24/2010 9:52:00	1431.000	0.100		0.096	0.037	0.137	0.039	0.089	0.102	0.135	0.030	-0.060
2/24/2010 9:53:00	1432.000	0.103		0.096	0.037	0.135	0.039	0.089	0.102	0.135	0.030	-0.058
2/24/2010 9:54:00	1433.000	0.103		0.091	0.037	0.137	0.039	0.086	0.102	0.135	0.030	-0.056
2/24/2010 9:55:00	1434.000	0.103		0.093	0.037	0.137	0.039	0.086	0.100	0.135	0.030	-0.053
2/24/2010 9:56:00	1435.000	0.103		0.096	0.037	0.140	0.042	0.089	0.105	0.135	0.030	-0.051
2/24/2010 9:57:00	1436.000	0.103		0.096	0.037	0.137	0.042	0.086	0.102	0.132	0.030	-0.051
2/24/2010 9:58:00	1437.000	0.105		0.096	0.035	0.137	0.039	0.089	0.102	0.135	0.030	-0.049
2/24/2010 9:59:00	1438.000	0.103		0.098	0.037	0.132	0.042	0.086	0.102	0.135	0.030	-0.046
2/24/2010 10:00:00	1439.000	0.103		0.096	0.037	0.135	0.042	0.086	0.102	0.135	0.032	-0.044
2/24/2010 10:01:00	1440.000	0.105		0.096	0.037	0.137	0.042	0.089	0.102	0.135	0.032	-0.041
2/24/2010 10:02:00	1441.000	0.103		0.096	0.037	0.137	0.039	0.089	0.102	0.135	0.030	-0.039
2/24/2010 10:03:00	1442.000	0.105		0.096	0.037	0.135	0.042	0.089	0.102	0.135	0.030	-0.037
2/24/2010 10:04:00	1443.000	0.105		0.098	0.037	0.140	0.039	0.089	0.100	0.135	0.032	-0.034
2/24/2010 10:05:00	1444.000	0.105		0.096	0.037	0.137	0.039	0.089	0.102	0.135	0.032	-0.034
2/24/2010 10:06:00	1445.000	0.105		0.088	0.037	0.135	0.039	0.089	0.105	0.137	0.030	-0.032
2/24/2010 10:07:00	1446.000	0.105		0.093	0.037	0.137	0.039	0.089	0.105	0.135	0.032	-0.027
2/24/2010 10:08:00	1447.000	0.105		0.098	0.037	0.137	0.042	0.089	0.105	0.135	0.032	-0.027
2/24/2010 10:09:00	1448.000	0.108		0.100	0.037	0.135	0.044	0.089	0.105	0.135	0.035	-0.025
2/24/2010 10:10:00	1449.000	0.108		0.096	0.037	0.135	0.044	0.089	0.105	0.132	0.035	-0.023
2/24/2010 10:11:00	1450.000	0.110		0.098	0.037	0.135	0.044	0.089	0.105	0.132	0.037	-0.020
2/24/2010 10:12:00	1451.000	0.110		0.098	0.037	0.135	0.044	0.089	0.102	0.132	0.039	-0.018
2/24/2010 10:13:00	1452.000	0.108		0.098	0.037	0.135	0.044	0.091	0.105	0.135	0.032	-0.016
2/24/2010 10:14:00	1453.000	0.108		0.098	0.037	0.135	0.044	0.089	0.107	0.135	0.035	-0.013
2/24/2010 10:15:00	1454.000	0.108		0.098	0.037	0.135	0.044	0.091	0.105	0.135	0.035	-0.011
2/24/2010 10:16:00	1455.000	0.110		0.093	0.040	0.137	0.044	0.091	0.105	0.135	0.035	-0.011
2/24/2010 10:17:00	1456.000	0.110		0.096	0.040	0.137	0.044	0.091	0.107	0.132	0.035	-0.009
2/24/2010 10:18:00	1457.000	0.110		0.103	0.037	0.137	0.046	0.091	0.105	0.132	0.037	-0.006
2/24/2010 10:19:00	1458.000	0.110		0.100	0.037	0.135	0.046	0.091	0.105	0.132	0.037	-0.004
2/24/2010 10:20:00	1459.000	0.112		0.100	0.037	0.135	0.046	0.091	0.119	0.132	0.037	0.001
2/24/2010 10:21:00	1460.000	0.112		0.103	0.037	0.132	0.046	0.091	0.131	0.132	0.037	0.003
2/24/2010 10:22:00	1461.000	0.112		0.105	0.037	0.137	0.049	0.093	0.133	0.132	0.039	0.005
2/24/2010 10:23:00	1462.000	0.112		0.098	0.037	0.137	0.049	0.093	0.138	0.132	0.044	0.010

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 10:24:00	1463.000	0.112		0.098	0.037	0.132	0.049	0.093	0.135	0.132	0.039	0.012
2/24/2010 10:25:00	1464.000	0.112		0.100	0.037	0.137	0.051	0.091	0.140	0.132	0.042	0.012
2/24/2010 10:26:00	1465.000	0.112		0.100	0.037	0.137	0.051	0.093	0.142	0.132	0.039	0.017
2/24/2010 10:27:00	1466.000	0.112		0.098	0.037	0.137	0.051	0.093	0.138	0.132	0.044	0.022
2/24/2010 10:28:00	1467.000	0.112		0.098	0.040	0.132	0.051	0.091	0.142	0.132	0.039	0.029
2/24/2010 10:29:00	1468.000	0.115		0.096	0.040	0.135	0.051	0.091	0.140	0.132	0.042	0.034
2/24/2010 10:30:00	1469.000	0.115		0.096	0.037	0.140	0.049	0.093	0.140	0.132	0.039	0.038
2/24/2010 10:31:00	1470.000	0.115		0.098	0.037	0.137	0.051	0.093	0.142	0.132	0.042	0.041
2/24/2010 10:32:00	1471.000	0.112		0.098	0.037	0.137	0.049	0.093	0.138	0.135	0.039	0.043
2/24/2010 10:33:00	1472.000	0.115		0.098	0.037	0.135	0.051	0.093	0.140	0.135	0.039	0.045
2/24/2010 10:34:00	1473.000	0.115		0.096	0.037	0.135	0.051	0.096	0.142	0.132	0.042	0.050
2/24/2010 10:35:00	1474.000	0.115		0.098	0.037	0.137	0.053	0.096	0.140	0.132	0.046	0.052
2/24/2010 10:36:00	1475.000	0.117		0.100	0.037	0.137	0.053	0.096	0.142	0.132	0.044	0.052
2/24/2010 10:37:00	1476.000	0.117		0.103	0.037	0.137	0.051	0.096	0.140	0.132	0.042	0.057
2/24/2010 10:38:00	1477.000	0.117		0.100	0.037	0.137	0.051	0.096	0.142	0.132	0.042	0.057
2/24/2010 10:39:00	1478.000	0.119		0.100	0.040	0.137	0.053	0.096	0.142	0.132	0.046	0.059
2/24/2010 10:40:00	1479.000	0.117		0.096	0.035	0.135	0.051	0.096	0.142	0.132	0.044	0.062
2/24/2010 10:41:00	1480.000	0.117		0.098	0.037	0.137	0.053	0.096	0.140	0.132	0.044	0.064
2/24/2010 10:42:00	1481.000	0.119		0.098	0.037	0.137	0.053		0.142	0.132	0.046	0.066
2/24/2010 10:43:00	1482.000	0.119		0.098	0.037	0.140	0.053		0.142	0.132	0.044	0.066
2/24/2010 10:44:00	1483.000	0.119		0.098	0.037	0.137	0.056		0.145	0.132	0.044	0.066
2/24/2010 10:45:00	1484.000	0.119		0.100	0.040	0.137	0.056		0.142	0.132	0.044	0.071
2/24/2010 10:46:00	1485.000	0.119		0.098	0.037	0.135	0.056		0.142	0.132	0.046	0.071
2/24/2010 10:47:00	1486.000	0.119		0.100	0.037	0.140	0.056		0.142	0.132	0.049	0.073
2/24/2010 10:48:00	1487.000	0.122		0.103	0.040	0.135	0.056		0.140	0.130	0.046	0.073
2/24/2010 10:49:00	1488.000	0.119		0.100	0.035	0.132	0.056		0.142	0.132	0.049	0.076
2/24/2010 10:50:00	1489.000	0.122		0.100	0.037	0.135	0.056		0.140	0.132	0.046	0.076
2/24/2010 10:51:00	1490.000	0.122		0.103	0.040	0.137	0.056		0.142	0.132	0.049	0.076
2/24/2010 10:52:00	1491.000	0.122		0.103	0.037	0.137	0.058		0.142	0.130	0.051	0.078
2/24/2010 10:53:00	1492.000	0.122		0.088	0.037	0.132	0.058		0.142	0.130	0.051	0.080
2/24/2010 10:54:00	1493.000	0.122		0.100	0.037	0.137	0.058		0.142	0.130	0.049	0.083
2/24/2010 10:55:00	1494.000	0.122		0.103	0.037	0.135	0.058		0.145	0.130	0.053	0.083
2/24/2010 10:56:00	1495.000	0.122		0.100	0.040	0.135	0.058		0.145	0.132	0.051	0.085
2/24/2010 10:57:00	1496.000	0.122		0.103	0.037	0.135	0.058		0.142	0.130	0.053	0.085
2/24/2010 10:58:00	1497.000	0.122		0.098	0.040	0.135	0.058		0.140		0.051	0.090
2/24/2010 10:59:00	1498.000	0.122		0.098	0.037	0.137	0.061		0.140		0.051	0.090

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time[a] (min)	Water Level, Change from Initial (ft H2O)										
		MW01	MW02	MW04	MW06	MW07	MW08	MW09	MW10	MW11	MW12	MW13
2/24/2010 11:00:00	1499.000	0.122		0.100	0.040	0.137	0.061		0.142		0.053	0.095
2/24/2010 11:01:00	1500.000	0.124		0.098	0.037	0.137	0.058		0.142		0.056	0.095
2/24/2010 11:02:00	1501.000	0.124		0.103	0.037	0.140	0.058		0.142		0.053	0.097
2/24/2010 11:03:00	1502.000	0.124		0.100	0.037	0.137	0.061		0.142		0.053	0.097
2/24/2010 11:04:00	1503.000	0.124		0.103	0.037	0.135	0.061		0.145		0.053	0.099
2/24/2010 11:05:00	1504.000	0.124		0.100	0.040	0.137	0.061		0.142		0.053	0.102
2/24/2010 11:06:00	1505.000	0.127		0.103	0.040	0.132	0.058		0.142		0.056	0.104
2/24/2010 11:07:00	1506.000	0.124		0.096	0.037	0.135	0.063		0.140		0.053	
2/24/2010 11:08:00	1507.000	0.124		0.103	0.040	0.135	0.063		0.142		0.056	
2/24/2010 11:09:00	1508.000	0.124		0.103	0.037	0.137	0.063		0.142		0.058	
2/24/2010 11:10:00	1509.000	0.124		0.100	0.037	0.135	0.061		0.145		0.058	

[a] Elapsed time calculated from 10:01 on 2/23/10 as time zero.

[b] Values measured by using PT2X™ water level recorder.

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Supplement 8:

Summary of Constant-Rate Pumping Test Results for Zone 2 Monitoring Well MW44 at Hanover, Kansas

Argonne NATIONAL LABORATORY

ANL/EVS/AGEM/CHRON-1372

Summary of Constant-Rate Pumping Test Results for Zone 2 Monitoring Well MW44Z2 at Hanover, Kansas

Environmental Science Division

USDA United States Department of Agriculture

Work sponsored by Commodity Credit Corporation,
United States Department of Agriculture

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ANL/EVS/AGEM/CHRON-1372

Summary of Constant-Rate Pumping Test Results for Zone 2 Monitoring Well MW44Z2 at Hanover, Kansas

by
Applied Geosciences and Environmental Management Section
Environmental Science Division, Argonne National Laboratory

July 2010

United States Department of Agriculture

Work sponsored by Commodity Credit Corporation,
United States Department of Agriculture

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Notation

BE	barometric efficiency
CCC	Commodity Credit Corporation
CD	compact disc
ft	foot (feet)
gal	gallon(s)
gpm	gallon(s) per minute
hr	hour(s)
in.	inch(es)
KDHE	Kansas Department of Health and Environment
Kh	horizontal hydraulic conductivity
kW	kilowatt(s)
μg/L	microgram(s) per liter
min	minute(s)
sec	second(s)
T	transmissivity
TD	total depth
TOC	top of casing
USDA	U.S. Department of Agriculture
V	volt(s)

Summary of Constant-Rate Pumping Test Results for Zone 2 Monitoring Well MW44Z2 at Hanover, Kansas

Executive Summary

The primary technical objective of the constant-rate pumping test in well MW44Z2 at Hanover was to assess whether groundwater extraction might represent a potentially viable option for consideration in the development of candidate remedial alternatives for the Zone 2 water-bearing unit. Well MW44Z2 was selected for the pump testing. This location was chosen because, among the existing Zone 2 well locations, it appears to offer the greatest opportunity to evaluate the potential for groundwater pumping from Zone 2 as a means to (1) control downgradient migration and (2) possibly capture the existing contamination. Well MW44Z2 and nearby well MW45Z2 returned the most consistent water level responses (for Zone 2) during slug testing and are also the closest existing monitoring wells to the identified private wells that are contaminated with carbon tetrachloride.

The results of the constant-rate pumping test conducted at well MW44Z2 demonstrated that the Zone 2 unit at this location behaves as a leaky-confined aquifer that is capable of supporting continuous groundwater pumping at a rate of at least 2 gpm for an extended period, with no apparent risk of aquifer dewatering. Under the conditions of this test, the pumping of MW44Z2 also generated detectable and increasing drawdown at monitoring well MW45Z2, located 263 ft to the west and downgradient of MW44Z2.

On the basis of these findings, we believe that groundwater extraction from the Zone 2 water-bearing unit at the MW44Z2 location could potentially exert a positive impact on the distribution of carbon tetrachloride in the downgradient portion of the contaminated groundwater identified near MW44Z2, MW45Z2, and the contaminated private wells.

1 Background

This document presents a summary of the test data obtained from the pumping of well MW44Z2 at Hanover, Kansas. The work reported here was conducted by Argonne National Laboratory on behalf of the Commodity Credit Corporation of the U.S. Department of Agriculture (CCC/USDA). The work is under the oversight of the Kansas Department of Health and Environment (KDHE).

Addendum 2 to the *Final Work Plan: Investigation of Potential Contamination at the Former CCC/USDA Grain Storage Facility in Hanover, Kansas* (Argonne 2008), outlines a program of supplemental studies for further characterization of the Zone 2 water-bearing interval, as well as the deeper water-bearing Zones 3-4. The primary technical objectives of the groundwater Zone 2 investigations proposed in Addendum 2 included the following:

- Obtain additional data for characterizing groundwater Zone 2, to supplement the results of work already completed at locations MW44 and MW45.
- Delineate the extent of the contamination hosted by Zone 2.
- Determine the groundwater flow pattern in Zone 2.

The preliminary results of the studies described in Addendum 2 are illustrated in Figure 1. Carbon tetrachloride contamination was identified in several Zone 2 monitoring wells (MW44Z2, MW45Z2, MW49Z2, MW50Z2) at levels ranging from 9.7 μg/L to 35 μg/L. Carbon tetrachloride was also detected in two private wells that are completed across the Zone 2 water-bearing unit (in conjunction with other deeper water-bearing intervals), at concentrations of 5.1 μg/L to 7.8 μg/L. The results suggest that the carbon tetrachloride contamination in groundwater in the Zone 2 unit is distributed over a relatively narrow area extending westward from the former CCC/USDA facility and toward the interpreted western erosional limit of the Zone 2 interval.

Aquifer slug tests were conducted at the six monitoring wells (MW44Z2, MW45Z2 and MW48Z2-MW51Z2; Figure 1) installed in Zone 2, to characterize the hydraulic properties of this interval. The results are reported separately. The results of the slug tests, although variable, suggested that Zone 2 might possess a somewhat higher range of estimated hydraulic

conductivity values (K_h = 4-60 ft/day) than the values observed in much of overlying water-bearing Zone 1 (Argonne 2009). Analyses of lithologic logs and measured water levels for the tested wells also suggested that the Zone 2 unit is somewhat thicker than the Zone 1 unit and that each Zone 2 well has a slightly greater available head than the Zone 1 wells. Finally, the fact that the Zone 2 unit is tapped by numerous private wells at Hanover is evidence of some reliability as a groundwater source.

Because the carbon tetrachloride concentrations detected in Zone 2 are above the KDHE Tier 2 risk-based screening level of 5.0 μg/L for this contaminant in groundwater, the CCC/USDA and Argonne are addressing data needs for evaluation of possible remedial alternatives for the Zone 2 water-bearing unit. The observations outlined above qualitatively suggest a greater potential for groundwater pumping, and hence possible contaminant extraction, from the Zone 2 water-bearing unit than has been identified in Zone 1 (Argonne 2010a,b).

Figure 1 indicates that monitoring wells MW50Z2 and MW48Z2 lie, respectively, marginal to and outside of the identified Zone 2 contaminant distribution; groundwater extraction at these locations, even if it was possible, would appear to be of little or no future remedial value. Similarly, groundwater pumping at MW49Z2, even if possible, would seem of limited remedial interest, because this location is too far upgradient to be of potential value for hydraulic control or removal of the existing contamination.

Because of their locations along the interpreted contaminant migration pathway, existing wells MW44Z2 and MW45Z2 appear to offer the greatest opportunity to evaluate the potential for groundwater pumping from Zone 2 as a means to (1) control downgradient migration and (2) possibly capture the existing contamination. These wells returned the most consistent water level responses (of the Zone 2 wells investigated) during slug testing, and they are also the closest to the identified private wells (D. Martin and B. Bruna, Figure 1) that are contaminated with carbon tetrachloride.

Well MW45Z2 is located near the identified toe of the existing carbon tetrachloride distribution in water-bearing Zone 2 and therefore might serve to evaluate the potential for cutting off downgradient migration. The more central location of MW44Z2 along the migration pathway suggests, however, that this well would be better sited to evaluate the potential for both hydraulic control and removal of the existing contamination. Logistically, the MW44Z2 location also facilitates monitoring for the possible influence of induced drawdown effects in both the

upgradient and downgradient directions within Zone 2, in response to the pumping of this well. Argonne therefore recommended additional hydraulic testing of Zone 2 at well MW44Z2.

With the approval of the KDHE (2010), pump testing of well MW44Z2 was conducted on March 17-20, 2010. The investigations performed during this period included a brief step-drawdown test, followed by a 24-hr constant-rate pumping test. This document presents a summary of the data resulting from these activities.

2 Implementation of the Pump Testing Program

The test pumping of well MW44Z2 was conducted at Hanover on March 17-20, 2010, in accord with the investigative approach approved by the KDHE (2010). To obtain preliminary data on the producing characteristics of this well necessary for the selection of operational parameters for an extended pumping test, a brief step pumping test was performed at MW44Z2 on March 17. On the basis of these results, well MW44Z2 was then pumped at a constant rate for 24 hr on March 18-19. Groundwater level monitoring associated with this test was completed on March 20.

2.1 Pre-Test Monitoring of Ambient Water Levels and Barometric Pressure

Data obtained in conjunction with the pumping investigations at Zone 1 wells MW05, MW09, and MW10 (Argonne 2010a,b) strongly suggested that many of the monitoring wells at the Hanover site might show groundwater level responses related to fluctuations in the local barometric pressure. This occurrence, commonly termed *barometric efficiency* (BE), is often associated with confined aquifers (but may also appear in unconfined aquifers under certain conditions). The BE can be exhibited as either a *direct* response (depth to water in a well increases as the atmospheric pressure increases) or an *inverse* response (depth to water decreases as atmospheric pressure increases) to barometric pressure variations, depending on the specific hydraulic characteristics of the water-bearing and overlying sedimentary units (Solinst 2009; Spane 1999; Rasmussen and Crawford 1997). Although the water level fluctuations associated with BE are typically small, the Zone 1 studies (Argonne 2010a,b) demonstrated that this effect can influence the recognition of potentially subtle drawdown responses induced by groundwater pumping.

To provide a basis for quantitative evaluation of potential BE responses in the Zone 2 monitoring well network, coincident measurements of the local atmospheric pressure and the ambient groundwater levels in monitoring wells MW44Z2, MW45Z2, and MW48Z2-MW51Z2 (Figure 1) were collected, at 1-hr intervals, during the 4-day period preceding the MW44Z2 pumping experiments (from March 13 to March 17). The barometric readings were obtained by using an absolute-pressure sensor-data logger placed at the site near well MW09.

2.2 Configuration and Monitoring of Wells MW44Z2 and MW45Z2 for the MW44Z2 Pumping Tests

A Geotech Environmental Equipment, Inc., SS Geosub™ 12-V (direct current) sampling pump equipped with 0.375-in. (inner diameter) discharge tubing and a Geotech alternating current controller were used to perform the MW44Z2 testing. This pumping configuration, together with a 1/4-turn ball valve installed at the outlet of the discharge tubing, permitted relatively precise control of the flow from the pump at anticipated rates of up to 2.5-3 gpm. The pump was installed in MW44Z2 with the pump inlet at a depth of 38.0 ft from the top of the casing (TOC), approximately 1.4 ft above the measured bottom (total depth or TD) of the well. The pump body is 1.0 ft long.

As indicated in Addendum 3 to the *Final Work Plan* (Argonne 2008), the specific pumping rates employed for the MW44Z2 testing were selected in the field as described in Section 2.4. The pumping rates were measured by using a stop watch to determine the time required to fill a calibrated 1-gal container placed at the discharge outfall. To supplement these measurements, a digital, totalizing flow meter (resolution of 0.03 gpm) was installed in the discharge line to provide a continuous indication of the instantaneous flow rate from MW44Z2. The manually determined and metered flow readings were recorded periodically during each pumping episode.

Monitoring of the water levels in well MW44Z2 and well MW45Z2 (the nearest observation point to MW05, at a distance of 263 ft; Figure 1) during the pumping of well MW44Z2 was performed by using multiple sensing and recording techniques, to ensure redundancy and provide a basis for quality evaluation of the resulting data. Wells MW44Z2 and MW45Z2 were each equipped with a self-contained pressure sensor-data logger unit (Instrumentation Northwest, Inc., Model PT2X™) and a pressure transducer connected to an aboveground data logger (In-Situ, Inc., Hermit™ Model 1000C). During all pumping events, periodic measurements of the water level in MW44Z2 were also taken manually, to the nearest 0.01 ft TOC, by using an electronic water level meter.

The Hermit™ logger employs a logarithmic time schedule for rapid data collection (five measurements per second) at the beginning of each recording period, with a progressively reduced measurement frequency as the test progresses (reaching three readings per hour after the first 100 min of recording). This logger was programmed to record data for the 24-hr constant-rate pumping and recovery periods only (March 18-20). During the MW44Z2 step pumping test

(on March 17), readings were obtained periodically from the Hermit™ pressure sensor in MW44Z2 by interrogating the logging unit manually.

For the step pumping test, the PT2X™ unit in well MW44Z2 was programmed for a fixed measurement interval of one reading every 10 sec. For the 24-hr constant-rate pumping period, the PT2X™ units in MW44Z2 and MW45Z2 were programmed for a measurement interval of one reading per second during the first 10 min of recording (beginning at 10:15 on March 18), one reading every 10 sec for the next 100 min of recording, and one reading every minute thereafter. During the recovery period following the constant-rate pumping, the progressive measurement sequence outlined above was repeated at well MW44Z2, while measurements were collected at fixed intervals of one reading per minute in well MW45Z2.

The pressure sensors in well MW45Z2 were installed at approximate depths of 29 ft and 28 ft TOC, respectively, for the Hermit™ transducer and PT2X™ units. To prevent mechanical interference between the pressure sensors, the pump electrical cable, and the pump discharge tubing installed in MW44Z2, the transducer and PT2X™ in this well were also stacked vertically, as closely as possible above the pump, so that the transducer and PT2X™ sensor inlets were located 2.8 ft and 3.5 ft, respectively, above the well's TD (0.4 ft and 1.1 ft, respectively, above the top of the pump).

2.3 Monitoring of Wells MW48Z2-MW51Z2 and Barometric Pressure for the Well MW44Z2 Constant-Rate Pumping Test

Groundwater level variations in the remaining Zone 2 monitoring wells (MW48Z2, MW49Z2, MW50Z2, MW51Z2) were monitored continuously during the MW44Z2 constant-rate pumping and recovery periods through the use of self-contained pressure sensor-data logger units (PT2X™). The data loggers in all wells were programmed for a measurement interval of one reading per second during the first 10 min of recording (beginning at 10:15 on March 18), one reading every 10 sec for the next 100 min of recording, and one reading every minute thereafter.

To facilitate the evaluation of potential BE responses in the Zone 2 monitoring wells, measurements of the local atmospheric pressure were collected, at 10-min intervals, throughout the MW44Z2 constant-rate pumping and recovery periods. The barometric readings were made by an absolute-pressure sensor-data logger unit placed at the site near well MW09.

All records were retrieved from the groundwater monitoring and barometric pressure loggers on March 20.

2.4 Pumping of Well MW44Z2

Well MW44Z2 was pumped in two separate episodes during the current investigation. The wastewater generated during the tests was containerized at the site and held for subsequent sampling, analysis, and disposal.

The details of the pumping events described in this section are summarized (for wells MW44Z2 and MW45Z2) in Tables 1-2 and Figures 2-7.

2.4.1 Pre-Test Pumping (March 17, 15:31 to 18:30)

On March 17, 2010, the pump in well MW44Z2 was operated briefly for the following purposes:

- To test the functioning of the pumping equipment and installed sensors.
- To provide initial data on the pumping capacity of the well.
- To determine target settings for the electronic pump controller and flow metering valve to be used for the planned constant-rate test.

This pumping was in the form of a step test, in which the flow rate was progressively increased at intervals of approximately 30 min while the drawdown in the well was monitored. The testing results are summarized in Table 1 and Figures 2-3. The complete MW44Z2 data logger record for this pumping event is in Supplement 1, Table S1.1, on the compact disc (CD) inside the back cover of this report.

The initial static water level in well MW44Z2 at the time of this pumping was 26.39 ft TOC, indicating approximately 13 ft of available head in the well above TD (approximately 11.6 ft above the pump inlet). Pumping rates of approximately 0.53 gpm, 0.77 gpm, 1.24 gpm, 1.64 gpm, and 2.13 gpm were employed for the 30-min time steps, yielding a maximum

drawdown of approximately 3.9 ft. Upon completion of the 2.13-gpm pumping interval, the pump was stopped briefly, and the control valve was removed in an attempt to minimize any restrictions that might be present in the pump discharge line. The pump was then restarted briefly, reaching a maximum flow rate of approximately 2.3 gpm for 14 min. The maximum drawdown achieved at this rate was approximately 4.0 ft (Figure 2). A total of 241 gal of groundwater was produced during the step pumping.

The pump employed for the Zone 2 test is rated by the manufacturer (Geotech Environmental Equipment, Inc.) for flows of up to 3-3.5 gpm in 2-in.-diameter wells, at the depths to groundwater present in MW44Z2 at the time of the testing. The maximum flow rate obtained on March 17 was approximately 2.3 gpm.

Specific capacity is defined as the observed flow rate (for a specific pumping condition), divided by the resulting drawdown created in a well by that pumping rate. The specific capacity is not a constant; its value decreases both with increasing time as the well is pumped at a constant rate, and also as the pumping rate itself increases (Kruseman and deRidder 1991). The measurements obtained during the step testing were used to estimate values of the specific capacity for well MW44Z2, on the basis of *nominal 30-min pumping steps*. Figure 3 illustrates these results.

The physical limit on drawdown in well MW44Z2 (approximately 11.6 ft, the maximum available head above the pump inlet on March 17) could not be achieved during this testing, because of the relatively high specific capacity indicated by the existing data. Figure 3 shows a *conservative* projection (dashed line) of the specific capacity relationship for MW44Z2, based on the trends of the available step test results. The resulting estimate suggests a potential maximum flow rate at this location, *for a 30-min period*, on the order of 4-5 gpm. A review of available equipment suggests that these rates might not be attainable, however, with pumps that are designed to fit within the existing (2-in.-diameter) MW44Z2 well casing. The step test results therefore suggest that a larger-diameter well (and hence pump) might be required to achieve the maximum predicted flow rates from the Zone 2 unit at this location.

On the basis of the observations made in the pre-test pumping, a target flow rate of approximately 2 gpm was selected for the constant-rate pumping planned for March 18-19.

2.4.2 Constant-Rate Pumping Test (March 18, 10:15, to March 19, 10:15)

The results of the constant-rate pumping test (for wells MW44Z2 and MW45Z2) are in Table 2 and Figures 4-7. The complete data logger records for this event (for MW44Z2 and MW45Z2) are in Supplement 1, Tables S1.2-S1.6.

Pumping was initiated in well MW44Z2 at 10:15 on March 18. As Figure 4 indicates, the instantaneous flow rate varied from approximately 1.95 gpm to 2.02 gpm during the pumping period, with a time-weighted average rate of 1.99 gpm.

The initial static water level in well MW44Z2 was 26.27 ft TOC. The water level fell to a maximum indicated drawdown of approximately 4.0 ft (detected by the Hermit™ transducer) at the end of the 1,440-min pumping period (10:15 on March 19). The observed depth to water increased by approximately 0.5 ft during the last 23 hr of the pumping period and by < 0.1 ft during the last 8 hr of the test, suggesting that the drawdown in well MW44Z2 approached an approximately steady-state condition (Figure 4). A total of 2,853 gal of groundwater was produced. Figure 5 indicates that the water level in well MW44Z2 recovered to within approximately 0.1 ft of the initial static level within 6 hr following the termination of pumping.

The pumping hydrograph for well MW44Z2 (Figure 4) illustrates small (< 0.1 ft) “spikes” in the observed water levels that appeared regularly throughout the pumping period. Measurements obtained during the test indicated that these spikes were associated with small (0.02-0.04 gpm) fluctuations in the flow rate from the well pump. The identified responses were linked to a change in the electrical load placed on the 25-kW, diesel-powered generator used at the test site, each time a small pump at the surface (used for automatic transfer of the discharged water into a large storage tank) cycled on and off during the test. Further investigation determined that the output voltage from the generator was approximately 10% low relative to the target voltage (120 V, alternating current) required for the electronic well pump controller. The minor fluctuations observed had little net impact, however, on the results obtained during the test.

In contrast to Figures 4-5, the hydrographs in Figures 6-7 (based on the raw measurements obtained from the water level sensors) depict an apparent small increase (by approximately 0.1 ft) in the water level in monitoring well MW45Z2 during the first 7-8 hr of pumping at well MW44Z2, followed by a relatively steady decline that continued through the

remaining 16 hr of the pumping period (Figure 6) and the first 12 hr of the recovery period (Figure 7). The traces in Figures 6-7 also show numerous, smaller-scale fluctuations with time that do not exhibit a clear relationship to the pumping in well MW44Z2. The monitoring results for well MW45Z2 are discussed further in Section 3.2, in the context of local atmospheric pressure (BE) effects that influence recognition of the actual pumping-induced drawdown and recovery responses in this well.

3 Results and Discussion

This section begins with a review of the water level variations recorded in the network of Zone 2 monitoring wells prior to the well MW44Z2 pumping experiments, to provide a framework for interpretation of the data obtained during the constant-rate pumping and recovery periods. The water level variations observed in the full suite of monitoring wells (excluding MW44Z2) during the MW44Z2 pumping and recovery periods are then reviewed. A detailed analysis of the pumping test results obtained at wells MW44Z2 and MW45Z2 follows.

3.1 Evaluation of Ambient Water Level Trends and Barometric Efficiency in the Monitored Wells

Background readings were collected for the ambient water levels in wells MW44Z2, MW45Z2, and MW48Z2-MW51Z2, along with the local barometric pressure, from March 13 to March 17 to provide a basis for identification of any pertinent local trends in the Zone 2 water levels, as well as for possible evaluation of BE in the water level responses at each well. The results of the background water level monitoring are summarized in Figure 8. The complete barometric pressure and water level records for this period are in Supplement 2, Table S2.1 (on the CD).

Figure 8 presents the results of the background water level monitoring and corresponding barometric pressure monitoring during the pre-testing observation period, March 13-17. Because the actual depths to water in the Zone 2 wells differ significantly, the monitoring data for both water levels and barometric pressure have been *normalized* to a value of zero as the starting point (13:00 on March 13) for each record. (The water level data in Figure 8 and throughout the remainder of this report are depicted as “drawdown,” reflecting increasing values as the depth to water increases.)

In Figure 9, the results for this period are shown in the context of longer-term water level trends for the Zone 2 wells that were documented as part of ongoing water level monitoring (at 4-hr measurement intervals) for the Zone 2 water-bearing unit. Figure 9 indicates that the ambient groundwater levels in wells MW44Z2, MW45Z2, MW48Z2, and MW50Z2 rose slowly during the observation period from March 1 to March 17, while the levels at MW51Z2 showed a slight decline and those at MW49Z2 showed little net change.

Figure 8 suggests that these longer-term trends are reflected in the more detailed monitoring period on March 13-17; however, the hydrographs in Figure 8 also demonstrate an apparent influence of the local barometric pressure trends on the groundwater levels in the wells. During the initial approximately 45 hr of the monitoring period, a rising trend in the atmospheric pressure is associated with water levels in wells MW44Z2, MW45Z2, MW48Z2, and MW50Z2 that remained roughly stable, while the levels in wells MW49Z2 and MW51Z2 declined slightly. During the remainder of the observation period (from 45 hr to 94 hr), the barometric pressure remained elevated (approximately 0.5 ft higher than the initial value) but relatively stable, while the water levels in all wells (except MW51Z2) rose and then also appeared to stabilize (generally changing by ≤ 0.02 ft) during roughly the last 10 hr of monitoring. The groundwater levels at MW51Z2 showed little net change from the 45th hr to the end of the background monitoring period. Throughout the background period, the hydrographs for all wells also showed, to varying degrees, an apparent relationship to the patterns of smaller-scale fluctuations in barometric pressure illustrated in Figure 8.

To further evaluate the apparent relationships between water levels and barometric pressure outlined above, the barometric pressure data and groundwater level data were compared quantitatively for each well. The results of these analyses are in Appendix A and are summarized in Table 3. In all of the Zone 2 monitoring wells, a positive relationship was confirmed between the rates of water level and barometric pressure change (Table 3). (The numerically negative "trend" factors calculated for wells MW44Z2, MW45Z2, MW48Z2, and MW50Z2 reflect the influence of ambient rising water levels identified in these wells during the background monitoring; see Appendix A.) This type of direct relationship is a typical BE response for confined or leaky-confined aquifers (Kruseman and deRidder 1991).

The BE relationships outlined in Appendix A and summarized in Table 3 reflect variations in the observed groundwater levels at the monitoring wells that are small in absolute magnitude; however, such effects could potentially affect the identification of small drawdown or recovery responses as a result of the MW44Z2 pumping. The BE relationships identified in Table 3 were therefore incorporated, where appropriate, into the analyses of the MW44Z2 pumping test results in Section 3.2.

3.2 Evaluation of the Water Level Responses to Pumping Observed at Wells MW45Z2 and MW48Z2-MW51Z2

Groundwater levels were monitored continuously throughout the MW44Z2 constant-rate pumping in monitoring well MW45Z2 (Section 2.4.2) and in wells MW48Z2-MW51Z2 (Section 2.3), along with the local barometric pressure (Section 2.3). The results of this monitoring are summarized in Figures 10-13. The complete barometric pressure and water level records for this period for wells MW48Z2-MW51Z2 are in Supplement 3, Tables S3.1 and S3.2.

Figure 10 illustrates the barometric pressure variations recorded at the Hanover site immediately prior to and during the MW44Z2 pumping test periods. In keeping with the interpretive approach outlined in Section 3.1, the pressure readings have been normalized to an initial value of zero at 10:15 on March 18, corresponding to the starting point for water level recording in all of the Zone 2 monitoring wells (Section 2.3). As shown, the local barometric pressure declined by approximately 0.2 ft during the first 420 min of the pumping test, then remained fairly stable for the next 815 min of the test (until an elapsed time of 1,235 min; Figure 10). The barometric pressure then rose almost continuously from an elapsed time of 1,235 min until the monitoring was completed at 3,235 min. Figure 11 presents the recorded hydrographs for the Zone 2 monitoring wells (except pumped well MW44Z2) with the local barometric pressure data during the MW44Z2 pumping and recovery periods.

As Figure 11 shows, the traces for all of the monitored wells display a rise in water levels (by 0.1-0.2 ft) during the initial 420-720 min of the pumping period. The levels in all wells then fell during the remainder of the testing period, to levels of approximately 0.1 ft to 0.25 ft below their respective starting values. The observed water level variations during the pumping and recovery periods show little influence, if any, of an underlying rising (or falling) trend, and hence they appear to demonstrate that the relatively stable ambient water levels observed immediately prior to the MW44Z2 test (Section 3.1) continued during the testing period. The hydrographs in Figure 11 do, however, closely mirror the corresponding pattern of barometric pressure change.

To investigate this apparent relationship, the BE factors developed in Section 3.1 (Table 3) were used in conjunction with the barometric pressure trace in Figure 11 (under the assumption of little or no ambient water level trend during the observation period) to generate a “predicted” water level curve for each well during the MW44Z2 investigation period. The results of these calculations are in Appendix B. The predicted hydrographs for wells MW48Z2-MW51Z2 (Figures B.3-B.6) agree very closely with the measured water levels, to within (at

maximum) a difference of 0.04 ft. This observation strongly suggests that there is no evidence for induced drawdown or recovery at these wells as a result of the MW44Z2 pumping.

In contrast, the predicted and measured groundwater levels for well MW45Z2 during the MW44Z2 test are illustrated in Figure 12 (and Figure B.2). As shown, at MW45Z2 the measured water levels diverge from the predicted water levels — toward greater drawdown — during the MW44Z2 pumping period. During the subsequent recovery period, the apparent "excess" drawdown indicated by the measured data (relative to the predicted water levels) slowly decreased; the measured and predicted groundwater levels became effectively identical by the end of the monitoring period. These observations very strongly suggest that a water level response was induced at monitoring well MW45Z2, as a result of the constant-rate pumping at well MW44Z2.

Figure 13 illustrates the drawdown and recovery response for well MW45Z2, calculated on the basis of the above analysis. As shown, a maximum drawdown of approximately 0.14 ft is indicated at this well, at the end of the 1,440-min MW44Z2 pumping period. The trend of the drawdown portion of the hydrograph in Figure 13 suggests that the water level in well MW45Z2 was still decreasing when the pumping was terminated.

3.3 Estimation of the Hydraulic Properties of Zone 2 from the Water Level Responses to Pumping Observed at Wells MW44Z2 and MW45Z2

The observations presented in Sections 2.4.2 and 3.2 demonstrate that the water level records for wells MW44Z2 and MW45Z2 (after correction for barometric effects) reflect drawdown and subsequent recovery responses that are linked to the constant-rate groundwater pumping event in MW44Z2. The MW44Z2 data and the corrected MW45Z2 data therefore provide a basis for quantitative estimation of the hydraulic properties of the Zone 2 water-bearing materials at these locations.

To develop these estimates, the pumping and recovery data from wells MW44Z2 and MW45Z2 were analyzed by using the aquifer test interpretive methods provided in the commercial well test software analysis package AqteSolv for Windows (HydroSolve, Inc.). Numerous alternative analysis methods have been developed for the interpretation of aquifer tests conducted under confined or unconfined conditions, as well as for both relatively simple and more complex aquifer and well geometries. For the present study, multiple analysis methods

were screened on the basis of (1) the theoretical applicability of the method to the identified characteristics of the Zone 2 unit and the construction features of the MW44Z2 and MW45Z2 wells, (2) the ability to achieve a satisfactory fit to the experimental data with each method within these site-specific constraints, and (3) the methods' levels of documentation and general acceptance by the scientific community. The methods used for this study are described in the following sections, in the context of the data sets for the individual wells.

The hydraulic properties calculated for each well location are dependent, in part, on the assumed thickness of the water-bearing interval that responded to the groundwater pumping during each test, as well as on the construction features and the position of the groundwater level within the well itself. On the basis of analysis of the MW44Z2 lithologic log, an inferred effective thickness of 3.5 ft was assumed for the Zone 2 interval at the MW44Z2 and MW45Z2 locations. At MW44Z2, the multiple thin producing intervals recognized within Zone 2 occur at depths ranging from approximately 31.5 ft to 39 ft below ground level.

3.3.1 Well MW44Z2

The constant-rate pumping and recovery results for well MW44Z2 (Figures 4-5) were evaluated by using several standard interpretive methods. In Figure 14, the MW44Z2 data are matched to the theoretical interpretive curve of the Theis (1935) analysis method for fully confined aquifers. For this method, both the pumping and recovery data obtained from the test can be analyzed simultaneously. As shown, both the initial drawdown and the initial recovery data for MW44Z2 appear to yield a good fit to the Theis (1935) interpretive curve; however, in each case the later-time data diverge from the predicted response for a fully confined aquifer. At the longer pumping times, the measured data for MW44Z2 display less drawdown than predicted by the Theis (1935) method, while a more rapid return to near-static water levels is evident following the termination of pumping. These observations are qualitatively consistent with an assumption of "leaky-confined" aquifer conditions for the Zone 2 unit at the MW44Z2 location.

When a fully confined aquifer is pumped, groundwater is produced exclusively as a result of the *elastic storage* (or *specific storage*) capacity of the aquifer unit. Under leaky-confined (or semiconfined) conditions, groundwater is also initially released from elastic storage in the aquifer; however, as pumping progresses, a component of groundwater flow to the well also occurs via vertical groundwater recharge across one or more semi-pervious intervals (aquitards) that bound the producing interval. Under these conditions, the aquitard interval might simply

allow recharge to pass through from other saturated interval(s) within the hydrostratigraphic section, or the aquitard might also directly contribute groundwater released from elastic storage within the confining interval itself (Kruseman and deRidder 1991; Fetter 1994).

To test this hypothesis, the MW44Z2 test data were evaluated by using the interpretive methods developed for leaky-confined conditions by Hantush and Jacob (1955; for aquitards with no elastic storage) and Hantush (1960; for aquitards that release groundwater from elastic storage). The results of these analyses are in Figures 15-16. As shown, the interpretive curves for these methods yield a very close match to the measured drawdown and recovery data for the MW44Z2 test, with the best empirical fit being achieved by the Hantush (1960) method for aquitards with some elastic storage (Figure 16).

Each of these methods returns an estimate of the aquifer transmissivity (T) for the pumping well. (Although a value of aquifer storativity and certain parameters related to the inferred aquitard intervals are also generated by each solution technique, these values are invalid when determined from data for a pumping well.) The resulting transmissivity value divided by the net aquifer thickness (3.5 ft for the Zone 2 water-bearing interval) gives the estimated horizontal hydraulic conductivity (K_h) at the pumping well location. The estimated K_h values derived from the Theis (1935), Hantush-Jacob (1955), and Hantush (1960) analyses of the MW44Z2 data (Figures 14-16) are summarized in Table 4. The calculated estimates range from 11 ft/day to 14 ft/day.

3.3.2 Well MW45Z2

The corrected pumping test responses for MW45Z2 (Figure 13) were also evaluated by using the Theis (1935), Hantush-Jacob (1955), and Hantush (1960) methods to simultaneous analyze the pumping and recovery data for this well.

As noted in Section 3.2, the identified drawdown response at MW45Z2 was small (about 0.14 ft); however, Figures 17-19 demonstrate that the MW45Z2 data yielded a reasonable fit to the theoretical interpretive curves for each method (subject to the aquifer criteria outlined in Section 3.3.1). The results of the analyses are in Table 4. The estimates of K_h obtained from the MW45Z2 data range from 16 ft/day to 42 ft/day, with the best interpretive fits again achieved by

the Hantush-Jacob (1955) and Hantush (1960) analysis methods for leaky-confined aquifers (Figures 18 and 19).

3.3.3 Summary of K_h Estimates for Zone 2 in the Vicinity of MW44Z2 and MW45Z2

The estimates of hydraulic conductivity obtained from the MW44Z2 and MW45Z2 data sets, under the assumption of leaky-confined conditions, were relatively consistent and ranged from 11 ft/day to 25 ft/day (Table 4). These values are generally comparable to the range of K_h estimates (16 ft/day to 36 ft/day) obtained previously from slug testing of these wells. Together, the aquifer testing data suggest that the effective permeability of the Zone 2 water-bearing interval might be relatively uniform in the vicinity of monitoring wells MW44Z2 and MW45Z2.

4 Summary

The primary results of the pump testing conducted at well MW44Z2 are as follows:

- Preliminary step pumping at MW44Z2 suggested a predicted pumping capacity for the Zone 2 unit at this location, *for a 30-min time interval*, of 4-5 gpm. The predicted maximum capacity could not be achieved during this pumping event, primarily because of the physical limitations on pump size imposed by the 2-in.-diameter casing of the existing MW44Z2 well.

- A 24-hr constant-rate pumping test of the Zone 2 water-bearing interval was completed successfully at MW44Z2, at a time-weighted average pumping rate of approximately 2 gpm. The maximum drawdown achieved at the end of the pumping period was approximately 4 ft. The observed depth to water increased by approximately 0.5 ft during the last 23 hr of the pumping period and by < 0.1 ft during the last 8 hr of the test, suggesting that the drawdown in well MW44Z2 approached an approximately steady-state condition. The water level in well MW44Z2 recovered to within approximately 0.1 ft of the initial static level within 6 hr following the termination of pumping.

- Hydraulic conductivity estimates obtained from the MW44Z2 pumping test ranged from 11 ft/day to 25 ft/day, for interpretations based on the assumption of leaky-confined aquifer conditions. Thus, they are comparable to the estimates (16 ft/day to 35 ft/day) obtained from the previous slug testing of wells MW44Z2 and MW45Z2.

- The pumping of well MW44Z2 resulted in an observed drawdown response of approximately 0.14 ft (after correction for barometric pressure effects) at well MW45Z2, the closest neighboring monitoring well to MW44Z2 (at a distance of 263 ft). These observations suggest that the water level in well MW45Z2 was still decreasing when pumping was terminated. No evidence of drawdown resulting from the pumping of MW44Z2 was observed at any of the other Zone 2 monitoring wells (MW48Z2-MW51Z2).

5 Conclusions

As outlined in Section 1, the primary technical objective of the constant-rate pumping of well MW44Z2 at Hanover was to assess whether groundwater extraction might represent a potentially viable option for consideration in the development of candidate remedial alternatives for the Zone 2 water-bearing unit. Well MW44Z2 was selected for the constant-rate testing, with the approval of the KDHE (2010). The MW44Z2 location appears to offer the greatest opportunity, among the existing Zone 2 wells, to evaluate the potential for groundwater pumping from Zone 2 as a means to (1) control downgradient migration and (2) possibly to capture the existing contamination. Well MW44Z2 and nearby well MW45Z2 returned the most consistent water level responses (of the Zone 2 wells investigated) during slug testing, and they are also the closest existing monitoring wells to the identified private wells (D. Martin and B. Bruna, Figure 1) that are contaminated with carbon tetrachloride.

The brief step pumping test conducted at MW44Z2 suggested a projected maximum pumping rate at this location, *for a 30-min period*, of approximately 4-5 gpm. This estimated rate could not be achieved during the current field event, primarily because of the physical restrictions on pump size imposed by the 2-in.-diameter casing of the existing MW44Z2 well. The step test results suggest, however, that these pumping rates might be possible from the Zone 2 water-bearing unit at this location, through the use of a larger-diameter well (and pump).

The results of the constant-rate pumping test at MW44Z2 demonstrated that the Zone 2 unit at this location is capable of supporting continuous groundwater pumping at a rate of at least 2 gpm for an extended period, with no apparent risk of aquifer dewatering. The present results further indicated that, under the conditions of this test, the pumping of MW44Z2 generated detectable and increasing drawdown at monitoring well MW45Z2, located 263 ft to the west and downgradient of MW44Z2. In light of these findings, Figure 1 suggests that groundwater extraction from the Zone 2 water-bearing unit at the MW44Z2 location could potentially exert a positive impact on the distribution of carbon tetrachloride in the downgradient portion of the contaminant distribution identified near MW44Z2 and MW45Z2.

6 References

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TABLE 1 Chronologic summary of measurements made at well MW44Z2 during the pre-test pumping of well MW44Z2 on March 17, 2010.

Time	Elapsed Time (min)	Water Level above Hermit™ sensor (ft)	MW44Z2 Measured Water Level (ft below TOC)	Flow Rate		Notes
				Digital Meter Reading	Time (min:sec) to Pump 1 gal	
15:26			26.39			Static level before pumping
15:30		10.22				Pump on, control valve shut
15:31	0			0.48-0.52		Open valve, controller set at 80
15:33	2	9.77	26.87			
15:35	4				01:51.7	Water is muddy, then clears
15:36	5	9.68	26.95	0.48-0.52		
15:38	7	9.67		0.48-0.52		
15:43	12	9.64		0.48-0.52	01:53.1	
15:47	16	9.63		0.48-0.52		
15:53	22	9.61	27.00		01:53.3	
15:55	24	9.60		0.48-0.52		
15:59	28	9.60		0.48	01:53.6	
16:00	29			0.74-0.78		Adjust valve
16:01	30	9.33				
16:03	32	9.28	27.35	0.74-0.78	01:17.9	
16:05	34	9.26				
16:08	37	9.25		0.74-0.78	01:18.4	
16:10	39	9.25	27.39	0.74-0.78		
16:14	43				01:19.1	Adjust valve; overshoot and put back
16:15	44	9.21		0.74-0.78		
16:19	48	9.21		0.74-0.78	01:18.2	
16:24	53	9.19		0.74-0.78	01:18.2	
16:29	58	9.19	27.44	0.74-0.78	01:18.1	
16:31	60					Set controller at 150
16:32	61	8.64	28.00	1.21-1.25		
16:34	63				00:48.9	
16:35	64	8.49	28.14	1.21-1.25		
16:40	69	8.42		1.21-1.25		
16:42	71	8.40	28.20	1.21-1.25	00:48.9	
16:47	76	8.38	28.23	1.21-1.25	00:49.3	
16:50	79	8.37	28.24			
16:56	85			1.21-1.25	00:49.4	Adjust valve slightly
16:57	86	8.30	28.30		00:48.1	
17:00	89	8.29		1.21-1.25		
17:02	91	8.28	28.32	1.21-1.25	00:48.3	

TABLE 1 (Cont.)

Time	Elapsed Time (min)	Water Level above Hermit™ sensor (ft)	MW44Z2 Measured Water Level (ft below TOC)	Flow Rate		Notes
				Digital Meter Reading	Time (min:sec) to Pump 1 gal	
17:03	92					Set controller at 170 and adjust valve
17:04	93	7.69		1.64-1.68		
17:05	94	7.60	29.02	1.60-1.64	00:36.2	
17:07	96	7.56		1.60-1.64		
17:10	99	7.54	29.07	1.64	00:37.0	
17:15	104	7.48	29.13	1.64	00:36.5	
17:20	109	7.48	29.13	1.60-1.64	00:36.7	
17:25	114	7.47	29.14	1.60-1.64	00:36.8	
17:30	119	7.46		1.57-1.60	00:36.8	
17:33	122	7.48	29.13			
17:35	124					Set controller at 230 and adjust valve
17:37	126	6.73	29.92	2.03-2.07	00:29.2	
17:38	127					Set controller at 240
17:39	128	6.51	30.19	2.10-2.14	00:27.3	
17:43	132	6.38		2.10-2.14		
17:45	134	6.35		2.10-2.14	00:28.1	
17:49	138	6.29		2.10-2.14	00:27.6	
17:51	140	6.30	30.33			Set controller at 241
17:55	144	6.30	30.33	2.10-2.14	00:28.0	
17:58	147					Set controller at 244
18:00	149	6.33	30.30	2.07-2.10	00:28.3	
18:04	153	6.35	30.29	2.03-2.07		
18:10	159	6.37	20.28	2.03-2.07	00:29.0	
18:11	160					Pump off
18:14	163					Remove second valve and restart
18:16	165		29.95 falling	2.17-2.21		Controller set at 244
18:21	170	6.28	30.36	2.17-2.21		
18:25	174	6.21		2.14-2.17		
18:29	178	6.20	30.42	2.14-2.17		
18:30	179					Stop pumping

TABLE 2 Chronologic summary of measurements made at wells MW44Z2 and MW45Z2 during the constant-rate pumping of well MW44Z2 on March 18-19, 2010.

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O)		MW44Z2 Measured Water Level (ft below TOC)	Flow Rate		Notes
		MW44Z2	MW45Z2		Digital Meter Reading	Time (sec) to Pump 1 gal	
March 18							
10:08				26.27			Static level before pumping
10:13							Start pump, valve shut
10:14							Set controller at 240, valve shut
10:15	0						Open valve, adjust flow ~ 2 gpm
10:16	1				1.96-2.00	30.31	
10:17:20	2.33			28.67			
10:18:30	3.5				1.96	30.38	Adjust valve slightly
10:19:40	4.67			29.02	1.96-2.00		
10:21	6			29.16	1.96-2.00	30.12	
10:25	10			29.18		30.12	
10:26	11	3.00	-0.03				
10:31	16				1.93-1.96		Adjust valve slightly
10:32	17			29.42			
10:33	18					30.78	
10:35	20	3.16	-0.01				
10:37	22				1.93-1.96	30.72	Adjust valve slightly
10:39	24				1.96-2.00	30.43	
10:40	25			29.56			
10:45	30			29.61	1.96-2.00	30.50	
10:46	31	3.33	-0.01				
10:50	35				2.00		
10:52	37			29.71	1.96-2.00	30.40	
10:55	40	3.42	-0.01	29.72	1.96-2.00		MW44Z2 PT2X reads 3.42
10:59	44				1.96-2.00		
11:00	45						Adjust valve slightly
11:08	53					30.63	Adjust valve slightly
11:09	54				1.96-2.00		
11:10	55	3.51	0.00	29.79	1.96-2.00		
11:13	58					30.15	
11:15	60			29.84	1.96-2.00		
11:17	62				2.00-2.03		
11:19	64					29.94	

TABLE 2 (Cont.)

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O) MW44Z2	MW45Z2	MW44Z2 Measured Water Level (ft below TOC)	Flow Rate Digital Meter Reading	Time (sec) to Pump 1 gal	Notes
11:29	74					30.22	
11:30	75	3.62	-0.02	29.93			
11:42	87						Adjust valve slightly
11:45	90					30.50	
11:47	92			29.95			
11:50	95	3.66	0.00		1.96-2.00	30.13	
12:01	106			29.99	1.96-2.00	30.28	
12:03	108	3.68	0.00				
12:15	120			29.99	1.96-2.00	30.81	Adjust valve slightly
12:19	124	3.70	-0.03		1.96-2.00	30.25	
12:31	136			30.02	1.96-2.00		
12:33	138					30.31	
12:43	148						Adjust valve slightly
12:45	150			30.04	1.96-2.00	30.19	Note rate slightly affected by transfer
12:55	160	3.75	-0.04	30.06	1.96-2.00		Pump electric draw, on vs. off
13:04	169			30.03	1.96-2.00	30.41	
13:21	186	3.74	-0.02	30.06	1.96-2.00		
13:39	204				1.96-2.00	30.63	Transfer pump on
13:42	207				1.96-2.00	29.90	Transfer pump off
13:58	223			30.05	1.96-2.00	30.06	Transfer pump off
14:10	235				1.96-2.00	30.41	Transfer pump on
14:11:30	236.5					29.97	Transfer pump off
14:28	253	3.75	-0.06	30.06	1.96-2.00	30.13	Transfer pump off
14:46	271	3.75	-0.08	30.06	1.96-2.00	30.59	Transfer pump on
14:51	276						Adjust valve slightly
14:57	282			30.07	1.96-2.00	30.09	Transfer pump off
15:15	300	3.77	-0.10	30.07	1.96-2.00	30.44	
15:28	313						MW45Z2 PT2X reads -0.087
15:37	322				1.96-2.00	31.04	Transfer pump on
15:38	323					30.35	Transfer pump off; adjust valve slightly
15:40	325	3.77	-0.11	30.08	2.00		
16:00	345			30.07	1.96-2.00	30.38	Transfer pump on
16:23	368	3.78	-0.10		1.96-2.00	30.06	Transfer pump off
16:40	385			30.07	1.96-2.00	30.52	Transfer pump on
17:05	410	3.78	-0.12	30.10	1.96-2.00	30.34	

TABLE 2 (Cont.)

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O) MW44Z2	MW45Z2	MW44Z2 Measured Water Level (ft below TOC)	Flow Rate Digital Meter Reading	Time (sec) to Pump 1 gal	Notes
17:39	444	3.75	-0.12	30.07	1.96-2.00	30.13	Transfer pump off
18:14	479	3.74	-0.13	30.05	1.93-1.96	30.66	Transfer pump on; adjust valve slightly
18:46	511	3.79	-0.12	30.10	1.96-2.00	30.28	Transfer pump off
19:17	542	3.80	-0.10	30.10	1.96-2.00	30.68	Transfer pump on
20:06	591	3.84	-0.10	30.15	1.96-2.00	30.19	
20:33	618	3.86	-0.09	30.17	1.96-2.00	30.22	Transfer pump off
21:16	661			30.16	1.96-2.00	30.19	Transfer pump off
21:46	691	3.89	-0.06	30.19	1.96-2.00	30.25	Transfer pump off
22:22	727			30.19	1.96-2.00	30.22	Transfer pump off
22:52	757			30.18	1.96-2.00	30.19	Transfer pump off
23:23	788	3.85	-0.06	30.17	1.96-2.00	30.16	Transfer pump off
23:54	819						MW44Z2 PT2X reads 3.867
23:56	821					30.54	Transfer pump on
March 19							
0:02	827						Adjust valve slightly
0:06	831			30.20	1.96-2.00	30.30	Transfer pump off
0:33	858			30.21	1.96-2.00	30.23	Transfer pump off
1:03	888	3.92	-0.05	30.21	1.96-2.00	30.38	Transfer pump off
1:32	917			30.23	1.96-2.00	30.81	Transfer pump on
2:02	947			30.26	1.96-2.00	30.78	
2:34	979	3.99	0.00	30.29	2.00	30.22	Transfer pump off
3:08	1013			30.31	2.00	30.10	MW44Z2 PT2X reads 3.995
3:34	1039			30.30	2.00	30.03	
3:57	1062				1.96-2.00	30.25	Transfer pump on
4:00	1065	3.98	-0.02	30.29	2.00	30.18	
4:32	1097			30.30	2.00	29.94	Transfer pump off
5:03	1128			30.29	1.96-2.00	30.22	Transfer pump off
5:32	1157			30.30	1.96-2.00	30.37	Transfer pump off
6:00	1185	4.00	-0.01	30.30	1.96-2.00	30.19	Transfer pump off
6:31	1216			30.31	2.00-2.03	30.16	Transfer pump off
7:03	1248	4.01	0.00	30.32	2.00	29.82	Transfer pump off
7:34	1279			30.34		29.63	Transfer pump off
8:01	1306	4.03	-0.02	30.34	1.96-2.00	29.75	MW44Z2 PT2X reads 4.037
8:31	1336			30.34	1.96-2.00	30.03	
9:02	1367	4.07	-0.04	30.36	1.96-2.00	30.16	

TABLE 2 (Cont.)

Time	Elapsed Time (min)	Manual Readings from Hermit™ Drawdown (ft H_2O)		MW44Z2 Measured Water Level (ft below TOC)	Flow Rate		Notes
		MW44Z2	MW45Z2		Digital Meter Reading	Time (sec) to Pump 1 gal	
9:33	1398	4.07	-0.05	30.38	2.00	29.90	Transfer pump off
10:03	1428			30.40		29.91	Transfer pump off
10:15	1440						Stop pumping

TABLE 3 Barometric efficiency factors estimated from background barometric pressure readings and groundwater levels.

Well	Ratio Based on Data Trends[a]	Ratio Based on Small-Scale Fluctuations[b]
MW44Z2	-0.20	0.347
MW45Z2	-0.60	0.554
MW48Z2	-0.52	0.658
MW49Z2	0.09	0.497[c]
MW50Z2	-0.75	0.649
MW51Z2	0.43	0.489

[a] Trend factor calculated as (drawdown) hydrograph slope/barograph slope.

[b] Small-scale factor calculated as incremental (1-hr) difference in drawdown/incremental (1-hr) difference in barometric pressure.

[c] Calculated value based on observed 1-hr time lag in water level readings.

TABLE 4 Summary of hydraulic conductivity values estimated from the MW44Z2 constant-rate pumping test.

	Hydraulic Conductivity (ft/day) Calculated by Method Indicated		
		Hantush Method (leaky-confined aquifer)	
Well	Theis Method (confined aquifer)	Without storage[a]	With storage[b]
MW44Z2	14	13	11
MW45Z2	42	25	16

[a] Method assumes that no water is released from storage in the confining aquitard.

[b] Method assumes that water is released from storage in the confining aquitard.

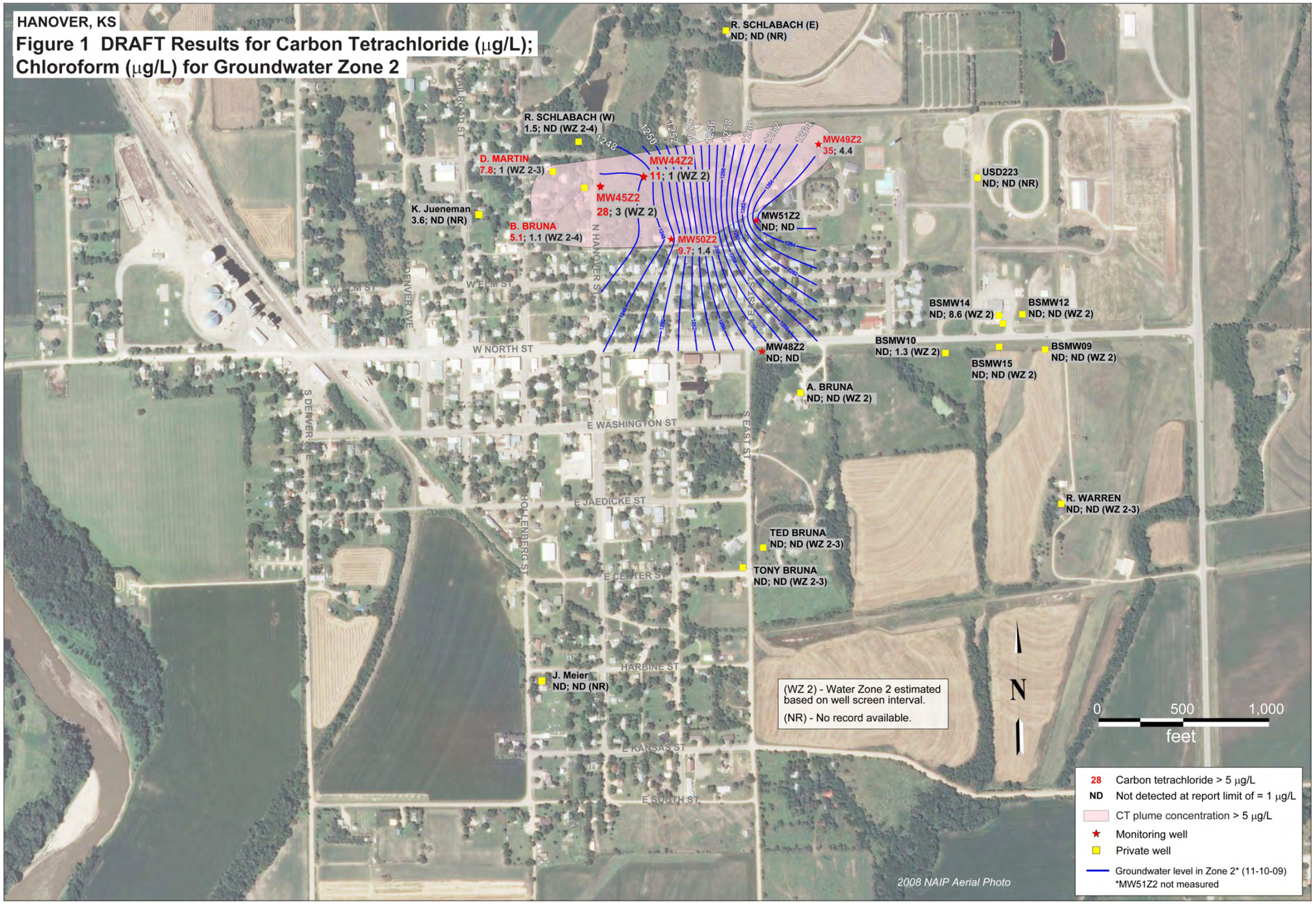

FIGURE 1 Locations of wells MW44Z2, MW45Z2, and MW48Z2-MW51Z2, with carbon tetrachloride concentrations in Zone 2 groundwater samples.

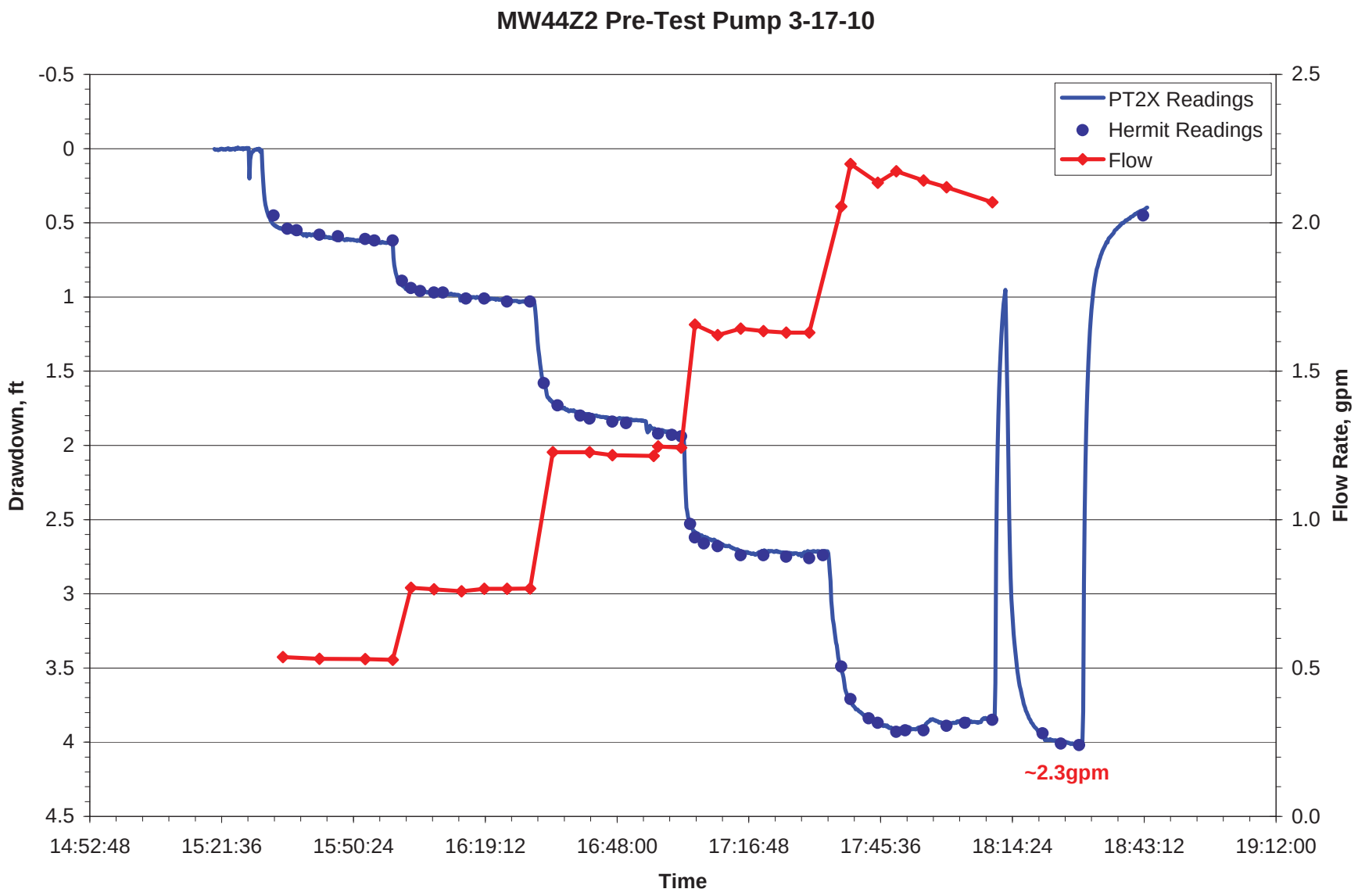

FIGURE 2 Water level responses and measured flow rates during background pumping of well MW44Z2.

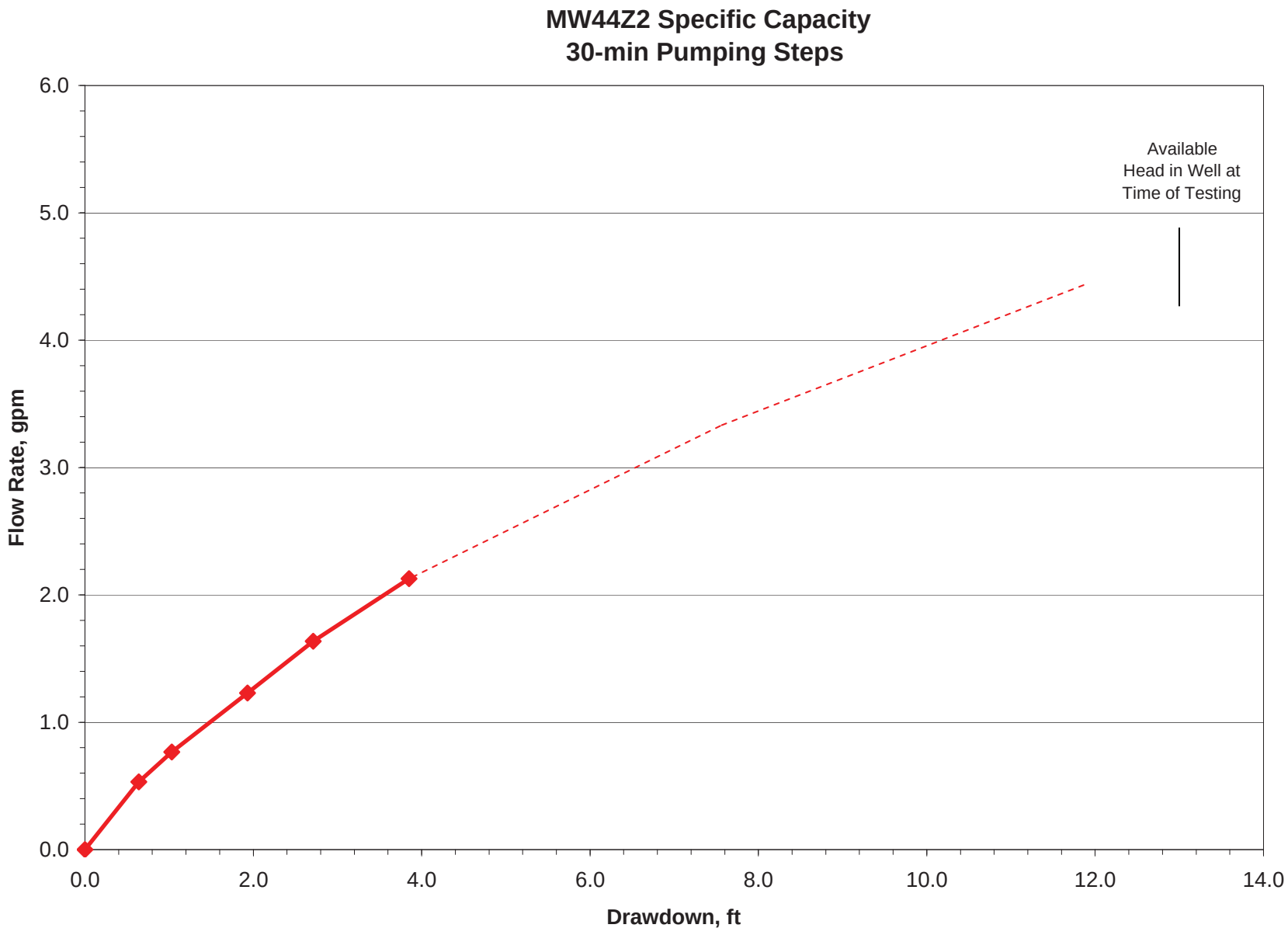

FIGURE 3 Specific capacity estimates for well MW44Z2, calculated on the basis of 30-min pumping steps.

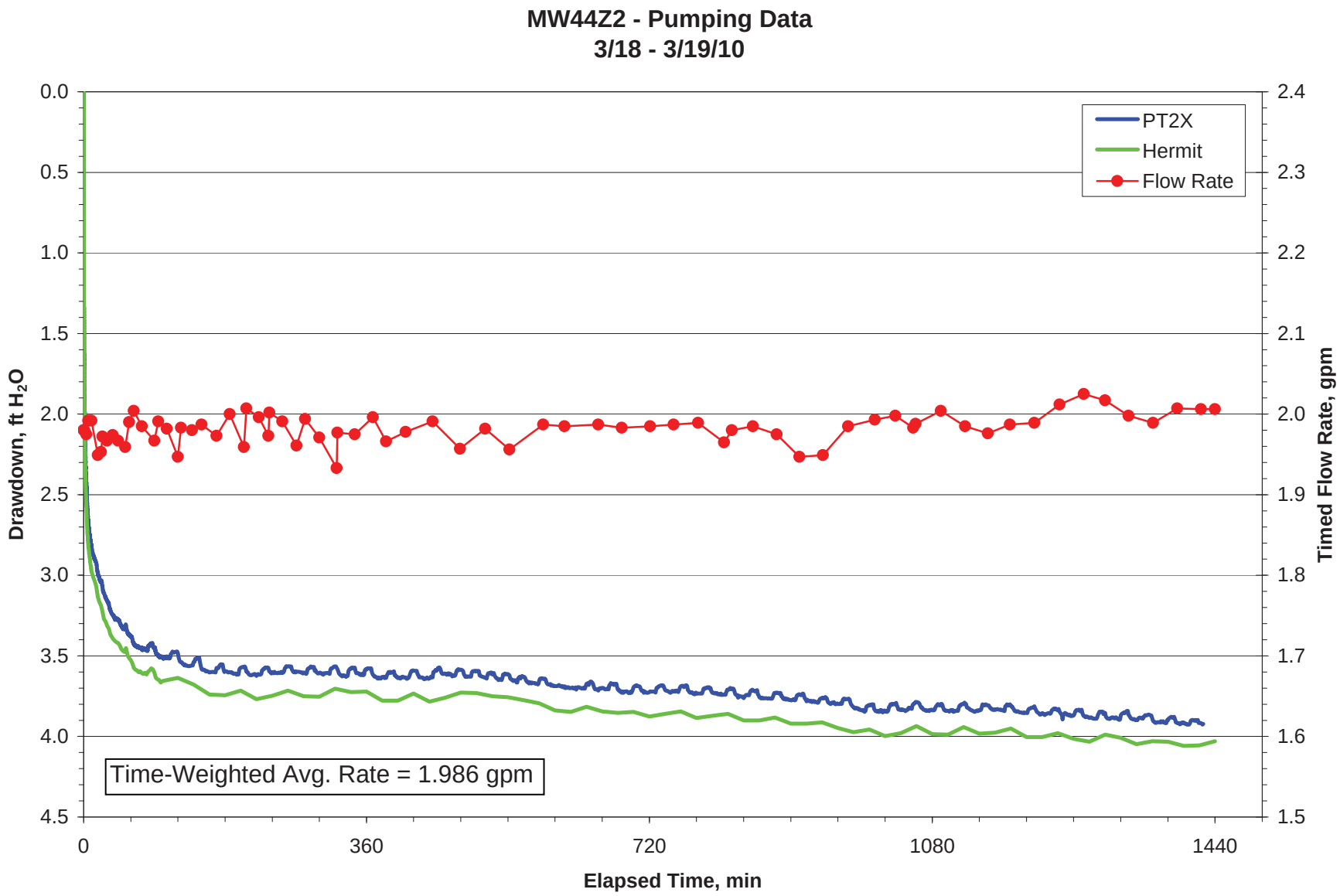

FIGURE 4 Water level responses and measured flow rates in well MW44Z2 during the pumping phase of the constant-rate pumping test on March 18-19, 2010.

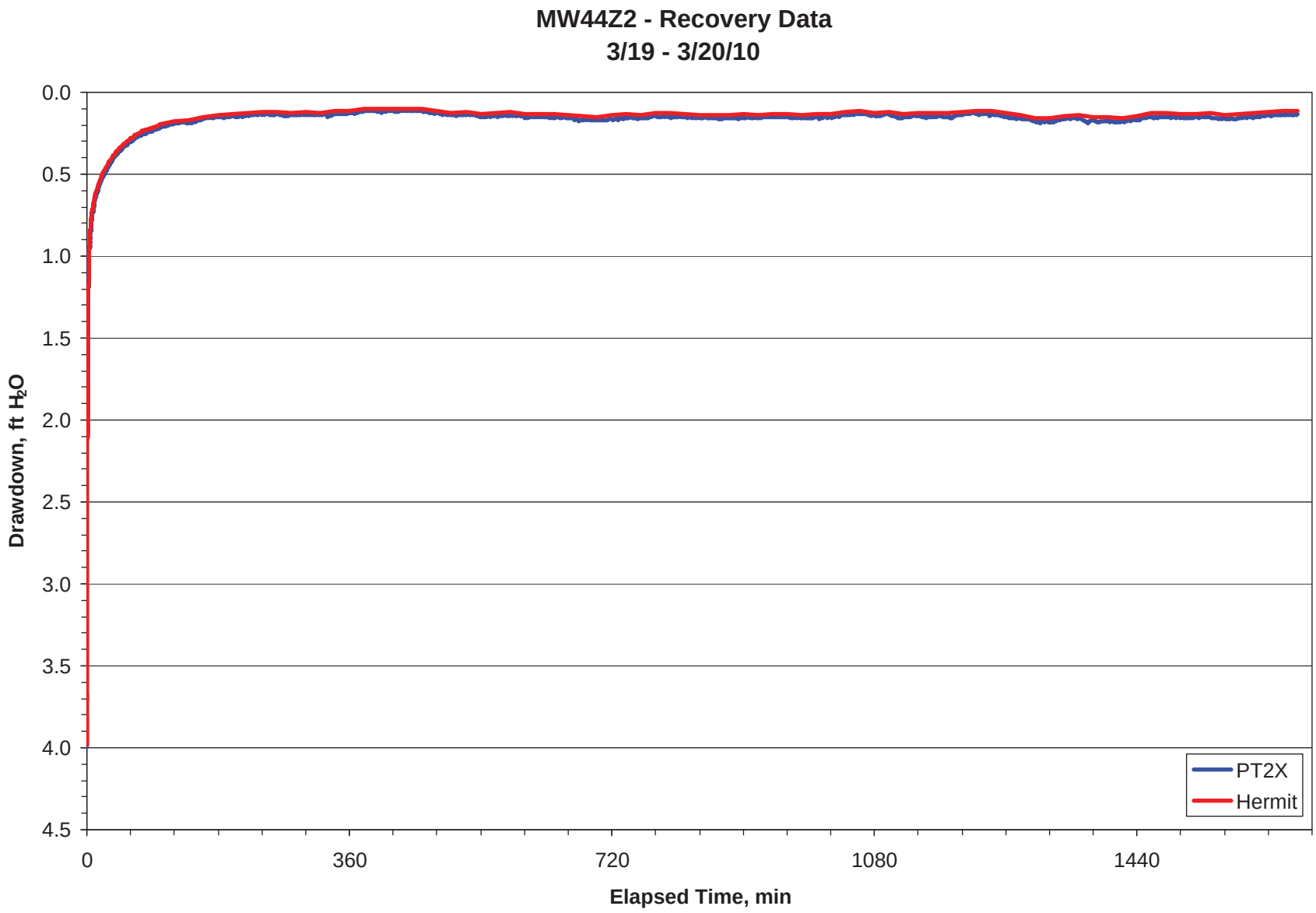

FIGURE 5 Water level responses in well MW44Z2 during the recovery phase of the constant-rate pumping test on March 19-20, 2010.

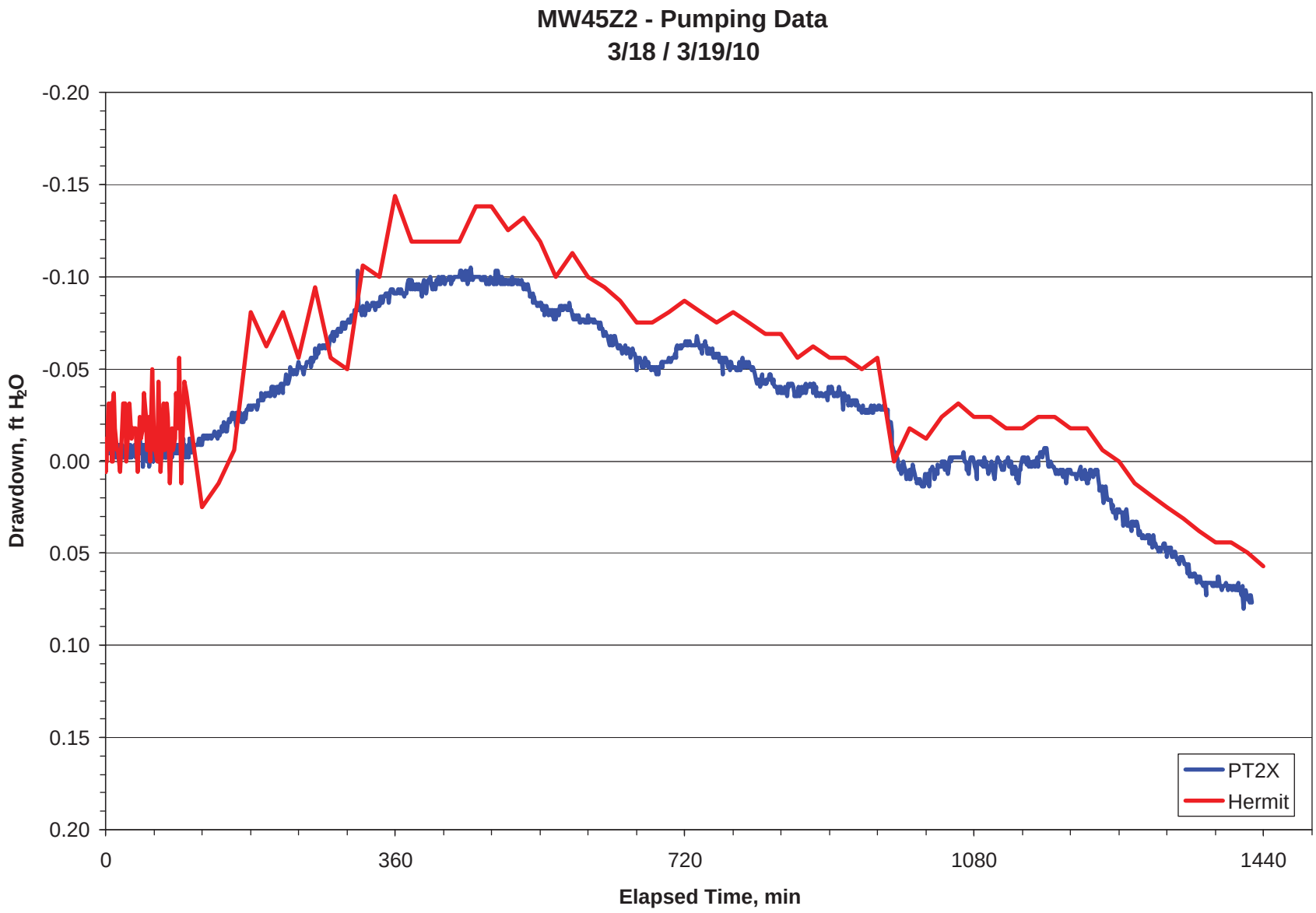

FIGURE 6 Water level responses in well MW45Z2 during the pumping phase of the constant-rate pumping test on March 18-19, 2010.

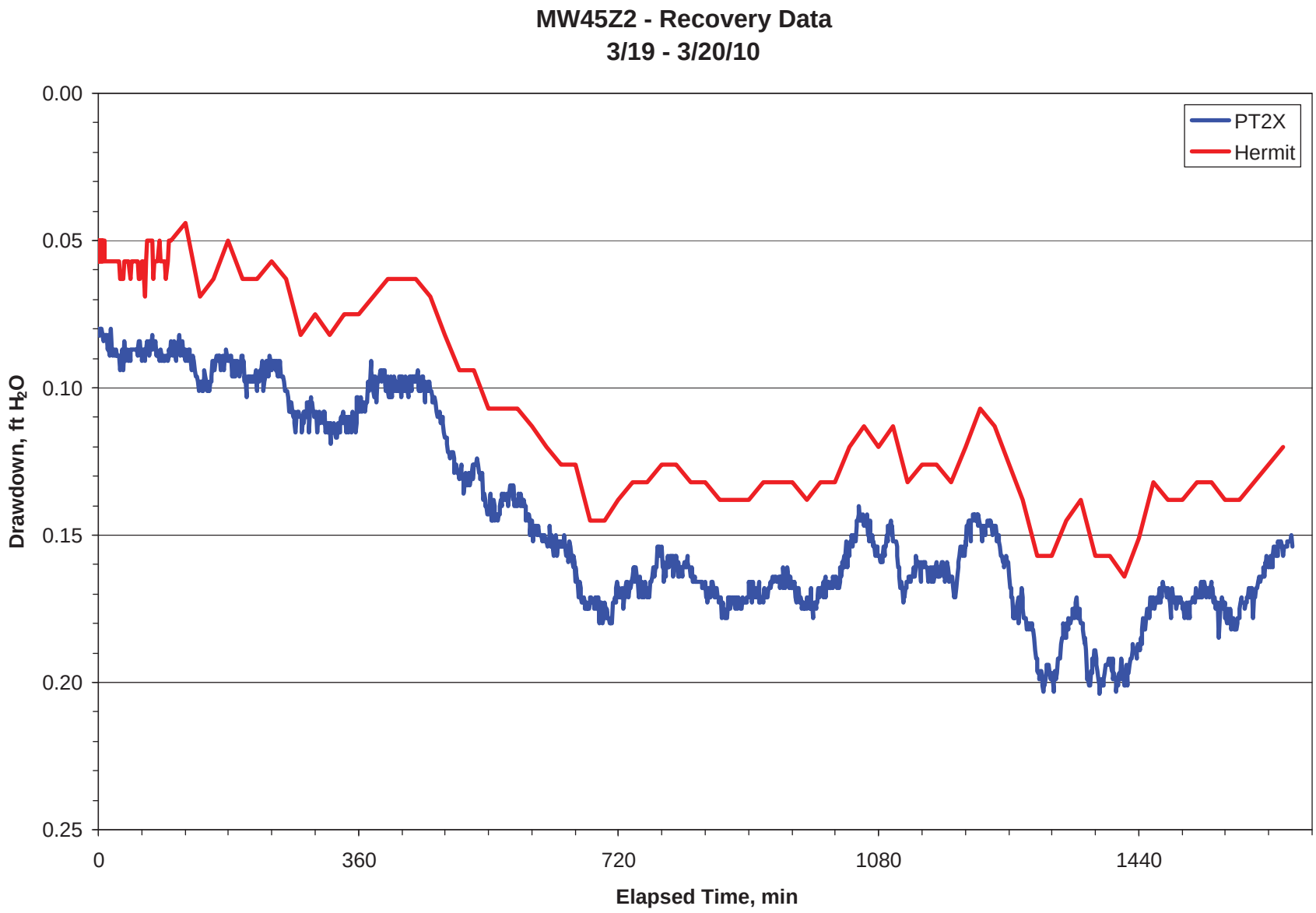

FIGURE 7 Water level responses in well MW45Z2 during the recovery phase of the constant-rate pumping test on March 19-20, 2010.

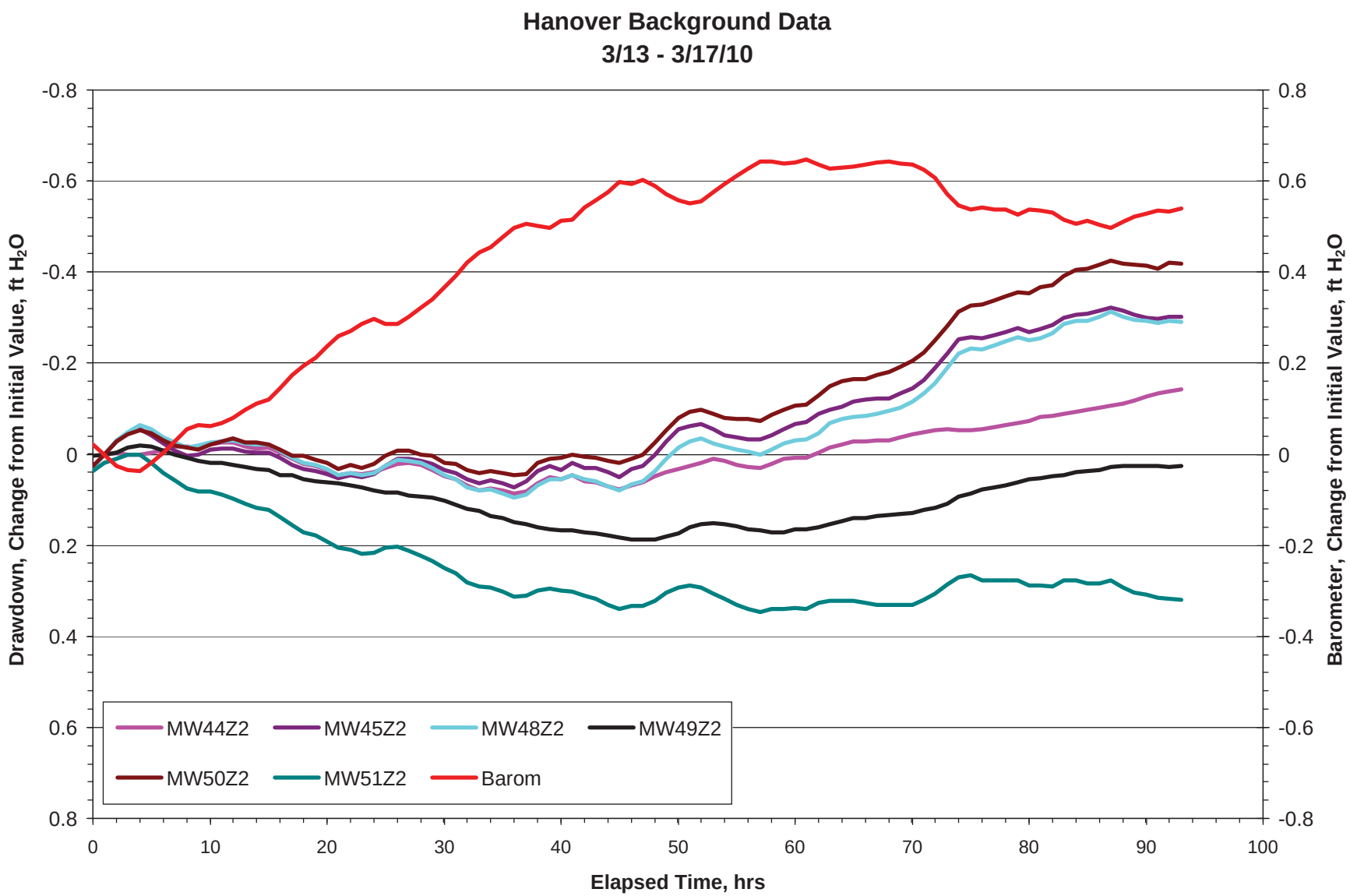

FIGURE 8 Normalized groundwater level variations in monitoring wells and variations in barometric pressure during the background observation period, March 13-17.

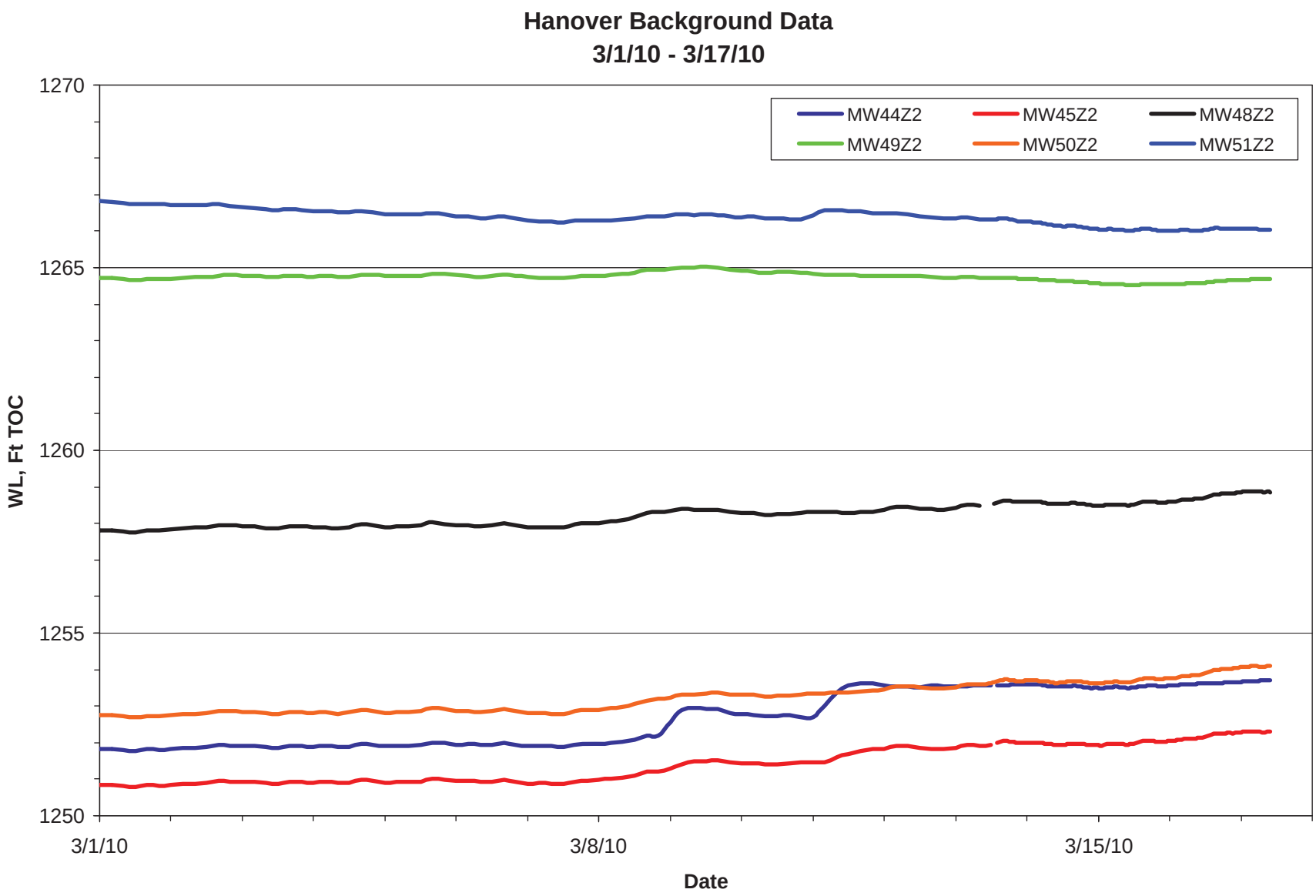

FIGURE 9 Groundwater level variations in monitoring wells, March 1-17.

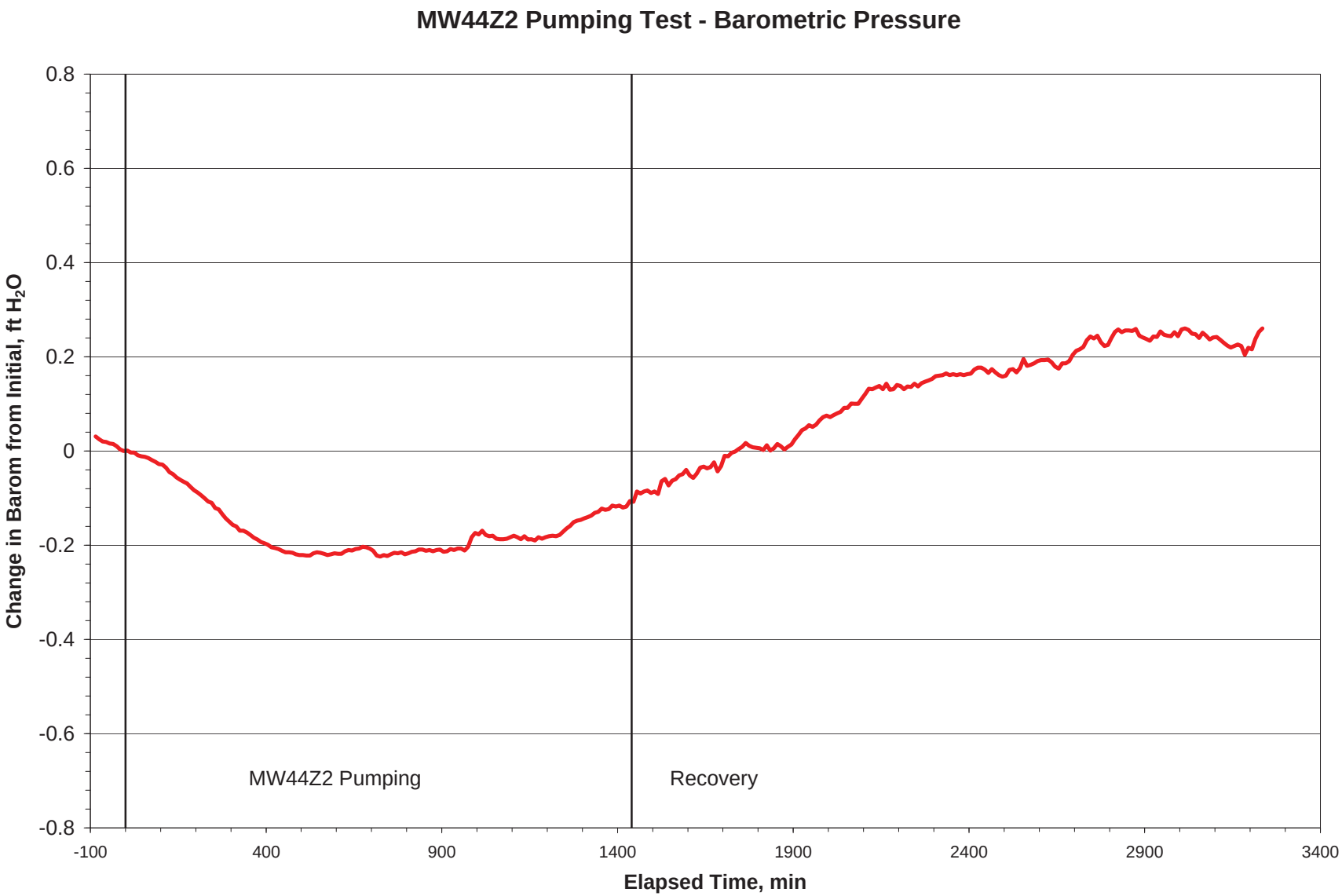

FIGURE 10 Barometric pressure variations prior to and during the MW44Z2 constant-rate pumping test, March 18-20.

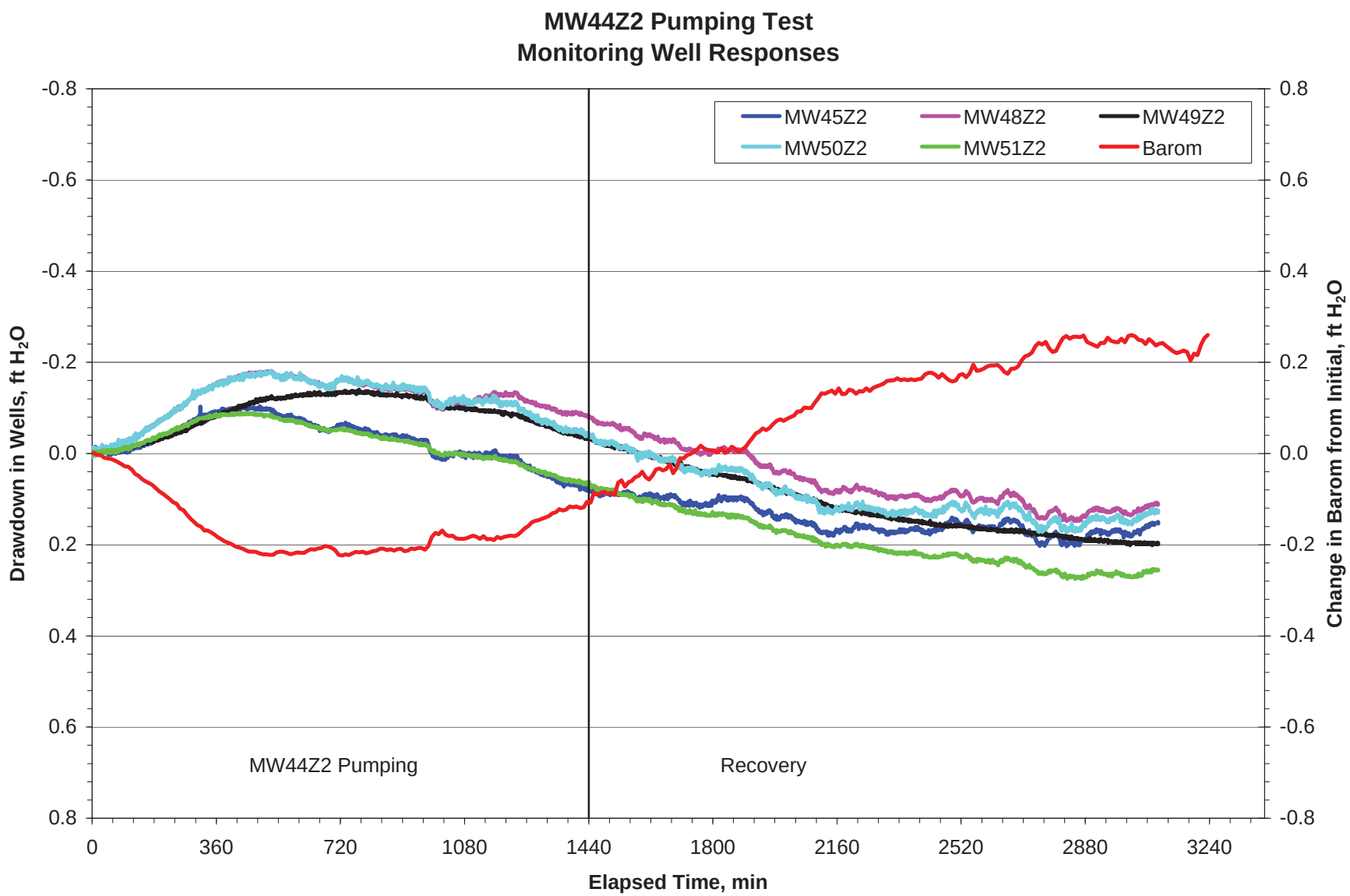

FIGURE 11 Barometric pressure variations and groundwater levels in monitoring wells during the MW44Z2 pumping and recovery periods.

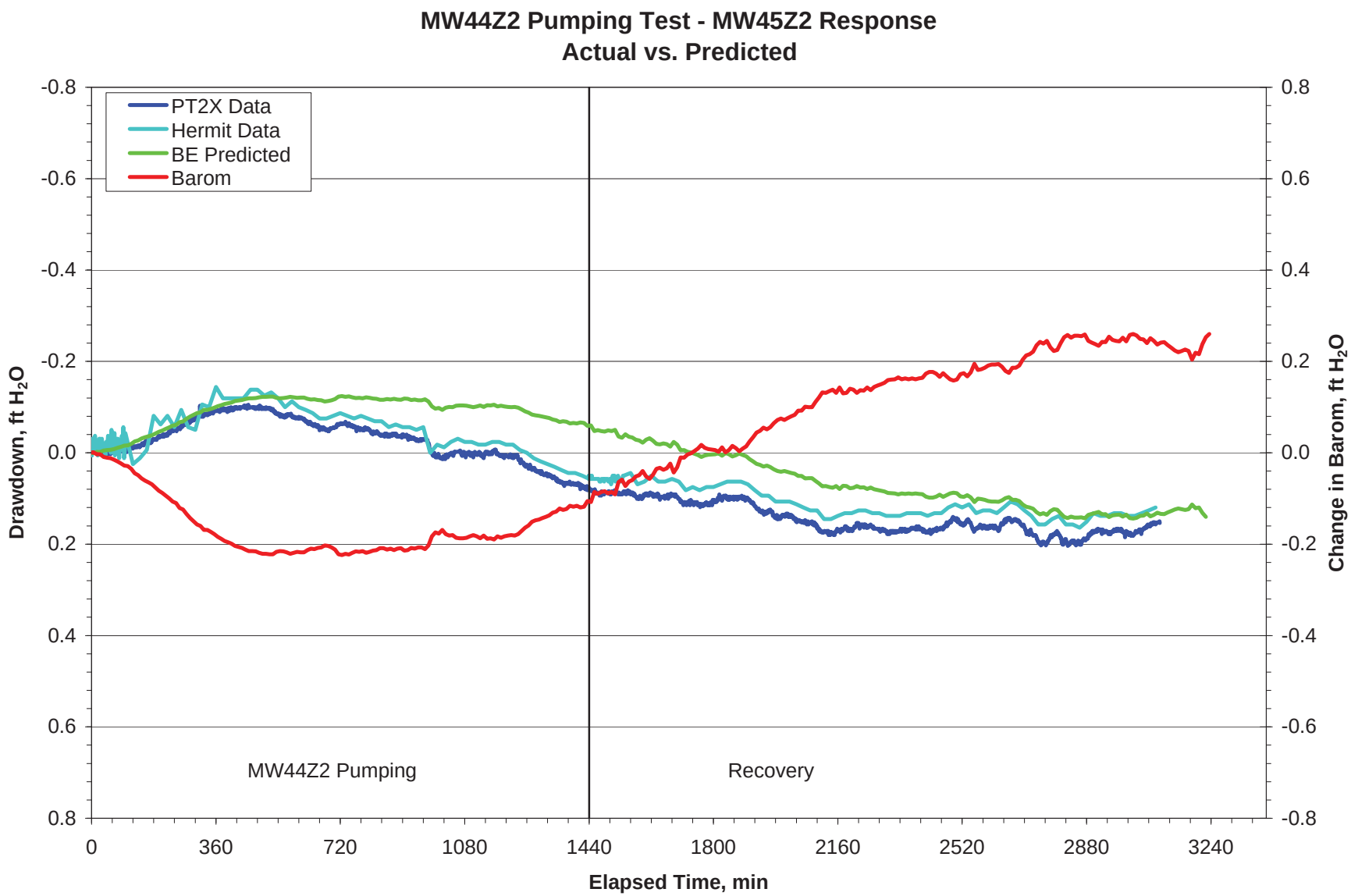

FIGURE 12 Measured water levels, with levels predicted on the basis of calculated BE responses for MW45Z2 during the constant-rate pumping and recovery periods.

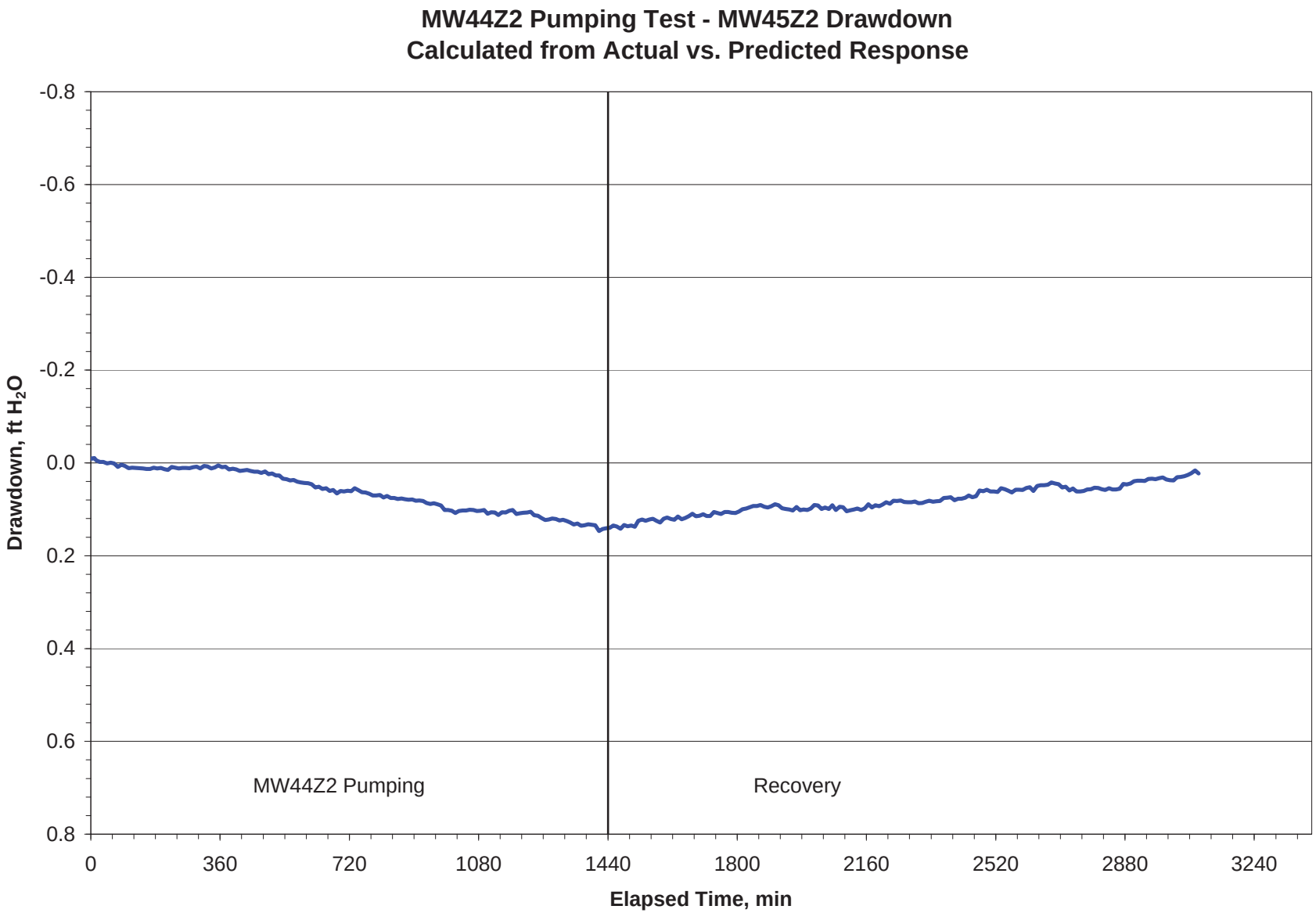

FIGURE 13 Calculated pumping-induced drawdown and recovery observed in well MW45Z2 during the MW44Z2 pumping test

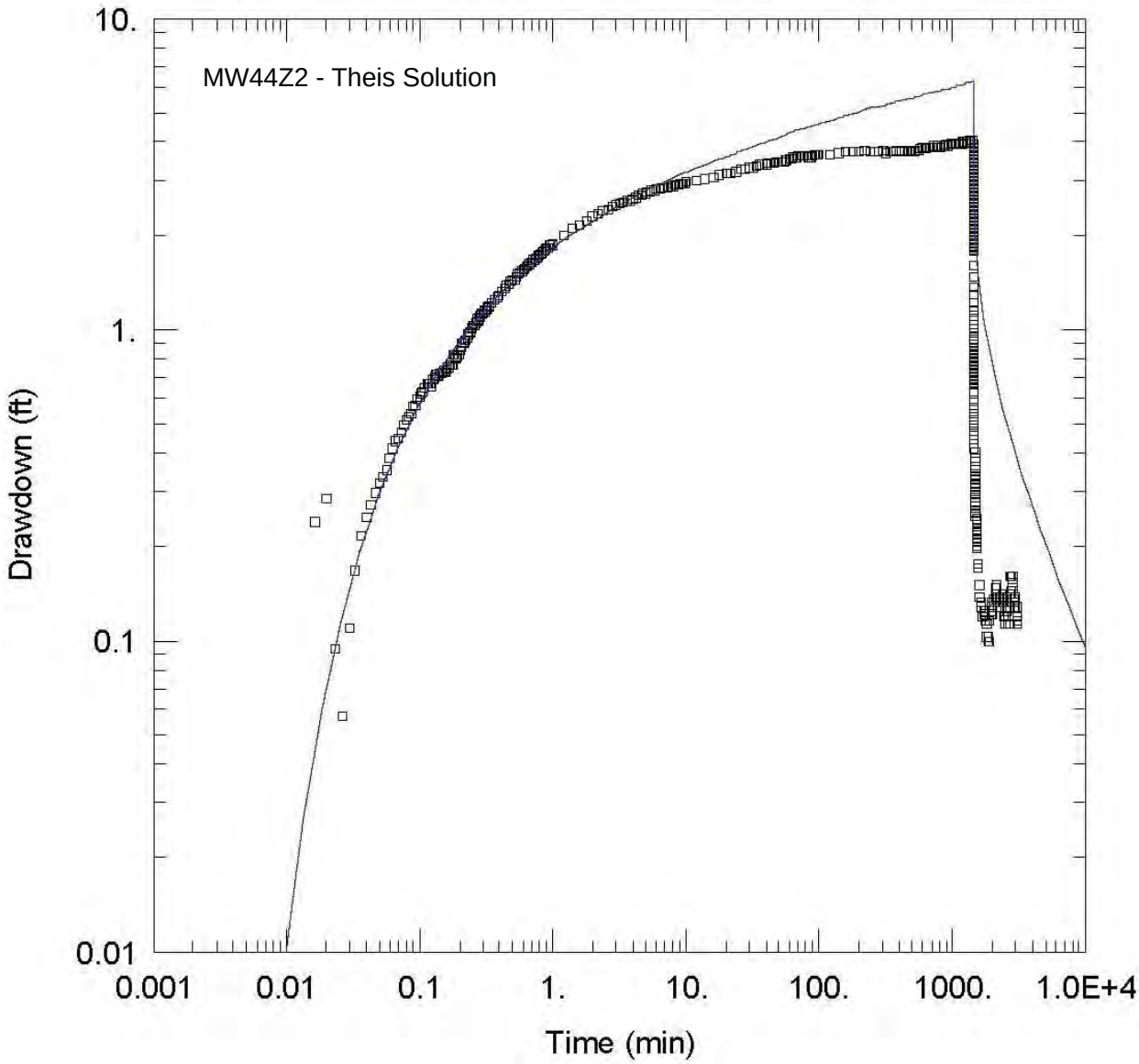

FIGURE 14 Water level drawdown and recovery data for MW44Z2, with interpretive curve fit for the Theis method of (confined aquifer) analysis.

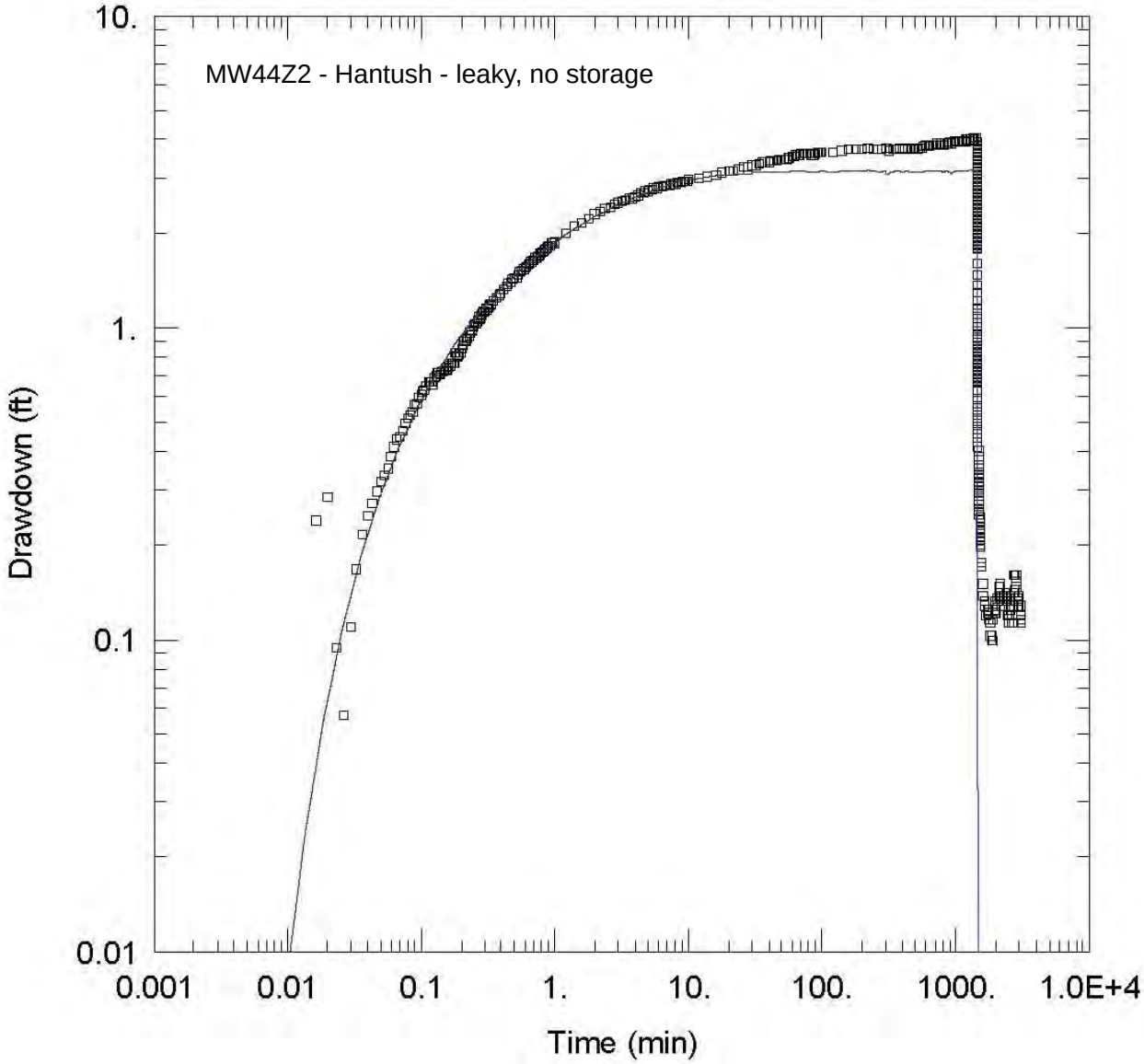

FIGURE 15 Water level drawdown and recovery data for MW44Z2, with interpretive curve fit for the Hantush method of (leaky-confined aquifer) analysis assuming no groundwater storage in the aquitard.

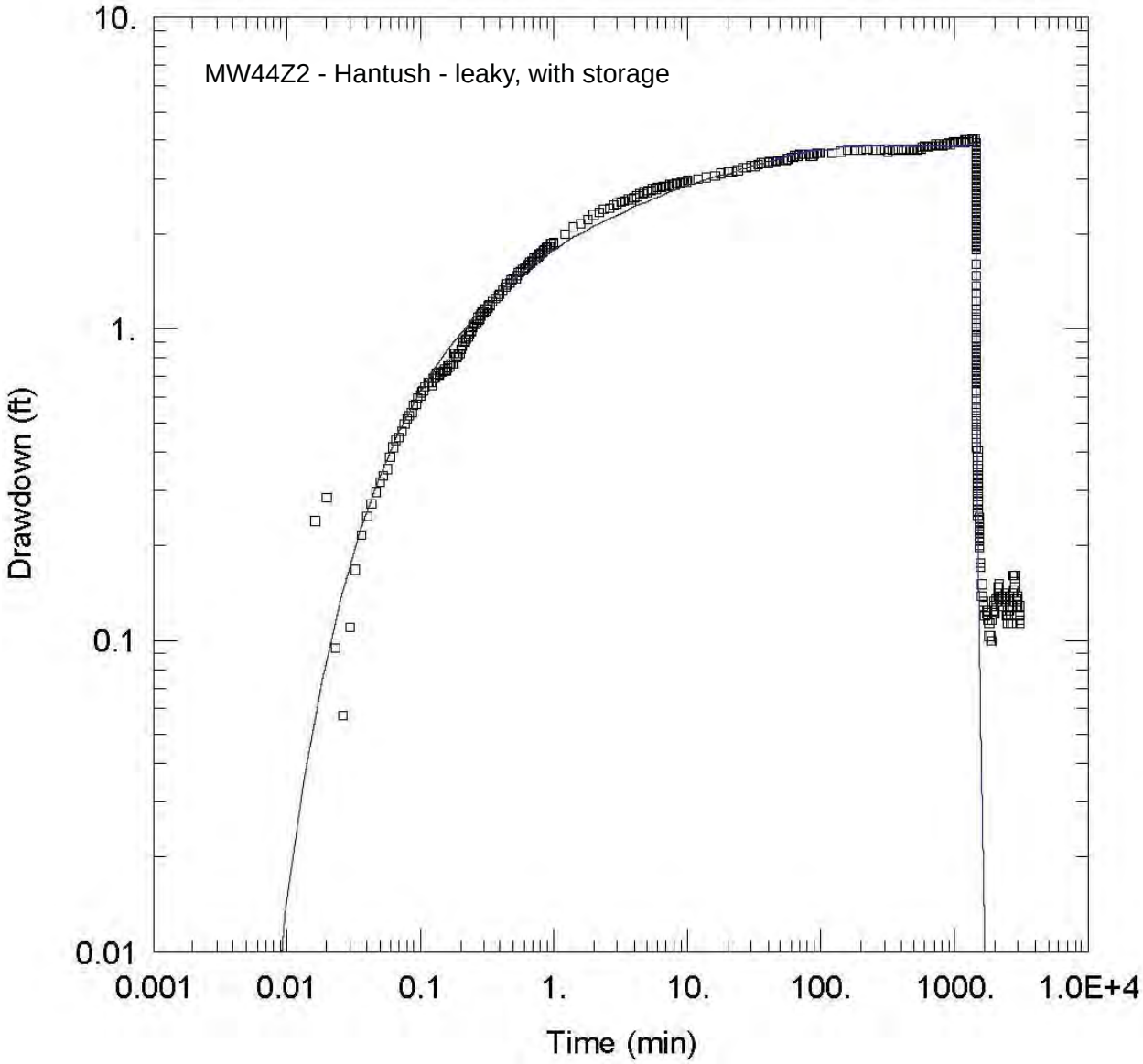

FIGURE 16 Water level drawdown and recovery data for MW44Z2, with interpretive curve fit for the Hantush method of (leaky-confined aquifer) analysis assuming groundwater storage in the aquitard.

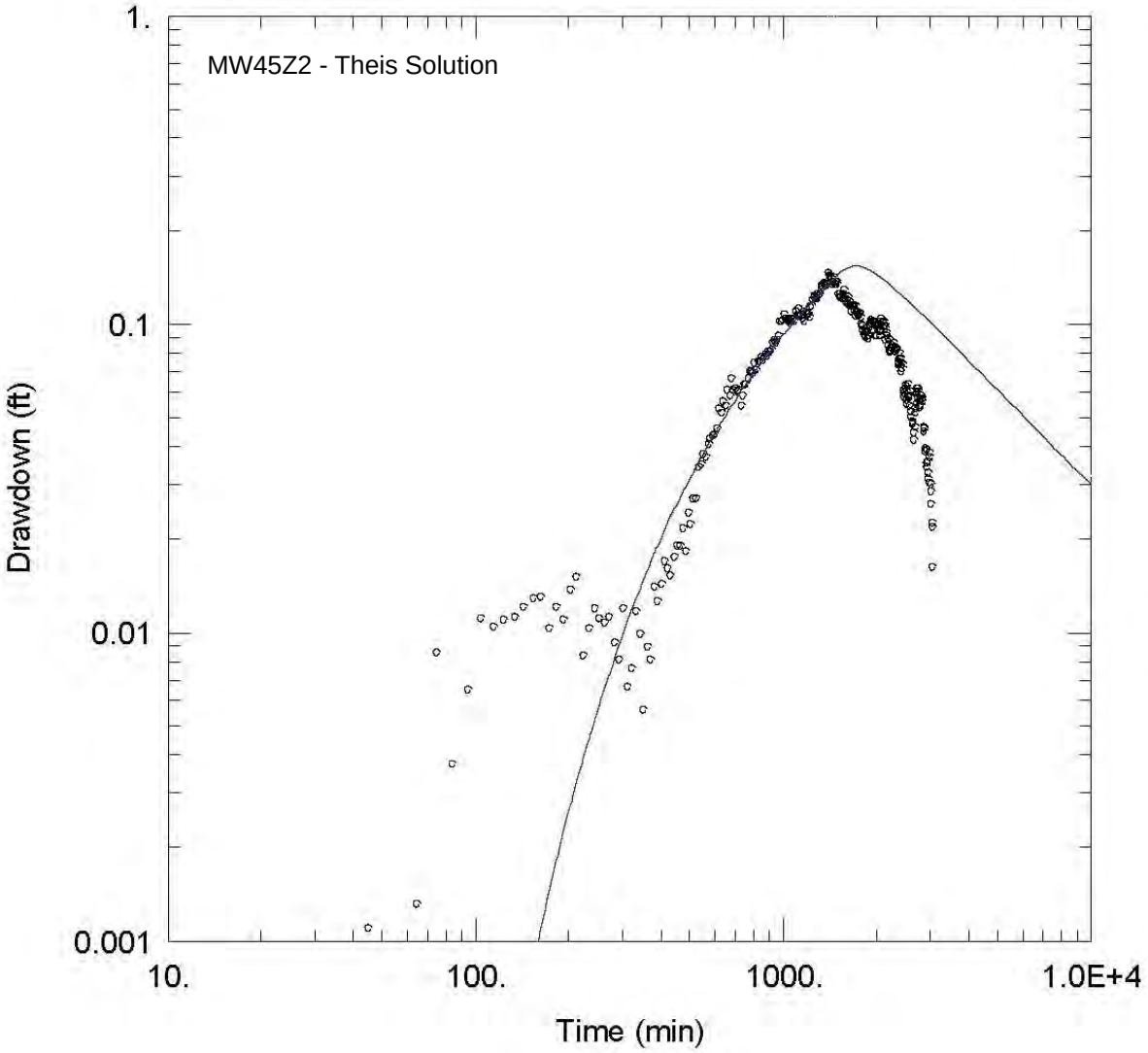

FIGURE 17 Water level drawdown and recovery data for MW45Z2, with interpretive curve fit for the Theis method of (confined aquifer) analysis.

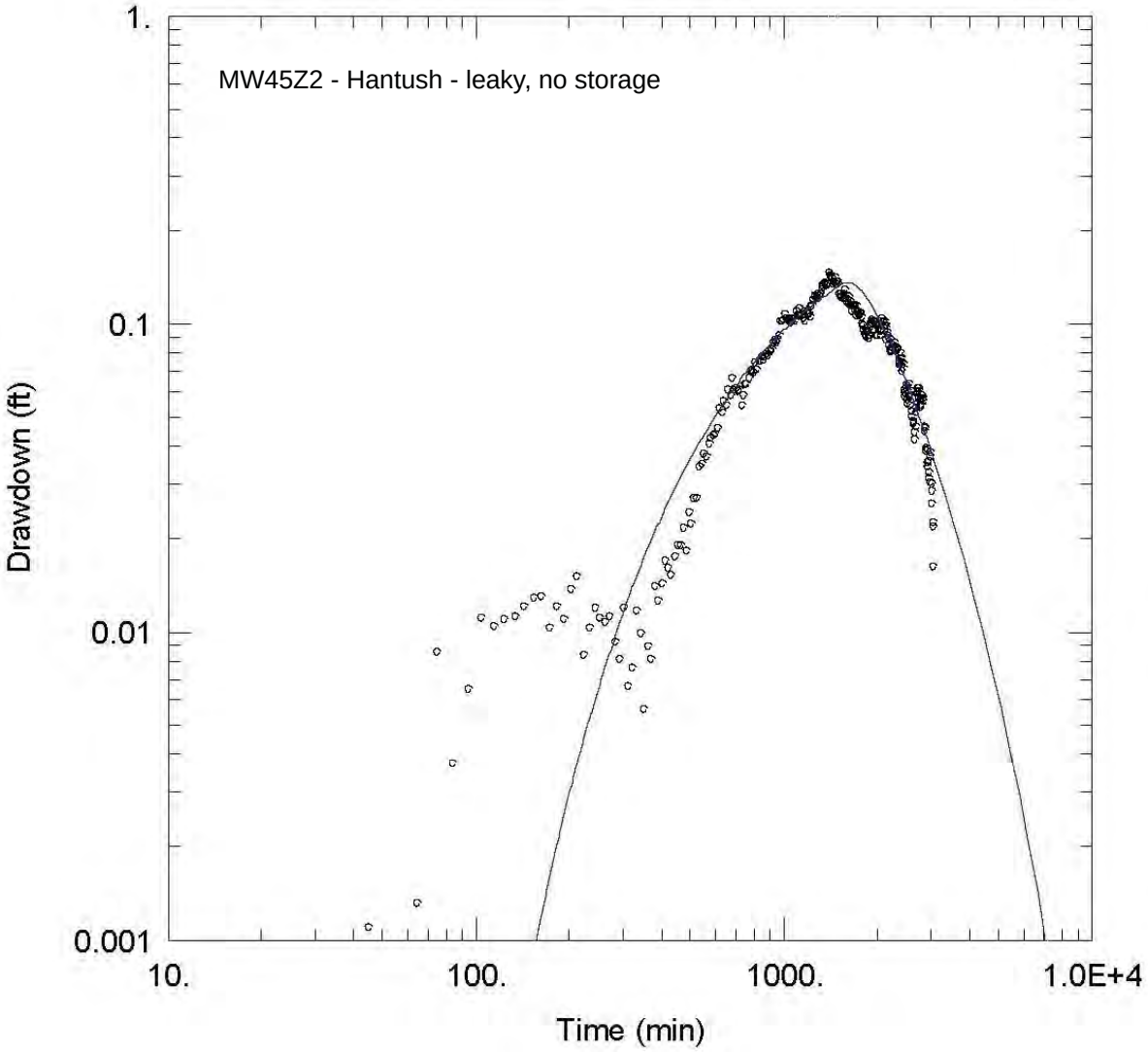

FIGURE 18 Water level drawdown and recovery data for MW45Z2, with interpretive curve fit for the Hantush method of (leaky-confined aquifer) analysis assuming no groundwater storage in the aquitard.

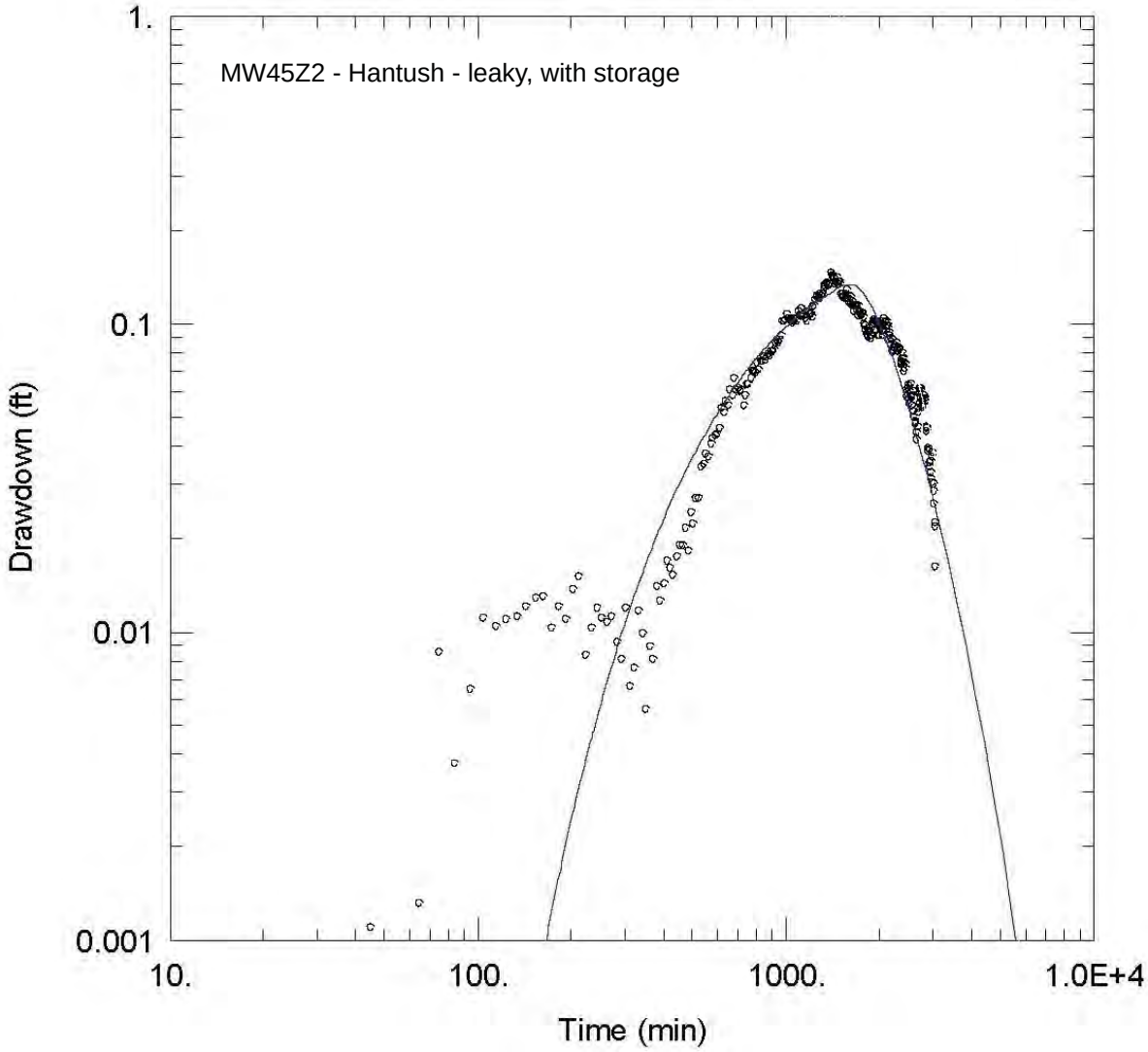

FIGURE 19 Water level drawdown and recovery data for MW45Z2, with interpretive curve fit for the Hantush method of (leaky-confined aquifer) analysis assuming groundwater storage in the aquitard.

Appendix A:

Detailed Analysis of Ambient Water Level Trends and Barometric Efficiency

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Appendix A:

Detailed Analysis of Ambient Water Level Trends and Barometric Efficiency

To identify more clearly the detailed patterns of water level and barometric pressure fluctuations during the background monitoring period, the barometric pressure data and groundwater level data discussed in Section 3.1 were compared for each well. The results of these analyses are in Figures A.1-A.12. During the first 45 hr of the background monitoring period, a generally increasing trend in barometric pressure was apparent. During the remainder of the observation period (from 45 hr to 94 hr), the barometric pressure remained elevated (approximately 0.5 ft higher than the initial value) but was fairly stable.

The water levels in wells MW44Z2, MW45Z2, MW48Z2, and MW50Z2 remained roughly stable during the first 45 hr of the background monitoring period, while the levels in wells MW49Z2 and MW51Z2 declined slightly. During the remainder of the observation period (from 45 hr to 94 hr), the water levels in all wells except MW51Z2 rose and then also appeared to stabilize (generally changing by ≤ 0.02 ft) during roughly the last 10 hr of monitoring. The groundwater levels at MW51Z2 showed little net change from the 45th hour to the end of the background monitoring period.

As outlined above, *increasing* or stable depths to groundwater (expressed as increasing drawdown in Figures A.1-A.6) were observed at all of the Zone 2 wells during the initial portion of the background monitoring period, in conjunction with *rising* barometric pressure. As the barometric pressure stabilized (at a relatively high level), the water levels in most of the wells (except MW51Z2) first rose, and then stabilized during the last 10 hr of observation.

The observed water level responses strongly suggest that, during the first 45 hr of monitoring, an ambient trend of *rising* water levels at MW44Z2, MW45Z2, MW48Z2, and MW50Z2 — and possibly MW49Z2 — was effectively being counteracted by the *rising* trend in barometric pressures. The observations for MW49Z2 and MW51Z2 suggest that, during this period, the rising trend in barometric pressures was sufficient to cause an increase in the depths to groundwater (drawdown) in these wells. This type of positive relationship between increasing barometric pressure and increasing depths to groundwater in wells is a frequent BE response for confined aquifers (Kruseman and deRidder 1991). The hydrographs suggest that the ambient

trends of rising water levels might have persisted in the identified wells until roughly the last 10 hr of monitoring.

Throughout the background monitoring period, the hydrographs for all wells also showed, to varying degrees, an apparent positive relationship to the patterns of smaller-scale fluctuations in barometric pressure that are illustrated in Figures A.1-A.6. To quantify these apparent relationships, the deviation in water level at each well, during each successive hour of monitoring, was compared to the corresponding deviation in barometric pressure from the apparent long-term trend identified for each of these parameters. The results of these analyses are presented in Figures A.7-A.12 and are summarized in Table 3.

The numerically negative "trend" factors calculated for wells MW44Z2, MW45Z2, MW48Z2, and MW50Z2 (Table 3) reflect the influence of the ambient rising water levels identified in these wells (noted above), which appear to dominate the water level changes in these wells during the first 84 hr of the monitoring period. The BE factors calculated on this basis for the Zone 2 monitoring wells ranged from approximately 0.35 to 0.66; such values are typical for confined or leaky-confined aquifers (Kruseman and deRidder 1991).

To evaluate the validity of the interpreted BE relationships outlined above, the estimated BE factors in Table 3 were used, in conjunction with the recorded barometric pressure data in Table S2.1 (in Supplement 2), to generate a "predicted" water level curve for each monitoring well for the background monitoring period (March 13-17). The results of these calculations are in Figures A.13-A.18. For all wells, the observed agreement between measured and predicted water levels was within (at maximum) 0.04 ft.

The BE relationships outlined above reflect variations in the observed groundwater levels at the monitoring wells that are small in absolute magnitude. The recognized presence of these relationships suggests, however, that similar BE effects could potentially affect the identification of small drawdown or recovery responses at these wells as a result of the MW44Z2 pumping. The BE relationships identified in Table 3 were therefore incorporated, where appropriate, into the analyses of the MW44Z2 pumping test results that are described in Section 3.2.

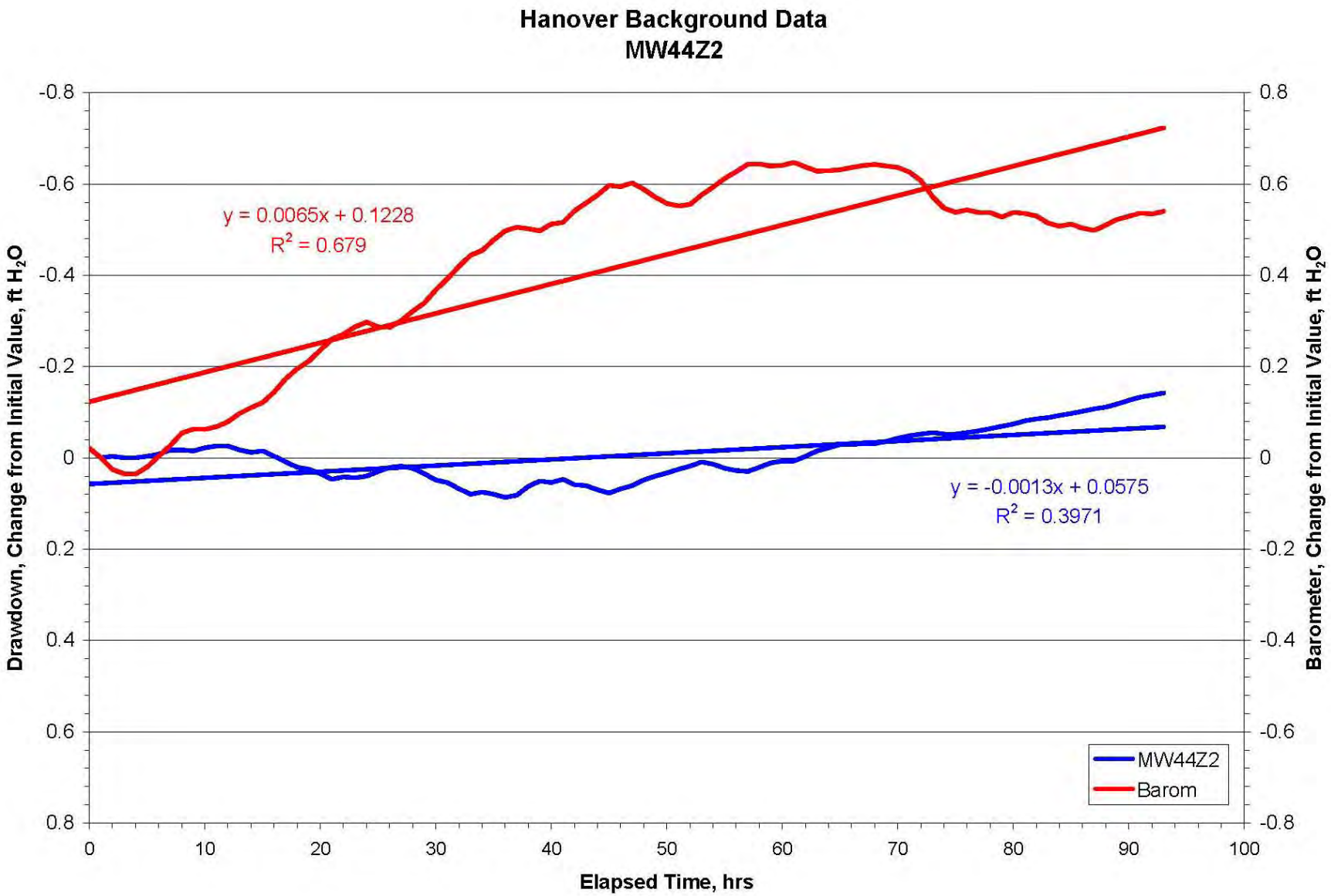

FIGURE A.1 Barometric pressure and MW44Z2 groundwater level trends during the background monitoring period, March 13-17.

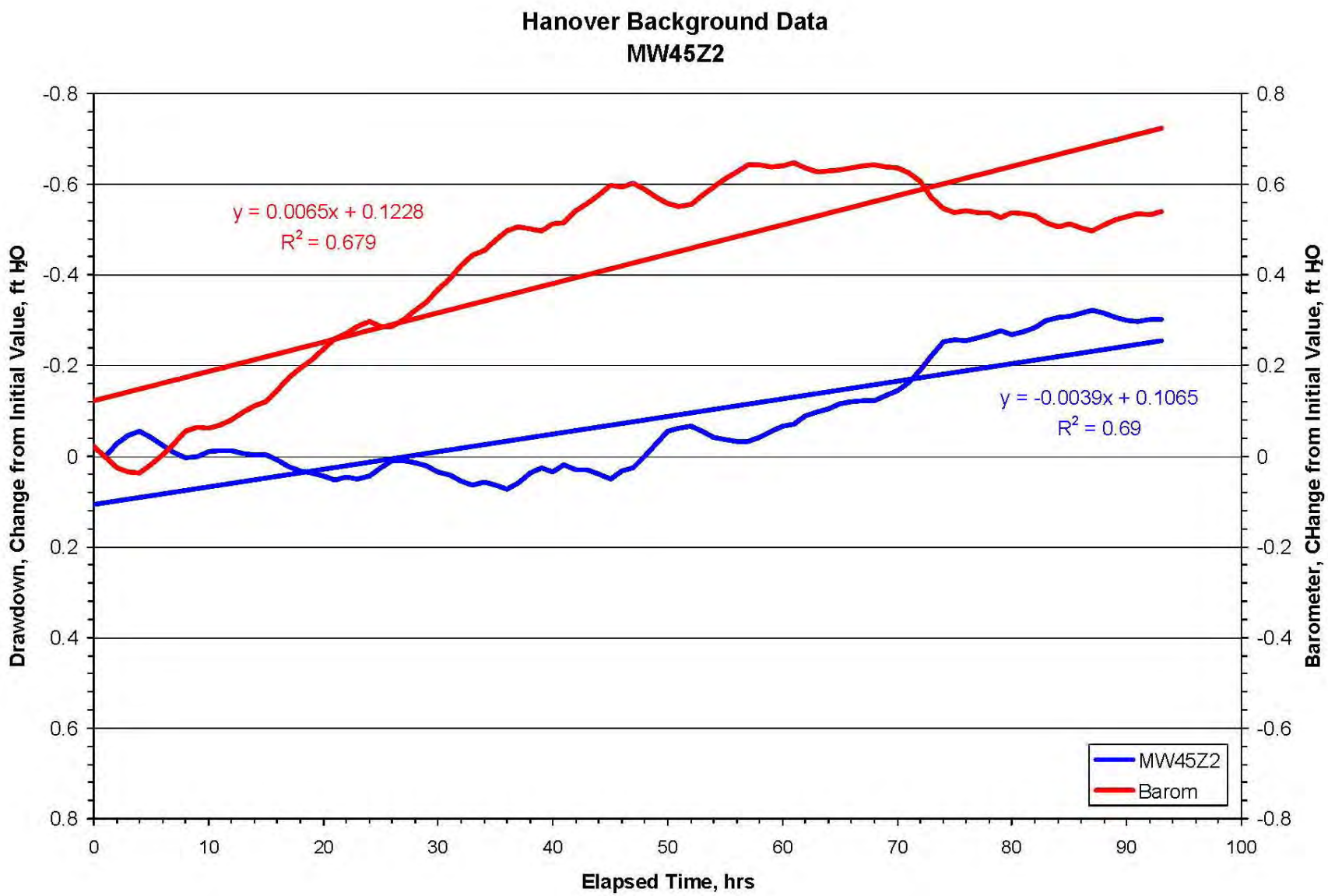

FIGURE A.2 Barometric pressure and MW45Z2 groundwater level trends during the background monitoring period, March 13-17.

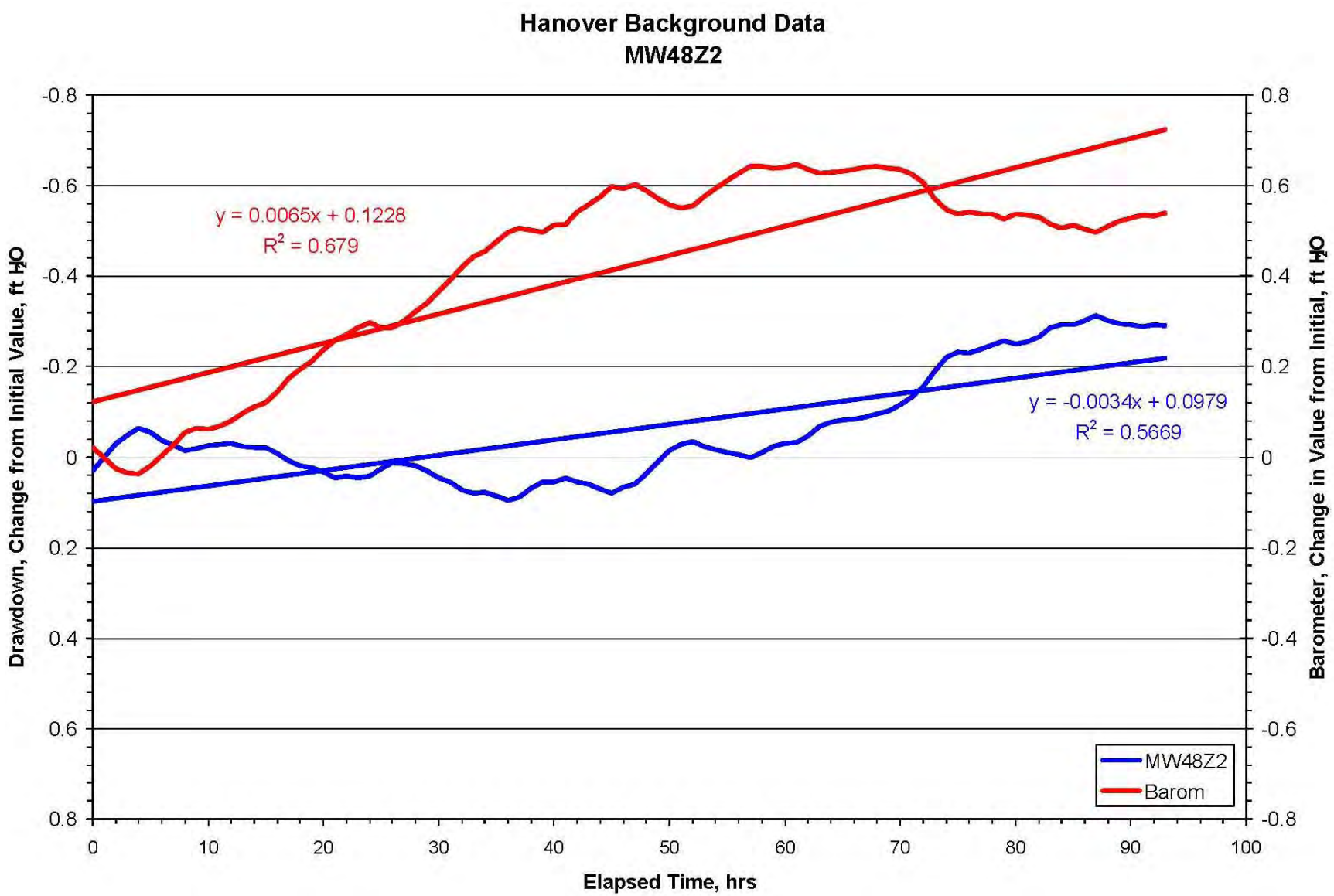

FIGURE A.3 Barometric pressure and MW48Z2 groundwater level trends during the background monitoring period, March 13-17.

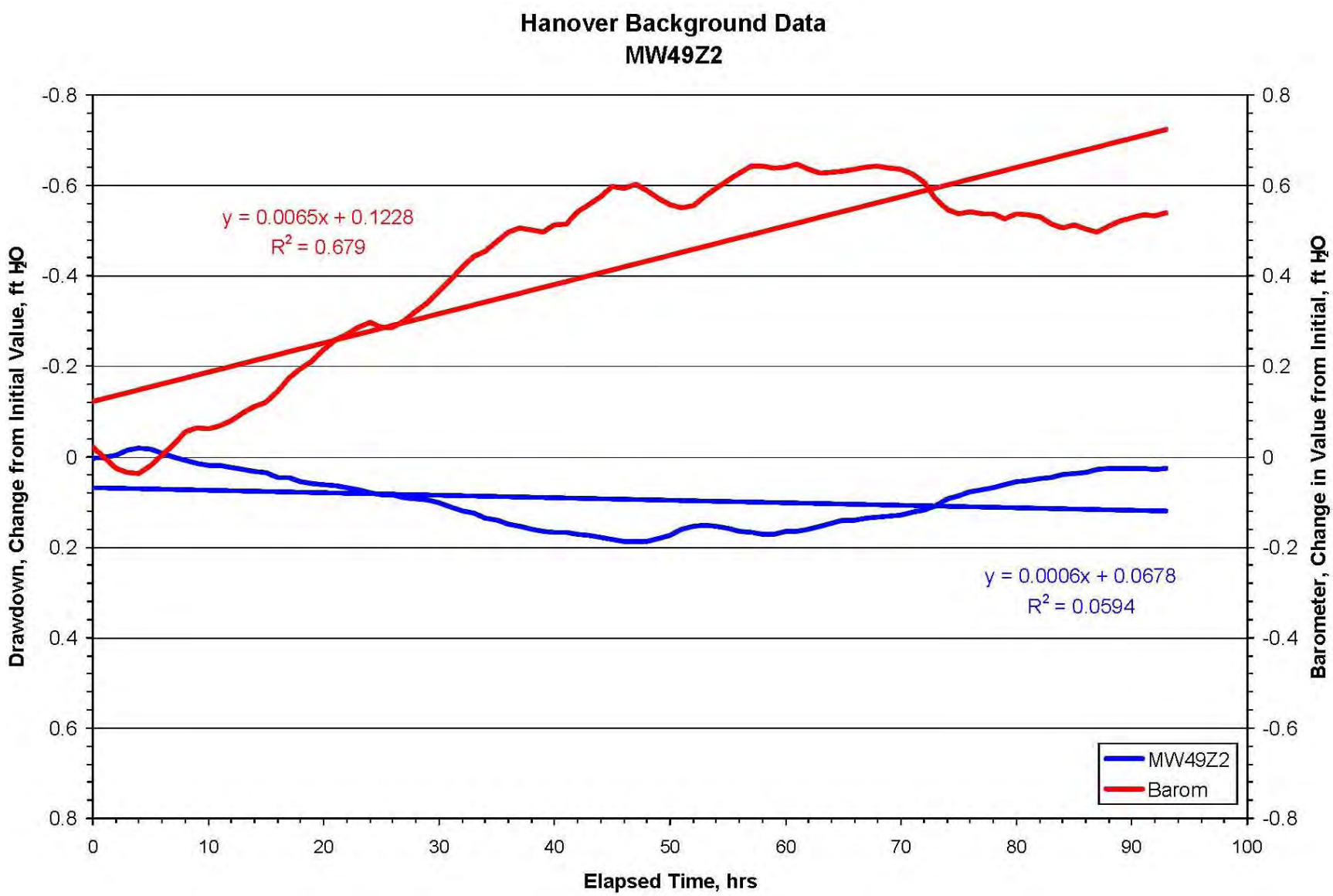

FIGURE A.4 Barometric pressure and MW49Z2 groundwater level trends during the background monitoring period, March 13-17,

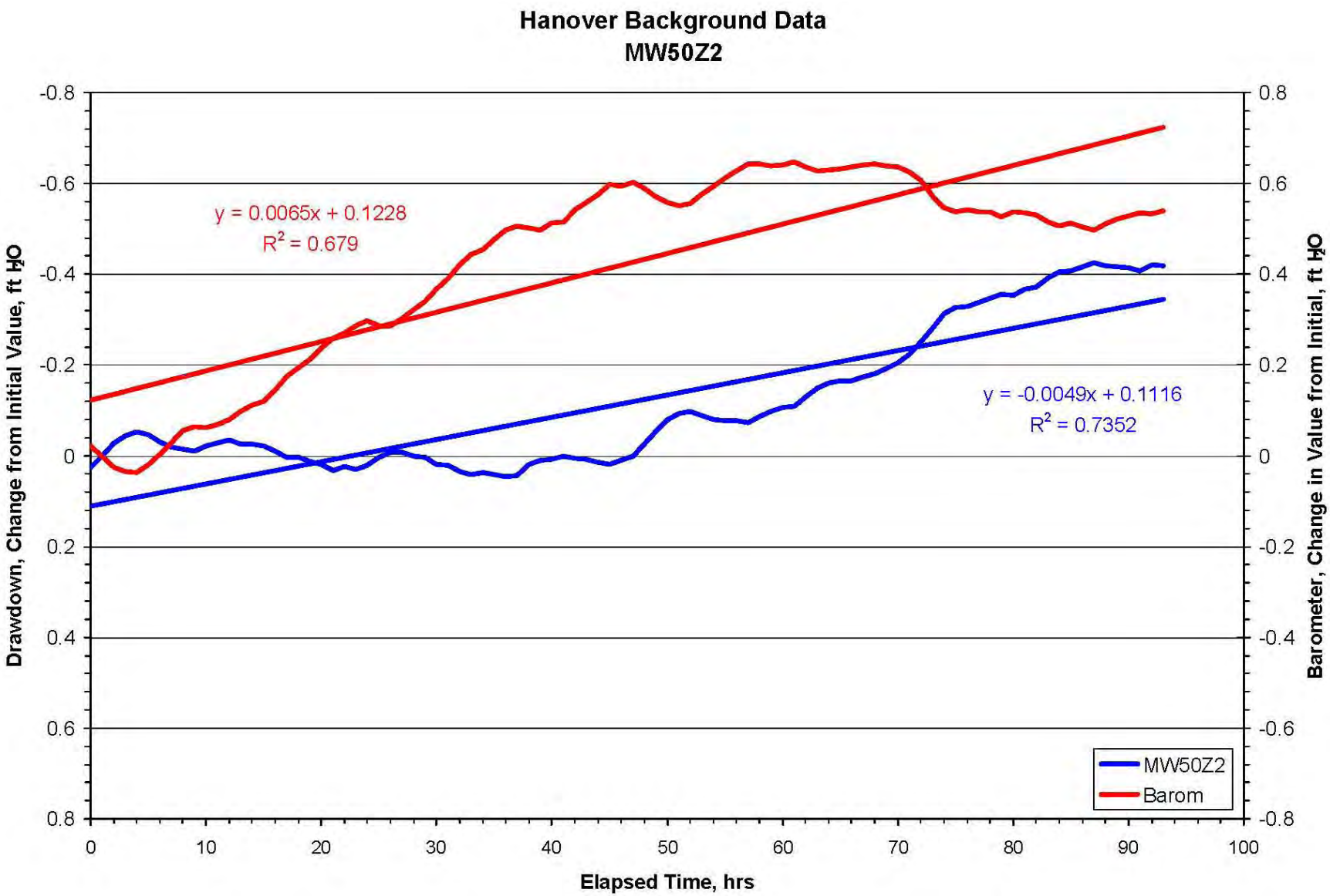

FIGURE A.5 Barometric pressure and MW50Z2 groundwater level trends during the background monitoring period, March 13-17.

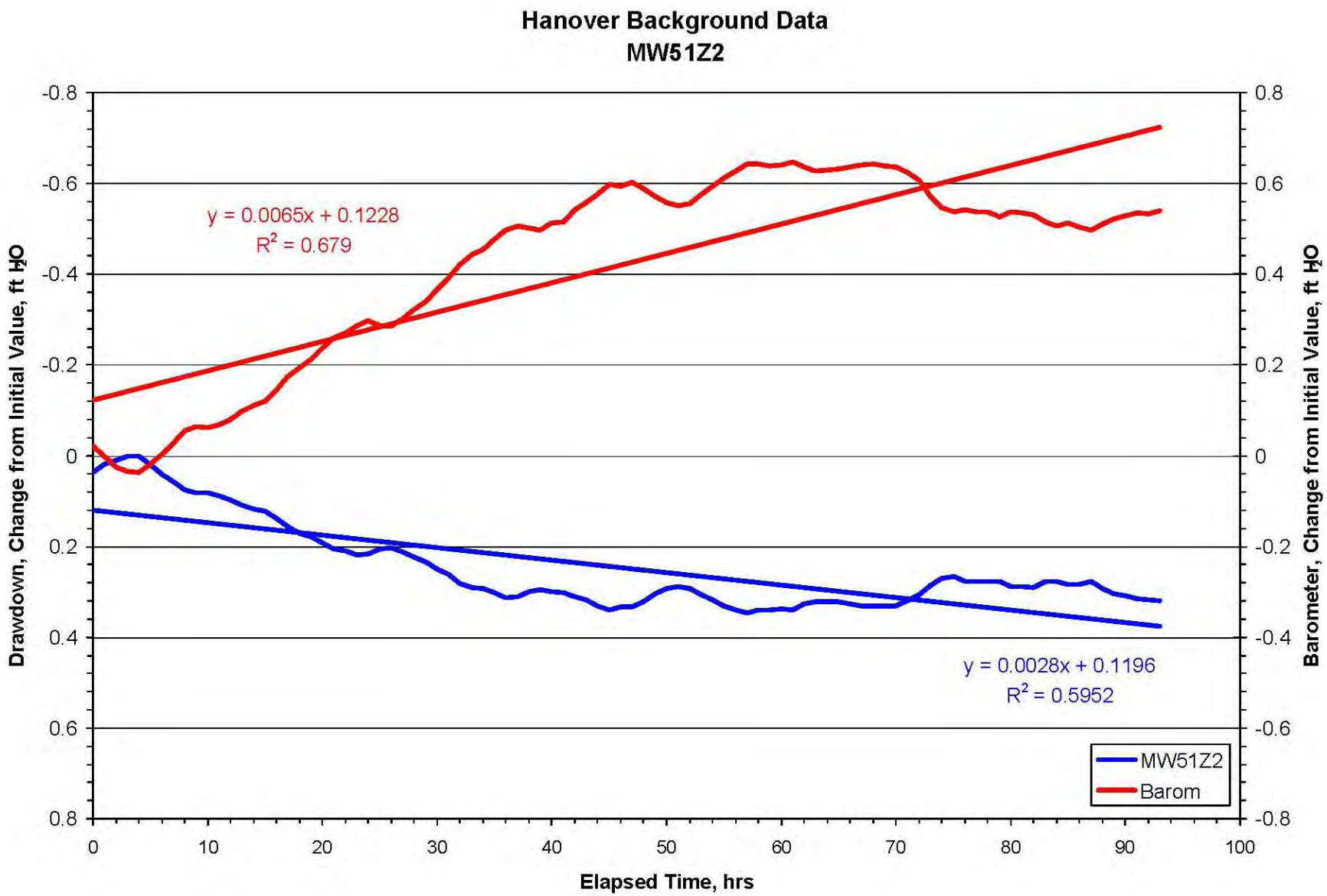

FIGURE A.6 Barometric pressure and MW51Z2 groundwater level trends during the background monitoring period, March 13-17.

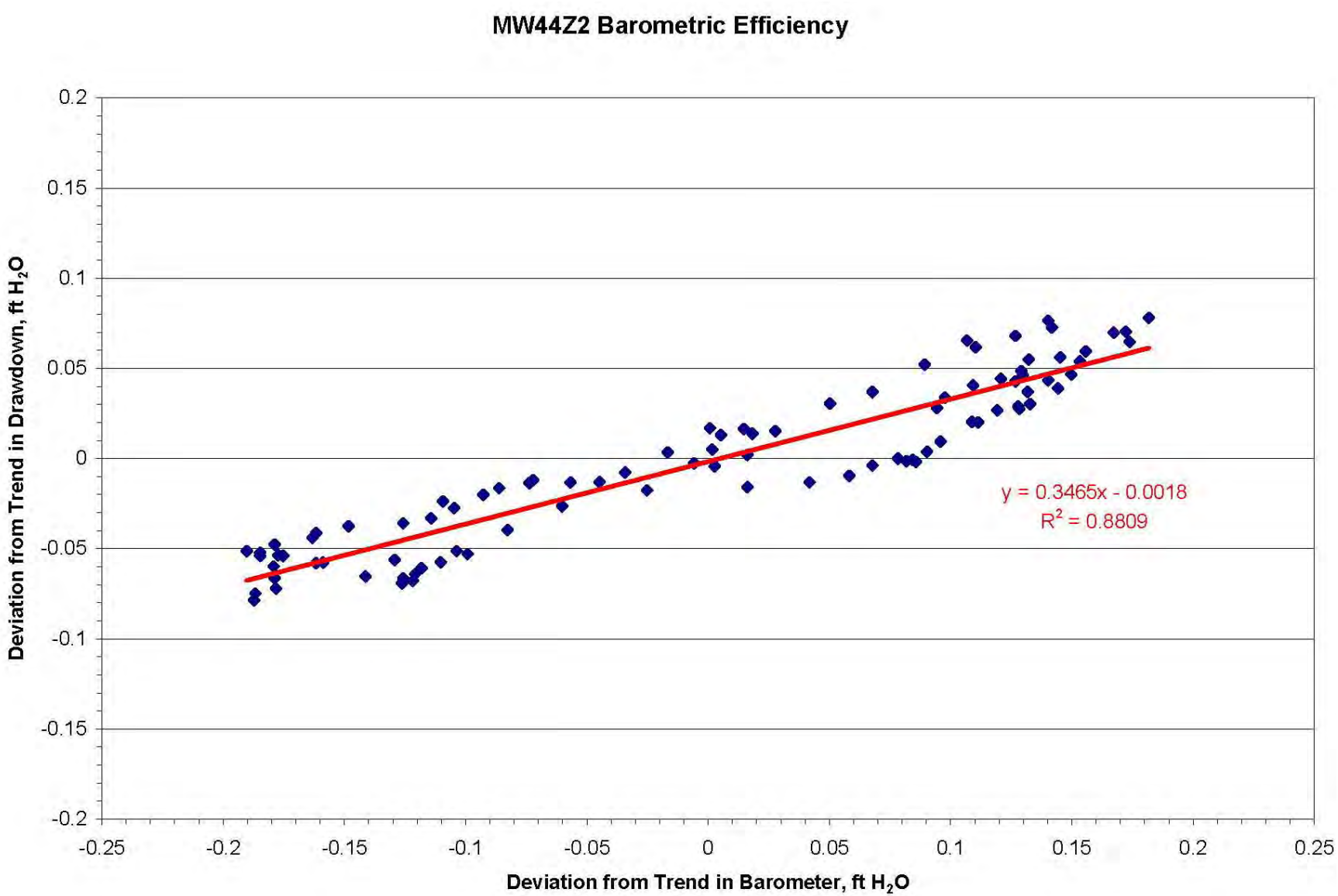

FIGURE A.7 Deviation from trend in barometric pressure versus deviation from trend in water level at MW44Z2 for each hour during the background monitoring period, March 13-17.

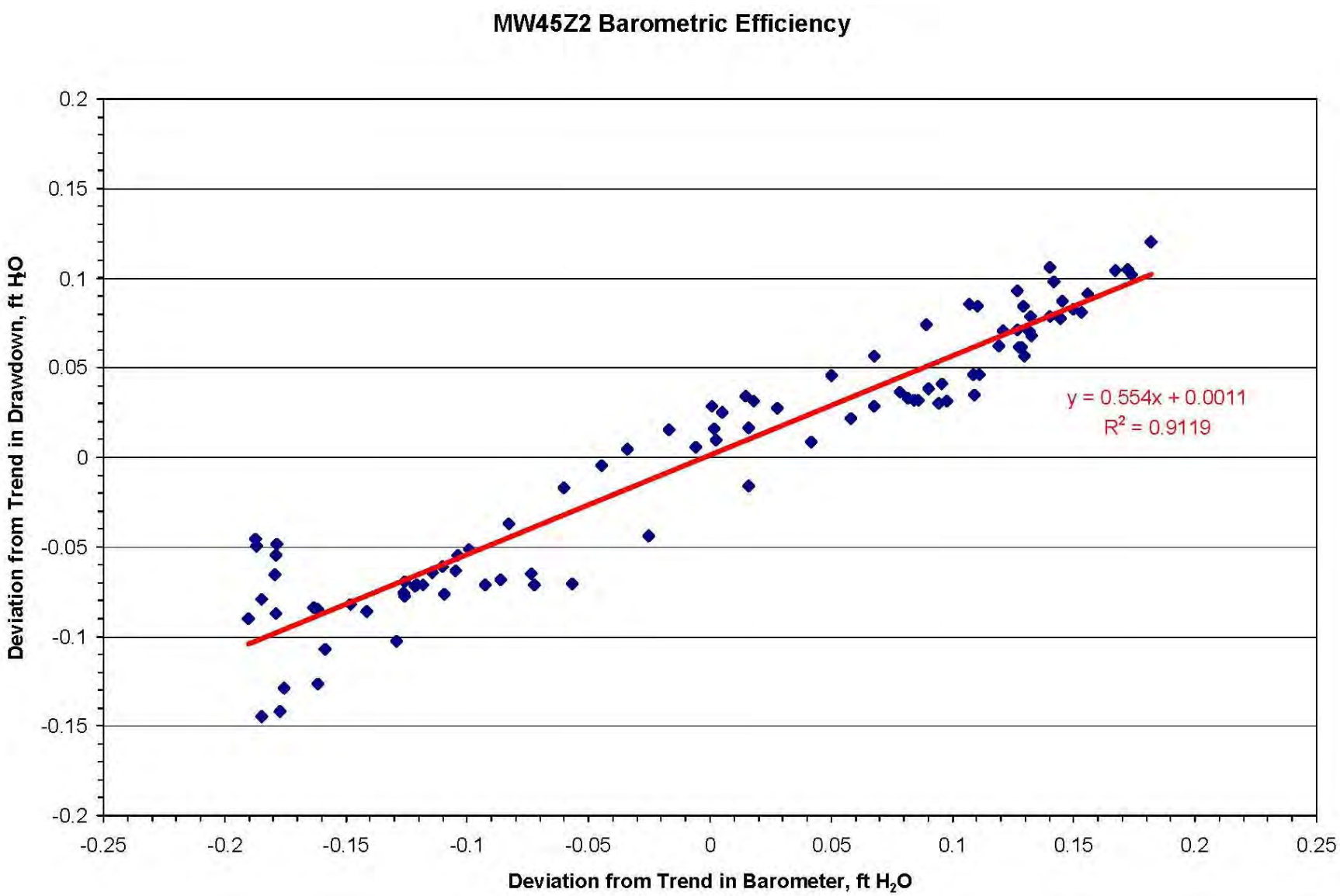

FIGURE A.8 Deviation from trend in barometric pressure versus deviation from trend in water level at MW45Z2 for each hour during the background monitoring period, March 13-17.

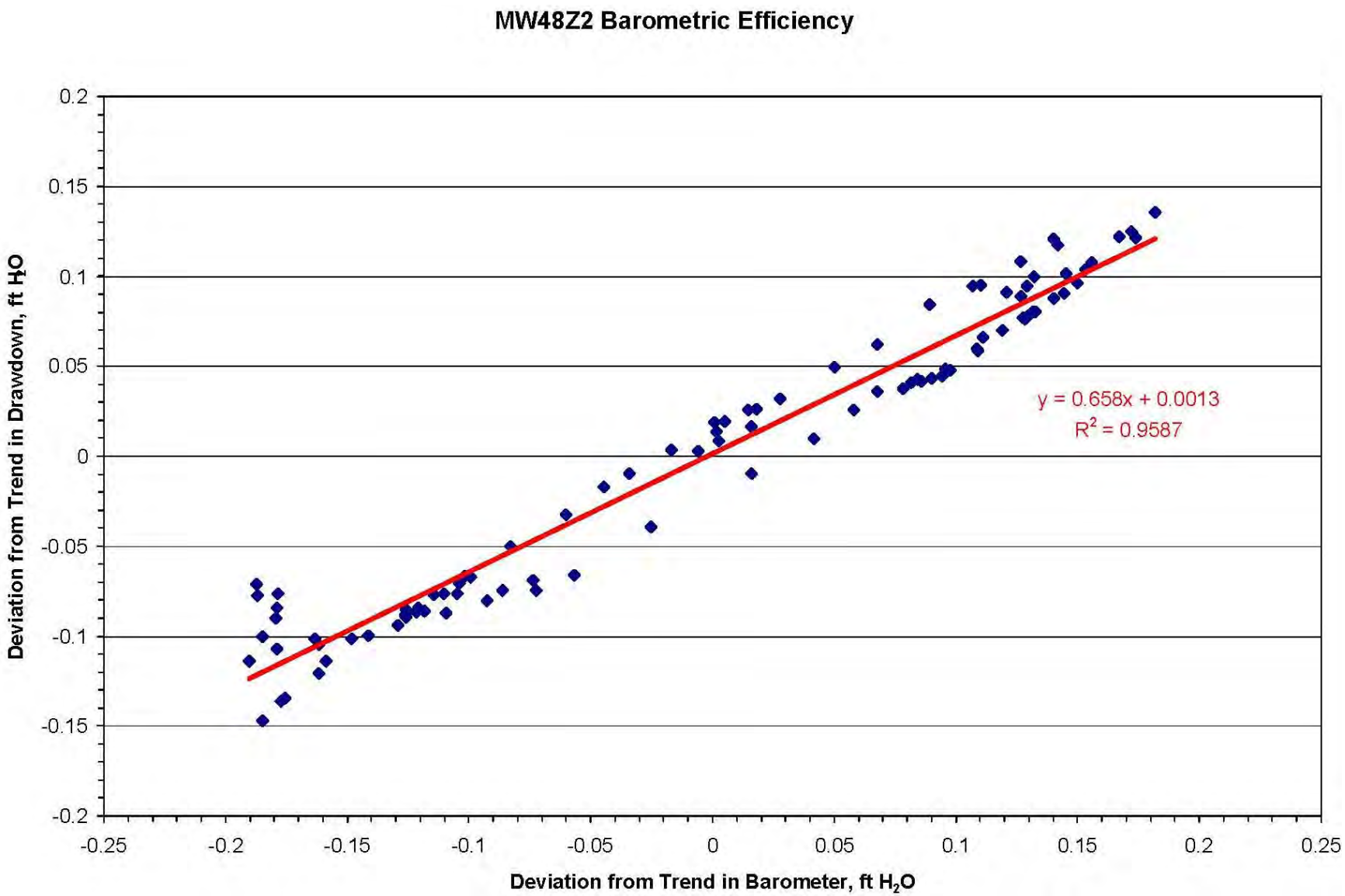

FIGURE A.9 Deviation from trend in barometric pressure versus deviation from trend in water level at MW48Z2 for each hour during the background monitoring period, March 13-17.

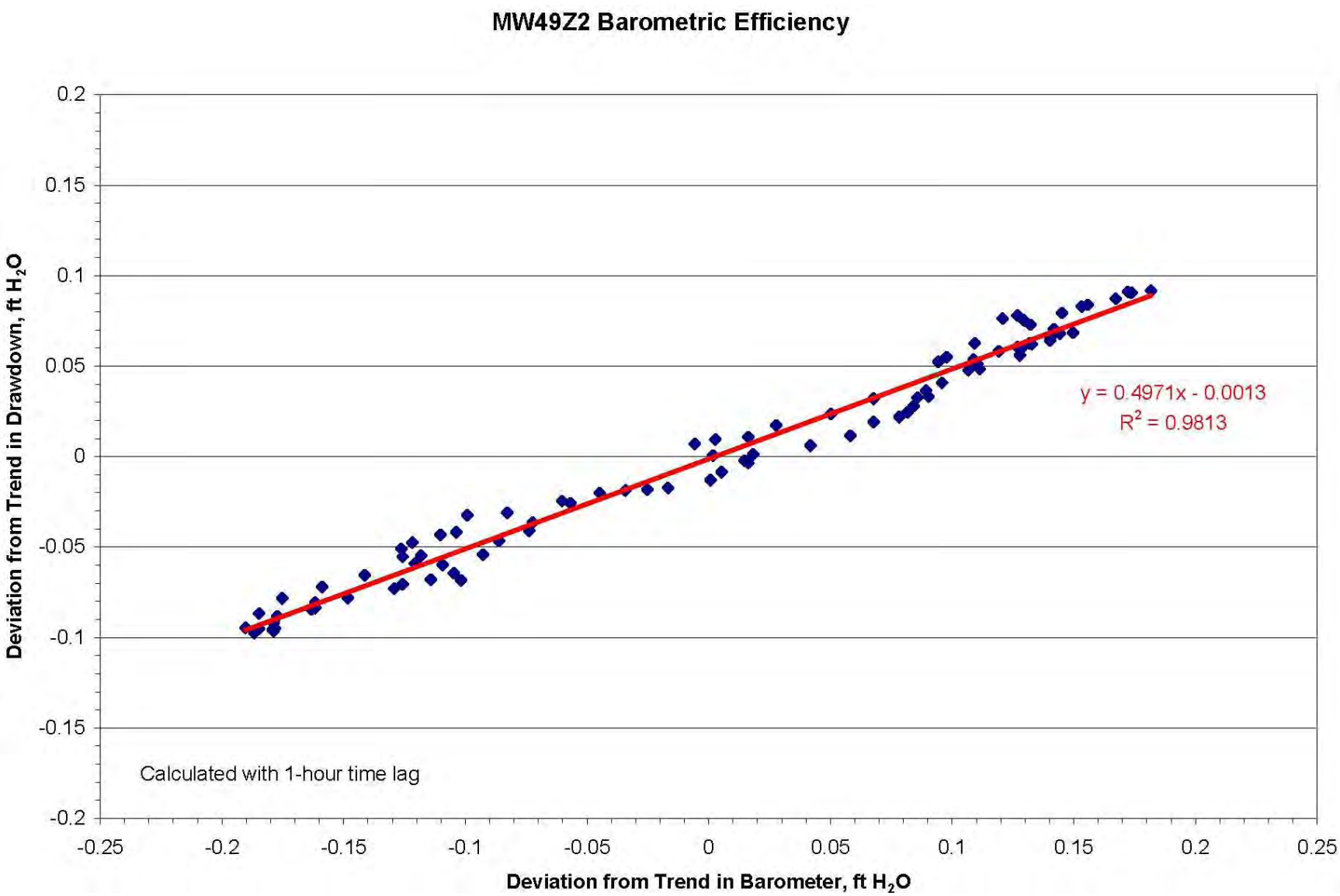

FIGURE A.10 Deviation from trend in barometric pressure versus deviation from trend in water level at MW49Z2 for each hour during the background monitoring period, March 13-17.

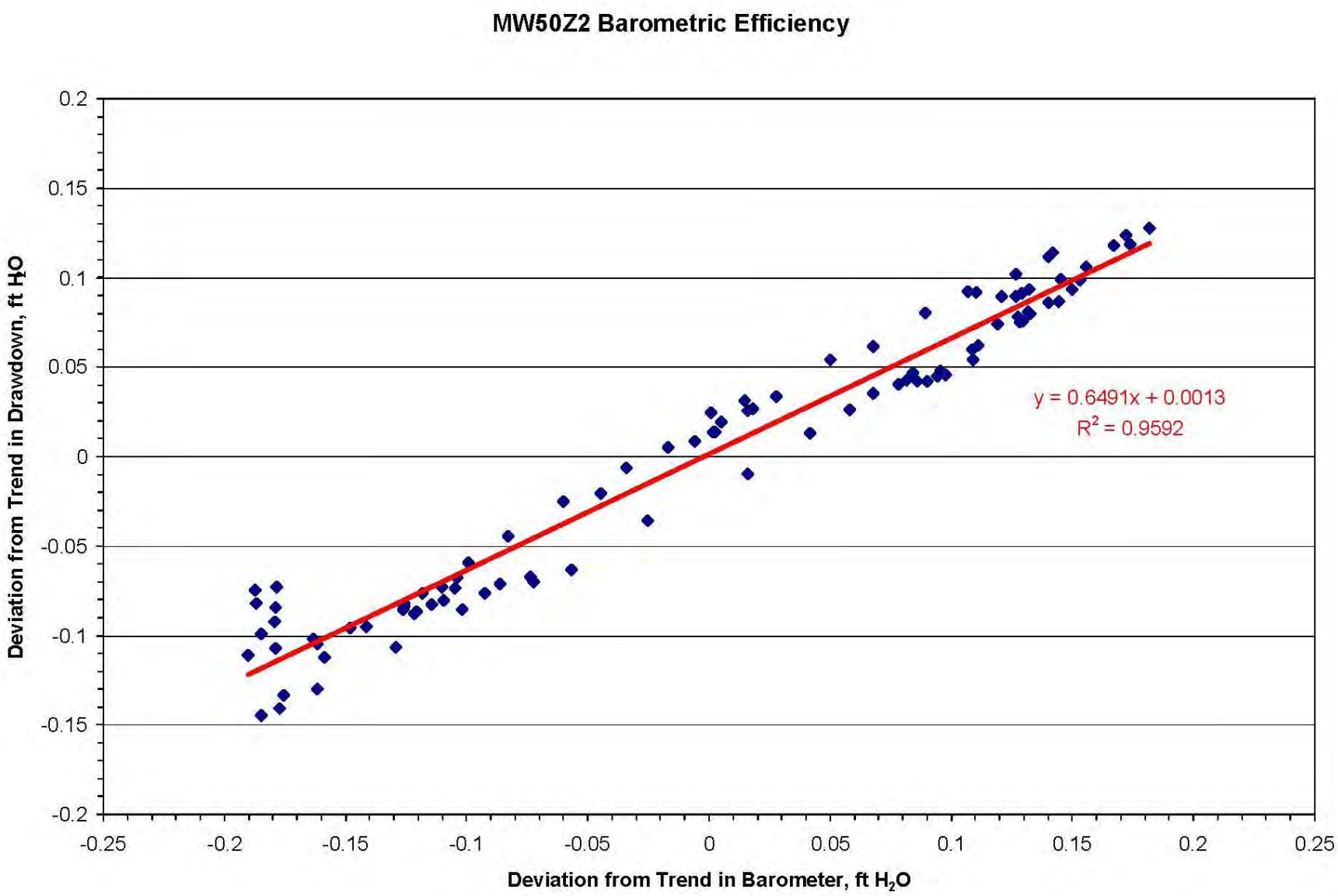

FIGURE A.11 Deviation from trend in barometric pressure versus deviation from trend in water level at MW50Z2 for each hour during the background monitoring period, March 13-17.

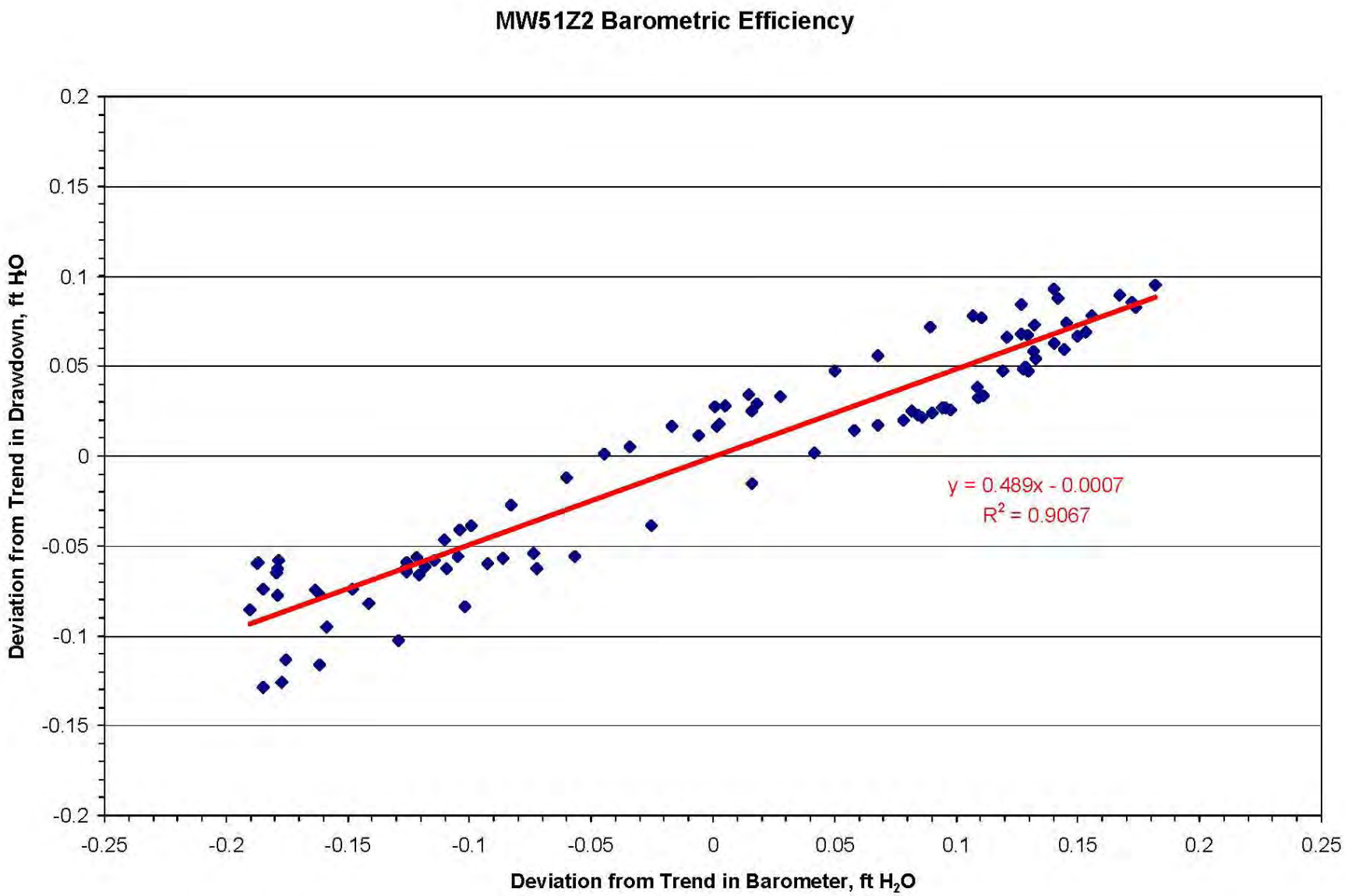

FIGURE A.12 Deviation from trend in barometric pressure versus deviation from trend in water level at MW51Z2 for each hour during the background monitoring period, March 13-17.

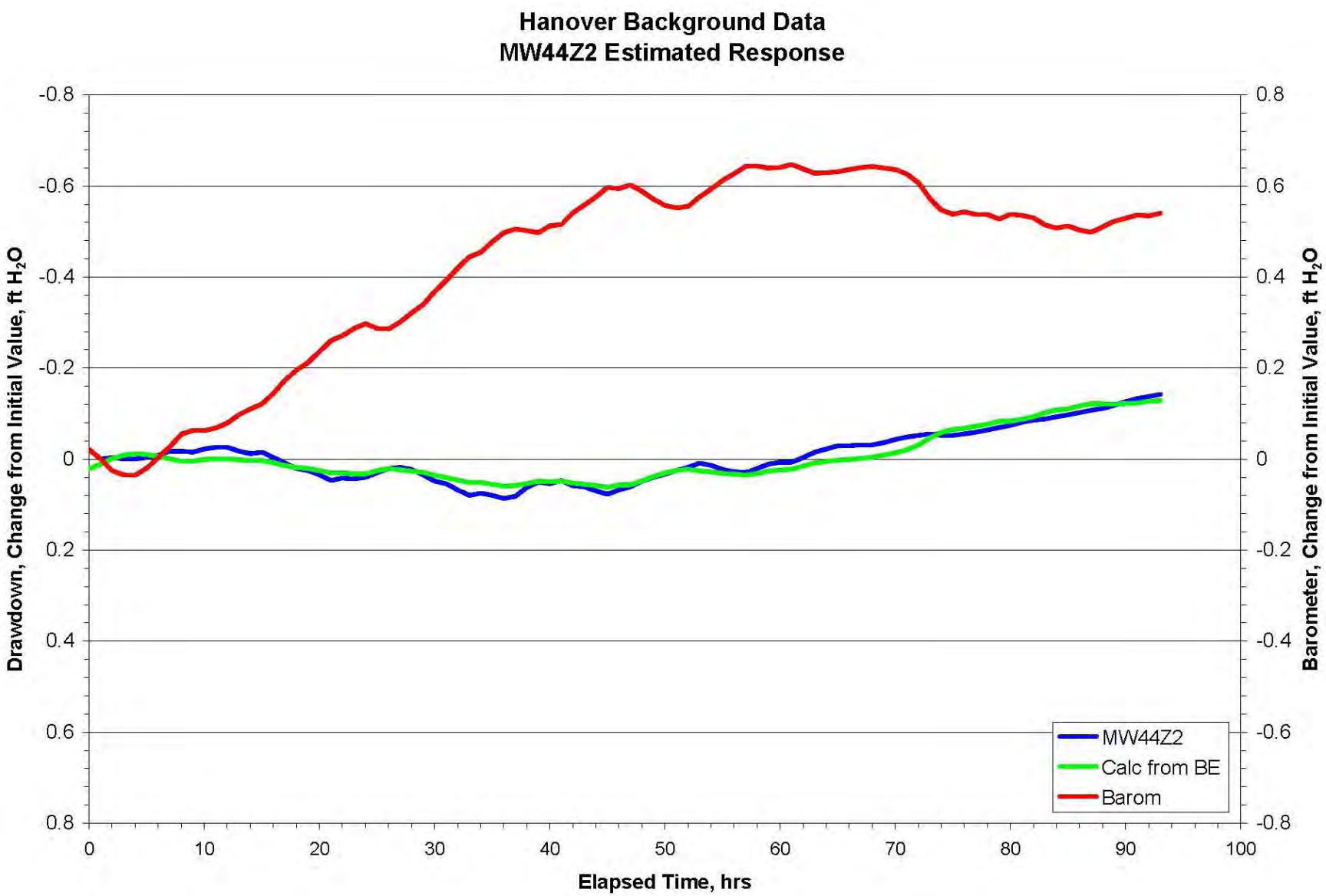

FIGURE A.13 Measured water levels, with levels predicted on the basis of calculated BE responses for MW44Z2 during the background monitoring period, March 13-17.

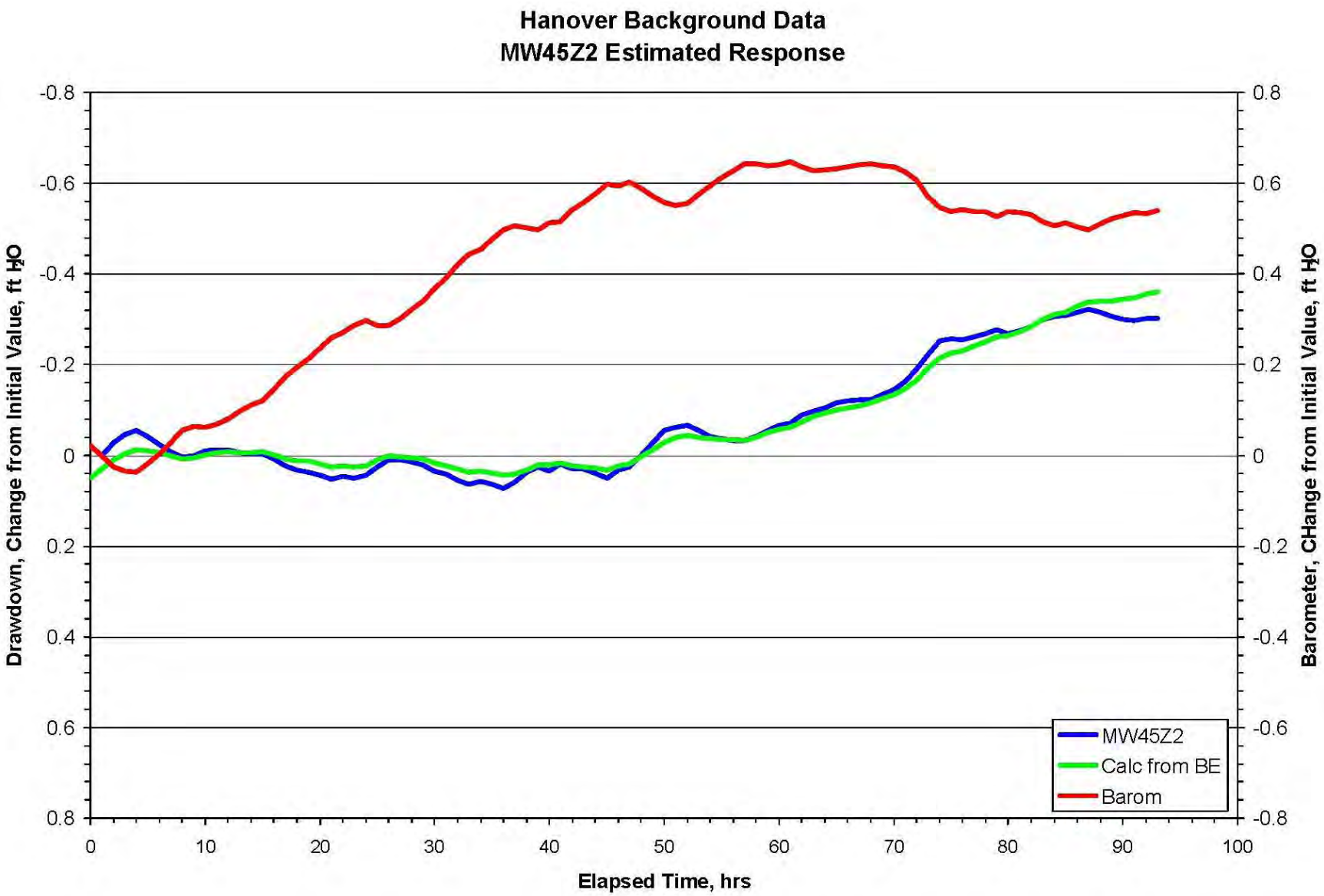

FIGURE A.14 Measured water levels, with levels predicted on the basis of calculated BE responses for MW45Z2 during the background monitoring period, March 13-17.

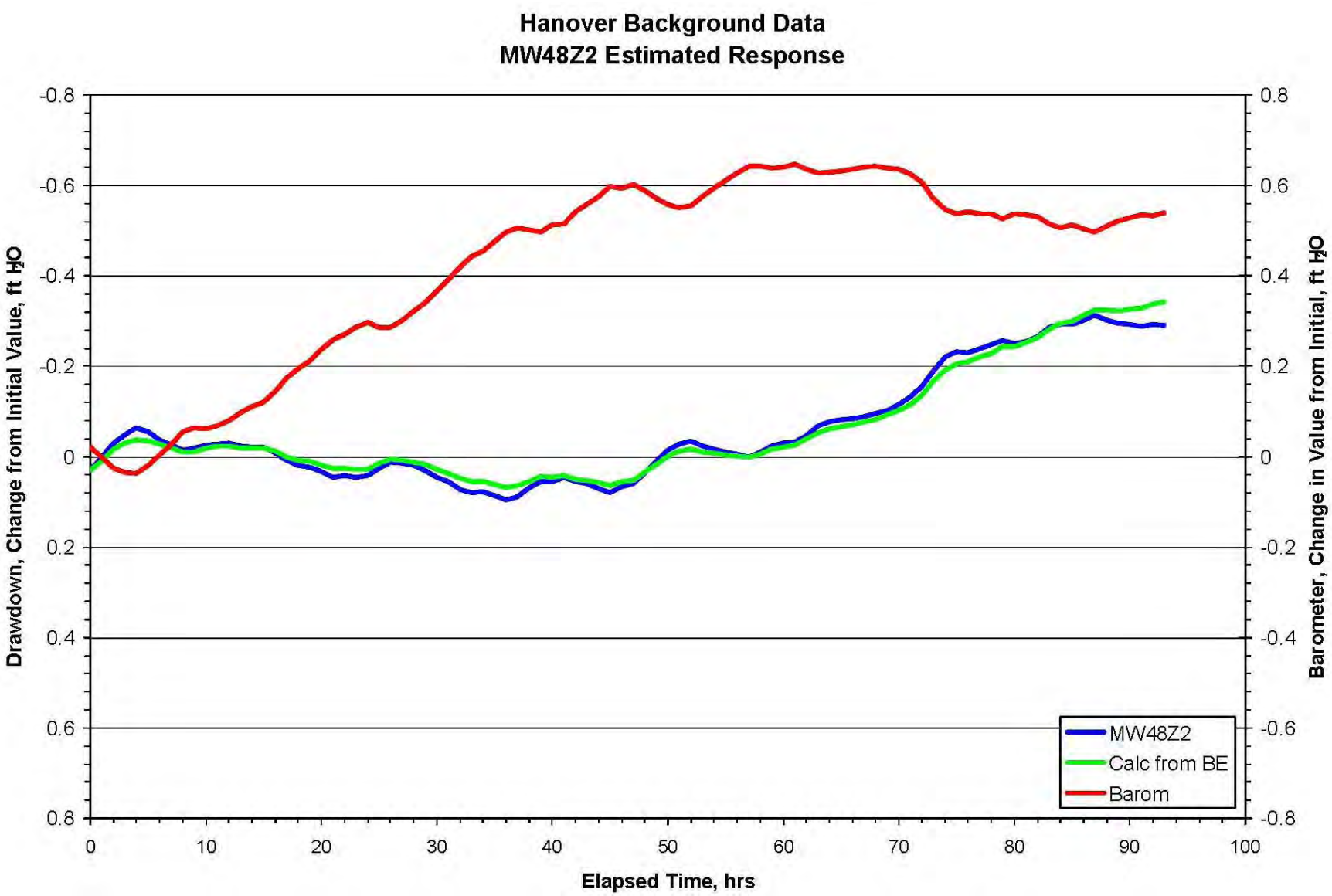

FIGURE A.15 Measured water levels, with levels predicted on the basis of calculated BE responses for MW48Z2 during the background monitoring period, March 13-17.

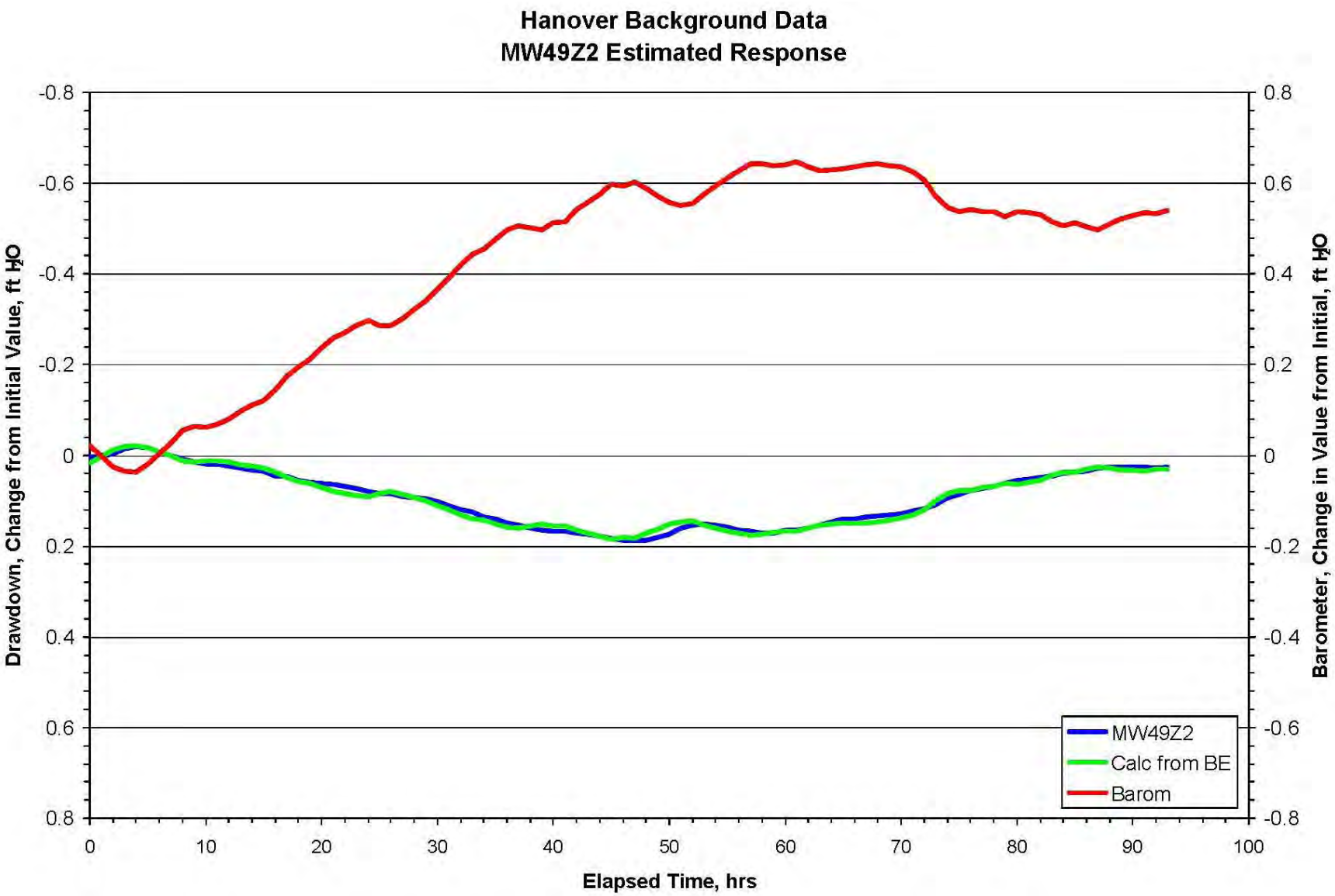

FIGURE A.16 Measured water levels, with levels predicted on the basis of calculated BE responses for MW49Z2 during the background monitoring period, March 13-17.

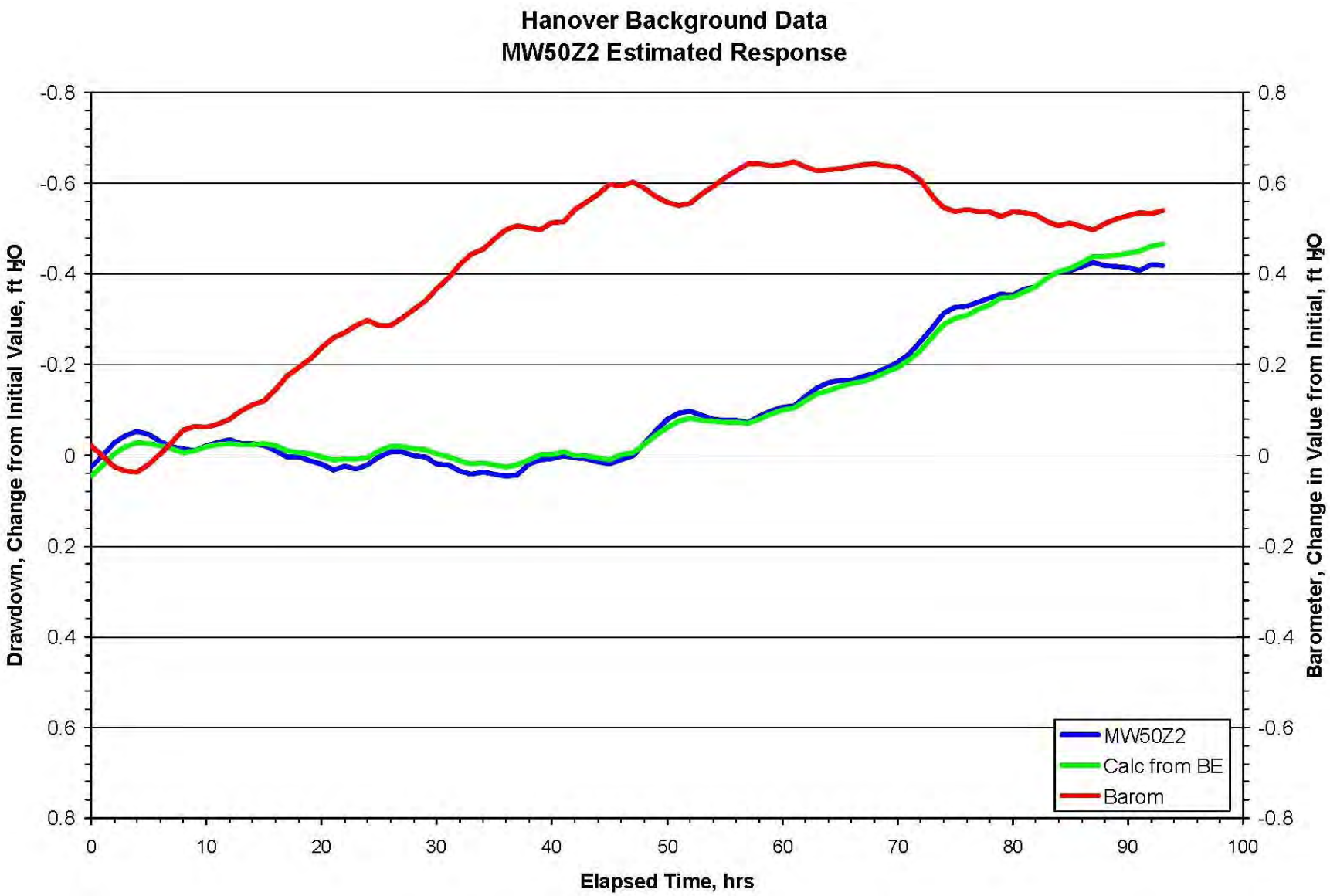

FIGURE A.17 Measured water levels, with levels predicted on the basis of calculated BE responses for MW50Z2 during the background monitoring period, March 13-17.

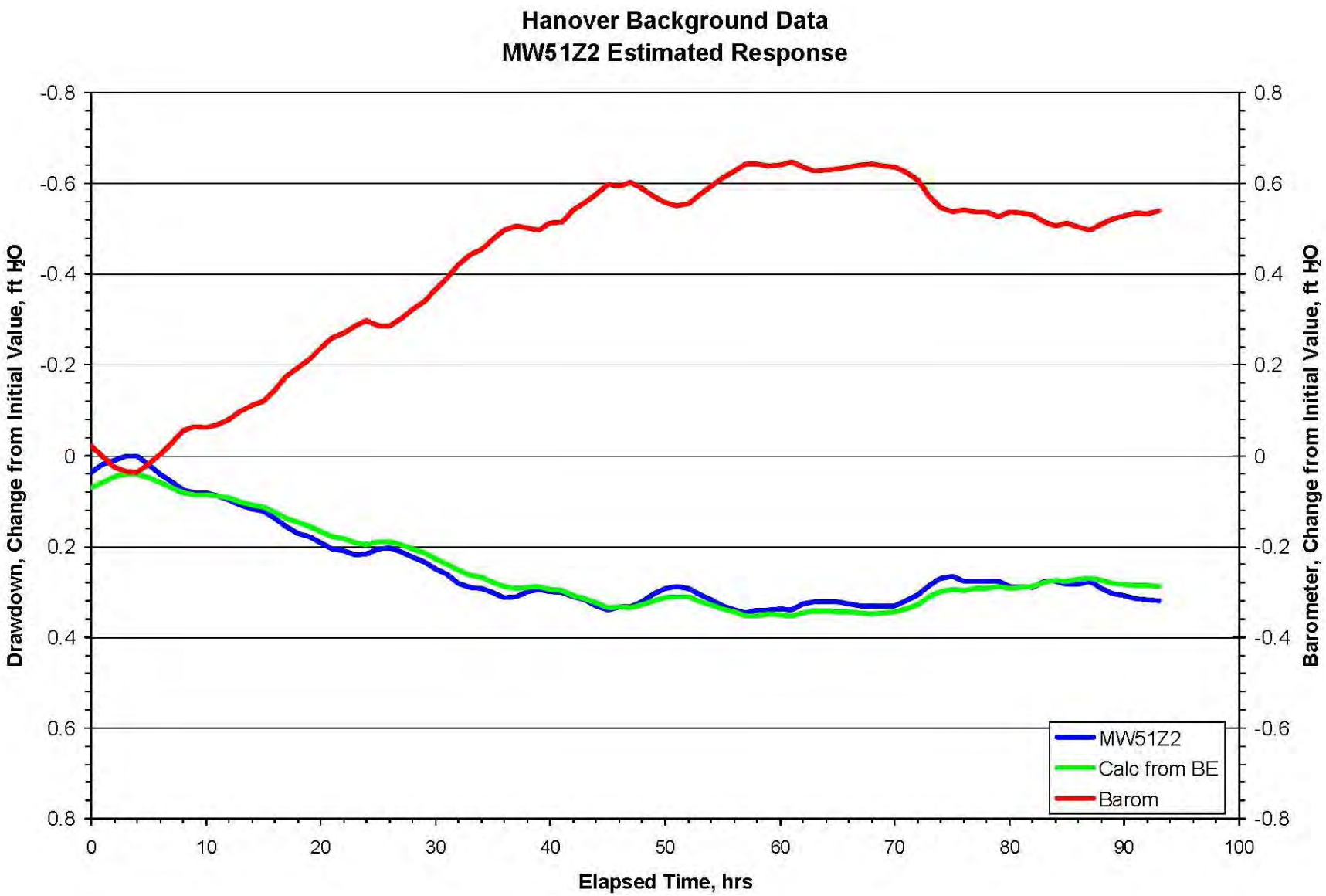

FIGURE A.18 Measured water levels, with levels predicted on the basis of calculated BE responses for MW51Z2 during the background monitoring period, March 13-17.

Appendix B:

Detailed Analysis of Water Level Responses during Pumping of Well MW44Z2

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B.3 Measured water levels, with water levels predicted on the basis of calculated BE responses for MW48Z2 during the MW44Z2 pumping and recovery periods, March 18-20..... B-6

B.4 Measured water levels, with water levels predicted on the basis of calculated BE responses for MW49Z2 during the MW44Z2 pumping and recovery periods, March 18-20..... B-7

B.5 Measured water levels, with water levels predicted on the basis of calculated BE responses for MW50Z2 during the MW44Z2 pumping and recovery periods, March 18-20..... B-8

B.6 Measured water levels, with water levels predicted on the basis of calculated BE responses for MW51Z2 during the MW44Z2 pumping and recovery periods, March 18-20..... B-9

Appendix B:

Detailed Analysis of Water Level Responses during Pumping of Well MW44Z2

The discussion in Section 3.2 indicates that the hydrographs for all of the Zone 2 monitoring wells (with the clear exception of pumped well MW44Z2) appear to closely mirror the corresponding patterns of barometric pressure change during the MW44Z2 pumping and recovery periods (Figure 11). The observed water level variations in these wells also show little influence, if any, of an underlying rising (or falling) trend, and hence they appear to demonstrate that the relatively stable ambient water levels observed immediately prior to the MW44Z2 test (Section 3.1) continued during the testing period.

To investigate these apparent relationships, the BE factors developed in Section 3.1 were used in conjunction with the barometric pressure trace in Figure 11 (under the assumption of little or no ambient water level variation during the observation period) to generate a “predicted” water level curve for each well for the MW44Z2 investigation period. The results of these calculations, presented in Figures B.1-B.6, are reviewed in Section 3.2.

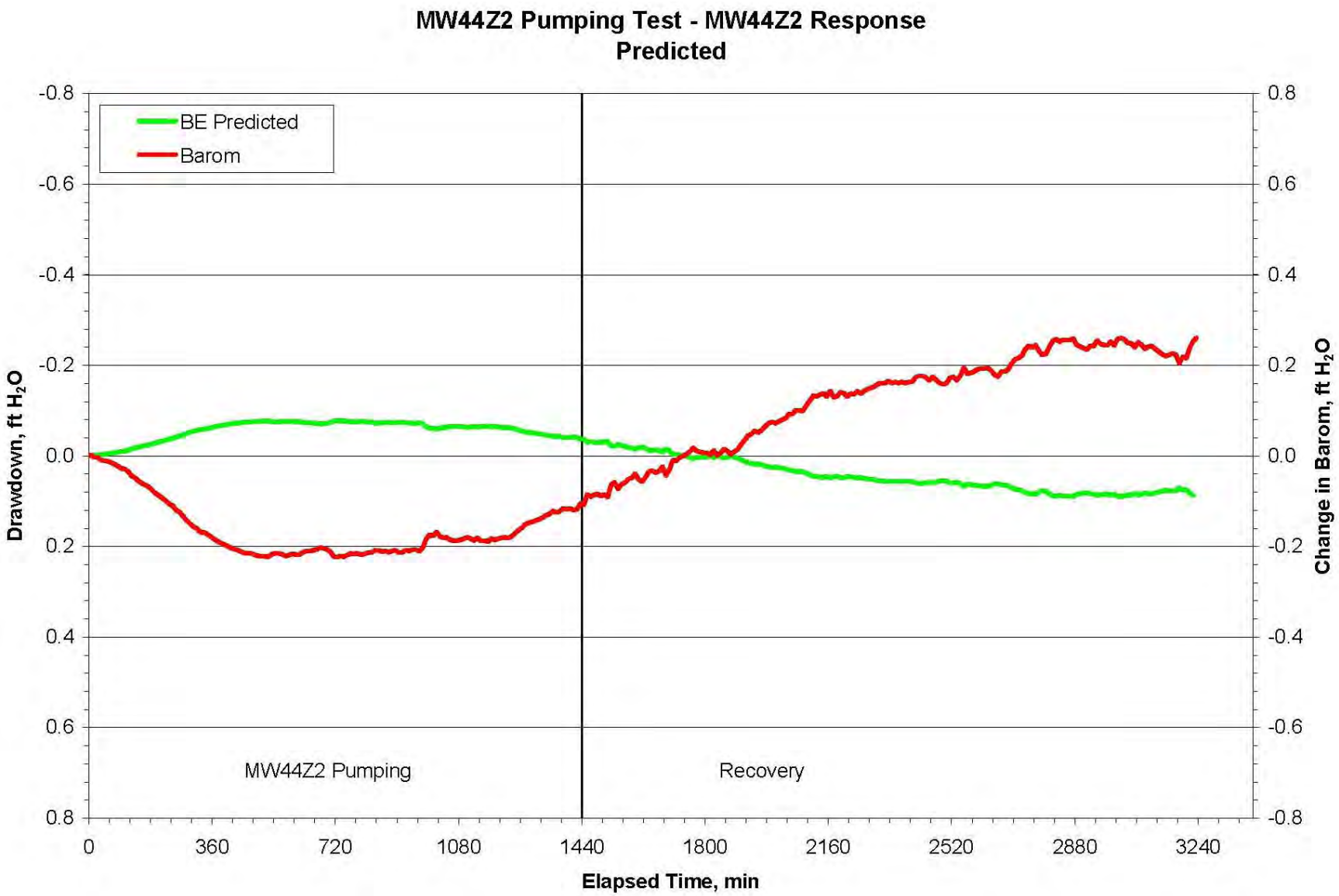

FIGURE B.1 Water levels predicted on the basis of calculated BE responses for MW44Z2 during the MW44Z2 pumping and recovery periods, March 18-20.

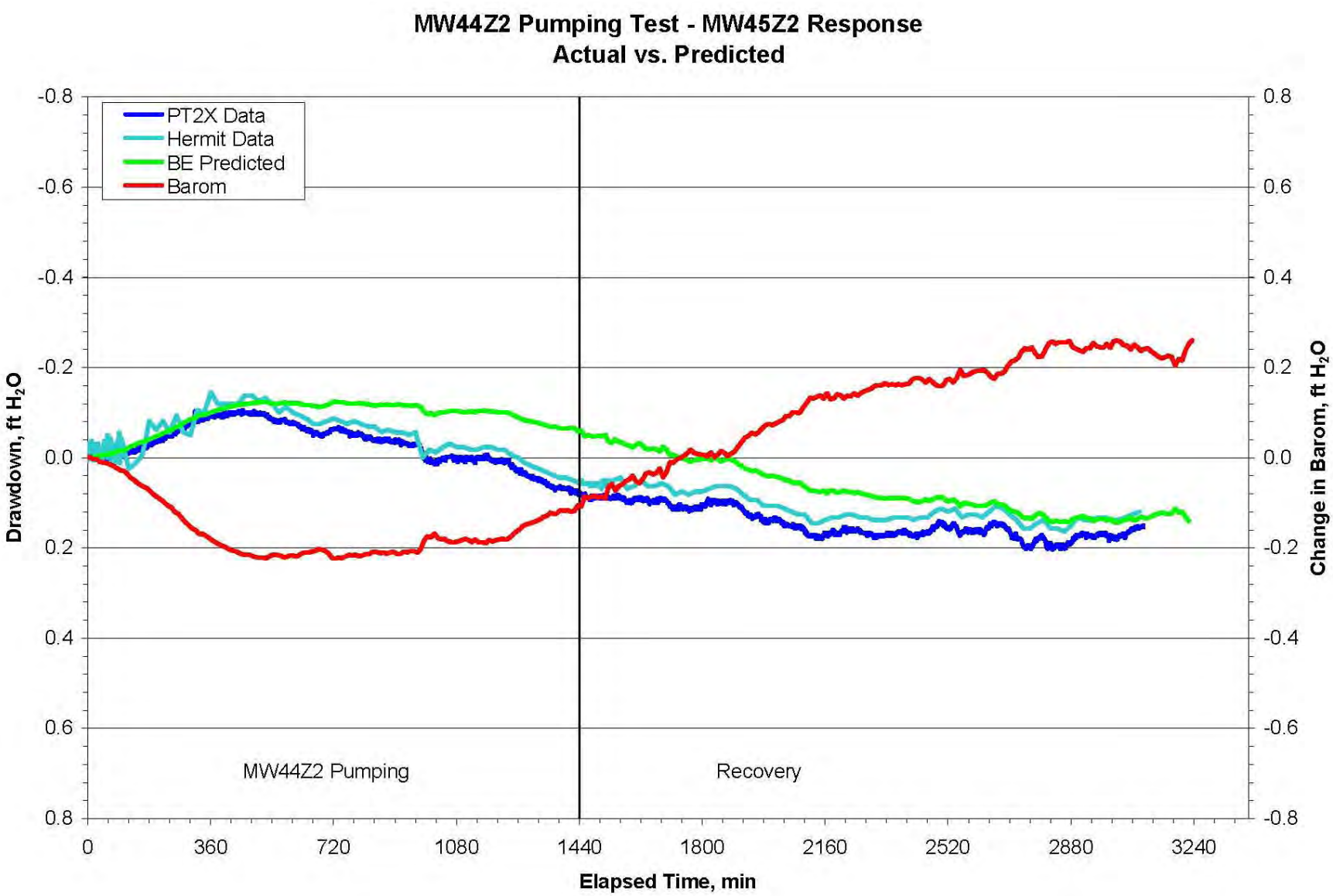

FIGURE B.2 Measured water levels, with water levels predicted on the basis of calculated BE responses for MW45Z2 during the MW44Z2 pumping and recovery periods, March 18-20.

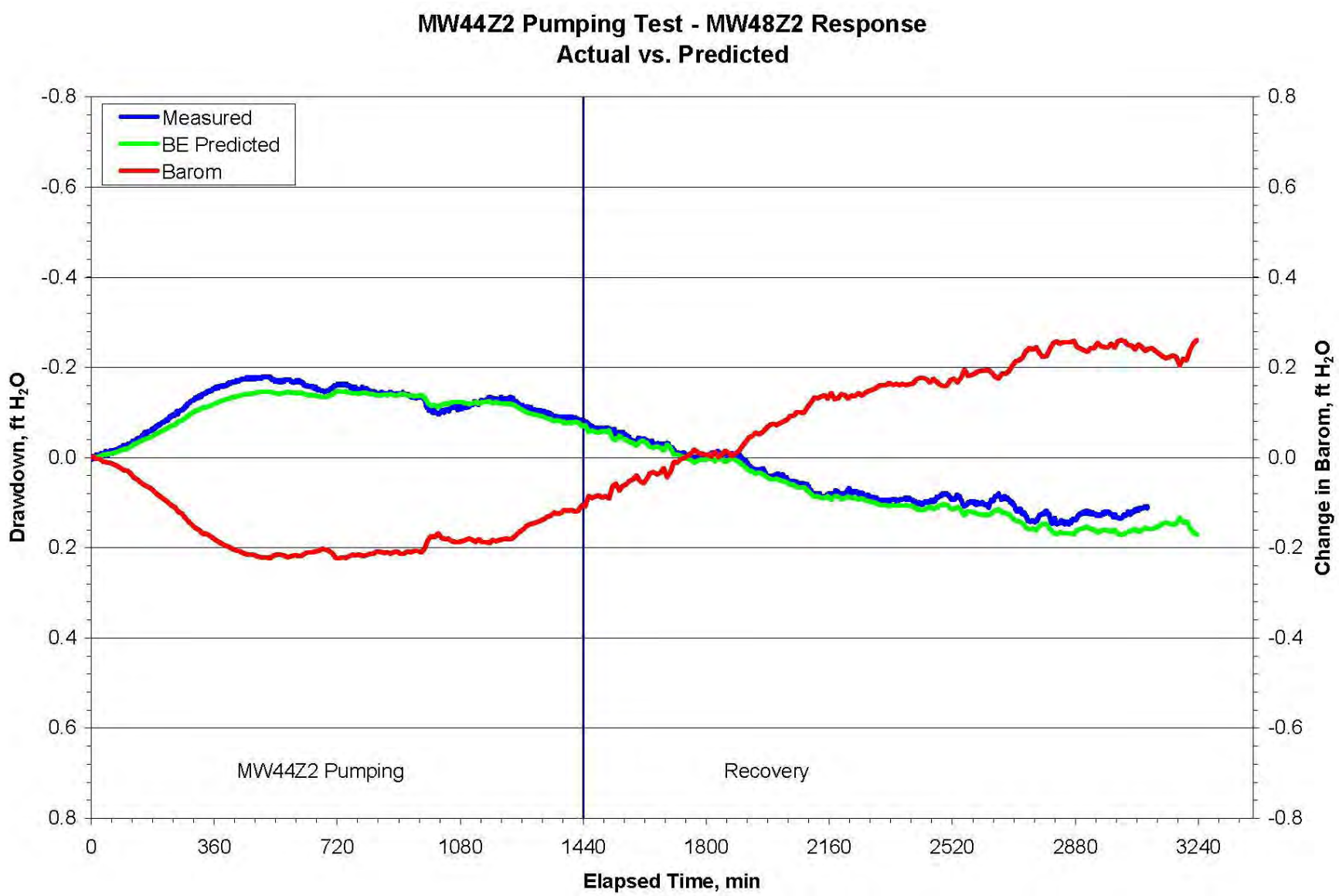

FIGURE B.3 Measured water levels, with water levels predicted on the basis of calculated BE responses for MW48Z2 during the MW44Z2 pumping and recovery periods, March 18-20.

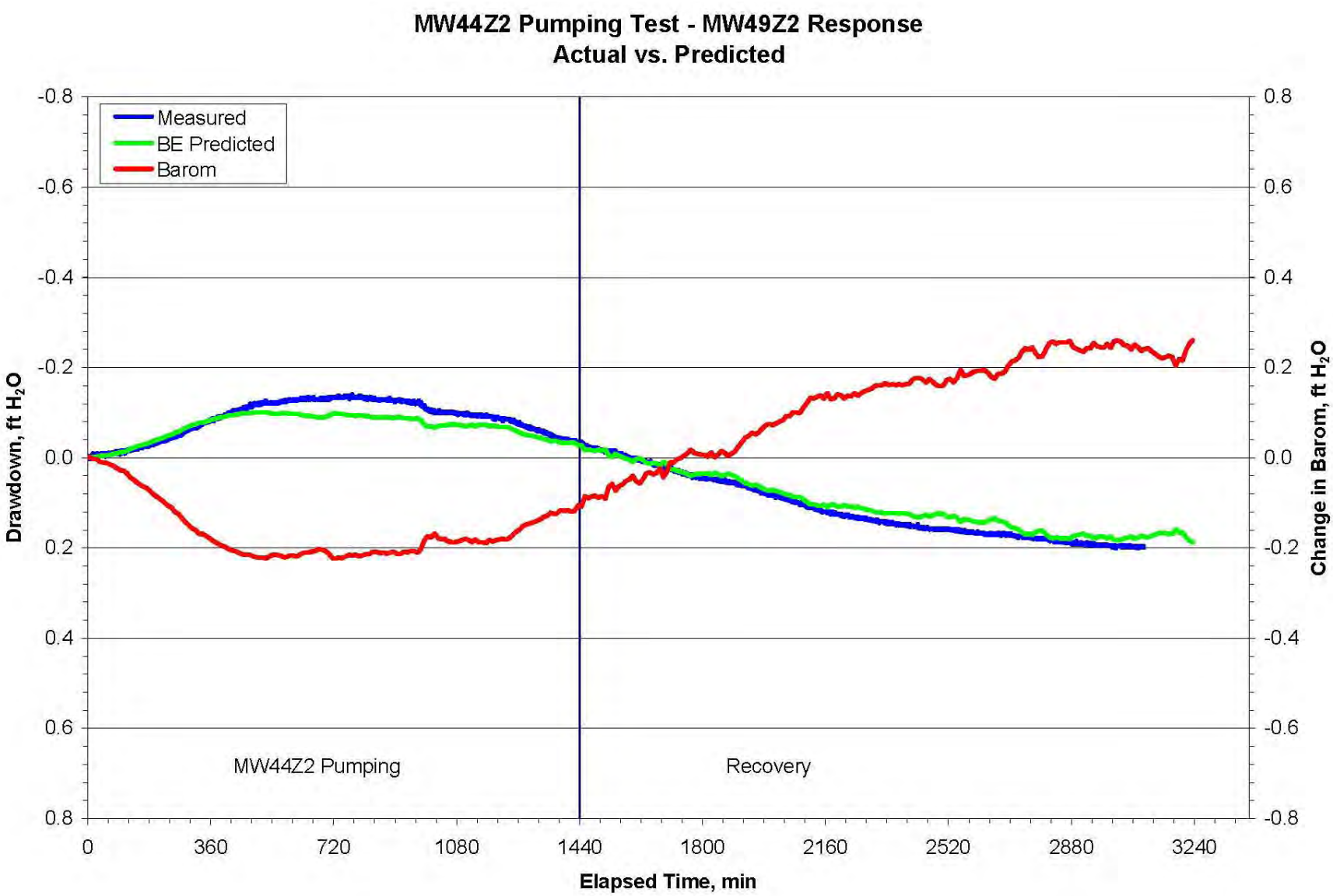

FIGURE B.4 Measured water levels, with water levels predicted on the basis of calculated BE responses for MW49Z2 during the MW44Z2 pumping and recovery periods, March 18-20.

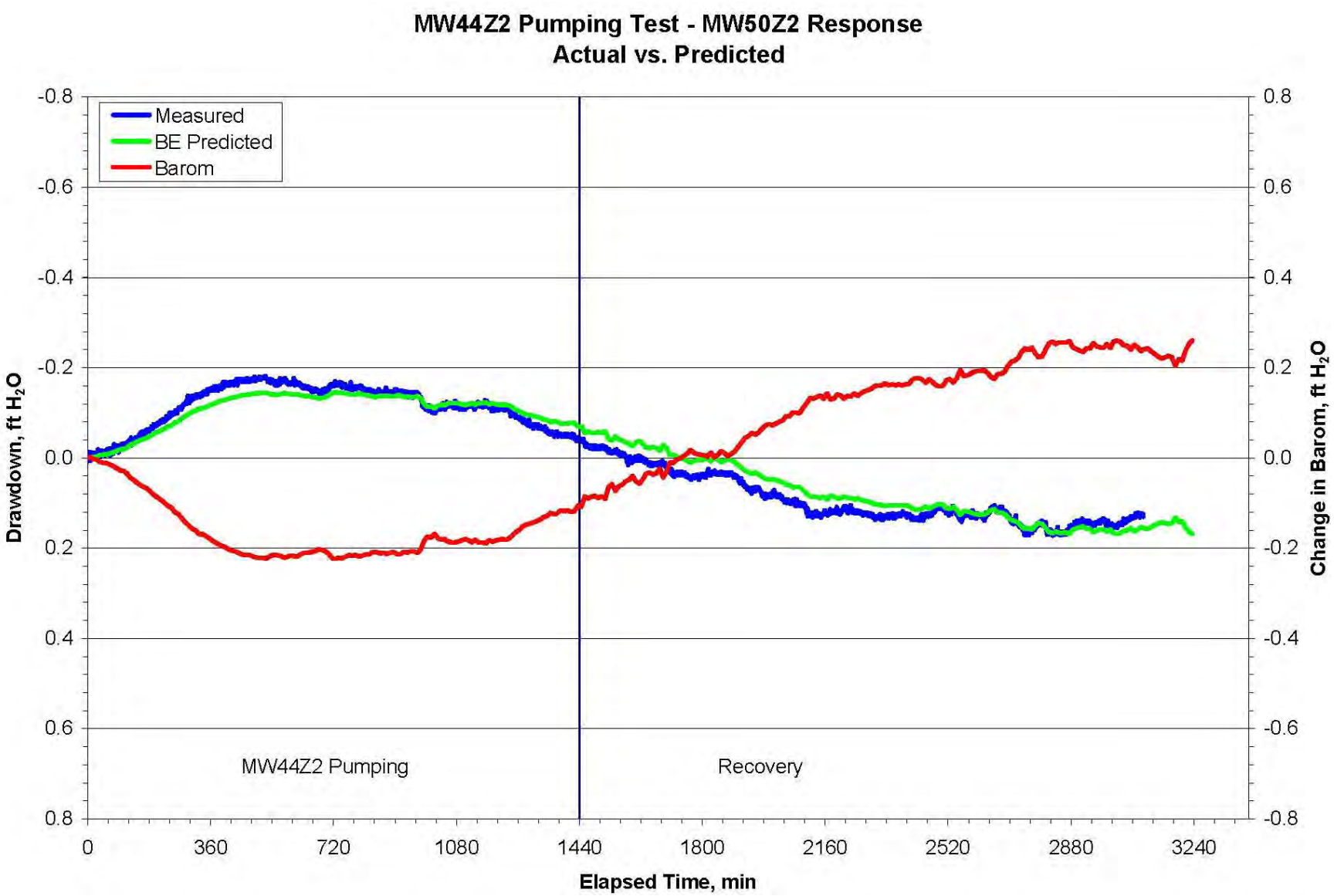

FIGURE B.5 Measured water levels, with water levels predicted on the basis of calculated BE responses for MW50Z2 during the MW44Z2 pumping and recovery periods, March 18-20.

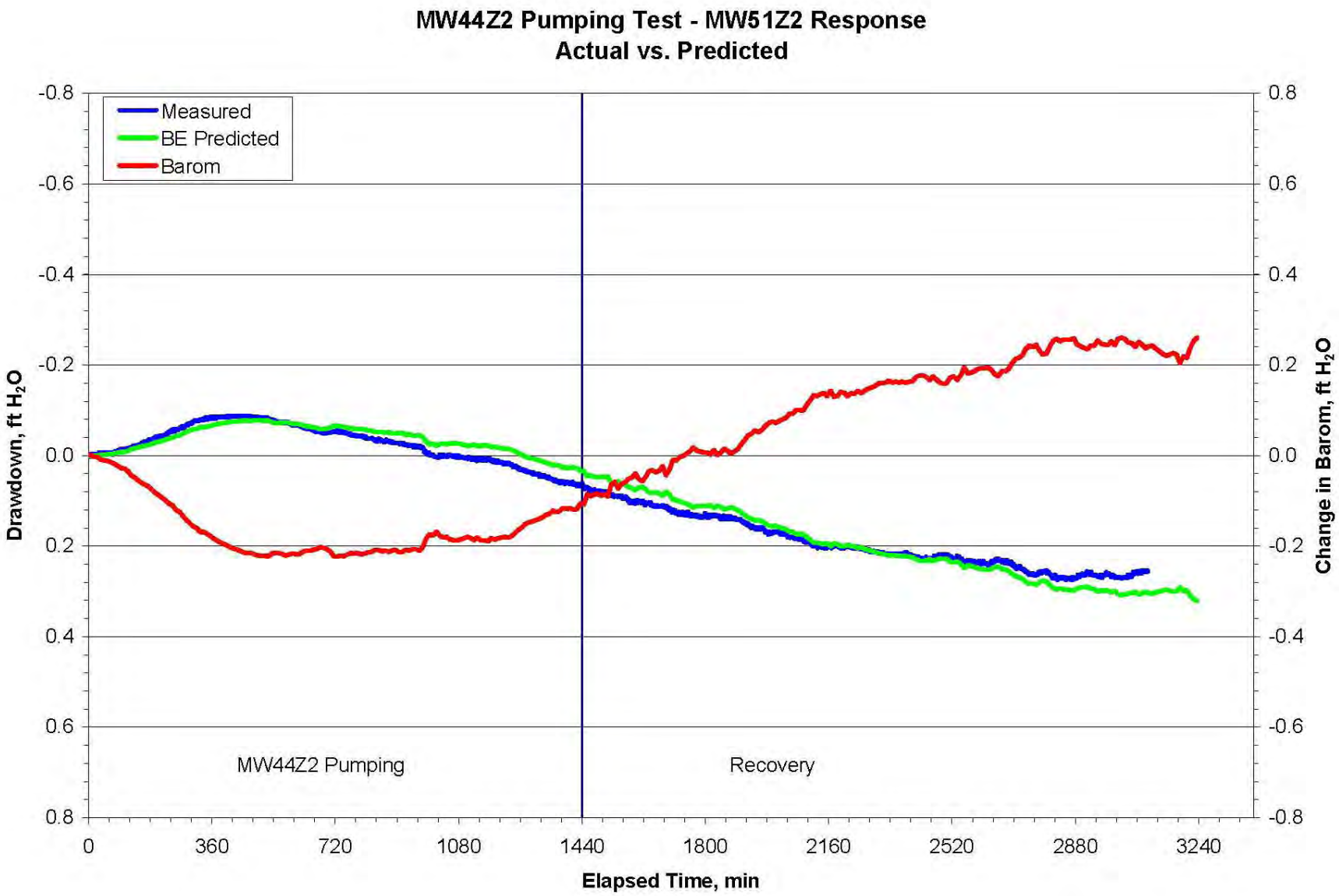

FIGURE B.6 Measured water levels, with water levels predicted on the basis of calculated BE responses for MW51Z2 during the MW44Z2 pumping and recovery periods, March 18-20.

Supplement 1:

Complete Water Level Data for Wells MW44Z2 and MW45Z2 during the Pre-Test Pumping, Constant-Rate Pumping, and Recovery Periods on March 13-20, 2010

TABLE S1.1 Water levels recorded by the PT2XTM data logger in MW44Z2 during the pre-test pumping peric
March 17, 2010.

Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
0.000	0.003	7.667	0.201	15.333	0.550
0.167	0.007	7.833	0.075	15.500	0.548
0.333	0.007	8.000	0.045	15.667	0.555
0.500	0.005	8.167	0.028	15.833	0.550
0.667	0.005	8.333	0.021	16.000	0.557
0.833	0.010	8.500	0.019	16.167	0.555
1.000	0.005	8.667	0.012	16.333	0.557
1.167	0.007	8.833	0.007	16.500	0.560
1.333	0.003	9.000	0.005	16.667	0.557
1.500	0.000	9.167	0.007	16.833	0.557
1.667	0.000	9.333	0.003	17.000	0.564
1.833	0.005	9.500	0.005	17.167	0.560
2.000	0.003	9.667	0.000	17.333	0.564
2.167	0.005	9.833	0.000	17.500	0.562
2.333	0.005	10.000	0.021	17.667	0.564
2.500	0.007	10.167	0.010	17.833	0.567
2.667	0.000	10.333	0.010	18.000	0.571
2.833	0.003	10.500	0.136	18.167	0.574
3.000	-0.002	10.667	0.219	18.333	0.576
3.167	0.005	10.833	0.294	18.500	0.571
3.333	0.000	11.000	0.345	18.667	0.571
3.500	0.007	11.167	0.378	18.833	0.571
3.667	0.005	11.333	0.399	19.000	0.574
3.833	0.005	11.500	0.420	19.167	0.574
4.000	0.000	11.667	0.436	19.333	0.576
4.167	0.000	11.833	0.452	19.500	0.585
4.333	0.000	12.000	0.462	19.667	0.578
4.500	0.007	12.167	0.469	19.833	0.578
4.667	-0.002	12.333	0.487	20.000	0.576
4.833	-0.004	12.500	0.490	20.167	0.590
5.000	0.003	12.667	0.501	20.333	0.581
5.167	-0.007	12.833	0.508	20.500	0.578
5.333	-0.002	13.000	0.511	20.667	0.581
5.500	0.000	13.167	0.518	20.833	0.576
5.667	0.000	13.333	0.518	21.000	0.583
5.833	0.003	13.500	0.527	21.167	0.585
6.000	-0.002	13.667	0.525	21.333	0.583
6.167	-0.002	13.833	0.529	21.500	0.578
6.333	0.005	14.000	0.534	21.667	0.581
6.500	-0.002	14.167	0.536	21.833	0.585
6.667	0.000	14.333	0.534	22.000	0.583
6.833	0.000	14.500	0.539	22.167	0.583
7.000	-0.004	14.667	0.539	22.333	0.588
7.167	-0.004	14.833	0.541	22.500	0.588
7.333	0.000	15.000	0.539	22.667	0.588
7.500	-0.004	15.167	0.550	22.833	0.585

TABLE S1.1 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
0.167	0.588	30.833	0.618	38.667	0.639
0.333	0.592	31.000	0.618	38.833	0.639
0.500	0.592	31.167	0.623	39.000	0.637
0.667	0.592	31.333	0.616	39.167	0.735
0.833	0.590	31.500	0.620	39.333	0.784
1.000	0.592	31.667	0.618	39.500	0.811
1.167	0.595	31.833	0.623	39.667	0.839
1.333	0.599	32.000	0.620	39.833	0.856
1.500	0.592	32.167	0.618	40.000	0.874
1.667	0.597	32.333	0.620	40.167	0.879
1.833	0.597	32.500	0.623	40.333	0.893
2.000	0.599	32.667	0.623	40.500	0.895
2.167	0.595	32.833	0.623	40.667	0.902
2.333	0.602	33.000	0.625	40.833	0.912
2.500	0.599	33.167	0.627	41.000	0.912
2.667	0.602	33.333	0.625	41.167	0.926
2.833	0.602	33.500	0.627	41.333	0.926
3.000	0.602	33.667	0.627	41.500	0.933
3.167	0.604	33.833	0.627	41.667	0.933
3.333	0.609	34.000	0.627	41.833	0.947
3.500	0.602	34.167	0.630	42.000	0.937
3.667	0.599	34.333	0.630	42.167	0.930
3.833	0.604	34.500	0.632	42.333	0.951
4.000	0.604	34.667	0.630	42.500	0.947
4.167	0.604	34.833	0.634	*42.667*	0.951
4.333	0.606	35.000	0.627	42.833	0.947
4.500	0.618	35.167	0.630	43.000	0.949
4.667	0.609	35.333	0.630	43.167	0.947
4.833	0.609	35.500	0.632	43.333	0.949
5.000	0.609	35.667	0.632	43.500	0.954
5.167	0.609	35.833	0.632	43.667	0.958
5.333	0.611	36.000	0.632	43.833	0.951
5.500	0.613	36.167	0.634	44.000	0.956
5.667	0.618	36.333	0.637	44.167	0.956
5.833	0.611	36.500	0.634	44.333	0.954
6.000	0.609	36.667	0.627	44.500	0.949
6.167	0.616	36.833	0.630	44.667	0.958
6.333	0.609	37.000	0.632	44.833	0.956
6.500	0.613	37.167	0.634	45.000	0.954
6.667	0.611	37.333	0.632	45.167	0.958
6.833	0.616	37.500	0.637	45.333	0.961
7.000	0.611	37.667	0.634	45.500	0.963
7.167	0.616	37.833	0.634	45.667	0.965
7.333	0.613	38.000	0.632	45.833	0.965
7.500	0.613	38.167	0.630	46.000	0.963
7.667	0.618	38.333	0.630	46.167	0.965
7.833	0.618	38.500	0.634	46.333	0.965

TABLE S1.1 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
46.500	0.970	54.333	1.012	62.167	1.019
46.667	0.968	54.500	1.005	62.333	1.019
46.833	0.968	54.667	1.003	62.500	1.017
47.000	0.968	54.833	1.005	62.667	1.017
47.167	0.968	55.000	1.000	62.833	1.019
47.333	0.972	55.167	1.000	63.000	1.014
47.500	0.968	55.333	0.998	63.167	1.017
47.667	0.968	55.500	1.000	63.333	1.019
47.833	0.968	55.667	0.996	63.500	1.021
48.000	0.972	55.833	1.000	63.667	1.024
48.167	0.972	56.000	1.000	63.833	1.019
48.333	0.970	56.167	1.005	64.000	1.021
48.500	0.975	56.333	1.000	64.167	1.019
48.667	0.972	56.500	1.000	64.333	1.024
48.833	0.970	56.667	1.000	64.500	1.026
49.000	0.975	56.833	1.000	64.667	1.028
49.167	0.975	57.000	1.003	64.833	1.026
49.333	0.982	57.167	1.007	65.000	1.026
49.500	0.972	57.333	0.998	65.167	1.028
49.667	0.972	57.500	1.000	65.333	1.026
49.833	0.979	57.667	1.003	65.500	1.028
50.000	0.977	57.833	1.005	65.667	1.026
50.167	0.979	58.000	1.005	65.833	1.026
50.333	0.982	58.167	1.005	66.000	1.026
50.500	0.984	58.333	1.005	66.167	1.026
50.667	0.979	58.500	1.007	66.333	1.031
50.833	0.982	58.667	1.012	66.500	1.031
51.000	0.979	58.833	1.007	66.667	1.035
51.167	0.982	59.000	1.007	66.833	1.031
51.333	0.984	59.167	1.007	67.000	1.031
51.500	0.982	59.333	1.007	67.167	1.033
51.667	0.977	59.500	1.007	67.333	1.031
51.833	0.979	59.667	1.010	67.500	1.028
52.000	0.984	59.833	1.007	67.667	1.033
52.167	0.986	60.000	1.007	67.833	1.031
52.333	0.986	60.167	1.017	68.000	1.031
52.500	0.982	60.333	1.012	68.167	1.033
52.667	0.986	60.500	1.010	68.333	1.031
52.833	0.986	60.667	1.010	68.500	1.031
53.000	0.986	60.833	1.012	68.667	1.038
53.167	0.986	61.000	1.012	68.833	1.031
53.333	0.986	61.167	1.012	69.000	1.031
53.500	0.989	61.333	1.012	69.167	1.031
53.667	0.991	61.500	1.019	69.333	1.028
53.833	1.024	61.667	1.014	69.500	1.033
54.000	1.019	61.833	1.012	69.667	1.031
54.167	1.012	62.000	1.014	69.833	1.031

TABLE S1.1 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
70.000	1.049	77.833	1.762	85.667	1.809
70.167	1.094	78.000	1.765	85.833	1.811
70.333	1.154	78.167	1.765	86.000	1.811
70.500	1.226	78.333	1.769	86.167	1.814
70.667	1.299	78.500	1.763	86.333	1.818
70.833	1.352	78.667	1.767	86.500	1.816
71.000	1.404	78.833	1.772	86.667	1.814
71.167	1.450	79.000	1.776	86.833	1.814
71.333	1.485	79.167	1.772	87.000	1.828
71.500	1.527	79.333	1.774	87.167	1.818
71.667	1.555	79.500	1.779	87.333	1.814
71.833	1.571	79.667	1.781	87.500	1.821
72.000	1.578	79.833	1.783	87.667	1.821
72.167	1.592	80.000	1.783	87.833	1.821
72.333	1.604	80.167	1.786	88.000	1.821
72.500	1.627	80.333	1.788	88.167	1.825
72.667	1.660	80.500	1.788	88.333	1.818
72.833	1.676	80.667	1.786	88.500	1.814
73.000	1.679	80.833	1.788	88.667	1.816
73.167	1.681	81.000	1.790	88.833	1.818
73.333	1.695	81.167	1.793	89.000	1.821
73.500	1.693	81.333	1.788	89.167	1.818
73.667	1.704	81.500	1.790	89.333	1.818
73.833	1.704	81.667	1.793	89.500	1.818
74.000	1.714	81.833	1.788	89.667	1.823
74.167	1.714	82.000	1.795	89.833	1.818
74.333	1.716	82.167	1.795	90.000	1.818
74.500	1.718	82.333	1.797	90.167	1.818
74.667	1.721	82.500	1.795	90.333	1.818
74.833	1.728	82.667	1.795	90.500	1.828
75.000	1.730	82.833	1.800	90.667	1.825
75.167	1.732	83.000	1.802	90.833	1.823
75.333	1.735	83.167	1.800	91.000	1.823
75.500	1.741	83.333	1.800	91.167	1.825
75.667	1.739	83.500	1.797	91.333	1.830
75.833	1.749	83.667	1.802	91.500	1.832
76.000	1.748	83.833	1.804	91.667	1.828
76.167	1.751	84.000	1.802	91.833	1.832
76.333	1.751	84.167	1.804	92.000	1.828
76.500	1.746	84.333	1.807	92.167	1.828
76.667	1.758	84.500	1.807	92.333	1.828
76.833	1.755	84.667	1.809	92.500	1.832
77.000	1.762	84.833	1.807	92.667	1.832
77.167	1.758	85.000	1.807	92.833	1.832
77.333	1.765	85.167	1.809	93.000	1.830
77.500	1.770	85.333	1.809	93.167	1.832
77.667	1.767	85.500	1.814	93.333	1.835

TABLE S1.1 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
93.500	1.832	101.333	1.923	109.167	2.634
93.667	1.832	101.500	1.937	109.333	2.637
93.833	1.835	101.667	1.923	109.500	2.644
94.000	1.837	101.833	1.923	109.667	2.646
94.167	1.835	102.000	1.930	109.833	2.653
94.333	1.839	102.167	1.926	110.000	2.648
94.500	1.891	102.333	1.928	110.167	2.655
94.667	1.912	102.500	1.935	110.333	2.662
94.833	1.902	102.667	2.000	110.500	2.665
95.000	1.902	102.833	2.189	110.667	2.662
95.167	1.867	103.000	2.322	110.833	2.662
95.333	1.877	103.167	2.420	111.000	2.667
95.500	1.884	103.333	2.445	111.167	2.667
95.667	1.884	103.500	2.478	111.333	2.674
95.833	1.888	103.667	2.499	111.500	2.676
96.000	1.888	103.833	2.527	111.667	2.679
96.167	1.886	104.000	2.534	111.833	2.676
96.333	1.891	104.167	2.550	112.000	2.679
96.500	1.893	104.333	2.553	112.167	2.679
96.667	1.893	104.500	2.560	112.333	2.676
96.833	1.898	104.667	2.576	112.500	2.676
97.000	1.898	104.833	2.578	112.667	2.681
97.167	1.905	105.000	2.583	112.833	2.686
97.333	1.898	105.167	2.590	113.000	2.688
97.500	1.900	105.333	2.590	113.167	2.688
97.667	1.902	105.500	2.592	113.333	2.695
97.833	1.895	105.667	2.597	113.500	2.695
98.000	1.902	105.833	2.597	113.667	2.697
98.167	1.900	106.000	2.611	113.833	2.699
98.333	1.905	106.167	2.609	114.000	2.702
98.500	1.909	106.333	2.609	114.167	2.706
98.667	1.905	106.500	2.606	114.333	2.699
98.833	1.907	106.667	2.613	114.500	2.704
99.000	1.905	106.833	2.616	114.667	2.706
99.167	1.905	107.000	2.620	114.833	2.709
99.333	1.905	107.167	2.616	115.000	2.711
99.500	1.907	107.333	2.625	115.167	2.718
99.667	1.909	107.500	2.618	115.333	2.720
99.833	1.907	107.667	2.623	115.500	2.716
100.000	1.902	107.833	2.623	115.667	2.718
100.167	1.907	108.000	2.632	115.833	2.718
100.333	1.909	108.167	2.630	116.000	2.718
100.500	1.907	108.333	2.634	116.167	2.718
100.667	1.916	108.500	2.634	116.333	2.723
100.833	1.921	108.667	2.641	116.500	2.718
101.000	1.926	108.833	2.639	116.667	2.725
101.167	1.923	109.000	2.637	116.833	2.725

TABLE S1.1 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
117.000	2.725	124.833	2.723	132.667	2.713
117.167	2.727	125.000	2.723	132.833	2.718
117.333	2.732	125.167	2.727	133.000	2.718
117.500	2.730	125.333	2.723	133.167	2.713
117.667	2.732	125.500	2.730	133.333	2.711
117.833	2.727	125.667	2.723	133.500	2.711
118.000	2.732	125.833	2.730	133.667	2.713
118.167	2.737	126.000	2.727	133.833	2.713
118.333	2.737	126.167	2.727	134.000	2.713
118.500	2.730	126.333	2.730	134.167	2.727
118.667	2.727	126.500	2.734	134.333	2.779
118.833	2.725	126.667	2.727	134.500	2.851
119.000	2.718	126.833	2.727	134.667	2.914
119.167	2.720	127.000	2.727	134.833	3.049
119.333	2.718	127.167	2.727	135.000	3.105
119.500	2.720	127.333	2.728	135.167	3.170
119.667	2.709	127.500	2.730	135.333	3.208
119.833	2.718	127.667	2.739	135.500	3.250
120.000	2.713	127.833	2.732	135.667	3.289
120.167	2.706	128.000	2.730	135.833	3.329
120.333	2.713	128.167	2.730	136.000	3.347
120.500	2.711	128.333	2.746	136.167	3.387
120.667	2.718	128.500	2.734	136.333	3.429
120.833	2.718	128.667	2.725	136.500	3.455
121.000	2.711	128.833	2.725	136.667	3.480
121.167	2.716	129.000	2.718	136.833	3.492
121.333	2.711	129.167	2.723	137.000	3.508
121.500	2.713	129.333	2.720	137.167	3.527
121.667	2.711	129.500	2.718	137.333	3.543
121.833	2.711	129.667	2.711	137.500	3.564
122.000	2.713	129.833	2.716	137.667	3.599
122.167	2.716	130.000	2.720	137.833	3.639
122.333	2.718	130.167	2.716	138.000	3.657
122.500	2.713	130.333	2.718	138.167	3.671
122.667	2.711	130.500	2.718	138.333	3.685
122.833	2.716	130.667	2.713	138.500	3.704
123.000	2.711	130.833	2.716	138.667	3.706
123.167	2.718	131.000	2.711	138.833	3.709
123.333	2.718	131.167	2.713	139.000	3.720
123.500	2.718	131.333	2.714	139.167	3.727
123.667	2.718	131.500	2.716	139.333	3.741
123.833	2.723	131.667	2.716	139.500	3.751
124.000	2.721	131.833	2.711	139.667	3.755
124.167	2.725	132.000	2.713	139.833	3.762
124.333	2.720	132.167	2.713	140.000	3.767
124.500	2.723	132.333	2.718	140.167	3.779
124.667	2.723	132.500	2.716	140.333	3.779

TABLE S1.1 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
140.500	3.779	148.333	3.907	156.167	3.858
140.667	3.783	148.500	3.907	156.333	3.856
140.833	3.790	148.667	3.907	156.500	3.846
141.000	3.793	148.833	3.909	156.667	3.849
141.167	3.795	149.000	3.912	156.833	3.846
141.333	3.802	149.167	3.912	157.000	3.844
141.500	3.804	149.333	3.909	157.167	3.849
141.667	3.811	149.500	3.912	157.333	3.851
141.833	3.814	149.667	3.912	157.500	3.851
142.000	3.823	149.833	3.909	157.667	3.858
142.167	3.816	150.000	3.907	157.833	3.856
142.333	3.821	150.167	3.907	158.000	3.858
142.500	3.821	150.333	3.907	158.167	3.860
142.667	3.830	150.500	3.905	158.333	3.867
142.833	3.832	150.667	3.909	158.500	3.867
143.000	3.835	150.833	3.902	158.667	3.865
143.167	3.849	151.000	3.907	158.833	3.867
143.333	3.846	151.167	3.905	159.000	3.867
143.500	3.846	151.333	3.902	159.167	3.879
143.667	3.851	151.500	3.900	159.333	3.877
143.833	3.856	151.667	3.900	159.500	3.877
144.000	3.860	151.833	3.898	159.667	3.877
144.167	3.860	152.000	3.907	159.833	3.879
144.333	3.863	152.167	3.907	160.000	3.877
144.500	3.870	152.333	3.914	160.167	3.870
144.667	3.865	152.500	3.912	160.333	3.877
144.833	3.872	152.667	3.912	160.500	3.877
145.000	3.874	152.833	3.912	160.667	3.872
145.167	3.877	153.000	3.912	160.833	3.874
145.333	3.874	153.167	3.914	161.000	3.872
145.500	3.879	153.333	3.914	161.167	3.872
145.667	3.884	153.500	3.909	161.333	3.870
145.833	3.881	153.667	3.905	161.500	3.867
146.000	3.888	153.833	3.902	161.667	3.872
146.167	3.891	154.000	3.900	161.833	3.867
146.333	3.888	154.167	3.900	162.000	3.870
146.500	3.884	154.333	3.902	162.167	3.870
146.667	3.891	154.500	3.912	162.333	3.860
146.833	3.893	154.667	3.900	162.500	3.863
147.000	3.886	154.833	3.898	162.667	3.858
147.167	3.898	155.000	3.895	162.833	3.858
147.333	3.895	155.167	3.900	163.000	3.856
147.500	3.905	155.333	3.891	163.167	3.858
147.667	3.902	155.500	3.877	163.333	3.858
147.833	3.900	155.667	3.872	163.500	3.853
148.000	3.907	155.833	3.865	163.667	3.856
148.167	3.905	156.000	3.863	163.833	3.846

TABLE S1.1 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
164.000	3.853	171.833	1.366	179.667	3.912
164.167	3.849	172.000	1.261	179.833	3.916
164.333	3.851	172.167	1.177	180.000	3.928
164.500	3.844	172.333	1.105	180.167	3.928
164.667	3.844	172.500	1.045	180.333	3.933
164.833	3.851	172.667	0.993	180.500	3.935
165.000	3.860	172.833	0.951	180.667	3.946
165.167	3.863	173.000	1.210	180.833	3.949
165.333	3.858	173.167	1.490	181.000	3.951
165.500	3.865	173.333	1.753	181.167	3.951
165.667	3.865	173.500	2.096	181.333	3.963
165.833	3.863	173.667	2.455	181.500	3.986
166.000	3.863	173.833	2.699	181.667	3.979
166.167	3.863	174.000	2.893	181.833	3.986
166.333	3.865	174.167	3.035	182.000	3.981
166.500	3.865	174.333	3.114	182.167	3.986
166.667	3.867	174.500	3.191	182.333	3.984
166.833	3.865	174.667	3.271	182.500	3.986
167.000	3.867	174.833	3.326	182.667	3.979
167.167	3.865	175.000	3.378	182.833	3.984
167.333	3.865	175.167	3.424	183.000	3.988
167.500	3.865	175.333	3.473	183.167	3.986
167.667	3.853	175.500	3.520	183.333	3.988
167.833	3.844	175.667	3.555	183.500	3.991
168.000	3.842	175.833	3.590	183.667	3.988
168.167	3.837	176.000	3.620	183.833	3.986
168.333	3.844	176.167	3.646	184.000	3.993
168.500	3.835	176.333	3.669	184.167	3.995
168.667	3.839	176.500	3.695	184.333	3.993
168.833	3.842	176.667	3.713	184.500	3.991
169.000	3.849	176.833	3.739	184.667	3.986
169.167	3.846	177.000	3.755	184.833	3.993
169.333	3.842	177.167	3.769	185.000	3.993
169.500	3.849	177.333	3.788	185.167	3.998
169.667	3.846	177.500	3.797	185.333	3.993
169.833	3.849	177.667	3.811	185.500	3.995
170.000	3.846	177.833	3.821	185.667	3.995
170.167	3.846	178.000	3.835	185.833	4.002
170.333	3.851	178.167	3.844	186.000	3.998
170.500	3.846	178.333	3.851	186.167	3.998
170.667	3.602	178.500	3.865	186.333	4.002
170.833	2.723	178.667	3.872	186.500	4.005
171.000	2.292	178.833	3.877	186.667	4.002
171.167	2.014	179.000	3.886	186.833	4.007
171.333	1.795	179.167	3.893	187.000	4.009
171.500	1.623	179.333	3.900	187.167	4.012
171.667	1.480	179.500	3.905	187.333	4.007

TABLE S1.1 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
187.500	4.007	195.000	0.627	202.500	0.422
187.667	4.012	195.167	0.632	202.667	0.418
187.833	4.012	195.333	0.613	202.833	0.415
188.000	4.009	195.500	0.602	203.000	0.413
188.167	4.012	195.667	0.599	203.167	0.411
188.333	4.009	195.833	0.592	203.333	0.408
188.500	4.012	196.000	0.588	203.500	0.404
188.667	4.014	196.167	0.581	203.667	0.399
188.833	4.009	196.333	0.576	203.833	0.397
189.000	4.009	196.500	0.567		
189.167	4.016	196.667	0.555		
189.333	4.016	196.833	0.548		
189.500	3.998	197.000	0.546		
189.667	3.993	197.167	0.541		
189.833	3.793	197.333	0.534		
190.000	2.933	197.500	0.530		
190.167	2.450	197.667	0.527		
190.333	2.133	197.833	0.518		
190.500	1.898	198.000	0.516		
190.667	1.709	198.167	0.509		
190.833	1.560	198.333	0.502		
191.000	1.432	198.500	0.502		
191.167	1.324	198.667	0.502		
191.333	1.226	198.833	0.495		
191.500	1.154	199.000	0.492		
191.667	1.087	199.167	0.483		
191.833	1.035	199.333	0.483		
192.000	0.986	199.500	0.481		
192.167	0.940	199.667	0.476		
192.333	0.905	199.833	0.471		
192.500	0.870	200.000	0.471		
192.667	0.842	200.167	0.462		
192.833	0.814	200.333	0.460		
193.000	0.793	200.500	0.457		
193.167	0.772	200.667	0.455		
193.333	0.753	200.833	0.450		
193.500	0.739	201.000	0.446		
193.667	0.721	201.167	0.441		
193.833	0.709	201.333	0.441		
194.000	0.693	201.500	0.436		
194.167	0.681	201.667	0.434		
194.333	0.672	201.833	0.429		
194.500	0.662	202.000	0.427		
194.667	0.651	202.167	0.425		
194.833	0.639	202.333	0.420		

[a] Elapsed time was calculated from 15:20 on 3/17/10 as time zero.

TABLE S1.2 Water levels in MW44Z2 and MW45Z2 recorded by the Hermit™ data logger during the constant-rate pumping period, March 18-19, 2010.

Elapsed	Water Level Change from Initial (ft H_2O)		Elapsed	Water Level Change from Initial (ft H_2O)	
Timea (min)	MW44Z2	MW45Z2	Time (min)	MW44Z2	MW45Z2
0.0000	0.012	0.006	0.1466	0.735	0.006
0.0033	0.012	0.006	0.1500	0.741	0.006
0.0066	0.012	0.006	0.1533	0.751	0.006
0.0100	0.012	0.006	0.1566	0.745	0.006
0.0133	0.012	0.006	0.1600	0.763	0.006
0.0166	0.254	0.006	0.1633	0.760	0.006
0.0200	0.298	0.006	0.1666	0.763	0.006
0.0233	0.106	0.006	0.1700	0.782	0.006
0.0266	0.069	0.006	0.1733	0.779	0.006
0.0300	0.122	0.006	0.1766	0.785	0.006
0.0333	0.179	0.006	0.1800	0.839	0.006
0.0366	0.229	0.006	0.1833	0.845	0.006
0.0400	0.260	0.006	0.1866	0.823	0.006
0.0433	0.286	0.006	0.1900	0.814	0.006
0.0466	0.311	0.006	0.1933	0.836	0.006
0.0500	0.333	0.012	0.1966	0.842	0.006
0.0533	0.348	0.006	0.2000	0.870	0.006
0.0566	0.367	0.006	0.2033	0.873	0.006
0.0600	0.396	0.006	0.2066	0.886	0.006
0.0633	0.427	0.012	0.2100	0.911	0.006
0.0666	0.449	0.006	0.2133	0.914	0.006
0.0700	0.459	0.006	0.2166	0.914	0.006
0.0733	0.477	0.006	0.2200	0.924	0.006
0.0766	0.506	0.006	0.2233	0.936	0.006
0.0800	0.525	0.006	0.2266	0.958	0.006
0.0833	0.534	0.006	0.2300	0.971	0.006
0.0866	0.550	0.012	0.2333	0.974	0.006
0.0900	0.578	0.006	0.2366	0.980	0.006
0.0933	0.581	0.006	0.2400	0.987	0.000
0.0966	0.609	0.006	0.2433	0.999	0.000
0.1000	0.622	0.006	0.2466	1.018	0.006
0.1033	0.631	0.006	0.2500	1.031	0.006
0.1066	0.638	0.012	0.2533	1.037	0.000
0.1100	0.660	0.006	0.2566	1.034	0.000
0.1133	0.679	0.006	0.2600	1.043	0.000
0.1166	0.682	0.006	0.2633	1.062	0.006
0.1200	0.679	0.006	0.2666	1.065	0.000
0.1233	0.669	0.006	0.2700	1.068	0.000
0.1266	0.707	0.006	0.2733	1.093	0.000
0.1300	0.713	0.006	0.2766	1.087	0.000
0.1333	0.726	0.006	0.2800	1.106	0.000
0.1366	0.726	0.006	0.2833	1.103	0.000
0.1400	0.719	0.006	0.2866	1.116	0.000
0.1433	0.738	0.006	0.2900	1.109	0.000

TABLE S1.2 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
0.2933	1.131	0.000	0.9000	1.832	0.000
0.2966	1.137	0.000	0.9166	1.829	0.000
0.3000	1.137	0.000	0.9333	1.848	0.000
0.3033	1.141	0.000	0.9500	1.870	0.000
0.3066	1.150	0.000	0.9666	1.870	0.000
0.3100	1.163	0.000	0.9833	1.876	0.006
0.3133	1.172	0.000	1.0	1.889	0.006
0.3166	1.172	0.000	1.2	2.024	0.000
0.3200	1.169	0.000	1.4	2.121	0.000
0.3233	1.178	0.000	1.6	2.187	0.000
0.3266	1.194	0.000	1.8	2.253	0.000
0.3300	1.200	0.000	2.0	2.329	-0.006
0.3333	1.197	0.000	2.2	2.376	0.000
0.3500	1.235	0.000	2.4	2.426	0.000
0.3666	1.257	0.000	2.6	2.451	0.000
0.3833	1.279	0.000	2.8	2.498	-0.006
0.4000	1.301	0.000	3.0	2.530	-0.006
0.4166	1.332	-0.006	3.2	2.546	-0.012
0.4333	1.361	-0.006	3.4	2.577	-0.025
0.4500	1.392	-0.006	3.6	2.599	-0.025
0.4666	1.417	-0.006	3.8	2.618	-0.025
0.4833	1.436	-0.006	4.0	2.646	-0.025
0.5000	1.452	-0.006	4.2	2.671	-0.025
0.5166	1.464	-0.006	4.4	2.712	-0.018
0.5333	1.486	-0.006	4.6	2.731	-0.012
0.5500	1.512	-0.006	4.8	2.753	-0.012
0.5666	1.540	-0.006	5.0	2.762	-0.012
0.5833	1.552	-0.006	5.2	2.778	-0.006
0.6000	1.562	-0.006	5.4	2.794	-0.006
0.6166	1.590	-0.006	5.6	2.813	-0.006
0.6333	1.606	-0.006	5.8	2.816	-0.012
0.6500	1.612	-0.006	6.0	2.835	-0.018
0.6666	1.634	-0.006	6.2	2.844	-0.025
0.6833	1.656	-0.006	6.4	2.851	-0.025
0.7000	1.656	0.000	6.6	2.857	-0.025
0.7166	1.688	-0.006	6.8	2.866	-0.018
0.7333	1.688	0.000	7.0	2.876	-0.012
0.7500	1.716	0.000	7.2	2.882	-0.012
0.7666	1.719	0.000	7.4	2.891	-0.006
0.7833	1.741	0.000	7.6	2.901	0.000
0.8000	1.750	0.000	7.8	2.907	0.000
0.8166	1.766	0.000	8.0	2.913	0.006
0.8333	1.772	0.000	8.2	2.923	0.006
0.8500	1.798	0.000	8.4	2.935	0.006
0.8666	1.794	0.000	8.6	2.945	0.006
0.8833	1.816	0.000	8.8	2.945	0.000

TABLE S1.2 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
9.0	2.954	0.000	92	3.649	-0.050
9.2	2.957	-0.006	94	3.658	0.018
9.4	2.967	-0.012	96	3.661	0.000
9.6	2.967	-0.025	98	3.677	-0.037
9.8	2.976	-0.031	100	3.668	-0.031
10	2.989	-0.031	120	3.649	0.031
12	3.023	-0.012	140	3.690	0.018
14	3.048	0.000	160	3.752	0.000
16	3.077	0.000	180	3.756	-0.075
18	3.146	0.012	200	3.727	-0.056
20	3.177	-0.012	220	3.781	-0.075
22	3.199	-0.025	240	3.759	-0.050
24	3.237	-0.025	260	3.727	-0.088
26	3.284	0.006	280	3.762	-0.050
28	3.300	-0.012	300	3.765	-0.044
30	3.325	-0.025	320	3.715	-0.100
32	3.344	-0.006	340	3.737	-0.094
34	3.379	-0.012	360	3.734	-0.138
36	3.397	-0.012	380	3.790	-0.113
38	3.410	-0.012	400	3.790	-0.113
40	3.419	0.012	420	3.746	-0.113
42	3.429	-0.018	440	3.796	-0.113
44	3.432	-0.006	460	3.771	-0.132
46	3.448	-0.012	480	3.740	-0.132
48	3.470	-0.031	500	3.743	-0.119
50	3.482	-0.018	520	3.762	-0.126
52	3.488	0.000	540	3.768	-0.113
54	3.463	-0.018	560	3.787	-0.094
56	3.510	0.006	580	3.806	-0.107
58	3.526	-0.044	600	3.850	-0.094
60	3.539	0.000	620	3.859	-0.088
62	3.558	0.000	640	3.828	-0.081
64	3.586	0.006	660	3.856	-0.069
66	3.598	-0.037	680	3.866	-0.069
68	3.602	0.012	700	3.859	-0.075
70	3.614	0.000	720	3.888	-0.081
72	3.608	-0.025	740	3.872	-0.075
74	3.620	0.000	760	3.856	-0.069
76	3.624	-0.025	780	3.897	-0.075
78	3.617	-0.018	800	3.884	-0.069
80	3.627	0.018	820	3.872	-0.063
82	3.611	-0.012	840	3.913	-0.063
84	3.602	0.000	860	3.913	-0.050
86	3.589	-0.006	880	3.894	-0.056
88	3.595	-0.031	900	3.932	-0.050
90	3.617	-0.012	920	3.932	-0.050

TABLE S1.2 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
940	3.925	-0.044			
960	3.960	-0.050			
980	3.985	0.006			
1000	3.969	-0.012			
1020	4.010	-0.006			
1040	3.991	-0.018			
1060	3.947	-0.025			
1080	3.998	-0.018			
1100	4.001	-0.018			
1120	3.954	-0.012			
1140	3.994	-0.012			
1160	3.988	-0.018			
1180	3.963	-0.018			
1200	4.016	-0.012			
1220	4.016	-0.012			
1240	3.991	0.000			
1260	4.026	0.006			
1280	4.045	0.018			
1300	4.001	0.025			
1320	4.020	0.031			
1340	4.060	0.037			
1360	4.042	0.044			
1380	4.045	0.050			
1400	4.070	0.050			
1420	4.067	0.056			
1440	4.042	0.063			

[a] Elapsed time was calculated from 10:15 on 3/18/10 as time zero.

TABLE S1.3 Water levels in MW44Z2 and MW45Z2 recorded by the PT2XTM data loggers during the constant rate pumping period, March 18-19, 2010.

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
0.000	0.152	-0.003	0.733	1.746	-0.010
0.017	0.329	-0.005	0.750	1.764	-0.007
0.033	0.452	-0.005	0.767	1.774	-0.012
0.050	0.546	-0.005	0.783	1.783	-0.010
0.067	0.636	-0.007	0.800	1.795	-0.010
0.083	0.692	-0.010	0.817	1.809	-0.010
0.100	0.727	-0.007	0.833	1.820	-0.012
0.117	0.760	-0.007	0.850	1.839	-0.010
0.133	0.783	-0.007	0.867	1.841	-0.010
0.150	0.837	-0.007	0.883	1.855	-0.010
0.167	0.891	-0.010	0.900	1.865	-0.012
0.183	0.944	-0.012	0.917	1.879	-0.010
0.200	1.002	-0.010	0.933	1.895	-0.010
0.217	1.047	-0.007	0.950	1.900	-0.010
0.233	1.091	-0.007	0.967	1.911	-0.010
0.250	1.131	-0.010	0.983	1.921	-0.012
0.267	1.168	-0.010	1.000	1.937	-0.012
0.283	1.200	-0.007	1.017	1.944	-0.014
0.300	1.228	-0.007	1.033	1.949	-0.012
0.317	1.252	-0.010	1.050	1.965	-0.012
0.333	1.282	-0.010	1.067	1.974	-0.012
0.350	1.312	-0.010	1.083	1.979	-0.010
0.367	1.336	-0.012	1.100	1.988	-0.010
0.383	1.364	-0.010	1.117	2.002	-0.012
0.400	1.382	-0.010	1.133	2.021	-0.012
0.417	1.403	-0.003	1.150	2.016	-0.012
0.433	1.434	-0.012	1.167	2.021	-0.014
0.450	1.455	-0.012	1.183	2.032	-0.010
0.467	1.473	-0.010	1.200	2.042	-0.012
0.483	1.496	-0.010	1.217	2.049	-0.012
0.500	1.517	-0.012	1.233	2.060	-0.012
0.517	1.538	-0.010	1.250	2.067	-0.014
0.533	1.552	-0.010	1.267	2.074	-0.010
0.550	1.571	-0.010	1.283	2.081	-0.010
0.567	1.587	-0.012	1.300	2.093	-0.010
0.583	1.608	-0.007	1.317	2.098	-0.014
0.600	1.622	-0.010	1.333	2.102	-0.010
0.617	1.641	-0.012	1.350	2.112	-0.014
0.633	1.655	-0.012	1.367	2.114	-0.010
0.650	1.676	-0.010	1.383	2.128	-0.010
0.667	1.685	-0.007	1.400	2.130	-0.007
0.683	1.704	-0.012	1.417	2.142	-0.012
0.700	1.716	-0.010	1.433	2.149	-0.010
0.717	1.734	-0.012	1.450	2.158	-0.012

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
1.467	2.165	-0.010	2.233	2.396	-0.010
1.483	2.168	-0.010	2.250	2.405	-0.014
1.500	2.175	-0.012	2.267	2.401	-0.010
1.517	2.184	-0.012	2.283	2.405	-0.010
1.533	2.191	-0.012	2.300	2.410	-0.014
1.550	2.191	-0.010	2.317	2.415	-0.012
1.567	2.203	-0.010	2.333	2.419	-0.010
1.583	2.210	-0.010	2.350	2.419	-0.014
1.600	2.212	-0.007	2.367	2.426	-0.012
1.617	2.219	-0.010	2.383	2.426	-0.010
1.633	2.226	-0.010	2.400	2.431	-0.010
1.650	2.233	-0.012	2.417	2.433	-0.012
1.667	2.233	-0.012	2.433	2.436	-0.010
1.683	2.245	-0.012	2.450	2.438	-0.007
1.700	2.240	-0.012	2.467	2.450	-0.010
1.717	2.249	-0.012	2.483	2.447	-0.010
1.733	2.251	-0.010	2.500	2.450	-0.012
1.750	2.263	-0.012	2.517	2.457	-0.010
1.767	2.270	-0.010	2.533	2.457	-0.010
1.783	2.272	-0.012	2.550	2.461	-0.012
1.800	2.282	-0.014	2.567	2.466	-0.012
1.817	2.284	-0.012	2.583	2.466	-0.012
1.833	2.289	-0.014	2.600	2.466	-0.012
1.850	2.296	-0.012	2.617	2.480	-0.012
1.867	2.296	-0.014	2.633	2.475	-0.014
1.883	2.303	-0.014	2.650	2.485	-0.012
1.900	2.312	-0.010	2.667	2.482	-0.014
1.917	2.310	-0.014	2.683	2.489	-0.007
1.933	2.319	-0.012	2.700	2.485	-0.012
1.950	2.324	-0.012	2.717	2.485	-0.012
1.967	2.326	-0.012	2.733	2.489	-0.007
1.983	2.333	-0.010	2.750	2.498	-0.012
2.000	2.340	-0.007	2.767	2.501	-0.010
2.017	2.345	-0.010	2.783	2.501	-0.010
2.033	2.342	-0.010	2.800	2.503	-0.010
2.050	2.352	-0.010	2.817	2.505	-0.012
2.067	2.352	-0.012	2.833	2.512	-0.007
2.083	2.359	-0.010	2.850	2.512	-0.010
2.100	2.361	-0.012	2.867	2.519	-0.012
2.117	2.373	-0.014	2.883	2.512	-0.010
2.133	2.370	-0.010	2.900	2.517	-0.012
2.150	2.380	-0.012	2.917	2.519	-0.014
2.167	2.377	-0.012	2.933	2.522	-0.007
2.183	2.382	-0.012	2.950	2.524	-0.010
2.200	2.387	-0.012	2.967	2.529	-0.012
2.217	2.389	-0.012	2.983	2.533	-0.012

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
3.000	2.536	-0.010	3.767	2.622	-0.014
3.017	2.540	-0.012	3.783	2.629	-0.010
3.033	2.536	-0.012	3.800	2.627	-0.014
3.050	2.545	-0.012	3.817	2.634	-0.012
3.067	2.545	-0.012	3.833	2.631	-0.012
3.083	2.545	-0.012	3.850	2.636	-0.014
3.100	2.552	-0.007	3.867	2.638	-0.012
3.117	2.550	-0.012	3.883	2.643	-0.012
3.133	2.557	-0.012	3.900	2.645	-0.014
3.150	2.554	-0.014	3.917	2.648	-0.012
3.167	2.557	-0.012	3.933	2.648	-0.010
3.183	2.564	-0.010	3.950	2.648	-0.014
3.200	2.561	-0.014	3.967	2.645	-0.012
3.217	2.566	-0.012	3.983	2.650	-0.012
3.233	2.561	-0.012	4.000	2.650	-0.010
3.250	2.571	-0.012	4.017	2.659	-0.012
3.267	2.571	-0.007	4.033	2.652	-0.014
3.283	2.578	-0.014	4.050	2.652	-0.010
3.300	2.575	-0.012	4.067	2.662	-0.012
3.317	2.582	-0.010	4.083	2.664	-0.012
3.333	2.582	-0.012	4.100	2.669	-0.012
3.350	2.580	-0.012	4.117	2.671	-0.010
3.367	2.585	-0.012	4.133	2.678	-0.012
3.383	2.587	-0.010	4.150	2.673	-0.007
3.400	2.592	-0.014	4.167	2.687	-0.012
3.417	2.589	-0.012	4.183	2.687	-0.012
3.433	2.594	-0.010	4.200	2.680	-0.012
3.450	2.596	-0.012	4.217	2.690	-0.012
3.467	2.594	-0.012	4.233	2.692	-0.007
3.483	2.599	-0.012	4.250	2.692	-0.010
3.500	2.601	-0.010	4.267	2.694	-0.012
3.517	2.603	-0.012	4.283	2.701	-0.012
3.533	2.601	-0.012	4.300	2.711	-0.012
3.550	2.608	-0.012	4.317	2.704	-0.012
3.567	2.606	-0.012	4.333	2.704	-0.010
3.583	2.603	-0.010	4.350	2.706	-0.012
3.600	2.610	-0.012	4.367	2.708	-0.012
3.617	2.613	-0.014	4.383	2.708	-0.014
3.633	2.610	-0.010	4.400	2.713	-0.012
3.650	2.615	-0.014	4.417	2.713	-0.012
3.667	2.620	-0.012	4.433	2.718	-0.012
3.683	2.622	-0.014	4.450	2.720	-0.012
3.700	2.620	-0.010	4.467	2.727	-0.012
3.717	2.622	-0.012	4.483	2.720	-0.012
3.733	2.622	-0.012	4.500	2.722	-0.014
3.750	2.627	-0.012	4.517	2.722	-0.014

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
4.533	2.732	-0.010	5.300	2.794	-0.012
4.550	2.732	-0.010	5.317	2.792	-0.012
4.567	2.732	-0.010	5.333	2.794	-0.012
4.583	2.734	-0.012	5.350	2.797	-0.012
4.600	2.734	-0.014	5.367	2.794	-0.014
4.617	2.739	-0.014	5.383	2.792	-0.012
4.633	2.743	-0.012	5.400	2.797	-0.010
4.650	2.739	-0.012	5.417	2.804	-0.007
4.667	2.739	-0.014	5.433	2.801	-0.012
4.683	2.748	-0.014	5.450	2.804	-0.010
4.700	2.748	-0.012	5.467	2.806	-0.010
4.717	2.746	-0.010	5.483	2.806	-0.012
4.733	2.748	-0.010	5.500	2.806	-0.010
4.750	2.755	-0.012	5.517	2.804	-0.012
4.767	2.753	-0.012	5.533	2.808	-0.010
4.783	2.753	-0.012	5.550	2.808	-0.012
4.800	2.757	-0.012	5.567	2.811	-0.010
4.817	2.762	-0.010	5.583	2.808	-0.009
4.833	2.759	-0.012	5.600	2.811	-0.014
4.850	2.762	-0.014	5.617	2.811	-0.012
4.867	2.759	-0.010	5.633	2.815	-0.012
4.883	2.762	-0.012	5.650	2.815	-0.010
4.900	2.759	-0.012	5.667	2.813	-0.012
4.917	2.764	-0.012	5.683	2.815	-0.012
4.933	2.766	-0.010	5.700	2.815	-0.012
4.950	2.773	-0.010	5.717	2.818	-0.014
4.967	2.771	-0.012	5.733	2.820	-0.012
4.983	2.769	-0.014	5.750	2.818	-0.010
5.000	2.771	-0.012	5.767	2.818	-0.014
5.017	2.771	-0.012	5.783	2.825	-0.010
5.033	2.773	-0.012	5.800	2.818	-0.007
5.050	2.773	-0.010	5.817	2.827	-0.014
5.067	2.776	-0.007	5.833	2.822	-0.014
5.083	2.776	-0.010	5.850	2.825	-0.012
5.100	2.776	-0.009	5.867	2.827	-0.010
5.117	2.783	-0.010	5.883	2.822	-0.012
5.133	2.778	-0.012	5.900	2.827	-0.012
5.150	2.785	-0.012	5.917	2.829	-0.012
5.167	2.787	-0.012	5.933	2.832	-0.012
5.183	2.787	-0.012	5.950	2.832	-0.012
5.200	2.785	-0.012	5.967	2.827	-0.012
5.217	2.790	-0.010	5.983	2.832	-0.012
5.233	2.787	-0.012	6.000	2.836	-0.012
5.250	2.785	-0.012	6.017	2.834	-0.014
5.267	2.792	-0.012	6.033	2.839	-0.012
5.283	2.794	-0.010	6.050	2.832	-0.012

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
6.067	2.839	-0.010	6.833	2.874	-0.010
6.083	2.836	-0.012	6.850	2.874	-0.012
6.100	2.839	-0.014	6.867	2.876	-0.014
6.117	2.836	-0.010	6.883	2.878	-0.016
6.133	2.836	-0.012	6.900	2.878	-0.012
6.150	2.841	-0.012	6.917	2.881	-0.014
6.167	2.841	-0.012	6.933	2.876	-0.014
6.183	2.841	-0.012	6.950	2.881	-0.014
6.200	2.841	-0.009	6.967	2.885	-0.014
6.217	2.843	-0.014	6.983	2.883	-0.007
6.233	2.841	-0.010	7.000	2.881	-0.012
6.250	2.841	-0.010	7.017	2.881	-0.012
6.267	2.846	-0.014	7.033	2.883	-0.010
6.283	2.846	-0.012	7.050	2.888	-0.012
6.300	2.848	-0.010	7.067	2.888	-0.012
6.317	2.846	-0.010	7.083	2.885	-0.012
6.333	2.850	-0.014	7.100	2.885	-0.012
6.350	2.855	-0.012	7.117	2.888	-0.012
6.367	2.848	-0.010	7.133	2.888	-0.012
6.383	2.855	-0.012	7.150	2.892	-0.012
6.400	2.850	-0.009	7.167	2.890	-0.014
6.417	2.853	-0.012	7.183	2.895	-0.014
6.433	2.862	-0.012	7.200	2.892	-0.012
6.450	2.860	-0.012	7.217	2.888	-0.012
6.467	2.862	-0.012	7.233	2.895	-0.014
6.483	2.860	-0.012	7.250	2.895	-0.014
6.500	2.862	-0.012	7.267	2.890	-0.010
6.517	2.857	-0.012	7.283	2.895	-0.014
6.533	2.862	-0.014	7.300	2.897	-0.014
6.550	2.862	-0.012	7.317	2.892	-0.012
6.567	2.867	-0.012	7.333	2.899	-0.012
6.583	2.864	-0.010	7.350	2.899	-0.012
6.600	2.864	-0.014	7.367	2.897	-0.012
6.617	2.864	-0.010	7.383	2.899	-0.010
6.633	2.864	-0.016	7.400	2.897	-0.014
6.650	2.871	-0.014	7.417	2.899	-0.012
6.667	2.871	-0.014	7.433	2.902	-0.012
6.683	2.869	-0.014	7.450	2.904	-0.012
6.700	2.864	-0.012	7.467	2.906	-0.012
6.717	2.876	-0.014	7.483	2.904	-0.014
6.733	2.869	-0.012	7.500	2.904	-0.012
6.750	2.871	-0.012	7.517	2.902	-0.012
6.767	2.869	-0.012	7.533	2.906	-0.014
6.783	2.876	-0.014	7.550	2.904	-0.014
6.800	2.867	-0.014	7.567	2.904	-0.012
6.817	2.874	-0.012	7.583	2.899	-0.014

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
7.600	2.906	-0.012	8.367	2.930	-0.014
7.617	2.906	-0.012	8.383	2.934	-0.009
7.633	2.904	-0.017	8.400	2.939	-0.014
7.650	2.904	-0.010	8.417	2.930	-0.012
7.667	2.909	-0.012	8.433	2.934	-0.012
7.683	2.904	-0.009	8.450	2.937	-0.014
7.700	2.911	-0.010	8.467	2.934	-0.014
7.717	2.909	-0.012	8.483	2.934	-0.012
7.733	2.911	-0.009	8.500	2.937	-0.014
7.750	2.909	-0.012	8.517	2.941	-0.012
7.767	2.911	-0.014	8.533	2.937	-0.012
7.783	2.911	-0.012	8.550	2.939	-0.012
7.800	2.913	-0.012	8.567	2.937	-0.014
7.817	2.913	-0.010	8.583	2.937	-0.012
7.833	2.913	-0.009	8.600	2.939	-0.012
7.850	2.920	-0.014	8.617	2.939	-0.010
7.867	2.916	-0.014	8.633	2.939	-0.014
7.883	2.916	-0.012	8.650	2.941	-0.012
7.900	2.916	-0.014	8.667	2.939	-0.016
7.917	2.920	-0.009	8.683	2.939	-0.014
7.933	2.918	-0.012	8.700	2.939	-0.014
7.950	2.920	-0.014	8.717	2.946	-0.017
7.967	2.918	-0.012	8.733	2.944	-0.014
7.983	2.923	-0.012	8.750	2.941	-0.014
8.000	2.923	-0.014	8.767	2.944	-0.014
8.017	2.923	-0.012	8.783	2.946	-0.014
8.033	2.925	-0.014	8.800	2.941	-0.014
8.050	2.925	-0.009	8.817	2.944	-0.012
8.067	2.920	-0.012	8.833	2.948	-0.014
8.083	2.920	-0.014	8.850	2.948	-0.014
8.100	2.920	-0.007	8.867	2.946	-0.012
8.117	2.934	-0.014	8.883	2.948	-0.014
8.133	2.927	-0.014	8.900	2.948	-0.014
8.150	2.923	-0.012	8.917	2.953	-0.014
8.167	2.923	-0.014	8.933	2.948	-0.014
8.183	2.923	-0.012	8.950	2.951	-0.012
8.200	2.932	-0.014	8.967	2.953	-0.012
8.217	2.925	-0.014	8.983	2.951	-0.012
8.233	2.925	-0.014	9.000	2.951	-0.016
8.250	2.930	-0.012	9.017	2.951	-0.012
8.267	2.927	-0.009	9.033	2.958	-0.014
8.283	2.937	-0.014	9.050	2.951	-0.014
8.300	2.927	-0.016	9.067	2.953	-0.012
8.317	2.930	-0.014	9.083	2.953	-0.012
8.333	2.932	-0.014	9.100	2.953	-0.014
8.350	2.930	-0.014	9.117	2.953	-0.014

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
9.133	2.951	-0.014	9.900	2.974	-0.012
9.150	2.955	-0.014	9.917	2.983	-0.012
9.167	2.960	-0.014	9.933	2.974	-0.014
9.183	2.955	-0.014	9.950	2.981	-0.012
9.200	2.958	-0.014	9.967	2.979	-0.014
9.217	2.955	-0.012	9.983	2.976	-0.014
9.233	2.962	-0.009	10.000	2.979	-0.014
9.250	2.960	-0.012	10.167	2.983	-0.014
9.267	2.960	-0.014	10.333	2.983	-0.010
9.283	2.958	-0.012	10.500	2.990	-0.012
9.300	2.958	-0.012	10.667	2.995	-0.012
9.317	2.960	-0.017	10.833	2.997	-0.010
9.333	2.960	-0.012	11.000	3.004	-0.012
9.350	2.960	-0.014	11.167	3.009	-0.007
9.367	2.967	-0.014	11.333	3.009	-0.007
9.383	2.967	-0.014	11.500	3.011	-0.010
9.400	2.962	-0.014	11.667	3.016	-0.010
9.417	2.965	-0.012	11.833	3.018	-0.010
9.433	2.962	-0.014	12.000	3.028	-0.010
9.450	2.967	-0.014	12.167	3.026	-0.012
9.467	2.965	-0.014	12.333	3.028	-0.010
9.483	2.962	-0.012	12.500	3.030	-0.010
9.500	2.967	-0.014	12.667	3.030	-0.012
9.517	2.972	-0.014	12.833	3.035	-0.007
9.533	2.965	-0.009	13.000	3.044	-0.010
9.550	2.967	-0.014	13.167	3.042	-0.005
9.567	2.969	-0.014	13.333	3.037	-0.007
9.583	2.965	-0.009	13.500	3.049	-0.007
9.600	2.974	-0.014	13.667	3.044	-0.007
9.617	2.967	-0.012	13.833	3.047	-0.012
9.633	2.974	-0.014	14.000	3.054	-0.012
9.650	2.972	-0.012	14.167	3.054	-0.007
9.667	2.969	-0.014	14.333	3.054	-0.007
9.683	2.972	-0.016	14.500	3.056	-0.010
9.700	2.972	-0.014	14.667	3.061	-0.010
9.717	2.972	-0.009	14.833	3.061	-0.012
9.733	2.974	-0.012	15.000	3.065	-0.010
9.750	2.974	-0.014	15.167	3.063	-0.010
9.767	2.969	-0.012	15.333	3.068	-0.012
9.783	2.969	-0.012	15.500	3.068	-0.010
9.800	2.974	-0.012	15.667	3.070	-0.007
9.817	2.979	-0.012	15.833	3.072	-0.007
9.833	2.974	-0.012	16.000	3.072	-0.010
9.850	2.974	-0.014	16.167	3.079	-0.010
9.867	2.976	-0.014	16.333	3.084	-0.010
9.883	2.976	-0.012	16.500	3.084	-0.010

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
16.667	3.093	-0.007	24.333	3.245	-0.007
16.833	3.107	-0.007	24.500	3.245	-0.010
17.000	3.116	-0.010	24.667	3.245	-0.007
17.167	3.121	-0.012	24.833	3.254	-0.008
17.333	3.121	-0.003	25.000	3.252	-0.007
17.500	3.128	-0.010	25.167	3.256	-0.012
17.667	3.130	-0.010	25.333	3.261	-0.010
17.833	3.135	-0.007	25.500	3.261	-0.010
18.000	3.135	-0.012	25.667	3.261	-0.005
18.167	3.142	-0.007	25.833	3.263	-0.010
18.333	3.144	-0.007	26.000	3.266	-0.010
18.500	3.151	-0.007	26.167	3.266	-0.008
18.667	3.151	-0.010	26.333	3.270	-0.010
18.833	3.158	-0.010	26.500	3.270	-0.010
19.000	3.154	-0.005	26.667	3.273	-0.010
19.167	3.158	-0.012	26.833	3.275	-0.005
19.333	3.156	-0.008	27.000	3.277	-0.007
19.500	3.165	-0.010	27.167	3.282	-0.008
19.667	3.165	-0.012	27.333	3.284	-0.010
19.833	3.165	-0.007	27.500	3.287	-0.010
20.000	3.177	-0.012	27.667	3.284	-0.010
20.167	3.172	-0.010	27.833	3.294	-0.010
20.333	3.177	-0.010	28.000	3.291	-0.010
20.500	3.179	-0.007	28.167	3.291	-0.012
20.667	3.182	-0.007	28.333	3.294	-0.007
20.833	3.184	-0.007	28.500	3.296	-0.008
21.000	3.186	-0.007	28.667	3.294	-0.007
21.167	3.186	-0.007	28.833	3.298	-0.008
21.333	3.193	-0.005	29.000	3.301	-0.007
21.500	3.191	-0.005	29.167	3.308	-0.005
21.667	3.191	-0.007	29.333	3.305	-0.008
21.833	3.196	-0.007	29.500	3.305	-0.007
22.000	3.196	-0.005	29.667	3.308	-0.005
22.167	3.191	-0.007	29.833	3.310	-0.010
22.333	3.191	-0.010	30.000	3.315	-0.010
22.500	3.189	-0.008	30.167	3.315	-0.010
22.667	3.184	-0.010	30.333	3.315	-0.010
22.833	3.186	-0.007	30.500	3.312	-0.010
23.000	3.189	-0.010	30.667	3.315	-0.007
23.167	3.193	-0.007	30.833	3.317	-0.010
23.333	3.203	-0.010	31.000	3.317	-0.005
23.500	3.217	-0.007	31.167	3.319	-0.010
23.667	3.219	-0.010	31.333	3.331	-0.010
23.833	3.219	-0.010	31.500	3.324	-0.012
24.000	3.231	-0.008	31.667	3.324	-0.010
24.167	3.233	-0.005	31.833	3.326	-0.008

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
32.000	3.324	-0.005	39.667	3.424	-0.010
32.167	3.333	-0.010	39.833	3.427	-0.010
32.333	3.336	-0.007	40.000	3.429	-0.010
32.500	3.343	-0.010	40.167	3.426	-0.010
32.667	3.345	-0.007	40.333	3.424	-0.010
32.833	3.352	-0.008	40.500	3.424	-0.010
33.000	3.357	-0.010	40.667	3.419	-0.007
33.167	3.361	-0.007	40.833	3.415	-0.012
33.333	3.357	-0.008	41.000	3.422	-0.010
33.500	3.361	-0.007	41.167	3.419	-0.010
33.667	3.368	-0.010	41.333	3.426	-0.010
33.833	3.366	-0.007	41.500	3.419	-0.015
34.000	3.366	-0.010	41.667	3.417	-0.012
34.167	3.375	-0.010	41.833	3.427	-0.010
34.333	3.375	-0.007	42.000	3.422	-0.012
34.500	3.375	-0.007	42.167	3.426	-0.008
34.667	3.378	-0.007	42.333	3.424	-0.008
34.833	3.380	-0.008	42.500	3.429	-0.008
35.000	3.382	-0.010	42.667	3.429	-0.012
35.167	3.387	-0.010	42.833	3.429	-0.010
35.333	3.387	-0.010	43.000	3.424	-0.007
35.500	3.387	-0.012	43.167	3.422	-0.015
35.667	3.389	-0.008	43.333	3.429	-0.008
35.833	3.391	-0.010	43.500	3.429	-0.012
36.000	3.391	-0.010	43.667	3.424	-0.007
36.167	3.391	-0.007	43.833	3.429	-0.007
36.333	3.394	-0.008	44.000	3.434	-0.010
36.500	3.396	-0.007	44.167	3.433	-0.007
36.667	3.399	-0.008	44.333	3.431	-0.010
36.833	3.396	-0.005	44.500	3.429	-0.010
37.000	3.394	-0.007	44.667	3.429	-0.010
37.167	3.396	-0.007	44.833	3.431	-0.010
37.333	3.399	-0.012	45.000	3.434	-0.008
37.500	3.403	-0.010	45.167	3.431	-0.010
37.667	3.403	-0.010	45.333	3.431	-0.010
37.833	3.403	-0.007	45.500	3.431	-0.010
38.000	3.408	-0.007	45.667	3.438	-0.010
38.167	3.401	-0.010	45.833	3.440	-0.010
38.333	3.403	-0.008	46.000	3.445	-0.012
38.500	3.408	-0.010	46.167	3.450	-0.010
38.667	3.410	-0.010	46.333	3.454	-0.010
38.833	3.417	-0.010	46.500	3.450	-0.010
39.000	3.413	-0.010	46.667	3.457	-0.010
39.167	3.410	-0.010	46.833	3.459	0.000
39.333	3.417	-0.010	47.000	3.457	-0.010
39.500	3.420	-0.012	47.167	3.457	-0.010

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
47.333	3.457	-0.007	55.000	3.496	-0.010
47.500	3.459	-0.012	55.167	3.496	-0.008
47.667	3.466	-0.010	55.333	3.501	-0.010
47.833	3.464	-0.007	55.500	3.503	-0.007
48.000	3.466	-0.008	55.667	3.503	-0.005
48.167	3.466	-0.010	55.833	3.506	-0.007
48.333	3.473	-0.010	56.000	3.506	-0.005
48.500	3.471	-0.005	56.167	3.515	-0.007
48.667	3.468	-0.010	56.333	3.510	-0.007
48.833	3.475	-0.007	56.500	3.513	-0.007
49.000	3.473	-0.007	56.667	3.515	-0.007
49.167	3.473	-0.007	56.833	3.513	-0.008
49.333	3.473	-0.008	57.000	3.515	-0.007
49.500	3.475	-0.010	57.167	3.517	-0.010
49.667	3.482	-0.007	57.333	3.520	-0.008
49.833	3.480	-0.007	57.500	3.522	-0.010
50.000	3.480	-0.008	57.667	3.520	-0.008
50.167	3.487	-0.007	57.833	3.524	-0.005
50.333	3.480	-0.008	58.000	3.524	-0.010
50.500	3.480	-0.008	58.167	3.520	-0.008
50.667	3.480	-0.005	58.333	3.524	-0.008
50.833	3.478	-0.005	58.500	3.520	-0.005
51.000	3.480	-0.003	58.667	3.520	-0.010
51.167	3.485	-0.005	58.833	3.524	-0.005
51.333	3.482	-0.005	59.000	3.529	-0.008
51.500	3.482	-0.007	59.167	3.529	-0.003
51.667	3.480	-0.007	59.333	3.531	-0.008
51.833	3.485	-0.010	59.500	3.529	-0.010
52.000	3.487	-0.008	59.667	3.527	-0.010
52.167	3.489	-0.010	59.833	3.529	-0.008
52.333	3.480	-0.007	60.000	3.531	-0.008
52.500	3.473	-0.007	60.167	3.531	-0.010
52.667	3.468	-0.010	60.333	3.531	-0.007
52.833	3.468	-0.008	60.500	3.529	-0.005
53.000	3.466	-0.008	60.667	3.531	-0.008
53.167	3.464	-0.010	60.833	3.536	-0.008
53.333	3.464	-0.010	61.000	3.531	-0.008
53.500	3.457	-0.007	61.167	3.536	-0.008
53.667	3.457	-0.005	61.333	3.534	-0.008
53.833	3.461	-0.007	61.500	3.541	-0.005
54.000	3.461	-0.008	61.667	3.541	-0.005
54.167	3.466	-0.007	61.833	3.545	-0.005
54.333	3.473	-0.008	62.000	3.548	-0.008
54.500	3.485	-0.008	62.167	3.552	-0.007
54.667	3.487	0.000	62.333	3.559	-0.010
54.833	3.494	-0.007	62.500	3.566	-0.005

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
62.667	3.564	-0.005	70.333	3.599	-0.005
62.833	3.566	-0.010	70.500	3.604	-0.005
63.000	3.569	-0.005	70.667	3.601	-0.005
63.167	3.569	-0.008	70.833	3.599	-0.008
63.333	3.576	-0.008	71.000	3.597	-0.008
63.500	3.576	-0.010	71.167	3.601	-0.005
63.667	3.576	-0.008	71.333	3.604	-0.010
63.833	3.576	-0.007	71.500	3.601	-0.005
64.000	3.571	-0.008	71.667	3.601	-0.008
64.167	3.583	-0.007	71.833	3.601	-0.007
64.333	3.578	-0.008	72.000	3.601	-0.005
64.500	3.585	-0.010	72.167	3.601	-0.007
64.667	3.578	-0.008	72.333	3.601	-0.008
64.833	3.585	-0.008	72.500	3.601	-0.007
65.000	3.590	-0.010	72.667	3.604	-0.010
65.167	3.590	-0.007	72.833	3.601	-0.010
65.333	3.587	-0.005	73.000	3.606	-0.010
65.500	3.587	-0.007	73.167	3.604	-0.008
65.667	3.587	-0.008	73.333	3.606	-0.007
65.833	3.587	-0.008	73.500	3.599	-0.010
66.000	3.585	-0.005	73.667	3.604	-0.005
66.167	3.587	-0.005	73.833	3.606	-0.010
66.333	3.592	-0.003	74.000	3.606	-0.005
66.500	3.594	-0.005	74.167	3.604	-0.007
66.667	3.587	-0.005	74.333	3.604	-0.005
66.833	3.592	-0.005	74.500	3.618	-0.007
67.000	3.594	-0.005	74.667	3.606	-0.008
67.167	3.594	-0.007	74.833	3.601	-0.010
67.333	3.592	-0.005	75.000	3.613	-0.005
67.500	3.594	-0.005	75.167	3.608	-0.005
67.667	3.594	-0.008	75.333	3.613	-0.008
67.833	3.594	-0.005	75.500	3.613	-0.010
68.000	3.597	-0.005	75.667	3.606	-0.007
68.167	3.594	-0.005	75.833	3.615	-0.007
68.333	3.597	-0.003	76.000	3.606	-0.008
68.500	3.601	-0.005	76.167	3.606	-0.005
68.667	3.601	-0.005	76.333	3.608	-0.005
68.833	3.594	-0.003	76.500	3.611	-0.008
69.000	3.594	-0.005	76.667	3.611	-0.007
69.167	3.590	-0.005	76.833	3.611	-0.008
69.333	3.592	-0.005	77.000	3.611	-0.010
69.500	3.594	-0.007	77.167	3.611	-0.010
69.667	3.599	-0.008	77.333	3.604	-0.010
69.833	3.599	-0.008	77.500	3.606	-0.007
70.000	3.594	-0.008	77.667	3.611	-0.007
70.167	3.599	-0.007	77.833	3.608	-0.010

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
78.000	3.606	-0.010	85.667	3.576	-0.010
78.167	3.611	-0.005	85.833	3.578	-0.010
78.333	3.611	-0.008	86.000	3.583	-0.008
78.500	3.608	-0.010	86.167	3.580	-0.008
78.667	3.615	-0.007	86.333	3.580	-0.012
78.833	3.613	-0.012	86.500	3.578	-0.007
79.000	3.618	-0.010	86.667	3.576	-0.012
79.167	3.613	-0.008	86.833	3.576	-0.012
79.333	3.613	-0.008	87.000	3.578	-0.010
79.500	3.613	-0.012	87.167	3.583	-0.012
79.667	3.613	-0.010	87.333	3.576	-0.010
79.833	3.615	-0.005	87.500	3.571	-0.012
80.000	3.615	-0.010	87.667	3.578	-0.012
80.167	3.618	-0.010	87.833	3.585	-0.012
80.333	3.615	-0.007	88.000	3.587	-0.010
80.500	3.613	-0.010	88.167	3.587	-0.010
80.667	3.615	-0.008	88.333	3.590	-0.010
80.833	3.618	-0.010	88.500	3.597	-0.010
81.000	3.622	-0.010	88.667	3.594	-0.010
81.167	3.615	-0.010	88.833	3.597	-0.010
81.333	3.620	-0.007	89.000	3.599	-0.010
81.500	3.615	-0.010	89.167	3.604	-0.007
81.667	3.606	-0.012	89.333	3.601	-0.012
81.833	3.597	-0.010	89.500	3.601	-0.008
82.000	3.594	-0.010	89.667	3.604	-0.010
82.167	3.590	-0.008	89.833	3.604	-0.008
82.333	3.594	-0.007	90.000	3.604	-0.010
82.500	3.590	-0.010	90.167	3.601	-0.010
82.667	3.590	-0.007	90.333	3.608	-0.010
82.833	3.587	-0.005	90.500	3.601	-0.007
83.000	3.590	-0.008	90.667	3.606	-0.012
83.167	3.587	-0.012	90.833	3.601	-0.010
83.333	3.592	-0.010	91.000	3.613	-0.012
83.500	3.592	-0.010	91.167	3.618	-0.012
83.667	3.592	-0.008	91.333	3.625	-0.012
83.833	3.587	-0.010	91.500	3.618	-0.010
84.000	3.583	-0.010	91.667	3.625	-0.010
84.167	3.590	-0.007	91.833	3.636	-0.010
84.333	3.585	-0.010	92.000	3.636	-0.010
84.500	3.585	-0.012	92.167	3.636	-0.010
84.667	3.587	-0.007	92.333	3.636	-0.010
84.833	3.580	-0.010	92.500	3.643	-0.007
85.000	3.583	-0.012	92.667	3.639	-0.012
85.167	3.583	-0.010	92.833	3.639	-0.007
85.333	3.573	-0.010	93.000	3.639	-0.012
85.500	3.578	-0.010	93.167	3.639	-0.012

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
93.333	3.646	-0.012	101.000	3.660	-0.007
93.500	3.639	-0.012	101.167	3.660	-0.010
93.667	3.643	-0.010	101.333	3.671	-0.010
93.833	3.643	-0.012	101.500	3.660	-0.010
94.000	3.643	-0.012	101.667	3.657	-0.010
94.167	3.646	-0.010	101.833	3.669	-0.010
94.333	3.646	-0.010	102.000	3.662	-0.007
94.500	3.648	-0.010	102.167	3.664	-0.007
94.667	3.648	-0.015	102.333	3.664	-0.007
94.833	3.653	-0.012	102.500	3.660	-0.010
95.000	3.646	-0.012	102.667	3.662	-0.010
95.167	3.650	-0.010	102.833	3.660	-0.010
95.333	3.650	-0.012	103.000	3.660	-0.010
95.500	3.653	-0.012	103.167	3.660	-0.010
95.667	3.648	-0.010	103.333	3.660	-0.005
95.833	3.650	-0.012	103.500	3.664	-0.012
96.000	3.650	-0.012	103.667	3.662	-0.010
96.167	3.650	-0.015	103.833	3.662	-0.010
96.333	3.662	-0.012	104.000	3.662	-0.012
96.500	3.653	-0.012	104.167	3.662	-0.012
96.667	3.660	-0.008	104.333	3.662	-0.015
96.833	3.657	-0.010	104.500	3.667	-0.010
97.000	3.657	-0.010	104.667	3.657	-0.010
97.167	3.660	-0.012	104.833	3.662	-0.010
97.333	3.660	-0.007	105.000	3.660	-0.008
97.500	3.662	-0.007	105.167	3.662	-0.010
97.667	3.657	-0.008	105.333	3.662	-0.012
97.833	3.655	-0.010	105.500	3.662	-0.008
98.000	3.660	-0.010	105.667	3.664	-0.012
98.167	3.657	-0.012	105.833	3.662	-0.008
98.333	3.655	-0.010	106.000	3.655	-0.010
98.500	3.655	-0.010	106.167	3.660	-0.010
98.667	3.655	-0.010	106.333	3.664	-0.012
98.833	3.655	-0.010	106.500	3.660	-0.012
99.000	3.655	-0.007	106.667	3.667	-0.015
99.167	3.662	-0.010	106.833	3.667	-0.010
99.333	3.657	-0.008	107.000	3.667	-0.008
99.500	3.662	-0.010	107.167	3.657	-0.010
99.667	3.660	-0.005	107.333	3.664	-0.012
99.833	3.657	-0.007	107.500	3.664	-0.010
100.000	3.657	-0.005	107.667	3.657	-0.012
100.167	3.657	-0.005	107.833	3.662	-0.012
100.333	3.662	-0.005	108.000	3.660	-0.010
100.500	3.664	-0.010	108.167	3.664	-0.010
100.667	3.664	-0.008	108.333	3.664	-0.012
100.833	3.662	-0.010	108.500	3.660	-0.010

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
108.667	3.669	-0.010	148	3.688	-0.022
108.833	3.662	-0.010	149	3.711	-0.019
109.000	3.662	-0.012	150	3.734	-0.022
109.167	3.662	-0.012	151	3.739	-0.019
109.333	3.664	-0.008	152	3.737	-0.024
109.500	3.667	-0.010	153	3.737	-0.024
109.667	3.667	-0.010	154	3.739	-0.026
109.833	3.660	-0.012	155	3.748	-0.024
110	3.662	-0.010	156	3.744	-0.026
111	3.641	-0.012	157	3.748	-0.029
112	3.634	-0.012	158	3.748	-0.026
113	3.625	-0.012	159	3.751	-0.029
114	3.629	-0.012	160	3.755	-0.026
115	3.632	-0.012	161	3.753	-0.026
116	3.629	-0.015	162	3.753	-0.022
117	3.627	-0.015	163	3.753	-0.029
118	3.627	-0.012	164	3.751	-0.029
119	3.625	-0.012	165	3.753	-0.026
120	3.636	-0.012	166	3.753	-0.026
121	3.662	-0.017	167	3.753	-0.029
122	3.683	-0.017	168	3.755	-0.029
123	3.690	-0.015	169	3.727	-0.024
124	3.692	-0.015	170	3.727	-0.026
125	3.692	-0.017	171	3.730	-0.024
126	3.702	-0.017	172	3.725	-0.026
127	3.702	-0.015	173	3.713	-0.029
128	3.711	-0.015	174	3.706	-0.026
129	3.706	-0.017	175	3.704	-0.031
130	3.713	-0.017	176	3.706	-0.031
131	3.713	-0.017	177	3.706	-0.031
132	3.713	-0.015	178	3.732	-0.033
133	3.716	-0.017	179	3.753	-0.031
134	3.716	-0.017	180	3.748	-0.031
135	3.716	-0.019	181	3.748	-0.033
136	3.713	-0.017	182	3.748	-0.031
137	3.713	-0.017	183	3.753	-0.033
138	3.711	-0.017	184	3.755	-0.033
139	3.711	-0.015	185	3.753	-0.033
140	3.690	-0.019	186	3.753	-0.033
141	3.688	-0.017	187	3.755	-0.033
142	3.671	-0.017	188	3.753	-0.031
143	3.669	-0.019	189	3.758	-0.033
144	3.671	-0.019	190	3.760	-0.036
145	3.664	-0.022	191	3.765	-0.036
146	3.664	-0.019	192	3.762	-0.036
147	3.662	-0.024	193	3.762	-0.036

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
194	3.767	-0.040	240	3.758	-0.057
195	3.769	-0.038	241	3.753	-0.054
196	3.765	-0.036	242	3.760	-0.054
197	3.767	-0.038	243	3.751	-0.054
198	3.737	-0.038	244	3.758	-0.054
199	3.730	-0.040	245	3.758	-0.052
200	3.725	-0.038	246	3.758	-0.050
201	3.723	-0.040	247	3.760	-0.054
202	3.720	-0.040	248	3.755	-0.054
203	3.720	-0.040	249	3.758	-0.054
204	3.723	-0.038	250	3.758	-0.057
205	3.718	-0.038	251	3.753	-0.057
206	3.723	-0.043	252	3.751	-0.057
207	3.751	-0.040	253	3.758	-0.057
208	3.751	-0.043	254	3.755	-0.057
209	3.755	-0.043	255	3.748	-0.059
210	3.765	-0.038	256	3.730	-0.054
211	3.769	-0.040	257	3.723	-0.059
212	3.772	-0.040	258	3.716	-0.057
213	3.772	-0.043	259	3.718	-0.059
214	3.772	-0.043	260	3.718	-0.059
215	3.769	-0.040	261	3.716	-0.064
216	3.767	-0.043	262	3.718	-0.059
217	3.765	-0.043	263	3.718	-0.061
218	3.765	-0.045	264	3.718	-0.064
219	3.769	-0.045	265	3.737	-0.061
220	3.776	-0.040	266	3.744	-0.066
221	3.769	-0.043	267	3.753	-0.064
222	3.765	-0.045	268	3.748	-0.064
223	3.769	-0.045	269	3.755	-0.064
224	3.769	-0.050	270	3.748	-0.066
225	3.769	-0.050	271	3.751	-0.066
226	3.765	-0.045	272	3.751	-0.066
227	3.741	-0.045	273	3.751	-0.066
228	3.739	-0.047	274	3.751	-0.064
229	3.732	-0.050	275	3.753	-0.066
230	3.732	-0.054	276	3.753	-0.066
231	3.723	-0.052	277	3.755	-0.064
232	3.725	-0.052	278	3.755	-0.068
233	3.727	-0.050	279	3.762	-0.068
234	3.723	-0.052	280	3.755	-0.071
235	3.727	-0.052	281	3.755	-0.071
236	3.748	-0.052	282	3.760	-0.073
237	3.751	-0.050	283	3.765	-0.073
238	3.751	-0.052	284	3.758	-0.068
239	3.762	-0.054	285	3.734	-0.073

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
286	3.730	-0.073	332	3.776	-0.089
287	3.730	-0.071	333	3.776	-0.089
288	3.723	-0.073	334	3.783	-0.089
289	3.718	-0.075	335	3.776	-0.085
290	3.725	-0.075	336	3.776	-0.087
291	3.723	-0.073	337	3.746	-0.087
292	3.720	-0.073	338	3.739	-0.089
293	3.720	-0.073	339	3.732	-0.087
294	3.744	-0.078	340	3.732	-0.089
295	3.739	-0.078	341	3.725	-0.087
296	3.753	-0.075	342	3.725	-0.092
297	3.755	-0.078	343	3.730	-0.092
298	3.762	-0.075	344	3.727	-0.092
299	3.758	-0.078	345	3.725	-0.089
300	3.760	-0.078	346	3.746	-0.092
301	3.755	-0.078	347	3.760	-0.092
302	3.760	-0.080	348	3.758	-0.094
303	3.765	-0.078	349	3.758	-0.094
304	3.762	-0.080	350	3.762	-0.094
305	3.769	-0.078	351	3.767	-0.094
306	3.760	-0.082	352	3.765	-0.089
307	3.760	-0.080	353	3.772	-0.094
308	3.758	-0.080	354	3.769	-0.094
309	3.760	-0.085	355	3.762	-0.096
310	3.758	-0.085	356	3.772	-0.096
311	3.758	-0.085	357	3.769	-0.096
312	3.760	-0.085	358	3.741	-0.094
313	3.765	-0.085	359	3.734	-0.094
314	3.739	-0.106	360	3.737	-0.094
315	3.730	-0.085	361	3.730	-0.094
316	3.730	-0.085	362	3.730	-0.094
317	3.725	-0.085	363	3.730	-0.094
318	3.720	-0.082	364	3.730	-0.096
319	3.718	-0.082	365	3.734	-0.096
320	3.718	-0.087	366	3.730	-0.094
321	3.718	-0.085	367	3.755	-0.096
322	3.727	-0.085	368	3.769	-0.096
323	3.734	-0.082	369	3.774	-0.094
324	3.746	-0.085	370	3.781	-0.094
325	3.760	-0.089	371	3.779	-0.092
326	3.767	-0.087	372	3.783	-0.094
327	3.772	-0.085	373	3.786	-0.094
328	3.774	-0.085	374	3.793	-0.094
329	3.779	-0.087	375	3.786	-0.099
330	3.774	-0.087	376	3.793	-0.101
331	3.772	-0.087	377	3.790	-0.099

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
378	3.793	-0.101	424	3.744	-0.101
379	3.786	-0.096	425	3.767	-0.101
380	3.783	-0.099	426	3.772	-0.101
381	3.783	-0.101	427	3.786	-0.103
382	3.781	-0.096	428	3.786	-0.101
383	3.790	-0.099	429	3.786	-0.103
384	3.783	-0.096	430	3.786	-0.099
385	3.788	-0.096	431	3.786	-0.101
386	3.774	-0.096	432	3.788	-0.101
387	3.762	-0.099	433	3.797	-0.103
388	3.753	-0.096	434	3.793	-0.103
389	3.755	-0.099	435	3.795	-0.103
390	3.751	-0.099	436	3.793	-0.103
391	3.758	-0.096	437	3.786	-0.103
392	3.753	-0.096	438	3.790	-0.103
393	3.753	-0.092	439	3.795	-0.103
394	3.755	-0.096	440	3.790	-0.103
395	3.748	-0.099	441	3.790	-0.106
396	3.774	-0.101	442	3.781	-0.103
397	3.774	-0.099	443	3.781	-0.106
398	3.783	-0.099	444	3.786	-0.101
399	3.783	-0.094	445	3.753	-0.103
400	3.790	-0.099	446	3.751	-0.101
401	3.786	-0.101	447	3.748	-0.103
402	3.788	-0.101	448	3.739	-0.106
403	3.793	-0.101	449	3.744	-0.103
404	3.788	-0.103	450	3.737	-0.099
405	3.783	-0.099	451	3.727	-0.106
406	3.781	-0.096	452	3.730	-0.106
407	3.786	-0.099	453	3.723	-0.101
408	3.786	-0.096	454	3.734	-0.108
409	3.786	-0.099	455	3.753	-0.103
410	3.786	-0.096	456	3.762	-0.101
411	3.795	-0.101	457	3.765	-0.101
412	3.793	-0.101	458	3.765	-0.103
413	3.790	-0.099	459	3.762	-0.103
414	3.786	-0.103	460	3.762	-0.103
415	3.774	-0.099	461	3.765	-0.103
416	3.755	-0.099	462	3.769	-0.103
417	3.746	-0.101	463	3.767	-0.103
418	3.746	-0.103	464	3.760	-0.103
419	3.741	-0.101	465	3.769	-0.103
420	3.744	-0.103	466	3.762	-0.103
421	3.744	-0.101	467	3.765	-0.101
422	3.744	-0.099	468	3.769	-0.101
423	3.744	-0.101	469	3.779	-0.103

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
470	3.774	-0.101	516	3.760	-0.099
471	3.772	-0.101	517	3.762	-0.101
472	3.776	-0.103	518	3.755	-0.099
473	3.772	-0.099	519	3.755	-0.099
474	3.755	-0.101	520	3.767	-0.096
475	3.741	-0.101	521	3.765	-0.099
476	3.744	-0.099	522	3.758	-0.096
477	3.734	-0.099	523	3.774	-0.096
478	3.739	-0.103	524	3.781	-0.096
479	3.739	-0.103	525	3.790	-0.099
480	3.737	-0.101	526	3.790	-0.096
481	3.739	-0.101	527	3.795	-0.094
482	3.741	-0.101	528	3.802	-0.092
483	3.748	-0.099	529	3.799	-0.092
484	3.767	-0.099	530	3.797	-0.092
485	3.774	-0.106	531	3.799	-0.094
486	3.783	-0.099	532	3.802	-0.089
487	3.779	-0.103	533	3.790	-0.092
488	3.783	-0.106	534	3.767	-0.089
489	3.779	-0.101	535	3.769	-0.089
490	3.779	-0.103	536	3.762	-0.089
491	3.781	-0.099	537	3.765	-0.087
492	3.781	-0.099	538	3.765	-0.087
493	3.781	-0.103	539	3.767	-0.089
494	3.755	-0.099	540	3.765	-0.089
495	3.748	-0.101	541	3.769	-0.087
496	3.746	-0.101	542	3.772	-0.089
497	3.746	-0.099	543	3.793	-0.085
498	3.748	-0.101	544	3.797	-0.087
499	3.744	-0.101	545	3.802	-0.087
500	3.748	-0.099	546	3.804	-0.082
501	3.746	-0.099	547	3.809	-0.085
502	3.744	-0.101	548	3.802	-0.087
503	3.746	-0.099	549	3.804	-0.085
504	3.774	-0.099	550	3.806	-0.085
505	3.774	-0.103	551	3.818	-0.082
506	3.779	-0.099	552	3.818	-0.085
507	3.781	-0.099	553	3.793	-0.085
508	3.783	-0.101	554	3.786	-0.082
509	3.783	-0.101	555	3.781	-0.085
510	3.786	-0.101	556	3.793	-0.085
511	3.788	-0.101	557	3.781	-0.080
512	3.790	-0.099	558	3.776	-0.082
513	3.793	-0.101	559	3.783	-0.085
514	3.772	-0.099	560	3.783	-0.080
515	3.760	-0.099	561	3.783	-0.085

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
562	3.788	-0.085	608	3.844	-0.080
563	3.806	-0.082	609	3.839	-0.078
564	3.811	-0.082	610	3.846	-0.078
565	3.816	-0.087	611	3.846	-0.078
566	3.813	-0.087	612	3.841	-0.078
567	3.823	-0.085	613	3.853	-0.078
568	3.816	-0.087	614	3.846	-0.075
569	3.818	-0.085	615	3.851	-0.078
570	3.823	-0.087	616	3.846	-0.075
571	3.818	-0.087	617	3.846	-0.075
572	3.820	-0.087	618	3.853	-0.075
573	3.820	-0.087	619	3.853	-0.071
574	3.820	-0.085	620	3.853	-0.073
575	3.825	-0.085	621	3.851	-0.073
576	3.823	-0.085	622	3.848	-0.073
577	3.825	-0.089	623	3.851	-0.071
578	3.830	-0.085	624	3.855	-0.071
579	3.823	-0.085	625	3.853	-0.068
580	3.804	-0.082	626	3.848	-0.068
581	3.793	-0.082	627	3.862	-0.066
582	3.795	-0.080	628	3.848	-0.071
583	3.790	-0.082	629	3.846	-0.068
584	3.793	-0.080	630	3.846	-0.066
585	3.793	-0.082	631	3.848	-0.066
586	3.797	-0.082	632	3.851	-0.071
587	3.793	-0.080	633	3.853	-0.071
588	3.799	-0.082	634	3.855	-0.068
589	3.816	-0.080	635	3.851	-0.068
590	3.825	-0.078	636	3.855	-0.066
591	3.830	-0.078	637	3.851	-0.064
592	3.830	-0.080	638	3.855	-0.066
593	3.830	-0.080	639	3.837	-0.064
594	3.827	-0.080	640	3.825	-0.066
595	3.837	-0.080	641	3.823	-0.064
596	3.832	-0.078	642	3.820	-0.061
597	3.837	-0.078	643	3.832	-0.064
598	3.841	-0.078	644	3.816	-0.064
599	3.837	-0.078	645	3.811	-0.064
600	3.841	-0.082	646	3.811	-0.066
601	3.839	-0.078	647	3.816	-0.061
602	3.841	-0.080	648	3.823	-0.064
603	3.839	-0.080	649	3.839	-0.064
604	3.837	-0.080	650	3.853	-0.064
605	3.832	-0.080	651	3.860	-0.061
606	3.839	-0.078	652	3.860	-0.061
607	3.839	-0.080	653	3.858	-0.059

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
654	3.860	-0.061	700	3.846	-0.059
655	3.867	-0.064	701	3.841	-0.057
656	3.855	-0.061	702	3.837	-0.057
657	3.853	-0.061	703	3.841	-0.057
658	3.855	-0.061	704	3.834	-0.059
659	3.851	-0.059	705	3.839	-0.059
660	3.851	-0.052	706	3.841	-0.059
661	3.851	-0.059	707	3.841	-0.059
662	3.853	-0.059	708	3.844	-0.061
663	3.858	-0.057	709	3.855	-0.059
664	3.860	-0.059	710	3.869	-0.064
665	3.860	-0.057	711	3.867	-0.066
666	3.858	-0.057	712	3.867	-0.064
667	3.853	-0.054	713	3.881	-0.064
668	3.860	-0.057	714	3.872	-0.064
669	3.834	-0.057	715	3.879	-0.066
670	3.832	-0.054	716	3.879	-0.064
671	3.820	-0.059	717	3.881	-0.066
672	3.825	-0.057	718	3.881	-0.066
673	3.827	-0.057	719	3.879	-0.066
674	3.825	-0.054	720	3.876	-0.066
675	3.832	-0.057	721	3.872	-0.068
676	3.827	-0.054	722	3.874	-0.066
677	3.830	-0.054	723	3.874	-0.068
678	3.825	-0.052	724	3.874	-0.066
679	3.846	-0.054	725	3.874	-0.066
680	3.862	-0.054	726	3.874	-0.068
681	3.860	-0.054	727	3.874	-0.066
682	3.872	-0.052	728	3.879	-0.066
683	3.869	-0.052	729	3.851	-0.066
684	3.876	-0.054	730	3.848	-0.066
685	3.881	-0.050	731	3.848	-0.066
686	3.874	-0.054	732	3.841	-0.066
687	3.881	-0.050	733	3.839	-0.066
688	3.874	-0.052	734	3.837	-0.066
689	3.874	-0.054	735	3.834	-0.071
690	3.872	-0.054	736	3.837	-0.068
691	3.872	-0.057	737	3.834	-0.068
692	3.874	-0.054	738	3.837	-0.066
693	3.881	-0.057	739	3.853	-0.064
694	3.883	-0.057	740	3.865	-0.064
695	3.883	-0.057	741	3.867	-0.061
696	3.874	-0.057	742	3.869	-0.066
697	3.881	-0.057	743	3.869	-0.066
698	3.874	-0.057	744	3.872	-0.066
699	3.862	-0.057	745	3.874	-0.068

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
746	3.879	-0.066	792	3.853	-0.059
747	3.881	-0.066	793	3.851	-0.054
748	3.876	-0.061	794	3.846	-0.057
749	3.869	-0.061	795	3.851	-0.054
750	3.874	-0.064	796	3.846	-0.054
751	3.872	-0.061	797	3.855	-0.057
752	3.869	-0.061	798	3.853	-0.054
753	3.874	-0.061	799	3.872	-0.054
754	3.867	-0.064	800	3.881	-0.057
755	3.867	-0.061	801	3.881	-0.054
756	3.869	-0.059	802	3.881	-0.054
757	3.876	-0.061	803	3.886	-0.052
758	3.860	-0.059	804	3.881	-0.054
759	3.848	-0.059	805	3.886	-0.054
760	3.841	-0.061	806	3.883	-0.052
761	3.839	-0.059	807	3.890	-0.050
762	3.837	-0.061	808	3.890	-0.050
763	3.839	-0.057	809	3.890	-0.047
764	3.846	-0.057	810	3.893	-0.045
765	3.837	-0.059	811	3.886	-0.047
766	3.839	-0.059	812	3.895	-0.047
767	3.834	-0.050	813	3.893	-0.047
768	3.839	-0.057	814	3.893	-0.043
769	3.865	-0.059	815	3.893	-0.047
770	3.867	-0.057	816	3.890	-0.050
771	3.876	-0.059	817	3.893	-0.045
772	3.881	-0.057	818	3.876	-0.047
773	3.879	-0.057	819	3.862	-0.045
774	3.876	-0.054	820	3.862	-0.045
775	3.881	-0.057	821	3.862	-0.047
776	3.888	-0.057	822	3.858	-0.045
777	3.890	-0.052	823	3.851	-0.047
778	3.890	-0.057	824	3.855	-0.047
779	3.879	-0.054	825	3.860	-0.050
780	3.888	-0.054	826	3.855	-0.047
781	3.886	-0.054	827	3.855	-0.050
782	3.886	-0.054	828	3.865	-0.047
783	3.886	-0.054	829	3.888	-0.045
784	3.886	-0.052	830	3.893	-0.047
785	3.886	-0.052	831	3.895	-0.045
786	3.886	-0.052	832	3.895	-0.043
787	3.886	-0.052	833	3.911	-0.043
788	3.872	-0.057	834	3.900	-0.043
789	3.855	-0.052	835	3.904	-0.043
790	3.858	-0.054	836	3.904	-0.040
791	3.851	-0.054	837	3.904	-0.043

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
838	3.904	-0.043	884	3.881	-0.038
839	3.909	-0.043	885	3.886	-0.040
840	3.914	-0.040	886	3.881	-0.040
841	3.907	-0.040	887	3.883	-0.038
842	3.900	-0.040	888	3.902	-0.038
843	3.895	-0.040	889	3.902	-0.040
844	3.893	-0.040	890	3.914	-0.040
845	3.895	-0.043	891	3.921	-0.038
846	3.897	-0.040	892	3.914	-0.038
847	3.897	-0.040	893	3.916	-0.038
848	3.876	-0.038	894	3.923	-0.038
849	3.867	-0.045	895	3.918	-0.040
850	3.869	-0.043	896	3.921	-0.038
851	3.862	-0.045	897	3.925	-0.040
852	3.867	-0.045	898	3.923	-0.036
853	3.867	-0.045	899	3.925	-0.043
854	3.872	-0.045	900	3.928	-0.040
855	3.872	-0.043	901	3.928	-0.043
856	3.872	-0.040	902	3.923	-0.040
857	3.865	-0.038	903	3.925	-0.043
858	3.890	-0.038	904	3.921	-0.040
859	3.897	-0.038	905	3.928	-0.040
860	3.909	-0.038	906	3.925	-0.038
861	3.911	-0.043	907	3.909	-0.038
862	3.916	-0.040	908	3.897	-0.040
863	3.911	-0.038	909	3.897	-0.038
864	3.911	-0.040	910	3.890	-0.038
865	3.916	-0.043	911	3.890	-0.040
866	3.916	-0.040	912	3.893	-0.043
867	3.914	-0.040	913	3.897	-0.040
868	3.914	-0.043	914	3.893	-0.040
869	3.914	-0.043	915	3.886	-0.040
870	3.916	-0.045	916	3.888	-0.038
871	3.918	-0.040	917	3.902	-0.031
872	3.914	-0.043	918	3.916	-0.040
873	3.916	-0.043	919	3.923	-0.036
874	3.918	-0.043	920	3.935	-0.036
875	3.918	-0.043	921	3.923	-0.038
876	3.918	-0.045	922	3.928	-0.036
877	3.909	-0.043	923	3.932	-0.038
878	3.895	-0.043	924	3.935	-0.033
879	3.883	-0.045	925	3.930	-0.036
880	3.881	-0.040	926	3.932	-0.036
881	3.881	-0.045	927	3.939	-0.033
882	3.879	-0.040	928	3.935	-0.036
883	3.883	-0.043	929	3.932	-0.036

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
930	3.939	-0.036	976	3.946	-0.024
931	3.935	-0.036	977	3.956	-0.019
932	3.937	-0.036	978	3.960	-0.012
933	3.939	-0.033	979	3.967	-0.010
934	3.944	-0.036	980	3.970	-0.008
935	3.942	-0.033	981	3.979	-0.005
936	3.932	-0.033	982	3.979	-0.008
937	3.921	-0.031	983	3.974	-0.005
938	3.916	-0.031	984	3.977	-0.005
939	3.914	-0.031	985	3.977	-0.003
940	3.911	-0.029	986	3.984	0.000
941	3.916	-0.033	987	3.981	0.002
942	3.911	-0.031	988	3.988	0.000
943	3.914	-0.031	989	3.988	0.004
944	3.907	-0.029	990	3.991	0.002
945	3.911	-0.029	991	3.991	-0.001
946	3.916	-0.031	992	3.988	-0.003
947	3.939	-0.029	993	3.993	0.000
948	3.942	-0.031	994	4.000	0.002
949	3.946	-0.029	995	3.993	0.002
950	3.949	-0.031	996	3.970	0.007
951	3.951	-0.031	997	3.963	0.006
952	3.942	-0.033	998	3.963	0.004
953	3.944	-0.029	999	3.958	0.002
954	3.944	-0.029	1000	3.956	0.007
955	3.939	-0.031	1001	3.958	0.007
956	3.949	-0.033	1002	3.958	0.002
957	3.953	-0.031	1003	3.953	0.000
958	3.949	-0.031	1004	3.956	-0.001
959	3.946	-0.031	1005	3.953	0.002
960	3.951	-0.031	1006	3.981	0.004
961	3.949	-0.033	1007	3.988	0.007
962	3.951	-0.033	1008	3.995	0.007
963	3.949	-0.031	1009	3.993	0.009
964	3.944	-0.031	1010	3.998	0.007
965	3.949	-0.031	1011	3.993	0.009
966	3.925	-0.031	1012	4.000	0.007
967	3.918	-0.033	1013	4.000	0.009
968	3.923	-0.031	1014	3.988	0.009
969	3.918	-0.033	1015	3.993	0.011
970	3.921	-0.031	1016	3.991	0.011
971	3.921	-0.029	1017	4.002	0.011
972	3.921	-0.031	1018	4.000	0.009
973	3.918	-0.026	1019	3.991	0.004
974	3.918	-0.024	1020	3.995	0.009
975	3.923	-0.024	1021	3.993	0.006

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial, ft H_2O MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial, ft H_2O MW44Z2	MW45Z2
1022	4.000	0.004	1068	3.981	-0.003
1023	3.998	0.004	1069	3.986	-0.003
1024	3.991	0.011	1070	3.988	-0.001
1025	3.970	0.002	1071	3.988	0.002
1026	3.965	0.002	1072	3.993	0.002
1027	3.953	0.002	1073	3.991	0.004
1028	3.956	0.000	1074	3.993	-0.003
1029	3.949	0.002	1075	3.991	-0.003
1030	3.953	0.002	1076	3.995	-0.005
1031	3.951	0.007	1077	3.988	-0.005
1032	3.953	0.002	1078	3.988	-0.005
1033	3.949	0.002	1079	3.986	-0.003
1034	3.944	0.004	1080	3.991	-0.003
1035	3.960	-0.001	1081	3.986	0.000
1036	3.970	0.000	1082	3.991	0.002
1037	3.984	0.000	1083	3.988	0.007
1038	3.986	0.000	1084	3.974	0.000
1039	3.988	0.000	1085	3.963	-0.003
1040	3.984	-0.003	1086	3.958	-0.003
1041	3.988	-0.003	1087	3.951	-0.003
1042	3.984	-0.003	1088	3.953	-0.003
1043	3.988	-0.003	1089	3.958	-0.001
1044	3.988	0.002	1090	3.953	-0.001
1045	3.991	0.000	1091	3.960	0.000
1046	3.995	0.002	1092	3.949	-0.005
1047	3.991	0.004	1093	3.956	-0.005
1048	3.988	0.000	1094	3.972	0.000
1049	3.986	-0.003	1095	3.988	-0.003
1050	3.974	-0.005	1096	3.991	0.000
1051	3.979	-0.003	1097	3.993	0.004
1052	3.974	-0.005	1098	3.991	0.002
1053	3.977	-0.005	1099	3.993	0.002
1054	3.981	-0.005	1100	3.993	0.002
1055	3.958	-0.005	1101	3.993	-0.003
1056	3.951	-0.005	1102	3.998	0.002
1057	3.949	-0.005	1103	3.991	0.002
1058	3.942	-0.005	1104	3.988	0.004
1059	3.937	-0.005	1105	3.991	0.007
1060	3.939	-0.005	1106	3.988	0.000
1061	3.939	-0.005	1107	4.000	-0.001
1062	3.942	-0.005	1108	3.993	-0.003
1063	3.944	-0.005	1109	3.995	-0.005
1064	3.951	-0.005	1110	3.995	-0.003
1065	3.963	-0.005	1111	3.991	-0.003
1066	3.974	-0.008	1112	3.993	-0.003
1067	3.972	-0.008	1113	3.993	0.000

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
1114	3.967	0.000	1160	3.988	-0.005
1115	3.960	0.002	1161	3.984	-0.005
1116	3.960	0.002	1162	3.984	-0.008
1117	3.953	0.002	1163	3.981	-0.008
1118	3.951	-0.003	1164	3.984	-0.008
1119	3.951	-0.003	1165	3.986	-0.005
1120	3.953	-0.003	1166	3.986	-0.008
1121	3.942	-0.003	1167	3.984	-0.010
1122	3.946	-0.005	1168	3.988	-0.008
1123	3.951	0.000	1169	3.991	-0.008
1124	3.972	0.000	1170	3.991	-0.010
1125	3.972	0.000	1171	3.988	-0.005
1126	3.977	-0.003	1172	3.995	0.000
1127	3.979	0.004	1173	3.965	-0.001
1128	3.986	0.002	1174	3.963	0.000
1129	3.988	0.000	1175	3.953	-0.003
1130	3.991	0.004	1176	3.960	-0.001
1131	3.991	0.000	1177	3.958	0.000
1132	3.993	0.004	1178	3.960	0.000
1133	3.998	0.007	1179	3.953	0.000
1134	4.000	0.004	1180	3.960	0.002
1135	3.995	0.009	1181	3.967	0.004
1136	3.995	0.002	1182	3.967	0.004
1137	3.991	0.002	1183	3.977	0.002
1138	3.995	0.000	1184	3.984	0.004
1139	3.991	-0.003	1185	3.995	0.004
1140	3.988	-0.005	1186	3.993	0.002
1141	3.991	-0.003	1187	3.998	0.002
1142	3.986	-0.003	1188	3.998	0.002
1143	3.970	-0.005	1189	3.995	0.004
1144	3.953	-0.003	1190	4.000	0.006
1145	3.958	-0.001	1191	4.002	0.002
1146	3.958	-0.003	1192	4.002	0.004
1147	3.958	-0.005	1193	4.002	0.004
1148	3.953	0.000	1194	4.005	0.009
1149	3.956	-0.003	1195	4.005	0.004
1150	3.958	0.000	1196	4.007	0.002
1151	3.958	0.000	1197	4.002	0.002
1152	3.960	0.000	1198	4.005	0.002
1153	3.970	-0.003	1199	4.005	0.002
1154	3.977	-0.003	1200	4.005	0.002
1155	3.977	0.000	1201	4.007	0.004
1156	3.984	-0.003	1202	3.991	0.004
1157	3.988	-0.003	1203	3.981	0.004
1158	3.986	-0.005	1204	3.979	0.004
1159	3.984	0.000	1205	3.979	0.004

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
1206	3.974	0.004	1252	4.019	0.021
1207	3.974	0.007	1253	4.016	0.025
1208	3.972	0.004	1254	4.021	0.025
1209	3.967	0.004	1255	4.016	0.025
1210	3.965	0.004	1256	4.026	0.028
1211	3.979	0.002	1257	4.026	0.023
1212	3.986	0.000	1258	4.026	0.025
1213	4.000	0.004	1259	4.023	0.025
1214	4.002	0.007	1260	4.023	0.023
1215	4.005	0.004	1261	4.012	0.025
1216	4.009	0.004	1262	3.998	0.025
1217	4.016	0.007	1263	3.991	0.025
1218	4.016	0.002	1264	3.988	0.025
1219	4.012	0.004	1265	3.991	0.032
1220	4.007	0.009	1266	3.986	0.028
1221	4.009	0.009	1267	3.986	0.025
1222	4.014	0.004	1268	3.995	0.028
1223	4.019	0.007	1269	3.995	0.023
1224	4.014	0.002	1270	3.986	0.028
1225	4.014	0.002	1271	4.005	0.032
1226	4.012	0.004	1272	4.019	0.032
1227	4.009	0.004	1273	4.026	0.032
1228	4.007	0.006	1274	4.026	0.032
1229	4.007	0.004	1275	4.033	0.035
1230	4.012	0.002	1276	4.028	0.030
1231	4.009	0.004	1277	4.028	0.030
1232	3.991	0.004	1278	4.030	0.030
1233	3.986	0.002	1279	4.035	0.032
1234	3.984	0.007	1280	4.037	0.032
1235	3.979	0.011	1281	4.035	0.030
1236	3.984	0.013	1282	4.033	0.030
1237	3.979	0.011	1283	4.037	0.032
1238	3.984	0.013	1284	4.037	0.037
1239	3.988	0.011	1285	4.042	0.035
1240	3.991	0.014	1286	4.042	0.035
1241	3.981	0.020	1287	4.042	0.037
1242	3.998	0.014	1288	4.042	0.037
1243	4.005	0.011	1289	4.042	0.039
1244	4.014	0.016	1290	4.033	0.037
1245	4.014	0.016	1291	4.016	0.039
1246	4.047	0.018	1292	4.009	0.039
1247	4.016	0.018	1293	3.998	0.039
1248	4.014	0.018	1294	4.000	0.039
1249	4.005	0.018	1295	3.998	0.037
1250	4.009	0.018	1296	3.998	0.037
1251	4.012	0.023	1297	3.998	0.037

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
1298	4.014	0.042	1344	4.035	0.053
1299	4.005	0.042	1345	4.037	0.058
1300	4.005	0.039	1346	4.037	0.053
1301	4.030	0.044	1347	4.040	0.053
1302	4.035	0.042	1348	4.042	0.060
1303	4.040	0.037	1349	4.030	0.058
1304	4.040	0.042	1350	4.028	0.060
1305	4.044	0.042	1351	4.019	0.060
1306	4.044	0.044	1352	4.021	0.060
1307	4.037	0.044	1353	4.021	0.058
1308	4.037	0.044	1354	4.019	0.058
1309	4.033	0.046	1355	4.016	0.060
1310	4.035	0.044	1356	4.016	0.060
1311	4.035	0.044	1357	4.019	0.063
1312	4.040	0.046	1358	4.021	0.060
1313	4.035	0.044	1359	4.023	0.060
1314	4.033	0.044	1360	4.042	0.060
1315	4.040	0.042	1361	4.056	0.060
1316	4.044	0.044	1362	4.061	0.063
1317	4.044	0.042	1363	4.061	0.063
1318	4.049	0.046	1364	4.068	0.065
1319	4.047	0.046	1365	4.068	0.063
1320	4.021	0.049	1366	4.065	0.063
1321	4.014	0.044	1367	4.063	0.063
1322	4.009	0.046	1368	4.063	0.070
1323	4.007	0.044	1369	4.065	0.063
1324	4.002	0.044	1370	4.065	0.063
1325	4.007	0.046	1371	4.058	0.063
1326	4.005	0.049	1372	4.063	0.063
1327	3.995	0.049	1373	4.063	0.063
1328	3.993	0.046	1374	4.058	0.063
1329	3.993	0.046	1375	4.065	0.063
1330	4.019	0.046	1376	4.068	0.065
1331	4.023	0.049	1377	4.070	0.063
1332	4.035	0.051	1378	4.070	0.065
1333	4.040	0.051	1379	4.049	0.065
1334	4.044	0.051	1380	4.051	0.063
1335	4.044	0.053	1381	4.040	0.065
1336	4.047	0.049	1382	4.037	0.065
1337	4.044	0.051	1383	4.035	0.060
1338	4.049	0.051	1384	4.030	0.060
1339	4.051	0.049	1385	4.035	0.065
1340	4.049	0.051	1386	4.035	0.065
1341	4.051	0.053	1387	4.037	0.065
1342	4.040	0.053	1388	4.030	0.067
1343	4.037	0.053	1389	4.047	0.065

TABLE S1.3 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
1390	4.065	0.065	1434		0.070
1391	4.065	0.065	1435		0.079
1392	4.070	0.065	1436		0.074
1393	4.070	0.063	1437		0.074
1394	4.070	0.065	1438		0.077
1395	4.077	0.065	1439		0.072
1396	4.075	0.067			
1397	4.070	0.065			
1398	4.065	0.065			
1399	4.070	0.065			
1400	4.065	0.065			
1401	4.072	0.067			
1402	4.072	0.065			
1403	4.072	0.065			
1404	4.079	0.067			
1405	4.079	0.067			
1406	4.079	0.065			
1407	4.079	0.067			
1408	4.070	0.063			
1409	4.054	0.067			
1410	4.051	0.067			
1411	4.049	0.067			
1412	4.049	0.070			
1413	4.054	0.065			
1414	4.054	0.070			
1415	4.049	0.077			
1416	4.054	0.070			
1417	4.054	0.067			
1418	4.049	0.067			
1419	4.068	0.070			
1420	4.070	0.072			
1421	4.068	0.072			
1422	4.070	0.074			
1423	4.072	0.070			
1424	4.079	0.070			
1425	4.074	0.074			
1426		0.074			
1427		0.072			
1428		0.072			
1429		0.077			
1430		0.072			
1431		0.077			
1432		0.074			
1433		0.072			

[a] Elapsed time was calculated from 10:15 on 3/18/10 as time zero.

TABLE S1.4 Water levels in MW44Z2 and MW45Z2 recorded by the Hermit™ data logger during the constant-rate pumping test recovery period, March 19-20, 2010.

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
0.0000	4.035	0.056	0.1466	3.382	0.063
0.0033	3.818	0.056	0.1500	3.372	0.063
0.0066	3.979	0.063	0.1533	3.366	0.063
0.0100	3.972	0.056	0.1566	3.356	0.063
0.0133	3.922	0.056	0.1600	3.347	0.063
0.0166	3.891	0.063	0.1633	3.338	0.063
0.0200	3.872	0.063	0.1666	3.328	0.063
0.0233	3.853	0.063	0.1700	3.319	0.063
0.0266	3.837	0.063	0.1733	3.309	0.063
0.0300	3.822	0.063	0.1766	3.300	0.056
0.0333	3.809	0.063	0.1800	3.290	0.063
0.0366	3.793	0.063	0.1833	3.281	0.063
0.0400	3.774	0.063	0.1866	3.275	0.063
0.0433	3.759	0.063	0.1900	3.265	0.063
0.0466	3.749	0.063	0.1933	3.256	0.063
0.0500	3.680	0.063	0.1966	3.247	0.063
0.0533	3.715	0.063	0.2000	3.237	0.063
0.0566	3.709	0.063	0.2033	3.228	0.063
0.0600	3.683	0.063	0.2066	3.218	0.063
0.0633	3.671	0.063	0.2100	3.212	0.063
0.0666	3.658	0.063	0.2133	3.199	0.063
0.0700	3.646	0.063	0.2166	3.193	0.063
0.0733	3.633	0.063	0.2200	3.184	0.063
0.0766	3.617	0.063	0.2233	3.174	0.063
0.0800	3.605	0.063	0.2266	3.165	0.063
0.0833	3.592	0.063	0.2300	3.158	0.063
0.0866	3.580	0.063	0.2333	3.149	0.063
0.0900	3.567	0.063	0.2366	3.140	0.063
0.0933	3.554	0.063	0.2400	3.130	0.063
0.0966	3.542	0.063	0.2433	3.124	0.063
0.1000	3.529	0.063	0.2466	3.115	0.063
0.1033	3.520	0.063	0.2500	3.105	0.063
0.1066	3.504	0.063	0.2533	3.099	0.063
0.1100	3.495	0.063	0.2566	3.089	0.063
0.1133	3.485	0.063	0.2600	3.083	0.063
0.1166	3.473	0.063	0.2633	3.074	0.063
0.1200	3.463	0.063	0.2666	3.067	0.063
0.1233	3.451	0.063	0.2700	3.058	0.063
0.1266	3.441	0.063	0.2733	3.048	0.063
0.1300	3.432	0.063	0.2766	3.042	0.063
0.1333	3.422	0.063	0.2800	3.033	0.063
0.1366	3.413	0.063	0.2833	3.027	0.063
0.1400	3.404	0.063	0.2866	3.020	0.063
0.1433	3.394	0.063	0.2900	3.011	0.063

TABLE S1.4 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
0.2933	3.005	0.063	0.9000	1.876	0.063
0.2966	2.995	0.063	0.9166	1.860	0.063
0.3000	2.989	0.063	0.9333	1.848	0.063
0.3033	2.982	0.063	0.9500	1.832	0.063
0.3066	2.973	0.063	0.9666	1.813	0.063
0.3100	2.967	0.063	0.9833	1.801	0.063
0.3133	2.957	0.063	1.0	1.782	0.063
0.3166	2.945	0.063	1.2	1.612	0.063
0.3200	2.935	0.063	1.4	1.480	0.063
0.3233	2.923	0.063	1.6	1.376	0.063
0.3266	2.907	0.063	1.8	1.292	0.063
0.3300	2.898	0.063	2.0	1.219	0.063
0.3333	2.885	0.063	2.2	1.159	0.056
0.3500	2.825	0.063	2.4	1.112	0.063
0.3666	2.775	0.063	2.6	1.068	0.056
0.3833	2.725	0.063	2.8	1.034	0.056
0.4000	2.681	0.063	3.0	1.002	0.063
0.4166	2.637	0.063	3.2	0.974	0.063
0.4333	2.596	0.056	3.4	0.952	0.063
0.4500	2.555	0.063	3.6	0.930	0.063
0.4666	2.517	0.056	3.8	0.911	0.063
0.4833	2.480	0.056	4.0	0.895	0.063
0.5000	2.445	0.056	4.2	0.877	0.063
0.5166	2.414	0.056	4.4	0.864	0.063
0.5333	2.385	0.056	4.6	0.851	0.056
0.5500	2.354	0.056	4.8	0.839	0.063
0.5666	2.329	0.063	5.0	0.826	0.063
0.5833	2.300	0.063	5.2	0.817	0.063
0.6000	2.272	0.063	5.4	0.807	0.063
0.6166	2.244	0.063	5.6	0.798	0.056
0.6333	2.219	0.056	5.8	0.789	0.063
0.6500	2.190	0.063	6.0	0.779	0.063
0.6666	2.165	0.063	6.2	0.770	0.063
0.6833	2.140	0.063	6.4	0.763	0.063
0.7000	2.118	0.063	6.6	0.754	0.063
0.7166	2.099	0.056	6.8	0.748	0.063
0.7333	2.077	0.063	7.0	0.741	0.063
0.7500	2.055	0.056	7.2	0.735	0.063
0.7666	2.033	0.056	7.4	0.729	0.063
0.7833	2.011	0.056	7.6	0.723	0.056
0.8000	1.989	0.056	7.8	0.716	0.056
0.8166	1.970	0.056	8.0	0.713	0.056
0.8333	1.952	0.056	8.2	0.707	0.056
0.8500	1.930	0.063	8.4	0.701	0.063
0.8666	1.914	0.063	8.6	0.694	0.063
0.8833	1.895	0.063	8.8	0.691	0.063

TABLE S1.4 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
9.0	0.685	0.063	92	0.213	0.063
9.2	0.679	0.063	94	0.210	0.069
9.4	0.675	0.063	96	0.207	0.063
9.6	0.672	0.063	98	0.201	0.056
9.8	0.669	0.063	100	0.198	0.056
10	0.660	0.063	120	0.176	0.050
12	0.622	0.063	140	0.172	0.075
14	0.591	0.063	160	0.150	0.069
16	0.562	0.063	180	0.138	0.056
18	0.534	0.063	200	0.132	0.069
20	0.512	0.063	220	0.128	0.069
22	0.493	0.063	240	0.119	0.063
24	0.474	0.063	260	0.119	0.069
26	0.459	0.063	280	0.125	0.088
28	0.443	0.063	300	0.122	0.081
30	0.427	0.069	320	0.125	0.088
32	0.415	0.069	340	0.116	0.081
34	0.402	0.069	360	0.113	0.081
36	0.386	0.063	380	0.103	0.075
38	0.377	0.063	400	0.103	0.069
40	0.361	0.063	420	0.103	0.069
42	0.355	0.063	440	0.100	0.069
44	0.342	0.069	460	0.100	0.075
46	0.336	0.063	480	0.116	0.088
48	0.327	0.063	500	0.128	0.100
50	0.317	0.063	520	0.122	0.100
52	0.311	0.063	540	0.132	0.113
54	0.301	0.063	560	0.125	0.113
56	0.295	0.069	580	0.122	0.113
58	0.289	0.069	600	0.132	0.119
60	0.279	0.063	620	0.135	0.126
62	0.276	0.063	640	0.132	0.132
64	0.270	0.075	660	0.138	0.132
66	0.260	0.063	680	0.147	0.151
68	0.257	0.056	700	0.150	0.151
70	0.251	0.056	720	0.141	0.144
72	0.245	0.056	740	0.135	0.138
74	0.245	0.056	760	0.138	0.138
76	0.235	0.069	780	0.128	0.132
78	0.235	0.063	800	0.128	0.132
80	0.229	0.063	820	0.132	0.138
82	0.226	0.063	840	0.138	0.138
84	0.226	0.056	860	0.138	0.144
86	0.223	0.063	880	0.138	0.144
88	0.220	0.063	900	0.135	0.144
90	0.213	0.063	920	0.138	0.138

TABLE S1.4 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2	Elapsed Time (min)	Water Level Change from Initial (ft H_2O) MW44Z2	MW45Z2
940	0.132	0.138			
960	0.132	0.138			
980	0.141	0.144			
1000	0.135	0.138			
1020	0.132	0.138			
1040	0.119	0.126			
1060	0.113	0.119			
1080	0.125	0.126			
1100	0.119	0.119			
1120	0.132	0.138			
1140	0.125	0.132			
1160	0.125	0.132			
1180	0.128	0.138			
1200	0.119	0.126			
1220	0.113	0.113			
1240	0.113	0.119			
1260	0.128	0.132			
1280	0.141	0.144			
1300	0.160	0.163			
1320	0.160	0.163			
1340	0.144	0.151			
1360	0.141	0.144			
1380	0.150	0.163			
1400	0.154	0.163			
1420	0.160	0.170			
1440	0.147	0.157			
1460	0.128	0.138			
1480	0.128	0.144			
1500	0.135	0.144			
1520	0.132	0.138			
1540	0.128	0.138			
1560	0.138	0.144			
1580	0.135	0.144			
1600	0.128	0.138			
1620	0.119	0.132			
1640	0.116	0.126			
1660	0.113				

[a] Elapsed time was calculated from 10:15 on 3/19/10 as time zero.

TABLE S1.5 Water levels recorded by the PT2XTM data-logger in MW44Z2 during the constant-rate pumping test recovery period, March 19-20, 2010.

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
0.000	3.995	0.767	2.026	1.533	1.426
0.017	3.855	0.783	2.007	1.550	1.417
0.033	3.778	0.800	1.988	1.567	1.405
0.050	3.704	0.817	1.963	1.583	1.394
0.067	3.634	0.833	1.946	1.600	1.387
0.083	3.562	0.850	1.932	1.617	1.382
0.100	3.506	0.867	1.907	1.633	1.371
0.117	3.452	0.883	1.893	1.650	1.368
0.133	3.408	0.900	1.872	1.667	1.359
0.150	3.359	0.917	1.860	1.683	1.352
0.167	3.312	0.933	1.844	1.700	1.343
0.183	3.270	0.950	1.823	1.717	1.340
0.200	3.217	0.967	1.811	1.733	1.333
0.217	3.177	0.983	1.799	1.750	1.322
0.233	3.137	1.000	1.778	1.767	1.312
0.250	3.095	1.017	1.767	1.783	1.310
0.267	3.044	1.033	1.753	1.800	1.308
0.283	3.012	1.050	1.736	1.817	1.294
0.300	2.965	1.067	1.725	1.833	1.289
0.317	2.909	1.083	1.706	1.850	1.284
0.333	2.848	1.100	1.695	1.867	1.273
0.350	2.802	1.117	1.676	1.883	1.273
0.367	2.750	1.133	1.667	1.900	1.268
0.383	2.704	1.150	1.655	1.917	1.261
0.400	2.660	1.167	1.641	1.933	1.256
0.417	2.622	1.183	1.632	1.950	1.252
0.433	2.578	1.200	1.613	1.967	1.247
0.450	2.538	1.217	1.608	1.983	1.240
0.467	2.499	1.233	1.594	2.000	1.235
0.483	2.464	1.250	1.585	2.017	1.226
0.500	2.440	1.267	1.571	2.033	1.226
0.517	2.403	1.283	1.562	2.050	1.221
0.533	2.375	1.300	1.550	2.067	1.212
0.550	2.350	1.317	1.536	2.083	1.207
0.567	2.319	1.333	1.531	2.100	1.203
0.583	2.287	1.350	1.520	2.117	1.198
0.600	2.263	1.367	1.510	2.133	1.193
0.617	2.238	1.383	1.501	2.150	1.186
0.633	2.207	1.400	1.492	2.167	1.186
0.650	2.182	1.417	1.480	2.183	1.175
0.667	2.154	1.433	1.468	2.200	1.182
0.683	2.133	1.450	1.464	2.217	1.175
0.700	2.114	1.467	1.450	2.233	1.168
0.717	2.093	1.483	1.445	2.250	1.168
0.733	2.068	1.500	1.440	2.267	1.158
0.750	2.047	1.517	1.431	2.283	1.151

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
2.300	1.149	3.083	1.002	3.867	0.923
2.317	1.144	3.100	1.002	3.883	0.914
2.333	1.137	3.117	1.000	3.900	0.918
2.350	1.142	3.133	0.995	3.917	0.916
2.367	1.135	3.150	0.995	3.933	0.914
2.383	1.128	3.167	0.993	3.950	0.914
2.400	1.130	3.183	1.002	*3.967*	0.914
2.417	1.126	3.200	0.993	3.983	0.909
2.433	1.119	3.217	0.984	4.000	0.911
2.450	1.116	3.233	0.984	4.017	0.911
2.467	1.109	3.250	0.981	4.033	0.904
2.483	1.109	3.267	0.981	4.050	0.904
2.500	1.107	3.283	0.981	4.067	0.902
2.517	1.105	3.300	0.974	4.083	0.902
2.533	1.100	3.317	0.979	4.100	0.902
2.550	1.098	3.333	0.974	4.117	0.895
2.567	1.095	3.350	0.979	4.133	0.900
2.583	1.088	3.367	0.967	4.150	0.897
2.600	1.088	3.383	0.970	4.167	0.893
2.617	1.084	3.400	0.967	4.183	0.893
2.633	*1.077*	3.417	0.965	4.200	0.893
2.650	1.070	3.433	0.963	4.217	0.890
2.667	1.067	3.450	0.963	4.233	0.893
2.683	1.065	3.467	0.956	4.250	0.888
2.700	1.070	3.483	0.956	4.267	0.890
2.717	1.060	3.500	0.956	4.283	0.883
2.733	1.058	3.517	0.956	4.300	0.888
2.750	1.058	3.533	0.953	4.317	0.886
2.767	1.058	3.550	0.946	*4.333*	0.886
2.783	1.053	3.567	0.946	4.350	0.883
2.800	1.051	3.583	0.951	4.367	0.883
2.817	1.042	3.600	0.942	4.383	0.881
2.833	1.040	3.617	0.939	4.400	0.879
2.850	1.042	3.633	0.939	4.417	0.883
2.867	1.037	3.650	0.939	4.433	0.876
2.883	1.037	3.667	0.944	4.450	0.876
2.900	1.040	3.683	0.937	4.467	0.872
2.917	1.028	3.700	0.935	4.483	0.874
2.933	1.028	3.717	0.935	4.500	0.872
2.950	1.023	3.733	0.930	4.517	0.874
2.967	1.021	3.750	0.928	4.533	0.872
2.983	1.021	3.767	0.925	4.550	0.872
3.000	1.016	3.783	0.925	4.567	0.872
3.017	1.019	3.800	0.923	4.583	0.865
3.033	1.014	3.817	0.925	4.600	0.865
3.050	1.012	3.833	0.918	4.617	0.867
3.067	1.007	3.850	0.921	4.633	0.862

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
4.650	0.858	5.433	0.825	6.217	0.785
4.667	0.869	5.450	0.818	6.233	0.785
4.683	0.860	5.467	0.818	6.250	0.778
4.700	0.865	5.483	0.820	6.267	0.781
4.717	0.860	5.500	0.818	6.283	0.781
4.733	0.858	5.517	0.820	6.300	0.783
4.750	0.855	5.533	0.818	6.317	0.783
4.767	0.851	5.550	0.813	6.333	0.781
4.783	0.855	5.567	0.813	6.350	0.790
4.800	0.853	5.583	0.816	6.367	0.781
4.817	0.858	5.600	0.818	6.383	0.778
4.833	0.858	5.617	0.816	6.400	0.778
4.850	0.851	5.633	0.809	6.417	0.776
4.867	0.853	5.650	0.813	6.433	0.778
4.883	0.858	5.667	0.811	6.450	0.781
4.900	0.853	5.683	0.806	6.467	0.769
4.917	0.846	5.700	0.813	6.483	0.776
4.933	0.841	5.717	0.811	6.500	0.778
4.950	0.846	5.733	0.809	6.517	0.778
4.967	0.844	5.750	0.809	6.533	0.774
4.983	0.844	5.767	0.809	6.550	0.771
5.000	0.844	5.783	0.804	6.567	0.774
5.017	0.848	5.800	0.804	6.583	0.774
5.033	0.839	5.817	0.799	6.600	0.771
5.050	0.839	5.833	0.802	6.617	0.771
5.067	0.844	5.850	0.802	6.633	0.769
5.083	0.841	5.867	0.804	6.650	0.769
5.100	0.839	5.883	0.799	6.667	0.769
5.117	0.837	5.900	0.797	6.683	0.767
5.133	0.834	5.917	0.799	6.700	0.767
5.150	0.837	5.933	0.799	6.717	0.762
5.167	0.837	5.950	0.799	6.733	0.764
5.183	0.834	5.967	0.797	6.750	0.762
5.200	0.839	5.983	0.792	6.767	0.767
5.217	0.834	6.000	0.795	6.783	0.762
5.233	0.830	6.017	0.792	6.800	0.764
5.250	0.830	6.033	0.795	6.817	0.764
5.267	0.832	6.050	0.797	6.833	0.767
5.283	0.830	6.067	0.802	6.850	0.764
5.300	0.825	6.083	0.792	6.867	0.762
5.317	0.830	6.100	0.792	6.883	0.762
5.333	0.830	6.117	0.790	6.900	0.760
5.350	0.825	6.133	0.790	6.917	0.757
5.367	0.832	6.150	0.788	6.933	0.760
5.383	0.827	6.167	0.788	6.950	0.760
5.400	0.825	6.183	0.792	6.967	0.755
5.417	0.823	6.200	0.785	6.983	0.757

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
7.000	0.757	7.783	0.737	8.567	0.711
7.017	0.755	7.800	0.739	8.583	0.711
7.033	0.760	7.817	0.730	8.600	0.713
7.050	0.750	7.833	0.734	8.617	0.706
7.067	0.757	7.850	0.725	8.633	0.709
7.083	0.757	7.867	0.732	8.650	0.709
7.100	0.753	7.883	0.727	8.667	0.713
7.117	0.755	7.900	0.730	8.683	0.709
7.133	0.755	7.917	0.730	8.700	0.709
7.150	0.753	7.933	0.723	8.717	0.711
7.167	0.755	7.950	0.727	8.733	0.706
7.183	0.748	7.967	0.730	8.750	0.706
7.200	0.753	7.983	0.727	8.767	0.713
7.217	0.750	8.000	0.725	8.783	0.709
7.233	0.748	8.017	0.723	8.800	0.704
7.250	0.750	8.033	0.727	8.817	0.706
7.267	0.750	8.050	0.730	8.833	0.709
7.283	0.753	8.067	0.725	8.850	0.702
7.300	0.748	8.083	0.723	8.867	0.702
7.317	0.744	8.100	0.718	8.883	0.704
7.333	0.746	8.117	0.725	8.900	0.704
7.350	0.746	8.133	0.720	8.917	0.706
7.367	0.741	8.150	0.725	8.933	0.702
7.383	0.748	8.167	0.720	8.950	0.699
7.400	0.748	8.183	0.725	8.967	0.702
7.417	0.746	8.200	0.723	8.983	0.702
7.433	0.744	8.217	0.720	9.000	0.702
7.450	0.744	8.233	0.720	9.017	0.704
7.467	0.746	8.250	0.723	9.033	0.699
7.483	0.741	8.267	0.716	9.050	0.697
7.500	0.741	8.283	0.716	9.067	0.697
7.517	0.737	8.300	0.718	9.083	0.699
7.533	0.744	8.317	0.716	9.100	0.697
7.550	0.737	8.333	0.718	9.117	0.699
7.567	0.741	8.350	0.718	9.133	0.697
7.583	0.741	8.367	0.718	9.150	0.695
7.600	0.741	8.383	0.718	9.167	0.692
7.617	0.741	8.400	0.720	9.183	0.697
7.633	0.737	8.417	0.716	9.200	0.695
7.650	0.739	8.433	0.716	9.217	0.697
7.667	0.734	8.450	0.713	9.233	0.697
7.683	0.737	8.467	0.711	9.250	0.697
7.700	0.737	8.483	0.716	9.267	0.695
7.717	0.737	8.500	0.716	9.283	0.697
7.733	0.737	8.517	0.718	9.300	0.692
7.750	0.732	8.533	0.716	9.317	0.692
7.767	0.734	8.550	0.711	9.333	0.692

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
9.350	0.690	11.333	0.653	19.167	0.539
9.367	0.690	11.500	0.650	19.333	0.539
9.383	0.690	11.667	0.646	19.500	0.534
9.400	0.690	11.833	0.646	19.667	0.539
9.417	0.683	12.000	0.637	19.833	0.529
9.433	0.695	12.167	0.637	20.000	0.529
9.450	0.690	12.333	0.639	20.167	0.532
9.467	0.692	12.500	0.632	20.333	0.529
9.483	0.692	12.667	0.623	20.500	0.529
9.500	0.690	12.833	0.623	20.667	0.527
9.517	0.695	13.000	0.625	20.833	0.522
9.533	0.688	13.167	0.618	21.000	0.518
9.550	0.685	13.333	0.620	21.167	0.515
9.567	0.688	13.500	0.613	21.333	0.513
9.583	0.690	13.667	0.611	21.500	0.511
9.600	0.690	13.833	0.604	21.667	0.513
9.617	0.692	14.000	0.613	21.833	0.518
9.633	0.683	14.167	0.606	22.000	0.508
9.650	0.683	14.333	0.595	22.167	0.506
9.667	0.688	14.500	0.599	22.333	0.501
9.683	0.685	14.667	0.595	22.500	0.515
9.700	0.688	14.833	0.597	22.667	0.504
9.717	0.683	15.000	0.599	22.833	0.501
9.733	0.683	15.167	0.590	23.000	0.504
9.750	0.685	15.333	0.592	23.167	0.494
9.767	0.685	15.500	0.585	23.333	0.499
9.783	0.683	15.667	0.581	23.500	0.497
9.800	0.683	15.833	0.583	23.667	0.497
9.817	0.683	16.000	0.576	23.833	0.490
9.833	0.688	16.167	0.576	24.000	0.490
9.850	0.683	16.333	0.576	24.167	0.499
9.867	0.683	16.500	0.574	24.333	0.490
9.883	0.676	16.667	0.567	24.500	0.492
9.900	0.678	16.833	0.564	24.667	0.490
9.917	0.674	17.000	0.564	24.833	0.485
9.933	0.681	17.167	0.560	25.000	0.487
9.950	0.676	17.333	0.564	25.167	0.480
9.967	0.683	17.500	0.560	25.333	0.480
9.983	0.678	17.667	0.557	25.500	0.483
10.000	0.678	17.833	0.555	25.667	0.483
10.167	0.676	18.000	0.553	25.833	0.478
10.333	0.669	18.167	0.548	26.000	0.473
10.500	0.669	18.333	0.553	26.167	0.480
10.667	0.660	18.500	0.548	26.333	0.473
10.833	0.660	18.667	0.546	26.500	0.476
11.000	0.657	18.833	0.543	26.667	0.478
11.167	0.657	19.000	0.541	26.833	0.469

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
27.000	0.471	34.833	0.410	42.667	0.366
27.167	0.469	35.000	0.413	42.833	0.366
27.333	0.466	35.167	0.410	43.000	0.364
27.500	0.462	35.333	0.406	43.167	0.366
27.667	0.462	35.500	0.408	43.333	0.364
27.833	0.459	35.667	0.401	43.500	0.362
28.000	0.464	35.833	0.408	43.667	0.362
28.167	0.457	36.000	0.406	43.833	0.359
28.333	0.459	36.167	0.408	44.000	0.357
28.500	0.455	36.333	0.399	44.167	0.357
28.667	0.457	36.500	0.401	44.333	0.357
28.833	0.452	36.667	0.397	44.500	0.359
29.000	0.455	36.833	0.396	44.667	0.355
29.167	0.448	37.000	0.396	44.833	0.359
29.333	0.457	37.167	0.394	45.000	0.357
29.500	0.448	37.333	0.399	45.167	0.355
29.667	0.450	37.500	0.394	45.333	0.357
29.833	0.448	37.667	0.394	45.500	0.348
30.000	0.443	37.833	0.392	45.667	0.350
30.167	0.441	38.000	0.392	45.833	0.355
30.333	0.441	38.167	0.394	46.000	0.352
30.500	0.441	38.333	0.389	46.167	0.350
30.667	0.438	38.500	0.387	46.333	0.350
30.833	0.443	38.667	0.389	46.500	0.354
31.000	0.436	38.833	0.383	46.667	0.348
31.167	0.436	39.000	0.387	46.833	0.345
31.333	0.441	39.167	0.385	47.000	0.345
31.500	0.436	39.333	0.387	47.167	0.345
31.667	0.431	39.500	0.376	47.333	0.348
31.833	0.429	39.667	0.383	47.500	0.341
32.000	0.436	39.833	0.380	47.667	0.343
32.167	0.429	40.000	0.378	47.833	0.345
32.333	0.424	40.167	0.383	48.000	0.343
32.500	0.427	40.333	0.383	48.167	0.343
32.667	0.431	40.500	0.378	48.333	0.341
32.833	0.422	40.667	0.376	48.500	0.343
33.000	0.422	40.833	0.378	48.667	0.341
33.167	0.420	41.000	0.376	48.833	0.338
33.333	0.417	41.167	0.366	49.000	0.336
33.500	0.422	41.333	0.373	49.167	0.338
33.667	0.420	41.500	0.371	49.333	0.336
33.833	0.420	41.667	0.373	49.500	0.338
34.000	0.422	41.833	0.369	49.667	0.331
34.167	0.420	42.000	0.366	49.833	0.331
34.333	0.420	42.167	0.373	50.000	0.331
34.500	0.417	42.333	0.369	50.167	0.329
34.667	0.413	42.500	0.369	50.333	0.329

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
50.500	0.331	58.333	0.299	66.167	0.271
50.667	0.331	58.500	0.306	66.333	0.278
50.833	0.327	58.667	0.296	66.500	0.271
51.000	0.327	58.833	0.299	66.667	0.275
51.167	0.327	59.000	0.303	66.833	0.278
51.333	0.327	59.167	0.301	67.000	0.275
51.500	0.329	59.333	0.299	67.167	0.278
51.667	0.322	59.500	0.301	67.333	0.275
51.833	0.324	59.667	0.301	67.500	0.273
52.000	0.331	59.833	0.303	67.667	0.268
52.167	0.327	60.000	0.296	67.833	0.271
52.333	0.322	60.167	0.294	68.000	0.275
52.500	0.322	60.333	0.294	68.167	0.268
52.667	0.322	60.500	0.294	68.333	0.264
52.833	0.320	60.667	0.294	68.500	0.271
53.000	0.317	60.833	0.296	68.667	0.273
53.167	0.317	61.000	0.294	68.833	0.271
53.333	0.320	61.167	0.294	69.000	0.268
53.500	0.320	61.333	0.292	69.167	0.266
53.667	0.317	61.500	0.292	69.333	0.268
53.833	0.315	61.667	0.289	69.500	0.268
54.000	0.315	61.833	0.296	69.667	0.266
54.167	0.317	62.000	0.289	69.833	0.268
54.333	0.317	62.167	0.296	70.000	0.266
54.500	0.315	62.333	0.292	70.167	0.271
54.667	0.317	62.500	0.292	70.333	0.266
54.833	0.317	62.667	0.287	70.500	0.264
55.000	0.310	62.833	0.287	70.667	0.264
55.167	0.310	63.000	0.282	70.833	0.268
55.333	0.322	63.167	0.287	71.000	0.264
55.500	0.313	63.333	0.285	71.167	0.268
55.667	0.308	63.500	0.285	71.333	0.261
55.833	0.315	63.667	0.285	71.500	0.261
56.000	0.313	63.833	0.282	71.667	0.261
56.167	0.310	64.000	0.285	71.833	0.264
56.333	0.310	64.167	0.287	72.000	0.261
56.500	0.306	64.333	0.285	72.167	0.264
56.667	0.310	64.500	0.282	72.333	0.254
56.833	0.306	64.667	0.282	72.500	0.257
57.000	0.303	64.833	0.280	72.667	0.266
57.167	0.306	65.000	0.285	72.833	0.259
57.333	0.308	65.167	0.278	73.000	0.261
57.500	0.306	65.333	0.285	73.167	0.261
57.667	0.303	65.500	0.285	73.333	0.259
57.833	0.306	65.667	0.275	73.500	0.259
58.000	0.306	65.833	0.280	73.667	0.264
58.167	0.299	66.000	0.275	73.833	0.257

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
74.000	0.254	81.833	0.245	89.667	0.233
74.167	0.257	82.000	0.245	89.833	0.231
74.333	0.252	82.167	0.243	90.000	0.231
74.500	0.261	82.333	0.243	90.167	0.233
74.667	0.257	82.500	0.245	90.333	0.231
74.833	0.254	82.667	0.245	90.500	0.233
75.000	0.259	82.833	0.245	90.667	0.226
75.167	0.252	83.000	0.240	90.833	0.231
75.333	0.254	83.167	0.243	91.000	0.231
75.500	0.254	83.333	0.240	91.167	0.229
75.667	0.257	83.500	0.240	91.333	0.231
75.833	0.250	83.667	0.238	91.500	0.231
76.000	0.252	83.833	0.243	91.667	0.231
76.167	0.252	84.000	0.238	91.833	0.231
76.333	0.250	84.167	0.243	92.000	0.226
76.500	0.252	84.333	0.240	92.167	0.229
76.667	0.252	84.500	0.240	92.333	0.231
76.833	0.247	84.667	0.240	92.500	0.224
77.000	0.247	84.833	0.240	92.667	0.229
77.167	0.254	85.000	0.240	92.833	0.229
77.333	0.247	85.167	0.238	93.000	0.226
77.500	0.247	85.333	0.243	93.167	0.231
77.667	0.250	85.500	0.233	93.333	0.226
77.833	0.252	85.667	0.240	93.500	0.226
78.000	0.247	85.833	0.238	93.667	0.229
78.167	0.252	86.000	0.243	93.833	0.231
78.333	0.252	86.167	0.238	94.000	0.229
78.500	0.245	86.333	0.236	94.167	0.224
78.667	0.247	86.500	0.238	94.333	0.226
78.833	0.245	86.667	0.243	94.500	0.222
79.000	0.247	86.833	0.236	94.667	0.224
79.167	0.245	87.000	0.233	94.833	0.224
79.333	0.250	87.167	0.233	95.000	0.224
79.500	0.243	87.333	0.233	95.167	0.219
79.667	0.247	87.500	0.233	95.333	0.229
79.833	0.245	87.667	0.236	95.500	0.226
80.000	0.247	87.833	0.233	95.667	0.224
80.167	0.247	88.000	0.233	95.833	0.224
80.333	0.243	88.167	0.231	96.000	0.222
80.500	0.245	88.333	0.233	96.167	0.222
80.667	0.240	88.500	0.229	96.333	0.222
80.833	0.243	88.667	0.231	96.500	0.222
81.000	0.245	88.833	0.231	96.667	0.224
81.167	0.240	89.000	0.238	96.833	0.222
81.333	0.245	89.167	0.231	97.000	0.224
81.500	0.254	89.333	0.233	97.167	0.222
81.667	0.240	89.500	0.231	97.333	0.219

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
97.500	0.217	105.333	0.203	129	0.184
97.667	0.219	105.500	0.208	130	0.182
97.833	0.217	105.667	0.205	131	0.182
98.000	0.219	105.833	0.203	132	0.182
98.167	0.219	106.000	0.201	133	0.182
98.333	0.219	106.167	0.208	134	0.182
98.500	0.212	106.333	0.205	135	0.184
98.667	0.217	106.500	0.205	136	0.189
98.833	0.215	106.667	0.203	137	0.187
99.000	0.219	106.833	0.203	138	0.182
99.167	0.212	107.000	0.203	139	0.182
99.333	0.210	107.167	0.205	140	0.187
99.500	0.215	107.333	0.205	141	0.184
99.667	0.210	107.500	0.203	142	0.184
99.833	0.217	107.667	0.203	143	0.182
100.000	0.217	107.833	0.205	144	0.187
100.167	0.210	108.000	0.203	145	0.180
100.333	0.212	108.167	0.203	146	0.175
100.500	0.210	108.333	0.208	147	0.177
100.667	0.217	108.500	0.205	148	0.182
100.833	0.217	108.667	0.203	149	0.175
101.000	0.210	108.833	0.203	150	0.175
101.167	0.208	109.000	0.205	151	0.175
101.333	0.212	109.167	0.201	152	0.173
101.500	0.212	109.333	0.198	153	0.173
101.667	0.210	109.500	0.198	154	0.173
101.833	0.212	109.667	0.201	155	0.170
102.000	0.210	109.833	0.194	156	0.173
102.167	0.212	110	0.203	157	0.166
102.333	0.212	111	0.198	158	0.166
102.500	0.212	112	0.201	159	0.166
102.667	0.205	113	0.194	160	0.161
102.833	0.210	114	0.196	161	0.161
103.000	0.205	115	0.189	162	0.159
103.167	0.212	116	0.191	163	0.154
103.333	0.210	117	0.194	164	0.156
103.500	0.205	118	0.196	165	0.154
103.667	0.203	119	0.187	166	0.152
103.833	0.205	120	0.189	167	0.156
104.000	0.205	121	0.189	168	0.154
104.167	0.208	122	0.189	169	0.154
104.333	0.205	123	0.187	170	0.156
104.500	0.208	124	0.187	171	0.156
104.667	0.208	125	0.184	172	0.149
104.833	0.205	126	0.184	173	0.152
105.000	0.205	127	0.187	174	0.156
105.167	0.203	128	0.182	175	0.149

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
176	0.152	223	0.138	270	0.147
177	0.152	224	0.140	271	0.145
178	0.152	225	0.142	272	0.147
179	0.152	226	0.140	273	0.145
180	0.149	227	0.140	274	0.145
181	0.149	228	0.140	275	0.145
182	0.149	229	0.138	276	0.145
183	0.152	230	0.135	277	0.140
184	0.152	231	0.135	278	0.135
185	0.149	232	0.133	279	0.142
186	0.152	233	0.138	280	0.142
187	0.152	234	0.138	281	0.140
188	0.156	235	0.138	282	0.140
189	0.149	236	0.133	283	0.138
190	0.149	237	0.131	284	0.142
191	0.147	238	0.135	285	0.140
192	0.154	239	0.131	286	0.142
193	0.149	240	0.131	287	0.135
194	0.147	241	0.138	288	0.140
195	0.147	242	0.135	289	0.138
196	0.145	243	0.138	290	0.138
197	0.149	244	0.128	291	0.140
198	0.147	245	0.131	292	0.135
199	0.145	246	0.131	293	0.138
200	0.147	247	0.135	294	0.135
201	0.145	248	0.135	295	0.131
202	0.145	249	0.128	296	0.133
203	0.152	250	0.138	297	0.140
204	0.149	251	0.133	298	0.135
205	0.149	252	0.133	299	0.135
206	0.147	253	0.140	300	0.140
207	0.140	254	0.135	301	0.140
208	0.149	255	0.138	302	0.135
209	0.147	256	0.138	303	0.135
210	0.147	257	0.135	304	0.140
211	0.145	258	0.140	305	0.135
212	0.145	259	0.133	306	0.135
213	0.142	260	0.135	307	0.140
214	0.149	261	0.133	308	0.135
215	0.145	262	0.133	309	0.135
216	0.145	263	0.135	310	0.138
217	0.145	264	0.138	311	0.140
218	0.142	265	0.140	312	0.133
219	0.138	266	0.140	313	0.138
220	0.142	267	0.140	314	0.138
221	0.142	268	0.142	315	0.140
222	0.145	269	0.142	316	0.135

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
317	0.140	364	0.126	411	0.114
318	0.138	365	0.124	412	0.114
319	0.140	366	0.126	413	0.117
320	0.135	367	0.131	414	0.117
321	0.140	368	0.124	415	0.114
322	0.138	369	0.121	416	0.117
323	0.142	370	0.126	417	0.114
324	0.135	371	0.124	418	0.117
325	0.131	372	0.121	419	0.117
326	0.135	373	0.121	420	0.117
327	0.135	374	0.117	421	0.117
328	0.138	375	0.121	422	0.119
329	0.140	376	0.117	423	0.119
330	0.149	377	0.110	424	0.112
331	0.133	378	0.119	425	0.114
332	0.138	379	0.112	426	0.110
333	0.135	380	0.117	427	0.119
334	0.145	381	0.114	428	0.112
335	0.138	382	0.117	429	0.114
336	0.131	383	0.114	430	0.112
337	0.140	384	0.117	431	0.114
338	0.131	385	0.114	432	0.110
339	0.128	386	0.112	433	0.112
340	0.133	387	0.117	434	0.110
341	0.131	388	0.114	435	0.117
342	0.131	389	0.112	436	0.110
343	0.131	390	0.110	437	0.107
344	0.133	391	0.112	438	0.114
345	0.128	392	0.117	439	0.112
346	0.131	393	0.114	440	0.110
347	0.131	394	0.114	441	0.107
348	0.128	395	0.114	442	0.112
349	0.133	396	0.117	443	0.110
350	0.128	397	0.114	444	0.117
351	0.131	398	0.119	445	0.112
352	0.133	399	0.114	446	0.112
353	0.131	400	0.117	447	0.117
354	0.131	401	0.114	448	0.114
355	0.131	402	0.119	449	0.107
356	0.128	403	0.119	450	0.110
357	0.131	404	0.126	451	0.114
358	0.124	405	0.119	452	0.114
359	0.124	406	0.121	453	0.114
360	0.128	407	0.117	454	0.112
361	0.126	408	0.114	455	0.117
362	0.121	409	0.121	456	0.112
363	0.124	410	0.112	457	0.112

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
458	0.110	505	0.140	552	0.147
459	0.110	506	0.145	553	0.149
460	0.114	507	0.142	554	0.145
461	0.119	508	0.135	555	0.142
462	0.117	509	0.142	556	0.147
463	0.119	510	0.142	557	0.142
464	0.117	511	0.138	558	0.147
465	0.121	512	0.135	559	0.142
466	0.119	513	0.133	560	0.145
467	0.121	514	0.138	561	0.142
468	0.119	515	0.138	562	0.140
469	0.126	516	0.142	563	0.140
470	0.119	517	0.142	564	0.152
471	0.126	518	0.135	565	0.142
472	0.126	519	0.140	566	0.140
473	0.126	520	0.138	567	0.145
474	0.119	521	0.133	568	0.138
475	0.124	522	0.135	569	0.138
476	0.119	523	0.133	570	0.145
477	0.131	524	0.131	571	0.142
478	0.124	525	0.138	572	0.140
479	0.121	526	0.131	573	0.140
480	0.128	527	0.138	574	0.142
481	0.126	528	0.135	575	0.140
482	0.126	529	0.138	576	0.145
483	0.135	530	0.138	577	0.142
484	0.133	531	0.138	578	0.140
485	0.133	532	0.140	579	0.145
486	0.135	533	0.138	580	0.142
487	0.131	534	0.142	581	0.140
488	0.138	535	0.145	582	0.140
489	0.131	536	0.147	583	0.145
490	0.135	537	0.147	584	0.142
491	0.135	538	0.145	585	0.140
492	0.131	539	0.149	586	0.142
493	0.135	540	0.149	587	0.145
494	0.138	541	0.149	588	0.142
495	0.131	542	0.145	589	0.140
496	0.138	543	0.147	590	0.145
497	0.133	544	0.152	591	0.145
498	0.135	545	0.149	592	0.138
499	0.140	546	0.147	593	0.142
500	0.142	547	0.145	594	0.145
501	0.142	548	0.149	595	0.142
502	0.140	549	0.147	596	0.147
503	0.142	550	0.147	597	0.145
504	0.142	551	0.147	598	0.147

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
599	0.142	646	0.154	693	0.170
600	0.156	647	0.152	694	0.168
601	0.152	648	0.156	695	0.173
602	0.142	649	0.156	696	0.168
603	0.149	650	0.152	697	0.168
604	0.147	651	0.156	698	0.166
605	0.159	652	0.159	699	0.170
606	0.154	653	0.147	700	0.170
607	0.145	654	0.152	701	0.168
608	0.154	655	0.154	702	0.170
609	0.149	656	0.152	703	0.170
610	0.145	657	0.159	704	0.166
611	0.152	658	0.156	705	0.168
612	0.149	659	0.156	706	0.170
613	0.149	660	0.156	707	0.173
614	0.152	661	0.161	708	0.170
615	0.152	662	0.159	709	0.170
616	0.147	663	0.161	710	0.170
617	0.147	664	0.161	711	0.170
618	0.149	665	0.161	712	0.168
619	0.147	666	0.159	713	0.170
620	0.154	667	0.161	714	0.168
621	0.152	668	0.168	715	0.163
622	0.152	669	0.166	716	0.163
623	0.147	670	0.163	717	0.161
624	0.152	671	0.163	718	0.159
625	0.147	672	0.166	719	0.161
626	0.154	673	0.166	720	0.163
627	0.152	674	0.175	721	0.168
628	0.152	675	0.168	722	0.163
629	0.154	676	0.170	723	0.163
630	0.149	677	0.168	724	0.163
631	0.149	678	0.170	725	0.156
632	0.154	679	0.166	726	0.161
633	0.149	680	0.168	727	0.156
634	0.156	681	0.168	728	0.163
635	0.149	682	0.168	729	0.168
636	0.149	683	0.166	730	0.163
637	0.154	684	0.166	731	0.161
638	0.154	685	0.170	732	0.159
639	0.156	686	0.166	733	0.159
640	0.154	687	0.166	734	0.159
641	0.156	688	0.163	735	0.159
642	0.152	689	0.161	736	0.163
643	0.152	690	0.168	737	0.156
644	0.152	691	0.168	738	0.152
645	0.149	692	0.168	739	0.156

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
740	0.159	787	0.149	834	0.161
741	0.156	788	0.154	835	0.152
742	0.149	789	0.145	836	0.154
743	0.156	790	0.147	837	0.156
744	0.154	791	0.147	838	0.149
745	0.152	792	0.152	839	0.154
746	0.152	793	0.145	840	0.152
747	0.154	794	0.147	841	0.156
748	0.159	795	0.145	842	0.156
749	0.161	796	0.147	843	0.156
750	0.156	797	0.152	844	0.159
751	0.156	798	0.147	845	0.159
752	0.159	799	0.152	846	0.152
753	0.156	800	0.152	847	0.154
754	0.161	801	0.156	848	0.152
755	0.163	802	0.154	849	0.149
756	0.154	803	0.152	850	0.147
757	0.159	804	0.152	851	0.159
758	0.152	805	0.149	852	0.156
759	0.159	806	0.152	853	0.154
760	0.159	807	0.149	854	0.156
761	0.161	808	0.154	855	0.154
762	0.152	809	0.149	856	0.159
763	0.156	810	0.149	857	0.159
764	0.156	811	0.149	858	0.159
765	0.156	812	0.145	859	0.156
766	0.156	813	0.147	860	0.156
767	0.156	814	0.147	861	0.159
768	0.156	815	0.152	862	0.161
769	0.156	816	0.152	863	0.161
770	0.154	817	0.149	864	0.161
771	0.149	818	0.154	865	0.159
772	0.154	819	0.154	866	0.161
773	0.147	820	0.152	867	0.166
774	0.149	821	0.154	868	0.163
775	0.147	822	0.154	869	0.161
776	0.142	823	0.161	870	0.159
777	0.140	824	0.152	871	0.163
778	0.147	825	0.152	872	0.159
779	0.147	826	0.152	873	0.159
780	0.145	827	0.147	874	0.161
781	0.147	828	0.152	875	0.159
782	0.152	829	0.149	876	0.156
783	0.152	830	0.159	877	0.161
784	0.154	831	0.154	878	0.161
785	0.152	832	0.147	879	0.156
786	0.152	833	0.154	880	0.156

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
881	0.152	928	0.152	975	0.159
882	0.161	929	0.154	976	0.154
883	0.156	930	0.154	977	0.154
884	0.159	931	0.152	978	0.161
885	0.156	932	0.152	979	0.156
886	0.159	933	0.149	980	0.159
887	0.159	934	0.149	981	0.161
888	0.159	935	0.149	982	0.159
889	0.161	936	0.152	983	0.154
890	0.156	937	0.149	984	0.159
891	0.161	938	0.152	985	0.161
892	0.161	939	0.149	986	0.159
893	0.163	940	0.152	987	0.159
894	0.156	941	0.145	988	0.159
895	0.156	942	0.152	989	0.159
896	0.156	943	0.154	990	0.159
897	0.161	944	0.152	991	0.161
898	0.156	945	0.149	992	0.156
899	0.152	946	0.149	993	0.159
900	0.156	947	0.147	994	0.154
901	0.156	948	0.149	995	0.159
902	0.156	949	0.149	996	0.156
903	0.154	950	0.149	997	0.154
904	0.156	951	0.152	998	0.154
905	0.154	952	0.149	999	0.154
906	0.152	953	0.149	1000	0.154
907	0.154	954	0.154	1001	0.152
908	0.154	955	0.152	1002	0.152
909	0.156	956	0.152	1003	0.154
910	0.154	957	0.149	1004	0.163
911	0.154	958	0.154	1005	0.152
912	0.159	959	0.154	1006	0.156
913	0.156	960	0.154	1007	0.154
914	0.154	961	0.154	1008	0.156
915	0.154	962	0.152	1009	0.154
916	0.154	963	0.154	1010	0.152
917	0.161	964	0.152	1011	0.149
918	0.159	965	0.156	1012	0.152
919	0.154	966	0.152	1013	0.149
920	0.156	967	0.156	1014	0.152
921	0.159	968	0.156	1015	0.152
922	0.156	969	0.159	1016	0.156
923	0.154	970	0.152	1017	0.147
924	0.159	971	0.154	1018	0.149
925	0.154	972	0.154	1019	0.145
926	0.154	973	0.161	1020	0.149
927	0.152	974	0.159	1021	0.152

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
1022	0.156	1069	0.135	1116	0.159
1023	0.152	1070	0.133	1117	0.154
1024	0.149	1071	0.140	1118	0.159
1025	0.147	1072	0.135	1119	0.152
1026	0.149	1073	0.140	1120	0.154
1027	0.147	1074	0.142	1121	0.154
1028	0.147	1075	0.145	1122	0.154
1029	0.145	1076	0.135	1123	0.149
1030	0.147	1077	0.140	1124	0.149
1031	0.149	1078	0.142	1125	0.154
1032	0.142	1079	0.140	1126	0.149
1033	0.145	1080	0.138	1127	0.154
1034	0.142	1081	0.147	1128	0.149
1035	0.142	1082	0.142	1129	0.145
1036	0.142	1083	0.147	1130	0.154
1037	0.142	1084	0.142	1131	0.147
1038	0.142	1085	0.142	1132	0.145
1039	0.138	1086	0.145	1133	0.145
1040	0.142	1087	0.147	1134	0.142
1041	0.142	1088	0.145	1135	0.142
1042	0.142	1089	0.140	1136	0.142
1043	0.131	1090	0.140	1137	0.147
1044	0.138	1091	0.140	1138	0.147
1045	0.135	1092	0.140	1139	0.147
1046	0.135	1093	0.133	1140	0.145
1047	0.138	1094	0.133	1141	0.147
1048	0.135	1095	0.133	1142	0.145
1049	0.133	1096	0.135	1143	0.140
1050	0.133	1097	0.135	1144	0.145
1051	0.138	1098	0.131	1145	0.152
1052	0.135	1099	0.133	1146	0.154
1053	0.131	1100	0.133	1147	0.152
1054	0.131	1101	0.140	1148	0.152
1055	0.128	1102	0.140	1149	0.149
1056	0.128	1103	0.142	1150	0.147
1057	0.131	1104	0.145	1151	0.156
1058	0.131	1105	0.142	1152	0.149
1059	0.126	1106	0.142	1153	0.140
1060	0.133	1107	0.145	1154	0.149
1061	0.133	1108	0.147	1155	0.149
1062	0.131	1109	0.154	1156	0.149
1063	0.131	1110	0.149	1157	0.149
1064	0.131	1111	0.149	1158	0.149
1065	0.131	1112	0.156	1159	0.149
1066	0.131	1113	0.154	1160	0.147
1067	0.133	1114	0.156	1161	0.142
1068	0.131	1115	0.159	1162	0.152

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
1163	0.145	1210	0.128	1257	0.142
1164	0.147	1211	0.131	1258	0.149
1165	0.154	1212	0.124	1259	0.145
1166	0.142	1213	0.126	1260	0.145
1167	0.145	1214	0.128	1261	0.152
1168	0.145	1215	0.128	1262	0.149
1169	0.138	1216	0.124	1263	0.152
1170	0.145	1217	0.128	1264	0.156
1171	0.147	1218	0.128	1265	0.159
1172	0.147	1219	0.133	1266	0.152
1173	0.154	1220	0.128	1267	0.156
1174	0.149	1221	0.131	1268	0.161
1175	0.154	1222	0.131	1269	0.156
1176	0.149	1223	0.138	1270	0.161
1177	0.154	1224	0.133	1271	0.159
1178	0.149	1225	0.133	1272	0.159
1179	0.152	1226	0.133	1273	0.152
1180	0.154	1227	0.135	1274	0.163
1181	0.152	1228	0.135	1275	0.159
1182	0.145	1229	0.131	1276	0.149
1183	0.154	1230	0.131	1277	0.156
1184	0.156	1231	0.131	1278	0.152
1185	0.156	1232	0.126	1279	0.161
1186	0.154	1233	0.133	1280	0.161
1187	0.159	1234	0.135	1281	0.156
1188	0.152	1235	0.135	1282	0.166
1189	0.147	1236	0.133	1283	0.161
1190	0.147	1237	0.133	1284	0.159
1191	0.140	1238	0.145	1285	0.166
1192	0.142	1239	0.133	1286	0.163
1193	0.140	1240	0.131	1287	0.163
1194	0.140	1241	0.138	1288	0.166
1195	0.142	1242	0.133	1289	0.166
1196	0.142	1243	0.135	1290	0.163
1197	0.142	1244	0.138	1291	0.163
1198	0.142	1245	0.135	1292	0.166
1199	0.140	1246	0.142	1293	0.166
1200	0.135	1247	0.138	1294	0.161
1201	0.140	1248	0.138	1295	0.168
1202	0.135	1249	0.140	1296	0.170
1203	0.135	1250	0.142	1297	0.168
1204	0.131	1251	0.140	1298	0.175
1205	0.131	1252	0.142	1299	0.173
1206	0.128	1253	0.145	1300	0.180
1207	0.124	1254	0.140	1301	0.177
1208	0.131	1255	0.142	1302	0.182
1209	0.126	1256	0.142	1303	0.182

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
1304	0.182	1351	0.156	1398	0.175
1305	0.180	1352	0.159	1399	0.170
1306	0.177	1353	0.154	1400	0.173
1307	0.180	1354	0.156	1401	0.168
1308	0.189	1355	0.156	1402	0.175
1309	0.180	1356	0.156	1403	0.182
1310	0.175	1357	0.156	1404	0.180
1311	0.177	1358	0.156	1405	0.180
1312	0.180	1359	0.163	1406	0.177
1313	0.182	1360	0.159	1407	0.180
1314	0.175	1361	0.161	1408	0.177
1315	0.177	1362	0.161	1409	0.182
1316	0.180	1363	0.156	1410	0.184
1317	0.180	1364	0.166	1411	0.182
1318	0.182	1365	0.168	1412	0.175
1319	0.180	1366	0.168	1413	0.180
1320	0.182	1367	0.173	1414	0.182
1321	0.180	1368	0.177	1415	0.177
1322	0.182	1369	0.177	1416	0.173
1323	0.177	1370	0.180	1417	0.182
1324	0.177	1371	0.184	1418	0.177
1325	0.184	1372	0.182	1419	0.175
1326	0.184	1373	0.187	1420	0.177
1327	0.173	1374	0.177	1421	0.180
1328	0.175	1375	0.180	1422	0.180
1329	0.175	1376	0.180	1423	0.182
1330	0.170	1377	0.170	1424	0.177
1331	0.173	1378	0.170	1425	0.175
1332	0.168	1379	0.170	1426	0.175
1333	0.170	1380	0.170	1427	0.173
1334	0.166	1381	0.173	1428	0.173
1335	0.168	1382	0.175	1429	0.170
1336	0.161	1383	0.175	1430	0.168
1337	0.166	1384	0.175	1431	0.175
1338	0.161	1385	0.182	1432	0.166
1339	0.163	1386	0.182	1433	0.168
1340	0.159	1387	0.182	1434	0.168
1341	0.163	1388	0.182	1435	0.166
1342	0.163	1389	0.182	1436	0.163
1343	0.161	1390	0.180	1437	0.166
1344	0.156	1391	0.180	1438	0.168
1345	0.154	1392	0.177	1439	0.168
1346	0.159	1393	0.180	1440	0.168
1347	0.159	1394	0.177	1441	0.168
1348	0.163	1395	0.180	1442	0.166
1349	0.156	1396	0.175	1443	0.168
1350	0.159	1397	0.175	1444	0.168

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
1445	0.159	1492	0.149	1539	0.149
1446	0.161	1493	0.156	1540	0.149
1447	0.159	1494	0.156	1541	0.152
1448	0.161	1495	0.154	1542	0.156
1449	0.159	1496	0.147	1543	0.156
1450	0.156	1497	0.154	1544	0.159
1451	0.154	1498	0.154	1545	0.156
1452	0.156	1499	0.156	1546	0.159
1453	0.154	1500	0.154	1547	0.159
1454	0.154	1501	0.154	1548	0.156
1455	0.154	1502	0.154	1549	0.156
1456	0.152	1503	0.152	1550	0.159
1457	0.152	1504	0.161	1551	0.159
1458	0.154	1505	0.161	1552	0.163
1459	0.152	1506	0.152	1553	0.161
1460	0.154	1507	0.156	1554	0.159
1461	0.152	1508	0.154	1555	0.161
1462	0.156	1509	0.161	1556	0.163
1463	0.154	1510	0.156	1557	0.156
1464	0.159	1511	0.156	1558	0.156
1465	0.152	1512	0.149	1559	0.159
1466	0.152	1513	0.156	1560	0.156
1467	0.152	1514	0.152	1561	0.159
1468	0.161	1515	0.154	1562	0.163
1469	0.152	1516	0.156	1563	0.161
1470	0.152	1517	0.152	1564	0.156
1471	0.152	1518	0.154	1565	0.163
1472	0.147	1519	0.154	1566	0.161
1473	0.152	1520	0.152	1567	0.166
1474	0.154	1521	0.147	1568	0.161
1475	0.154	1522	0.152	1569	0.161
1476	0.152	1523	0.149	1570	0.161
1477	0.149	1524	0.145	1571	0.161
1478	0.149	1525	0.156	1572	0.163
1479	0.149	1526	0.152	1573	0.166
1480	0.152	1527	0.147	1574	0.166
1481	0.154	1528	0.152	1575	0.163
1482	0.154	1529	0.147	1576	0.163
1483	0.152	1530	0.152	1577	0.159
1484	0.154	1531	0.149	1578	0.156
1485	0.154	1532	0.152	1579	0.159
1486	0.154	1533	0.152	1580	0.154
1487	0.156	1534	0.149	1581	0.156
1488	0.152	1535	0.152	1582	0.161
1489	0.154	1536	0.152	1583	0.154
1490	0.149	1537	0.152	1584	0.156
1491	0.154	1538	0.147	1585	0.152

TABLE S1.5 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Timea (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
1586	0.154	1631	0.138	1676	0.126
1587	0.154	1632	0.138	1677	0.119
1588	0.152	1633	0.140	1678	0.121
1589	0.152	1634	0.140	1679	0.121
1590	0.154	1635	0.135	1680	0.121
1591	0.161	1636	0.138	1681	0.119
1592	0.149	1637	0.135		
1593	0.147	1638	0.138		
1594	0.149	1639	0.138		
1595	0.152	1640	0.142		
1596	0.154	1641	0.138		
1597	0.154	1642	0.138		
1598	0.152	1643	0.140		
1599	0.156	1644	0.133		
1600	0.152	1645	0.138		
1601	0.152	1646	0.133		
1602	0.149	1647	0.138		
1603	0.152	1648	0.138		
1604	0.147	1649	0.135		
1605	0.149	1650	0.131		
1606	0.147	1651	0.133		
1607	0.147	1652	0.138		
1608	0.149	1653	0.138		
1609	0.149	1654	0.133		
1610	0.145	1655	0.138		
1611	0.147	1656	0.138		
1612	0.145	1657	0.133		
1613	0.142	1658	0.138		
1614	0.140	1659	0.140		
1615	0.147	1660	0.135		
1616	0.145	1661	0.133		
1617	0.140	1662	0.128		
1618	0.140	1663	0.135		
1619	0.138	1664	0.135		
1620	0.142	1665	0.138		
1621	0.142	1666	0.128		
1622	0.142	1667	0.135		
1623	0.145	1668	0.135		
1624	0.140	1669	0.133		
1625	0.145	1670	0.135		
1626	0.140	1671	0.126		
1627	0.138	1672	0.124		
1628	0.142	1673	0.126		
1629	0.140	1674	0.131		
1630	0.138	1675	0.121		

[a] Elapsed time was calculated from 10:15 on 3/19 as time zero.

TABLE S1.6 Water levels recorded by the PT2XTM data logger in MW45Z2 during the constant-rate pumping test recovery period, March 19-20, 2010.

Elapsed Time[a] (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
0	0.077	46	0.084	92	0.088
1	0.079	47	0.084	93	0.086
2	0.079	48	0.084	94	0.086
3	0.077	49	0.084	95	0.086
4	0.077	50	0.084	96	0.088
5	0.077	51	0.084	97	0.086
6	0.079	52	0.084	98	0.084
7	0.081	53	0.084	99	0.086
8	0.079	54	0.086	100	0.081
9	0.079	55	0.084	101	0.084
10	0.079	56	0.081	102	0.084
11	0.079	57	0.081	103	0.086
12	0.079	58	0.081	104	0.086
13	0.084	59	0.086	105	0.081
14	0.079	60	0.086	106	0.084
15	0.084	61	0.088	107	0.088
16	0.086	62	0.084	108	0.084
17	0.077	63	0.084	109	0.084
18	0.084	64	0.088	110	0.081
19	0.084	65	0.084	111	0.084
20	0.086	66	0.084	112	0.079
21	0.084	67	0.081	113	0.086
22	0.084	68	0.084	114	0.086
23	0.086	69	0.084	115	0.084
24	0.086	70	0.081	116	0.081
25	0.084	71	0.086	117	0.081
26	0.086	72	0.081	118	0.086
27	0.086	73	0.084	119	0.086
28	0.086	74	0.079	120	0.088
29	0.086	75	0.084	121	0.084
30	0.091	76	0.081	122	0.086
31	0.086	77	0.081	123	0.088
32	0.088	78	0.084	124	0.088
33	0.084	79	0.081	125	0.084
34	0.088	80	0.086	126	0.084
35	0.091	81	0.084	127	0.086
36	0.081	82	0.086	128	0.088
37	0.086	83	0.086	129	0.091
38	0.088	84	0.088	130	0.086
39	0.086	85	0.086	131	0.086
40	0.084	86	0.084	132	0.088
41	0.086	87	0.086	133	0.091
42	0.088	88	0.088	134	0.091
43	0.086	89	0.086	135	0.093
44	0.088	90	0.086	136	0.093
45	0.084	91	0.088	137	0.093

TABLE S1.6 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
138	0.095	185	0.093	232	0.091
139	0.098	186	0.088	233	0.088
140	0.095	187	0.093	234	0.088
141	0.095	188	0.093	235	0.093
142	0.095	189	0.093	236	0.093
143	0.098	190	0.088	237	0.086
144	0.095	191	0.091	*238*	0.088
145	0.098	192	0.091	239	0.088
146	0.093	193	0.088	240	0.091
147	0.091	194	0.091	241	0.088
148	0.093	195	0.093	242	0.088
149	0.095	196	0.091	243	0.088
150	0.095	197	0.091	244	0.088
151	0.098	198	0.086	245	0.088
152	0.098	199	0.086	246	0.091
153	0.095	200	0.091	247	0.091
154	0.098	201	0.088	248	0.093
155	0.095	202	0.095	249	0.088
156	0.095	203	0.093	250	0.093
157	0.093	204	0.095	251	0.088
158	*0.088*	205	0.100	252	0.093
159	0.088	206	0.095	253	0.093
160	0.091	207	0.093	254	0.093
161	0.091	208	0.093	255	0.093
162	0.088	209	0.093	256	0.093
163	0.086	210	0.095	257	0.095
164	0.086	211	0.095	258	0.098
165	0.086	212	0.093	259	0.098
166	0.086	213	0.095	*260*	0.098
167	0.088	214	0.095	261	0.098
168	0.086	215	0.095	262	0.098
169	0.091	216	0.093	263	0.100
170	0.091	217	0.093	264	0.105
171	0.088	218	0.091	265	0.102
172	0.086	219	0.098	266	0.105
173	0.088	220	0.093	267	0.102
174	0.091	221	0.095	268	0.105
175	0.086	222	0.095	269	0.105
176	0.088	223	0.093	270	0.107
177	0.084	224	0.091	271	0.105
178	0.086	225	0.093	272	0.109
179	0.088	226	0.091	273	0.112
180	0.088	227	0.088	274	0.107
181	0.088	228	0.091	275	0.105
182	0.088	229	0.098	276	0.105
183	0.086	230	0.095	277	0.105
184	0.086	231	0.093	278	0.107

TABLE S1.6 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
279	0.107	326	0.109	373	0.095
280	0.107	327	0.112	374	0.098
281	0.107	328	0.112	375	0.098
282	0.112	329	0.114	376	0.095
283	0.109	330	0.114	377	0.088
284	0.105	331	0.109	378	0.091
285	0.109	332	0.109	379	0.095
286	0.105	333	0.112	380	0.093
287	0.107	334	0.112	381	0.098
288	0.107	335	0.109	382	0.100
289	0.102	336	0.107	383	0.100
290	0.102	337	0.109	384	0.093
291	0.102	338	0.107	385	0.102
292	0.112	339	0.105	386	0.095
293	0.105	340	0.109	387	0.095
294	0.100	341	0.107	388	0.095
295	0.102	342	0.107	389	0.093
296	0.102	343	0.112	390	0.091
297	0.105	344	0.107	391	0.093
298	0.105	345	0.109	392	0.095
299	0.107	346	0.112	393	0.093
300	0.107	347	0.107	394	0.091
301	0.105	348	0.109	395	0.093
302	0.105	349	0.107	396	0.091
303	0.112	350	0.112	397	0.093
304	0.107	351	0.109	398	0.098
305	0.107	352	0.105	399	0.098
306	0.105	353	0.109	400	0.093
307	0.109	354	0.109	401	0.098
308	0.107	355	0.109	402	0.100
309	0.107	356	0.112	403	0.098
310	0.107	357	0.109	404	0.100
311	0.105	358	0.100	405	0.093
312	0.109	359	0.100	406	0.100
313	0.105	360	0.105	407	0.098
314	0.112	361	0.105	408	0.098
315	0.112	362	0.105	409	0.093
316	0.109	363	0.100	410	0.095
317	0.109	364	0.105	411	0.098
318	0.112	365	0.105	412	0.095
319	0.112	366	0.102	413	0.098
320	0.109	367	0.102	414	0.098
321	0.116	368	0.102	415	0.098
322	0.109	369	0.105	416	0.095
323	0.112	370	0.102	417	0.093
324	0.112	371	0.102	418	0.093
325	0.112	372	0.102	419	0.100

TABLE S1.6 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
420	0.093	467	0.102	514	0.130
421	0.095	468	0.105	515	0.128
422	0.098	469	0.107	516	0.126
423	0.098	470	0.107	517	0.126
424	0.095	471	0.107	518	0.123
425	0.093	472	0.107	519	0.128
426	0.098	473	0.105	520	0.123
427	0.095	474	0.109	521	0.123
428	0.098	475	0.107	522	0.123
429	0.100	476	0.107	523	0.123
430	0.095	477	0.109	524	0.121
431	0.093	478	0.112	525	0.123
432	0.095	479	0.114	526	0.123
433	0.098	480	0.114	527	0.126
434	0.093	481	0.114	528	0.126
435	0.093	482	0.114	529	0.128
436	0.093	483	0.116	530	0.128
437	0.095	484	0.119	531	0.126
438	0.095	485	0.119	532	0.135
439	0.093	486	0.119	533	0.135
440	0.095	487	0.121	534	0.133
441	0.093	488	0.119	535	0.135
442	0.091	489	0.119	536	0.137
443	0.098	490	0.119	537	0.137
444	0.095	491	0.119	538	0.140
445	0.098	492	0.121	539	0.140
446	0.095	493	0.126	540	0.140
447	0.098	494	0.123	541	0.137
448	0.093	495	0.123	542	0.137
449	0.093	496	0.123	543	0.133
450	0.095	497	0.126	544	0.142
451	0.095	498	0.126	545	0.137
452	0.102	499	0.128	546	0.142
453	0.095	500	0.126	547	0.135
454	0.098	501	0.126	548	0.137
455	0.098	502	0.123	549	0.142
456	0.095	503	0.126	550	0.140
457	0.098	504	0.128	551	0.140
458	0.095	505	0.128	552	0.140
459	0.098	506	0.133	553	0.142
460	0.098	507	0.130	554	0.140
461	0.098	508	0.126	555	0.140
462	0.100	509	0.128	556	0.137
463	0.102	510	0.128	557	0.135
464	0.102	511	0.130	558	0.137
465	0.100	512	0.126	559	0.133
466	0.102	513	0.128	560	0.135

TABLE S1.6 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
561	0.133	608	0.147	655	0.154
562	0.133	609	0.144	656	0.156
563	0.135	610	0.147	657	0.158
564	0.135	611	0.147	658	0.154
565	0.135	612	0.147	659	0.156
566	0.133	613	0.147	660	0.163
567	0.137	614	0.149	661	0.158
568	0.133	615	0.147	662	0.161
569	0.133	616	0.147	663	0.163
570	0.130	617	0.149	664	0.163
571	0.133	618	0.147	665	0.168
572	0.133	619	0.149	666	0.163
573	0.130	620	0.149	667	0.165
574	0.135	621	0.149	668	0.168
575	0.130	622	0.151	669	0.170
576	0.137	623	0.149	670	0.170
577	0.135	624	0.147	671	0.170
578	0.135	625	0.144	672	0.168
579	0.137	626	0.151	673	0.170
580	0.137	627	0.149	674	0.172
581	0.135	628	0.147	675	0.172
582	0.133	629	0.151	676	0.172
583	0.135	630	0.154	677	0.170
584	0.137	631	0.149	678	0.172
585	0.133	632	0.149	679	0.172
586	0.135	633	0.147	680	0.170
587	0.137	634	0.151	681	0.168
588	0.137	635	0.154	682	0.168
589	0.135	636	0.151	683	0.170
590	0.137	637	0.151	684	0.170
591	0.137	638	0.149	685	0.170
592	0.142	639	0.149	686	0.170
593	0.140	640	0.151	687	0.172
594	0.140	641	0.149	688	0.168
595	0.142	642	0.151	689	0.172
596	0.140	643	0.151	690	0.170
597	0.142	644	0.151	691	0.168
598	0.147	645	0.147	692	0.168
599	0.142	646	0.151	693	0.177
600	0.142	647	0.154	694	0.172
601	0.149	648	0.151	695	0.170
602	0.147	649	0.151	696	0.175
603	0.147	650	0.151	697	0.170
604	0.144	651	0.156	698	0.177
605	0.144	652	0.149	699	0.175
606	0.144	653	0.151	700	0.175
607	0.147	654	0.151	701	0.170

TABLE S1.6 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
702	0.172	749	0.161	796	0.161
703	0.175	750	0.165	797	0.156
704	0.172	751	0.163	798	0.154
705	0.175	752	0.168	799	0.156
706	0.175	753	0.163	800	0.154
707	0.175	754	0.165	801	0.158
708	0.177	755	0.168	802	0.161
709	0.175	756	0.163	803	0.156
710	0.177	757	0.165	804	0.161
711	0.177	758	0.165	805	0.158
712	0.170	759	0.165	806	0.158
713	0.170	760	0.168	807	0.158
714	0.170	761	0.165	808	0.161
715	0.168	762	0.165	809	0.158
716	0.170	763	0.168	810	0.158
717	0.165	764	0.163	811	0.156
718	0.163	765	0.163	812	0.156
719	0.165	766	0.163	813	0.158
720	0.168	767	0.161	814	0.158
721	0.165	768	0.158	815	0.154
722	0.168	769	0.158	816	0.156
723	0.168	770	0.161	817	0.158
724	0.168	771	0.158	818	0.158
725	0.165	772	0.158	819	0.158
726	0.168	773	0.158	820	0.161
727	0.172	774	0.151	821	0.161
728	0.168	775	0.154	822	0.158
729	0.168	776	0.151	823	0.163
730	0.165	777	0.151	824	0.163
731	0.163	778	0.154	825	0.161
732	0.165	779	0.151	826	0.163
733	0.163	780	0.151	827	0.163
734	0.168	781	0.158	828	0.163
735	0.165	782	0.156	829	0.163
736	0.163	783	0.163	830	0.163
737	0.165	784	0.158	831	0.163
738	0.163	785	0.161	832	0.163
739	0.161	786	0.158	833	0.163
740	0.161	787	0.158	834	0.163
741	0.158	788	0.154	835	0.163
742	0.163	789	0.158	836	0.165
743	0.158	790	0.158	837	0.165
744	0.158	791	0.154	838	0.165
745	0.161	792	0.154	839	0.165
746	0.163	793	0.154	840	0.163
747	0.163	794	0.154	841	0.168
748	0.168	795	0.154	842	0.165

TABLE S1.6 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
843	0.170	890	0.172	937	0.161
844	0.168	891	0.168	938	0.161
845	0.165	892	0.170	939	0.163
846	0.165	893	0.170	940	0.163
847	0.168	894	0.170	941	0.163
848	0.165	895	0.170	942	0.161
849	0.163	896	0.170	943	0.161
850	0.163	897	0.170	944	0.165
851	0.165	898	0.168	945	0.161
852	0.165	899	0.168	946	0.163
853	0.168	900	0.168	947	0.165
854	0.168	901	0.163	948	0.158
855	0.165	902	0.165	949	0.163
856	0.165	903	0.163	950	0.163
857	0.168	904	0.165	951	0.165
858	0.168	905	0.170	952	0.161
859	0.170	906	0.163	953	0.163
860	0.168	907	0.168	954	0.158
861	0.168	908	0.168	955	0.161
862	0.168	909	0.165	956	0.161
863	0.175	910	0.168	957	0.165
864	0.170	911	0.165	958	0.161
865	0.172	912	0.168	959	0.165
866	0.172	913	0.168	960	0.165
867	0.175	914	0.163	961	0.163
868	0.175	915	0.170	962	0.165
869	0.175	916	0.170	963	0.163
870	0.175	917	0.168	964	0.163
871	0.170	918	0.168	965	0.168
872	0.168	919	0.168	966	0.170
873	0.168	920	0.170	967	0.165
874	0.168	921	0.168	968	0.165
875	0.172	922	0.165	969	0.165
876	0.170	923	0.168	970	0.170
877	0.168	924	0.168	971	0.168
878	0.168	925	0.168	972	0.168
879	0.170	926	0.168	973	0.170
880	0.168	927	0.165	974	0.172
881	0.172	928	0.165	975	0.170
882	0.170	929	0.165	976	0.172
883	0.168	930	0.163	977	0.170
884	0.172	931	0.165	978	0.172
885	0.170	932	0.163	979	0.170
886	0.168	933	0.161	980	0.172
887	0.170	934	0.163	981	0.168
888	0.170	935	0.163	982	0.170
889	0.172	936	0.161	983	0.168

TABLE S1.6 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
984	0.170	1031	0.156	1078	0.151
985	0.172	1032	0.154	1079	0.154
986	0.165	1033	0.158	1080	0.154
987	0.172	1034	0.154	1081	0.154
988	0.170	1035	0.149	1082	0.156
989	0.175	1036	0.151	1083	0.154
990	0.172	1037	0.158	1084	0.156
991	0.170	1038	0.151	1085	0.156
992	0.170	1039	0.154	1086	0.154
993	0.172	1040	0.151	1087	0.151
994	0.170	1041	0.149	1088	0.154
995	0.170	1042	0.149	1089	0.151
996	0.165	1043	0.147	1090	0.151
997	0.168	1044	0.151	1091	0.147
998	0.168	1045	0.147	1092	0.149
999	0.165	1046	0.149	1093	0.144
1000	0.165	1047	0.147	1094	0.144
1001	0.165	1048	0.149	1095	0.144
1002	0.165	1049	0.144	1096	0.144
1003	0.163	1050	0.142	1097	0.142
1004	0.168	1051	0.142	1098	0.147
1005	0.163	1052	0.140	1099	0.144
1006	0.161	1053	0.137	1100	0.149
1007	0.168	1054	0.142	1101	0.149
1008	0.163	1055	0.142	1102	0.149
1009	0.165	1056	0.140	1103	0.149
1010	0.163	1057	0.142	1104	0.149
1011	0.163	1058	0.140	1105	0.151
1012	0.165	1059	0.144	1106	0.154
1013	0.165	1060	0.142	1107	0.158
1014	0.165	1061	0.144	1108	0.158
1015	0.163	1062	0.144	1109	0.161
1016	0.165	1063	0.142	1110	0.165
1017	0.161	1064	0.140	1111	0.165
1018	0.163	1065	0.147	1112	0.163
1019	0.163	1066	0.142	1113	0.165
1020	0.161	1067	0.149	1114	0.170
1021	0.161	1068	0.142	1115	0.165
1022	0.163	1069	0.147	1116	0.168
1023	0.165	1070	0.149	1117	0.165
1024	0.163	1071	0.147	1118	0.165
1025	0.165	1072	0.151	1119	0.163
1026	0.163	1073	0.149	1120	0.163
1027	0.158	1074	0.151	1121	0.163
1028	0.161	1075	0.154	1122	0.161
1029	0.158	1076	0.154	1123	0.161
1030	0.156	1077	0.151	1124	0.163

TABLE S1.6 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
1125	0.161	1172	0.163	1219	0.142
1126	0.161	1173	0.161	1220	0.144
1127	0.161	1174	0.158	1221	0.144
1128	0.158	1175	0.156	1222	0.144
1129	0.161	1176	0.158	1223	0.149
1130	0.161	1177	0.161	1224	0.144
1131	0.158	1178	0.163	1225	0.147
1132	0.154	1179	0.161	1226	0.144
1133	0.156	1180	0.161	1227	0.147
1134	0.156	1181	0.161	1228	0.144
1135	0.156	1182	0.161	1229	0.144
1136	0.156	1183	0.165	1230	0.144
1137	0.158	1184	0.168	1231	0.142
1138	0.163	1185	0.165	1232	0.142
1139	0.156	1186	0.168	1233	0.142
1140	0.158	1187	0.165	1234	0.144
1141	0.158	1188	0.165	1235	0.142
1142	0.156	1189	0.161	1236	0.144
1143	0.156	1190	0.158	1237	0.144
1144	0.156	1191	0.156	1238	0.147
1145	0.158	1192	0.154	1239	0.144
1146	0.158	1193	0.151	1240	0.144
1147	0.158	1194	0.151	1241	0.144
1148	0.163	1195	0.151	1242	0.144
1149	0.161	1196	0.154	1243	0.147
1150	0.161	1197	0.151	1244	0.149
1151	0.158	1198	0.151	1245	0.147
1152	0.161	1199	0.154	1246	0.147
1153	0.163	1200	0.149	1247	0.149
1154	0.158	1201	0.151	1248	0.151
1155	0.161	1202	0.144	1249	0.154
1156	0.163	1203	0.144	1250	0.154
1157	0.161	1204	0.142	1251	0.154
1158	0.158	1205	0.144	1252	0.156
1159	0.158	1206	0.142	1253	0.156
1160	0.156	1207	0.149	1254	0.158
1161	0.161	1208	0.142	1255	0.156
1162	0.158	1209	0.142	1256	0.156
1163	0.161	1210	0.142	1257	0.154
1164	0.161	1211	0.140	1258	0.156
1165	0.158	1212	0.140	1259	0.156
1166	0.158	1213	0.142	1260	0.161
1167	0.156	1214	0.140	1261	0.161
1168	0.156	1215	0.142	1262	0.165
1169	0.156	1216	0.140	1263	0.165
1170	0.161	1217	0.144	1264	0.168
1171	0.158	1218	0.140	1265	0.168

TABLE S1.6 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
1266	0.175	1313	0.191	1360	0.177
1267	0.172	1314	0.191	1361	0.177
1268	0.175	1315	0.191	1362	0.177
1269	0.172	1316	0.194	1363	0.179
1270	0.175	1317	0.194	1364	0.182
1271	0.172	1318	0.196	1365	0.184
1272	0.170	1319	0.194	1366	0.182
1273	0.168	1320	0.196	1367	0.186
1274	0.177	1321	0.196	1368	0.194
1275	0.168	1322	0.200	1369	0.196
1276	0.168	1323	0.196	1370	0.196
1277	0.170	1324	0.193	1371	0.198
1278	0.165	1325	0.193	1372	0.198
1279	0.168	1326	0.196	1373	0.198
1280	0.172	1327	0.194	1374	0.193
1281	0.175	1328	0.189	1375	0.194
1282	0.175	1329	0.189	1376	0.189
1283	0.175	1330	0.189	1377	0.191
1284	0.175	1331	0.189	1378	0.186
1285	0.179	1332	0.184	1379	0.186
1286	0.177	1333	0.184	1380	0.186
1287	0.177	1334	0.182	1381	0.189
1288	0.179	1335	0.182	1382	0.191
1289	0.177	1336	0.177	1383	0.193
1290	0.177	1337	0.179	1384	0.196
1291	0.179	1338	0.182	1385	0.198
1292	0.177	1339	0.182	1386	0.201
1293	0.179	1340	0.177	1387	0.196
1294	0.179	1341	0.177	1388	0.196
1295	0.182	1342	0.179	1389	0.198
1296	0.186	1343	0.175	1390	0.198
1297	0.186	1344	0.177	1391	0.198
1298	0.189	1345	0.177	1392	0.196
1299	0.189	1346	0.177	1393	0.194
1300	0.193	1347	0.175	1394	0.191
1301	0.194	1348	0.175	1395	0.191
1302	0.194	1349	0.172	1396	0.191
1303	0.196	1350	0.172	1397	0.191
1304	0.193	1351	0.175	1398	0.189
1305	0.193	1352	0.172	1399	0.189
1306	0.196	1353	0.170	1400	0.191
1307	0.198	1354	0.168	1401	0.189
1308	0.200	1355	0.175	1402	0.191
1309	0.196	1356	0.172	1403	0.193
1310	0.198	1357	0.175	1404	0.189
1311	0.196	1358	0.172	1405	0.196
1312	0.193	1359	0.175	1406	0.194

TABLE S1.6 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
1407	0.196	1454	0.172	1501	0.172
1408	0.196	1455	0.175	1502	0.172
1409	0.200	1456	0.168	1503	0.175
1410	0.196	1457	0.168	1504	0.172
1411	0.198	1458	0.172	1505	0.172
1412	0.196	1459	0.168	1506	0.170
1413	0.194	1460	0.168	1507	0.175
1414	0.196	1461	0.168	1508	0.175
1415	0.196	1462	0.172	1509	0.170
1416	0.189	1463	0.170	1510	0.175
1417	0.193	1464	0.168	1511	0.170
1418	0.196	1465	0.168	1512	0.170
1419	0.194	1466	0.170	1513	0.170
1420	0.198	1467	0.170	1514	0.170
1421	0.198	1468	0.168	1515	0.168
1422	0.198	1469	0.165	1516	0.168
1423	0.191	1470	0.170	1517	0.168
1424	0.198	1471	0.165	1518	0.170
1425	0.194	1472	0.168	1519	0.165
1426	0.194	1473	0.163	1520	0.168
1427	0.191	1474	0.165	1521	0.168
1428	0.189	1475	0.165	1522	0.168
1429	0.189	1476	0.165	1523	0.168
1430	0.189	1477	0.165	1524	0.168
1431	0.186	1478	0.165	1525	0.168
1432	0.184	1479	0.168	1526	0.163
1433	0.186	1480	0.165	1527	0.168
1434	0.186	1481	0.168	1528	0.168
1435	0.186	1482	0.168	1529	0.163
1436	0.186	1483	0.170	1530	0.163
1437	0.189	1484	0.175	1531	0.163
1438	0.186	1485	0.170	1532	0.165
1439	0.184	1486	0.165	1533	0.168
1440	0.184	1487	0.168	1534	0.165
1441	0.186	1488	0.168	1535	0.165
1442	0.186	1489	0.170	1536	0.165
1443	0.182	1490	0.170	1537	0.165
1444	0.184	1491	0.168	1538	0.168
1445	0.179	1492	0.172	1539	0.165
1446	0.175	1493	0.170	1540	0.163
1447	0.177	1494	0.168	1541	0.165
1448	0.179	1495	0.170	1542	0.165
1449	0.179	1496	0.168	1543	0.170
1450	0.175	1497	0.170	1544	0.168
1451	0.172	1498	0.168	1545	0.168
1452	0.172	1499	0.170	1546	0.172
1453	0.172	1500	0.170	1547	0.170

TABLE S1.6 (Cont.)

Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)	Elapsed Time (min)	Water Level Change from Initial (ft H_2O)
1548	0.170	1593	0.165	1638	0.151
1549	0.170	1594	0.168	1639	0.151
1550	0.170	1595	0.165	1640	0.154
1551	0.182	1596	0.165	1641	0.151
1552	0.175	1597	0.165	1642	0.151
1553	0.170	1598	0.175	1643	0.151
1554	0.172	1599	0.168	1644	0.151
1555	0.168	1600	0.168	1645	0.151
1556	0.170	1601	0.168	1646	0.149
1557	0.170	1602	0.165	1647	0.149
1558	0.172	1603	0.165	1648	0.149
1559	0.170	1604	0.165	1649	0.149
1560	0.175	1605	0.163	1650	0.149
1561	0.175	1606	0.163	1651	0.147
1562	0.177	1607	0.161	1652	0.151
1563	0.172	1608	0.163		
1564	0.175	1609	0.161		
1565	0.177	1610	0.161		
1566	0.175	1611	0.161		
1567	0.172	1612	0.161		
1568	0.179	1613	0.158		
1569	0.177	1614	0.161		
1570	0.175	1615	0.156		
1571	0.175	1616	0.158		
1572	0.179	1617	0.154		
1573	0.177	1618	0.156		
1574	0.179	1619	0.156		
1575	0.179	1620	0.158		
1576	0.177	1621	0.156		
1577	0.175	1622	0.154		
1578	0.175	1623	0.158		
1579	0.175	1624	0.156		
1580	0.172	1625	0.158		
1581	0.170	1626	0.154		
1582	0.168	1627	0.151		
1583	0.170	1628	0.151		
1584	0.170	1629	0.151		
1585	0.170	1630	0.154		
1586	0.170	1631	0.154		
1587	0.172	1632	0.154		
1588	0.170	1633	0.149		
1589	0.170	1634	0.151		
1590	0.168	1635	0.149		
1591	0.168	1636	0.149		
1592	0.165	1637	0.149		

[a] Elapsed time was calculated from 10:15 on 3/19 as time zero.

Supplement 2:

Complete Ambient Barometric Pressure and Water Level Data for the Set of Wells Monitored during the Background Period on March 13-17, 2010

TABLE S2.1 Barometric pressure readings and ambient water levels in monitoring wells during the background monitoring period, March 13-17, 2010.

Date and Time	Elapsed Time (hr)	Barometric Pressure[a] (ft of H_2O)	Water Level[a] (ft from top of casing)					
			MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/13/10 13:00	0	32.197			47.500	56.642	52.457	51.815
3/13/10 14:00	1	32.176	26.557	18.802	47.469	56.639	52.431	51.799
3/13/10 15:00	2	32.150	26.554	18.774	47.439	56.635	52.403	51.788
3/13/10 16:00	3	32.141	26.557	18.755	47.420	56.625	52.387	51.781
3/13/10 17:00	4	32.140	26.557	18.748	47.406	56.621	52.378	51.781
3/13/10 18:00	5	32.156	26.554	18.760	47.415	56.623	52.385	51.799
3/13/10 19:00	6	32.179	26.549	18.778	47.432	56.632	52.401	51.820
3/13/10 20:00	7	32.203	26.540	18.795	47.443	56.639	52.413	51.836
3/13/10 21:00	8	32.230	26.540	18.806	47.455	56.646	52.417	51.855
3/13/10 22:00	9	32.239	26.542	18.802	47.450	56.653	52.422	51.862
3/13/10 23:00	10	32.238	26.535	18.792	47.443	56.658	52.410	51.862
3/14/10 0:00	11	32.244	26.531	18.790	47.441	56.658	52.403	51.867
3/14/10 1:00	12	32.255	26.531	18.790	47.439	56.663	52.396	51.876
3/14/10 2:00	13	32.273	26.540	18.797	47.446	56.667	52.406	51.888
3/14/10 3:00	14	32.286	26.545	18.799	47.448	56.672	52.406	51.897
3/14/10 4:00	15	32.297	26.542	18.799	47.448	56.674	52.410	51.902
3/14/10 5:00	16	32.320	26.554	18.809	47.462	56.684	52.420	51.916
3/14/10 6:00	17	32.349	26.566	18.825	47.476	56.686	52.434	51.934
3/14/10 7:00	18	32.371	26.578	18.834	47.488	56.693	52.434	51.950
3/14/10 8:00	19	32.388	26.582	18.839	47.492	56.698	52.443	51.957
3/14/10 9:00	20	32.412	26.592	18.846	47.502	56.700	52.450	51.971
3/14/10 10:00	21	32.436	26.604	18.855	47.514	56.702	52.464	51.985
3/14/10 11:00	22	32.447	26.599	18.848	47.511	56.707	52.454	51.988
3/14/10 12:00	23	32.463	26.601	18.853	47.514	56.712	52.461	51.997
3/14/10 13:00	24	32.473	26.597	18.846	47.511	56.719	52.452	51.995
3/14/10 14:00	25	32.463	26.587	18.827	47.495	56.723	52.434	51.985
3/14/10 15:00	26	32.462	26.578	18.813	47.481	56.723	52.424	51.983
3/14/10 16:00	27	32.477	26.575	18.813	47.483	56.730	52.424	51.992
3/14/10 17:00	28	32.497	26.580	18.816	47.488	56.733	52.431	52.002
3/14/10 18:00	29	32.515	26.592	18.823	47.500	56.735	52.434	52.013
3/14/10 19:00	30	32.544	26.606	18.837	47.514	56.742	52.450	52.030
3/14/10 20:00	31	32.568	26.611	18.844	47.523	56.749	52.452	52.041
3/14/10 21:00	32	32.596	26.625	18.858	47.542	56.758	52.466	52.060
3/14/10 22:00	33	32.620	26.637	18.865	47.549	56.763	52.473	52.069
3/14/10 23:00	34	32.630	26.632	18.860	47.546	56.775	52.468	52.071
3/15/10 0:00	35	32.653	26.637	18.865	47.556	56.779	52.473	52.081
3/15/10 1:00	36	32.673	26.644	18.874	47.565	56.789	52.478	52.092
3/15/10 2:00	37	32.681	26.639	18.862	47.558	56.793	52.475	52.090
3/15/10 3:00	38	32.678	26.620	18.839	47.537	56.800	52.450	52.078
3/15/10 4:00	39	32.673	26.608	18.827	47.525	56.803	52.441	52.074
3/15/10 5:00	40	32.688	26.611	18.837	47.525	56.807	52.438	52.078
3/15/10 6:00	41	32.692	26.604	18.820	47.516	56.807	52.431	52.081
3/15/10 7:00	42	32.717	26.616	18.832	47.525	56.810	52.436	52.090
3/15/10 8:00	43	32.734	26.618	18.832	47.528	56.812	52.438	52.097
3/15/10 9:00	44	32.752	26.627	18.841	47.539	56.817	52.445	52.111
3/15/10 10:00	45	32.773	26.634	18.853	47.549	56.821	52.450	52.120
3/15/10 11:00	46	32.770	26.625	18.834	47.535	56.826	52.441	52.113
3/15/10 12:00	47	32.778	26.618	18.827	47.528	56.826	52.431	52.113
3/15/10 13:00	48	32.764	26.606	18.802	47.507	56.826	52.406	52.102
3/15/10 14:00	49	32.747	26.597	18.774	47.478	56.819	52.378	52.083
3/15/10 15:00	50	32.733	26.590	18.748	47.455	56.812	52.352	52.071
3/15/10 16:00	51	32.728	26.582	18.741	47.441	56.800	52.338	52.067

TABLE S2.1 (Cont.)

Date and Time	Elapsed Time (hr)	Barometric Pressure (ft of H_2O)	Water Level[a] (ft from top of casing)					
			MW44Z2	MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/15/10 17:00	52	32.731	26.575	18.736	47.434	56.793	52.333	52.071
3/15/10 18:00	53	32.752	26.566	18.748	47.446	56.791	52.343	52.085
3/15/10 19:00	54	32.769	26.571	18.760	47.453	56.793	52.352	52.097
3/15/10 20:00	55	32.788	26.580	18.764	47.460	56.798	52.354	52.111
3/15/10 21:00	56	32.803	26.585	18.769	47.464	56.803	52.354	52.118
3/15/10 22:00	57	32.819	26.587	18.769	47.469	56.807	52.357	52.125
3/15/10 23:00	58	32.820	26.578	18.760	47.460	56.810	52.345	52.120
3/16/10 0:00	59	32.815	26.568	18.746	47.446	56.810	52.333	52.118
3/16/10 1:00	60	32.817	26.564	18.736	47.439	56.805	52.324	52.116
3/16/10 2:00	61	32.823	26.564	18.732	47.436	56.803	52.322	52.118
3/16/10 3:00	62	32.813	26.554	18.713	47.422	56.800	52.301	52.106
3/16/10 4:00	63	32.804	26.542	18.704	47.401	56.793	52.282	52.102
3/16/10 5:00	64	32.805	26.535	18.697	47.392	56.786	52.271	52.102
3/16/10 6:00	65	32.807	26.528	18.687	47.387	56.779	52.266	52.102
3/16/10 7:00	66	32.812	26.528	18.683	47.385	56.779	52.266	52.106
3/16/10 8:00	67	32.816	26.526	18.680	47.380	56.775	52.257	52.111
3/16/10 9:00	68	32.819	26.526	18.680	47.373	56.772	52.250	52.109
3/16/10 10:00	69	32.815	26.521	18.668	47.368	56.770	52.240	52.109
3/16/10 11:00	70	32.812	26.514	18.657	47.354	56.768	52.226	52.109
3/16/10 12:00	71	32.802	26.509	18.640	47.335	56.761	52.208	52.099
3/16/10 13:00	72	32.783	26.505	18.612	47.312	56.756	52.180	52.085
3/16/10 14:00	73	32.748	26.502	18.580	47.279	56.747	52.149	52.064
3/16/10 15:00	74	32.723	26.505	18.549	47.249	56.733	52.117	52.050
3/16/10 16:00	75	32.714	26.505	18.545	47.237	56.726	52.105	52.046
3/16/10 17:00	76	32.719	26.502	18.547	47.239	56.716	52.103	52.057
3/16/10 18:00	77	32.713	26.498	18.540	47.230	56.712	52.094	52.057
3/16/10 19:00	78	32.713	26.493	18.533	47.221	56.707	52.084	52.057
3/16/10 20:00	79	32.703	26.488	18.524	47.211	56.700	52.075	52.057
3/16/10 21:00	80	32.714	26.483	18.533	47.218	56.695	52.077	52.067
3/16/10 22:00	81	32.711	26.476	18.528	47.214	56.691	52.063	52.067
3/16/10 23:00	82	32.706	26.472	18.519	47.202	56.688	52.059	52.069
3/17/10 0:00	83	32.690	26.469	18.503	47.183	56.686	52.040	52.057
3/17/10 1:00	84	32.683	26.464	18.496	47.176	56.679	52.026	52.057
3/17/10 2:00	85	32.688	26.460	18.493	47.176	56.677	52.024	52.062
3/17/10 3:00	86	32.679	26.455	18.486	47.167	56.674	52.014	52.062
3/17/10 4:00	87	32.674	26.450	18.479	47.157	56.667	52.005	52.057
3/17/10 5:00	88	32.686	26.446	18.486	47.167	56.665	52.012	52.071
3/17/10 6:00	89	32.698	26.439	18.496	47.174	56.665	52.014	52.083
3/17/10 7:00	90	32.705	26.431	18.503	47.176	56.665	52.017	52.088
3/17/10 8:00	91	32.712	26.424	18.505	47.181	56.665	52.024	52.095
3/17/10 9:00	92	32.710	26.420	18.500	47.176	56.667	52.010	52.097
3/17/10 10:00	93	32.716	26.415	18.500	47.179	56.665	52.012	52.099

[a] Values measured by using PT2X™ absolute-pressure and water level recorders.

Supplement 3:

Complete Barometric Pressure and Water Level Data for the Set of Wells Monitored during the Constant-Rate Pumping and Recovery Periods on March 18-20, 2010

TABLE S3.1 Barometric pressure readings during the MW44Z2 pumping and recovery periods, March 18-20, 2010.

Date and Time	Elapsed Time[a] (min)	Barometric Pressure[b] (ft of H_2O)	Date and Time	Elapsed Time[a] (min)	Barometric Pressure (ft of H_2O)
3/18/10 8:50	-85	32.477	3/18/10 16:40	385	32.253
3/18/10 9:00	-75	32.471	3/18/10 16:50	395	32.250
3/18/10 9:10	-65	32.466	3/18/10 17:00	405	32.247
3/18/10 9:20	-55	32.465	3/18/10 17:10	415	32.242
3/18/10 9:30	-45	32.462	3/18/10 17:20	425	32.240
3/18/10 9:40	-35	32.461	3/18/10 17:30	435	32.238
3/18/10 9:50	-25	32.456	3/18/10 17:40	445	32.234
3/18/10 10:00	-15	32.449	3/18/10 17:50	455	32.231
3/18/10 10:10	-5	32.446	3/18/10 18:00	465	32.231
3/18/10 10:20	5	32.447	3/18/10 18:10	475	32.230
3/18/10 10:30	15	32.443	3/18/10 18:20	485	32.227
3/18/10 10:40	25	32.443	3/18/10 18:30	495	32.225
3/18/10 10:50	35	32.437	3/18/10 18:40	505	32.225
3/18/10 11:00	45	32.435	3/18/10 18:50	515	32.224
3/18/10 11:10	55	32.434	3/18/10 19:00	525	32.224
3/18/10 11:20	65	32.431	3/18/10 19:10	535	32.229
3/18/10 11:30	75	32.427	3/18/10 19:20	545	32.231
3/18/10 11:40	85	32.423	3/18/10 19:30	555	32.230
3/18/10 11:50	95	32.418	3/18/10 19:40	565	32.228
3/18/10 12:00	105	32.417	3/18/10 19:50	575	32.225
3/18/10 12:10	115	32.411	3/18/10 20:00	585	32.227
3/18/10 12:20	125	32.401	3/18/10 20:10	595	32.229
3/18/10 12:30	135	32.397	3/18/10 20:20	605	32.228
3/18/10 12:40	145	32.390	3/18/10 20:30	615	32.228
3/18/10 12:50	155	32.385	3/18/10 20:40	625	32.233
3/18/10 13:00	165	32.381	3/18/10 20:50	635	32.236
3/18/10 13:10	175	32.377	3/18/10 21:00	645	32.235
3/18/10 13:20	185	32.370	3/18/10 21:10	655	32.238
3/18/10 13:30	195	32.363	3/18/10 21:20	665	32.239
3/18/10 13:40	205	32.358	3/18/10 21:30	675	32.243
3/18/10 13:50	215	32.352	3/18/10 21:40	685	32.242
3/18/10 14:00	225	32.346	3/18/10 21:50	695	32.239
3/18/10 14:10	235	32.339	3/18/10 22:00	705	32.234
3/18/10 14:20	245	32.336	3/18/10 22:10	715	32.224
3/18/10 14:30	255	32.325	3/18/10 22:20	725	32.222
3/18/10 14:40	265	32.322	3/18/10 22:30	735	32.225
3/18/10 14:50	275	32.312	3/18/10 22:40	745	32.223
3/18/10 15:00	285	32.303	3/18/10 22:50	755	32.227
3/18/10 15:10	295	32.296	3/18/10 23:00	765	32.230
3/18/10 15:20	305	32.289	3/18/10 23:10	775	32.229
3/18/10 15:30	315	32.286	3/18/10 23:20	785	32.231
3/18/10 15:40	325	32.277	3/18/10 23:30	795	32.227
3/18/10 15:50	335	32.277	3/18/10 23:40	805	32.229
3/18/10 16:00	345	32.273	3/18/10 23:50	815	32.232
3/18/10 16:10	355	32.268	3/19/10 0:00	825	32.233
3/18/10 16:20	365	32.262	3/19/10 0:10	835	32.237
3/18/10 16:30	375	32.258	3/19/10 0:20	845	32.237

TABLE S3.1 (Cont.)

Date and Time	Elapsed Time[a] (min)	Barometric Pressure (ft of H_2O)	Date and Time	Elapsed Time[a] (min)	Barometric Pressure (ft of H_2O)
3/19/10 0:30	855	32.234	3/19/10 8:20	1325	32.309
3/19/10 0:40	865	32.236	3/19/10 8:30	1335	32.315
3/19/10 0:50	875	32.233	3/19/10 8:40	1345	32.317
3/19/10 1:00	885	32.236	3/19/10 8:50	1355	32.324
3/19/10 1:10	895	32.237	3/19/10 9:00	1365	32.321
3/19/10 1:20	905	32.232	3/19/10 9:10	1375	32.323
3/19/10 1:30	915	32.233	3/19/10 9:20	1385	32.330
3/19/10 1:40	925	32.238	3/19/10 9:30	1395	32.328
3/19/10 1:50	935	32.236	3/19/10 9:40	1405	32.330
3/19/10 2:00	945	32.239	3/19/10 9:50	1415	32.326
3/19/10 2:10	955	32.239	3/19/10 10:00	1425	32.328
3/19/10 2:20	965	32.235	3/19/10 10:10	1435	32.340
3/19/10 2:30	975	32.243			
3/19/10 2:40	985	32.263	*Recovery started at 10:15*		
3/19/10 2:50	995	32.272			
3/19/10 3:00	1005	32.269	3/19/10 10:20	1445	32.338
3/19/10 3:10	1015	32.277	3/19/10 10:30	1455	32.360
3/19/10 3:20	1025	32.268	3/19/10 10:40	1465	32.356
3/19/10 3:30	1035	32.265	3/19/10 10:50	1475	32.360
3/19/10 3:40	1045	32.266	3/19/10 11:00	1485	32.362
3/19/10 3:50	1055	32.260	3/19/10 11:10	1495	32.357
3/19/10 4:00	1065	32.259	3/19/10 11:20	1505	32.360
3/19/10 4:10	1075	32.259	3/19/10 11:30	1515	32.355
3/19/10 4:20	1085	32.260	3/19/10 11:40	1525	32.382
3/19/10 4:30	1095	32.263	3/19/10 11:50	1535	32.387
3/19/10 4:40	1105	32.266	3/19/10 12:00	1545	32.373
3/19/10 4:50	1115	32.263	3/19/10 12:10	1555	32.383
3/19/10 5:00	1125	32.259	3/19/10 12:20	1565	32.386
3/19/10 5:10	1135	32.265	3/19/10 12:30	1575	32.394
3/19/10 5:20	1145	32.258	3/19/10 12:40	1585	32.397
3/19/10 5:30	1155	32.259	3/19/10 12:50	1595	32.406
3/19/10 5:40	1165	32.256	3/19/10 13:00	1605	32.394
3/19/10 5:50	1175	32.263	3/19/10 13:10	1615	32.389
3/19/10 6:00	1185	32.260	3/19/10 13:20	1625	32.398
3/19/10 6:10	1195	32.263	3/19/10 13:30	1635	32.411
3/19/10 6:20	1205	32.265	3/19/10 13:40	1645	32.413
3/19/10 6:30	1215	32.266	3/19/10 13:50	1655	32.409
3/19/10 6:40	1225	32.265	3/19/10 14:00	1665	32.412
3/19/10 6:50	1235	32.268	3/19/10 14:10	1675	32.422
3/19/10 7:00	1245	32.275	3/19/10 14:20	1685	32.403
3/19/10 7:10	1255	32.282	3/19/10 14:30	1695	32.414
3/19/10 7:20	1265	32.287	3/19/10 14:40	1705	32.436
3/19/10 7:30	1275	32.295	3/19/10 14:50	1715	32.435
3/19/10 7:40	1285	32.298	3/19/10 15:00	1725	32.442
3/19/10 7:50	1295	32.300	3/19/10 15:10	1735	32.445
3/19/10 8:00	1305	32.303	3/19/10 15:20	1745	32.450
3/19/10 8:10	1315	32.306	3/19/10 15:30	1755	32.455

TABLE S3.1 (Cont.)

Date and Time	Elapsed Time[a] (min)	Barometric Pressure (ft of H_2O)	Date and Time	Elapsed Time[a] (min)	Barometric Pressure (ft of H_2O)
3/19/10 15:40	1765	32.463	3/19/10 23:30	2235	32.582
3/19/10 15:50	1775	32.457	3/19/10 23:40	2245	32.589
3/19/10 16:00	1785	32.454	3/19/10 23:50	2255	32.583
3/19/10 16:10	1795	32.453	3/20/10 0:00	2265	32.590
3/19/10 16:20	1805	32.452	3/20/10 0:10	2275	32.593
3/19/10 16:30	1815	32.448	3/20/10 0:20	2285	32.596
3/19/10 16:40	1825	32.458	3/20/10 0:30	2295	32.599
3/19/10 16:50	1835	32.447	3/20/10 0:40	2305	32.605
3/19/10 17:00	1845	32.452	3/20/10 0:50	2315	32.606
3/19/10 17:10	1855	32.461	3/20/10 1:00	2325	32.607
3/19/10 17:20	1865	32.456	3/20/10 1:10	2335	32.611
3/19/10 17:30	1875	32.449	3/20/10 1:20	2345	32.607
3/19/10 17:40	1885	32.455	3/20/10 1:30	2355	32.609
3/19/10 17:50	1895	32.460	3/20/10 1:40	2365	32.607
3/19/10 18:00	1905	32.471	3/20/10 1:50	2375	32.609
3/19/10 18:10	1915	32.480	3/20/10 2:00	2385	32.607
3/19/10 18:20	1925	32.490	3/20/10 2:10	2395	32.609
3/19/10 18:30	1935	32.494	3/20/10 2:20	2405	32.610
3/19/10 18:40	1945	32.501	3/20/10 2:30	2415	32.619
3/19/10 18:50	1955	32.497	3/20/10 2:40	2425	32.623
3/19/10 19:00	1965	32.502	3/20/10 2:50	2435	32.623
3/19/10 19:10	1975	32.511	3/20/10 3:00	2445	32.619
3/19/10 19:20	1985	32.518	3/20/10 3:10	2455	32.612
3/19/10 19:30	1995	32.521	3/20/10 3:20	2465	32.620
3/19/10 19:40	2005	32.518	3/20/10 3:30	2475	32.613
3/19/10 19:50	2015	32.522	3/20/10 3:40	2485	32.607
3/19/10 20:00	2025	32.526	3/20/10 3:50	2495	32.604
3/19/10 20:10	2035	32.529	3/20/10 4:00	2505	32.606
3/19/10 20:20	2045	32.538	3/20/10 4:10	2515	32.618
3/19/10 20:30	2055	32.538	3/20/10 4:20	2525	32.620
3/19/10 20:40	2065	32.547	3/20/10 4:30	2535	32.613
3/19/10 20:50	2075	32.546	3/20/10 4:40	2545	32.622
3/19/10 21:00	2085	32.546	3/20/10 4:50	2555	32.641
3/19/10 21:10	2095	32.557	3/20/10 5:00	2565	32.627
3/19/10 21:20	2105	32.567	3/20/10 5:10	2575	32.629
3/19/10 21:30	2115	32.578	3/20/10 5:20	2585	32.632
3/19/10 21:40	2125	32.577	3/20/10 5:30	2595	32.637
3/19/10 21:50	2135	32.581	3/20/10 5:40	2605	32.639
3/19/10 22:00	2145	32.584	3/20/10 5:50	2615	32.639
3/19/10 22:10	2155	32.577	3/20/10 6:00	2625	32.640
3/19/10 22:20	2165	32.589	3/20/10 6:10	2635	32.634
3/19/10 22:30	2175	32.576	3/20/10 6:20	2645	32.625
3/19/10 22:40	2185	32.577	3/20/10 6:30	2655	32.621
3/19/10 22:50	2195	32.586	3/20/10 6:40	2665	32.632
3/19/10 23:00	2205	32.584	3/20/10 6:50	2675	32.632
3/19/10 23:10	2215	32.577	3/20/10 7:00	2685	32.637
3/19/10 23:20	2225	32.583	3/20/10 7:10	2695	32.650

TABLE S3.1 (Cont.)

Date and Time	Elapsed Time[a] (min)	Barometric Pressure (ft of H_2O)	Date and Time	Elapsed Time[a] (min)	Barometric Pressure (ft of H_2O)
3/20/10 7:20	2705	32.659	3/20/10 14:40	3145	32.666
3/20/10 7:30	2715	32.662	3/20/10 14:50	3155	32.669
3/20/10 7:40	2725	32.667	3/20/10 15:00	3165	32.672
3/20/10 7:50	2735	32.681	3/20/10 15:10	3175	32.669
3/20/10 8:00	2745	32.689	3/20/10 15:20	3185	32.650
3/20/10 8:10	2755	32.685	3/20/10 15:30	3195	32.665
3/20/10 8:20	2765	32.691	3/20/10 15:40	3205	32.662
3/20/10 8:30	2775	32.677	3/20/10 15:50	3215	32.684
3/20/10 8:40	2785	32.669	3/20/10 16:00	3225	32.699
3/20/10 8:50	2795	32.671	3/20/10 16:10	3235	32.706
3/20/10 9:00	2805	32.686			
3/20/10 9:10	2815	32.699			
3/20/10 9:20	2825	32.704			
3/20/10 9:30	2835	32.698			
3/20/10 9:40	2845	32.702			
3/20/10 9:50	2855	32.702			
3/20/10 10:00	2865	32.701			
3/20/10 10:10	2875	32.705			
3/20/10 10:20	2885	32.691			
3/20/10 10:30	2895	32.687			
3/20/10 10:40	2905	32.684			
3/20/10 10:50	2915	32.680			
3/20/10 11:00	2925	32.689			
3/20/10 11:10	2935	32.688			
3/20/10 11:20	2945	32.700			
3/20/10 11:30	2955	32.693			
3/20/10 11:40	2965	32.691			
3/20/10 11:50	2975	32.690			
3/20/10 12:00	2985	32.698			
3/20/10 12:10	2995	32.690			
3/20/10 12:20	3005	32.704			
3/20/10 12:30	3015	32.706			
3/20/10 12:40	3025	32.703			
3/20/10 12:50	3035	32.695			
3/20/10 13:00	3045	32.694			
3/20/10 13:10	3055	32.686			
3/20/10 13:20	3065	32.697			
3/20/10 13:30	3075	32.691			
3/20/10 13:40	3085	32.683			
3/20/10 13:50	3095	32.687			
3/20/10 14:00	3105	32.688			
3/20/10 14:10	3115	32.682			
3/20/10 14:20	3125	32.676			
3/20/10 14:30	3135	32.670			

[a] Elapsed time calculated from 10:15 on 3/18/10 as time zero.

[b] Values measured by using PT2X™ absolute-pressure recorder.

TABLE S3.2 Water levels in monitoring wells during the MW44Z2 pumping and recovery periods, March 18-20, 2010.

Date and Time	Elapsed Time (min)	Water Level[a], Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:15:00	0.000	-0.003	-0.027	-0.010	-0.019	-0.010
3/18/10 10:15:01	0.017	-0.005	-0.026	-0.012	-0.022	-0.012
3/18/10 10:15:02	0.033	-0.005	-0.026	-0.009	-0.019	-0.012
3/18/10 10:15:03	0.050	-0.005	-0.026	-0.012	-0.017	-0.010
3/18/10 10:15:04	0.067	-0.007	-0.026	-0.007	-0.024	-0.012
3/18/10 10:15:05	0.083	-0.010	-0.026	-0.007	-0.019	-0.010
3/18/10 10:15:06	0.100	-0.007	-0.026	-0.009	-0.017	-0.012
3/18/10 10:15:07	0.117	-0.007	-0.026	-0.009	-0.017	-0.010
3/18/10 10:15:08	0.133	-0.007	-0.026	-0.012	-0.019	-0.012
3/18/10 10:15:09	0.150	-0.007	-0.026	-0.007	-0.019	-0.012
3/18/10 10:15:10	0.167	-0.010	-0.024	-0.009	-0.021	-0.012
3/18/10 10:15:11	0.183	-0.012	-0.026	-0.012	-0.021	-0.012
3/18/10 10:15:12	0.200	-0.010	-0.026	-0.009	-0.016	-0.012
3/18/10 10:15:13	0.217	-0.007	-0.026	-0.009	-0.023	-0.012
3/18/10 10:15:14	0.233	-0.007	-0.026	-0.009	-0.019	-0.012
3/18/10 10:15:15	0.250	-0.010	-0.029	-0.009	-0.023	-0.010
3/18/10 10:15:16	0.267	-0.010	-0.026	-0.012	-0.021	-0.012
3/18/10 10:15:17	0.283	-0.007	-0.029	-0.009	-0.019	-0.012
3/18/10 10:15:18	0.300	-0.007	-0.029	-0.009	-0.019	-0.012
3/18/10 10:15:19	0.317	-0.010	-0.029	-0.012	-0.023	-0.010
3/18/10 10:15:20	0.333	-0.010	-0.026	-0.009	-0.019	-0.010
3/18/10 10:15:21	0.350	-0.010	-0.026	-0.009	-0.021	-0.012
3/18/10 10:15:22	0.367	-0.012	-0.024	-0.009	-0.019	-0.012
3/18/10 10:15:23	0.383	-0.010	-0.026	-0.012	-0.019	-0.012
3/18/10 10:15:24	0.400	-0.010	-0.026	-0.009	-0.019	-0.012
3/18/10 10:15:25	0.417	-0.003	-0.026	-0.009	-0.019	-0.010
3/18/10 10:15:26	0.433	-0.012	-0.026	-0.009	-0.023	-0.012
3/18/10 10:15:27	0.450	-0.012	-0.026	-0.012	-0.021	-0.010
3/18/10 10:15:28	0.467	-0.010	-0.026	-0.009	-0.019	-0.010
3/18/10 10:15:29	0.483	-0.010	-0.026	-0.012	-0.021	-0.012
3/18/10 10:15:30	0.500	-0.012	-0.029	-0.009	-0.023	-0.012
3/18/10 10:15:31	0.517	-0.010	-0.031	-0.012	-0.016	-0.010
3/18/10 10:15:32	0.533	-0.010	-0.031	-0.009	-0.021	-0.010
3/18/10 10:15:33	0.550	-0.010	-0.029	-0.009	-0.019	-0.012
3/18/10 10:15:34	0.567	-0.012	-0.029	-0.012	-0.016	-0.012
3/18/10 10:15:35	0.583	-0.007	-0.029	-0.012	-0.019	-0.010
3/18/10 10:15:36	0.600	-0.010	-0.026	-0.009	-0.019	-0.012
3/18/10 10:15:37	0.617	-0.012	-0.026	-0.012	-0.023	-0.012
3/18/10 10:15:38	0.633	-0.012	-0.026	-0.007	-0.016	-0.010
3/18/10 10:15:39	0.650	-0.010	-0.024	-0.009	-0.016	-0.010
3/18/10 10:15:40	0.667	-0.007	-0.022	-0.009	-0.019	-0.012
3/18/10 10:15:41	0.683	-0.012	-0.024	-0.009	-0.023	-0.010
3/18/10 10:15:42	0.700	-0.010	-0.024	-0.009	-0.019	-0.010
3/18/10 10:15:43	0.717	-0.012	-0.024	-0.009	-0.019	-0.010
3/18/10 10:15:44	0.733	-0.010	-0.024	-0.009	-0.023	-0.010
3/18/10 10:15:45	0.750	-0.007	-0.026	-0.009	-0.019	-0.012
3/18/10 10:15:46	0.767	-0.012	-0.024	-0.009	-0.014	-0.012
3/18/10 10:15:47	0.783	-0.010	-0.026	-0.009	-0.023	-0.012
3/18/10 10:15:48	0.800	-0.010	-0.024	-0.009	-0.019	-0.012

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:15:49	0.817	-0.010	-0.024	-0.009	-0.023	-0.010
3/18/10 10:15:50	0.833	-0.012	-0.026	-0.009	-0.019	-0.012
3/18/10 10:15:51	0.850	-0.010	-0.026	-0.009	-0.023	-0.010
3/18/10 10:15:52	0.867	-0.010	-0.026	-0.009	-0.014	-0.010
3/18/10 10:15:53	0.883	-0.010	-0.026	-0.012	-0.012	-0.010
3/18/10 10:15:54	0.900	-0.012	-0.026	-0.009	-0.016	-0.010
3/18/10 10:15:55	0.917	-0.010	-0.026	-0.009	-0.021	-0.010
3/18/10 10:15:56	0.933	-0.010	-0.026	-0.009	-0.021	-0.012
3/18/10 10:15:57	0.950	-0.010	-0.026	-0.012	-0.019	-0.012
3/18/10 10:15:58	0.967	-0.010	-0.026	-0.012	-0.016	-0.007
3/18/10 10:15:59	0.983	-0.012	-0.029	-0.009	-0.019	-0.010
3/18/10 10:16:00	1.000	-0.012	-0.029	-0.009	-0.023	-0.010
3/18/10 10:16:01	1.017	-0.014	-0.026	-0.012	-0.021	-0.010
3/18/10 10:16:02	1.033	-0.012	-0.026	-0.009	-0.021	-0.010
3/18/10 10:16:03	1.050	-0.012	-0.026	-0.012	-0.019	-0.010
3/18/10 10:16:04	1.067	-0.012	-0.026	-0.012	-0.019	-0.012
3/18/10 10:16:05	1.083	-0.010	-0.026	-0.012	-0.019	-0.010
3/18/10 10:16:06	1.100	-0.010	-0.029	-0.009	-0.016	-0.012
3/18/10 10:16:07	1.117	-0.012	-0.026	-0.012	-0.019	-0.012
3/18/10 10:16:08	1.133	-0.012	-0.026	-0.009	-0.019	-0.012
3/18/10 10:16:09	1.150	-0.012	-0.026	-0.009	-0.019	-0.012
3/18/10 10:16:10	1.167	-0.014	-0.024	-0.012	-0.019	-0.012
3/18/10 10:16:11	1.183	-0.010	-0.026	-0.009	-0.023	-0.012
3/18/10 10:16:12	1.200	-0.012	-0.026	-0.011	-0.014	-0.012
3/18/10 10:16:13	1.217	-0.012	-0.026	-0.012	-0.018	-0.010
3/18/10 10:16:14	1.233	-0.012	-0.026	-0.009	-0.021	-0.010
3/18/10 10:16:15	1.250	-0.014	-0.026	-0.011	-0.016	-0.012
3/18/10 10:16:16	1.267	-0.010	-0.029	-0.007	-0.021	-0.012
3/18/10 10:16:17	1.283	-0.010	-0.024	-0.007	-0.016	-0.010
3/18/10 10:16:18	1.300	-0.010	-0.026	-0.007	-0.021	-0.012
3/18/10 10:16:19	1.317	-0.014	-0.026	-0.009	-0.016	-0.012
3/18/10 10:16:20	1.333	-0.010	-0.026	-0.009	-0.016	-0.012
3/18/10 10:16:21	1.350	-0.014	-0.026	-0.009	-0.021	-0.010
3/18/10 10:16:22	1.367	-0.010	-0.026	-0.009	-0.019	-0.010
3/18/10 10:16:23	1.383	-0.010	-0.026	-0.009	-0.018	-0.010
3/18/10 10:16:24	1.400	-0.007	-0.026	-0.009	-0.018	-0.012
3/18/10 10:16:25	1.417	-0.012	-0.026	-0.011	-0.021	-0.012
3/18/10 10:16:26	1.433	-0.010	-0.029	-0.011	-0.014	-0.012
3/18/10 10:16:27	1.450	-0.012	-0.026	-0.009	-0.014	-0.012
3/18/10 10:16:28	1.467	-0.010	-0.029	-0.009	-0.021	-0.012
3/18/10 10:16:29	1.483	-0.010	-0.029	-0.011	-0.025	-0.010
3/18/10 10:16:30	1.500	-0.012	-0.026	-0.011	-0.021	-0.010
3/18/10 10:16:31	1.517	-0.012	-0.026	-0.009	-0.021	-0.012
3/18/10 10:16:32	1.533	-0.012	-0.029	-0.009	-0.021	-0.012
3/18/10 10:16:33	1.550	-0.010	-0.026	-0.009	-0.021	-0.010
3/18/10 10:16:34	1.567	-0.010	-0.026	-0.009	-0.023	-0.012
3/18/10 10:16:35	1.583	-0.010	-0.029	-0.009	-0.021	-0.012
3/18/10 10:16:36	1.600	-0.007	-0.029	-0.011	-0.023	-0.010
3/18/10 10:16:37	1.617	-0.010	-0.029	-0.011	-0.016	-0.010

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:16:38	1.633	-0.010	-0.026	-0.011	-0.018	-0.012
3/18/10 10:16:39	1.650	-0.012	-0.029	-0.009	-0.018	-0.010
3/18/10 10:16:40	1.667	-0.012	-0.029	-0.009	-0.018	-0.012
3/18/10 10:16:41	1.683	-0.012	-0.026	-0.011	-0.021	-0.010
3/18/10 10:16:42	1.700	-0.012	-0.026	-0.009	-0.016	-0.010
3/18/10 10:16:43	1.717	-0.012	-0.026	-0.009	-0.023	-0.012
3/18/10 10:16:44	1.733	-0.010	-0.026	-0.007	-0.021	-0.012
3/18/10 10:16:45	1.750	-0.012	-0.029	-0.009	-0.016	-0.012
3/18/10 10:16:46	1.767	-0.010	-0.026	-0.011	-0.021	-0.012
3/18/10 10:16:47	1.783	-0.012	-0.026	-0.009	-0.021	-0.012
3/18/10 10:16:48	1.800	-0.014	-0.026	-0.009	-0.021	-0.012
3/18/10 10:16:49	1.817	-0.012	-0.026	-0.009	-0.016	-0.012
3/18/10 10:16:50	1.833	-0.014	-0.026	-0.011	-0.021	-0.012
3/18/10 10:16:51	1.850	-0.012	-0.026	-0.011	-0.016	-0.012
3/18/10 10:16:52	1.867	-0.014	-0.026	-0.009	-0.021	-0.010
3/18/10 10:16:53	1.883	-0.014	-0.026	-0.009	-0.018	-0.012
3/18/10 10:16:54	1.900	-0.010	-0.026	-0.014	-0.018	-0.012
3/18/10 10:16:55	1.917	-0.014	-0.026	-0.009	-0.023	-0.012
3/18/10 10:16:56	1.933	-0.012	-0.029	-0.014	-0.016	-0.012
3/18/10 10:16:57	1.950	-0.012	-0.029	-0.011	-0.018	-0.012
3/18/10 10:16:58	1.967	-0.012	-0.026	-0.009	-0.016	-0.012
3/18/10 10:16:59	1.983	-0.010	-0.029	-0.011	-0.021	-0.012
3/18/10 10:17:00	2.000	-0.007	-0.029	-0.011	-0.016	-0.010
3/18/10 10:17:01	2.017	-0.010	-0.029	-0.011	-0.028	-0.012
3/18/10 10:17:02	2.033	-0.010	-0.026	-0.011	-0.021	-0.012
3/18/10 10:17:03	2.050	-0.010	-0.026	-0.011	-0.023	-0.010
3/18/10 10:17:04	2.067	-0.012	-0.029	-0.009	-0.023	-0.010
3/18/10 10:17:05	2.083	-0.010	-0.026	-0.011	-0.023	-0.012
3/18/10 10:17:06	2.100	-0.012	-0.028	-0.009	-0.023	-0.010
3/18/10 10:17:07	2.117	-0.014	-0.026	-0.011	-0.025	-0.010
3/18/10 10:17:08	2.133	-0.010	-0.026	-0.011	-0.018	-0.012
3/18/10 10:17:09	2.150	-0.012	-0.026	-0.009	-0.023	-0.012
3/18/10 10:17:10	2.167	-0.012	-0.026	-0.009	-0.025	-0.010
3/18/10 10:17:11	2.183	-0.012	-0.028	-0.009	-0.023	-0.012
3/18/10 10:17:12	2.200	-0.012	-0.029	-0.011	-0.021	-0.010
3/18/10 10:17:13	2.217	-0.012	-0.026	-0.011	-0.018	-0.010
3/18/10 10:17:14	2.233	-0.010	-0.024	-0.009	-0.021	-0.010
3/18/10 10:17:15	2.250	-0.014	-0.026	-0.009	-0.023	-0.012
3/18/10 10:17:16	2.267	-0.010	-0.026	-0.009	-0.016	-0.010
3/18/10 10:17:17	2.283	-0.010	-0.026	-0.009	-0.025	-0.012
3/18/10 10:17:18	2.300	-0.014	-0.026	-0.009	-0.021	-0.012
3/18/10 10:17:19	2.317	-0.012	-0.026	-0.009	-0.018	-0.012
3/18/10 10:17:20	2.333	-0.010	-0.026	-0.014	-0.021	-0.012
3/18/10 10:17:21	2.350	-0.014	-0.026	-0.009	-0.021	-0.012
3/18/10 10:17:22	2.367	-0.012	-0.026	-0.009	-0.016	-0.010
3/18/10 10:17:23	2.383	-0.010	-0.029	-0.009	-0.018	-0.012
3/18/10 10:17:24	2.400	-0.010	-0.026	-0.009	-0.021	-0.012
3/18/10 10:17:25	2.417	-0.012	-0.028	-0.009	-0.023	-0.012
3/18/10 10:17:26	2.433	-0.010	-0.026	-0.009	-0.018	-0.010

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:17:27	2.450	-0.007	-0.026	-0.011	-0.018	-0.012
3/18/10 10:17:28	2.467	-0.010	-0.028	-0.011	-0.018	-0.012
3/18/10 10:17:29	2.483	-0.010	-0.026	-0.009	-0.021	-0.012
3/18/10 10:17:30	2.500	-0.012	-0.026	-0.011	-0.016	-0.010
3/18/10 10:17:31	2.517	-0.010	-0.028	-0.011	-0.021	-0.012
3/18/10 10:17:32	2.533	-0.010	-0.026	-0.009	-0.018	-0.010
3/18/10 10:17:33	2.550	-0.012	-0.028	-0.009	-0.023	-0.012
3/18/10 10:17:34	2.567	-0.012	-0.028	-0.011	-0.018	-0.012
3/18/10 10:17:35	2.583	-0.012	-0.026	-0.011	-0.018	-0.012
3/18/10 10:17:36	2.600	-0.012	-0.028	-0.009	-0.021	-0.014
3/18/10 10:17:37	2.617	-0.012	-0.028	-0.011	-0.025	-0.010
3/18/10 10:17:38	2.633	-0.014	-0.028	-0.009	-0.023	-0.012
3/18/10 10:17:39	2.650	-0.012	-0.026	-0.009	-0.025	-0.010
3/18/10 10:17:40	2.667	-0.014	-0.026	-0.009	-0.023	-0.012
3/18/10 10:17:41	2.683	-0.007	-0.026	-0.011	-0.023	-0.010
3/18/10 10:17:42	2.700	-0.012	-0.026	-0.011	-0.018	-0.010
3/18/10 10:17:43	2.717	-0.012	-0.028	-0.011	-0.021	-0.012
3/18/10 10:17:44	2.733	-0.007	-0.028	-0.009	-0.021	-0.010
3/18/10 10:17:45	2.750	-0.012	-0.028	-0.009	-0.028	-0.012
3/18/10 10:17:46	2.767	-0.010	-0.026	-0.009	-0.021	-0.012
3/18/10 10:17:47	2.783	-0.010	-0.028	-0.009	-0.018	-0.010
3/18/10 10:17:48	2.800	-0.010	-0.028	-0.011	-0.018	-0.010
3/18/10 10:17:49	2.817	-0.012	-0.028	-0.011	-0.018	-0.010
3/18/10 10:17:50	2.833	-0.007	-0.026	-0.009	-0.021	-0.010
3/18/10 10:17:51	2.850	-0.010	-0.028	-0.011	-0.018	-0.012
3/18/10 10:17:52	2.867	-0.012	-0.028	-0.009	-0.023	-0.012
3/18/10 10:17:53	2.883	-0.010	-0.026	-0.011	-0.016	-0.012
3/18/10 10:17:54	2.900	-0.012	-0.026	-0.009	-0.021	-0.012
3/18/10 10:17:55	2.917	-0.014	-0.026	-0.011	-0.021	-0.010
3/18/10 10:17:56	2.933	-0.007	-0.026	-0.011	-0.018	-0.012
3/18/10 10:17:57	2.950	-0.010	-0.026	-0.011	-0.021	-0.012
3/18/10 10:17:58	2.967	-0.012	-0.024	-0.009	-0.021	-0.012
3/18/10 10:17:59	2.983	-0.012	-0.024	-0.011	-0.018	-0.010
3/18/10 10:18:00	3.000	-0.010	-0.024	-0.009	-0.018	-0.007
3/18/10 10:18:01	3.017	-0.012	-0.026	-0.011	-0.023	-0.010
3/18/10 10:18:02	3.033	-0.012	-0.028	-0.011	-0.032	-0.012
3/18/10 10:18:03	3.050	-0.012	-0.026	-0.011	-0.021	-0.012
3/18/10 10:18:04	3.067	-0.012	-0.028	-0.011	-0.021	-0.010
3/18/10 10:18:05	3.083	-0.012	-0.026	-0.011	-0.021	-0.010
3/18/10 10:18:06	3.100	-0.007	-0.028	-0.011	-0.018	-0.010
3/18/10 10:18:07	3.117	-0.012	-0.026	-0.009	-0.023	-0.012
3/18/10 10:18:08	3.133	-0.012	-0.026	-0.009	-0.016	-0.012
3/18/10 10:18:09	3.150	-0.014	-0.024	-0.009	-0.016	-0.012
3/18/10 10:18:10	3.167	-0.012	-0.028	-0.009	-0.021	-0.014
3/18/10 10:18:11	3.183	-0.010	-0.026	-0.011	-0.018	-0.012
3/18/10 10:18:12	3.200	-0.014	-0.026	-0.011	-0.023	-0.010
3/18/10 10:18:13	3.217	-0.012	-0.026	-0.007	-0.018	-0.012
3/18/10 10:18:14	3.233	-0.012	-0.026	-0.009	-0.016	-0.010
3/18/10 10:18:15	3.250	-0.012	-0.028	-0.011	-0.016	-0.010

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:18:16	3.267	-0.007	-0.028	-0.011	-0.021	-0.012
3/18/10 10:18:17	3.283	-0.014	-0.028	-0.009	-0.023	-0.010
3/18/10 10:18:18	3.300	-0.012	-0.026	-0.009	-0.018	-0.010
3/18/10 10:18:19	3.317	-0.010	-0.028	-0.011	-0.028	-0.012
3/18/10 10:18:20	3.333	-0.012	-0.026	-0.011	-0.021	-0.012
3/18/10 10:18:21	3.350	-0.012	-0.028	-0.011	-0.018	-0.010
3/18/10 10:18:22	3.367	-0.012	-0.026	-0.011	-0.021	-0.010
3/18/10 10:18:23	3.383	-0.010	-0.026	-0.011	-0.018	-0.012
3/18/10 10:18:24	3.400	-0.014	-0.026	-0.009	-0.018	-0.012
3/18/10 10:18:25	3.417	-0.012	-0.024	-0.009	-0.025	-0.012
3/18/10 10:18:26	3.433	-0.010	-0.026	-0.009	-0.023	-0.012
3/18/10 10:18:27	3.450	-0.012	-0.026	-0.011	-0.021	-0.012
3/18/10 10:18:28	3.467	-0.012	-0.026	-0.009	-0.025	-0.012
3/18/10 10:18:29	3.483	-0.012	-0.026	-0.009	-0.021	-0.010
3/18/10 10:18:30	3.500	-0.010	-0.026	-0.011	-0.016	-0.010
3/18/10 10:18:31	3.517	-0.012	-0.026	-0.009	-0.021	-0.012
3/18/10 10:18:32	3.533	-0.012	-0.028	-0.009	-0.021	-0.010
3/18/10 10:18:33	3.550	-0.012	-0.026	-0.009	-0.018	-0.010
3/18/10 10:18:34	3.567	-0.012	-0.026	-0.007	-0.021	-0.010
3/18/10 10:18:35	3.583	-0.010	-0.028	-0.011	-0.023	-0.012
3/18/10 10:18:36	3.600	-0.012	-0.028	-0.011	-0.016	-0.012
3/18/10 10:18:37	3.617	-0.014	-0.028	-0.011	-0.018	-0.012
3/18/10 10:18:38	3.633	-0.010	-0.028	-0.011	-0.021	-0.010
3/18/10 10:18:39	3.650	-0.014	-0.028	-0.009	-0.021	-0.010
3/18/10 10:18:40	3.667	-0.012	-0.028	-0.011	-0.021	-0.010
3/18/10 10:18:41	3.683	-0.014	-0.026	-0.009	-0.018	-0.012
3/18/10 10:18:42	3.700	-0.010	-0.024	-0.011	-0.021	-0.012
3/18/10 10:18:43	3.717	-0.012	-0.024	-0.011	-0.018	-0.010
3/18/10 10:18:44	3.733	-0.012	-0.026	-0.009	-0.021	-0.012
3/18/10 10:18:45	3.750	-0.012	-0.028	-0.011	-0.018	-0.010
3/18/10 10:18:46	3.767	-0.014	-0.028	-0.014	-0.023	-0.010
3/18/10 10:18:47	3.783	-0.010	-0.026	-0.009	-0.018	-0.010
3/18/10 10:18:48	3.800	-0.014	-0.026	-0.011	-0.021	-0.010
3/18/10 10:18:49	3.817	-0.012	-0.026	-0.011	-0.018	-0.010
3/18/10 10:18:50	3.833	-0.012	-0.024	-0.011	-0.018	-0.012
3/18/10 10:18:51	3.850	-0.014	-0.028	-0.011	-0.023	-0.010
3/18/10 10:18:52	3.867	-0.012	-0.026	-0.009	-0.018	-0.010
3/18/10 10:18:53	3.883	-0.012	-0.026	-0.009	-0.021	-0.010
3/18/10 10:18:54	3.900	-0.014	-0.026	-0.011	-0.018	-0.012
3/18/10 10:18:55	3.917	-0.012	-0.024	-0.009	-0.021	-0.010
3/18/10 10:18:56	3.933	-0.010	-0.026	-0.009	-0.021	-0.012
3/18/10 10:18:57	3.950	-0.014	-0.024	-0.011	-0.021	-0.010
3/18/10 10:18:58	3.967	-0.012	-0.026	-0.011	-0.016	-0.010
3/18/10 10:18:59	3.983	-0.012	-0.026	-0.011	-0.025	-0.012
3/18/10 10:19:00	4.000	-0.010	-0.026	-0.009	-0.021	-0.012
3/18/10 10:19:01	4.017	-0.012	-0.026	-0.009	-0.018	-0.012
3/18/10 10:19:02	4.033	-0.014	-0.026	-0.009	-0.018	-0.012
3/18/10 10:19:03	4.050	-0.010	-0.026	-0.011	-0.021	-0.012
3/18/10 10:19:04	4.067	-0.012	-0.028	-0.014	-0.021	-0.012

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:19:05	4.083	-0.012	-0.026	-0.009	-0.021	-0.012
3/18/10 10:19:06	4.100	-0.012	-0.026	-0.011	-0.021	-0.012
3/18/10 10:19:07	4.117	-0.010	-0.026	-0.011	-0.023	-0.012
3/18/10 10:19:08	4.133	-0.012	-0.024	-0.007	-0.018	-0.010
3/18/10 10:19:09	4.150	-0.007	-0.026	-0.009	-0.021	-0.012
3/18/10 10:19:10	4.167	-0.012	-0.026	-0.011	-0.016	-0.012
3/18/10 10:19:11	4.183	-0.012	-0.026	-0.011	-0.018	-0.012
3/18/10 10:19:12	4.200	-0.012	-0.026	-0.009	-0.018	-0.010
3/18/10 10:19:13	4.217	-0.012	-0.026	-0.011	-0.018	-0.010
3/18/10 10:19:14	4.233	-0.007	-0.028	-0.011	-0.021	-0.010
3/18/10 10:19:15	4.250	-0.010	-0.028	-0.009	-0.021	-0.012
3/18/10 10:19:16	4.267	-0.012	-0.026	-0.009	-0.021	-0.012
3/18/10 10:19:17	4.283	-0.012	-0.024	-0.009	-0.018	-0.010
3/18/10 10:19:18	4.300	-0.012	-0.028	-0.009	-0.018	-0.012
3/18/10 10:19:19	4.317	-0.012	-0.026	-0.011	-0.018	-0.010
3/18/10 10:19:20	4.333	-0.010	-0.026	-0.011	-0.020	-0.010
3/18/10 10:19:21	4.350	-0.012	-0.026	-0.009	-0.016	-0.012
3/18/10 10:19:22	4.367	-0.012	-0.026	-0.011	-0.021	-0.010
3/18/10 10:19:23	4.383	-0.014	-0.026	-0.009	-0.018	-0.012
3/18/10 10:19:24	4.400	-0.012	-0.026	-0.011	-0.018	-0.010
3/18/10 10:19:25	4.417	-0.012	-0.026	-0.011	-0.023	-0.012
3/18/10 10:19:26	4.433	-0.012	-0.026	-0.009	-0.016	-0.010
3/18/10 10:19:27	4.450	-0.012	-0.026	-0.009	-0.021	-0.012
3/18/10 10:19:28	4.467	-0.012	-0.026	-0.011	-0.023	-0.012
3/18/10 10:19:29	4.483	-0.012	-0.026	-0.009	-0.023	-0.010
3/18/10 10:19:30	4.500	-0.014	-0.026	-0.011	-0.016	-0.010
3/18/10 10:19:31	4.517	-0.014	-0.026	-0.014	-0.023	-0.012
3/18/10 10:19:32	4.533	-0.010	-0.028	-0.009	-0.018	-0.012
3/18/10 10:19:33	4.550	-0.010	-0.026	-0.011	-0.016	-0.010
3/18/10 10:19:34	4.567	-0.010	-0.026	-0.011	-0.023	-0.012
3/18/10 10:19:35	4.583	-0.012	-0.028	-0.011	-0.016	-0.010
3/18/10 10:19:36	4.600	-0.014	-0.026	-0.009	-0.021	-0.010
3/18/10 10:19:37	4.617	-0.014	-0.026	-0.011	-0.023	-0.010
3/18/10 10:19:38	4.633	-0.012	-0.028	-0.011	-0.018	-0.012
3/18/10 10:19:39	4.650	-0.012	-0.028	-0.009	-0.021	-0.010
3/18/10 10:19:40	4.667	-0.014	-0.026	-0.011	-0.018	-0.010
3/18/10 10:19:41	4.683	-0.014	-0.026	-0.011	-0.020	-0.012
3/18/10 10:19:42	4.700	-0.012	-0.028	-0.009	-0.018	-0.010
3/18/10 10:19:43	4.717	-0.010	-0.028	-0.011	-0.025	-0.010
3/18/10 10:19:44	4.733	-0.010	-0.026	-0.011	-0.021	-0.010
3/18/10 10:19:45	4.750	-0.012	-0.026	-0.011	-0.021	-0.010
3/18/10 10:19:46	4.767	-0.012	-0.026	-0.011	-0.014	-0.010
3/18/10 10:19:47	4.783	-0.012	-0.024	-0.009	-0.018	-0.010
3/18/10 10:19:48	4.800	-0.012	-0.026	-0.014	-0.021	-0.010
3/18/10 10:19:49	4.817	-0.010	-0.028	-0.011	-0.023	-0.012
3/18/10 10:19:50	4.833	-0.012	-0.028	-0.009	-0.021	-0.012
3/18/10 10:19:51	4.850	-0.014	-0.026	-0.009	-0.021	-0.012
3/18/10 10:19:52	4.867	-0.010	-0.026	-0.009	-0.018	-0.010
3/18/10 10:19:53	4.883	-0.012	-0.028	-0.011	-0.018	-0.010

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:19:54	4.900	-0.012	-0.026	-0.011	-0.018	-0.010
3/18/10 10:19:55	4.917	-0.012	-0.026	-0.009	-0.016	-0.010
3/18/10 10:19:56	4.933	-0.010	-0.026	-0.011	-0.023	-0.010
3/18/10 10:19:57	4.950	-0.010	-0.026	-0.011	-0.023	-0.012
3/18/10 10:19:58	4.967	-0.012	-0.028	-0.009	-0.020	-0.012
3/18/10 10:19:59	4.983	-0.014	-0.026	-0.011	-0.023	-0.012
3/18/10 10:20:00	5.000	-0.012	-0.024	-0.009	-0.021	-0.010
3/18/10 10:20:01	5.017	-0.012	-0.026	-0.011	-0.023	-0.010
3/18/10 10:20:02	5.033	-0.012	-0.024	-0.011	-0.023	-0.012
3/18/10 10:20:03	5.050	-0.010	-0.026	-0.011	-0.021	-0.012
3/18/10 10:20:04	5.067	-0.007	-0.026	-0.009	-0.013	-0.010
3/18/10 10:20:05	5.083	-0.010	-0.028	-0.014	-0.021	-0.012
3/18/10 10:20:06	5.100	-0.009	-0.026	-0.011	-0.018	-0.010
3/18/10 10:20:07	5.117	-0.010	-0.026	-0.009	-0.023	-0.012
3/18/10 10:20:08	5.133	-0.012	-0.026	-0.011	-0.020	-0.012
3/18/10 10:20:09	5.150	-0.012	-0.026	-0.011	-0.021	-0.010
3/18/10 10:20:10	5.167	-0.012	-0.026	-0.011	-0.018	-0.012
3/18/10 10:20:11	5.183	-0.012	-0.026	-0.011	-0.023	-0.010
3/18/10 10:20:12	5.200	-0.012	-0.026	-0.011	-0.018	-0.010
3/18/10 10:20:13	5.217	-0.010	-0.028	-0.011	-0.021	-0.010
3/18/10 10:20:14	5.233	-0.012	-0.028	-0.009	-0.018	-0.010
3/18/10 10:20:15	5.250	-0.012	-0.028	-0.011	-0.018	-0.012
3/18/10 10:20:16	5.267	-0.012	-0.028	-0.011	-0.016	-0.010
3/18/10 10:20:17	5.283	-0.010	-0.028	-0.011	-0.018	-0.012
3/18/10 10:20:18	5.300	-0.012	-0.026	-0.011	-0.025	-0.010
3/18/10 10:20:19	5.317	-0.012	-0.026	-0.011	-0.018	-0.012
3/18/10 10:20:20	5.333	-0.012	-0.028	-0.011	-0.021	-0.010
3/18/10 10:20:21	5.350	-0.012	-0.026	-0.011	-0.021	-0.012
3/18/10 10:20:22	5.367	-0.014	-0.028	-0.009	-0.018	-0.010
3/18/10 10:20:23	5.383	-0.012	-0.026	-0.011	-0.016	-0.010
3/18/10 10:20:24	5.400	-0.010	-0.028	-0.009	-0.020	-0.010
3/18/10 10:20:25	5.417	-0.007	-0.026	-0.009	-0.018	-0.012
3/18/10 10:20:26	5.433	-0.012	-0.028	-0.011	-0.018	-0.010
3/18/10 10:20:27	5.450	-0.010	-0.028	-0.011	-0.018	-0.012
3/18/10 10:20:28	5.467	-0.010	-0.024	-0.011	-0.018	-0.012
3/18/10 10:20:29	5.483	-0.012	-0.026	-0.009	-0.020	-0.010
3/18/10 10:20:30	5.500	-0.010	-0.028	-0.011	-0.018	-0.012
3/18/10 10:20:31	5.517	-0.012	-0.026	-0.011	-0.018	-0.010
3/18/10 10:20:32	5.533	-0.010	-0.026	-0.011	-0.018	-0.014
3/18/10 10:20:33	5.550	-0.012	-0.026	-0.011	-0.021	-0.012
3/18/10 10:20:34	5.567	-0.010	-0.028	-0.009	-0.018	-0.010
3/18/10 10:20:35	5.583	-0.009	-0.026	-0.011	-0.020	-0.012
3/18/10 10:20:36	5.600	-0.014	-0.026	-0.011	-0.023	-0.012
3/18/10 10:20:37	5.617	-0.012	-0.026	-0.011	-0.021	-0.012
3/18/10 10:20:38	5.633	-0.012	-0.026	-0.009	-0.016	-0.010
3/18/10 10:20:39	5.650	-0.010	-0.026	-0.009	-0.021	-0.012
3/18/10 10:20:40	5.667	-0.012	-0.031	-0.011	-0.018	-0.012
3/18/10 10:20:41	5.683	-0.012	-0.024	-0.009	-0.021	-0.010
3/18/10 10:20:42	5.700	-0.012	-0.026	-0.009	-0.018	-0.012

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:20:43	5.717	-0.014	-0.026	-0.011	-0.021	-0.010
3/18/10 10:20:44	5.733	-0.012	-0.026	-0.011	-0.018	-0.010
3/18/10 10:20:45	5.750	-0.010	-0.026	-0.009	-0.013	-0.010
3/18/10 10:20:46	5.767	-0.014	-0.026	-0.011	-0.018	-0.010
3/18/10 10:20:47	5.783	-0.010	-0.026	-0.009	-0.023	-0.010
3/18/10 10:20:48	5.800	-0.007	-0.026	-0.011	-0.021	-0.012
3/18/10 10:20:49	5.817	-0.014	-0.026	-0.009	-0.018	-0.010
3/18/10 10:20:50	5.833	-0.014	-0.026	-0.009	-0.018	-0.010
3/18/10 10:20:51	5.850	-0.012	-0.026	-0.011	-0.020	-0.010
3/18/10 10:20:52	5.867	-0.010	-0.026	-0.011	-0.025	-0.010
3/18/10 10:20:53	5.883	-0.012	-0.026	-0.011	-0.021	-0.012
3/18/10 10:20:54	5.900	-0.012	-0.028	-0.011	-0.025	-0.012
3/18/10 10:20:55	5.917	-0.012	-0.026	-0.011	-0.016	-0.012
3/18/10 10:20:56	5.933	-0.012	-0.024	-0.011	-0.021	-0.012
3/18/10 10:20:57	5.950	-0.012	-0.026	-0.011	-0.020	-0.012
3/18/10 10:20:58	5.967	-0.012	-0.028	-0.009	-0.018	-0.012
3/18/10 10:20:59	5.983	-0.012	-0.026	-0.011	-0.016	-0.010
3/18/10 10:21:00	6.000	-0.012	-0.026	-0.011	-0.018	-0.010
3/18/10 10:21:01	6.017	-0.014	-0.028	-0.009	-0.021	-0.010
3/18/10 10:21:02	6.033	-0.012	-0.026	-0.009	-0.018	-0.010
3/18/10 10:21:03	6.050	-0.012	-0.028	-0.011	-0.023	-0.010
3/18/10 10:21:04	6.067	-0.010	-0.026	-0.009	-0.018	-0.012
3/18/10 10:21:05	6.083	-0.012	-0.026	-0.014	-0.021	-0.012
3/18/10 10:21:06	6.100	-0.014	-0.026	-0.011	-0.018	-0.010
3/18/10 10:21:07	6.117	-0.010	-0.028	-0.011	-0.016	-0.010
3/18/10 10:21:08	6.133	-0.012	-0.028	-0.009	-0.021	-0.010
3/18/10 10:21:09	6.150	-0.012	-0.026	-0.009	-0.018	-0.010
3/18/10 10:21:10	6.167	-0.012	-0.026	-0.011	-0.023	-0.012
3/18/10 10:21:11	6.183	-0.012	-0.028	-0.009	-0.018	-0.012
3/18/10 10:21:12	6.200	-0.009	-0.026	-0.009	-0.018	-0.012
3/18/10 10:21:13	6.217	-0.014	-0.028	-0.009	-0.023	-0.012
3/18/10 10:21:14	6.233	-0.010	-0.028	-0.011	-0.018	-0.010
3/18/10 10:21:15	6.250	-0.010	-0.026	-0.009	-0.020	-0.012
3/18/10 10:21:16	6.267	-0.014	-0.026	-0.007	-0.018	-0.012
3/18/10 10:21:17	6.283	-0.012	-0.028	-0.009	-0.021	-0.010
3/18/10 10:21:18	6.300	-0.010	-0.028	-0.011	-0.016	-0.010
3/18/10 10:21:19	6.317	-0.010	-0.028	-0.009	-0.025	-0.010
3/18/10 10:21:20	6.333	-0.014	-0.028	-0.011	-0.023	-0.010
3/18/10 10:21:21	6.350	-0.012	-0.028	-0.011	-0.023	-0.010
3/18/10 10:21:22	6.367	-0.010	-0.026	-0.011	-0.020	-0.012
3/18/10 10:21:23	6.383	-0.012	-0.026	-0.011	-0.018	-0.012
3/18/10 10:21:24	6.400	-0.009	-0.028	-0.011	-0.020	-0.010
3/18/10 10:21:25	6.417	-0.012	-0.026	-0.014	-0.021	-0.010
3/18/10 10:21:26	6.433	-0.012	-0.026	-0.011	-0.023	-0.010
3/18/10 10:21:27	6.450	-0.012	-0.028	-0.011	-0.021	-0.010
3/18/10 10:21:28	6.467	-0.012	-0.026	-0.009	-0.023	-0.010
3/18/10 10:21:29	6.483	-0.012	-0.028	-0.014	-0.018	-0.010
3/18/10 10:21:30	6.500	-0.012	-0.028	-0.011	-0.020	-0.012
3/18/10 10:21:31	6.517	-0.012	-0.028	-0.011	-0.020	-0.010

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:21:32	6.533	-0.014	-0.026	-0.009	-0.025	-0.012
3/18/10 10:21:33	6.550	-0.012	-0.026	-0.009	-0.023	-0.010
3/18/10 10:21:34	6.567	-0.012	-0.024	-0.009	-0.016	-0.012
3/18/10 10:21:35	6.583	-0.010	-0.026	-0.011	-0.025	-0.012
3/18/10 10:21:36	6.600	-0.014	-0.026	-0.011	-0.021	-0.010
3/18/10 10:21:37	6.617	-0.010	-0.026	-0.011	-0.018	-0.012
3/18/10 10:21:38	6.633	-0.016	-0.026	-0.009	-0.021	-0.012
3/18/10 10:21:39	6.650	-0.014	-0.026	-0.011	-0.020	-0.010
3/18/10 10:21:40	6.667	-0.014	-0.026	-0.011	-0.020	-0.010
3/18/10 10:21:41	6.683	-0.014	-0.026	-0.009	-0.016	-0.010
3/18/10 10:21:42	6.700	-0.012	-0.028	-0.011	-0.021	-0.010
3/18/10 10:21:43	6.717	-0.014	-0.028	-0.011	-0.018	-0.010
3/18/10 10:21:44	6.733	-0.012	-0.026	-0.009	-0.018	-0.012
3/18/10 10:21:45	6.750	-0.012	-0.026	-0.014	-0.020	-0.012
3/18/10 10:21:46	6.767	-0.012	-0.026	-0.011	-0.020	-0.010
3/18/10 10:21:47	6.783	-0.014	-0.028	-0.009	-0.020	-0.010
3/18/10 10:21:48	6.800	-0.014	-0.026	-0.011	-0.016	-0.012
3/18/10 10:21:49	6.817	-0.012	-0.026	-0.009	-0.018	-0.010
3/18/10 10:21:50	6.833	-0.010	-0.026	-0.009	-0.013	-0.012
3/18/10 10:21:51	6.850	-0.012	-0.026	-0.009	-0.020	-0.012
3/18/10 10:21:52	6.867	-0.014	-0.028	-0.011	-0.023	-0.010
3/18/10 10:21:53	6.883	-0.016	-0.026	-0.011	-0.025	-0.010
3/18/10 10:21:54	6.900	-0.012	-0.028	-0.011	-0.023	-0.010
3/18/10 10:21:55	6.917	-0.014	-0.028	-0.009	-0.025	-0.010
3/18/10 10:21:56	6.933	-0.014	-0.026	-0.011	-0.023	-0.010
3/18/10 10:21:57	6.950	-0.014	-0.028	-0.011	-0.023	-0.010
3/18/10 10:21:58	6.967	-0.014	-0.026	-0.014	-0.020	-0.010
3/18/10 10:21:59	6.983	-0.007	-0.028	-0.014	-0.023	-0.010
3/18/10 10:22:00	7.000	-0.012	-0.028	-0.011	-0.018	-0.010
3/18/10 10:22:01	7.017	-0.012	-0.028	-0.011	-0.023	-0.010
3/18/10 10:22:02	7.033	-0.010	-0.026	-0.011	-0.023	-0.010
3/18/10 10:22:03	7.050	-0.012	-0.028	-0.011	-0.023	-0.010
3/18/10 10:22:04	7.067	-0.012	-0.031	-0.011	-0.020	-0.012
3/18/10 10:22:05	7.083	-0.012	-0.026	-0.009	-0.023	-0.010
3/18/10 10:22:06	7.100	-0.012	-0.026	-0.011	-0.020	-0.012
3/18/10 10:22:07	7.117	-0.012	-0.026	-0.011	-0.023	-0.010
3/18/10 10:22:08	7.133	-0.012	-0.028	-0.009	-0.016	-0.010
3/18/10 10:22:09	7.150	-0.012	-0.026	-0.009	-0.025	-0.012
3/18/10 10:22:10	7.167	-0.014	-0.028	-0.009	-0.023	-0.012
3/18/10 10:22:11	7.183	-0.014	-0.028	-0.011	-0.016	-0.010
3/18/10 10:22:12	7.200	-0.012	-0.028	-0.009	-0.020	-0.012
3/18/10 10:22:13	7.217	-0.012	-0.026	-0.014	-0.021	-0.010
3/18/10 10:22:14	7.233	-0.014	-0.028	-0.011	-0.016	-0.010
3/18/10 10:22:15	7.250	-0.014	-0.026	-0.011	-0.020	-0.010
3/18/10 10:22:16	7.267	-0.010	-0.028	-0.011	-0.023	-0.012
3/18/10 10:22:17	7.283	-0.014	-0.026	-0.011	-0.021	-0.012
3/18/10 10:22:18	7.300	-0.014	-0.026	-0.009	-0.020	-0.012
3/18/10 10:22:19	7.317	-0.012	-0.026	-0.011	-0.020	-0.010
3/18/10 10:22:20	7.333	-0.012	-0.026	-0.009	-0.020	-0.012

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:22:21	7.350	-0.012	-0.026	-0.009	-0.021	-0.010
3/18/10 10:22:22	7.367	-0.012	-0.028	-0.011	-0.020	-0.012
3/18/10 10:22:23	7.383	-0.010	-0.028	-0.011	-0.018	-0.012
3/18/10 10:22:24	7.400	-0.014	-0.028	-0.009	-0.023	-0.012
3/18/10 10:22:25	7.417	-0.012	-0.028	-0.009	-0.023	-0.012
3/18/10 10:22:26	7.433	-0.012	-0.028	-0.011	-0.018	-0.010
3/18/10 10:22:27	7.450	-0.012	-0.026	-0.009	-0.018	-0.010
3/18/10 10:22:28	7.467	-0.012	-0.028	-0.009	-0.021	-0.010
3/18/10 10:22:29	7.483	-0.014	-0.028	-0.011	-0.023	-0.012
3/18/10 10:22:30	7.500	-0.012	-0.028	-0.011	-0.023	-0.012
3/18/10 10:22:31	7.517	-0.012	-0.028	-0.011	-0.023	-0.010
3/18/10 10:22:32	7.533	-0.014	-0.028	-0.011	-0.020	-0.012
3/18/10 10:22:33	7.550	-0.014	-0.028	-0.011	-0.023	-0.010
3/18/10 10:22:34	7.567	-0.012	-0.028	-0.011	-0.018	-0.010
3/18/10 10:22:35	7.583	-0.014	-0.028	-0.011	-0.023	-0.010
3/18/10 10:22:36	7.600	-0.012	-0.026	-0.011	-0.020	-0.010
3/18/10 10:22:37	7.617	-0.012	-0.028	-0.011	-0.027	-0.012
3/18/10 10:22:38	7.633	-0.017	-0.026	-0.011	-0.020	-0.012
3/18/10 10:22:39	7.650	-0.010	-0.026	-0.009	-0.018	-0.010
3/18/10 10:22:40	7.667	-0.012	-0.026	-0.009	-0.023	-0.010
3/18/10 10:22:41	7.683	-0.009	-0.026	-0.011	-0.020	-0.010
3/18/10 10:22:42	7.700	-0.010	-0.028	-0.011	-0.020	-0.012
3/18/10 10:22:43	7.717	-0.012	-0.026	-0.011	-0.020	-0.012
3/18/10 10:22:44	7.733	-0.009	-0.028	-0.011	-0.023	-0.012
3/18/10 10:22:45	7.750	-0.012	-0.028	-0.011	-0.018	-0.010
3/18/10 10:22:46	7.767	-0.014	-0.026	-0.011	-0.020	-0.012
3/18/10 10:22:47	7.783	-0.012	-0.026	-0.011	-0.023	-0.010
3/18/10 10:22:48	7.800	-0.012	-0.024	-0.009	-0.018	-0.010
3/18/10 10:22:49	7.817	-0.010	-0.028	-0.011	-0.020	-0.012
3/18/10 10:22:50	7.833	-0.009	-0.028	-0.014	-0.023	-0.012
3/18/10 10:22:51	7.850	-0.014	-0.026	-0.011	-0.020	-0.012
3/18/10 10:22:52	7.867	-0.014	-0.026	-0.009	-0.023	-0.012
3/18/10 10:22:53	7.883	-0.012	-0.028	-0.011	-0.025	-0.012
3/18/10 10:22:54	7.900	-0.014	-0.026	-0.011	-0.032	-0.010
3/18/10 10:22:55	7.917	-0.009	-0.026	-0.011	-0.023	-0.010
3/18/10 10:22:56	7.933	-0.012	-0.028	-0.009	-0.020	-0.010
3/18/10 10:22:57	7.950	-0.014	-0.026	-0.011	-0.020	-0.012
3/18/10 10:22:58	7.967	-0.012	-0.028	-0.009	-0.020	-0.012
3/18/10 10:22:59	7.983	-0.012	-0.028	-0.009	-0.023	-0.010
3/18/10 10:23:00	8.000	-0.014	-0.026	-0.011	-0.020	-0.010
3/18/10 10:23:01	8.017	-0.012	-0.026	-0.009	-0.016	-0.010
3/18/10 10:23:02	8.033	-0.014	-0.028	-0.009	-0.020	-0.010
3/18/10 10:23:03	8.050	-0.009	-0.026	-0.011	-0.020	-0.010
3/18/10 10:23:04	8.067	-0.012	-0.026	-0.011	-0.023	-0.012
3/18/10 10:23:05	8.083	-0.014	-0.026	-0.011	-0.018	-0.010
3/18/10 10:23:06	8.100	-0.007	-0.028	-0.011	-0.020	-0.010
3/18/10 10:23:07	8.117	-0.014	-0.028	-0.011	-0.016	-0.010
3/18/10 10:23:08	8.133	-0.014	-0.028	-0.011	-0.025	-0.010
3/18/10 10:23:09	8.150	-0.012	-0.028	-0.011	-0.023	-0.010

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:23:10	8.167	-0.014	-0.026	-0.009	-0.020	-0.010
3/18/10 10:23:11	8.183	-0.012	-0.028	-0.009	-0.027	-0.010
3/18/10 10:23:12	8.200	-0.014	-0.028	-0.009	-0.020	-0.012
3/18/10 10:23:13	8.217	-0.014	-0.028	-0.009	-0.020	-0.010
3/18/10 10:23:14	8.233	-0.014	-0.026	-0.011	-0.023	-0.012
3/18/10 10:23:15	8.250	-0.012	-0.028	-0.011	-0.020	-0.010
3/18/10 10:23:16	8.267	-0.009	-0.028	-0.011	-0.016	-0.012
3/18/10 10:23:17	8.283	-0.014	-0.026	-0.011	-0.027	-0.010
3/18/10 10:23:18	8.300	-0.016	-0.028	-0.014	-0.020	-0.012
3/18/10 10:23:19	8.317	-0.014	-0.028	-0.011	-0.018	-0.010
3/18/10 10:23:20	8.333	-0.014	-0.028	-0.011	-0.025	-0.012
3/18/10 10:23:21	8.350	-0.014	-0.028	-0.011	-0.023	-0.010
3/18/10 10:23:22	8.367	-0.014	-0.028	-0.011	-0.018	-0.012
3/18/10 10:23:23	8.383	-0.009	-0.028	-0.011	-0.020	-0.012
3/18/10 10:23:24	8.400	-0.014	-0.031	-0.011	-0.023	-0.010
3/18/10 10:23:25	8.417	-0.012	-0.028	-0.011	-0.020	-0.010
3/18/10 10:23:26	8.433	-0.012	-0.026	-0.011	-0.023	-0.010
3/18/10 10:23:27	8.450	-0.014	-0.024	-0.011	-0.023	-0.010
3/18/10 10:23:28	8.467	-0.014	-0.028	-0.011	-0.023	-0.012
3/18/10 10:23:29	8.483	-0.012	-0.028	-0.009	-0.023	-0.012
3/18/10 10:23:30	8.500	-0.014	-0.026	-0.009	-0.023	-0.012
3/18/10 10:23:31	8.517	-0.012	-0.028	-0.011	-0.020	-0.010
3/18/10 10:23:32	8.533	-0.012	-0.028	-0.009	-0.020	-0.012
3/18/10 10:23:33	8.550	-0.012	-0.028	-0.011	-0.023	-0.010
3/18/10 10:23:34	8.567	-0.014	-0.028	-0.011	-0.020	-0.010
3/18/10 10:23:35	8.583	-0.012	-0.028	-0.009	-0.018	-0.010
3/18/10 10:23:36	8.600	-0.012	-0.028	-0.009	-0.020	-0.012
3/18/10 10:23:37	8.617	-0.010	-0.028	-0.011	-0.021	-0.012
3/18/10 10:23:38	8.633	-0.014	-0.026	-0.011	-0.023	-0.010
3/18/10 10:23:39	8.650	-0.012	-0.028	-0.011	-0.020	-0.012
3/18/10 10:23:40	8.667	-0.016	-0.028	-0.011	-0.020	-0.010
3/18/10 10:23:41	8.683	-0.014	-0.028	-0.009	-0.020	-0.012
3/18/10 10:23:42	8.700	-0.014	-0.028	-0.011	-0.023	-0.012
3/18/10 10:23:43	8.717	-0.017	-0.028	-0.009	-0.023	-0.010
3/18/10 10:23:44	8.733	-0.014	-0.028	-0.011	-0.021	-0.010
3/18/10 10:23:45	8.750	-0.014	-0.028	-0.009	-0.020	-0.012
3/18/10 10:23:46	8.767	-0.014	-0.028	-0.009	-0.018	-0.012
3/18/10 10:23:47	8.783	-0.014	-0.028	-0.011	-0.020	-0.010
3/18/10 10:23:48	8.800	-0.014	-0.028	-0.011	-0.020	-0.012
3/18/10 10:23:49	8.817	-0.012	-0.028	-0.014	-0.020	-0.010
3/18/10 10:23:50	8.833	-0.014	-0.028	-0.011	-0.018	-0.010
3/18/10 10:23:51	8.850	-0.014	-0.028	-0.011	-0.018	-0.012
3/18/10 10:23:52	8.867	-0.012	-0.031	-0.014	-0.023	-0.010
3/18/10 10:23:53	8.883	-0.014	-0.031	-0.011	-0.020	-0.010
3/18/10 10:23:54	8.900	-0.014	-0.028	-0.011	-0.020	-0.012
3/18/10 10:23:55	8.917	-0.014	-0.028	-0.009	-0.025	-0.010
3/18/10 10:23:56	8.933	-0.014	-0.028	-0.011	-0.020	-0.012
3/18/10 10:23:57	8.950	-0.012	-0.028	-0.011	-0.023	-0.012
3/18/10 10:23:58	8.967	-0.012	-0.028	-0.009	-0.023	-0.012

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:23:59	8.983	-0.012	-0.028	-0.009	-0.023	-0.012
3/18/10 10:24:00	9.000	-0.016	-0.028	-0.011	-0.023	-0.012
3/18/10 10:24:01	9.017	-0.012	-0.031	-0.011	-0.025	-0.012
3/18/10 10:24:02	9.033	-0.014	-0.028	-0.014	-0.023	-0.012
3/18/10 10:24:03	9.050	-0.014	-0.028	-0.011	-0.023	-0.012
3/18/10 10:24:04	9.067	-0.012	-0.028	-0.011	-0.020	-0.010
3/18/10 10:24:05	9.083	-0.012	-0.028	-0.011	-0.020	-0.012
3/18/10 10:24:06	9.100	-0.014	-0.028	-0.009	-0.020	-0.010
3/18/10 10:24:07	9.117	-0.014	-0.028	-0.011	-0.027	-0.012
3/18/10 10:24:08	9.133	-0.014	-0.028	-0.009	-0.023	-0.010
3/18/10 10:24:09	9.150	-0.014	-0.028	-0.011	-0.018	-0.012
3/18/10 10:24:10	9.167	-0.014	-0.028	-0.009	-0.020	-0.010
3/18/10 10:24:11	9.183	-0.014	-0.028	-0.011	-0.020	-0.012
3/18/10 10:24:12	9.200	-0.014	-0.026	-0.011	-0.025	-0.010
3/18/10 10:24:13	9.217	-0.012	-0.028	-0.009	-0.020	-0.012
3/18/10 10:24:14	9.233	-0.009	-0.028	-0.009	-0.020	-0.010
3/18/10 10:24:15	9.250	-0.012	-0.031	-0.011	-0.020	-0.010
3/18/10 10:24:16	9.267	-0.014	-0.031	-0.011	-0.023	-0.010
3/18/10 10:24:17	9.283	-0.012	-0.028	-0.009	-0.027	-0.012
3/18/10 10:24:18	9.300	-0.012	-0.028	-0.011	-0.020	-0.010
3/18/10 10:24:19	9.317	-0.017	-0.028	-0.009	-0.023	-0.012
3/18/10 10:24:20	9.333	-0.012	-0.028	-0.011	-0.025	-0.012
3/18/10 10:24:21	9.350	-0.014	-0.028	-0.011	-0.023	-0.010
3/18/10 10:24:22	9.367	-0.014	-0.028	-0.014	-0.020	-0.012
3/18/10 10:24:23	9.383	-0.014	-0.028	-0.011	-0.025	-0.010
3/18/10 10:24:24	9.400	-0.014	-0.026	-0.014	-0.020	-0.012
3/18/10 10:24:25	9.417	-0.012	-0.026	-0.011	-0.018	-0.012
3/18/10 10:24:26	9.433	-0.014	-0.028	-0.011	-0.023	-0.010
3/18/10 10:24:27	9.450	-0.014	-0.028	-0.014	-0.018	-0.010
3/18/10 10:24:28	9.467	-0.014	-0.028	-0.011	-0.020	-0.012
3/18/10 10:24:29	9.483	-0.012	-0.028	-0.011	-0.020	-0.012
3/18/10 10:24:30	9.500	-0.014	-0.028	-0.011	-0.020	-0.012
3/18/10 10:24:31	9.517	-0.014	-0.031	-0.011	-0.025	-0.012
3/18/10 10:24:32	9.533	-0.009	-0.028	-0.011	-0.020	-0.012
3/18/10 10:24:33	9.550	-0.014	-0.028	-0.011	-0.023	-0.010
3/18/10 10:24:34	9.567	-0.014	-0.028	-0.011	-0.020	-0.012
3/18/10 10:24:35	9.583	-0.009	-0.028	-0.011	-0.025	-0.012
3/18/10 10:24:36	9.600	-0.014	-0.028	-0.011	-0.020	-0.010
3/18/10 10:24:37	9.617	-0.012	-0.028	-0.009	-0.023	-0.012
3/18/10 10:24:38	9.633	-0.014	-0.028	-0.011	-0.016	-0.012
3/18/10 10:24:39	9.650	-0.012	-0.028	-0.011	-0.020	-0.010
3/18/10 10:24:40	9.667	-0.014	-0.028	-0.009	-0.020	-0.010
3/18/10 10:24:41	9.683	-0.016	-0.028	-0.011	-0.027	-0.012
3/18/10 10:24:42	9.700	-0.014	-0.028	-0.011	-0.020	-0.012
3/18/10 10:24:43	9.717	-0.009	-0.026	-0.011	-0.020	-0.010
3/18/10 10:24:44	9.733	-0.012	-0.028	-0.009	-0.023	-0.012
3/18/10 10:24:45	9.750	-0.014	-0.031	-0.014	-0.018	-0.012
3/18/10 10:24:46	9.767	-0.012	-0.026	-0.009	-0.020	-0.010
3/18/10 10:24:47	9.783	-0.012	-0.028	-0.011	-0.020	-0.012

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:24:48	9.800	-0.012	-0.028	-0.011	-0.023	-0.010
3/18/10 10:24:49	9.817	-0.012	-0.028	-0.011	-0.025	-0.012
3/18/10 10:24:50	9.833	-0.012	-0.028	-0.011	-0.023	-0.010
3/18/10 10:24:51	9.850	-0.014	-0.028	-0.011	-0.027	-0.010
3/18/10 10:24:52	9.867	-0.014	-0.028	-0.011	-0.018	-0.012
3/18/10 10:24:53	9.883	-0.012	-0.028	-0.009	-0.023	-0.010
3/18/10 10:24:54	9.900	-0.012	-0.028	-0.009	-0.023	-0.010
3/18/10 10:24:55	9.917	-0.012	-0.028	-0.011	-0.023	-0.010
3/18/10 10:24:56	9.933	-0.014	-0.031	-0.014	-0.018	-0.012
3/18/10 10:24:57	9.950	-0.012	-0.028	-0.011	-0.023	-0.012
3/18/10 10:24:58	9.967	-0.014	-0.031	-0.014	-0.020	-0.012
3/18/10 10:24:59	9.983	-0.014	-0.028	-0.014	-0.023	-0.012
3/18/10 10:25:00	10.000	-0.014	-0.026	-0.011	-0.020	-0.012
3/18/10 10:25:10	10.167	-0.014	-0.031	-0.012	-0.023	-0.012
3/18/10 10:25:20	10.333	-0.010	-0.029	-0.012	-0.021	-0.012
3/18/10 10:25:30	10.500	-0.012	-0.031	-0.012	-0.019	-0.012
3/18/10 10:25:40	10.667	-0.012	-0.029	-0.014	-0.023	-0.012
3/18/10 10:25:50	10.833	-0.010	-0.029	-0.012	-0.026	-0.014
3/18/10 10:26:00	11.000	-0.012	-0.029	-0.012	-0.026	-0.012
3/18/10 10:26:10	11.167	-0.007	-0.029	-0.012	-0.028	-0.012
3/18/10 10:26:20	11.333	-0.007	-0.029	-0.012	-0.024	-0.014
3/18/10 10:26:30	11.500	-0.010	-0.029	-0.012	-0.028	-0.012
3/18/10 10:26:40	11.667	-0.010	-0.029	-0.012	-0.024	-0.012
3/18/10 10:26:50	11.833	-0.010	-0.029	-0.012	-0.021	-0.012
3/18/10 10:27:00	12.000	-0.010	-0.029	-0.012	-0.021	-0.012
3/18/10 10:27:10	12.167	-0.012	-0.029	-0.012	-0.024	-0.010
3/18/10 10:27:20	12.333	-0.010	-0.029	-0.012	-0.026	-0.010
3/18/10 10:27:30	12.500	-0.010	-0.031	-0.012	-0.021	-0.012
3/18/10 10:27:40	12.667	-0.012	-0.031	-0.012	-0.024	-0.010
3/18/10 10:27:50	12.833	-0.007	-0.029	-0.009	-0.026	-0.012
3/18/10 10:28:00	13.000	-0.010	-0.029	-0.012	-0.019	-0.012
3/18/10 10:28:10	13.167	-0.005	-0.029	-0.012	-0.024	-0.012
3/18/10 10:28:20	13.333	-0.007	-0.029	-0.009	-0.026	-0.012
3/18/10 10:28:30	13.500	-0.007	-0.029	-0.012	-0.021	-0.012
3/18/10 10:28:40	13.667	-0.007	-0.029	-0.014	-0.021	-0.012
3/18/10 10:28:50	13.833	-0.012	-0.029	-0.012	-0.026	-0.012
3/18/10 10:29:00	14.000	-0.012	-0.029	-0.012	-0.028	-0.012
3/18/10 10:29:10	14.167	-0.007	-0.029	-0.019	-0.024	-0.010
3/18/10 10:29:20	14.333	-0.007	-0.029	-0.014	-0.026	-0.012
3/18/10 10:29:30	14.500	-0.010	-0.029	-0.012	-0.026	-0.012
3/18/10 10:29:40	14.667	-0.010	-0.034	-0.012	-0.028	-0.014
3/18/10 10:29:50	14.833	-0.012	-0.029	-0.012	-0.024	-0.012
3/18/10 10:30:00	15.000	-0.010	-0.029	-0.012	-0.024	-0.012
3/18/10 10:30:10	15.167	-0.010	-0.031	-0.014	-0.021	-0.012
3/18/10 10:30:20	15.333	-0.012	-0.029	-0.012	-0.021	-0.012
3/18/10 10:30:30	15.500	-0.010	-0.034	-0.012	-0.019	-0.012
3/18/10 10:30:40	15.667	-0.007	-0.031	-0.012	-0.021	-0.010
3/18/10 10:30:50	15.833	-0.007	-0.029	-0.014	-0.026	-0.012
3/18/10 10:31:00	16.000	-0.010	-0.031	-0.014	-0.026	-0.012

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:31:10	16.167	-0.010	-0.031	-0.014	-0.024	-0.010
3/18/10 10:31:20	16.333	-0.010	-0.031	-0.010	-0.024	-0.014
3/18/10 10:31:30	16.500	-0.010	-0.031	-0.014	-0.024	-0.012
3/18/10 10:31:40	16.667	-0.007	-0.029	-0.012	-0.031	-0.012
3/18/10 10:31:50	16.833	-0.007	-0.031	-0.014	-0.024	-0.012
3/18/10 10:32:00	17.000	-0.010	-0.029	-0.014	-0.028	-0.012
3/18/10 10:32:10	17.167	-0.012	-0.029	-0.012	-0.028	-0.012
3/18/10 10:32:20	17.333	-0.003	-0.029	-0.012	-0.028	-0.012
3/18/10 10:32:30	17.500	-0.010	-0.031	-0.012	-0.024	-0.012
3/18/10 10:32:40	17.667	-0.010	-0.031	-0.014	-0.024	-0.012
3/18/10 10:32:50	17.833	-0.007	-0.029	-0.012	-0.019	-0.012
3/18/10 10:33:00	18.000	-0.012	-0.031	-0.012	-0.024	-0.014
3/18/10 10:33:10	18.167	-0.007	-0.029	-0.014	-0.024	-0.012
3/18/10 10:33:20	18.333	-0.007	-0.029	-0.012	-0.024	-0.012
3/18/10 10:33:30	18.500	-0.007	-0.031	-0.012	-0.021	-0.012
3/18/10 10:33:40	18.667	-0.010	-0.031	-0.014	-0.021	-0.012
3/18/10 10:33:50	18.833	-0.010	-0.031	-0.012	-0.024	-0.012
3/18/10 10:34:00	19.000	-0.005	-0.031	-0.014	-0.028	-0.014
3/18/10 10:34:10	19.167	-0.012	-0.029	-0.012	-0.028	-0.012
3/18/10 10:34:20	19.333	-0.008	-0.031	-0.010	-0.026	-0.012
3/18/10 10:34:30	19.500	-0.010	-0.031	-0.014	-0.024	-0.012
3/18/10 10:34:40	19.667	-0.012	-0.034	-0.012	-0.021	-0.012
3/18/10 10:34:50	19.833	-0.007	-0.031	-0.014	-0.024	-0.012
3/18/10 10:35:00	20.000	-0.012	-0.029	-0.012	-0.026	-0.012
3/18/10 10:35:10	20.167	-0.010	-0.034	-0.012	-0.026	-0.012
3/18/10 10:35:20	20.333	-0.010	-0.031	-0.017	-0.031	-0.012
3/18/10 10:35:30	20.500	-0.007	-0.031	-0.017	-0.021	-0.012
3/18/10 10:35:40	20.667	-0.007	-0.031	-0.012	-0.024	-0.012
3/18/10 10:35:50	20.833	-0.007	-0.034	-0.014	-0.026	-0.014
3/18/10 10:36:00	21.000	-0.007	-0.029	-0.017	-0.019	-0.012
3/18/10 10:36:10	21.167	-0.007	-0.031	-0.012	-0.021	-0.014
3/18/10 10:36:20	21.333	-0.005	-0.031	-0.014	-0.019	-0.010
3/18/10 10:36:30	21.500	-0.005	-0.031	-0.014	-0.022	-0.014
3/18/10 10:36:40	21.667	-0.007	-0.031	-0.012	-0.028	-0.010
3/18/10 10:36:50	21.833	-0.007	-0.031	-0.014	-0.021	-0.012
3/18/10 10:37:00	22.000	-0.005	-0.029	-0.012	-0.026	-0.010
3/18/10 10:37:10	22.167	-0.007	-0.031	-0.012	-0.024	-0.012
3/18/10 10:37:20	22.333	-0.010	-0.031	-0.012	-0.024	-0.012
3/18/10 10:37:30	22.500	-0.008	-0.029	-0.014	-0.021	-0.012
3/18/10 10:37:40	22.667	-0.010	-0.031	-0.014	-0.024	-0.012
3/18/10 10:37:50	22.833	-0.007	-0.031	-0.012	-0.028	-0.014
3/18/10 10:38:00	23.000	-0.010	-0.031	-0.014	-0.024	-0.012
3/18/10 10:38:10	23.167	-0.007	-0.029	-0.012	-0.019	-0.012
3/18/10 10:38:20	23.333	-0.010	-0.029	-0.017	-0.026	-0.012
3/18/10 10:38:30	23.500	-0.007	-0.031	-0.014	-0.019	-0.012
3/18/10 10:38:40	23.667	-0.010	-0.029	-0.014	-0.026	-0.012
3/18/10 10:38:50	23.833	-0.010	-0.031	-0.014	-0.021	-0.012
3/18/10 10:39:00	24.000	-0.008	-0.031	-0.014	-0.026	-0.012
3/18/10 10:39:10	24.167	-0.005	-0.031	-0.014	-0.026	-0.012

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:39:20	24.333	-0.007	-0.031	-0.012	-0.024	-0.012
3/18/10 10:39:30	24.500	-0.010	-0.031	-0.014	-0.021	-0.012
3/18/10 10:39:40	24.667	-0.007	-0.031	-0.012	-0.026	-0.012
3/18/10 10:39:50	24.833	-0.008	-0.031	-0.014	-0.024	-0.012
3/18/10 10:40:00	25.000	-0.007	-0.031	-0.014	-0.024	-0.012
3/18/10 10:40:10	25.167	-0.012	-0.034	-0.014	-0.024	-0.012
3/18/10 10:40:20	25.333	-0.010	-0.034	-0.014	-0.026	-0.012
3/18/10 10:40:30	25.500	-0.010	-0.034	-0.014	-0.028	-0.010
3/18/10 10:40:40	25.667	-0.005	-0.031	-0.014	-0.024	-0.010
3/18/10 10:40:50	25.833	-0.010	-0.034	-0.014	-0.026	-0.012
3/18/10 10:41:00	26.000	-0.010	-0.034	-0.012	-0.028	-0.012
3/18/10 10:41:10	26.167	-0.008	-0.031	-0.014	-0.021	-0.012
3/18/10 10:41:20	26.333	-0.010	-0.031	-0.012	-0.024	-0.012
3/18/10 10:41:30	26.500	-0.010	-0.029	-0.019	-0.019	-0.012
3/18/10 10:41:40	26.667	-0.010	-0.031	-0.014	-0.026	-0.012
3/18/10 10:41:50	26.833	-0.005	-0.031	-0.014	-0.024	-0.014
3/18/10 10:42:00	27.000	-0.007	-0.031	-0.014	-0.029	-0.012
3/18/10 10:42:10	27.167	-0.008	-0.034	-0.012	-0.026	-0.014
3/18/10 10:42:20	27.333	-0.010	-0.031	-0.014	-0.028	-0.012
3/18/10 10:42:30	27.500	-0.010	-0.031	-0.017	-0.026	-0.010
3/18/10 10:42:40	27.667	-0.010	-0.031	-0.014	-0.026	-0.012
3/18/10 10:42:50	27.833	-0.010	-0.034	-0.014	-0.026	-0.014
3/18/10 10:43:00	28.000	-0.010	-0.036	-0.014	-0.024	-0.014
3/18/10 10:43:10	28.167	-0.012	-0.031	-0.014	-0.024	-0.014
3/18/10 10:43:20	28.333	-0.007	-0.034	-0.014	-0.026	-0.014
3/18/10 10:43:30	28.500	-0.008	-0.034	-0.014	-0.026	-0.014
3/18/10 10:43:40	28.667	-0.007	-0.034	-0.014	-0.026	-0.014
3/18/10 10:43:50	28.833	-0.008	-0.031	-0.014	-0.026	-0.012
3/18/10 10:44:00	29.000	-0.007	-0.031	-0.014	-0.024	-0.014
3/18/10 10:44:10	29.167	-0.005	-0.034	-0.014	-0.038	-0.014
3/18/10 10:44:20	29.333	-0.008	-0.031	-0.017	-0.026	-0.014
3/18/10 10:44:30	29.500	-0.007	-0.034	-0.014	-0.026	-0.014
3/18/10 10:44:40	29.667	-0.005	-0.034	-0.017	-0.028	-0.014
3/18/10 10:44:50	29.833	-0.010	-0.031	-0.014	-0.024	-0.014
3/18/10 10:45:00	30.000	-0.010	-0.031	-0.012	-0.028	-0.014
3/18/10 10:45:10	30.167	-0.010	-0.036	-0.012	-0.028	-0.012
3/18/10 10:45:20	30.333	-0.010	-0.031	-0.014	-0.031	-0.017
3/18/10 10:45:30	30.500	-0.010	-0.031	-0.014	-0.024	-0.014
3/18/10 10:45:40	30.667	-0.007	-0.031	-0.014	-0.024	-0.012
3/18/10 10:45:50	30.833	-0.010	-0.031	-0.014	-0.033	-0.014
3/18/10 10:46:00	31.000	-0.005	-0.036	-0.014	-0.024	-0.012
3/18/10 10:46:10	31.167	-0.010	-0.034	-0.014	-0.029	-0.014
3/18/10 10:46:20	31.333	-0.010	-0.034	-0.014	-0.026	-0.014
3/18/10 10:46:30	31.500	-0.012	-0.034	-0.012	-0.024	-0.012
3/18/10 10:46:40	31.667	-0.010	-0.034	-0.012	-0.026	-0.014
3/18/10 10:46:50	31.833	-0.008	-0.031	-0.014	-0.024	-0.014
3/18/10 10:47:00	32.000	-0.005	-0.034	-0.014	-0.024	-0.012
3/18/10 10:47:10	32.167	-0.010	-0.031	-0.017	-0.028	-0.012
3/18/10 10:47:20	32.333	-0.007	-0.034	-0.014	-0.026	-0.012

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:47:30	32.500	-0.010	-0.034	-0.014	-0.028	-0.012
3/18/10 10:47:40	32.667	-0.007	-0.034	-0.014	-0.028	-0.012
3/18/10 10:47:50	32.833	-0.008	-0.034	-0.014	-0.028	-0.014
3/18/10 10:48:00	33.000	-0.010	-0.034	-0.012	-0.028	-0.017
3/18/10 10:48:10	33.167	-0.007	-0.034	-0.014	-0.026	-0.014
3/18/10 10:48:20	33.333	-0.008	-0.031	-0.014	-0.031	-0.012
3/18/10 10:48:30	33.500	-0.007	-0.031	-0.014	-0.028	-0.014
3/18/10 10:48:40	33.667	-0.010	-0.034	-0.014	-0.031	-0.012
3/18/10 10:48:50	33.833	-0.007	-0.034	-0.014	-0.031	-0.014
3/18/10 10:49:00	34.000	-0.010	-0.031	-0.014	-0.028	-0.014
3/18/10 10:49:10	34.167	-0.010	-0.036	-0.014	-0.024	-0.014
3/18/10 10:49:20	34.333	-0.007	-0.031	-0.012	-0.028	-0.014
3/18/10 10:49:30	34.500	-0.007	-0.034	-0.014	-0.026	-0.014
3/18/10 10:49:40	34.667	-0.007	-0.034	-0.014	-0.028	-0.014
3/18/10 10:49:50	34.833	-0.008	-0.034	-0.014	-0.026	-0.014
3/18/10 10:50:00	35.000	-0.010	-0.036	-0.014	-0.031	-0.014
3/18/10 10:50:10	35.167	-0.010	-0.034	-0.014	-0.026	-0.014
3/18/10 10:50:20	35.333	-0.010	-0.031	-0.014	-0.026	-0.014
3/18/10 10:50:30	35.500	-0.012	-0.036	-0.017	-0.026	-0.014
3/18/10 10:50:40	35.667	-0.008	-0.036	-0.017	-0.031	-0.014
3/18/10 10:50:50	35.833	-0.010	-0.034	-0.014	-0.026	-0.014
3/18/10 10:51:00	36.000	-0.010	-0.034	-0.014	-0.028	-0.014
3/18/10 10:51:10	36.167	-0.007	-0.036	-0.017	-0.026	-0.014
3/18/10 10:51:20	36.333	-0.008	-0.034	-0.014	-0.028	-0.014
3/18/10 10:51:30	36.500	-0.007	-0.034	-0.014	-0.031	-0.014
3/18/10 10:51:40	36.667	-0.008	-0.034	-0.017	-0.031	-0.014
3/18/10 10:51:50	36.833	-0.005	-0.034	-0.017	-0.021	-0.014
3/18/10 10:52:00	37.000	-0.007	-0.034	-0.014	-0.026	-0.014
3/18/10 10:52:10	37.167	-0.007	-0.034	-0.014	-0.028	-0.014
3/18/10 10:52:20	37.333	-0.012	-0.034	-0.014	-0.026	-0.014
3/18/10 10:52:30	37.500	-0.010	-0.036	-0.017	-0.028	-0.014
3/18/10 10:52:40	37.667	-0.010	-0.036	-0.014	-0.028	-0.014
3/18/10 10:52:50	37.833	-0.007	-0.034	-0.017	-0.026	-0.014
3/18/10 10:53:00	38.000	-0.007	-0.036	-0.014	-0.028	-0.014
3/18/10 10:53:10	38.167	-0.010	-0.036	-0.017	-0.031	-0.012
3/18/10 10:53:20	38.333	-0.008	-0.034	-0.014	-0.026	-0.014
3/18/10 10:53:30	38.500	-0.010	-0.034	-0.014	-0.028	-0.014
3/18/10 10:53:40	38.667	-0.010	-0.034	-0.014	-0.026	-0.014
3/18/10 10:53:50	38.833	-0.010	-0.036	-0.014	-0.028	-0.014
3/18/10 10:54:00	39.000	-0.010	-0.034	-0.014	-0.026	-0.012
3/18/10 10:54:10	39.167	-0.010	-0.034	-0.019	-0.028	-0.012
3/18/10 10:54:20	39.333	-0.010	-0.036	-0.017	-0.028	-0.014
3/18/10 10:54:30	39.500	-0.012	-0.036	-0.014	-0.026	-0.014
3/18/10 10:54:40	39.667	-0.010	-0.034	-0.017	-0.033	-0.014
3/18/10 10:54:50	39.833	-0.010	-0.036	-0.017	-0.024	-0.012
3/18/10 10:55:00	40.000	-0.010	-0.036	-0.017	-0.026	-0.012
3/18/10 10:55:10	40.167	-0.010	-0.036	-0.017	-0.028	-0.014
3/18/10 10:55:20	40.333	-0.010	-0.038	-0.017	-0.028	-0.014
3/18/10 10:55:30	40.500	-0.010	-0.036	-0.017	-0.031	-0.012

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 10:55:40	40.667	-0.007	-0.036	-0.014	-0.033	-0.014
3/18/10 10:55:50	40.833	-0.012	-0.036	-0.017	-0.028	-0.014
3/18/10 10:56:00	41.000	-0.010	-0.034	-0.017	-0.035	-0.014
3/18/10 10:56:10	41.167	-0.010	-0.038	-0.017	-0.028	-0.014
3/18/10 10:56:20	41.333	-0.010	-0.041	-0.017	-0.026	-0.017
3/18/10 10:56:30	41.500	-0.015	-0.036	-0.017	-0.028	-0.017
3/18/10 10:56:40	41.667	-0.012	-0.034	-0.014	-0.033	-0.014
3/18/10 10:56:50	41.833	-0.010	-0.036	-0.014	-0.031	-0.014
3/18/10 10:57:00	42.000	-0.012	-0.036	-0.019	-0.029	-0.012
3/18/10 10:57:10	42.167	-0.008	-0.041	-0.014	-0.028	-0.014
3/18/10 10:57:20	42.333	-0.008	-0.036	-0.014	-0.028	-0.012
3/18/10 10:57:30	42.500	-0.008	-0.036	-0.017	-0.026	-0.014
3/18/10 10:57:40	42.667	-0.012	-0.036	-0.017	-0.028	-0.017
3/18/10 10:57:50	42.833	-0.010	-0.034	-0.017	-0.028	-0.017
3/18/10 10:58:00	43.000	-0.007	-0.038	-0.014	-0.028	-0.014
3/18/10 10:58:10	43.167	-0.015	-0.036	-0.019	-0.031	-0.014
3/18/10 10:58:20	43.333	-0.008	-0.036	-0.017	-0.028	-0.014
3/18/10 10:58:30	43.500	-0.012	-0.036	-0.017	-0.028	-0.014
3/18/10 10:58:40	43.667	-0.007	-0.036	-0.017	-0.026	-0.012
3/18/10 10:58:50	43.833	-0.007	-0.036	-0.014	-0.031	-0.014
3/18/10 10:59:00	44.000	-0.010	-0.036	-0.017	-0.033	-0.017
3/18/10 10:59:10	44.167	-0.007	-0.038	-0.014	-0.028	-0.014
3/18/10 10:59:20	44.333	-0.010	-0.038	-0.017	-0.031	-0.017
3/18/10 10:59:30	44.500	-0.010	-0.036	-0.017	-0.031	-0.017
3/18/10 10:59:40	44.667	-0.010	-0.038	-0.014	-0.031	-0.017
3/18/10 10:59:50	44.833	-0.010	-0.038	-0.017	-0.031	-0.014
3/18/10 11:00:00	45.000	-0.008	-0.036	-0.017	-0.033	-0.017
3/18/10 11:00:10	45.167	-0.010	-0.036	-0.014	-0.028	-0.012
3/18/10 11:00:20	45.333	-0.010	-0.036	-0.017	-0.033	-0.017
3/18/10 11:00:30	45.500	-0.010	-0.036	-0.014	-0.026	-0.014
3/18/10 11:00:40	45.667	-0.010	-0.038	-0.014	-0.031	-0.017
3/18/10 11:00:50	45.833	-0.010	-0.038	-0.019	-0.033	-0.014
3/18/10 11:01:00	46.000	-0.012	-0.036	-0.017	-0.033	-0.014
3/18/10 11:01:10	46.167	-0.010	-0.036	-0.019	-0.031	-0.014
3/18/10 11:01:20	46.333	-0.010	-0.038	-0.017	-0.033	-0.014
3/18/10 11:01:30	46.500	-0.010	-0.038	-0.014	-0.033	-0.014
3/18/10 11:01:40	46.667	-0.010	-0.034	-0.017	-0.026	-0.017
3/18/10 11:01:50	46.833	0.000	-0.034	-0.017	-0.031	-0.017
3/18/10 11:02:00	47.000	-0.010	-0.038	-0.017	-0.026	-0.014
3/18/10 11:02:10	47.167	-0.010	-0.036	-0.014	-0.029	-0.014
3/18/10 11:02:20	47.333	-0.007	-0.036	-0.014	-0.033	-0.014
3/18/10 11:02:30	47.500	-0.012	-0.036	-0.017	-0.028	-0.014
3/18/10 11:02:40	47.667	-0.010	-0.034	-0.017	-0.033	-0.017
3/18/10 11:02:50	47.833	-0.007	-0.034	-0.017	-0.028	-0.014
3/18/10 11:03:00	48.000	-0.008	-0.038	-0.019	-0.033	-0.014
3/18/10 11:03:10	48.167	-0.010	-0.038	-0.017	-0.031	-0.014
3/18/10 11:03:20	48.333	-0.010	-0.031	-0.019	-0.033	-0.014
3/18/10 11:03:30	48.500	-0.005	-0.036	-0.017	-0.026	-0.014
3/18/10 11:03:40	48.667	-0.010	-0.038	-0.017	-0.031	-0.014

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 11:03:50	48.833	-0.007	-0.038	-0.017	-0.026	-0.014
3/18/10 11:04:00	49.000	-0.007	-0.038	-0.017	-0.026	-0.014
3/18/10 11:04:10	49.167	-0.007	-0.038	-0.017	-0.031	-0.017
3/18/10 11:04:20	49.333	-0.008	-0.034	-0.017	-0.031	-0.012
3/18/10 11:04:30	49.500	-0.010	-0.036	-0.017	-0.026	-0.012
3/18/10 11:04:40	49.667	-0.007	-0.034	-0.017	-0.026	-0.014
3/18/10 11:04:50	49.833	-0.007	-0.038	-0.017	-0.033	-0.014
3/18/10 11:05:00	50.000	-0.008	-0.036	-0.019	-0.026	-0.014
3/18/10 11:05:10	50.167	-0.007	-0.036	-0.017	-0.028	-0.012
3/18/10 11:05:20	50.333	-0.008	-0.038	-0.017	-0.031	-0.014
3/18/10 11:05:30	50.500	-0.008	-0.036	-0.019	-0.024	-0.014
3/18/10 11:05:40	50.667	-0.005	-0.036	-0.012	-0.031	-0.014
3/18/10 11:05:50	50.833	-0.005	-0.036	-0.017	-0.031	-0.014
3/18/10 11:06:00	51.000	-0.003	-0.034	-0.017	-0.033	-0.014
3/18/10 11:06:10	51.167	-0.005	-0.036	-0.017	-0.026	-0.014
3/18/10 11:06:20	51.333	-0.005	-0.034	-0.017	-0.028	-0.012
3/18/10 11:06:30	51.500	-0.007	-0.038	-0.017	-0.026	-0.014
3/18/10 11:06:40	51.667	-0.007	-0.036	-0.017	-0.031	-0.014
3/18/10 11:06:50	51.833	-0.010	-0.036	-0.017	-0.028	-0.014
3/18/10 11:07:00	52.000	-0.008	-0.036	-0.017	-0.028	-0.014
3/18/10 11:07:10	52.167	-0.010	-0.036	-0.014	-0.028	-0.014
3/18/10 11:07:20	52.333	-0.007	-0.038	-0.017	-0.028	-0.014
3/18/10 11:07:30	52.500	-0.007	-0.038	-0.014	-0.031	-0.014
3/18/10 11:07:40	52.667	-0.010	-0.041	-0.017	-0.031	-0.014
3/18/10 11:07:50	52.833	-0.008	-0.038	-0.017	-0.031	-0.014
3/18/10 11:08:00	53.000	-0.008	-0.038	-0.017	-0.035	-0.014
3/18/10 11:08:10	53.167	-0.010	-0.036	-0.017	-0.031	-0.017
3/18/10 11:08:20	53.333	-0.010	-0.038	-0.017	-0.026	-0.014
3/18/10 11:08:30	53.500	-0.007	-0.038	-0.017	-0.028	-0.017
3/18/10 11:08:40	53.667	-0.005	-0.038	-0.019	-0.031	-0.012
3/18/10 11:08:50	53.833	-0.007	-0.036	-0.017	-0.028	-0.014
3/18/10 11:09:00	54.000	-0.008	-0.038	-0.014	-0.033	-0.014
3/18/10 11:09:10	54.167	-0.007	-0.038	-0.019	-0.033	-0.014
3/18/10 11:09:20	54.333	-0.008	-0.036	-0.019	-0.033	-0.014
3/18/10 11:09:30	54.500	-0.008	-0.036	-0.017	-0.031	-0.014
3/18/10 11:09:40	54.667	0.000	-0.038	-0.019	-0.028	-0.014
3/18/10 11:09:50	54.833	-0.007	-0.038	-0.017	-0.038	-0.017
3/18/10 11:10:00	55.000	-0.010	-0.038	-0.017	-0.033	-0.017
3/18/10 11:10:10	55.167	-0.008	-0.038	-0.014	-0.026	-0.014
3/18/10 11:10:20	55.333	-0.010	-0.038	-0.017	-0.038	-0.014
3/18/10 11:10:30	55.500	-0.007	-0.038	-0.017	-0.028	-0.014
3/18/10 11:10:40	55.667	-0.005	-0.038	-0.019	-0.028	-0.017
3/18/10 11:10:50	55.833	-0.007	-0.038	-0.017	-0.036	-0.014
3/18/10 11:11:00	56.000	-0.005	-0.041	-0.014	-0.036	-0.014
3/18/10 11:11:10	56.167	-0.007	-0.038	-0.019	-0.031	-0.014
3/18/10 11:11:20	56.333	-0.007	-0.038	-0.019	-0.028	-0.017
3/18/10 11:11:30	56.500	-0.007	-0.038	-0.019	-0.036	-0.014
3/18/10 11:11:40	56.667	-0.007	-0.041	-0.017	-0.031	-0.017
3/18/10 11:11:50	56.833	-0.008	-0.043	-0.017	-0.035	-0.014

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 11:12:00	57.000	-0.007	-0.041	-0.017	-0.033	-0.014
3/18/10 11:12:10	57.167	-0.010	-0.038	-0.019	-0.031	-0.017
3/18/10 11:12:20	57.333	-0.008	-0.038	-0.019	-0.031	-0.014
3/18/10 11:12:30	57.500	-0.010	-0.038	-0.017	-0.031	-0.014
3/18/10 11:12:40	57.667	-0.008	-0.038	-0.019	-0.031	-0.012
3/18/10 11:12:50	57.833	-0.005	-0.041	-0.019	-0.028	-0.017
3/18/10 11:13:00	58.000	-0.010	-0.038	-0.017	-0.033	-0.014
3/18/10 11:13:10	58.167	-0.008	-0.038	-0.017	-0.033	-0.014
3/18/10 11:13:20	58.333	-0.008	-0.038	-0.017	-0.033	-0.014
3/18/10 11:13:30	58.500	-0.005	-0.041	-0.019	-0.035	-0.014
3/18/10 11:13:40	58.667	-0.010	-0.041	-0.017	-0.033	-0.014
3/18/10 11:13:50	58.833	-0.005	-0.038	-0.017	-0.035	-0.017
3/18/10 11:14:00	59.000	-0.008	-0.038	-0.017	-0.035	-0.014
3/18/10 11:14:10	59.167	-0.003	-0.043	-0.017	-0.031	-0.014
3/18/10 11:14:20	59.333	-0.008	-0.038	-0.019	-0.028	-0.017
3/18/10 11:14:30	59.500	-0.010	-0.038	-0.017	-0.033	-0.014
3/18/10 11:14:40	59.667	-0.010	-0.041	-0.017	-0.033	-0.014
3/18/10 11:14:50	59.833	-0.008	-0.038	-0.019	-0.031	-0.014
3/18/10 11:15:00	60.000	-0.008	-0.038	-0.019	-0.031	-0.014
3/18/10 11:15:10	60.167	-0.010	-0.041	-0.017	-0.028	-0.017
3/18/10 11:15:20	60.333	-0.007	-0.041	-0.017	-0.035	-0.017
3/18/10 11:15:30	60.500	-0.005	-0.038	-0.017	-0.033	-0.014
3/18/10 11:15:40	60.667	-0.008	-0.038	-0.019	-0.035	-0.014
3/18/10 11:15:50	60.833	-0.008	-0.041	-0.019	-0.031	-0.014
3/18/10 11:16:00	61.000	-0.008	-0.038	-0.017	-0.028	-0.014
3/18/10 11:16:10	61.167	-0.008	-0.038	-0.019	-0.033	-0.014
3/18/10 11:16:20	61.333	-0.008	-0.041	-0.017	-0.033	-0.014
3/18/10 11:16:30	61.500	-0.005	-0.038	-0.019	-0.031	-0.014
3/18/10 11:16:40	61.667	-0.005	-0.038	-0.014	-0.029	-0.017
3/18/10 11:16:50	61.833	-0.005	-0.038	-0.019	-0.035	-0.014
3/18/10 11:17:00	62.000	-0.008	-0.038	-0.017	-0.031	-0.014
3/18/10 11:17:10	62.167	-0.007	-0.041	-0.017	-0.033	-0.014
3/18/10 11:17:20	62.333	-0.010	-0.041	-0.021	-0.031	-0.014
3/18/10 11:17:30	62.500	-0.005	-0.041	-0.019	-0.031	-0.017
3/18/10 11:17:40	62.667	-0.005	-0.041	-0.017	-0.031	-0.014
3/18/10 11:17:50	62.833	-0.010	-0.041	-0.019	-0.033	-0.017
3/18/10 11:18:00	63.000	-0.005	-0.041	-0.019	-0.031	-0.014
3/18/10 11:18:10	63.167	-0.008	-0.038	-0.019	-0.031	-0.014
3/18/10 11:18:20	63.333	-0.008	-0.041	-0.017	-0.033	-0.014
3/18/10 11:18:30	63.500	-0.010	-0.038	-0.019	-0.028	-0.014
3/18/10 11:18:40	63.667	-0.008	-0.038	-0.017	-0.036	-0.014
3/18/10 11:18:50	63.833	-0.007	-0.043	-0.017	-0.035	-0.014
3/18/10 11:19:00	64.000	-0.008	-0.043	-0.017	-0.026	-0.014
3/18/10 11:19:10	64.167	-0.007	-0.036	-0.017	-0.031	-0.017
3/18/10 11:19:20	64.333	-0.008	-0.041	-0.017	-0.035	-0.014
3/18/10 11:19:30	64.500	-0.010	-0.041	-0.019	-0.040	-0.014
3/18/10 11:19:40	64.667	-0.008	-0.041	-0.019	-0.036	-0.017
3/18/10 11:19:50	64.833	-0.008	-0.041	-0.017	-0.031	-0.017
3/18/10 11:20:00	65.000	-0.010	-0.041	-0.019	-0.031	-0.014

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 11:20:10	65.167	-0.007	-0.038	-0.017	-0.029	-0.014
3/18/10 11:20:20	65.333	-0.005	-0.041	-0.019	-0.040	-0.014
3/18/10 11:20:30	65.500	-0.007	-0.041	-0.019	-0.033	-0.017
3/18/10 11:20:40	65.667	-0.008	-0.043	-0.017	-0.024	-0.017
3/18/10 11:20:50	65.833	-0.008	-0.041	-0.017	-0.033	-0.014
3/18/10 11:21:00	66.000	-0.005	-0.041	-0.017	-0.033	-0.014
3/18/10 11:21:10	66.167	-0.005	-0.038	-0.019	-0.031	-0.014
3/18/10 11:21:20	66.333	-0.003	-0.038	-0.019	-0.036	-0.014
3/18/10 11:21:30	66.500	-0.005	-0.041	-0.019	-0.033	-0.014
3/18/10 11:21:40	66.667	-0.005	-0.041	-0.017	-0.033	-0.014
3/18/10 11:21:50	66.833	-0.005	-0.041	-0.019	-0.033	-0.014
3/18/10 11:22:00	67.000	-0.005	-0.038	-0.019	-0.029	-0.014
3/18/10 11:22:10	67.167	-0.007	-0.038	-0.017	-0.036	-0.014
3/18/10 11:22:20	67.333	-0.005	-0.038	-0.019	-0.028	-0.014
3/18/10 11:22:30	67.500	-0.005	-0.038	-0.017	-0.033	-0.014
3/18/10 11:22:40	67.667	-0.008	-0.041	-0.019	-0.038	-0.014
3/18/10 11:22:50	67.833	-0.005	-0.038	-0.017	-0.031	-0.014
3/18/10 11:23:00	68.000	-0.005	-0.041	-0.019	-0.031	-0.014
3/18/10 11:23:10	68.167	-0.005	-0.041	-0.017	-0.033	-0.014
3/18/10 11:23:20	68.333	-0.003	-0.041	-0.019	-0.026	-0.012
3/18/10 11:23:30	68.500	-0.005	-0.038	-0.019	-0.031	-0.017
3/18/10 11:23:40	68.667	-0.005	-0.041	-0.019	-0.026	-0.014
3/18/10 11:23:50	68.833	-0.003	-0.041	-0.017	-0.033	-0.014
3/18/10 11:24:00	69.000	-0.005	-0.038	-0.019	-0.033	-0.014
3/18/10 11:24:10	69.167	-0.005	-0.038	-0.019	-0.033	-0.014
3/18/10 11:24:20	69.333	-0.005	-0.038	-0.019	-0.033	-0.014
3/18/10 11:24:30	69.500	-0.007	-0.041	-0.019	-0.031	-0.012
3/18/10 11:24:40	69.667	-0.008	-0.043	-0.017	-0.033	-0.012
3/18/10 11:24:50	69.833	-0.008	-0.038	-0.021	-0.033	-0.014
3/18/10 11:25:00	70.000	-0.008	-0.038	-0.019	-0.033	-0.014
3/18/10 11:25:10	70.167	-0.007	-0.041	-0.019	-0.038	-0.014
3/18/10 11:25:20	70.333	-0.005	-0.043	-0.019	-0.033	-0.014
3/18/10 11:25:30	70.500	-0.005	-0.041	-0.021	-0.028	-0.014
3/18/10 11:25:40	70.667	-0.005	-0.038	-0.019	-0.033	-0.014
3/18/10 11:25:50	70.833	-0.008	-0.041	-0.019	-0.038	-0.014
3/18/10 11:26:00	71.000	-0.008	-0.041	-0.019	-0.035	-0.014
3/18/10 11:26:10	71.167	-0.005	-0.041	-0.019	-0.028	-0.014
3/18/10 11:26:20	71.333	-0.010	-0.041	-0.021	-0.038	-0.014
3/18/10 11:26:30	71.500	-0.005	-0.041	-0.021	-0.038	-0.014
3/18/10 11:26:40	71.667	-0.008	-0.043	-0.019	-0.031	-0.017
3/18/10 11:26:50	71.833	-0.007	-0.045	-0.019	-0.031	-0.017
3/18/10 11:27:00	72.000	-0.005	-0.041	-0.019	-0.035	-0.014
3/18/10 11:27:10	72.167	-0.007	-0.043	-0.017	-0.033	-0.014
3/18/10 11:27:20	72.333	-0.008	-0.041	-0.021	-0.038	-0.014
3/18/10 11:27:30	72.500	-0.007	-0.041	-0.019	-0.033	-0.017
3/18/10 11:27:40	72.667	-0.010	-0.041	-0.019	-0.033	-0.017
3/18/10 11:27:50	72.833	-0.010	-0.043	-0.019	-0.035	-0.017
3/18/10 11:28:00	73.000	-0.010	-0.041	-0.019	-0.033	-0.017
3/18/10 11:28:10	73.167	-0.008	-0.041	-0.021	-0.038	-0.014

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 11:28:20	73.333	-0.007	-0.041	-0.019	-0.038	-0.014
3/18/10 11:28:30	73.500	-0.010	-0.043	-0.019	-0.031	-0.017
3/18/10 11:28:40	73.667	-0.005	-0.041	-0.021	-0.035	-0.017
3/18/10 11:28:50	73.833	-0.010	-0.045	-0.019	-0.028	-0.017
3/18/10 11:29:00	74.000	-0.005	-0.041	-0.019	-0.038	-0.017
3/18/10 11:29:10	74.167	-0.007	-0.043	-0.019	-0.033	-0.014
3/18/10 11:29:20	74.333	-0.005	-0.043	-0.019	-0.038	-0.017
3/18/10 11:29:30	74.500	-0.007	-0.041	-0.019	-0.028	-0.017
3/18/10 11:29:40	74.667	-0.008	-0.041	-0.021	-0.038	-0.017
3/18/10 11:29:50	74.833	-0.010	-0.041	-0.021	-0.033	-0.017
3/18/10 11:30:00	75.000	-0.005	-0.043	-0.019	-0.035	-0.017
3/18/10 11:30:10	75.167	-0.005	-0.043	-0.021	-0.033	-0.017
3/18/10 11:30:20	75.333	-0.008	-0.043	-0.019	-0.033	-0.017
3/18/10 11:30:30	75.500	-0.010	-0.041	-0.019	-0.033	-0.017
3/18/10 11:30:40	75.667	-0.007	-0.043	-0.019	-0.035	-0.017
3/18/10 11:30:50	75.833	-0.007	-0.043	-0.019	-0.035	-0.014
3/18/10 11:31:00	76.000	-0.008	-0.043	-0.019	-0.035	-0.017
3/18/10 11:31:10	76.167	-0.005	-0.043	-0.019	-0.033	-0.017
3/18/10 11:31:20	76.333	-0.005	-0.041	-0.021	-0.040	-0.019
3/18/10 11:31:30	76.500	-0.008	-0.045	-0.019	-0.049	-0.019
3/18/10 11:31:40	76.667	-0.007	-0.043	-0.019	-0.035	-0.017
3/18/10 11:31:50	76.833	-0.008	-0.045	-0.019	-0.035	-0.017
3/18/10 11:32:00	77.000	-0.010	-0.045	-0.021	-0.040	-0.019
3/18/10 11:32:10	77.167	-0.010	-0.043	-0.019	-0.036	-0.019
3/18/10 11:32:20	77.333	-0.010	-0.043	-0.021	-0.040	-0.017
3/18/10 11:32:30	77.500	-0.007	-0.045	-0.019	-0.040	-0.017
3/18/10 11:32:40	77.667	-0.007	-0.043	-0.021	-0.038	-0.019
3/18/10 11:32:50	77.833	-0.010	-0.045	-0.021	-0.038	-0.019
3/18/10 11:33:00	78.000	-0.010	-0.045	-0.019	-0.033	-0.017
3/18/10 11:33:10	78.167	-0.005	-0.043	-0.021	-0.040	-0.017
3/18/10 11:33:20	78.333	-0.008	-0.045	-0.019	-0.035	-0.019
3/18/10 11:33:30	78.500	-0.010	-0.045	-0.021	-0.038	-0.019
3/18/10 11:33:40	78.667	-0.007	-0.045	-0.019	-0.038	-0.019
3/18/10 11:33:50	78.833	-0.012	-0.045	-0.019	-0.038	-0.017
3/18/10 11:34:00	79.000	-0.010	-0.045	-0.019	-0.038	-0.019
3/18/10 11:34:10	79.167	-0.008	-0.043	-0.021	-0.035	-0.017
3/18/10 11:34:20	79.333	-0.008	-0.045	-0.019	-0.038	-0.019
3/18/10 11:34:30	79.500	-0.012	-0.043	-0.019	-0.038	-0.017
3/18/10 11:34:40	79.667	-0.010	-0.043	-0.019	-0.040	-0.019
3/18/10 11:34:50	79.833	-0.005	-0.045	-0.019	-0.038	-0.019
3/18/10 11:35:00	80.000	-0.010	-0.043	-0.019	-0.040	-0.017
3/18/10 11:35:10	80.167	-0.010	-0.045	-0.019	-0.040	-0.017
3/18/10 11:35:20	80.333	-0.007	-0.043	-0.021	-0.042	-0.017
3/18/10 11:35:30	80.500	-0.010	-0.045	-0.021	-0.035	-0.017
3/18/10 11:35:40	80.667	-0.008	-0.048	-0.021	-0.042	-0.017
3/18/10 11:35:50	80.833	-0.010	-0.048	-0.021	-0.038	-0.019
3/18/10 11:36:00	81.000	-0.010	-0.045	-0.021	-0.042	-0.019
3/18/10 11:36:10	81.167	-0.010	-0.045	-0.021	-0.040	-0.019
3/18/10 11:36:20	81.333	-0.007	-0.048	-0.019	-0.040	-0.017

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 11:36:30	81.500	-0.010	-0.045	-0.019	-0.038	-0.019
3/18/10 11:36:40	81.667	-0.012	-0.048	-0.019	-0.042	-0.019
3/18/10 11:36:50	81.833	-0.010	-0.045	-0.024	-0.040	-0.019
3/18/10 11:37:00	82.000	-0.010	-0.048	-0.021	-0.040	-0.019
3/18/10 11:37:10	82.167	-0.008	-0.045	-0.019	-0.038	-0.019
3/18/10 11:37:20	82.333	-0.007	-0.048	-0.021	-0.042	-0.019
3/18/10 11:37:30	82.500	-0.010	-0.048	-0.021	-0.038	-0.019
3/18/10 11:37:40	82.667	-0.007	-0.048	-0.021	-0.040	-0.019
3/18/10 11:37:50	82.833	-0.005	-0.045	-0.024	-0.040	-0.019
3/18/10 11:38:00	83.000	-0.008	-0.045	-0.021	-0.042	-0.019
3/18/10 11:38:10	83.167	-0.012	-0.048	-0.021	-0.035	-0.019
3/18/10 11:38:20	83.333	-0.010	-0.045	-0.019	-0.038	-0.019
3/18/10 11:38:30	83.500	-0.010	-0.048	-0.021	-0.035	-0.019
3/18/10 11:38:40	83.667	-0.008	-0.048	-0.019	-0.038	-0.019
3/18/10 11:38:50	83.833	-0.010	-0.048	-0.019	-0.038	-0.019
3/18/10 11:39:00	84.000	-0.010	-0.048	-0.021	-0.042	-0.019
3/18/10 11:39:10	84.167	-0.007	-0.045	-0.019	-0.035	-0.019
3/18/10 11:39:20	84.333	-0.010	-0.048	-0.021	-0.038	-0.019
3/18/10 11:39:30	84.500	-0.012	-0.048	-0.019	-0.038	-0.019
3/18/10 11:39:40	84.667	-0.007	-0.050	-0.024	-0.040	-0.021
3/18/10 11:39:50	84.833	-0.010	-0.048	-0.021	-0.038	-0.019
3/18/10 11:40:00	85.000	-0.012	-0.048	-0.021	-0.040	-0.019
3/18/10 11:40:10	85.167	-0.010	-0.048	-0.021	-0.040	-0.019
3/18/10 11:40:20	85.333	-0.010	-0.045	-0.019	-0.040	-0.019
3/18/10 11:40:30	85.500	-0.010	-0.048	-0.021	-0.045	-0.019
3/18/10 11:40:40	85.667	-0.010	-0.048	-0.021	-0.038	-0.019
3/18/10 11:40:50	85.833	-0.010	-0.048	-0.021	-0.042	-0.021
3/18/10 11:41:00	86.000	-0.008	-0.050	-0.019	-0.040	-0.021
3/18/10 11:41:10	86.167	-0.008	-0.048	-0.021	-0.038	-0.019
3/18/10 11:41:20	86.333	-0.012	-0.048	-0.019	-0.040	-0.019
3/18/10 11:41:30	86.500	-0.007	-0.048	-0.021	-0.042	-0.019
3/18/10 11:41:40	86.667	-0.012	-0.048	-0.021	-0.040	-0.019
3/18/10 11:41:50	86.833	-0.012	-0.048	-0.019	-0.038	-0.021
3/18/10 11:42:00	87.000	-0.010	-0.048	-0.021	-0.047	-0.021
3/18/10 11:42:10	87.167	-0.012	-0.048	-0.021	-0.042	-0.019
3/18/10 11:42:20	87.333	-0.010	-0.048	-0.021	-0.040	-0.019
3/18/10 11:42:30	87.500	-0.012	-0.048	-0.024	-0.040	-0.019
3/18/10 11:42:40	87.667	-0.012	-0.048	-0.021	-0.045	-0.019
3/18/10 11:42:50	87.833	-0.012	-0.048	-0.021	-0.042	-0.019
3/18/10 11:43:00	88.000	-0.010	-0.048	-0.021	-0.042	-0.019
3/18/10 11:43:10	88.167	-0.010	-0.048	-0.021	-0.042	-0.017
3/18/10 11:43:20	88.333	-0.010	-0.050	-0.021	-0.040	-0.019
3/18/10 11:43:30	88.500	-0.010	-0.048	-0.021	-0.040	-0.019
3/18/10 11:43:40	88.667	-0.010	-0.048	-0.024	-0.040	-0.019
3/18/10 11:43:50	88.833	-0.010	-0.048	-0.021	-0.038	-0.019
3/18/10 11:44:00	89.000	-0.010	-0.045	-0.019	-0.045	-0.021
3/18/10 11:44:10	89.167	-0.007	-0.048	-0.021	-0.040	-0.019
3/18/10 11:44:20	89.333	-0.012	-0.050	-0.021	-0.040	-0.021
3/18/10 11:44:30	89.500	-0.008	-0.050	-0.021	-0.040	-0.019

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 11:44:40	89.667	-0.010	-0.048	-0.021	-0.040	-0.019
3/18/10 11:44:50	89.833	-0.008	-0.050	-0.021	-0.042	-0.019
3/18/10 11:45:00	90.000	-0.010	-0.050	-0.021	-0.031	-0.019
3/18/10 11:45:10	90.167	-0.010	-0.048	-0.021	-0.035	-0.019
3/18/10 11:45:20	90.333	-0.010	-0.048	-0.021	-0.038	-0.019
3/18/10 11:45:30	90.500	-0.007	-0.048	-0.021	-0.042	-0.021
3/18/10 11:45:40	90.667	-0.012	-0.048	-0.021	-0.040	-0.019
3/18/10 11:45:50	90.833	-0.010	-0.048	-0.021	-0.040	-0.021
3/18/10 11:46:00	91.000	-0.012	-0.048	-0.021	-0.038	-0.019
3/18/10 11:46:10	91.167	-0.012	-0.050	-0.021	-0.042	-0.019
3/18/10 11:46:20	91.333	-0.012	-0.050	-0.021	-0.045	-0.019
3/18/10 11:46:30	91.500	-0.010	-0.050	-0.019	-0.042	-0.019
3/18/10 11:46:40	91.667	-0.010	-0.048	-0.021	-0.045	-0.019
3/18/10 11:46:50	91.833	-0.010	-0.050	-0.021	-0.042	-0.019
3/18/10 11:47:00	92.000	-0.010	-0.052	-0.021	-0.045	-0.019
3/18/10 11:47:10	92.167	-0.010	-0.050	-0.024	-0.045	-0.019
3/18/10 11:47:20	92.333	-0.010	-0.048	-0.024	-0.045	-0.021
3/18/10 11:47:30	92.500	-0.007	-0.052	-0.021	-0.045	-0.024
3/18/10 11:47:40	92.667	-0.012	-0.052	-0.021	-0.045	-0.021
3/18/10 11:47:50	92.833	-0.007	-0.052	-0.024	-0.040	-0.021
3/18/10 11:48:00	93.000	-0.012	-0.052	-0.021	-0.040	-0.021
3/18/10 11:48:10	93.167	-0.012	-0.055	-0.024	-0.047	-0.019
3/18/10 11:48:20	93.333	-0.012	-0.052	-0.024	-0.047	-0.024
3/18/10 11:48:30	93.500	-0.012	-0.050	-0.024	-0.043	-0.021
3/18/10 11:48:40	93.667	-0.010	-0.052	-0.021	-0.042	-0.021
3/18/10 11:48:50	93.833	-0.012	-0.050	-0.021	-0.045	-0.021
3/18/10 11:49:00	94.000	-0.012	-0.052	-0.021	-0.042	-0.021
3/18/10 11:49:10	94.167	-0.010	-0.050	-0.024	-0.045	-0.021
3/18/10 11:49:20	94.333	-0.010	-0.050	-0.024	-0.045	-0.021
3/18/10 11:49:30	94.500	-0.010	-0.052	-0.017	-0.045	-0.021
3/18/10 11:49:40	94.667	-0.015	-0.050	-0.024	-0.045	-0.021
3/18/10 11:49:50	94.833	-0.012	-0.052	-0.021	-0.042	-0.021
3/18/10 11:50:00	95.000	-0.012	-0.052	-0.024	-0.045	-0.021
3/18/10 11:50:10	95.167	-0.010	-0.050	-0.021	-0.042	-0.021
3/18/10 11:50:20	95.333	-0.012	-0.050	-0.021	-0.040	-0.021
3/18/10 11:50:30	95.500	-0.012	-0.052	-0.024	-0.040	-0.021
3/18/10 11:50:40	95.667	-0.010	-0.050	-0.021	-0.047	-0.021
3/18/10 11:50:50	95.833	-0.012	-0.052	-0.019	-0.040	-0.021
3/18/10 11:51:00	96.000	-0.012	-0.050	-0.024	-0.042	-0.021
3/18/10 11:51:10	96.167	-0.015	-0.052	-0.019	-0.043	-0.021
3/18/10 11:51:20	96.333	-0.012	-0.052	-0.021	-0.045	-0.021
3/18/10 11:51:30	96.500	-0.012	-0.052	-0.021	-0.042	-0.021
3/18/10 11:51:40	96.667	-0.008	-0.052	-0.021	-0.042	-0.021
3/18/10 11:51:50	96.833	-0.010	-0.055	-0.024	-0.045	-0.021
3/18/10 11:52:00	97.000	-0.010	-0.052	-0.021	-0.042	-0.019
3/18/10 11:52:10	97.167	-0.012	-0.052	-0.024	-0.047	-0.021
3/18/10 11:52:20	97.333	-0.007	-0.052	-0.021	-0.042	-0.021
3/18/10 11:52:30	97.500	-0.007	-0.055	-0.021	-0.042	-0.021
3/18/10 11:52:40	97.667	-0.008	-0.052	-0.021	-0.047	-0.021

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 11:52:50	97.833	-0.010	-0.052	-0.026	-0.047	-0.021
3/18/10 11:53:00	98.000	-0.010	-0.052	-0.024	-0.042	-0.024
3/18/10 11:53:10	98.167	-0.012	-0.055	-0.024	-0.047	-0.021
3/18/10 11:53:20	98.333	-0.010	-0.052	-0.024	-0.047	-0.021
3/18/10 11:53:30	98.500	-0.010	-0.052	-0.024	-0.047	-0.021
3/18/10 11:53:40	98.667	-0.010	-0.052	-0.024	-0.049	-0.021
3/18/10 11:53:50	98.833	-0.010	-0.052	-0.024	-0.043	-0.021
3/18/10 11:54:00	99.000	-0.007	-0.050	-0.024	-0.042	-0.021
3/18/10 11:54:10	99.167	-0.010	-0.052	-0.021	-0.045	-0.021
3/18/10 11:54:20	99.333	-0.008	-0.052	-0.024	-0.042	-0.021
3/18/10 11:54:30	99.500	-0.010	-0.048	-0.021	-0.047	-0.021
3/18/10 11:54:40	99.667	-0.005	-0.052	-0.024	-0.042	-0.021
3/18/10 11:54:50	99.833	-0.007	-0.052	-0.024	-0.047	-0.021
3/18/10 11:55:00	100.000	-0.005	-0.050	-0.021	-0.045	-0.021
3/18/10 11:55:10	100.167	-0.005	-0.050	-0.024	-0.047	-0.021
3/18/10 11:55:20	100.333	-0.005	-0.052	-0.021	-0.040	-0.021
3/18/10 11:55:30	100.500	-0.010	-0.050	-0.024	-0.045	-0.021
3/18/10 11:55:40	100.667	-0.008	-0.052	-0.021	-0.042	-0.021
3/18/10 11:55:50	100.833	-0.010	-0.052	-0.021	-0.042	-0.021
3/18/10 11:56:00	101.000	-0.007	-0.050	-0.021	-0.042	-0.021
3/18/10 11:56:10	101.167	-0.010	-0.050	-0.021	-0.045	-0.021
3/18/10 11:56:20	101.333	-0.010	-0.050	-0.024	-0.040	-0.021
3/18/10 11:56:30	101.500	-0.010	-0.052	-0.024	-0.040	-0.021
3/18/10 11:56:40	101.667	-0.010	-0.052	-0.021	-0.047	-0.021
3/18/10 11:56:50	101.833	-0.010	-0.050	-0.024	-0.042	-0.021
3/18/10 11:57:00	102.000	-0.007	-0.050	-0.021	-0.045	-0.021
3/18/10 11:57:10	102.167	-0.007	-0.052	-0.026	-0.045	-0.021
3/18/10 11:57:20	102.333	-0.007	-0.050	-0.024	-0.040	-0.021
3/18/10 11:57:30	102.500	-0.010	-0.052	-0.021	-0.047	-0.021
3/18/10 11:57:40	102.667	-0.010	-0.052	-0.024	-0.047	-0.024
3/18/10 11:57:50	102.833	-0.010	-0.052	-0.024	-0.047	-0.021
3/18/10 11:58:00	103.000	-0.010	-0.052	-0.024	-0.040	-0.021
3/18/10 11:58:10	103.167	-0.010	-0.055	-0.024	-0.045	-0.019
3/18/10 11:58:20	103.333	-0.005	-0.052	-0.024	-0.045	-0.021
3/18/10 11:58:30	103.500	-0.012	-0.052	-0.024	-0.047	-0.019
3/18/10 11:58:40	103.667	-0.010	-0.050	-0.021	-0.043	-0.024
3/18/10 11:58:50	103.833	-0.010	-0.052	-0.021	-0.045	-0.021
3/18/10 11:59:00	104.000	-0.012	-0.052	-0.024	-0.040	-0.021
3/18/10 11:59:10	104.167	-0.012	-0.052	-0.026	-0.045	-0.021
3/18/10 11:59:20	104.333	-0.015	-0.050	-0.024	-0.045	-0.021
3/18/10 11:59:30	104.500	-0.010	-0.052	-0.021	-0.045	-0.019
3/18/10 11:59:40	104.667	-0.010	-0.052	-0.021	-0.045	-0.021
3/18/10 11:59:50	104.833	-0.010	-0.052	-0.024	-0.049	-0.021
3/18/10 12:00:00	105.000	-0.008	-0.052	-0.024	-0.045	-0.021
3/18/10 12:00:10	105.167	-0.010	-0.055	-0.026	-0.040	-0.021
3/18/10 12:00:20	105.333	-0.012	-0.052	-0.021	-0.045	-0.021
3/18/10 12:00:30	105.500	-0.008	-0.052	-0.021	-0.047	-0.021
3/18/10 12:00:40	105.667	-0.012	-0.052	-0.026	-0.047	-0.021
3/18/10 12:00:50	105.833	-0.008	-0.052	-0.024	-0.049	-0.021

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 12:01:00	106.000	-0.010	-0.052	-0.024	-0.049	-0.021
3/18/10 12:01:10	106.167	-0.010	-0.057	-0.026	-0.047	-0.021
3/18/10 12:01:20	106.333	-0.012	-0.052	-0.024	-0.049	-0.019
3/18/10 12:01:30	106.500	-0.012	-0.055	-0.024	-0.045	-0.021
3/18/10 12:01:40	106.667	-0.015	-0.052	-0.024	-0.047	-0.021
3/18/10 12:01:50	106.833	-0.010	-0.052	-0.024	-0.047	-0.021
3/18/10 12:02:00	107.000	-0.008	-0.052	-0.024	-0.052	-0.021
3/18/10 12:02:10	107.167	-0.010	-0.052	-0.026	-0.045	-0.021
3/18/10 12:02:20	107.333	-0.012	-0.055	-0.024	-0.045	-0.021
3/18/10 12:02:30	107.500	-0.010	-0.052	-0.024	-0.043	-0.021
3/18/10 12:02:40	107.667	-0.012	-0.055	-0.024	-0.049	-0.024
3/18/10 12:02:50	107.833	-0.012	-0.055	-0.024	-0.047	-0.021
3/18/10 12:03:00	108.000	-0.010	-0.055	-0.019	-0.052	-0.024
3/18/10 12:03:10	108.167	-0.010	-0.055	-0.026	-0.045	-0.024
3/18/10 12:03:20	108.333	-0.012	-0.052	-0.024	-0.042	-0.024
3/18/10 12:03:30	108.500	-0.010	-0.055	-0.024	-0.047	-0.021
3/18/10 12:03:40	108.667	-0.010	-0.055	-0.026	-0.047	-0.021
3/18/10 12:03:50	108.833	-0.010	-0.052	-0.024	-0.047	-0.021
3/18/10 12:04:00	109.000	-0.012	-0.055	-0.021	-0.042	-0.021
3/18/10 12:04:10	109.167	-0.012	-0.055	-0.026	-0.047	-0.024
3/18/10 12:04:20	109.333	-0.008	-0.055	-0.024	-0.045	-0.021
3/18/10 12:04:30	109.500	-0.010	-0.057	-0.026	-0.047	-0.024
3/18/10 12:04:40	109.667	-0.010	-0.055	-0.024	-0.047	-0.024
3/18/10 12:04:50	109.833	-0.012	-0.057	-0.024	-0.047	-0.024
3/18/10 12:05	110	-0.010	-0.052	-0.026	-0.049	-0.021
3/18/10 12:06	111	-0.012	-0.055	-0.024	-0.050	-0.021
3/18/10 12:07	112	-0.012	-0.057	-0.024	-0.047	-0.026
3/18/10 12:08	113	-0.012	-0.057	-0.024	-0.052	-0.026
3/18/10 12:09	114	-0.012	-0.057	-0.026	-0.050	-0.026
3/18/10 12:10	115	-0.012	-0.059	-0.024	-0.050	-0.024
3/18/10 12:11	116	-0.015	-0.057	-0.028	-0.054	-0.024
3/18/10 12:12	117	-0.015	-0.059	-0.024	-0.054	-0.026
3/18/10 12:13	118	-0.012	-0.057	-0.024	-0.045	-0.026
3/18/10 12:14	119	-0.012	-0.059	-0.026	-0.050	-0.026
3/18/10 12:15	120	-0.012	-0.059	-0.026	-0.054	-0.026
3/18/10 12:16	121	-0.017	-0.064	-0.024	-0.059	-0.026
3/18/10 12:17	122	-0.017	-0.062	-0.028	-0.054	-0.028
3/18/10 12:18	123	-0.015	-0.062	-0.026	-0.052	-0.028
3/18/10 12:19	124	-0.015	-0.064	-0.028	-0.054	-0.026
3/18/10 12:20	125	-0.017	-0.064	-0.026	-0.050	-0.026
3/18/10 12:21	126	-0.017	-0.064	-0.026	-0.064	-0.028
3/18/10 12:22	127	-0.015	-0.064	-0.026	-0.057	-0.028
3/18/10 12:23	128	-0.015	-0.064	-0.028	-0.047	-0.028
3/18/10 12:24	129	-0.017	-0.064	-0.026	-0.059	-0.031
3/18/10 12:25	130	-0.017	-0.066	-0.028	-0.057	-0.028
3/18/10 12:26	131	-0.017	-0.066	-0.028	-0.059	-0.028
3/18/10 12:27	132	-0.015	-0.066	-0.028	-0.061	-0.031
3/18/10 12:28	133	-0.017	-0.066	-0.028	-0.059	-0.031
3/18/10 12:29	134	-0.017	-0.069	-0.031	-0.057	-0.028

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 12:30	135	-0.019	-0.066	-0.028	-0.059	-0.028
3/18/10 12:31	136	-0.017	-0.069	-0.031	-0.054	-0.028
3/18/10 12:32	137	-0.017	-0.069	-0.031	-0.061	-0.028
3/18/10 12:33	138	-0.017	-0.069	-0.028	-0.059	-0.031
3/18/10 12:34	139	-0.015	-0.069	-0.028	-0.061	-0.033
3/18/10 12:35	140	-0.019	-0.071	-0.031	-0.064	-0.033
3/18/10 12:36	141	-0.017	-0.071	-0.028	-0.064	-0.031
3/18/10 12:37	142	-0.017	-0.071	-0.031	-0.059	-0.031
3/18/10 12:38	143	-0.019	-0.071	-0.033	-0.064	-0.031
3/18/10 12:39	144	-0.019	-0.071	-0.028	-0.059	-0.031
3/18/10 12:40	145	-0.022	-0.071	-0.028	-0.061	-0.033
3/18/10 12:41	146	-0.019	-0.073	-0.031	-0.059	-0.033
3/18/10 12:42	147	-0.024	-0.071	-0.031	-0.066	-0.033
3/18/10 12:43	148	-0.022	-0.076	-0.031	-0.066	-0.033
3/18/10 12:44	149	-0.019	-0.073	-0.031	-0.066	-0.035
3/18/10 12:45	150	-0.022	-0.073	-0.033	-0.070	-0.033
3/18/10 12:46	151	-0.019	-0.076	-0.031	-0.066	-0.035
3/18/10 12:47	152	-0.024	-0.076	-0.033	-0.070	-0.033
3/18/10 12:48	153	-0.024	-0.078	-0.031	-0.070	-0.035
3/18/10 12:49	154	-0.026	-0.078	-0.033	-0.070	-0.038
3/18/10 12:50	155	-0.024	-0.080	-0.031	-0.075	-0.038
3/18/10 12:51	156	-0.026	-0.083	-0.035	-0.070	-0.038
3/18/10 12:52	157	-0.029	-0.078	-0.033	-0.068	-0.038
3/18/10 12:53	158	-0.026	-0.080	-0.031	-0.073	-0.038
3/18/10 12:54	159	-0.029	-0.078	-0.038	-0.077	-0.038
3/18/10 12:55	160	-0.026	-0.080	-0.033	-0.073	-0.038
3/18/10 12:56	161	-0.026	-0.080	-0.033	-0.073	-0.040
3/18/10 12:57	162	-0.022	-0.080	-0.033	-0.070	-0.038
3/18/10 12:58	163	-0.029	-0.083	-0.033	-0.075	-0.038
3/18/10 12:59	164	-0.029	-0.080	-0.035	-0.075	-0.038
3/18/10 13:00	165	-0.026	-0.085	-0.035	-0.070	-0.038
3/18/10 13:01	166	-0.026	-0.085	-0.035	-0.073	-0.038
3/18/10 13:02	167	-0.029	-0.085	-0.035	-0.075	-0.040
3/18/10 13:03	168	-0.029	-0.085	-0.035	-0.077	-0.038
3/18/10 13:04	169	-0.024	-0.085	-0.035	-0.080	-0.040
3/18/10 13:05	170	-0.026	-0.085	-0.038	-0.075	-0.038
3/18/10 13:06	171	-0.024	-0.085	-0.038	-0.075	-0.040
3/18/10 13:07	172	-0.026	-0.085	-0.038	-0.077	-0.040
3/18/10 13:08	173	-0.029	-0.085	-0.035	-0.080	-0.040
3/18/10 13:09	174	-0.026	-0.085	-0.035	-0.082	-0.040
3/18/10 13:10	175	-0.031	-0.087	-0.035	-0.080	-0.045
3/18/10 13:11	176	-0.031	-0.087	-0.038	-0.082	-0.042
3/18/10 13:12	177	-0.031	-0.090	-0.042	-0.080	-0.042
3/18/10 13:13	178	-0.033	-0.087	-0.035	-0.080	-0.045
3/18/10 13:14	179	-0.031	-0.090	-0.035	-0.077	-0.042
3/18/10 13:15	180	-0.031	-0.090	-0.038	-0.082	-0.045
3/18/10 13:16	181	-0.033	-0.090	-0.040	-0.080	-0.045
3/18/10 13:17	182	-0.031	-0.092	-0.038	-0.082	-0.045
3/18/10 13:18	183	-0.033	-0.090	-0.038	-0.082	-0.042

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 13:19	184	-0.033	-0.092	-0.040	-0.084	-0.045
3/18/10 13:20	185	-0.033	-0.092	-0.042	-0.084	-0.045
3/18/10 13:21	186	-0.033	-0.094	-0.040	-0.084	-0.045
3/18/10 13:22	187	-0.033	-0.092	-0.040	-0.089	-0.047
3/18/10 13:23	188	-0.031	-0.094	-0.038	-0.087	-0.047
3/18/10 13:24	189	-0.033	-0.094	-0.038	-0.089	-0.045
3/18/10 13:25	190	-0.036	-0.097	-0.040	-0.084	-0.047
3/18/10 13:26	191	-0.036	-0.097	-0.038	-0.089	-0.049
3/18/10 13:27	192	-0.036	-0.099	-0.042	-0.087	-0.047
3/18/10 13:28	193	-0.036	-0.097	-0.045	-0.094	-0.049
3/18/10 13:29	194	-0.040	-0.099	-0.040	-0.091	-0.049
3/18/10 13:30	195	-0.038	-0.099	-0.042	-0.091	-0.052
3/18/10 13:31	196	-0.036	-0.097	-0.042	-0.089	-0.049
3/18/10 13:32	197	-0.038	-0.099	-0.040	-0.094	-0.049
3/18/10 13:33	198	-0.038	-0.099	-0.042	-0.094	-0.049
3/18/10 13:34	199	-0.040	-0.102	-0.045	-0.089	-0.052
3/18/10 13:35	200	-0.038	-0.102	-0.042	-0.091	-0.052
3/18/10 13:36	201	-0.040	-0.099	-0.045	-0.094	-0.052
3/18/10 13:37	202	-0.040	-0.102	-0.042	-0.091	-0.052
3/18/10 13:38	203	-0.040	-0.102	-0.045	-0.096	-0.049
3/18/10 13:39	204	-0.038	-0.102	-0.042	-0.094	-0.052
3/18/10 13:40	205	-0.038	-0.104	-0.042	-0.096	-0.052
3/18/10 13:41	206	-0.043	-0.104	-0.045	-0.094	-0.052
3/18/10 13:42	207	-0.040	-0.104	-0.045	-0.096	-0.054
3/18/10 13:43	208	-0.043	-0.104	-0.047	-0.094	-0.052
3/18/10 13:44	209	-0.043	-0.104	-0.045	-0.094	-0.054
3/18/10 13:45	210	-0.038	-0.106	-0.049	-0.096	-0.052
3/18/10 13:46	211	-0.040	-0.106	-0.045	-0.101	-0.052
3/18/10 13:47	212	-0.040	-0.106	-0.045	-0.096	-0.054
3/18/10 13:48	213	-0.043	-0.106	-0.045	-0.098	-0.054
3/18/10 13:49	214	-0.043	-0.106	-0.045	-0.096	-0.052
3/18/10 13:50	215	-0.040	-0.106	-0.047	-0.098	-0.052
3/18/10 13:51	216	-0.043	-0.109	-0.047	-0.098	-0.054
3/18/10 13:52	217	-0.043	-0.109	-0.047	-0.098	-0.052
3/18/10 13:53	218	-0.045	-0.109	-0.045	-0.098	-0.054
3/18/10 13:54	219	-0.045	-0.111	-0.049	-0.101	-0.056
3/18/10 13:55	220	-0.040	-0.111	-0.049	-0.105	-0.056
3/18/10 13:56	221	-0.043	-0.109	-0.045	-0.098	-0.054
3/18/10 13:57	222	-0.045	-0.109	-0.049	-0.101	-0.056
3/18/10 13:58	223	-0.045	-0.109	-0.049	-0.105	-0.056
3/18/10 13:59	224	-0.050	-0.113	-0.049	-0.103	-0.056
3/18/10 14:00	225	-0.050	-0.113	-0.049	-0.105	-0.056
3/18/10 14:01	226	-0.045	-0.113	-0.049	-0.101	-0.056
3/18/10 14:02	227	-0.045	-0.113	-0.052	-0.105	-0.059
3/18/10 14:03	228	-0.047	-0.116	-0.047	-0.103	-0.056
3/18/10 14:04	229	-0.050	-0.116	-0.052	-0.105	-0.059
3/18/10 14:05	230	-0.054	-0.118	-0.052	-0.110	-0.059
3/18/10 14:06	231	-0.052	-0.116	-0.052	-0.105	-0.061
3/18/10 14:07	232	-0.052	-0.118	-0.054	-0.112	-0.059

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 14:08	233	-0.050	-0.120	-0.049	-0.112	-0.059
3/18/10 14:09	234	-0.052	-0.120	-0.052	-0.112	-0.061
3/18/10 14:10	235	-0.052	-0.120	-0.052	-0.110	-0.061
3/18/10 14:11	236	-0.052	-0.120	-0.052	-0.112	-0.063
3/18/10 14:12	237	-0.050	-0.118	-0.052	-0.108	-0.061
3/18/10 14:13	238	-0.052	-0.120	-0.054	-0.112	-0.063
3/18/10 14:14	239	-0.054	-0.123	-0.056	-0.119	-0.061
3/18/10 14:15	240	-0.057	-0.123	-0.054	-0.112	-0.063
3/18/10 14:16	241	-0.054	-0.123	-0.052	-0.110	-0.063
3/18/10 14:17	242	-0.054	-0.123	-0.054	-0.110	-0.066
3/18/10 14:18	243	-0.054	-0.123	-0.052	-0.115	-0.063
3/18/10 14:19	244	-0.054	-0.120	-0.054	-0.115	-0.063
3/18/10 14:20	245	-0.052	-0.123	-0.056	-0.117	-0.063
3/18/10 14:21	246	-0.050	-0.125	-0.054	-0.119	-0.063
3/18/10 14:22	247	-0.054	-0.125	-0.056	-0.119	-0.068
3/18/10 14:23	248	-0.054	-0.125	-0.056	-0.115	-0.066
3/18/10 14:24	249	-0.054	-0.127	-0.056	-0.115	-0.066
3/18/10 14:25	250	-0.057	-0.130	-0.059	-0.117	-0.066
3/18/10 14:26	251	-0.057	-0.125	-0.054	-0.119	-0.063
3/18/10 14:27	252	-0.057	-0.130	-0.056	-0.119	-0.066
3/18/10 14:28	253	-0.057	-0.130	-0.059	-0.117	-0.068
3/18/10 14:29	254	-0.057	-0.123	-0.056	-0.122	-0.066
3/18/10 14:30	255	-0.059	-0.127	-0.056	-0.117	-0.066
3/18/10 14:31	256	-0.054	-0.127	-0.059	-0.117	-0.066
3/18/10 14:32	257	-0.059	-0.130	-0.059	-0.124	-0.066
3/18/10 14:33	258	-0.057	-0.130	-0.056	-0.122	-0.068
3/18/10 14:34	259	-0.059	-0.130	-0.056	-0.117	-0.068
3/18/10 14:35	260	-0.059	-0.130	-0.056	-0.124	-0.068
3/18/10 14:36	261	-0.064	-0.130	-0.059	-0.117	-0.066
3/18/10 14:37	262	-0.059	-0.132	-0.059	-0.122	-0.068
3/18/10 14:38	263	-0.061	-0.132	-0.061	-0.126	-0.068
3/18/10 14:39	264	-0.064	-0.132	-0.059	-0.124	-0.068
3/18/10 14:40	265	-0.061	-0.132	-0.061	-0.124	-0.070
3/18/10 14:41	266	-0.066	-0.134	-0.059	-0.126	-0.070
3/18/10 14:42	267	-0.064	-0.134	-0.061	-0.131	-0.070
3/18/10 14:43	268	-0.064	-0.132	-0.061	-0.126	-0.073
3/18/10 14:44	269	-0.064	-0.134	-0.061	-0.129	-0.070
3/18/10 14:45	270	-0.066	-0.137	-0.059	-0.129	-0.070
3/18/10 14:46	271	-0.066	-0.134	-0.061	-0.129	-0.073
3/18/10 14:47	272	-0.066	-0.137	-0.059	-0.131	-0.073
3/18/10 14:48	273	-0.066	-0.139	-0.063	-0.126	-0.073
3/18/10 14:49	274	-0.064	-0.139	-0.059	-0.131	-0.075
3/18/10 14:50	275	-0.066	-0.141	-0.061	-0.133	-0.073
3/18/10 14:51	276	-0.066	-0.139	-0.066	-0.131	-0.073
3/18/10 14:52	277	-0.064	-0.139	-0.066	-0.131	-0.073
3/18/10 14:53	278	-0.068	-0.144	-0.063	-0.133	-0.070
3/18/10 14:54	279	-0.068	-0.141	-0.066	-0.136	-0.073
3/18/10 14:55	280	-0.071	-0.144	-0.070	-0.136	-0.075
3/18/10 14:56	281	-0.071	-0.146	-0.066	-0.138	-0.075

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 14:57	282	-0.073	-0.146	-0.068	-0.136	-0.075
3/18/10 14:58	283	-0.073	-0.146	-0.068	-0.138	-0.077
3/18/10 14:59	284	-0.068	-0.146	-0.066	-0.138	-0.077
3/18/10 15:00	285	-0.073	-0.146	-0.068	-0.140	-0.077
3/18/10 15:01	286	-0.073	-0.148	-0.068	-0.138	-0.077
3/18/10 15:02	287	-0.071	-0.148	-0.070	-0.143	-0.077
3/18/10 15:03	288	-0.073	-0.148	-0.070	-0.143	-0.080
3/18/10 15:04	289	-0.075	-0.151	-0.068	-0.145	-0.080
3/18/10 15:05	290	-0.075	-0.151	-0.070	-0.140	-0.077
3/18/10 15:06	291	-0.073	-0.151	-0.070	-0.140	-0.080
3/18/10 15:07	292	-0.073	-0.151	-0.073	-0.140	-0.080
3/18/10 15:08	293	-0.073	-0.153	-0.075	-0.157	-0.080
3/18/10 15:09	294	-0.078	-0.153	-0.070	-0.145	-0.080
3/18/10 15:10	295	-0.078	-0.153	-0.073	-0.140	-0.082
3/18/10 15:11	296	-0.075	-0.153	-0.073	-0.145	-0.080
3/18/10 15:12	297	-0.078	-0.153	-0.073	-0.140	-0.080
3/18/10 15:13	298	-0.075	-0.153	-0.073	-0.147	-0.080
3/18/10 15:14	299	-0.078	-0.155	-0.075	-0.150	-0.080
3/18/10 15:15	300	-0.078	-0.155	-0.073	-0.152	-0.082
3/18/10 15:16	301	-0.078	-0.155	-0.075	-0.150	-0.082
3/18/10 15:17	302	-0.080	-0.155	-0.073	-0.145	-0.084
3/18/10 15:18	303	-0.078	-0.158	-0.075	-0.147	-0.082
3/18/10 15:19	304	-0.080	-0.160	-0.075	-0.147	-0.084
3/18/10 15:20	305	-0.078	-0.158	-0.077	-0.150	-0.084
3/18/10 15:21	306	-0.082	-0.158	-0.077	-0.150	-0.084
3/18/10 15:22	307	-0.080	-0.158	-0.077	-0.157	-0.084
3/18/10 15:23	308	-0.080	-0.160	-0.075	-0.150	-0.087
3/18/10 15:24	309	-0.085	-0.160	-0.077	-0.152	-0.087
3/18/10 15:25	310	-0.085	-0.162	-0.080	-0.152	-0.087
3/18/10 15:26	311	-0.085	-0.162	-0.077	-0.150	-0.087
3/18/10 15:27	312	-0.085	-0.162	-0.080	-0.152	-0.087
3/18/10 15:28	313	-0.085	-0.158	-0.082	-0.152	-0.087
3/18/10 15:29	314	-0.106	-0.162	-0.080	-0.154	-0.087
3/18/10 15:30	315	-0.085	-0.165	-0.080	-0.157	-0.087
3/18/10 15:31	316	-0.085	-0.162	-0.075	-0.154	-0.087
3/18/10 15:32	317	-0.085	-0.165	-0.080	-0.159	-0.087
3/18/10 15:33	318	-0.082	-0.165	-0.080	-0.152	-0.087
3/18/10 15:34	319	-0.082	-0.165	-0.080	-0.154	-0.087
3/18/10 15:35	320	-0.087	-0.165	-0.082	-0.159	-0.087
3/18/10 15:36	321	-0.085	-0.165	-0.080	-0.157	-0.087
3/18/10 15:37	322	-0.085	-0.162	-0.077	-0.159	-0.087
3/18/10 15:38	323	-0.082	-0.167	-0.082	-0.154	-0.089
3/18/10 15:39	324	-0.085	-0.167	-0.080	-0.157	-0.087
3/18/10 15:40	325	-0.089	-0.167	-0.080	-0.157	-0.087
3/18/10 15:41	326	-0.087	-0.167	-0.082	-0.154	-0.089
3/18/10 15:42	327	-0.085	-0.167	-0.084	-0.157	-0.089
3/18/10 15:43	328	-0.085	-0.167	-0.082	-0.154	-0.089
3/18/10 15:44	329	-0.087	-0.169	-0.080	-0.161	-0.087
3/18/10 15:45	330	-0.087	-0.169	-0.084	-0.157	-0.089

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 15:46	331	-0.087	-0.169	-0.084	-0.161	-0.089
3/18/10 15:47	332	-0.089	-0.167	-0.084	-0.161	-0.089
3/18/10 15:48	333	-0.089	-0.169	-0.084	-0.159	-0.091
3/18/10 15:49	334	-0.089	-0.169	-0.084	-0.157	-0.089
3/18/10 15:50	335	-0.085	-0.169	-0.084	-0.164	-0.089
3/18/10 15:51	336	-0.087	-0.169	-0.084	-0.157	-0.087
3/18/10 15:52	337	-0.087	-0.172	-0.084	-0.164	-0.089
3/18/10 15:53	338	-0.089	-0.172	-0.087	-0.164	-0.091
3/18/10 15:54	339	-0.087	-0.174	-0.087	-0.164	-0.089
3/18/10 15:55	340	-0.089	-0.174	-0.089	-0.164	-0.089
3/18/10 15:56	341	-0.087	-0.172	-0.089	-0.166	-0.091
3/18/10 15:57	342	-0.092	-0.174	-0.089	-0.161	-0.094
3/18/10 15:58	343	-0.092	-0.174	-0.087	-0.166	-0.091
3/18/10 15:59	344	-0.092	-0.172	-0.089	-0.164	-0.091
3/18/10 16:00	345	-0.089	-0.174	-0.089	-0.161	-0.089
3/18/10 16:01	346	-0.092	-0.176	-0.087	-0.164	-0.091
3/18/10 16:02	347	-0.092	-0.174	-0.087	-0.164	-0.091
3/18/10 16:03	348	-0.094	-0.176	-0.089	-0.164	-0.091
3/18/10 16:04	349	-0.094	-0.174	-0.089	-0.159	-0.091
3/18/10 16:05	350	-0.094	-0.176	-0.089	-0.171	-0.091
3/18/10 16:06	351	-0.094	-0.174	-0.089	-0.171	-0.091
3/18/10 16:07	352	-0.089	-0.176	-0.089	-0.171	-0.091
3/18/10 16:08	353	-0.094	-0.176	-0.091	-0.166	-0.094
3/18/10 16:09	354	-0.094	-0.176	-0.091	-0.166	-0.091
3/18/10 16:10	355	-0.096	-0.179	-0.089	-0.168	-0.094
3/18/10 16:11	356	-0.096	-0.179	-0.091	-0.171	-0.091
3/18/10 16:12	357	-0.096	-0.179	-0.091	-0.171	-0.096
3/18/10 16:13	358	-0.094	-0.181	-0.094	-0.173	-0.094
3/18/10 16:14	359	-0.094	-0.181	-0.091	-0.171	-0.094
3/18/10 16:15	360	-0.094	-0.181	-0.091	-0.171	-0.096
3/18/10 16:16	361	-0.094	-0.181	-0.091	-0.173	-0.094
3/18/10 16:17	362	-0.094	-0.181	-0.094	-0.171	-0.094
3/18/10 16:18	363	-0.094	-0.179	-0.096	-0.168	-0.096
3/18/10 16:19	364	-0.096	-0.184	-0.091	-0.171	-0.091
3/18/10 16:20	365	-0.096	-0.181	-0.094	-0.175	-0.094
3/18/10 16:21	366	-0.094	-0.181	-0.098	-0.173	-0.094
3/18/10 16:22	367	-0.096	-0.181	-0.096	-0.168	-0.094
3/18/10 16:23	368	-0.096	-0.184	-0.091	-0.168	-0.094
3/18/10 16:24	369	-0.094	-0.181	-0.094	-0.171	-0.096
3/18/10 16:25	370	-0.094	-0.184	-0.096	-0.178	-0.096
3/18/10 16:26	371	-0.092	-0.184	-0.094	-0.173	-0.091
3/18/10 16:27	372	-0.094	-0.181	-0.096	-0.173	-0.094
3/18/10 16:28	373	-0.094	-0.184	-0.096	-0.175	-0.094
3/18/10 16:29	374	-0.094	-0.186	-0.096	-0.175	-0.096
3/18/10 16:30	375	-0.099	-0.184	-0.098	-0.173	-0.094
3/18/10 16:31	376	-0.101	-0.184	-0.098	-0.175	-0.094
3/18/10 16:32	377	-0.099	-0.186	-0.098	-0.175	-0.096
3/18/10 16:33	378	-0.101	-0.186	-0.098	-0.175	-0.096
3/18/10 16:34	379	-0.096	-0.186	-0.101	-0.173	-0.094

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 16:35	380	-0.099	-0.186	-0.096	-0.168	-0.096
3/18/10 16:36	381	-0.101	-0.184	-0.098	-0.178	-0.094
3/18/10 16:37	382	-0.096	-0.184	-0.101	-0.175	-0.094
3/18/10 16:38	383	-0.099	-0.184	-0.098	-0.175	-0.096
3/18/10 16:39	384	-0.096	-0.188	-0.098	-0.173	-0.096
3/18/10 16:40	385	-0.096	-0.186	-0.101	-0.178	-0.096
3/18/10 16:41	386	-0.096	-0.186	-0.103	-0.173	-0.096
3/18/10 16:42	387	-0.099	-0.184	-0.101	-0.180	-0.094
3/18/10 16:43	388	-0.096	-0.186	-0.098	-0.175	-0.096
3/18/10 16:44	389	-0.099	-0.188	-0.101	-0.175	-0.094
3/18/10 16:45	390	-0.099	-0.186	-0.101	-0.175	-0.094
3/18/10 16:46	391	-0.096	-0.186	-0.101	-0.171	-0.094
3/18/10 16:47	392	-0.096	-0.186	-0.101	-0.173	-0.094
3/18/10 16:48	393	-0.092	-0.188	-0.101	-0.175	-0.094
3/18/10 16:49	394	-0.096	-0.186	-0.101	-0.175	-0.094
3/18/10 16:50	395	-0.099	-0.186	-0.103	-0.180	-0.094
3/18/10 16:51	396	-0.101	-0.188	-0.103	-0.187	-0.096
3/18/10 16:52	397	-0.099	-0.188	-0.103	-0.175	-0.094
3/18/10 16:53	398	-0.099	-0.191	-0.103	-0.180	-0.094
3/18/10 16:54	399	-0.094	-0.188	-0.103	-0.182	-0.094
3/18/10 16:55	400	-0.099	-0.188	-0.105	-0.182	-0.094
3/18/10 16:56	401	-0.101	-0.191	-0.105	-0.182	-0.096
3/18/10 16:57	402	-0.101	-0.193	-0.103	-0.178	-0.096
3/18/10 16:58	403	-0.101	-0.193	-0.105	-0.187	-0.096
3/18/10 16:59	404	-0.103	-0.191	-0.105	-0.182	-0.098
3/18/10 17:00	405	-0.099	-0.191	-0.105	-0.180	-0.094
3/18/10 17:01	406	-0.096	-0.191	-0.103	-0.185	-0.096
3/18/10 17:02	407	-0.099	-0.191	-0.105	-0.182	-0.096
3/18/10 17:03	408	-0.096	-0.193	-0.105	-0.185	-0.098
3/18/10 17:04	409	-0.099	-0.193	-0.105	-0.180	-0.096
3/18/10 17:05	410	-0.096	-0.193	-0.110	-0.182	-0.096
3/18/10 17:06	411	-0.101	-0.193	-0.108	-0.180	-0.094
3/18/10 17:07	412	-0.101	-0.193	-0.105	-0.185	-0.096
3/18/10 17:08	413	-0.099	-0.195	-0.108	-0.182	-0.098
3/18/10 17:09	414	-0.103	-0.195	-0.105	-0.182	-0.096
3/18/10 17:10	415	-0.099	-0.195	-0.108	-0.187	-0.098
3/18/10 17:11	416	-0.099	-0.195	-0.108	-0.180	-0.096
3/18/10 17:12	417	-0.101	-0.195	-0.108	-0.185	-0.096
3/18/10 17:13	418	-0.103	-0.193	-0.110	-0.182	-0.096
3/18/10 17:14	419	-0.101	-0.195	-0.105	-0.182	-0.098
3/18/10 17:15	420	-0.103	-0.193	-0.112	-0.187	-0.096
3/18/10 17:16	421	-0.101	-0.195	-0.112	-0.185	-0.098
3/18/10 17:17	422	-0.099	-0.195	-0.110	-0.185	-0.098
3/18/10 17:18	423	-0.101	-0.195	-0.110	-0.187	-0.098
3/18/10 17:19	424	-0.101	-0.198	-0.110	-0.187	-0.098
3/18/10 17:20	425	-0.101	-0.198	-0.115	-0.187	-0.096
3/18/10 17:21	426	-0.101	-0.198	-0.110	-0.187	-0.098
3/18/10 17:22	427	-0.103	-0.198	-0.112	-0.187	-0.096
3/18/10 17:23	428	-0.101	-0.198	-0.110	-0.180	-0.098

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 17:24	429	-0.103	-0.198	-0.112	-0.185	-0.096
3/18/10 17:25	430	-0.099	-0.195	-0.112	-0.189	-0.098
3/18/10 17:26	431	-0.101	-0.198	-0.112	-0.185	-0.098
3/18/10 17:27	432	-0.101	-0.198	-0.115	-0.187	-0.096
3/18/10 17:28	433	-0.103	-0.198	-0.112	-0.185	-0.098
3/18/10 17:29	434	-0.103	-0.198	-0.112	-0.187	-0.096
3/18/10 17:30	435	-0.103	-0.198	-0.115	-0.182	-0.098
3/18/10 17:31	436	-0.103	-0.198	-0.112	-0.194	-0.098
3/18/10 17:32	437	-0.103	-0.200	-0.115	-0.189	-0.096
3/18/10 17:33	438	-0.103	-0.200	-0.115	-0.180	-0.098
3/18/10 17:34	439	-0.103	-0.200	-0.115	-0.192	-0.098
3/18/10 17:35	440	-0.103	-0.202	-0.117	-0.187	-0.098
3/18/10 17:36	441	-0.106	-0.200	-0.115	-0.192	-0.098
3/18/10 17:37	442	-0.103	-0.200	-0.117	-0.194	-0.098
3/18/10 17:38	443	-0.106	-0.202	-0.115	-0.192	-0.098
3/18/10 17:39	444	-0.101	-0.202	-0.117	-0.187	-0.098
3/18/10 17:40	445	-0.103	-0.200	-0.112	-0.189	-0.096
3/18/10 17:41	446	-0.101	-0.200	-0.117	-0.187	-0.096
3/18/10 17:42	447	-0.103	-0.202	-0.117	-0.194	-0.096
3/18/10 17:43	448	-0.106	-0.202	-0.117	-0.189	-0.098
3/18/10 17:44	449	-0.103	-0.202	-0.119	-0.192	-0.098
3/18/10 17:45	450	-0.099	-0.200	-0.117	-0.192	-0.098
3/18/10 17:46	451	-0.106	-0.202	-0.117	-0.192	-0.098
3/18/10 17:47	452	-0.106	-0.202	-0.117	-0.189	-0.098
3/18/10 17:48	453	-0.101	-0.202	-0.117	-0.189	-0.098
3/18/10 17:49	454	-0.108	-0.202	-0.117	-0.189	-0.096
3/18/10 17:50	455	-0.103	-0.205	-0.119	-0.192	-0.098
3/18/10 17:51	456	-0.101	-0.202	-0.122	-0.187	-0.098
3/18/10 17:52	457	-0.101	-0.202	-0.119	-0.194	-0.098
3/18/10 17:53	458	-0.103	-0.200	-0.119	-0.194	-0.098
3/18/10 17:54	459	-0.103	-0.202	-0.119	-0.189	-0.098
3/18/10 17:55	460	-0.103	-0.202	-0.122	-0.194	-0.098
3/18/10 17:56	461	-0.103	-0.202	-0.119	-0.187	-0.098
3/18/10 17:57	462	-0.103	-0.202	-0.122	-0.194	-0.098
3/18/10 17:58	463	-0.103	-0.205	-0.122	-0.194	-0.098
3/18/10 17:59	464	-0.103	-0.205	-0.122	-0.194	-0.096
3/18/10 18:00	465	-0.103	-0.202	-0.124	-0.194	-0.098
3/18/10 18:01	466	-0.103	-0.202	-0.122	-0.196	-0.096
3/18/10 18:02	467	-0.101	-0.200	-0.124	-0.194	-0.096
3/18/10 18:03	468	-0.101	-0.202	-0.124	-0.192	-0.096
3/18/10 18:04	469	-0.103	-0.202	-0.119	-0.189	-0.096
3/18/10 18:05	470	-0.101	-0.202	-0.122	-0.192	-0.096
3/18/10 18:06	471	-0.101	-0.200	-0.122	-0.192	-0.098
3/18/10 18:07	472	-0.103	-0.202	-0.122	-0.187	-0.096
3/18/10 18:08	473	-0.099	-0.205	-0.126	-0.192	-0.096
3/18/10 18:09	474	-0.101	-0.202	-0.122	-0.192	-0.096
3/18/10 18:10	475	-0.101	-0.202	-0.129	-0.194	-0.094
3/18/10 18:11	476	-0.099	-0.200	-0.124	-0.192	-0.094
3/18/10 18:12	477	-0.099	-0.202	-0.126	-0.189	-0.096

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 18:13	478	-0.103	-0.200	-0.124	-0.194	-0.096
3/18/10 18:14	479	-0.103	-0.200	-0.126	-0.192	-0.096
3/18/10 18:15	480	-0.101	-0.202	-0.122	-0.192	-0.094
3/18/10 18:16	481	-0.101	-0.205	-0.126	-0.194	-0.096
3/18/10 18:17	482	-0.101	-0.202	-0.126	-0.194	-0.096
3/18/10 18:18	483	-0.099	-0.205	-0.129	-0.194	-0.096
3/18/10 18:19	484	-0.099	-0.202	-0.126	-0.196	-0.096
3/18/10 18:20	485	-0.106	-0.205	-0.126	-0.192	-0.096
3/18/10 18:21	486	-0.099	-0.205	-0.126	-0.194	-0.096
3/18/10 18:22	487	-0.103	-0.205	-0.126	-0.196	-0.096
3/18/10 18:23	488	-0.106	-0.202	-0.131	-0.199	-0.096
3/18/10 18:24	489	-0.101	-0.205	-0.126	-0.189	-0.094
3/18/10 18:25	490	-0.103	-0.205	-0.129	-0.192	-0.096
3/18/10 18:26	491	-0.099	-0.205	-0.126	-0.189	-0.096
3/18/10 18:27	492	-0.099	-0.202	-0.129	-0.194	-0.094
3/18/10 18:28	493	-0.103	-0.205	-0.126	-0.194	-0.096
3/18/10 18:29	494	-0.099	-0.205	-0.129	-0.194	-0.094
3/18/10 18:30	495	-0.101	-0.202	-0.129	-0.194	-0.094
3/18/10 18:31	496	-0.101	-0.205	-0.126	-0.192	-0.094
3/18/10 18:32	497	-0.099	-0.202	-0.131	-0.192	-0.094
3/18/10 18:33	498	-0.101	-0.205	-0.131	-0.194	-0.091
3/18/10 18:34	499	-0.101	-0.205	-0.129	-0.196	-0.094
3/18/10 18:35	500	-0.099	-0.205	-0.129	-0.192	-0.094
3/18/10 18:36	501	-0.099	-0.205	-0.129	-0.196	-0.091
3/18/10 18:37	502	-0.101	-0.205	-0.126	-0.194	-0.094
3/18/10 18:38	503	-0.099	-0.205	-0.131	-0.199	-0.094
3/18/10 18:39	504	-0.099	-0.207	-0.129	-0.196	-0.094
3/18/10 18:40	505	-0.103	-0.205	-0.131	-0.192	-0.094
3/18/10 18:41	506	-0.099	-0.207	-0.133	-0.194	-0.094
3/18/10 18:42	507	-0.099	-0.207	-0.131	-0.194	-0.094
3/18/10 18:43	508	-0.101	-0.205	-0.129	-0.194	-0.094
3/18/10 18:44	509	-0.101	-0.205	-0.131	-0.194	-0.094
3/18/10 18:45	510	-0.101	-0.205	-0.129	-0.196	-0.094
3/18/10 18:46	511	-0.101	-0.207	-0.129	-0.196	-0.094
3/18/10 18:47	512	-0.099	-0.207	-0.131	-0.196	-0.094
3/18/10 18:48	513	-0.101	-0.207	-0.133	-0.196	-0.094
3/18/10 18:49	514	-0.099	-0.207	-0.133	-0.196	-0.094
3/18/10 18:50	515	-0.099	-0.207	-0.133	-0.199	-0.091
3/18/10 18:51	516	-0.099	-0.207	-0.133	-0.196	-0.094
3/18/10 18:52	517	-0.101	-0.207	-0.133	-0.196	-0.094
3/18/10 18:53	518	-0.099	-0.207	-0.131	-0.196	-0.094
3/18/10 18:54	519	-0.099	-0.205	-0.131	-0.201	-0.091
3/18/10 18:55	520	-0.096	-0.207	-0.136	-0.196	-0.094
3/18/10 18:56	521	-0.099	-0.205	-0.133	-0.199	-0.091
3/18/10 18:57	522	-0.096	-0.207	-0.131	-0.194	-0.091
3/18/10 18:58	523	-0.096	-0.205	-0.131	-0.194	-0.091
3/18/10 18:59	524	-0.096	-0.205	-0.133	-0.192	-0.091
3/18/10 19:00	525	-0.099	-0.202	-0.131	-0.194	-0.089
3/18/10 19:01	526	-0.096	-0.202	-0.131	-0.192	-0.091

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 19:02	527	-0.094	-0.202	-0.131	-0.187	-0.089
3/18/10 19:03	528	-0.092	-0.202	-0.131	-0.189	-0.089
3/18/10 19:04	529	-0.092	-0.202	-0.131	-0.187	-0.089
3/18/10 19:05	530	-0.092	-0.198	-0.129	-0.189	-0.089
3/18/10 19:06	531	-0.094	-0.200	-0.131	-0.187	-0.089
3/18/10 19:07	532	-0.089	-0.198	-0.131	-0.194	-0.089
3/18/10 19:08	533	-0.092	-0.200	-0.129	-0.189	-0.089
3/18/10 19:09	534	-0.089	-0.198	-0.131	-0.187	-0.089
3/18/10 19:10	535	-0.089	-0.200	-0.131	-0.185	-0.089
3/18/10 19:11	536	-0.089	-0.198	-0.131	-0.185	-0.089
3/18/10 19:12	537	-0.087	-0.195	-0.133	-0.187	-0.089
3/18/10 19:13	538	-0.087	-0.198	-0.129	-0.187	-0.089
3/18/10 19:14	539	-0.089	-0.195	-0.131	-0.187	-0.087
3/18/10 19:15	540	-0.089	-0.198	-0.131	-0.192	-0.087
3/18/10 19:16	541	-0.087	-0.198	-0.131	-0.187	-0.087
3/18/10 19:17	542	-0.089	-0.198	-0.131	-0.189	-0.087
3/18/10 19:18	543	-0.085	-0.198	-0.131	-0.187	-0.087
3/18/10 19:19	544	-0.087	-0.198	-0.133	-0.189	-0.087
3/18/10 19:20	545	-0.087	-0.195	-0.133	-0.185	-0.084
3/18/10 19:21	546	-0.082	-0.195	-0.131	-0.185	-0.084
3/18/10 19:22	547	-0.085	-0.195	-0.131	-0.180	-0.084
3/18/10 19:23	548	-0.087	-0.195	-0.129	-0.187	-0.084
3/18/10 19:24	549	-0.085	-0.195	-0.131	-0.185	-0.084
3/18/10 19:25	550	-0.085	-0.193	-0.131	-0.189	-0.084
3/18/10 19:26	551	-0.082	-0.195	-0.131	-0.187	-0.084
3/18/10 19:27	552	-0.085	-0.195	-0.133	-0.185	-0.084
3/18/10 19:28	553	-0.085	-0.198	-0.131	-0.185	-0.084
3/18/10 19:29	554	-0.082	-0.198	-0.131	-0.187	-0.084
3/18/10 19:30	555	-0.085	-0.195	-0.131	-0.180	-0.082
3/18/10 19:31	556	-0.085	-0.193	-0.133	-0.189	-0.082
3/18/10 19:32	557	-0.080	-0.198	-0.131	-0.187	-0.082
3/18/10 19:33	558	-0.082	-0.195	-0.131	-0.187	-0.084
3/18/10 19:34	559	-0.085	-0.198	-0.131	-0.182	-0.082
3/18/10 19:35	560	-0.080	-0.195	-0.133	-0.182	-0.084
3/18/10 19:36	561	-0.085	-0.195	-0.131	-0.182	-0.082
3/18/10 19:37	562	-0.085	-0.195	-0.133	-0.182	-0.082
3/18/10 19:38	563	-0.082	-0.198	-0.133	-0.196	-0.084
3/18/10 19:39	564	-0.082	-0.195	-0.133	-0.189	-0.084
3/18/10 19:40	565	-0.087	-0.198	-0.136	-0.185	-0.082
3/18/10 19:41	566	-0.087	-0.198	-0.136	-0.185	-0.082
3/18/10 19:42	567	-0.085	-0.200	-0.133	-0.194	-0.084
3/18/10 19:43	568	-0.087	-0.198	-0.133	-0.189	-0.082
3/18/10 19:44	569	-0.085	-0.198	-0.133	-0.187	-0.084
3/18/10 19:45	570	-0.087	-0.200	-0.133	-0.189	-0.082
3/18/10 19:46	571	-0.087	-0.198	-0.136	-0.187	-0.084
3/18/10 19:47	572	-0.087	-0.200	-0.136	-0.189	-0.084
3/18/10 19:48	573	-0.087	-0.200	-0.133	-0.189	-0.084
3/18/10 19:49	574	-0.085	-0.200	-0.135	-0.192	-0.082
3/18/10 19:50	575	-0.085	-0.198	-0.133	-0.189	-0.082

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 19:51	576	-0.085	-0.200	-0.136	-0.192	-0.082
3/18/10 19:52	577	-0.089	-0.198	-0.136	-0.196	-0.082
3/18/10 19:53	578	-0.085	-0.200	-0.138	-0.189	-0.084
3/18/10 19:54	579	-0.085	-0.200	-0.133	-0.192	-0.082
3/18/10 19:55	580	-0.082	-0.200	-0.133	-0.192	-0.082
3/18/10 19:56	581	-0.082	-0.198	-0.138	-0.187	-0.082
3/18/10 19:57	582	-0.080	-0.198	-0.136	-0.189	-0.084
3/18/10 19:58	583	-0.082	-0.198	-0.136	-0.185	-0.082
3/18/10 19:59	584	-0.080	-0.198	-0.138	-0.187	-0.082
3/18/10 20:00	585	-0.082	-0.195	-0.136	-0.187	-0.082
3/18/10 20:01	586	-0.082	-0.195	-0.136	-0.182	-0.080
3/18/10 20:02	587	-0.080	-0.195	-0.136	-0.182	-0.082
3/18/10 20:03	588	-0.082	-0.195	-0.136	-0.185	-0.080
3/18/10 20:04	589	-0.080	-0.195	-0.136	-0.185	-0.080
3/18/10 20:05	590	-0.078	-0.195	-0.140	-0.185	-0.080
3/18/10 20:06	591	-0.078	-0.193	-0.136	-0.182	-0.082
3/18/10 20:07	592	-0.080	-0.193	-0.138	-0.185	-0.077
3/18/10 20:08	593	-0.080	-0.195	-0.138	-0.182	-0.080
3/18/10 20:09	594	-0.080	-0.195	-0.138	-0.182	-0.080
3/18/10 20:10	595	-0.080	-0.195	-0.136	-0.182	-0.080
3/18/10 20:11	596	-0.078	-0.195	-0.136	-0.185	-0.080
3/18/10 20:12	597	-0.078	-0.193	-0.136	-0.182	-0.080
3/18/10 20:13	598	-0.078	-0.195	-0.138	-0.187	-0.077
3/18/10 20:14	599	-0.078	-0.193	-0.138	-0.185	-0.080
3/18/10 20:15	600	-0.082	-0.198	-0.136	-0.185	-0.080
3/18/10 20:16	601	-0.078	-0.195	-0.138	-0.185	-0.080
3/18/10 20:17	602	-0.080	-0.195	-0.138	-0.182	-0.080
3/18/10 20:18	603	-0.080	-0.195	-0.138	-0.196	-0.077
3/18/10 20:19	604	-0.080	-0.195	-0.140	-0.187	-0.077
3/18/10 20:20	605	-0.080	-0.193	-0.138	-0.180	-0.077
3/18/10 20:21	606	-0.078	-0.198	-0.138	-0.189	-0.080
3/18/10 20:22	607	-0.080	-0.195	-0.138	-0.187	-0.080
3/18/10 20:23	608	-0.080	-0.193	-0.138	-0.189	-0.077
3/18/10 20:24	609	-0.078	-0.198	-0.136	-0.187	-0.077
3/18/10 20:25	610	-0.078	-0.195	-0.140	-0.185	-0.077
3/18/10 20:26	611	-0.078	-0.195	-0.140	-0.187	-0.077
3/18/10 20:27	612	-0.078	-0.195	-0.136	-0.182	-0.077
3/18/10 20:28	613	-0.078	-0.193	-0.140	-0.182	-0.077
3/18/10 20:29	614	-0.075	-0.193	-0.138	-0.182	-0.077
3/18/10 20:30	615	-0.078	-0.193	-0.140	-0.185	-0.077
3/18/10 20:31	616	-0.075	-0.195	-0.140	-0.185	-0.075
3/18/10 20:32	617	-0.075	-0.193	-0.140	-0.185	-0.075
3/18/10 20:33	618	-0.075	-0.193	-0.140	-0.182	-0.075
3/18/10 20:34	619	-0.071	-0.193	-0.138	-0.185	-0.073
3/18/10 20:35	620	-0.073	-0.191	-0.138	-0.180	-0.075
3/18/10 20:36	621	-0.073	-0.188	-0.138	-0.180	-0.075
3/18/10 20:37	622	-0.073	-0.191	-0.140	-0.178	-0.073
3/18/10 20:38	623	-0.071	-0.188	-0.140	-0.178	-0.073
3/18/10 20:39	624	-0.071	-0.186	-0.138	-0.182	-0.073

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 20:40	625	-0.068	-0.186	-0.143	-0.180	-0.073
3/18/10 20:41	626	-0.068	-0.186	-0.140	-0.180	-0.073
3/18/10 20:42	627	-0.066	-0.188	-0.138	-0.175	-0.070
3/18/10 20:43	628	-0.071	-0.186	-0.143	-0.180	-0.070
3/18/10 20:44	629	-0.068	-0.186	-0.138	-0.180	-0.070
3/18/10 20:45	630	-0.066	-0.186	-0.138	-0.180	-0.070
3/18/10 20:46	631	-0.066	-0.188	-0.140	-0.180	-0.073
3/18/10 20:47	632	-0.071	-0.184	-0.138	-0.180	-0.070
3/18/10 20:48	633	-0.071	-0.186	-0.143	-0.173	-0.070
3/18/10 20:49	634	-0.068	-0.186	-0.138	-0.175	-0.070
3/18/10 20:50	635	-0.068	-0.184	-0.140	-0.173	-0.070
3/18/10 20:51	636	-0.066	-0.184	-0.138	-0.178	-0.068
3/18/10 20:52	637	-0.064	-0.184	-0.138	-0.178	-0.068
3/18/10 20:53	638	-0.066	-0.184	-0.138	-0.175	-0.070
3/18/10 20:54	639	-0.064	-0.184	-0.140	-0.175	-0.068
3/18/10 20:55	640	-0.066	-0.184	-0.140	-0.175	-0.068
3/18/10 20:56	641	-0.064	-0.184	-0.140	-0.175	-0.068
3/18/10 20:57	642	-0.061	-0.184	-0.140	-0.175	-0.068
3/18/10 20:58	643	-0.064	-0.184	-0.140	-0.173	-0.068
3/18/10 20:59	644	-0.064	-0.184	-0.145	-0.173	-0.070
3/18/10 21:00	645	-0.064	-0.184	-0.143	-0.178	-0.068
3/18/10 21:01	646	-0.066	-0.186	-0.143	-0.175	-0.068
3/18/10 21:02	647	-0.061	-0.184	-0.140	-0.171	-0.068
3/18/10 21:03	648	-0.064	-0.184	-0.143	-0.175	-0.068
3/18/10 21:04	649	-0.064	-0.181	-0.138	-0.171	-0.068
3/18/10 21:05	650	-0.064	-0.181	-0.140	-0.173	-0.066
3/18/10 21:06	651	-0.061	-0.181	-0.140	-0.173	-0.068
3/18/10 21:07	652	-0.061	-0.181	-0.140	-0.171	-0.066
3/18/10 21:08	653	-0.059	-0.181	-0.140	-0.175	-0.066
3/18/10 21:09	654	-0.061	-0.181	-0.143	-0.173	-0.068
3/18/10 21:10	655	-0.064	-0.179	-0.140	-0.166	-0.066
3/18/10 21:11	656	-0.061	-0.184	-0.143	-0.171	-0.066
3/18/10 21:12	657	-0.061	-0.181	-0.140	-0.171	-0.066
3/18/10 21:13	658	-0.061	-0.179	-0.143	-0.168	-0.066
3/18/10 21:14	659	-0.059	-0.179	-0.143	-0.164	-0.066
3/18/10 21:15	660	-0.052	-0.179	-0.145	-0.171	-0.063
3/18/10 21:16	661	-0.059	-0.179	-0.140	-0.171	-0.063
3/18/10 21:17	662	-0.059	-0.179	-0.140	-0.166	-0.066
3/18/10 21:18	663	-0.057	-0.176	-0.138	-0.168	-0.066
3/18/10 21:19	664	-0.059	-0.179	-0.140	-0.166	-0.063
3/18/10 21:20	665	-0.057	-0.179	-0.140	-0.171	-0.063
3/18/10 21:21	666	-0.057	-0.176	-0.140	-0.173	-0.063
3/18/10 21:22	667	-0.054	-0.176	-0.140	-0.171	-0.063
3/18/10 21:23	668	-0.057	-0.176	-0.140	-0.171	-0.066
3/18/10 21:24	669	-0.057	-0.176	-0.140	-0.166	-0.063
3/18/10 21:25	670	-0.054	-0.176	-0.140	-0.168	-0.063
3/18/10 21:26	671	-0.059	-0.176	-0.140	-0.171	-0.063
3/18/10 21:27	672	-0.057	-0.176	-0.140	-0.168	-0.063
3/18/10 21:28	673	-0.057	-0.174	-0.140	-0.168	-0.063

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 21:29	674	-0.054	-0.176	-0.140	-0.166	-0.063
3/18/10 21:30	675	-0.057	-0.174	-0.140	-0.166	-0.063
3/18/10 21:31	676	-0.054	-0.174	-0.138	-0.166	-0.061
3/18/10 21:32	677	-0.054	-0.174	-0.140	-0.164	-0.061
3/18/10 21:33	678	-0.052	-0.176	-0.140	-0.161	-0.061
3/18/10 21:34	679	-0.054	-0.174	-0.140	-0.164	-0.063
3/18/10 21:35	680	-0.054	-0.174	-0.140	-0.168	-0.061
3/18/10 21:36	681	-0.054	-0.172	-0.140	-0.168	-0.061
3/18/10 21:37	682	-0.052	-0.172	-0.143	-0.164	-0.059
3/18/10 21:38	683	-0.052	-0.174	-0.140	-0.168	-0.061
3/18/10 21:39	684	-0.054	-0.172	-0.138	-0.166	-0.059
3/18/10 21:40	685	-0.050	-0.174	-0.138	-0.161	-0.059
3/18/10 21:41	686	-0.054	-0.174	-0.140	-0.166	-0.059
3/18/10 21:42	687	-0.050	-0.174	-0.140	-0.168	-0.063
3/18/10 21:43	688	-0.052	-0.174	-0.140	-0.171	-0.059
3/18/10 21:44	689	-0.054	-0.176	-0.140	-0.164	-0.059
3/18/10 21:45	690	-0.054	-0.176	-0.143	-0.159	-0.061
3/18/10 21:46	691	-0.057	-0.176	-0.140	-0.171	-0.059
3/18/10 21:47	692	-0.054	-0.174	-0.140	-0.168	-0.061
3/18/10 21:48	693	-0.057	-0.176	-0.143	-0.171	-0.059
3/18/10 21:49	694	-0.057	-0.174	-0.140	-0.168	-0.061
3/18/10 21:50	695	-0.057	-0.176	-0.138	-0.173	-0.061
3/18/10 21:51	696	-0.057	-0.176	-0.140	-0.166	-0.061
3/18/10 21:52	697	-0.057	-0.176	-0.140	-0.173	-0.061
3/18/10 21:53	698	-0.057	-0.179	-0.143	-0.171	-0.061
3/18/10 21:54	699	-0.057	-0.179	-0.143	-0.171	-0.061
3/18/10 21:55	700	-0.059	-0.179	-0.140	-0.173	-0.061
3/18/10 21:56	701	-0.057	-0.179	-0.143	-0.173	-0.061
3/18/10 21:57	702	-0.057	-0.181	-0.143	-0.161	-0.061
3/18/10 21:58	703	-0.057	-0.179	-0.143	-0.171	-0.061
3/18/10 21:59	704	-0.059	-0.181	-0.138	-0.175	-0.061
3/18/10 22:00	705	-0.059	-0.181	-0.143	-0.175	-0.061
3/18/10 22:01	706	-0.059	-0.181	-0.143	-0.178	-0.061
3/18/10 22:02	707	-0.059	-0.181	-0.145	-0.178	-0.063
3/18/10 22:03	708	-0.061	-0.184	-0.143	-0.173	-0.061
3/18/10 22:04	709	-0.059	-0.184	-0.140	-0.178	-0.061
3/18/10 22:05	710	-0.064	-0.186	-0.143	-0.182	-0.063
3/18/10 22:06	711	-0.066	-0.186	-0.143	-0.180	-0.061
3/18/10 22:07	712	-0.064	-0.186	-0.145	-0.178	-0.063
3/18/10 22:08	713	-0.064	-0.188	-0.143	-0.180	-0.063
3/18/10 22:09	714	-0.064	-0.186	-0.143	-0.178	-0.063
3/18/10 22:10	715	-0.066	-0.188	-0.143	-0.178	-0.063
3/18/10 22:11	716	-0.064	-0.188	-0.145	-0.182	-0.063
3/18/10 22:12	717	-0.066	-0.186	-0.145	-0.182	-0.063
3/18/10 22:13	718	-0.066	-0.188	-0.145	-0.182	-0.063
3/18/10 22:14	719	-0.066	-0.188	-0.143	-0.180	-0.063
3/18/10 22:15	720	-0.066	-0.188	-0.145	-0.182	-0.063
3/18/10 22:16	721	-0.068	-0.191	-0.145	-0.178	-0.063
3/18/10 22:17	722	-0.066	-0.188	-0.143	-0.185	-0.063

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 22:18	723	-0.068	-0.188	-0.143	-0.180	-0.063
3/18/10 22:19	724	-0.066	-0.191	-0.143	-0.189	-0.063
3/18/10 22:20	725	-0.066	-0.191	-0.145	-0.185	-0.063
3/18/10 22:21	726	-0.068	-0.191	-0.143	-0.185	-0.066
3/18/10 22:22	727	-0.066	-0.191	-0.145	-0.182	-0.063
3/18/10 22:23	728	-0.066	-0.188	-0.145	-0.182	-0.061
3/18/10 22:24	729	-0.066	-0.188	-0.145	-0.180	-0.061
3/18/10 22:25	730	-0.066	-0.191	-0.143	-0.185	-0.063
3/18/10 22:26	731	-0.066	-0.188	-0.147	-0.182	-0.061
3/18/10 22:27	732	-0.066	-0.188	-0.145	-0.182	-0.061
3/18/10 22:28	733	-0.066	-0.188	-0.145	-0.185	-0.063
3/18/10 22:29	734	-0.066	-0.191	-0.147	-0.180	-0.061
3/18/10 22:30	735	-0.071	-0.191	-0.143	-0.182	-0.061
3/18/10 22:31	736	-0.068	-0.191	-0.147	-0.185	-0.063
3/18/10 22:32	737	-0.068	-0.191	-0.143	-0.182	-0.061
3/18/10 22:33	738	-0.066	-0.188	-0.145	-0.187	-0.061
3/18/10 22:34	739	-0.064	-0.191	-0.145	-0.182	-0.061
3/18/10 22:35	740	-0.064	-0.188	-0.143	-0.182	-0.061
3/18/10 22:36	741	-0.061	-0.188	-0.145	-0.178	-0.063
3/18/10 22:37	742	-0.066	-0.188	-0.143	-0.185	-0.061
3/18/10 22:38	743	-0.066	-0.188	-0.145	-0.185	-0.061
3/18/10 22:39	744	-0.066	-0.191	-0.145	-0.185	-0.061
3/18/10 22:40	745	-0.068	-0.188	-0.145	-0.175	-0.061
3/18/10 22:41	746	-0.066	-0.191	-0.143	-0.182	-0.061
3/18/10 22:42	747	-0.066	-0.188	-0.143	-0.180	-0.059
3/18/10 22:43	748	-0.061	-0.186	-0.145	-0.178	-0.061
3/18/10 22:44	749	-0.061	-0.186	-0.143	-0.180	-0.061
3/18/10 22:45	750	-0.064	-0.186	-0.143	-0.178	-0.061
3/18/10 22:46	751	-0.061	-0.186	-0.147	-0.182	-0.059
3/18/10 22:47	752	-0.061	-0.188	-0.145	-0.182	-0.059
3/18/10 22:48	753	-0.061	-0.186	-0.145	-0.175	-0.059
3/18/10 22:49	754	-0.064	-0.186	-0.147	-0.182	-0.059
3/18/10 22:50	755	-0.061	-0.186	-0.145	-0.178	-0.059
3/18/10 22:51	756	-0.059	-0.186	-0.145	-0.178	-0.059
3/18/10 22:52	757	-0.061	-0.184	-0.147	-0.173	-0.059
3/18/10 22:53	758	-0.059	-0.184	-0.147	-0.175	-0.059
3/18/10 22:54	759	-0.059	-0.181	-0.145	-0.175	-0.059
3/18/10 22:55	760	-0.061	-0.181	-0.145	-0.178	-0.056
3/18/10 22:56	761	-0.059	-0.181	-0.143	-0.175	-0.059
3/18/10 22:57	762	-0.061	-0.184	-0.143	-0.175	-0.059
3/18/10 22:58	763	-0.057	-0.181	-0.143	-0.173	-0.059
3/18/10 22:59	764	-0.057	-0.181	-0.145	-0.175	-0.056
3/18/10 23:00	765	-0.059	-0.184	-0.145	-0.171	-0.056
3/18/10 23:01	766	-0.059	-0.181	-0.140	-0.175	-0.056
3/18/10 23:02	767	-0.050	-0.179	-0.147	-0.175	-0.054
3/18/10 23:03	768	-0.057	-0.181	-0.143	-0.173	-0.056
3/18/10 23:04	769	-0.059	-0.184	-0.145	-0.173	-0.056
3/18/10 23:05	770	-0.057	-0.184	-0.147	-0.187	-0.056
3/18/10 23:06	771	-0.059	-0.181	-0.145	-0.175	-0.056

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 23:07	772	-0.057	-0.184	-0.143	-0.175	-0.054
3/18/10 23:08	773	-0.057	-0.181	-0.143	-0.178	-0.054
3/18/10 23:09	774	-0.054	-0.181	-0.150	-0.168	-0.054
3/18/10 23:10	775	-0.057	-0.181	-0.145	-0.178	-0.056
3/18/10 23:11	776	-0.057	-0.179	-0.143	-0.175	-0.054
3/18/10 23:12	777	-0.052	-0.179	-0.145	-0.178	-0.056
3/18/10 23:13	778	-0.057	-0.179	-0.145	-0.171	-0.054
3/18/10 23:14	779	-0.054	-0.179	-0.145	-0.171	-0.054
3/18/10 23:15	780	-0.054	-0.179	-0.145	-0.178	-0.054
3/18/10 23:16	781	-0.054	-0.179	-0.143	-0.171	-0.052
3/18/10 23:17	782	-0.054	-0.179	-0.143	-0.173	-0.054
3/18/10 23:18	783	-0.054	-0.176	-0.145	-0.171	-0.054
3/18/10 23:19	784	-0.052	-0.176	-0.143	-0.173	-0.054
3/18/10 23:20	785	-0.052	-0.176	-0.145	-0.175	-0.052
3/18/10 23:21	786	-0.052	-0.176	-0.143	-0.171	-0.052
3/18/10 23:22	787	-0.052	-0.179	-0.145	-0.171	-0.054
3/18/10 23:23	788	-0.057	-0.176	-0.143	-0.173	-0.052
3/18/10 23:24	789	-0.052	-0.179	-0.145	-0.175	-0.052
3/18/10 23:25	790	-0.054	-0.179	-0.142	-0.175	-0.052
3/18/10 23:26	791	-0.054	-0.179	-0.143	-0.175	-0.054
3/18/10 23:27	792	-0.059	-0.181	-0.143	-0.178	-0.054
3/18/10 23:28	793	-0.054	-0.184	-0.143	-0.175	-0.052
3/18/10 23:29	794	-0.057	-0.181	-0.147	-0.175	-0.054
3/18/10 23:30	795	-0.054	-0.179	-0.143	-0.175	-0.052
3/18/10 23:31	796	-0.054	-0.181	-0.145	-0.175	-0.052
3/18/10 23:32	797	-0.057	-0.179	-0.143	-0.178	-0.052
3/18/10 23:33	798	-0.054	-0.179	-0.143	-0.180	-0.052
3/18/10 23:34	799	-0.054	-0.181	-0.143	-0.173	-0.052
3/18/10 23:35	800	-0.057	-0.181	-0.147	-0.175	-0.054
3/18/10 23:36	801	-0.054	-0.179	-0.145	-0.178	-0.052
3/18/10 23:37	802	-0.054	-0.179	-0.145	-0.173	-0.052
3/18/10 23:38	803	-0.052	-0.181	-0.145	-0.175	-0.052
3/18/10 23:39	804	-0.054	-0.179	-0.143	-0.175	-0.049
3/18/10 23:40	805	-0.054	-0.181	-0.145	-0.175	-0.052
3/18/10 23:41	806	-0.052	-0.179	-0.143	-0.168	-0.049
3/18/10 23:42	807	-0.050	-0.179	-0.143	-0.171	-0.052
3/18/10 23:43	808	-0.050	-0.176	-0.145	-0.168	-0.052
3/18/10 23:44	809	-0.047	-0.176	-0.143	-0.173	-0.049
3/18/10 23:45	810	-0.045	-0.174	-0.140	-0.168	-0.047
3/18/10 23:46	811	-0.047	-0.174	-0.145	-0.168	-0.049
3/18/10 23:47	812	-0.047	-0.176	-0.145	-0.168	-0.049
3/18/10 23:48	813	-0.047	-0.176	-0.143	-0.168	-0.047
3/18/10 23:49	814	-0.043	-0.174	-0.140	-0.171	-0.047
3/18/10 23:50	815	-0.047	-0.174	-0.145	-0.166	-0.047
3/18/10 23:51	816	-0.050	-0.174	-0.143	-0.168	-0.047
3/18/10 23:52	817	-0.045	-0.174	-0.143	-0.168	-0.047
3/18/10 23:53	818	-0.047	-0.172	-0.138	-0.168	-0.047
3/18/10 23:54	819	-0.045	-0.174	-0.140	-0.166	-0.047
3/18/10 23:55	820	-0.045	-0.172	-0.143	-0.168	-0.047

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/18/10 23:56	821	-0.047	-0.172	-0.143	-0.166	-0.047
3/18/10 23:57	822	-0.045	-0.172	-0.143	-0.166	-0.047
3/18/10 23:58	823	-0.047	-0.172	-0.143	-0.166	-0.047
3/18/10 23:59	824	-0.047	-0.174	-0.140	-0.171	-0.047
3/19/10 0:00	825	-0.050	-0.174	-0.140	-0.168	-0.047
3/19/10 0:01	826	-0.047	-0.174	-0.140	-0.166	-0.049
3/19/10 0:02	827	-0.050	-0.172	-0.143	-0.171	-0.047
3/19/10 0:03	828	-0.047	-0.172	-0.145	-0.166	-0.047
3/19/10 0:04	829	-0.045	-0.172	-0.140	-0.168	-0.047
3/19/10 0:05	830	-0.047	-0.172	-0.140	-0.166	-0.045
3/19/10 0:06	831	-0.045	-0.172	-0.140	-0.166	-0.045
3/19/10 0:07	832	-0.043	-0.169	-0.140	-0.168	-0.045
3/19/10 0:08	833	-0.043	-0.169	-0.138	-0.168	-0.045
3/19/10 0:09	834	-0.043	-0.167	-0.140	-0.168	-0.045
3/19/10 0:10	835	-0.043	-0.169	-0.140	-0.168	-0.045
3/19/10 0:11	836	-0.040	-0.167	-0.140	-0.164	-0.045
3/19/10 0:12	837	-0.043	-0.167	-0.138	-0.164	-0.042
3/19/10 0:13	838	-0.043	-0.169	-0.143	-0.164	-0.042
3/19/10 0:14	839	-0.043	-0.169	-0.140	-0.164	-0.042
3/19/10 0:15	840	-0.040	-0.169	-0.140	-0.164	-0.042
3/19/10 0:16	841	-0.040	-0.167	-0.140	-0.157	-0.045
3/19/10 0:17	842	-0.040	-0.167	-0.138	-0.166	-0.042
3/19/10 0:18	843	-0.040	-0.169	-0.138	-0.164	-0.045
3/19/10 0:19	844	-0.040	-0.167	-0.140	-0.164	-0.042
3/19/10 0:20	845	-0.043	-0.169	-0.138	-0.164	-0.042
3/19/10 0:21	846	-0.040	-0.169	-0.140	-0.161	-0.047
3/19/10 0:22	847	-0.040	-0.167	-0.140	-0.166	-0.042
3/19/10 0:23	848	-0.038	-0.172	-0.140	-0.166	-0.045
3/19/10 0:24	849	-0.045	-0.169	-0.138	-0.164	-0.042
3/19/10 0:25	850	-0.043	-0.172	-0.138	-0.168	-0.042
3/19/10 0:26	851	-0.045	-0.172	-0.138	-0.166	-0.042
3/19/10 0:27	852	-0.045	-0.169	-0.140	-0.171	-0.045
3/19/10 0:28	853	-0.045	-0.169	-0.136	-0.166	-0.042
3/19/10 0:29	854	-0.045	-0.169	-0.138	-0.168	-0.045
3/19/10 0:30	855	-0.043	-0.169	-0.140	-0.164	-0.042
3/19/10 0:31	856	-0.040	-0.167	-0.138	-0.166	-0.042
3/19/10 0:32	857	-0.038	-0.169	-0.138	-0.161	-0.042
3/19/10 0:33	858	-0.038	-0.167	-0.138	-0.166	-0.042
3/19/10 0:34	859	-0.038	-0.167	-0.140	-0.164	-0.040
3/19/10 0:35	860	-0.038	-0.169	-0.138	-0.164	-0.040
3/19/10 0:36	861	-0.043	-0.167	-0.138	-0.164	-0.042
3/19/10 0:37	862	-0.040	-0.167	-0.138	-0.164	-0.040
3/19/10 0:38	863	-0.038	-0.167	-0.138	-0.164	-0.042
3/19/10 0:39	864	-0.040	-0.165	-0.138	-0.166	-0.042
3/19/10 0:40	865	-0.043	-0.169	-0.138	-0.159	-0.040
3/19/10 0:41	866	-0.040	-0.167	-0.138	-0.159	-0.040
3/19/10 0:42	867	-0.040	-0.169	-0.138	-0.166	-0.040
3/19/10 0:43	868	-0.043	-0.167	-0.138	-0.161	-0.045
3/19/10 0:44	869	-0.043	-0.169	-0.138	-0.166	-0.042

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 0:45	870	-0.045	-0.167	-0.140	-0.168	-0.040
3/19/10 0:46	871	-0.040	-0.169	-0.138	-0.161	-0.042
3/19/10 0:47	872	-0.043	-0.169	-0.138	-0.166	-0.042
3/19/10 0:48	873	-0.043	-0.172	-0.138	-0.175	-0.042
3/19/10 0:49	874	-0.043	-0.172	-0.138	-0.168	-0.042
3/19/10 0:50	875	-0.043	-0.172	-0.138	-0.164	-0.040
3/19/10 0:51	876	-0.045	-0.172	-0.138	-0.168	-0.040
3/19/10 0:52	877	-0.043	-0.172	-0.136	-0.164	-0.040
3/19/10 0:53	878	-0.043	-0.169	-0.136	-0.168	-0.042
3/19/10 0:54	879	-0.045	-0.169	-0.138	-0.166	-0.040
3/19/10 0:55	880	-0.040	-0.170	-0.138	-0.166	-0.040
3/19/10 0:56	881	-0.045	-0.169	-0.136	-0.164	-0.040
3/19/10 0:57	882	-0.040	-0.169	-0.138	-0.164	-0.040
3/19/10 0:58	883	-0.043	-0.167	-0.143	-0.166	-0.040
3/19/10 0:59	884	-0.038	-0.167	-0.140	-0.166	-0.038
3/19/10 1:00	885	-0.040	-0.165	-0.138	-0.159	-0.038
3/19/10 1:01	886	-0.040	-0.167	-0.138	-0.164	-0.038
3/19/10 1:02	887	-0.038	-0.167	-0.138	-0.164	-0.038
3/19/10 1:03	888	-0.038	-0.167	-0.138	-0.161	-0.040
3/19/10 1:04	889	-0.040	-0.167	-0.138	-0.164	-0.038
3/19/10 1:05	890	-0.040	-0.165	-0.136	-0.161	-0.038
3/19/10 1:06	891	-0.038	-0.165	-0.138	-0.166	-0.038
3/19/10 1:07	892	-0.038	-0.167	-0.138	-0.161	-0.038
3/19/10 1:08	893	-0.038	-0.169	-0.136	-0.159	-0.038
3/19/10 1:09	894	-0.038	-0.167	-0.136	-0.166	-0.038
3/19/10 1:10	895	-0.040	-0.167	-0.136	-0.161	-0.038
3/19/10 1:11	896	-0.038	-0.169	-0.135	-0.159	-0.038
3/19/10 1:12	897	-0.040	-0.167	-0.136	-0.159	-0.038
3/19/10 1:13	898	-0.036	-0.167	-0.138	-0.164	-0.038
3/19/10 1:14	899	-0.043	-0.167	-0.133	-0.161	-0.038
3/19/10 1:15	900	-0.040	-0.167	-0.138	-0.171	-0.038
3/19/10 1:16	901	-0.043	-0.169	-0.138	-0.164	-0.038
3/19/10 1:17	902	-0.040	-0.169	-0.138	-0.166	-0.038
3/19/10 1:18	903	-0.043	-0.170	-0.138	-0.171	-0.038
3/19/10 1:19	904	-0.040	-0.169	-0.136	-0.168	-0.038
3/19/10 1:20	905	-0.040	-0.167	-0.136	-0.164	-0.038
3/19/10 1:21	906	-0.038	-0.169	-0.138	-0.166	-0.038
3/19/10 1:22	907	-0.038	-0.167	-0.138	-0.161	-0.035
3/19/10 1:23	908	-0.040	-0.169	-0.138	-0.168	-0.038
3/19/10 1:24	909	-0.038	-0.167	-0.138	-0.164	-0.038
3/19/10 1:25	910	-0.038	-0.167	-0.136	-0.166	-0.038
3/19/10 1:26	911	-0.040	-0.167	-0.136	-0.168	-0.038
3/19/10 1:27	912	-0.043	-0.172	-0.140	-0.166	-0.038
3/19/10 1:28	913	-0.040	-0.169	-0.138	-0.166	-0.038
3/19/10 1:29	914	-0.040	-0.169	-0.135	-0.164	-0.038
3/19/10 1:30	915	-0.040	-0.167	-0.138	-0.161	-0.038
3/19/10 1:31	916	-0.038	-0.167	-0.136	-0.166	-0.038
3/19/10 1:32	917	-0.031	-0.167	-0.136	-0.166	-0.035
3/19/10 1:33	918	-0.040	-0.167	-0.136	-0.166	-0.038

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 1:34	919	-0.036	-0.167	-0.133	-0.166	-0.035
3/19/10 1:35	920	-0.036	-0.167	-0.136	-0.161	-0.035
3/19/10 1:36	921	-0.038	-0.167	-0.136	-0.168	-0.035
3/19/10 1:37	922	-0.036	-0.167	-0.138	-0.164	-0.035
3/19/10 1:38	923	-0.038	-0.167	-0.136	-0.164	-0.033
3/19/10 1:39	924	-0.033	-0.165	-0.136	-0.159	-0.033
3/19/10 1:40	925	-0.036	-0.165	-0.136	-0.164	-0.033
3/19/10 1:41	926	-0.036	-0.165	-0.136	-0.161	-0.035
3/19/10 1:42	927	-0.033	-0.165	-0.136	-0.159	-0.035
3/19/10 1:43	928	-0.036	-0.167	-0.136	-0.161	-0.033
3/19/10 1:44	929	-0.036	-0.165	-0.136	-0.164	-0.035
3/19/10 1:45	930	-0.036	-0.165	-0.136	-0.159	-0.033
3/19/10 1:46	931	-0.036	-0.165	-0.136	-0.159	-0.035
3/19/10 1:47	932	-0.036	-0.165	-0.133	-0.166	-0.033
3/19/10 1:48	933	-0.033	-0.165	-0.136	-0.159	-0.031
3/19/10 1:49	934	-0.036	-0.162	-0.136	-0.159	-0.033
3/19/10 1:50	935	-0.033	-0.162	-0.136	-0.161	-0.033
3/19/10 1:51	936	-0.033	-0.165	-0.133	-0.164	-0.031
3/19/10 1:52	937	-0.031	-0.162	-0.133	-0.161	-0.033
3/19/10 1:53	938	-0.031	-0.160	-0.131	-0.154	-0.031
3/19/10 1:54	939	-0.031	-0.162	-0.133	-0.161	-0.033
3/19/10 1:55	940	-0.029	-0.160	-0.136	-0.164	-0.031
3/19/10 1:56	941	-0.033	-0.160	-0.131	-0.159	-0.031
3/19/10 1:57	942	-0.031	-0.162	-0.133	-0.159	-0.031
3/19/10 1:58	943	-0.031	-0.162	-0.133	-0.157	-0.031
3/19/10 1:59	944	-0.029	-0.160	-0.131	-0.157	-0.031
3/19/10 2:00	945	-0.029	-0.162	-0.131	-0.157	-0.031
3/19/10 2:01	946	-0.031	-0.160	-0.133	-0.161	-0.031
3/19/10 2:02	947	-0.029	-0.160	-0.131	-0.164	-0.031
3/19/10 2:03	948	-0.031	-0.160	-0.131	-0.157	-0.028
3/19/10 2:04	949	-0.029	-0.160	-0.131	-0.157	-0.031
3/19/10 2:05	950	-0.031	-0.158	-0.131	-0.161	-0.031
3/19/10 2:06	951	-0.031	-0.160	-0.131	-0.152	-0.033
3/19/10 2:07	952	-0.033	-0.160	-0.129	-0.159	-0.031
3/19/10 2:08	953	-0.029	-0.162	-0.133	-0.157	-0.028
3/19/10 2:09	954	-0.029	-0.162	-0.136	-0.159	-0.028
3/19/10 2:10	955	-0.031	-0.160	-0.131	-0.164	-0.028
3/19/10 2:11	956	-0.033	-0.160	-0.133	-0.157	-0.031
3/19/10 2:12	957	-0.031	-0.162	-0.133	-0.161	-0.031
3/19/10 2:13	958	-0.031	-0.162	-0.131	-0.157	-0.028
3/19/10 2:14	959	-0.031	-0.162	-0.129	-0.159	-0.028
3/19/10 2:15	960	-0.031	-0.160	-0.129	-0.157	-0.028
3/19/10 2:16	961	-0.033	-0.162	-0.133	-0.161	-0.028
3/19/10 2:17	962	-0.033	-0.162	-0.133	-0.159	-0.031
3/19/10 2:18	963	-0.031	-0.162	-0.131	-0.164	-0.031
3/19/10 2:19	964	-0.031	-0.165	-0.131	-0.164	-0.028
3/19/10 2:20	965	-0.031	-0.165	-0.131	-0.161	-0.031
3/19/10 2:21	966	-0.031	-0.165	-0.131	-0.157	-0.031
3/19/10 2:22	967	-0.033	-0.162	-0.133	-0.161	-0.031

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 2:23	968	-0.031	-0.162	-0.133	-0.157	-0.028
3/19/10 2:24	969	-0.033	-0.162	-0.136	-0.161	-0.028
3/19/10 2:25	970	-0.031	-0.160	-0.133	-0.157	-0.026
3/19/10 2:26	971	-0.029	-0.158	-0.133	-0.157	-0.026
3/19/10 2:27	972	-0.031	-0.160	-0.131	-0.152	-0.028
3/19/10 2:28	973	-0.026	-0.158	-0.133	-0.154	-0.026
3/19/10 2:29	974	-0.024	-0.158	-0.126	-0.152	-0.026
3/19/10 2:30	975	-0.024	-0.155	-0.133	-0.154	-0.028
3/19/10 2:31	976	-0.024	-0.158	-0.131	-0.147	-0.026
3/19/10 2:32	977	-0.019	-0.151	-0.129	-0.150	-0.024
3/19/10 2:33	978	-0.012	-0.148	-0.126	-0.143	-0.024
3/19/10 2:34	979	-0.010	-0.144	-0.124	-0.136	-0.019
3/19/10 2:35	980	-0.008	-0.139	-0.126	-0.133	-0.017
3/19/10 2:36	981	-0.005	-0.139	-0.124	-0.133	-0.017
3/19/10 2:37	982	-0.008	-0.137	-0.122	-0.131	-0.017
3/19/10 2:38	983	-0.005	-0.139	-0.126	-0.136	-0.019
3/19/10 2:39	984	-0.005	-0.139	-0.124	-0.133	-0.017
3/19/10 2:40	985	-0.003	-0.137	-0.122	-0.133	-0.017
3/19/10 2:41	986	0.000	-0.137	-0.126	-0.131	-0.014
3/19/10 2:42	987	0.002	-0.132	-0.119	-0.131	-0.014
3/19/10 2:43	988	0.000	-0.130	-0.122	-0.131	-0.012
3/19/10 2:44	989	0.004	-0.132	-0.119	-0.131	-0.012
3/19/10 2:45	990	0.002	-0.132	-0.119	-0.126	-0.012
3/19/10 2:46	991	-0.001	-0.134	-0.117	-0.131	-0.012
3/19/10 2:47	992	-0.003	-0.134	-0.117	-0.129	-0.017
3/19/10 2:48	993	0.000	-0.134	-0.117	-0.129	-0.012
3/19/10 2:49	994	0.002	-0.132	-0.119	-0.126	-0.014
3/19/10 2:50	995	0.002	-0.132	-0.115	-0.124	-0.012
3/19/10 2:51	996	0.007	-0.130	-0.117	-0.126	-0.010
3/19/10 2:52	997	0.006	-0.130	-0.115	-0.124	-0.012
3/19/10 2:53	998	0.004	-0.127	-0.117	-0.124	-0.010
3/19/10 2:54	999	0.002	-0.127	-0.117	-0.122	-0.010
3/19/10 2:55	1000	0.007	-0.127	-0.112	-0.136	-0.010
3/19/10 2:56	1001	0.007	-0.125	-0.115	-0.124	-0.010
3/19/10 2:57	1002	0.002	-0.127	-0.114	-0.126	-0.010
3/19/10 2:58	1003	0.000	-0.130	-0.115	-0.131	-0.012
3/19/10 2:59	1004	-0.001	-0.132	-0.115	-0.126	-0.012
3/19/10 3:00	1005	0.002	-0.130	-0.117	-0.133	-0.012
3/19/10 3:01	1006	0.004	-0.130	-0.117	-0.126	-0.010
3/19/10 3:02	1007	0.007	-0.127	-0.112	-0.124	-0.010
3/19/10 3:03	1008	0.007	-0.127	-0.115	-0.124	-0.007
3/19/10 3:04	1009	0.009	-0.127	-0.115	-0.119	-0.007
3/19/10 3:05	1010	0.007	-0.125	-0.110	-0.122	-0.007
3/19/10 3:06	1011	0.009	-0.125	-0.110	-0.122	-0.007
3/19/10 3:07	1012	0.007	-0.125	-0.115	-0.129	-0.007
3/19/10 3:08	1013	0.009	-0.125	-0.115	-0.122	-0.007
3/19/10 3:09	1014	0.009	-0.125	-0.110	-0.122	-0.007
3/19/10 3:10	1015	0.011	-0.123	-0.110	-0.117	-0.007
3/19/10 3:11	1016	0.011	-0.123	-0.110	-0.124	-0.007

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 3:12	1017	0.011	-0.123	-0.110	-0.122	-0.005
3/19/10 3:13	1018	0.009	-0.123	-0.112	-0.119	-0.005
3/19/10 3:14	1019	0.004	-0.123	-0.110	-0.124	-0.007
3/19/10 3:15	1020	0.009	-0.125	-0.110	-0.124	-0.005
3/19/10 3:16	1021	0.006	-0.125	-0.110	-0.124	-0.007
3/19/10 3:17	1022	0.004	-0.127	-0.112	-0.124	-0.007
3/19/10 3:18	1023	0.004	-0.127	-0.112	-0.127	-0.010
3/19/10 3:19	1024	0.011	-0.130	-0.110	-0.126	-0.012
3/19/10 3:20	1025	0.002	-0.130	-0.110	-0.129	-0.010
3/19/10 3:21	1026	0.002	-0.130	-0.110	-0.129	-0.010
3/19/10 3:22	1027	0.002	-0.130	-0.110	-0.133	-0.010
3/19/10 3:23	1028	0.000	-0.132	-0.112	-0.133	-0.010
3/19/10 3:24	1029	0.002	-0.132	-0.115	-0.131	-0.010
3/19/10 3:25	1030	0.002	-0.130	-0.112	-0.129	-0.010
3/19/10 3:26	1031	0.007	-0.127	-0.112	-0.129	-0.007
3/19/10 3:27	1032	0.002	-0.127	-0.110	-0.126	-0.007
3/19/10 3:28	1033	0.002	-0.127	-0.108	-0.126	-0.007
3/19/10 3:29	1034	0.004	-0.130	-0.110	-0.129	-0.007
3/19/10 3:30	1035	-0.001	-0.132	-0.110	-0.129	-0.010
3/19/10 3:31	1036	0.000	-0.132	-0.110	-0.138	-0.012
3/19/10 3:32	1037	0.000	-0.134	-0.110	-0.133	-0.010
3/19/10 3:33	1038	0.000	-0.134	-0.110	-0.133	-0.010
3/19/10 3:34	1039	0.000	-0.132	-0.108	-0.131	-0.010
3/19/10 3:35	1040	-0.003	-0.134	-0.110	-0.140	-0.010
3/19/10 3:36	1041	-0.003	-0.134	-0.112	-0.136	-0.010
3/19/10 3:37	1042	-0.003	-0.134	-0.110	-0.133	-0.010
3/19/10 3:38	1043	-0.003	-0.134	-0.112	-0.138	-0.010
3/19/10 3:39	1044	0.002	-0.132	-0.112	-0.131	-0.010
3/19/10 3:40	1045	0.000	-0.130	-0.110	-0.131	-0.007
3/19/10 3:41	1046	0.002	-0.130	-0.110	-0.126	-0.007
3/19/10 3:42	1047	0.004	-0.130	-0.110	-0.129	-0.007
3/19/10 3:43	1048	0.000	-0.132	-0.110	-0.136	-0.010
3/19/10 3:44	1049	-0.003	-0.134	-0.110	-0.133	-0.010
3/19/10 3:45	1050	-0.005	-0.134	-0.112	-0.136	-0.010
3/19/10 3:46	1051	-0.003	-0.137	-0.108	-0.143	-0.012
3/19/10 3:47	1052	-0.005	-0.137	-0.110	-0.133	-0.012
3/19/10 3:48	1053	-0.005	-0.137	-0.110	-0.136	-0.012
3/19/10 3:49	1054	-0.005	-0.137	-0.110	-0.133	-0.010
3/19/10 3:50	1055	-0.005	-0.139	-0.110	-0.133	-0.010
3/19/10 3:51	1056	-0.005	-0.139	-0.110	-0.133	-0.010
3/19/10 3:52	1057	-0.005	-0.137	-0.110	-0.138	-0.010
3/19/10 3:53	1058	-0.005	-0.139	-0.110	-0.136	-0.010
3/19/10 3:54	1059	-0.005	-0.137	-0.112	-0.136	-0.010
3/19/10 3:55	1060	-0.005	-0.139	-0.110	-0.136	-0.010
3/19/10 3:56	1061	-0.005	-0.139	-0.110	-0.136	-0.010
3/19/10 3:57	1062	-0.005	-0.137	-0.112	-0.136	-0.010
3/19/10 3:58	1063	-0.005	-0.137	-0.110	-0.136	-0.007
3/19/10 3:59	1064	-0.005	-0.139	-0.110	-0.140	-0.010
3/19/10 4:00	1065	-0.005	-0.137	-0.108	-0.140	-0.007

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 4:01	1066	-0.008	-0.144	-0.110	-0.140	-0.010
3/19/10 4:02	1067	-0.008	-0.141	-0.110	-0.140	-0.010
3/19/10 4:03	1068	-0.003	-0.141	-0.112	-0.131	-0.010
3/19/10 4:04	1069	-0.003	-0.137	-0.110	-0.133	-0.010
3/19/10 4:05	1070	-0.001	-0.137	-0.110	-0.136	-0.007
3/19/10 4:06	1071	0.002	-0.137	-0.110	-0.129	-0.007
3/19/10 4:07	1072	0.002	-0.132	-0.108	-0.129	-0.005
3/19/10 4:08	1073	0.004	-0.134	-0.108	-0.131	-0.005
3/19/10 4:09	1074	-0.003	-0.134	-0.110	-0.131	-0.007
3/19/10 4:10	1075	-0.003	-0.137	-0.108	-0.136	-0.007
3/19/10 4:11	1076	-0.005	-0.139	-0.108	-0.145	-0.010
3/19/10 4:12	1077	-0.005	-0.141	-0.110	-0.138	-0.007
3/19/10 4:13	1078	-0.005	-0.141	-0.108	-0.138	-0.010
3/19/10 4:14	1079	-0.003	-0.141	-0.110	-0.140	-0.010
3/19/10 4:15	1080	-0.003	-0.141	-0.108	-0.131	-0.007
3/19/10 4:16	1081	0.000	-0.139	-0.110	-0.136	-0.007
3/19/10 4:17	1082	0.002	-0.137	-0.108	-0.133	-0.005
3/19/10 4:18	1083	0.007	-0.134	-0.105	-0.129	-0.005
3/19/10 4:19	1084	0.000	-0.137	-0.105	-0.136	-0.005
3/19/10 4:20	1085	-0.003	-0.137	-0.108	-0.138	-0.005
3/19/10 4:21	1086	-0.003	-0.141	-0.108	-0.136	-0.007
3/19/10 4:22	1087	-0.003	-0.141	-0.108	-0.136	-0.007
3/19/10 4:23	1088	-0.003	-0.137	-0.108	-0.129	-0.007
3/19/10 4:24	1089	-0.001	-0.137	-0.108	-0.126	-0.007
3/19/10 4:25	1090	-0.001	-0.137	-0.108	-0.133	-0.005
3/19/10 4:26	1091	0.000	-0.137	-0.108	-0.133	-0.007
3/19/10 4:27	1092	-0.005	-0.139	-0.107	-0.133	-0.007
3/19/10 4:28	1093	-0.005	-0.144	-0.108	-0.136	-0.007
3/19/10 4:29	1094	0.000	-0.141	-0.108	-0.133	-0.005
3/19/10 4:30	1095	-0.003	-0.139	-0.108	-0.131	-0.005
3/19/10 4:31	1096	0.000	-0.139	-0.108	-0.126	-0.005
3/19/10 4:32	1097	0.004	-0.137	-0.108	-0.131	-0.003
3/19/10 4:33	1098	0.002	-0.139	-0.108	-0.131	-0.005
3/19/10 4:34	1099	0.002	-0.139	-0.105	-0.133	-0.005
3/19/10 4:35	1100	0.002	-0.139	-0.108	-0.131	-0.005
3/19/10 4:36	1101	-0.003	-0.139	-0.105	-0.131	-0.005
3/19/10 4:37	1102	0.002	-0.141	-0.105	-0.133	-0.005
3/19/10 4:38	1103	0.002	-0.141	-0.108	-0.133	-0.005
3/19/10 4:39	1104	0.004	-0.139	-0.105	-0.133	-0.003
3/19/10 4:40	1105	0.007	-0.139	-0.105	-0.126	-0.003
3/19/10 4:41	1106	0.000	-0.141	-0.105	-0.131	-0.003
3/19/10 4:42	1107	-0.001	-0.141	-0.105	-0.131	-0.003
3/19/10 4:43	1108	-0.003	-0.144	-0.105	-0.136	-0.007
3/19/10 4:44	1109	-0.005	-0.144	-0.105	-0.134	-0.005
3/19/10 4:45	1110	-0.003	-0.146	-0.105	-0.131	-0.005
3/19/10 4:46	1111	-0.003	-0.146	-0.110	-0.136	-0.003
3/19/10 4:47	1112	-0.003	-0.144	-0.108	-0.133	-0.005
3/19/10 4:48	1113	0.000	-0.146	-0.108	-0.131	-0.005
3/19/10 4:49	1114	0.000	-0.144	-0.105	-0.133	-0.005

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 4:50	1115	0.002	-0.146	-0.108	-0.133	-0.003
3/19/10 4:51	1116	0.002	-0.144	-0.105	-0.138	-0.003
3/19/10 4:52	1117	0.002	-0.146	-0.105	-0.136	0.000
3/19/10 4:53	1118	-0.003	-0.146	-0.105	-0.133	-0.005
3/19/10 4:54	1119	-0.003	-0.151	-0.105	-0.136	-0.003
3/19/10 4:55	1120	-0.003	-0.148	-0.105	-0.136	-0.005
3/19/10 4:56	1121	-0.003	-0.148	-0.105	-0.133	-0.005
3/19/10 4:57	1122	-0.005	-0.148	-0.103	-0.136	-0.003
3/19/10 4:58	1123	0.000	-0.148	-0.105	-0.138	-0.001
3/19/10 4:59	1124	0.000	-0.151	-0.105	-0.138	-0.005
3/19/10 5:00	1125	0.000	-0.151	-0.105	-0.133	-0.005
3/19/10 5:01	1126	-0.003	-0.148	-0.105	-0.133	-0.003
3/19/10 5:02	1127	0.004	-0.146	-0.103	-0.133	-0.003
3/19/10 5:03	1128	0.002	-0.148	-0.103	-0.136	-0.003
3/19/10 5:04	1129	0.000	-0.146	-0.103	-0.136	-0.003
3/19/10 5:05	1130	0.004	-0.146	-0.103	-0.131	0.000
3/19/10 5:06	1131	0.000	-0.146	-0.105	-0.129	-0.003
3/19/10 5:07	1132	0.004	-0.144	-0.105	-0.126	0.002
3/19/10 5:08	1133	0.007	-0.144	-0.105	-0.131	0.002
3/19/10 5:09	1134	0.004	-0.144	-0.103	-0.129	0.002
3/19/10 5:10	1135	0.009	-0.146	-0.103	-0.131	0.000
3/19/10 5:11	1136	0.002	-0.146	-0.103	-0.131	0.002
3/19/10 5:12	1137	0.002	-0.148	-0.105	-0.131	-0.001
3/19/10 5:13	1138	0.000	-0.151	-0.105	-0.136	0.000
3/19/10 5:14	1139	-0.003	-0.151	-0.103	-0.140	-0.003
3/19/10 5:15	1140	-0.005	-0.153	-0.101	-0.138	-0.003
3/19/10 5:16	1141	-0.003	-0.153	-0.105	-0.133	-0.003
3/19/10 5:17	1142	-0.003	-0.155	-0.103	-0.143	0.000
3/19/10 5:18	1143	-0.005	-0.153	-0.103	-0.136	-0.003
3/19/10 5:19	1144	-0.003	-0.153	-0.103	-0.138	-0.003
3/19/10 5:20	1145	-0.001	-0.153	-0.103	-0.136	0.000
3/19/10 5:21	1146	-0.003	-0.153	-0.103	-0.136	0.000
3/19/10 5:22	1147	-0.005	-0.153	-0.103	-0.136	0.000
3/19/10 5:23	1148	0.000	-0.153	-0.105	-0.136	0.000
3/19/10 5:24	1149	-0.003	-0.153	-0.105	-0.133	-0.003
3/19/10 5:25	1150	0.000	-0.151	-0.103	-0.136	0.000
3/19/10 5:26	1151	0.000	-0.151	-0.101	-0.133	0.000
3/19/10 5:27	1152	0.000	-0.151	-0.103	-0.133	0.000
3/19/10 5:28	1153	-0.003	-0.153	-0.101	-0.136	-0.003
3/19/10 5:29	1154	-0.003	-0.155	-0.103	-0.138	0.000
3/19/10 5:30	1155	0.000	-0.155	-0.103	-0.131	0.000
3/19/10 5:31	1156	-0.003	-0.155	-0.105	-0.136	0.000
3/19/10 5:32	1157	-0.003	-0.153	-0.101	-0.136	0.000
3/19/10 5:33	1158	-0.005	-0.155	-0.103	-0.131	0.000
3/19/10 5:34	1159	0.000	-0.155	-0.101	-0.138	0.002
3/19/10 5:35	1160	-0.005	-0.155	-0.101	-0.136	0.000
3/19/10 5:36	1161	-0.005	-0.158	-0.101	-0.136	0.000
3/19/10 5:37	1162	-0.008	-0.158	-0.101	-0.133	0.000
3/19/10 5:38	1163	-0.008	-0.160	-0.103	-0.147	-0.003

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 5:39	1164	-0.008	-0.162	-0.101	-0.140	-0.003
3/19/10 5:40	1165	-0.005	-0.160	-0.103	-0.133	-0.003
3/19/10 5:41	1166	-0.008	-0.162	-0.105	-0.140	-0.003
3/19/10 5:42	1167	-0.010	-0.162	-0.105	-0.138	-0.003
3/19/10 5:43	1168	-0.008	-0.162	-0.103	-0.145	-0.003
3/19/10 5:44	1169	-0.008	-0.162	-0.101	-0.143	-0.005
3/19/10 5:45	1170	-0.010	-0.160	-0.103	-0.136	0.000
3/19/10 5:46	1171	-0.005	-0.158	-0.101	-0.143	0.000
3/19/10 5:47	1172	0.000	-0.158	-0.101	-0.136	0.000
3/19/10 5:48	1173	-0.001	-0.158	-0.101	-0.131	0.002
3/19/10 5:49	1174	0.000	-0.155	-0.101	-0.138	0.002
3/19/10 5:50	1175	-0.003	-0.158	-0.101	-0.129	0.002
3/19/10 5:51	1176	-0.001	-0.158	-0.103	-0.129	0.002
3/19/10 5:52	1177	0.000	-0.158	-0.100	-0.138	0.002
3/19/10 5:53	1178	0.000	-0.158	-0.101	-0.133	0.002
3/19/10 5:54	1179	0.000	-0.155	-0.101	-0.131	0.004
3/19/10 5:55	1180	0.002	-0.153	-0.103	-0.131	0.000
3/19/10 5:56	1181	0.004	-0.155	-0.103	-0.129	0.002
3/19/10 5:57	1182	0.004	-0.155	-0.103	-0.126	0.002
3/19/10 5:58	1183	0.002	-0.155	-0.101	-0.122	0.004
3/19/10 5:59	1184	0.004	-0.155	-0.101	-0.131	0.004
3/19/10 6:00	1185	0.004	-0.155	-0.101	-0.133	0.004
3/19/10 6:01	1186	0.002	-0.158	-0.101	-0.131	0.004
3/19/10 6:02	1187	0.002	-0.155	-0.096	-0.122	0.002
3/19/10 6:03	1188	0.002	-0.155	-0.101	-0.131	0.004
3/19/10 6:04	1189	0.004	-0.155	-0.101	-0.126	0.004
3/19/10 6:05	1190	0.006	-0.155	-0.098	-0.131	0.006
3/19/10 6:06	1191	0.002	-0.153	-0.096	-0.124	0.006
3/19/10 6:07	1192	0.004	-0.155	-0.094	-0.129	0.004
3/19/10 6:08	1193	0.004	-0.153	-0.098	-0.131	0.004
3/19/10 6:09	1194	0.009	-0.155	-0.096	-0.131	0.006
3/19/10 6:10	1195	0.004	-0.155	-0.101	-0.129	0.002
3/19/10 6:11	1196	0.002	-0.155	-0.098	-0.129	0.006
3/19/10 6:12	1197	0.002	-0.158	-0.098	-0.129	0.006
3/19/10 6:13	1198	0.002	-0.158	-0.098	-0.131	0.006
3/19/10 6:14	1199	0.002	-0.162	-0.101	-0.131	0.006
3/19/10 6:15	1200	0.002	-0.158	-0.098	-0.133	0.004
3/19/10 6:16	1201	0.004	-0.155	-0.098	-0.131	0.004
3/19/10 6:17	1202	0.004	-0.158	-0.098	-0.133	0.004
3/19/10 6:18	1203	0.004	-0.155	-0.098	-0.124	0.004
3/19/10 6:19	1204	0.004	-0.155	-0.098	-0.129	0.004
3/19/10 6:20	1205	0.004	-0.158	-0.098	-0.131	0.006
3/19/10 6:21	1206	0.004	-0.155	-0.098	-0.131	0.006
3/19/10 6:22	1207	0.007	-0.158	-0.096	-0.129	0.006
3/19/10 6:23	1208	0.004	-0.155	-0.098	-0.131	0.006
3/19/10 6:24	1209	0.004	-0.153	-0.096	-0.129	0.006
3/19/10 6:25	1210	0.004	-0.155	-0.096	-0.129	0.009
3/19/10 6:26	1211	0.002	-0.158	-0.096	-0.131	0.009
3/19/10 6:27	1212	0.000	-0.158	-0.094	-0.126	0.006

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 6:28	1213	0.004	-0.158	-0.094	-0.131	0.006
3/19/10 6:29	1214	0.007	-0.158	-0.094	-0.131	0.006
3/19/10 6:30	1215	0.004	-0.155	-0.091	-0.133	0.006
3/19/10 6:31	1216	0.004	-0.155	-0.096	-0.126	0.006
3/19/10 6:32	1217	0.007	-0.155	-0.098	-0.129	0.009
3/19/10 6:33	1218	0.002	-0.158	-0.096	-0.129	0.006
3/19/10 6:34	1219	0.004	-0.155	-0.094	-0.124	0.009
3/19/10 6:35	1220	0.009	-0.153	-0.098	-0.126	0.009
3/19/10 6:36	1221	0.009	-0.155	-0.096	-0.124	0.009
3/19/10 6:37	1222	0.004	-0.158	-0.096	-0.126	0.009
3/19/10 6:38	1223	0.007	-0.158	-0.096	-0.126	0.009
3/19/10 6:39	1224	0.002	-0.160	-0.096	-0.126	0.009
3/19/10 6:40	1225	0.002	-0.160	-0.096	-0.131	0.009
3/19/10 6:41	1226	0.004	-0.162	-0.096	-0.133	0.006
3/19/10 6:42	1227	0.004	-0.160	-0.096	-0.129	0.009
3/19/10 6:43	1228	0.006	-0.160	-0.096	-0.126	0.009
3/19/10 6:44	1229	0.004	-0.160	-0.096	-0.126	0.009
3/19/10 6:45	1230	0.002	-0.160	-0.096	-0.129	0.009
3/19/10 6:46	1231	0.004	-0.160	-0.096	-0.131	0.009
3/19/10 6:47	1232	0.004	-0.160	-0.096	-0.126	0.009
3/19/10 6:48	1233	0.002	-0.160	-0.094	-0.129	0.011
3/19/10 6:49	1234	0.007	-0.158	-0.096	-0.124	0.009
3/19/10 6:50	1235	0.011	-0.153	-0.094	-0.124	0.011
3/19/10 6:51	1236	0.013	-0.155	-0.094	-0.119	0.013
3/19/10 6:52	1237	0.011	-0.151	-0.091	-0.122	0.013
3/19/10 6:53	1238	0.013	-0.151	-0.094	-0.112	0.013
3/19/10 6:54	1239	0.011	-0.148	-0.091	-0.117	0.016
3/19/10 6:55	1240	0.014	-0.151	-0.091	-0.112	0.013
3/19/10 6:56	1241	0.020	-0.148	-0.091	-0.117	0.013
3/19/10 6:57	1242	0.014	-0.148	-0.089	-0.115	0.013
3/19/10 6:58	1243	0.011	-0.148	-0.091	-0.117	0.016
3/19/10 6:59	1244	0.016	-0.151	-0.091	-0.115	0.016
3/19/10 7:00	1245	0.016	-0.148	-0.089	-0.117	0.016
3/19/10 7:01	1246	0.018	-0.148	-0.089	-0.117	0.016
3/19/10 7:02	1247	0.018	-0.148	-0.094	-0.117	0.013
3/19/10 7:03	1248	0.018	-0.148	-0.091	-0.115	0.013
3/19/10 7:04	1249	0.018	-0.146	-0.089	-0.115	0.016
3/19/10 7:05	1250	0.018	-0.148	-0.089	-0.117	0.016
3/19/10 7:06	1251	0.023	-0.146	-0.089	-0.115	0.016
3/19/10 7:07	1252	0.021	-0.146	-0.089	-0.117	0.018
3/19/10 7:08	1253	0.025	-0.144	-0.087	-0.108	0.018
3/19/10 7:09	1254	0.025	-0.141	-0.089	-0.110	0.020
3/19/10 7:10	1255	0.025	-0.144	-0.087	-0.110	0.018
3/19/10 7:11	1256	0.028	-0.144	-0.089	-0.110	0.018
3/19/10 7:12	1257	0.023	-0.141	-0.084	-0.110	0.018
3/19/10 7:13	1258	0.025	-0.141	-0.087	-0.110	0.020
3/19/10 7:14	1259	0.025	-0.144	-0.084	-0.110	0.020
3/19/10 7:15	1260	0.023	-0.144	-0.084	-0.108	0.023
3/19/10 7:16	1261	0.025	-0.144	-0.084	-0.110	0.020

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 7:17	1262	0.025	-0.141	-0.084	-0.108	0.020
3/19/10 7:18	1263	0.025	-0.141	-0.084	-0.105	0.023
3/19/10 7:19	1264	0.025	-0.141	-0.089	-0.108	0.020
3/19/10 7:20	1265	0.032	-0.141	-0.084	-0.108	0.020
3/19/10 7:21	1266	0.028	-0.141	-0.084	-0.103	0.020
3/19/10 7:22	1267	0.025	-0.141	-0.082	-0.105	0.023
3/19/10 7:23	1268	0.028	-0.141	-0.082	-0.108	0.023
3/19/10 7:24	1269	0.023	-0.139	-0.084	-0.110	0.023
3/19/10 7:25	1270	0.028	-0.141	-0.084	-0.105	0.023
3/19/10 7:26	1271	0.032	-0.139	-0.082	-0.108	0.023
3/19/10 7:27	1272	0.032	-0.139	-0.082	-0.101	0.023
3/19/10 7:28	1273	0.032	-0.139	-0.082	-0.103	0.025
3/19/10 7:29	1274	0.032	-0.137	-0.082	-0.098	0.025
3/19/10 7:30	1275	0.035	-0.139	-0.080	-0.105	0.025
3/19/10 7:31	1276	0.030	-0.139	-0.082	-0.103	0.023
3/19/10 7:32	1277	0.030	-0.141	-0.082	-0.103	0.025
3/19/10 7:33	1278	0.030	-0.139	-0.082	-0.096	0.025
3/19/10 7:34	1279	0.032	-0.139	-0.080	-0.101	0.025
3/19/10 7:35	1280	0.032	-0.137	-0.082	-0.103	0.025
3/19/10 7:36	1281	0.030	-0.137	-0.080	-0.103	0.027
3/19/10 7:37	1282	0.030	-0.137	-0.080	-0.096	0.027
3/19/10 7:38	1283	0.032	-0.137	-0.080	-0.096	0.025
3/19/10 7:39	1284	0.037	-0.137	-0.077	-0.101	0.025
3/19/10 7:40	1285	0.035	-0.134	-0.077	-0.094	0.027
3/19/10 7:41	1286	0.035	-0.139	-0.077	-0.101	0.027
3/19/10 7:42	1287	0.037	-0.134	-0.080	-0.098	0.027
3/19/10 7:43	1288	0.037	-0.132	-0.077	-0.091	0.027
3/19/10 7:44	1289	0.039	-0.134	-0.077	-0.096	0.027
3/19/10 7:45	1290	0.037	-0.134	-0.075	-0.094	0.027
3/19/10 7:46	1291	0.039	-0.134	-0.077	-0.098	0.027
3/19/10 7:47	1292	0.039	-0.134	-0.079	-0.103	0.030
3/19/10 7:48	1293	0.039	-0.134	-0.080	-0.096	0.027
3/19/10 7:49	1294	0.039	-0.134	-0.075	-0.089	0.030
3/19/10 7:50	1295	0.037	-0.132	-0.077	-0.094	0.030
3/19/10 7:51	1296	0.037	-0.134	-0.075	-0.094	0.030
3/19/10 7:52	1297	0.037	-0.132	-0.073	-0.094	0.027
3/19/10 7:53	1298	0.042	-0.132	-0.075	-0.094	0.030
3/19/10 7:54	1299	0.042	-0.130	-0.075	-0.091	0.032
3/19/10 7:55	1300	0.039	-0.132	-0.077	-0.094	0.032
3/19/10 7:56	1301	0.044	-0.132	-0.073	-0.094	0.032
3/19/10 7:57	1302	0.042	-0.130	-0.075	-0.094	0.030
3/19/10 7:58	1303	0.037	-0.130	-0.073	-0.087	0.032
3/19/10 7:59	1304	0.042	-0.130	-0.073	-0.091	0.032
3/19/10 8:00	1305	0.042	-0.130	-0.073	-0.084	0.032
3/19/10 8:01	1306	0.044	-0.132	-0.073	-0.091	0.032
3/19/10 8:02	1307	0.044	-0.132	-0.075	-0.091	0.030
3/19/10 8:03	1308	0.044	-0.130	-0.073	-0.091	0.032
3/19/10 8:04	1309	0.046	-0.130	-0.073	-0.089	0.032
3/19/10 8:05	1310	0.044	-0.130	-0.073	-0.087	0.032

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 8:06	1311	0.044	-0.130	-0.073	-0.094	0.032
3/19/10 8:07	1312	0.046	-0.130	-0.073	-0.089	0.032
3/19/10 8:08	1313	0.044	-0.130	-0.070	-0.089	0.030
3/19/10 8:09	1314	0.044	-0.132	-0.073	-0.091	0.032
3/19/10 8:10	1315	0.042	-0.130	-0.073	-0.094	0.034
3/19/10 8:11	1316	0.044	-0.127	-0.070	-0.089	0.037
3/19/10 8:12	1317	0.042	-0.130	-0.068	-0.094	0.032
3/19/10 8:13	1318	0.046	-0.127	-0.073	-0.084	0.034
3/19/10 8:14	1319	0.046	-0.130	-0.070	-0.084	0.034
3/19/10 8:15	1320	0.049	-0.130	-0.073	-0.091	0.034
3/19/10 8:16	1321	0.044	-0.130	-0.068	-0.089	0.034
3/19/10 8:17	1322	0.046	-0.130	-0.068	-0.084	0.037
3/19/10 8:18	1323	0.044	-0.127	-0.070	-0.089	0.034
3/19/10 8:19	1324	0.044	-0.130	-0.070	-0.091	0.034
3/19/10 8:20	1325	0.046	-0.127	-0.068	-0.091	0.034
3/19/10 8:21	1326	0.049	-0.130	-0.068	-0.089	0.034
3/19/10 8:22	1327	0.049	-0.127	-0.070	-0.087	0.034
3/19/10 8:23	1328	0.046	-0.127	-0.068	-0.087	0.034
3/19/10 8:24	1329	0.046	-0.127	-0.068	-0.087	0.037
3/19/10 8:25	1330	0.046	-0.127	-0.068	-0.084	0.034
3/19/10 8:26	1331	0.049	-0.125	-0.066	-0.084	0.037
3/19/10 8:27	1332	0.051	-0.123	-0.066	-0.082	0.037
3/19/10 8:28	1333	0.051	-0.125	-0.070	-0.084	0.037
3/19/10 8:29	1334	0.051	-0.123	-0.066	-0.087	0.037
3/19/10 8:30	1335	0.053	-0.123	-0.066	-0.084	0.039
3/19/10 8:31	1336	0.049	-0.123	-0.068	-0.084	0.039
3/19/10 8:32	1337	0.051	-0.127	-0.063	-0.087	0.039
3/19/10 8:33	1338	0.051	-0.125	-0.066	-0.089	0.037
3/19/10 8:34	1339	0.049	-0.125	-0.066	-0.084	0.037
3/19/10 8:35	1340	0.051	-0.123	-0.066	-0.080	0.037
3/19/10 8:36	1341	0.053	-0.123	-0.066	-0.077	0.037
3/19/10 8:37	1342	0.053	-0.123	-0.063	-0.082	0.039
3/19/10 8:38	1343	0.053	-0.125	-0.066	-0.084	0.039
3/19/10 8:39	1344	0.053	-0.125	-0.066	-0.082	0.039
3/19/10 8:40	1345	0.058	-0.123	-0.063	-0.080	0.041
3/19/10 8:41	1346	0.053	-0.120	-0.063	-0.077	0.039
3/19/10 8:42	1347	0.053	-0.123	-0.061	-0.075	0.041
3/19/10 8:43	1348	0.060	-0.118	-0.063	-0.080	0.041
3/19/10 8:44	1349	0.058	-0.120	-0.061	-0.073	0.041
3/19/10 8:45	1350	0.060	-0.118	-0.061	-0.075	0.041
3/19/10 8:46	1351	0.060	-0.118	-0.061	-0.073	0.041
3/19/10 8:47	1352	0.060	-0.118	-0.059	-0.073	0.044
3/19/10 8:48	1353	0.058	-0.118	-0.063	-0.070	0.044
3/19/10 8:49	1354	0.058	-0.116	-0.058	-0.077	0.044
3/19/10 8:50	1355	0.060	-0.118	-0.061	-0.070	0.044
3/19/10 8:51	1356	0.060	-0.118	-0.061	-0.075	0.044
3/19/10 8:52	1357	0.063	-0.118	-0.061	-0.071	0.046
3/19/10 8:53	1358	0.060	-0.118	-0.061	-0.073	0.044
3/19/10 8:54	1359	0.060	-0.120	-0.059	-0.077	0.046

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 8:55	1360	0.060	-0.118	-0.056	-0.075	0.044
3/19/10 8:56	1361	0.060	-0.118	-0.056	-0.075	0.046
3/19/10 8:57	1362	0.063	-0.115	-0.059	-0.073	0.046
3/19/10 8:58	1363	0.063	-0.116	-0.059	-0.073	0.044
3/19/10 8:59	1364	0.065	-0.113	-0.056	-0.070	0.048
3/19/10 9:00	1365	0.063	-0.116	-0.054	-0.070	0.046
3/19/10 9:01	1366	0.063	-0.116	-0.056	-0.066	0.048
3/19/10 9:02	1367	0.063	-0.113	-0.056	-0.073	0.048
3/19/10 9:03	1368	0.070	-0.116	-0.054	-0.068	0.046
3/19/10 9:04	1369	0.063	-0.116	-0.054	-0.073	0.046
3/19/10 9:05	1370	0.063	-0.116	-0.056	-0.068	0.046
3/19/10 9:06	1371	0.063	-0.118	-0.056	-0.068	0.048
3/19/10 9:07	1372	0.063	-0.116	-0.056	-0.070	0.048
3/19/10 9:08	1373	0.063	-0.116	-0.056	-0.077	0.048
3/19/10 9:09	1374	0.063	-0.116	-0.056	-0.070	0.051
3/19/10 9:10	1375	0.063	-0.113	-0.054	-0.068	0.046
3/19/10 9:11	1376	0.065	-0.111	-0.056	-0.073	0.048
3/19/10 9:12	1377	0.063	-0.113	-0.054	-0.066	0.051
3/19/10 9:13	1378	0.065	-0.118	-0.052	-0.070	0.048
3/19/10 9:14	1379	0.065	-0.118	-0.054	-0.073	0.046
3/19/10 9:15	1380	0.063	-0.116	-0.054	-0.068	0.048
3/19/10 9:16	1381	0.065	-0.116	-0.054	-0.073	0.048
3/19/10 9:17	1382	0.065	-0.116	-0.052	-0.070	0.048
3/19/10 9:18	1383	0.060	-0.116	-0.052	-0.073	0.048
3/19/10 9:19	1384	0.060	-0.116	-0.054	-0.073	0.046
3/19/10 9:20	1385	0.065	-0.116	-0.052	-0.068	0.046
3/19/10 9:21	1386	0.065	-0.116	-0.052	-0.068	0.048
3/19/10 9:22	1387	0.065	-0.113	-0.052	-0.070	0.048
3/19/10 9:23	1388	0.067	-0.113	-0.052	-0.066	0.048
3/19/10 9:24	1389	0.065	-0.116	-0.052	-0.066	0.051
3/19/10 9:25	1390	0.065	-0.113	-0.052	-0.068	0.053
3/19/10 9:26	1391	0.065	-0.116	-0.052	-0.068	0.051
3/19/10 9:27	1392	0.065	-0.118	-0.052	-0.070	0.048
3/19/10 9:28	1393	0.063	-0.118	-0.052	-0.066	0.051
3/19/10 9:29	1394	0.065	-0.118	-0.052	-0.068	0.051
3/19/10 9:30	1395	0.065	-0.113	-0.052	-0.070	0.048
3/19/10 9:31	1396	0.067	-0.113	-0.052	-0.070	0.051
3/19/10 9:32	1397	0.065	-0.116	-0.052	-0.073	0.048
3/19/10 9:33	1398	0.065	-0.116	-0.049	-0.066	0.048
3/19/10 9:34	1399	0.065	-0.116	-0.049	-0.073	0.051
3/19/10 9:35	1400	0.065	-0.116	-0.049	-0.070	0.051
3/19/10 9:36	1401	0.067	-0.118	-0.049	-0.073	0.051
3/19/10 9:37	1402	0.065	-0.116	-0.052	-0.068	0.051
3/19/10 9:38	1403	0.065	-0.116	-0.052	-0.070	0.053
3/19/10 9:39	1404	0.067	-0.116	-0.049	-0.073	0.051
3/19/10 9:40	1405	0.067	-0.118	-0.052	-0.068	0.051
3/19/10 9:41	1406	0.065	-0.116	-0.049	-0.068	0.051
3/19/10 9:42	1407	0.067	-0.116	-0.047	-0.066	0.053
3/19/10 9:43	1408	0.063	-0.116	-0.049	-0.068	0.053

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 9:44	1409	0.067	-0.116	-0.049	-0.068	0.051
3/19/10 9:45	1410	0.067	-0.116	-0.047	-0.068	0.053
3/19/10 9:46	1411	0.067	-0.113	-0.047	-0.066	0.053
3/19/10 9:47	1412	0.070	-0.113	-0.049	-0.066	0.048
3/19/10 9:48	1413	0.065	-0.116	-0.047	-0.070	0.053
3/19/10 9:49	1414	0.070	-0.113	-0.049	-0.068	0.053
3/19/10 9:50	1415	0.077	-0.111	-0.045	-0.066	0.055
3/19/10 9:51	1416	0.070	-0.116	-0.045	-0.064	0.053
3/19/10 9:52	1417	0.067	-0.113	-0.047	-0.064	0.051
3/19/10 9:53	1418	0.067	-0.116	-0.047	-0.073	0.053
3/19/10 9:54	1419	0.070	-0.113	-0.047	-0.064	0.055
3/19/10 9:55	1420	0.072	-0.113	-0.049	-0.066	0.053
3/19/10 9:56	1421	0.072	-0.113	-0.047	-0.064	0.053
3/19/10 9:57	1422	0.074	-0.111	-0.047	-0.064	0.055
3/19/10 9:58	1423	0.070	-0.111	-0.049	-0.064	0.055
3/19/10 9:59	1424	0.070	-0.113	-0.045	-0.070	0.055
3/19/10 10:00	1425	0.074	-0.111	-0.047	-0.061	0.058
3/19/10 10:01	1426	0.074	-0.111	-0.045	-0.066	0.055
3/19/10 10:02	1427	0.072	-0.111	-0.049	-0.061	0.053
3/19/10 10:03	1428	0.072	-0.111	-0.045	-0.061	0.055
3/19/10 10:04	1429	0.077	-0.111	-0.042	-0.061	0.055
3/19/10 10:05	1430	0.072	-0.109	-0.042	-0.057	0.055
3/19/10 10:06	1431	0.077	-0.109	-0.045	-0.057	0.055
3/19/10 10:07	1432	0.074	-0.111	-0.045	-0.061	0.058
3/19/10 10:08	1433	0.072	-0.111	-0.045	-0.064	0.055
3/19/10 10:09	1434	0.070	-0.111	-0.045	-0.061	0.053
3/19/10 10:10	1435	0.079	-0.111	-0.045	-0.064	0.053
3/19/10 10:11	1436	0.074	-0.111	-0.042	-0.064	0.055
3/19/10 10:12	1437	0.074	-0.109	-0.045	-0.064	0.058
3/19/10 10:13	1438	0.077	-0.109	-0.045	-0.057	0.058
3/19/10 10:14	1439	0.072	-0.106	-0.042	-0.064	0.058
3/19/10 10:15	1440	0.077	-0.109	-0.042	-0.064	0.051
3/19/10 10:16	1441	0.079	-0.109	-0.045	-0.057	0.055
3/19/10 10:17	1442	0.079	-0.109	-0.042	-0.061	0.058
3/19/10 10:18	1443	0.077	-0.106	-0.045	-0.059	0.060
3/19/10 10:19	1444	0.077	-0.106	-0.042	-0.057	0.058
3/19/10 10:20	1445	0.077	-0.106	-0.045	-0.059	0.060
3/19/10 10:21	1446	0.079	-0.106	-0.042	-0.054	0.065
3/19/10 10:22	1447	0.081	-0.106	-0.040	-0.057	0.062
3/19/10 10:23	1448	0.079	-0.106	-0.040	-0.054	0.062
3/19/10 10:24	1449	0.079	-0.104	-0.040	-0.054	0.062
3/19/10 10:25	1450	0.079	-0.104	-0.042	-0.057	0.060
3/19/10 10:26	1451	0.079	-0.106	-0.042	-0.057	0.060
3/19/10 10:27	1452	0.079	-0.102	-0.038	-0.061	0.060
3/19/10 10:28	1453	0.084	-0.102	-0.038	-0.052	0.062
3/19/10 10:29	1454	0.079	-0.099	-0.038	-0.052	0.062
3/19/10 10:30	1455	0.084	-0.102	-0.038	-0.054	0.060
3/19/10 10:31	1456	0.086	-0.097	-0.038	-0.052	0.062
3/19/10 10:32	1457	0.077	-0.099	-0.038	-0.045	0.062

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 10:33	1458	0.084	-0.099	-0.038	-0.050	0.065
3/19/10 10:34	1459	0.084	-0.097	-0.035	-0.043	0.062
3/19/10 10:35	1460	0.086	-0.099	-0.038	-0.047	0.067
3/19/10 10:36	1461	0.084	-0.099	-0.033	-0.050	0.067
3/19/10 10:37	1462	0.084	-0.097	-0.035	-0.047	0.072
3/19/10 10:38	1463	0.086	-0.094	-0.033	-0.045	0.067
3/19/10 10:39	1464	0.086	-0.097	-0.035	-0.047	0.065
3/19/10 10:40	1465	0.084	-0.097	-0.035	-0.047	0.067
3/19/10 10:41	1466	0.086	-0.092	-0.035	-0.045	0.065
3/19/10 10:42	1467	0.086	-0.097	-0.035	-0.047	0.067
3/19/10 10:43	1468	0.086	-0.094	-0.033	-0.043	0.067
3/19/10 10:44	1469	0.086	-0.094	-0.035	-0.045	0.067
3/19/10 10:45	1470	0.091	-0.094	-0.035	-0.040	0.067
3/19/10 10:46	1471	0.086	-0.094	-0.035	-0.045	0.067
3/19/10 10:47	1472	0.088	-0.094	-0.033	-0.040	0.067
3/19/10 10:48	1473	0.084	-0.094	-0.033	-0.045	0.067
3/19/10 10:49	1474	0.088	-0.092	-0.033	-0.047	0.067
3/19/10 10:50	1475	0.091	-0.092	-0.031	-0.045	0.072
3/19/10 10:51	1476	0.081	-0.092	-0.031	-0.043	0.067
3/19/10 10:52	1477	0.086	-0.094	-0.031	-0.047	0.065
3/19/10 10:53	1478	0.088	-0.094	-0.031	-0.038	0.067
3/19/10 10:54	1479	0.086	-0.094	-0.033	-0.043	0.067
3/19/10 10:55	1480	0.084	-0.092	-0.033	-0.038	0.069
3/19/10 10:56	1481	0.086	-0.094	-0.031	-0.045	0.069
3/19/10 10:57	1482	0.088	-0.092	-0.033	-0.045	0.067
3/19/10 10:58	1483	0.086	-0.090	-0.028	-0.040	0.072
3/19/10 10:59	1484	0.088	-0.090	-0.031	-0.043	0.069
3/19/10 11:00	1485	0.084	-0.090	-0.031	-0.038	0.067
3/19/10 11:01	1486	0.084	-0.092	-0.033	-0.040	0.069
3/19/10 11:02	1487	0.084	-0.092	-0.031	-0.047	0.069
3/19/10 11:03	1488	0.084	-0.092	-0.031	-0.038	0.072
3/19/10 11:04	1489	0.084	-0.092	-0.028	-0.043	0.074
3/19/10 11:05	1490	0.084	-0.090	-0.026	-0.040	0.069
3/19/10 11:06	1491	0.084	-0.092	-0.031	-0.043	0.069
3/19/10 11:07	1492	0.084	-0.092	-0.028	-0.043	0.072
3/19/10 11:08	1493	0.084	-0.092	-0.031	-0.043	0.067
3/19/10 11:09	1494	0.086	-0.094	-0.031	-0.043	0.069
3/19/10 11:10	1495	0.084	-0.092	-0.026	-0.045	0.072
3/19/10 11:11	1496	0.081	-0.092	-0.026	-0.040	0.072
3/19/10 11:12	1497	0.081	-0.092	-0.028	-0.043	0.074
3/19/10 11:13	1498	0.081	-0.092	-0.026	-0.043	0.074
3/19/10 11:14	1499	0.086	-0.092	-0.026	-0.045	0.069
3/19/10 11:15	1500	0.086	-0.092	-0.028	-0.038	0.072
3/19/10 11:16	1501	0.088	-0.092	-0.026	-0.043	0.072
3/19/10 11:17	1502	0.084	-0.090	-0.026	-0.043	0.072
3/19/10 11:18	1503	0.084	-0.090	-0.026	-0.045	0.074
3/19/10 11:19	1504	0.088	-0.092	-0.026	-0.043	0.072
3/19/10 11:20	1505	0.084	-0.092	-0.028	-0.045	0.076
3/19/10 11:21	1506	0.084	-0.092	-0.026	-0.045	0.074

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 11:22	1507	0.081	-0.094	-0.024	-0.047	0.069
3/19/10 11:23	1508	0.084	-0.094	-0.028	-0.045	0.074
3/19/10 11:24	1509	0.084	-0.092	-0.026	-0.043	0.072
3/19/10 11:25	1510	0.081	-0.094	-0.024	-0.043	0.069
3/19/10 11:26	1511	0.086	-0.090	-0.026	-0.045	0.072
3/19/10 11:27	1512	0.081	-0.092	-0.028	-0.045	0.069
3/19/10 11:28	1513	0.084	-0.092	-0.024	-0.038	0.076
3/19/10 11:29	1514	0.079	-0.090	-0.024	-0.043	0.072
3/19/10 11:30	1515	0.084	-0.092	-0.021	-0.038	0.076
3/19/10 11:31	1516	0.081	-0.090	-0.024	-0.040	0.069
3/19/10 11:32	1517	0.081	-0.090	-0.024	-0.038	0.072
3/19/10 11:33	1518	0.084	-0.090	-0.026	-0.043	0.076
3/19/10 11:34	1519	0.081	-0.087	-0.026	-0.043	0.074
3/19/10 11:35	1520	0.086	-0.085	-0.024	-0.036	0.074
3/19/10 11:36	1521	0.084	-0.087	-0.024	-0.038	0.074
3/19/10 11:37	1522	0.086	-0.087	-0.024	-0.036	0.074
3/19/10 11:38	1523	0.086	-0.085	-0.024	-0.036	0.076
3/19/10 11:39	1524	0.088	-0.083	-0.026	-0.031	0.076
3/19/10 11:40	1525	0.086	-0.085	-0.024	-0.038	0.076
3/19/10 11:41	1526	0.084	-0.085	-0.026	-0.036	0.079
3/19/10 11:42	1527	0.086	-0.085	-0.024	-0.038	0.079
3/19/10 11:43	1528	0.088	-0.085	-0.024	-0.033	0.079
3/19/10 11:44	1529	0.086	-0.085	-0.024	-0.031	0.076
3/19/10 11:45	1530	0.086	-0.090	-0.019	-0.031	0.079
3/19/10 11:46	1531	0.088	-0.080	-0.024	-0.033	0.079
3/19/10 11:47	1532	0.088	-0.083	-0.021	-0.031	0.079
3/19/10 11:48	1533	0.086	-0.080	-0.019	-0.029	0.081
3/19/10 11:49	1534	0.086	-0.078	-0.026	-0.029	0.081
3/19/10 11:50	1535	0.086	-0.080	-0.021	-0.029	0.079
3/19/10 11:51	1536	0.088	-0.078	-0.021	-0.029	0.081
3/19/10 11:52	1537	0.086	-0.078	-0.019	-0.033	0.079
3/19/10 11:53	1538	0.084	-0.080	-0.021	-0.033	0.079
3/19/10 11:54	1539	0.086	-0.083	-0.019	-0.033	0.081
3/19/10 11:55	1540	0.081	-0.083	-0.019	-0.033	0.079
3/19/10 11:56	1541	0.084	-0.083	-0.019	-0.033	0.081
3/19/10 11:57	1542	0.084	-0.080	-0.026	-0.036	0.079
3/19/10 11:58	1543	0.086	-0.080	-0.021	-0.036	0.081
3/19/10 11:59	1544	0.086	-0.083	-0.019	-0.033	0.081
3/19/10 12:00	1545	0.081	-0.083	-0.019	-0.031	0.079
3/19/10 12:01	1546	0.084	-0.083	-0.024	-0.033	0.079
3/19/10 12:02	1547	0.088	-0.083	-0.021	-0.031	0.079
3/19/10 12:03	1548	0.084	-0.080	-0.021	-0.036	0.079
3/19/10 12:04	1549	0.084	-0.083	-0.019	-0.038	0.079
3/19/10 12:05	1550	0.081	-0.083	-0.019	-0.033	0.079
3/19/10 12:06	1551	0.084	-0.083	-0.019	-0.031	0.081
3/19/10 12:07	1552	0.079	-0.083	-0.019	-0.031	0.079
3/19/10 12:08	1553	0.086	-0.083	-0.019	-0.026	0.081
3/19/10 12:09	1554	0.086	-0.080	-0.019	-0.029	0.083
3/19/10 12:10	1555	0.084	-0.080	-0.014	-0.026	0.079

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 12:11	1556	0.081	-0.080	-0.017	-0.033	0.081
3/19/10 12:12	1557	0.081	-0.083	-0.019	-0.029	0.081
3/19/10 12:13	1558	0.086	-0.078	-0.017	-0.031	0.081
3/19/10 12:14	1559	0.086	-0.078	-0.017	-0.029	0.086
3/19/10 12:15	1560	0.088	-0.078	-0.019	-0.022	0.083
3/19/10 12:16	1561	0.084	-0.078	-0.017	-0.026	0.083
3/19/10 12:17	1562	0.086	-0.076	-0.014	-0.024	0.083
3/19/10 12:18	1563	0.088	-0.076	-0.017	-0.026	0.083
3/19/10 12:19	1564	0.088	-0.078	-0.019	-0.031	0.083
3/19/10 12:20	1565	0.084	-0.076	-0.014	-0.029	0.083
3/19/10 12:21	1566	0.084	-0.076	-0.014	-0.029	0.081
3/19/10 12:22	1567	0.086	-0.076	-0.017	-0.024	0.083
3/19/10 12:23	1568	0.088	-0.073	-0.014	-0.026	0.086
3/19/10 12:24	1569	0.091	-0.076	-0.017	-0.024	0.081
3/19/10 12:25	1570	0.086	-0.073	-0.014	-0.029	0.086
3/19/10 12:26	1571	0.086	-0.073	-0.014	-0.022	0.086
3/19/10 12:27	1572	0.088	-0.073	-0.014	-0.026	0.086
3/19/10 12:28	1573	0.091	-0.071	-0.014	-0.022	0.090
3/19/10 12:29	1574	0.091	-0.073	-0.017	-0.026	0.086
3/19/10 12:30	1575	0.093	-0.069	-0.014	-0.022	0.086
3/19/10 12:31	1576	0.093	-0.066	-0.010	-0.019	0.090
3/19/10 12:32	1577	0.093	-0.066	-0.012	-0.017	0.090
3/19/10 12:33	1578	0.095	-0.066	-0.014	-0.017	0.093
3/19/10 12:34	1579	0.098	-0.064	-0.014	-0.010	0.095
3/19/10 12:35	1580	0.095	-0.064	-0.012	-0.008	0.090
3/19/10 12:36	1581	0.095	-0.066	-0.012	-0.012	0.093
3/19/10 12:37	1582	0.095	-0.064	-0.010	-0.003	0.090
3/19/10 12:38	1583	0.098	-0.066	-0.012	-0.012	0.095
3/19/10 12:39	1584	0.095	-0.062	-0.012	-0.012	0.090
3/19/10 12:40	1585	0.098	-0.064	-0.010	-0.010	0.095
3/19/10 12:41	1586	0.093	-0.062	-0.010	-0.010	0.093
3/19/10 12:42	1587	0.091	-0.064	-0.010	-0.022	0.093
3/19/10 12:43	1588	0.093	-0.064	-0.007	-0.012	0.093
3/19/10 12:44	1589	0.095	-0.059	-0.007	-0.012	0.090
3/19/10 12:45	1590	0.095	-0.062	-0.007	-0.012	0.093
3/19/10 12:46	1591	0.098	-0.064	-0.007	-0.010	0.093
3/19/10 12:47	1592	0.098	-0.062	-0.010	-0.012	0.093
3/19/10 12:48	1593	0.095	-0.062	-0.010	-0.008	0.095
3/19/10 12:49	1594	0.098	-0.062	-0.010	-0.012	0.090
3/19/10 12:50	1595	0.095	-0.059	-0.010	-0.010	0.097
3/19/10 12:51	1596	0.095	-0.064	-0.010	-0.015	0.095
3/19/10 12:52	1597	0.093	-0.064	-0.010	-0.017	0.093
3/19/10 12:53	1598	0.088	-0.064	-0.010	-0.019	0.095
3/19/10 12:54	1599	0.088	-0.066	-0.010	-0.012	0.093
3/19/10 12:55	1600	0.091	-0.066	-0.010	-0.015	0.095
3/19/10 12:56	1601	0.091	-0.071	-0.010	-0.019	0.088
3/19/10 12:57	1602	0.088	-0.071	-0.010	-0.015	0.093
3/19/10 12:58	1603	0.086	-0.069	-0.005	-0.012	0.090
3/19/10 12:59	1604	0.086	-0.069	-0.007	-0.022	0.090

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 13:00	1605	0.086	-0.069	-0.007	-0.019	0.090
3/19/10 13:01	1606	0.086	-0.069	-0.010	-0.019	0.090
3/19/10 13:02	1607	0.088	-0.069	-0.005	-0.015	0.093
3/19/10 13:03	1608	0.086	-0.066	-0.005	-0.019	0.093
3/19/10 13:04	1609	0.091	-0.069	-0.005	-0.015	0.093
3/19/10 13:05	1610	0.091	-0.064	-0.005	-0.015	0.093
3/19/10 13:06	1611	0.088	-0.066	-0.005	-0.012	0.090
3/19/10 13:07	1612	0.086	-0.069	-0.003	-0.017	0.090
3/19/10 13:08	1613	0.088	-0.069	-0.005	-0.015	0.093
3/19/10 13:09	1614	0.091	-0.069	-0.005	-0.024	0.095
3/19/10 13:10	1615	0.086	-0.069	-0.005	-0.015	0.095
3/19/10 13:11	1616	0.088	-0.066	-0.003	-0.019	0.090
3/19/10 13:12	1617	0.084	-0.069	-0.005	-0.019	0.090
3/19/10 13:13	1618	0.086	-0.069	-0.005	-0.022	0.093
3/19/10 13:14	1619	0.088	-0.069	-0.007	-0.012	0.093
3/19/10 13:15	1620	0.088	-0.066	-0.005	-0.015	0.095
3/19/10 13:16	1621	0.088	-0.064	-0.003	-0.015	0.095
3/19/10 13:17	1622	0.088	-0.066	-0.005	-0.017	0.095
3/19/10 13:18	1623	0.086	-0.064	-0.005	-0.019	0.093
3/19/10 13:19	1624	0.086	-0.066	0.000	-0.015	0.100
3/19/10 13:20	1625	0.093	-0.066	-0.003	-0.019	0.095
3/19/10 13:21	1626	0.088	-0.064	-0.005	-0.015	0.095
3/19/10 13:22	1627	0.093	-0.064	-0.003	-0.012	0.097
3/19/10 13:23	1628	0.093	-0.062	-0.003	-0.010	0.097
3/19/10 13:24	1629	0.093	-0.064	0.000	-0.010	0.097
3/19/10 13:25	1630	0.088	-0.064	-0.003	-0.012	0.097
3/19/10 13:26	1631	0.091	-0.059	-0.003	-0.017	0.095
3/19/10 13:27	1632	0.091	-0.062	-0.003	-0.010	0.095
3/19/10 13:28	1633	0.088	-0.059	0.000	-0.012	0.097
3/19/10 13:29	1634	0.091	-0.062	-0.003	-0.008	0.097
3/19/10 13:30	1635	0.093	-0.062	-0.003	-0.015	0.097
3/19/10 13:31	1636	0.091	-0.062	0.000	-0.010	0.095
3/19/10 13:32	1637	0.091	-0.059	0.000	-0.010	0.097
3/19/10 13:33	1638	0.086	-0.062	0.000	-0.008	0.093
3/19/10 13:34	1639	0.086	-0.059	0.000	-0.010	0.095
3/19/10 13:35	1640	0.091	-0.059	0.000	-0.010	0.100
3/19/10 13:36	1641	0.088	-0.064	0.002	-0.008	0.095
3/19/10 13:37	1642	0.095	-0.055	0.000	-0.008	0.100
3/19/10 13:38	1643	0.093	-0.055	0.002	-0.003	0.100
3/19/10 13:39	1644	0.095	-0.057	0.000	-0.005	0.100
3/19/10 13:40	1645	0.100	-0.055	0.002	-0.005	0.102
3/19/10 13:41	1646	0.095	-0.057	0.000	-0.010	0.100
3/19/10 13:42	1647	0.093	-0.055	0.000	-0.001	0.100
3/19/10 13:43	1648	0.093	-0.052	-0.003	-0.003	0.102
3/19/10 13:44	1649	0.093	-0.057	0.002	-0.005	0.100
3/19/10 13:45	1650	0.095	-0.055	0.002	-0.008	0.102
3/19/10 13:46	1651	0.095	-0.055	0.000	-0.005	0.100
3/19/10 13:47	1652	0.093	-0.055	0.002	-0.001	0.102
3/19/10 13:48	1653	0.095	-0.055	0.002	-0.005	0.104

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 13:49	1654	0.095	-0.055	0.004	-0.008	0.100
3/19/10 13:50	1655	0.095	-0.055	0.004	-0.003	0.100
3/19/10 13:51	1656	0.093	-0.057	0.007	-0.001	0.102
3/19/10 13:52	1657	0.093	-0.057	0.002	-0.003	0.100
3/19/10 13:53	1658	0.091	-0.059	0.004	-0.003	0.104
3/19/10 13:54	1659	0.098	-0.055	0.004	-0.005	0.100
3/19/10 13:55	1660	0.093	-0.052	0.004	-0.005	0.102
3/19/10 13:56	1661	0.095	-0.050	0.007	-0.008	0.102
3/19/10 13:57	1662	0.095	-0.055	0.004	-0.005	0.104
3/19/10 13:58	1663	0.093	-0.057	0.004	-0.003	0.102
3/19/10 13:59	1664	0.091	-0.057	0.004	-0.005	0.102
3/19/10 14:00	1665	0.093	-0.055	0.004	-0.008	0.104
3/19/10 14:01	1666	0.091	-0.055	0.007	-0.003	0.102
3/19/10 14:02	1667	0.088	-0.055	0.004	-0.003	0.102
3/19/10 14:03	1668	0.091	-0.055	0.007	-0.003	0.102
3/19/10 14:04	1669	0.098	-0.052	0.009	-0.008	0.102
3/19/10 14:05	1670	0.095	-0.055	0.007	-0.003	0.102
3/19/10 14:06	1671	0.093	-0.057	0.009	-0.008	0.102
3/19/10 14:07	1672	0.091	-0.057	0.011	-0.003	0.102
3/19/10 14:08	1673	0.088	-0.057	0.004	-0.005	0.102
3/19/10 14:09	1674	0.088	-0.055	0.007	-0.005	0.102
3/19/10 14:10	1675	0.093	-0.057	0.009	-0.005	0.100
3/19/10 14:11	1676	0.093	-0.057	0.007	-0.010	0.102
3/19/10 14:12	1677	0.086	-0.057	0.009	-0.008	0.104
3/19/10 14:13	1678	0.088	-0.055	0.009	-0.001	0.104
3/19/10 14:14	1679	0.088	-0.057	0.007	-0.008	0.102
3/19/10 14:15	1680	0.091	-0.052	0.009	-0.010	0.102
3/19/10 14:16	1681	0.088	-0.057	0.007	-0.003	0.104
3/19/10 14:17	1682	0.088	-0.057	0.011	-0.003	0.104
3/19/10 14:18	1683	0.088	-0.057	0.009	-0.012	0.104
3/19/10 14:19	1684	0.088	-0.057	0.009	-0.008	0.102
3/19/10 14:20	1685	0.088	-0.059	0.004	-0.008	0.102
3/19/10 14:21	1686	0.091	-0.055	0.009	-0.005	0.102
3/19/10 14:22	1687	0.091	-0.057	0.009	-0.008	0.102
3/19/10 14:23	1688	0.093	-0.055	0.009	-0.005	0.107
3/19/10 14:24	1689	0.088	-0.057	0.014	-0.008	0.104
3/19/10 14:25	1690	0.093	-0.055	0.016	-0.001	0.104
3/19/10 14:26	1691	0.088	-0.052	0.014	-0.001	0.107
3/19/10 14:27	1692	0.093	-0.050	0.011	-0.001	0.111
3/19/10 14:28	1693	0.093	-0.052	0.011	-0.005	0.111
3/19/10 14:29	1694	0.093	-0.050	0.016	0.002	0.109
3/19/10 14:30	1695	0.093	-0.050	0.014	-0.003	0.109
3/19/10 14:31	1696	0.093	-0.050	0.011	0.004	0.107
3/19/10 14:32	1697	0.095	-0.048	0.011	-0.001	0.107
3/19/10 14:33	1698	0.098	-0.048	0.014	0.006	0.111
3/19/10 14:34	1699	0.098	-0.050	0.016	0.002	0.109
3/19/10 14:35	1700	0.098	-0.048	0.014	0.004	0.111
3/19/10 14:36	1701	0.098	-0.048	0.011	0.004	0.109
3/19/10 14:37	1702	0.098	-0.043	0.016	0.011	0.116

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 14:38	1703	0.100	-0.045	0.014	0.013	0.109
3/19/10 14:39	1704	0.105	-0.043	0.016	0.006	0.109
3/19/10 14:40	1705	0.102	-0.043	0.014	0.011	0.114
3/19/10 14:41	1706	0.105	-0.043	0.016	0.011	0.109
3/19/10 14:42	1707	0.102	-0.038	0.009	0.016	0.111
3/19/10 14:43	1708	0.105	-0.038	0.014	0.016	0.116
3/19/10 14:44	1709	0.105	-0.038	0.016	0.011	0.114
3/19/10 14:45	1710	0.107	-0.038	0.016	0.006	0.114
3/19/10 14:46	1711	0.105	-0.038	0.018	0.013	0.111
3/19/10 14:47	1712	0.109	-0.036	0.016	0.018	0.116
3/19/10 14:48	1713	0.112	-0.036	0.016	0.013	0.118
3/19/10 14:49	1714	0.107	-0.036	0.018	0.020	0.118
3/19/10 14:50	1715	0.105	-0.036	0.018	0.016	0.116
3/19/10 14:51	1716	0.105	-0.036	0.018	0.018	0.116
3/19/10 14:52	1717	0.105	-0.036	0.021	0.016	0.116
3/19/10 14:53	1718	0.107	-0.038	0.018	0.023	0.114
3/19/10 14:54	1719	0.107	-0.036	0.018	0.013	0.116
3/19/10 14:55	1720	0.107	-0.034	0.021	0.013	0.114
3/19/10 14:56	1721	0.107	-0.036	0.021	0.016	0.116
3/19/10 14:57	1722	0.112	-0.036	0.021	0.020	0.121
3/19/10 14:58	1723	0.109	-0.034	0.018	0.020	0.116
3/19/10 14:59	1724	0.105	-0.034	0.021	0.016	0.116
3/19/10 15:00	1725	0.109	-0.034	0.021	0.020	0.118
3/19/10 15:01	1726	0.105	-0.036	0.021	0.018	0.118
3/19/10 15:02	1727	0.107	-0.034	0.018	0.018	0.118
3/19/10 15:03	1728	0.107	-0.036	0.023	0.011	0.118
3/19/10 15:04	1729	0.102	-0.036	0.023	0.013	0.118
3/19/10 15:05	1730	0.102	-0.036	0.018	0.013	0.116
3/19/10 15:06	1731	0.102	-0.038	0.018	0.016	0.121
3/19/10 15:07	1732	0.112	-0.036	0.021	0.013	0.116
3/19/10 15:08	1733	0.105	-0.036	0.023	0.018	0.114
3/19/10 15:09	1734	0.100	-0.038	0.023	0.016	0.118
3/19/10 15:10	1735	0.102	-0.036	0.021	0.013	0.116
3/19/10 15:11	1736	0.102	-0.036	0.023	0.016	0.118
3/19/10 15:12	1737	0.105	-0.034	0.021	0.011	0.116
3/19/10 15:13	1738	0.105	-0.036	0.025	0.020	0.118
3/19/10 15:14	1739	0.107	-0.034	0.021	0.016	0.121
3/19/10 15:15	1740	0.107	-0.034	0.023	0.011	0.121
3/19/10 15:16	1741	0.105	-0.031	0.023	0.013	0.121
3/19/10 15:17	1742	0.105	-0.031	0.023	0.018	0.123
3/19/10 15:18	1743	0.112	-0.031	0.028	0.020	0.121
3/19/10 15:19	1744	0.107	-0.034	0.025	0.020	0.121
3/19/10 15:20	1745	0.107	-0.034	0.025	0.018	0.121
3/19/10 15:21	1746	0.105	-0.031	0.023	0.020	0.118
3/19/10 15:22	1747	0.109	-0.034	0.028	0.018	0.116
3/19/10 15:23	1748	0.107	-0.031	0.025	0.013	0.121
3/19/10 15:24	1749	0.107	-0.034	0.025	0.018	0.114
3/19/10 15:25	1750	0.107	-0.034	0.023	0.018	0.118
3/19/10 15:26	1751	0.105	-0.031	0.023	0.020	0.121

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 15:27	1752	0.109	-0.029	0.025	0.023	0.123
3/19/10 15:28	1753	0.105	-0.029	0.028	0.020	0.123
3/19/10 15:29	1754	0.112	-0.031	0.025	0.018	0.123
3/19/10 15:30	1755	0.112	-0.029	0.025	0.020	0.123
3/19/10 15:31	1756	0.109	-0.027	0.030	0.018	0.123
3/19/10 15:32	1757	0.109	-0.029	0.028	0.023	0.125
3/19/10 15:33	1758	0.112	-0.029	0.028	0.020	0.121
3/19/10 15:34	1759	0.112	-0.029	0.028	0.023	0.123
3/19/10 15:35	1760	0.109	-0.029	0.030	0.025	0.120
3/19/10 15:36	1761	0.116	-0.029	0.028	0.025	0.121
3/19/10 15:37	1762	0.109	-0.029	0.030	0.023	0.121
3/19/10 15:38	1763	0.112	-0.027	0.028	0.023	0.123
3/19/10 15:39	1764	0.112	-0.024	0.028	0.027	0.125
3/19/10 15:40	1765	0.112	-0.027	0.028	0.025	0.123
3/19/10 15:41	1766	0.109	-0.029	0.030	0.027	0.121
3/19/10 15:42	1767	0.112	-0.027	0.028	0.030	0.123
3/19/10 15:43	1768	0.112	-0.027	0.028	0.025	0.125
3/19/10 15:44	1769	0.114	-0.027	0.035	0.023	0.123
3/19/10 15:45	1770	0.114	-0.027	0.032	0.023	0.123
3/19/10 15:46	1771	0.109	-0.029	0.032	0.027	0.123
3/19/10 15:47	1772	0.109	-0.027	0.032	0.023	0.125
3/19/10 15:48	1773	0.112	-0.029	0.030	0.020	0.125
3/19/10 15:49	1774	0.112	-0.029	0.030	0.023	0.123
3/19/10 15:50	1775	0.109	-0.029	0.030	0.027	0.125
3/19/10 15:51	1776	0.107	-0.029	0.030	0.020	0.121
3/19/10 15:52	1777	0.109	-0.031	0.028	0.020	0.125
3/19/10 15:53	1778	0.107	-0.029	0.030	0.020	0.125
3/19/10 15:54	1779	0.105	-0.029	0.032	0.020	0.123
3/19/10 15:55	1780	0.109	-0.029	0.035	0.020	0.123
3/19/10 15:56	1781	0.107	-0.029	0.030	0.023	0.125
3/19/10 15:57	1782	0.107	-0.031	0.030	0.020	0.125
3/19/10 15:58	1783	0.112	-0.031	0.030	0.023	0.127
3/19/10 15:59	1784	0.107	-0.029	0.032	0.018	0.127
3/19/10 16:00	1785	0.109	-0.027	0.032	0.020	0.125
3/19/10 16:01	1786	0.112	-0.027	0.032	0.025	0.125
3/19/10 16:02	1787	0.107	-0.024	0.032	0.025	0.125
3/19/10 16:03	1788	0.109	-0.024	0.030	0.027	0.125
3/19/10 16:04	1789	0.107	-0.027	0.032	0.027	0.125
3/19/10 16:05	1790	0.112	-0.029	0.035	0.030	0.125
3/19/10 16:06	1791	0.109	-0.027	0.037	0.025	0.125
3/19/10 16:07	1792	0.105	-0.024	0.032	0.020	0.127
3/19/10 16:08	1793	0.109	-0.024	0.035	0.020	0.125
3/19/10 16:09	1794	0.109	-0.029	0.035	0.023	0.125
3/19/10 16:10	1795	0.109	-0.027	0.035	0.023	0.123
3/19/10 16:11	1796	0.112	-0.027	0.037	0.020	0.123
3/19/10 16:12	1797	0.109	-0.031	0.035	0.018	0.125
3/19/10 16:13	1798	0.100	-0.031	0.035	0.016	0.125
3/19/10 16:14	1799	0.100	-0.034	0.037	0.016	0.118
3/19/10 16:15	1800	0.105	-0.031	0.035	0.020	0.125

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 16:16	1801	0.105	-0.031	0.035	0.023	0.125
3/19/10 16:17	1802	0.105	-0.031	0.037	0.018	0.123
3/19/10 16:18	1803	0.100	-0.031	0.035	0.018	0.125
3/19/10 16:19	1804	0.105	-0.031	0.037	0.020	0.125
3/19/10 16:20	1805	0.105	-0.034	0.037	0.023	0.127
3/19/10 16:21	1806	0.102	-0.029	0.035	0.016	0.123
3/19/10 16:22	1807	0.102	-0.029	0.035	0.016	0.125
3/19/10 16:23	1808	0.102	-0.029	0.035	0.020	0.125
3/19/10 16:24	1809	0.105	-0.031	0.037	0.025	0.121
3/19/10 16:25	1810	0.102	-0.029	0.037	0.020	0.123
3/19/10 16:26	1811	0.102	-0.029	0.037	0.016	0.123
3/19/10 16:27	1812	0.102	-0.034	0.032	0.018	0.127
3/19/10 16:28	1813	0.095	-0.034	0.039	0.018	0.125
3/19/10 16:29	1814	0.098	-0.036	0.035	0.013	0.125
3/19/10 16:30	1815	0.098	-0.038	0.037	0.011	0.123
3/19/10 16:31	1816	0.095	-0.038	0.035	0.011	0.121
3/19/10 16:32	1817	0.088	-0.038	0.037	0.006	0.123
3/19/10 16:33	1818	0.091	-0.038	0.035	0.006	0.123
3/19/10 16:34	1819	0.095	-0.036	0.037	0.013	0.123
3/19/10 16:35	1820	0.093	-0.036	0.037	0.013	0.121
3/19/10 16:36	1821	0.098	-0.036	0.037	0.020	0.123
3/19/10 16:37	1822	0.100	-0.036	0.035	0.013	0.125
3/19/10 16:38	1823	0.100	-0.036	0.037	0.016	0.123
3/19/10 16:39	1824	0.093	-0.036	0.037	0.011	0.123
3/19/10 16:40	1825	0.102	-0.034	0.037	0.020	0.123
3/19/10 16:41	1826	0.095	-0.034	0.037	0.013	0.125
3/19/10 16:42	1827	0.095	-0.036	0.037	0.011	0.121
3/19/10 16:43	1828	0.095	-0.036	0.037	0.011	0.125
3/19/10 16:44	1829	0.093	-0.038	0.039	0.013	0.121
3/19/10 16:45	1830	0.091	-0.036	0.039	0.013	0.123
3/19/10 16:46	1831	0.093	-0.041	0.039	0.016	0.123
3/19/10 16:47	1832	0.095	-0.038	0.037	0.011	0.123
3/19/10 16:48	1833	0.093	-0.038	0.037	0.013	0.123
3/19/10 16:49	1834	0.091	-0.041	0.039	0.013	0.123
3/19/10 16:50	1835	0.093	-0.038	0.039	0.011	0.125
3/19/10 16:51	1836	0.091	-0.036	0.037	0.009	0.123
3/19/10 16:52	1837	0.093	-0.038	0.039	0.013	0.123
3/19/10 16:53	1838	0.098	-0.036	0.039	0.016	0.123
3/19/10 16:54	1839	0.098	-0.038	0.039	0.016	0.123
3/19/10 16:55	1840	0.093	-0.031	0.037	0.013	0.127
3/19/10 16:56	1841	0.098	-0.031	0.039	0.018	0.125
3/19/10 16:57	1842	0.100	-0.029	0.039	0.018	0.125
3/19/10 16:58	1843	0.098	-0.031	0.039	0.016	0.130
3/19/10 16:59	1844	0.100	-0.034	0.042	0.018	0.130
3/19/10 17:00	1845	0.093	-0.031	0.042	0.016	0.125
3/19/10 17:01	1846	0.100	-0.034	0.039	0.018	0.125
3/19/10 17:02	1847	0.098	-0.034	0.039	0.016	0.130
3/19/10 17:03	1848	0.098	-0.034	0.039	0.016	0.127
3/19/10 17:04	1849	0.093	-0.036	0.042	0.013	0.125

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 17:05	1850	0.095	-0.034	0.039	0.016	0.125
3/19/10 17:06	1851	0.098	-0.034	0.039	0.016	0.130
3/19/10 17:07	1852	0.095	-0.034	0.044	0.018	0.127
3/19/10 17:08	1853	0.098	-0.034	0.042	0.018	0.123
3/19/10 17:09	1854	0.098	-0.034	0.042	0.016	0.130
3/19/10 17:10	1855	0.098	-0.034	0.042	0.011	0.127
3/19/10 17:11	1856	0.095	-0.036	0.044	0.018	0.127
3/19/10 17:12	1857	0.093	-0.034	0.039	0.016	0.125
3/19/10 17:13	1858	0.093	-0.036	0.039	0.016	0.125
3/19/10 17:14	1859	0.100	-0.034	0.042	0.018	0.127
3/19/10 17:15	1860	0.093	-0.031	0.042	0.016	0.125
3/19/10 17:16	1861	0.095	-0.034	0.044	0.018	0.127
3/19/10 17:17	1862	0.098	-0.031	0.044	0.018	0.125
3/19/10 17:18	1863	0.098	-0.031	0.042	0.016	0.130
3/19/10 17:19	1864	0.095	-0.029	0.044	0.013	0.125
3/19/10 17:20	1865	0.093	-0.031	0.039	0.018	0.130
3/19/10 17:21	1866	0.098	-0.031	0.044	0.020	0.130
3/19/10 17:22	1867	0.095	-0.031	0.044	0.018	0.127
3/19/10 17:23	1868	0.098	-0.034	0.044	0.018	0.125
3/19/10 17:24	1869	0.100	-0.034	0.042	0.016	0.125
3/19/10 17:25	1870	0.095	-0.034	0.044	0.018	0.130
3/19/10 17:26	1871	0.093	-0.034	0.044	0.016	0.127
3/19/10 17:27	1872	0.095	-0.034	0.046	0.013	0.127
3/19/10 17:28	1873	0.098	-0.036	0.044	0.018	0.127
3/19/10 17:29	1874	0.093	-0.034	0.044	0.020	0.125
3/19/10 17:30	1875	0.093	-0.036	0.044	0.020	0.125
3/19/10 17:31	1876	0.093	-0.036	0.044	0.020	0.127
3/19/10 17:32	1877	0.095	-0.034	0.042	0.020	0.130
3/19/10 17:33	1878	0.095	-0.034	0.046	0.013	0.130
3/19/10 17:34	1879	0.093	-0.034	0.044	0.018	0.130
3/19/10 17:35	1880	0.095	-0.034	0.046	0.016	0.130
3/19/10 17:36	1881	0.093	-0.034	0.044	0.016	0.127
3/19/10 17:37	1882	0.091	-0.031	0.044	0.016	0.130
3/19/10 17:38	1883	0.098	-0.034	0.044	0.018	0.130
3/19/10 17:39	1884	0.095	-0.034	0.044	0.013	0.130
3/19/10 17:40	1885	0.098	-0.031	0.046	0.018	0.130
3/19/10 17:41	1886	0.095	-0.029	0.046	0.016	0.127
3/19/10 17:42	1887	0.098	-0.034	0.044	0.018	0.130
3/19/10 17:43	1888	0.093	-0.034	0.046	0.020	0.130
3/19/10 17:44	1889	0.093	-0.031	0.046	0.018	0.132
3/19/10 17:45	1890	0.095	-0.031	0.046	0.018	0.130
3/19/10 17:46	1891	0.095	-0.031	0.046	0.018	0.132
3/19/10 17:47	1892	0.102	-0.031	0.046	0.025	0.130
3/19/10 17:48	1893	0.095	-0.031	0.044	0.018	0.130
3/19/10 17:49	1894	0.098	-0.031	0.046	0.020	0.130
3/19/10 17:50	1895	0.098	-0.031	0.046	0.018	0.130
3/19/10 17:51	1896	0.095	-0.029	0.046	0.020	0.132
3/19/10 17:52	1897	0.098	-0.034	0.046	0.023	0.130
3/19/10 17:53	1898	0.095	-0.029	0.049	0.020	0.132

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 17:54	1899	0.098	-0.027	0.046	0.020	0.132
3/19/10 17:55	1900	0.098	-0.031	0.051	0.023	0.132
3/19/10 17:56	1901	0.098	-0.029	0.049	0.023	0.132
3/19/10 17:57	1902	0.100	-0.029	0.051	0.025	0.130
3/19/10 17:58	1903	0.102	-0.027	0.046	0.023	0.134
3/19/10 17:59	1904	0.102	-0.024	0.049	0.027	0.134
3/19/10 18:00	1905	0.100	-0.024	0.049	0.027	0.134
3/19/10 18:01	1906	0.102	-0.022	0.049	0.032	0.134
3/19/10 18:02	1907	0.102	-0.024	0.049	0.030	0.137
3/19/10 18:03	1908	0.105	-0.022	0.051	0.027	0.134
3/19/10 18:04	1909	0.107	-0.024	0.051	0.037	0.139
3/19/10 18:05	1910	0.107	-0.022	0.049	0.032	0.137
3/19/10 18:06	1911	0.107	-0.020	0.049	0.032	0.139
3/19/10 18:07	1912	0.107	-0.017	0.049	0.034	0.139
3/19/10 18:08	1913	0.105	-0.017	0.049	0.037	0.139
3/19/10 18:09	1914	0.109	-0.020	0.051	0.027	0.137
3/19/10 18:10	1915	0.107	-0.015	0.053	0.030	0.139
3/19/10 18:11	1916	0.107	-0.020	0.049	0.037	0.141
3/19/10 18:12	1917	0.109	-0.015	0.051	0.034	0.139
3/19/10 18:13	1918	0.112	-0.015	0.051	0.037	0.141
3/19/10 18:14	1919	0.114	-0.015	0.051	0.037	0.139
3/19/10 18:15	1920	0.114	-0.012	0.053	0.034	0.139
3/19/10 18:16	1921	0.114	-0.015	0.051	0.041	0.144
3/19/10 18:17	1922	0.114	-0.010	0.051	0.044	0.141
3/19/10 18:18	1923	0.116	-0.008	0.051	0.041	0.141
3/19/10 18:19	1924	0.119	-0.008	0.053	0.041	0.144
3/19/10 18:20	1925	0.119	-0.005	0.053	0.041	0.144
3/19/10 18:21	1926	0.119	-0.008	0.053	0.046	0.141
3/19/10 18:22	1927	0.121	-0.008	0.053	0.046	0.144
3/19/10 18:23	1928	0.119	-0.008	0.053	0.044	0.146
3/19/10 18:24	1929	0.119	-0.005	0.053	0.044	0.144
3/19/10 18:25	1930	0.119	-0.005	0.056	0.044	0.146
3/19/10 18:26	1931	0.119	-0.005	0.053	0.051	0.148
3/19/10 18:27	1932	0.121	-0.001	0.056	0.051	0.148
3/19/10 18:28	1933	0.126	-0.003	0.058	0.051	0.148
3/19/10 18:29	1934	0.123	-0.003	0.056	0.048	0.151
3/19/10 18:30	1935	0.123	-0.001	0.056	0.048	0.146
3/19/10 18:31	1936	0.123	-0.003	0.056	0.051	0.148
3/19/10 18:32	1937	0.126	0.002	0.056	0.048	0.151
3/19/10 18:33	1938	0.126	-0.001	0.056	0.051	0.148
3/19/10 18:34	1939	0.128	-0.001	0.058	0.055	0.146
3/19/10 18:35	1940	0.126	0.002	0.058	0.053	0.151
3/19/10 18:36	1941	0.126	0.002	0.058	0.051	0.148
3/19/10 18:37	1942	0.123	0.002	0.058	0.048	0.148
3/19/10 18:38	1943	0.126	0.002	0.058	0.053	0.151
3/19/10 18:39	1944	0.128	0.002	0.060	0.060	0.151
3/19/10 18:40	1945	0.128	-0.001	0.058	0.053	0.153
3/19/10 18:41	1946	0.133	-0.001	0.058	0.053	0.151
3/19/10 18:42	1947	0.130	0.002	0.060	0.051	0.153

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 18:43	1948	0.126	-0.001	0.060	0.048	0.148
3/19/10 18:44	1949	0.128	0.002	0.060	0.048	0.151
3/19/10 18:45	1950	0.128	0.002	0.058	0.055	0.153
3/19/10 18:46	1951	0.130	0.002	0.063	0.048	0.153
3/19/10 18:47	1952	0.126	-0.001	0.063	0.055	0.151
3/19/10 18:48	1953	0.128	0.002	0.058	0.051	0.151
3/19/10 18:49	1954	0.130	0.002	0.063	0.046	0.151
3/19/10 18:50	1955	0.128	0.002	0.063	0.051	0.151
3/19/10 18:51	1956	0.126	0.002	0.060	0.055	0.151
3/19/10 18:52	1957	0.126	-0.001	0.060	0.053	0.151
3/19/10 18:53	1958	0.123	0.002	0.063	0.051	0.151
3/19/10 18:54	1959	0.128	0.002	0.060	0.048	0.153
3/19/10 18:55	1960	0.123	-0.001	0.060	0.051	0.153
3/19/10 18:56	1961	0.123	0.002	0.060	0.053	0.153
3/19/10 18:57	1962	0.123	-0.001	0.065	0.046	0.153
3/19/10 18:58	1963	0.123	-0.001	0.063	0.051	0.148
3/19/10 18:59	1964	0.121	-0.001	0.063	0.048	0.148
3/19/10 19:00	1965	0.123	-0.003	0.063	0.048	0.148
3/19/10 19:01	1966	0.123	-0.003	0.063	0.048	0.153
3/19/10 19:02	1967	0.126	-0.001	0.063	0.051	0.148
3/19/10 19:03	1968	0.126	-0.001	0.060	0.053	0.151
3/19/10 19:04	1969	0.128	0.004	0.065	0.053	0.153
3/19/10 19:05	1970	0.128	0.006	0.065	0.055	0.153
3/19/10 19:06	1971	0.126	0.006	0.070	0.055	0.153
3/19/10 19:07	1972	0.135	0.006	0.067	0.058	0.153
3/19/10 19:08	1973	0.135	0.006	0.065	0.060	0.155
3/19/10 19:09	1974	0.133	0.009	0.065	0.060	0.158
3/19/10 19:10	1975	0.135	0.011	0.065	0.065	0.160
3/19/10 19:11	1976	0.137	0.013	0.067	0.060	0.158
3/19/10 19:12	1977	0.137	0.016	0.063	0.067	0.158
3/19/10 19:13	1978	0.140	0.016	0.067	0.062	0.160
3/19/10 19:14	1979	0.140	0.016	0.067	0.062	0.160
3/19/10 19:15	1980	0.140	0.016	0.070	0.065	0.160
3/19/10 19:16	1981	0.137	0.016	0.070	0.067	0.160
3/19/10 19:17	1982	0.137	0.016	0.070	0.067	0.160
3/19/10 19:18	1983	0.133	0.013	0.070	0.072	0.160
3/19/10 19:19	1984	0.142	0.013	0.067	0.060	0.165
3/19/10 19:20	1985	0.137	0.016	0.067	0.062	0.158
3/19/10 19:21	1986	0.142	0.013	0.070	0.067	0.162
3/19/10 19:22	1987	0.135	0.016	0.070	0.067	0.160
3/19/10 19:23	1988	0.137	0.016	0.067	0.069	0.160
3/19/10 19:24	1989	0.142	0.016	0.067	0.069	0.160
3/19/10 19:25	1990	0.140	0.016	0.072	0.065	0.160
3/19/10 19:26	1991	0.140	0.016	0.072	0.065	0.160
3/19/10 19:27	1992	0.140	0.018	0.074	0.065	0.162
3/19/10 19:28	1993	0.142	0.016	0.072	0.067	0.162
3/19/10 19:29	1994	0.140	0.016	0.072	0.069	0.162
3/19/10 19:30	1995	0.140	0.016	0.070	0.062	0.162
3/19/10 19:31	1996	0.137	0.013	0.072	0.067	0.160

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 19:32	1997	0.135	0.013	0.072	0.067	0.160
3/19/10 19:33	1998	0.137	0.013	0.072	0.065	0.160
3/19/10 19:34	1999	0.133	0.013	0.074	0.067	0.158
3/19/10 19:35	2000	0.135	0.013	0.070	0.062	0.158
3/19/10 19:36	2001	0.133	0.011	0.072	0.060	0.160
3/19/10 19:37	2002	0.133	0.013	0.072	0.069	0.160
3/19/10 19:38	2003	0.135	0.011	0.074	0.065	0.160
3/19/10 19:39	2004	0.135	0.011	0.072	0.065	0.160
3/19/10 19:40	2005	0.135	0.011	0.074	0.062	0.160
3/19/10 19:41	2006	0.133	0.011	0.074	0.058	0.160
3/19/10 19:42	2007	0.137	0.009	0.074	0.055	0.158
3/19/10 19:43	2008	0.133	0.011	0.072	0.058	0.160
3/19/10 19:44	2009	0.133	0.011	0.074	0.060	0.160
3/19/10 19:45	2010	0.130	0.011	0.074	0.053	0.158
3/19/10 19:46	2011	0.133	0.009	0.072	0.062	0.158
3/19/10 19:47	2012	0.133	0.013	0.074	0.062	0.160
3/19/10 19:48	2013	0.130	0.013	0.074	0.058	0.160
3/19/10 19:49	2014	0.135	0.013	0.079	0.065	0.160
3/19/10 19:50	2015	0.130	0.013	0.074	0.067	0.162
3/19/10 19:51	2016	0.137	0.013	0.077	0.062	0.160
3/19/10 19:52	2017	0.135	0.016	0.074	0.062	0.162
3/19/10 19:53	2018	0.135	0.013	0.074	0.067	0.162
3/19/10 19:54	2019	0.137	0.013	0.074	0.067	0.165
3/19/10 19:55	2020	0.137	0.016	0.077	0.069	0.162
3/19/10 19:56	2021	0.135	0.013	0.077	0.065	0.162
3/19/10 19:57	2022	0.133	0.013	0.074	0.065	0.162
3/19/10 19:58	2023	0.135	0.011	0.077	0.062	0.162
3/19/10 19:59	2024	0.137	0.013	0.077	0.062	0.165
3/19/10 20:00	2025	0.133	0.013	0.077	0.065	0.160
3/19/10 20:01	2026	0.135	0.018	0.077	0.062	0.165
3/19/10 20:02	2027	0.137	0.016	0.079	0.067	0.165
3/19/10 20:03	2028	0.137	0.016	0.079	0.069	0.162
3/19/10 20:04	2029	0.135	0.018	0.077	0.067	0.162
3/19/10 20:05	2030	0.137	0.018	0.077	0.065	0.162
3/19/10 20:06	2031	0.137	0.018	0.079	0.067	0.165
3/19/10 20:07	2032	0.142	0.018	0.079	0.072	0.165
3/19/10 20:08	2033	0.140	0.018	0.079	0.072	0.165
3/19/10 20:09	2034	0.140	0.016	0.081	0.067	0.165
3/19/10 20:10	2035	0.142	0.018	0.077	0.074	0.165
3/19/10 20:11	2036	0.140	0.020	0.081	0.072	0.165
3/19/10 20:12	2037	0.142	0.020	0.081	0.072	0.167
3/19/10 20:13	2038	0.147	0.023	0.081	0.076	0.165
3/19/10 20:14	2039	0.142	0.025	0.079	0.076	0.167
3/19/10 20:15	2040	0.142	0.023	0.081	0.079	0.169
3/19/10 20:16	2041	0.149	0.027	0.079	0.079	0.172
3/19/10 20:17	2042	0.147	0.025	0.081	0.079	0.169
3/19/10 20:18	2043	0.147	0.025	0.079	0.074	0.169
3/19/10 20:19	2044	0.144	0.027	0.081	0.076	0.169
3/19/10 20:20	2045	0.144	0.025	0.084	0.081	0.169

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 20:21	2046	0.144	0.025	0.081	0.074	0.169
3/19/10 20:22	2047	0.147	0.025	0.084	0.079	0.172
3/19/10 20:23	2048	0.147	0.025	0.084	0.076	0.172
3/19/10 20:24	2049	0.144	0.025	0.081	0.081	0.169
3/19/10 20:25	2050	0.147	0.027	0.084	0.076	0.172
3/19/10 20:26	2051	0.147	0.025	0.081	0.074	0.169
3/19/10 20:27	2052	0.147	0.030	0.084	0.076	0.169
3/19/10 20:28	2053	0.147	0.027	0.084	0.076	0.169
3/19/10 20:29	2054	0.149	0.025	0.086	0.081	0.169
3/19/10 20:30	2055	0.147	0.027	0.084	0.076	0.172
3/19/10 20:31	2056	0.147	0.027	0.086	0.079	0.172
3/19/10 20:32	2057	0.149	0.030	0.084	0.081	0.172
3/19/10 20:33	2058	0.147	0.027	0.086	0.081	0.172
3/19/10 20:34	2059	0.149	0.030	0.086	0.083	0.172
3/19/10 20:35	2060	0.149	0.030	0.086	0.079	0.172
3/19/10 20:36	2061	0.149	0.032	0.088	0.083	0.172
3/19/10 20:37	2062	0.151	0.032	0.086	0.081	0.174
3/19/10 20:38	2063	0.149	0.027	0.086	0.079	0.169
3/19/10 20:39	2064	0.147	0.027	0.086	0.081	0.172
3/19/10 20:40	2065	0.144	0.027	0.084	0.074	0.174
3/19/10 20:41	2066	0.151	0.030	0.088	0.079	0.172
3/19/10 20:42	2067	0.149	0.030	0.088	0.076	0.172
3/19/10 20:43	2068	0.147	0.030	0.088	0.079	0.174
3/19/10 20:44	2069	0.151	0.030	0.086	0.081	0.174
3/19/10 20:45	2070	0.154	0.030	0.086	0.081	0.172
3/19/10 20:46	2071	0.149	0.030	0.088	0.072	0.174
3/19/10 20:47	2072	0.149	0.030	0.091	0.081	0.174
3/19/10 20:48	2073	0.147	0.032	0.088	0.088	0.174
3/19/10 20:49	2074	0.151	0.032	0.088	0.079	0.176
3/19/10 20:50	2075	0.154	0.030	0.088	0.086	0.174
3/19/10 20:51	2076	0.151	0.032	0.091	0.081	0.174
3/19/10 20:52	2077	0.151	0.032	0.088	0.074	0.172
3/19/10 20:53	2078	0.149	0.032	0.091	0.079	0.176
3/19/10 20:54	2079	0.149	0.034	0.088	0.081	0.176
3/19/10 20:55	2080	0.151	0.034	0.091	0.086	0.176
3/19/10 20:56	2081	0.149	0.034	0.091	0.081	0.174
3/19/10 20:57	2082	0.151	0.034	0.091	0.083	0.176
3/19/10 20:58	2083	0.151	0.030	0.091	0.079	0.176
3/19/10 20:59	2084	0.151	0.032	0.091	0.083	0.174
3/19/10 21:00	2085	0.147	0.034	0.095	0.086	0.174
3/19/10 21:01	2086	0.151	0.037	0.095	0.081	0.176
3/19/10 21:02	2087	0.154	0.034	0.093	0.088	0.179
3/19/10 21:03	2088	0.151	0.034	0.091	0.083	0.181
3/19/10 21:04	2089	0.151	0.034	0.093	0.081	0.174
3/19/10 21:05	2090	0.151	0.032	0.091	0.083	0.179
3/19/10 21:06	2091	0.156	0.034	0.093	0.086	0.174
3/19/10 21:07	2092	0.149	0.034	0.088	0.086	0.179
3/19/10 21:08	2093	0.151	0.037	0.093	0.088	0.176
3/19/10 21:09	2094	0.151	0.034	0.093	0.081	0.183

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 21:10	2095	0.154	0.032	0.091	0.088	0.179
3/19/10 21:11	2096	0.156	0.037	0.095	0.088	0.176
3/19/10 21:12	2097	0.158	0.039	0.095	0.083	0.176
3/19/10 21:13	2098	0.154	0.041	0.093	0.086	0.179
3/19/10 21:14	2099	0.156	0.041	0.095	0.083	0.179
3/19/10 21:15	2100	0.163	0.037	0.091	0.090	0.181
3/19/10 21:16	2101	0.158	0.044	0.095	0.088	0.183
3/19/10 21:17	2102	0.161	0.044	0.098	0.088	0.179
3/19/10 21:18	2103	0.163	0.044	0.095	0.092	0.181
3/19/10 21:19	2104	0.163	0.046	0.098	0.097	0.181
3/19/10 21:20	2105	0.168	0.048	0.098	0.099	0.183
3/19/10 21:21	2106	0.163	0.046	0.100	0.104	0.183
3/19/10 21:22	2107	0.165	0.051	0.100	0.092	0.183
3/19/10 21:23	2108	0.168	0.048	0.095	0.099	0.186
3/19/10 21:24	2109	0.170	0.053	0.098	0.111	0.183
3/19/10 21:25	2110	0.170	0.053	0.100	0.104	0.188
3/19/10 21:26	2111	0.170	0.053	0.102	0.099	0.188
3/19/10 21:27	2112	0.168	0.051	0.100	0.104	0.183
3/19/10 21:28	2113	0.170	0.053	0.100	0.102	0.190
3/19/10 21:29	2114	0.172	0.055	0.095	0.104	0.188
3/19/10 21:30	2115	0.172	0.058	0.098	0.106	0.190
3/19/10 21:31	2116	0.172	0.055	0.098	0.106	0.190
3/19/10 21:32	2117	0.170	0.055	0.098	0.111	0.190
3/19/10 21:33	2118	0.172	0.055	0.098	0.102	0.190
3/19/10 21:34	2119	0.172	0.055	0.100	0.109	0.188
3/19/10 21:35	2120	0.170	0.055	0.100	0.104	0.190
3/19/10 21:36	2121	0.168	0.053	0.100	0.104	0.190
3/19/10 21:37	2122	0.168	0.053	0.102	0.102	0.190
3/19/10 21:38	2123	0.170	0.055	0.102	0.113	0.188
3/19/10 21:39	2124	0.170	0.055	0.102	0.104	0.190
3/19/10 21:40	2125	0.170	0.055	0.100	0.109	0.190
3/19/10 21:41	2126	0.170	0.053	0.100	0.106	0.190
3/19/10 21:42	2127	0.172	0.055	0.100	0.111	0.195
3/19/10 21:43	2128	0.168	0.053	0.105	0.104	0.190
3/19/10 21:44	2129	0.172	0.055	0.102	0.102	0.190
3/19/10 21:45	2130	0.170	0.055	0.102	0.104	0.190
3/19/10 21:46	2131	0.168	0.055	0.105	0.102	0.190
3/19/10 21:47	2132	0.168	0.053	0.102	0.106	0.188
3/19/10 21:48	2133	0.177	0.055	0.102	0.099	0.190
3/19/10 21:49	2134	0.172	0.058	0.105	0.104	0.188
3/19/10 21:50	2135	0.170	0.060	0.105	0.104	0.193
3/19/10 21:51	2136	0.175	0.058	0.105	0.104	0.193
3/19/10 21:52	2137	0.170	0.060	0.105	0.106	0.190
3/19/10 21:53	2138	0.177	0.058	0.107	0.111	0.193
3/19/10 21:54	2139	0.175	0.060	0.105	0.106	0.193
3/19/10 21:55	2140	0.175	0.060	0.107	0.104	0.190
3/19/10 21:56	2141	0.170	0.058	0.107	0.109	0.193
3/19/10 21:57	2142	0.172	0.060	0.107	0.111	0.193
3/19/10 21:58	2143	0.175	0.060	0.107	0.111	0.193

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 21:59	2144	0.172	0.058	0.107	0.109	0.193
3/19/10 22:00	2145	0.175	0.060	0.105	0.106	0.193
3/19/10 22:01	2146	0.175	0.060	0.109	0.106	0.195
3/19/10 22:02	2147	0.175	0.060	0.109	0.113	0.195
3/19/10 22:03	2148	0.177	0.062	0.107	0.111	0.195
3/19/10 22:04	2149	0.175	0.062	0.107	0.111	0.193
3/19/10 22:05	2150	0.177	0.062	0.109	0.109	0.193
3/19/10 22:06	2151	0.177	0.058	0.112	0.109	0.195
3/19/10 22:07	2152	0.170	0.060	0.109	0.109	0.195
3/19/10 22:08	2153	0.170	0.058	0.109	0.106	0.193
3/19/10 22:09	2154	0.170	0.055	0.109	0.104	0.193
3/19/10 22:10	2155	0.168	0.055	0.109	0.102	0.195
3/19/10 22:11	2156	0.170	0.055	0.109	0.104	0.190
3/19/10 22:12	2157	0.165	0.053	0.109	0.099	0.190
3/19/10 22:13	2158	0.163	0.053	0.109	0.097	0.190
3/19/10 22:14	2159	0.165	0.053	0.109	0.102	0.193
3/19/10 22:15	2160	0.168	0.053	0.109	0.104	0.190
3/19/10 22:16	2161	0.165	0.053	0.109	0.102	0.190
3/19/10 22:17	2162	0.168	0.058	0.112	0.106	0.190
3/19/10 22:18	2163	0.168	0.055	0.112	0.104	0.190
3/19/10 22:19	2164	0.168	0.058	0.109	0.106	0.193
3/19/10 22:20	2165	0.165	0.055	0.112	0.104	0.193
3/19/10 22:21	2166	0.168	0.058	0.112	0.106	0.193
3/19/10 22:22	2167	0.172	0.058	0.109	0.109	0.193
3/19/10 22:23	2168	0.168	0.058	0.109	0.106	0.195
3/19/10 22:24	2169	0.168	0.053	0.109	0.104	0.193
3/19/10 22:25	2170	0.165	0.058	0.109	0.102	0.193
3/19/10 22:26	2171	0.163	0.055	0.112	0.106	0.193
3/19/10 22:27	2172	0.165	0.053	0.112	0.099	0.193
3/19/10 22:28	2173	0.163	0.053	0.114	0.102	0.190
3/19/10 22:29	2174	0.168	0.053	0.112	0.095	0.190
3/19/10 22:30	2175	0.165	0.053	0.116	0.097	0.190
3/19/10 22:31	2176	0.163	0.051	0.112	0.102	0.190
3/19/10 22:32	2177	0.165	0.048	0.112	0.099	0.188
3/19/10 22:33	2178	0.163	0.046	0.114	0.104	0.190
3/19/10 22:34	2179	0.161	0.048	0.112	0.099	0.190
3/19/10 22:35	2180	0.161	0.048	0.114	0.099	0.190
3/19/10 22:36	2181	0.158	0.048	0.109	0.097	0.190
3/19/10 22:37	2182	0.163	0.051	0.114	0.097	0.190
3/19/10 22:38	2183	0.158	0.051	0.114	0.097	0.188
3/19/10 22:39	2184	0.158	0.051	0.114	0.097	0.188
3/19/10 22:40	2185	0.161	0.048	0.114	0.097	0.190
3/19/10 22:41	2186	0.163	0.051	0.116	0.097	0.190
3/19/10 22:42	2187	0.163	0.051	0.114	0.102	0.188
3/19/10 22:43	2188	0.168	0.053	0.112	0.097	0.190
3/19/10 22:44	2189	0.161	0.053	0.114	0.099	0.193
3/19/10 22:45	2190	0.165	0.055	0.116	0.097	0.193
3/19/10 22:46	2191	0.163	0.053	0.116	0.102	0.193
3/19/10 22:47	2192	0.168	0.053	0.114	0.104	0.193

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 22:48	2193	0.163	0.055	0.116	0.104	0.195
3/19/10 22:49	2194	0.165	0.055	0.114	0.090	0.190
3/19/10 22:50	2195	0.168	0.055	0.116	0.102	0.193
3/19/10 22:51	2196	0.163	0.055	0.116	0.104	0.193
3/19/10 22:52	2197	0.165	0.058	0.116	0.104	0.193
3/19/10 22:53	2198	0.165	0.055	0.116	0.102	0.193
3/19/10 22:54	2199	0.165	0.053	0.116	0.102	0.195
3/19/10 22:55	2200	0.168	0.053	0.116	0.102	0.193
3/19/10 22:56	2201	0.165	0.058	0.116	0.097	0.195
3/19/10 22:57	2202	0.165	0.058	0.114	0.102	0.195
3/19/10 22:58	2203	0.168	0.055	0.116	0.106	0.193
3/19/10 22:59	2204	0.163	0.055	0.119	0.106	0.195
3/19/10 23:00	2205	0.163	0.055	0.119	0.102	0.195
3/19/10 23:01	2206	0.163	0.053	0.114	0.102	0.193
3/19/10 23:02	2207	0.161	0.051	0.116	0.102	0.193
3/19/10 23:03	2208	0.158	0.051	0.116	0.102	0.193
3/19/10 23:04	2209	0.158	0.051	0.119	0.099	0.190
3/19/10 23:05	2210	0.161	0.051	0.119	0.097	0.190
3/19/10 23:06	2211	0.158	0.048	0.119	0.095	0.193
3/19/10 23:07	2212	0.158	0.048	0.121	0.095	0.190
3/19/10 23:08	2213	0.158	0.046	0.119	0.090	0.190
3/19/10 23:09	2214	0.151	0.044	0.119	0.092	0.188
3/19/10 23:10	2215	0.154	0.046	0.119	0.090	0.188
3/19/10 23:11	2216	0.151	0.044	0.121	0.090	0.188
3/19/10 23:12	2217	0.151	0.041	0.116	0.088	0.188
3/19/10 23:13	2218	0.154	0.044	0.116	0.095	0.188
3/19/10 23:14	2219	0.151	0.044	0.116	0.088	0.188
3/19/10 23:15	2220	0.151	0.046	0.119	0.092	0.190
3/19/10 23:16	2221	0.158	0.048	0.119	0.090	0.193
3/19/10 23:17	2222	0.156	0.048	0.116	0.095	0.193
3/19/10 23:18	2223	0.163	0.051	0.119	0.099	0.193
3/19/10 23:19	2224	0.158	0.053	0.119	0.099	0.193
3/19/10 23:20	2225	0.161	0.053	0.116	0.097	0.193
3/19/10 23:21	2226	0.158	0.053	0.119	0.104	0.193
3/19/10 23:22	2227	0.158	0.051	0.119	0.104	0.195
3/19/10 23:23	2228	0.154	0.051	0.119	0.097	0.195
3/19/10 23:24	2229	0.158	0.048	0.119	0.102	0.193
3/19/10 23:25	2230	0.158	0.048	0.119	0.095	0.190
3/19/10 23:26	2231	0.154	0.048	0.123	0.092	0.190
3/19/10 23:27	2232	0.154	0.048	0.119	0.097	0.193
3/19/10 23:28	2233	0.154	0.048	0.119	0.097	0.195
3/19/10 23:29	2234	0.154	0.048	0.119	0.086	0.193
3/19/10 23:30	2235	0.154	0.048	0.121	0.095	0.193
3/19/10 23:31	2236	0.161	0.048	0.121	0.099	0.193
3/19/10 23:32	2237	0.156	0.048	0.119	0.097	0.190
3/19/10 23:33	2238	0.154	0.051	0.121	0.102	0.193
3/19/10 23:34	2239	0.156	0.048	0.121	0.095	0.195
3/19/10 23:35	2240	0.154	0.051	0.121	0.099	0.193
3/19/10 23:36	2241	0.158	0.051	0.121	0.099	0.193

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/19/10 23:37	2242	0.161	0.053	0.121	0.099	0.193
3/19/10 23:38	2243	0.156	0.053	0.123	0.102	0.195
3/19/10 23:39	2244	0.161	0.053	0.123	0.099	0.193
3/19/10 23:40	2245	0.158	0.053	0.121	0.097	0.195
3/19/10 23:41	2246	0.158	0.053	0.121	0.104	0.195
3/19/10 23:42	2247	0.158	0.055	0.121	0.102	0.195
3/19/10 23:43	2248	0.161	0.051	0.123	0.099	0.193
3/19/10 23:44	2249	0.158	0.053	0.123	0.102	0.193
3/19/10 23:45	2250	0.158	0.053	0.121	0.104	0.193
3/19/10 23:46	2251	0.156	0.053	0.121	0.099	0.197
3/19/10 23:47	2252	0.156	0.053	0.123	0.097	0.195
3/19/10 23:48	2253	0.158	0.053	0.123	0.104	0.197
3/19/10 23:49	2254	0.158	0.053	0.123	0.102	0.195
3/19/10 23:50	2255	0.154	0.053	0.126	0.102	0.197
3/19/10 23:51	2256	0.156	0.051	0.121	0.099	0.197
3/19/10 23:52	2257	0.158	0.053	0.126	0.102	0.195
3/19/10 23:53	2258	0.158	0.055	0.123	0.099	0.195
3/19/10 23:54	2259	0.158	0.053	0.123	0.104	0.197
3/19/10 23:55	2260	0.161	0.055	0.123	0.102	0.197
3/19/10 23:56	2261	0.161	0.055	0.126	0.102	0.195
3/19/10 23:57	2262	0.158	0.058	0.126	0.099	0.197
3/19/10 23:58	2263	0.163	0.058	0.123	0.104	0.197
3/19/10 23:59	2264	0.163	0.058	0.126	0.104	0.197
3/20/10 0:00	2265	0.161	0.058	0.123	0.104	0.195
3/20/10 0:01	2266	0.163	0.058	0.123	0.106	0.200
3/20/10 0:02	2267	0.163	0.058	0.126	0.106	0.197
3/20/10 0:03	2268	0.163	0.058	0.123	0.102	0.197
3/20/10 0:04	2269	0.163	0.060	0.126	0.102	0.200
3/20/10 0:05	2270	0.163	0.058	0.126	0.102	0.197
3/20/10 0:06	2271	0.163	0.060	0.126	0.109	0.200
3/20/10 0:07	2272	0.163	0.058	0.123	0.102	0.197
3/20/10 0:08	2273	0.163	0.055	0.123	0.102	0.200
3/20/10 0:09	2274	0.163	0.058	0.123	0.104	0.200
3/20/10 0:10	2275	0.163	0.058	0.126	0.106	0.197
3/20/10 0:11	2276	0.165	0.058	0.126	0.106	0.197
3/20/10 0:12	2277	0.165	0.058	0.128	0.102	0.197
3/20/10 0:13	2278	0.165	0.058	0.123	0.102	0.200
3/20/10 0:14	2279	0.165	0.060	0.126	0.106	0.200
3/20/10 0:15	2280	0.163	0.060	0.126	0.106	0.202
3/20/10 0:16	2281	0.168	0.065	0.126	0.104	0.204
3/20/10 0:17	2282	0.165	0.062	0.126	0.102	0.202
3/20/10 0:18	2283	0.170	0.062	0.126	0.106	0.200
3/20/10 0:19	2284	0.168	0.062	0.128	0.109	0.202
3/20/10 0:20	2285	0.165	0.062	0.128	0.104	0.202
3/20/10 0:21	2286	0.165	0.060	0.126	0.106	0.200
3/20/10 0:22	2287	0.168	0.062	0.126	0.106	0.200
3/20/10 0:23	2288	0.165	0.060	0.128	0.109	0.202
3/20/10 0:24	2289	0.163	0.060	0.128	0.106	0.200
3/20/10 0:25	2290	0.163	0.060	0.126	0.111	0.202

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 0:26	2291	0.165	0.062	0.128	0.106	0.202
3/20/10 0:27	2292	0.165	0.065	0.128	0.109	0.202
3/20/10 0:28	2293	0.168	0.062	0.128	0.104	0.204
3/20/10 0:29	2294	0.168	0.065	0.128	0.111	0.202
3/20/10 0:30	2295	0.165	0.065	0.128	0.109	0.202
3/20/10 0:31	2296	0.165	0.065	0.128	0.109	0.202
3/20/10 0:32	2297	0.168	0.065	0.128	0.106	0.204
3/20/10 0:33	2298	0.168	0.062	0.128	0.109	0.202
3/20/10 0:34	2299	0.170	0.065	0.130	0.113	0.202
3/20/10 0:35	2300	0.168	0.065	0.130	0.106	0.202
3/20/10 0:36	2301	0.168	0.067	0.130	0.111	0.204
3/20/10 0:37	2302	0.168	0.070	0.130	0.111	0.204
3/20/10 0:38	2303	0.175	0.067	0.130	0.111	0.202
3/20/10 0:39	2304	0.170	0.067	0.130	0.116	0.207
3/20/10 0:40	2305	0.172	0.070	0.130	0.116	0.207
3/20/10 0:41	2306	0.172	0.072	0.130	0.118	0.207
3/20/10 0:42	2307	0.175	0.072	0.130	0.118	0.207
3/20/10 0:43	2308	0.175	0.070	0.128	0.113	0.204
3/20/10 0:44	2309	0.175	0.072	0.133	0.113	0.207
3/20/10 0:45	2310	0.175	0.067	0.128	0.116	0.207
3/20/10 0:46	2311	0.170	0.067	0.128	0.113	0.207
3/20/10 0:47	2312	0.168	0.067	0.130	0.111	0.204
3/20/10 0:48	2313	0.168	0.070	0.128	0.113	0.207
3/20/10 0:49	2314	0.168	0.067	0.130	0.113	0.207
3/20/10 0:50	2315	0.172	0.067	0.133	0.111	0.204
3/20/10 0:51	2316	0.170	0.067	0.130	0.113	0.204
3/20/10 0:52	2317	0.168	0.070	0.130	0.109	0.204
3/20/10 0:53	2318	0.168	0.070	0.135	0.109	0.204
3/20/10 0:54	2319	0.170	0.067	0.130	0.113	0.207
3/20/10 0:55	2320	0.168	0.067	0.130	0.116	0.204
3/20/10 0:56	2321	0.172	0.070	0.133	0.106	0.207
3/20/10 0:57	2322	0.170	0.070	0.130	0.111	0.207
3/20/10 0:58	2323	0.168	0.067	0.133	0.118	0.209
3/20/10 0:59	2324	0.172	0.070	0.130	0.109	0.207
3/20/10 1:00	2325	0.170	0.072	0.130	0.113	0.207
3/20/10 1:01	2326	0.168	0.067	0.133	0.111	0.209
3/20/10 1:02	2327	0.170	0.067	0.130	0.109	0.209
3/20/10 1:03	2328	0.170	0.070	0.133	0.116	0.209
3/20/10 1:04	2329	0.172	0.072	0.130	0.118	0.207
3/20/10 1:05	2330	0.172	0.072	0.133	0.118	0.209
3/20/10 1:06	2331	0.168	0.074	0.133	0.113	0.209
3/20/10 1:07	2332	0.170	0.072	0.135	0.116	0.209
3/20/10 1:08	2333	0.170	0.072	0.133	0.116	0.209
3/20/10 1:09	2334	0.170	0.072	0.135	0.111	0.209
3/20/10 1:10	2335	0.170	0.070	0.135	0.111	0.211
3/20/10 1:11	2336	0.170	0.067	0.130	0.109	0.209
3/20/10 1:12	2337	0.170	0.067	0.133	0.109	0.207
3/20/10 1:13	2338	0.168	0.067	0.133	0.111	0.207
3/20/10 1:14	2339	0.168	0.067	0.133	0.111	0.207

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 1:15	2340	0.168	0.067	0.137	0.109	0.207
3/20/10 1:16	2341	0.163	0.067	0.133	0.113	0.209
3/20/10 1:17	2342	0.165	0.067	0.135	0.106	0.209
3/20/10 1:18	2343	0.163	0.067	0.135	0.111	0.207
3/20/10 1:19	2344	0.165	0.065	0.135	0.111	0.207
3/20/10 1:20	2345	0.170	0.065	0.133	0.116	0.209
3/20/10 1:21	2346	0.163	0.067	0.133	0.109	0.209
3/20/10 1:22	2347	0.168	0.067	0.135	0.109	0.207
3/20/10 1:23	2348	0.168	0.065	0.133	0.106	0.209
3/20/10 1:24	2349	0.165	0.067	0.137	0.113	0.209
3/20/10 1:25	2350	0.168	0.065	0.133	0.111	0.209
3/20/10 1:26	2351	0.165	0.065	0.135	0.106	0.209
3/20/10 1:27	2352	0.168	0.067	0.137	0.113	0.209
3/20/10 1:28	2353	0.168	0.067	0.133	0.109	0.209
3/20/10 1:29	2354	0.163	0.067	0.135	0.111	0.207
3/20/10 1:30	2355	0.170	0.067	0.133	0.113	0.209
3/20/10 1:31	2356	0.170	0.070	0.137	0.109	0.207
3/20/10 1:32	2357	0.168	0.070	0.137	0.104	0.207
3/20/10 1:33	2358	0.168	0.067	0.137	0.113	0.209
3/20/10 1:34	2359	0.168	0.067	0.135	0.113	0.209
3/20/10 1:35	2360	0.170	0.067	0.135	0.109	0.211
3/20/10 1:36	2361	0.168	0.070	0.135	0.116	0.211
3/20/10 1:37	2362	0.165	0.067	0.135	0.111	0.209
3/20/10 1:38	2363	0.168	0.067	0.135	0.109	0.209
3/20/10 1:39	2364	0.168	0.067	0.135	0.109	0.211
3/20/10 1:40	2365	0.168	0.067	0.137	0.106	0.211
3/20/10 1:41	2366	0.168	0.067	0.135	0.113	0.209
3/20/10 1:42	2367	0.165	0.067	0.140	0.109	0.207
3/20/10 1:43	2368	0.165	0.065	0.135	0.109	0.209
3/20/10 1:44	2369	0.165	0.067	0.137	0.111	0.209
3/20/10 1:45	2370	0.163	0.067	0.137	0.111	0.209
3/20/10 1:46	2371	0.165	0.065	0.137	0.106	0.207
3/20/10 1:47	2372	0.163	0.067	0.137	0.109	0.207
3/20/10 1:48	2373	0.161	0.065	0.135	0.106	0.209
3/20/10 1:49	2374	0.163	0.065	0.137	0.106	0.207
3/20/10 1:50	2375	0.163	0.065	0.140	0.106	0.209
3/20/10 1:51	2376	0.161	0.065	0.137	0.109	0.209
3/20/10 1:52	2377	0.161	0.065	0.137	0.111	0.207
3/20/10 1:53	2378	0.161	0.065	0.137	0.104	0.207
3/20/10 1:54	2379	0.163	0.065	0.137	0.111	0.209
3/20/10 1:55	2380	0.163	0.065	0.137	0.104	0.209
3/20/10 1:56	2381	0.163	0.065	0.137	0.106	0.209
3/20/10 1:57	2382	0.161	0.062	0.137	0.109	0.209
3/20/10 1:58	2383	0.161	0.065	0.140	0.106	0.204
3/20/10 1:59	2384	0.165	0.067	0.140	0.104	0.209
3/20/10 2:00	2385	0.161	0.065	0.140	0.104	0.207
3/20/10 2:01	2386	0.163	0.062	0.140	0.102	0.211
3/20/10 2:02	2387	0.165	0.062	0.140	0.099	0.204
3/20/10 2:03	2388	0.158	0.065	0.140	0.102	0.209

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 2:04	2389	0.163	0.062	0.140	0.104	0.209
3/20/10 2:05	2390	0.163	0.065	0.137	0.106	0.207
3/20/10 2:06	2391	0.165	0.065	0.137	0.106	0.209
3/20/10 2:07	2392	0.161	0.067	0.137	0.106	0.209
3/20/10 2:08	2393	0.163	0.065	0.137	0.104	0.211
3/20/10 2:09	2394	0.158	0.062	0.140	0.106	0.211
3/20/10 2:10	2395	0.161	0.065	0.140	0.104	0.209
3/20/10 2:11	2396	0.161	0.065	0.140	0.104	0.211
3/20/10 2:12	2397	0.165	0.065	0.137	0.106	0.209
3/20/10 2:13	2398	0.161	0.067	0.140	0.111	0.211
3/20/10 2:14	2399	0.165	0.067	0.142	0.113	0.209
3/20/10 2:15	2400	0.165	0.067	0.140	0.111	0.211
3/20/10 2:16	2401	0.163	0.067	0.140	0.109	0.209
3/20/10 2:17	2402	0.165	0.067	0.140	0.106	0.211
3/20/10 2:18	2403	0.163	0.067	0.140	0.106	0.211
3/20/10 2:19	2404	0.163	0.070	0.140	0.109	0.211
3/20/10 2:20	2405	0.168	0.070	0.142	0.109	0.211
3/20/10 2:21	2406	0.170	0.070	0.137	0.106	0.211
3/20/10 2:22	2407	0.165	0.070	0.140	0.111	0.211
3/20/10 2:23	2408	0.165	0.069	0.144	0.106	0.214
3/20/10 2:24	2409	0.165	0.074	0.142	0.111	0.211
3/20/10 2:25	2410	0.170	0.072	0.140	0.109	0.216
3/20/10 2:26	2411	0.168	0.070	0.140	0.116	0.214
3/20/10 2:27	2412	0.168	0.072	0.140	0.116	0.216
3/20/10 2:28	2413	0.170	0.074	0.142	0.118	0.214
3/20/10 2:29	2414	0.172	0.074	0.140	0.111	0.216
3/20/10 2:30	2415	0.170	0.074	0.142	0.113	0.216
3/20/10 2:31	2416	0.172	0.074	0.142	0.111	0.216
3/20/10 2:32	2417	0.170	0.077	0.142	0.118	0.216
3/20/10 2:33	2418	0.172	0.074	0.142	0.116	0.216
3/20/10 2:34	2419	0.170	0.077	0.144	0.116	0.216
3/20/10 2:35	2420	0.172	0.074	0.142	0.113	0.214
3/20/10 2:36	2421	0.168	0.074	0.142	0.116	0.214
3/20/10 2:37	2422	0.170	0.074	0.142	0.118	0.216
3/20/10 2:38	2423	0.168	0.072	0.144	0.113	0.216
3/20/10 2:39	2424	0.170	0.074	0.142	0.116	0.216
3/20/10 2:40	2425	0.172	0.074	0.144	0.116	0.216
3/20/10 2:41	2426	0.165	0.074	0.142	0.116	0.218
3/20/10 2:42	2427	0.172	0.077	0.144	0.118	0.218
3/20/10 2:43	2428	0.170	0.077	0.144	0.116	0.218
3/20/10 2:44	2429	0.175	0.077	0.144	0.118	0.218
3/20/10 2:45	2430	0.172	0.077	0.137	0.118	0.218
3/20/10 2:46	2431	0.170	0.074	0.144	0.116	0.218
3/20/10 2:47	2432	0.170	0.077	0.147	0.118	0.218
3/20/10 2:48	2433	0.172	0.077	0.144	0.118	0.218
3/20/10 2:49	2434	0.170	0.077	0.144	0.113	0.218
3/20/10 2:50	2435	0.170	0.074	0.144	0.113	0.216
3/20/10 2:51	2436	0.165	0.074	0.144	0.120	0.216
3/20/10 2:52	2437	0.168	0.072	0.144	0.118	0.216

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 2:53	2438	0.168	0.074	0.144	0.111	0.216
3/20/10 2:54	2439	0.165	0.074	0.147	0.118	0.218
3/20/10 2:55	2440	0.165	0.074	0.144	0.111	0.216
3/20/10 2:56	2441	0.165	0.070	0.147	0.106	0.216
3/20/10 2:57	2442	0.165	0.072	0.144	0.106	0.216
3/20/10 2:58	2443	0.163	0.072	0.147	0.116	0.214
3/20/10 2:59	2444	0.168	0.072	0.147	0.106	0.216
3/20/10 3:00	2445	0.163	0.072	0.147	0.111	0.218
3/20/10 3:01	2446	0.161	0.070	0.144	0.109	0.216
3/20/10 3:02	2447	0.168	0.072	0.147	0.120	0.216
3/20/10 3:03	2448	0.163	0.072	0.147	0.113	0.216
3/20/10 3:04	2449	0.165	0.072	0.149	0.109	0.218
3/20/10 3:05	2450	0.163	0.074	0.147	0.106	0.218
3/20/10 3:06	2451	0.163	0.072	0.147	0.113	0.216
3/20/10 3:07	2452	0.165	0.072	0.147	0.113	0.216
3/20/10 3:08	2453	0.165	0.070	0.147	0.111	0.216
3/20/10 3:09	2454	0.165	0.070	0.147	0.111	0.216
3/20/10 3:10	2455	0.163	0.070	0.147	0.109	0.218
3/20/10 3:11	2456	0.165	0.070	0.147	0.106	0.218
3/20/10 3:12	2457	0.161	0.070	0.147	0.104	0.216
3/20/10 3:13	2458	0.163	0.067	0.144	0.106	0.216
3/20/10 3:14	2459	0.163	0.067	0.147	0.106	0.216
3/20/10 3:15	2460	0.161	0.070	0.147	0.109	0.216
3/20/10 3:16	2461	0.161	0.072	0.147	0.109	0.216
3/20/10 3:17	2462	0.163	0.069	0.147	0.111	0.216
3/20/10 3:18	2463	0.165	0.072	0.149	0.111	0.216
3/20/10 3:19	2464	0.163	0.070	0.149	0.109	0.216
3/20/10 3:20	2465	0.165	0.070	0.149	0.106	0.216
3/20/10 3:21	2466	0.163	0.070	0.147	0.109	0.216
3/20/10 3:22	2467	0.158	0.070	0.149	0.111	0.216
3/20/10 3:23	2468	0.161	0.065	0.147	0.097	0.211
3/20/10 3:24	2469	0.158	0.070	0.147	0.104	0.214
3/20/10 3:25	2470	0.156	0.067	0.149	0.109	0.214
3/20/10 3:26	2471	0.156	0.065	0.147	0.102	0.214
3/20/10 3:27	2472	0.154	0.065	0.149	0.109	0.214
3/20/10 3:28	2473	0.158	0.065	0.147	0.102	0.214
3/20/10 3:29	2474	0.154	0.062	0.147	0.099	0.214
3/20/10 3:30	2475	0.149	0.060	0.149	0.099	0.214
3/20/10 3:31	2476	0.151	0.062	0.149	0.102	0.211
3/20/10 3:32	2477	0.158	0.060	0.147	0.102	0.214
3/20/10 3:33	2478	0.151	0.062	0.147	0.095	0.214
3/20/10 3:34	2479	0.154	0.060	0.149	0.099	0.214
3/20/10 3:35	2480	0.151	0.060	0.147	0.102	0.214
3/20/10 3:36	2481	0.149	0.060	0.151	0.099	0.209
3/20/10 3:37	2482	0.149	0.060	0.149	0.097	0.211
3/20/10 3:38	2483	0.147	0.058	0.149	0.092	0.209
3/20/10 3:39	2484	0.151	0.058	0.147	0.097	0.214
3/20/10 3:40	2485	0.147	0.058	0.151	0.095	0.211
3/20/10 3:41	2486	0.149	0.058	0.147	0.092	0.211

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 3:42	2487	0.147	0.055	0.147	0.095	0.211
3/20/10 3:43	2488	0.149	0.058	0.149	0.092	0.211
3/20/10 3:44	2489	0.144	0.055	0.149	0.090	0.209
3/20/10 3:45	2490	0.142	0.055	0.147	0.090	0.211
3/20/10 3:46	2491	0.142	0.053	0.147	0.092	0.209
3/20/10 3:47	2492	0.140	0.055	0.149	0.088	0.211
3/20/10 3:48	2493	0.137	0.053	0.147	0.092	0.211
3/20/10 3:49	2494	0.142	0.053	0.149	0.090	0.209
3/20/10 3:50	2495	0.142	0.055	0.151	0.088	0.209
3/20/10 3:51	2496	0.140	0.053	0.149	0.086	0.211
3/20/10 3:52	2497	0.142	0.055	0.149	0.095	0.209
3/20/10 3:53	2498	0.140	0.053	0.149	0.092	0.209
3/20/10 3:54	2499	0.144	0.055	0.147	0.092	0.209
3/20/10 3:55	2500	0.142	0.053	0.147	0.092	0.211
3/20/10 3:56	2501	0.144	0.053	0.147	0.090	0.211
3/20/10 3:57	2502	0.144	0.055	0.147	0.092	0.209
3/20/10 3:58	2503	0.142	0.053	0.149	0.088	0.209
3/20/10 3:59	2504	0.140	0.053	0.147	0.092	0.211
3/20/10 4:00	2505	0.147	0.055	0.147	0.092	0.209
3/20/10 4:01	2506	0.142	0.055	0.151	0.097	0.211
3/20/10 4:02	2507	0.149	0.055	0.149	0.092	0.209
3/20/10 4:03	2508	0.142	0.055	0.149	0.095	0.211
3/20/10 4:04	2509	0.147	0.058	0.147	0.092	0.211
3/20/10 4:05	2510	0.149	0.058	0.149	0.095	0.214
3/20/10 4:06	2511	0.147	0.060	0.149	0.092	0.211
3/20/10 4:07	2512	0.151	0.060	0.147	0.097	0.214
3/20/10 4:08	2513	0.149	0.062	0.149	0.102	0.214
3/20/10 4:09	2514	0.151	0.062	0.147	0.104	0.214
3/20/10 4:10	2515	0.154	0.062	0.149	0.102	0.216
3/20/10 4:11	2516	0.154	0.065	0.147	0.102	0.214
3/20/10 4:12	2517	0.151	0.065	0.149	0.104	0.216
3/20/10 4:13	2518	0.151	0.067	0.149	0.104	0.214
3/20/10 4:14	2519	0.154	0.067	0.149	0.104	0.216
3/20/10 4:15	2520	0.154	0.065	0.147	0.104	0.216
3/20/10 4:16	2521	0.154	0.067	0.149	0.106	0.218
3/20/10 4:17	2522	0.156	0.065	0.149	0.109	0.216
3/20/10 4:18	2523	0.154	0.065	0.149	0.106	0.218
3/20/10 4:19	2524	0.156	0.067	0.149	0.104	0.218
3/20/10 4:20	2525	0.156	0.067	0.149	0.102	0.218
3/20/10 4:21	2526	0.154	0.067	0.151	0.102	0.218
3/20/10 4:22	2527	0.151	0.067	0.151	0.104	0.218
3/20/10 4:23	2528	0.154	0.065	0.149	0.106	0.218
3/20/10 4:24	2529	0.151	0.062	0.149	0.099	0.216
3/20/10 4:25	2530	0.151	0.062	0.149	0.099	0.216
3/20/10 4:26	2531	0.147	0.060	0.151	0.092	0.216
3/20/10 4:27	2532	0.149	0.060	0.151	0.095	0.216
3/20/10 4:28	2533	0.144	0.055	0.151	0.088	0.216
3/20/10 4:29	2534	0.144	0.055	0.149	0.095	0.214
3/20/10 4:30	2535	0.144	0.058	0.149	0.095	0.211

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 4:31	2536	0.144	0.060	0.151	0.092	0.214
3/20/10 4:32	2537	0.142	0.058	0.151	0.092	0.214
3/20/10 4:33	2538	0.147	0.058	0.149	0.095	0.214
3/20/10 4:34	2539	0.144	0.058	0.149	0.095	0.214
3/20/10 4:35	2540	0.149	0.062	0.151	0.099	0.216
3/20/10 4:36	2541	0.149	0.060	0.151	0.095	0.214
3/20/10 4:37	2542	0.149	0.062	0.154	0.097	0.218
3/20/10 4:38	2543	0.149	0.062	0.151	0.102	0.218
3/20/10 4:39	2544	0.149	0.065	0.149	0.106	0.218
3/20/10 4:40	2545	0.151	0.067	0.151	0.104	0.218
3/20/10 4:41	2546	0.154	0.067	0.151	0.106	0.221
3/20/10 4:42	2547	0.158	0.070	0.151	0.109	0.223
3/20/10 4:43	2548	0.158	0.072	0.151	0.109	0.218
3/20/10 4:44	2549	0.161	0.072	0.149	0.109	0.221
3/20/10 4:45	2550	0.165	0.077	0.149	0.113	0.221
3/20/10 4:46	2551	0.165	0.077	0.151	0.113	0.225
3/20/10 4:47	2552	0.163	0.079	0.154	0.113	0.225
3/20/10 4:48	2553	0.165	0.079	0.154	0.118	0.225
3/20/10 4:49	2554	0.170	0.081	0.151	0.113	0.223
3/20/10 4:50	2555	0.165	0.081	0.154	0.118	0.225
3/20/10 4:51	2556	0.168	0.081	0.154	0.116	0.228
3/20/10 4:52	2557	0.165	0.079	0.151	0.118	0.225
3/20/10 4:53	2558	0.165	0.079	0.154	0.116	0.225
3/20/10 4:54	2559	0.163	0.079	0.154	0.123	0.223
3/20/10 4:55	2560	0.163	0.079	0.154	0.116	0.225
3/20/10 4:56	2561	0.163	0.077	0.154	0.111	0.225
3/20/10 4:57	2562	0.161	0.079	0.154	0.116	0.223
3/20/10 4:58	2563	0.161	0.077	0.154	0.111	0.225
3/20/10 4:59	2564	0.163	0.077	0.154	0.111	0.223
3/20/10 5:00	2565	0.161	0.074	0.154	0.109	0.228
3/20/10 5:01	2566	0.161	0.072	0.154	0.111	0.221
3/20/10 5:02	2567	0.161	0.074	0.151	0.111	0.223
3/20/10 5:03	2568	0.158	0.072	0.151	0.106	0.223
3/20/10 5:04	2569	0.161	0.072	0.156	0.111	0.223
3/20/10 5:05	2570	0.161	0.072	0.154	0.109	0.225
3/20/10 5:06	2571	0.158	0.074	0.154	0.109	0.223
3/20/10 5:07	2572	0.154	0.072	0.154	0.104	0.223
3/20/10 5:08	2573	0.156	0.072	0.156	0.109	0.223
3/20/10 5:09	2574	0.156	0.070	0.154	0.106	0.221
3/20/10 5:10	2575	0.156	0.070	0.154	0.106	0.223
3/20/10 5:11	2576	0.156	0.070	0.156	0.104	0.225
3/20/10 5:12	2577	0.158	0.070	0.154	0.106	0.223
3/20/10 5:13	2578	0.163	0.070	0.154	0.102	0.225
3/20/10 5:14	2579	0.156	0.072	0.154	0.109	0.225
3/20/10 5:15	2580	0.158	0.072	0.156	0.109	0.225
3/20/10 5:16	2581	0.158	0.072	0.154	0.106	0.225
3/20/10 5:17	2582	0.156	0.070	0.156	0.106	0.223
3/20/10 5:18	2583	0.156	0.070	0.154	0.106	0.223
3/20/10 5:19	2584	0.156	0.072	0.156	0.104	0.223

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 5:20	2585	0.158	0.072	0.154	0.106	0.223
3/20/10 5:21	2586	0.158	0.074	0.154	0.113	0.225
3/20/10 5:22	2587	0.158	0.077	0.154	0.111	0.225
3/20/10 5:23	2588	0.163	0.077	0.154	0.113	0.225
3/20/10 5:24	2589	0.161	0.077	0.156	0.113	0.225
3/20/10 5:25	2590	0.161	0.074	0.156	0.111	0.228
3/20/10 5:26	2591	0.158	0.074	0.154	0.097	0.225
3/20/10 5:27	2592	0.161	0.077	0.156	0.109	0.225
3/20/10 5:28	2593	0.163	0.077	0.156	0.111	0.228
3/20/10 5:29	2594	0.158	0.072	0.156	0.106	0.225
3/20/10 5:30	2595	0.161	0.074	0.158	0.106	0.225
3/20/10 5:31	2596	0.163	0.077	0.156	0.106	0.225
3/20/10 5:32	2597	0.161	0.074	0.158	0.113	0.228
3/20/10 5:33	2598	0.158	0.074	0.158	0.104	0.228
3/20/10 5:34	2599	0.158	0.074	0.156	0.109	0.228
3/20/10 5:35	2600	0.156	0.074	0.156	0.113	0.223
3/20/10 5:36	2601	0.161	0.074	0.156	0.106	0.228
3/20/10 5:37	2602	0.158	0.074	0.158	0.116	0.228
3/20/10 5:38	2603	0.161	0.074	0.156	0.113	0.228
3/20/10 5:39	2604	0.161	0.074	0.156	0.109	0.230
3/20/10 5:40	2605	0.158	0.077	0.154	0.104	0.230
3/20/10 5:41	2606	0.158	0.074	0.158	0.106	0.225
3/20/10 5:42	2607	0.156	0.072	0.156	0.106	0.225
3/20/10 5:43	2608	0.156	0.072	0.156	0.106	0.225
3/20/10 5:44	2609	0.156	0.072	0.158	0.106	0.228
3/20/10 5:45	2610	0.161	0.074	0.158	0.109	0.228
3/20/10 5:46	2611	0.158	0.077	0.156	0.109	0.223
3/20/10 5:47	2612	0.163	0.077	0.156	0.109	0.223
3/20/10 5:48	2613	0.161	0.077	0.156	0.111	0.228
3/20/10 5:49	2614	0.158	0.077	0.156	0.111	0.228
3/20/10 5:50	2615	0.156	0.077	0.156	0.109	0.228
3/20/10 5:51	2616	0.158	0.077	0.158	0.109	0.230
3/20/10 5:52	2617	0.161	0.077	0.158	0.106	0.228
3/20/10 5:53	2618	0.163	0.077	0.158	0.106	0.228
3/20/10 5:54	2619	0.161	0.079	0.158	0.109	0.230
3/20/10 5:55	2620	0.161	0.079	0.158	0.111	0.228
3/20/10 5:56	2621	0.161	0.081	0.158	0.113	0.230
3/20/10 5:57	2622	0.161	0.079	0.158	0.111	0.230
3/20/10 5:58	2623	0.165	0.081	0.158	0.116	0.232
3/20/10 5:59	2624	0.168	0.081	0.156	0.118	0.230
3/20/10 6:00	2625	0.165	0.084	0.158	0.116	0.232
3/20/10 6:01	2626	0.168	0.084	0.161	0.120	0.235
3/20/10 6:02	2627	0.165	0.084	0.158	0.111	0.232
3/20/10 6:03	2628	0.165	0.079	0.158	0.111	0.235
3/20/10 6:04	2629	0.161	0.077	0.158	0.113	0.230
3/20/10 6:05	2630	0.158	0.074	0.158	0.113	0.230
3/20/10 6:06	2631	0.156	0.072	0.161	0.102	0.228
3/20/10 6:07	2632	0.154	0.072	0.161	0.106	0.228
3/20/10 6:08	2633	0.151	0.070	0.158	0.109	0.225

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 6:09	2634	0.151	0.067	0.158	0.104	0.228
3/20/10 6:10	2635	0.151	0.067	0.158	0.104	0.223
3/20/10 6:11	2636	0.154	0.067	0.158	0.102	0.228
3/20/10 6:12	2637	0.151	0.070	0.158	0.104	0.228
3/20/10 6:13	2638	0.151	0.070	0.161	0.106	0.223
3/20/10 6:14	2639	0.154	0.070	0.161	0.099	0.228
3/20/10 6:15	2640	0.149	0.070	0.161	0.102	0.228
3/20/10 6:16	2641	0.151	0.067	0.158	0.099	0.225
3/20/10 6:17	2642	0.144	0.065	0.161	0.102	0.223
3/20/10 6:18	2643	0.144	0.062	0.158	0.099	0.225
3/20/10 6:19	2644	0.142	0.062	0.161	0.092	0.223
3/20/10 6:20	2645	0.144	0.058	0.156	0.095	0.221
3/20/10 6:21	2646	0.142	0.058	0.161	0.095	0.221
3/20/10 6:22	2647	0.149	0.058	0.158	0.095	0.221
3/20/10 6:23	2648	0.142	0.058	0.161	0.090	0.218
3/20/10 6:24	2649	0.142	0.060	0.161	0.095	0.223
3/20/10 6:25	2650	0.142	0.058	0.161	0.095	0.223
3/20/10 6:26	2651	0.140	0.058	0.158	0.095	0.221
3/20/10 6:27	2652	0.140	0.058	0.161	0.090	0.221
3/20/10 6:28	2653	0.142	0.055	0.161	0.088	0.223
3/20/10 6:29	2654	0.140	0.055	0.161	0.088	0.221
3/20/10 6:30	2655	0.142	0.053	0.158	0.086	0.218
3/20/10 6:31	2656	0.140	0.055	0.161	0.088	0.218
3/20/10 6:32	2657	0.144	0.058	0.161	0.088	0.221
3/20/10 6:33	2658	0.140	0.060	0.158	0.092	0.221
3/20/10 6:34	2659	0.142	0.060	0.161	0.092	0.221
3/20/10 6:35	2660	0.144	0.060	0.161	0.097	0.221
3/20/10 6:36	2661	0.144	0.062	0.158	0.095	0.221
3/20/10 6:37	2662	0.144	0.062	0.161	0.102	0.223
3/20/10 6:38	2663	0.149	0.065	0.158	0.099	0.225
3/20/10 6:39	2664	0.144	0.067	0.158	0.095	0.225
3/20/10 6:40	2665	0.147	0.062	0.156	0.092	0.223
3/20/10 6:41	2666	0.144	0.065	0.161	0.092	0.223
3/20/10 6:42	2667	0.147	0.065	0.161	0.095	0.225
3/20/10 6:43	2668	0.144	0.060	0.158	0.097	0.223
3/20/10 6:44	2669	0.144	0.062	0.161	0.095	0.223
3/20/10 6:45	2670	0.144	0.060	0.158	0.090	0.225
3/20/10 6:46	2671	0.142	0.060	0.161	0.090	0.221
3/20/10 6:47	2672	0.142	0.058	0.161	0.090	0.221
3/20/10 6:48	2673	0.142	0.060	0.158	0.092	0.228
3/20/10 6:49	2674	0.144	0.060	0.163	0.095	0.225
3/20/10 6:50	2675	0.142	0.065	0.158	0.095	0.223
3/20/10 6:51	2676	0.144	0.062	0.161	0.099	0.223
3/20/10 6:52	2677	0.144	0.065	0.158	0.099	0.223
3/20/10 6:53	2678	0.147	0.062	0.158	0.090	0.223
3/20/10 6:54	2679	0.144	0.065	0.161	0.095	0.221
3/20/10 6:55	2680	0.144	0.065	0.156	0.099	0.223
3/20/10 6:56	2681	0.144	0.062	0.161	0.099	0.221
3/20/10 6:57	2682	0.144	0.065	0.158	0.099	0.223

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 6:58	2683	0.147	0.065	0.158	0.097	0.225
3/20/10 6:59	2684	0.149	0.067	0.161	0.102	0.225
3/20/10 7:00	2685	0.147	0.067	0.161	0.099	0.230
3/20/10 7:01	2686	0.147	0.067	0.158	0.102	0.228
3/20/10 7:02	2687	0.149	0.067	0.161	0.106	0.228
3/20/10 7:03	2688	0.151	0.070	0.158	0.099	0.225
3/20/10 7:04	2689	0.154	0.072	0.163	0.106	0.228
3/20/10 7:05	2690	0.154	0.072	0.158	0.106	0.228
3/20/10 7:06	2691	0.154	0.072	0.161	0.104	0.230
3/20/10 7:07	2692	0.156	0.070	0.158	0.102	0.228
3/20/10 7:08	2693	0.156	0.072	0.161	0.106	0.225
3/20/10 7:09	2694	0.158	0.072	0.161	0.106	0.232
3/20/10 7:10	2695	0.156	0.074	0.161	0.106	0.230
3/20/10 7:11	2696	0.156	0.077	0.161	0.109	0.230
3/20/10 7:12	2697	0.154	0.077	0.161	0.109	0.230
3/20/10 7:13	2698	0.156	0.074	0.158	0.111	0.232
3/20/10 7:14	2699	0.156	0.079	0.161	0.109	0.232
3/20/10 7:15	2700	0.161	0.077	0.163	0.113	0.230
3/20/10 7:16	2701	0.161	0.079	0.163	0.116	0.235
3/20/10 7:17	2702	0.165	0.081	0.158	0.120	0.235
3/20/10 7:18	2703	0.165	0.084	0.161	0.116	0.237
3/20/10 7:19	2704	0.168	0.088	0.161	0.123	0.237
3/20/10 7:20	2705	0.168	0.086	0.163	0.118	0.237
3/20/10 7:21	2706	0.175	0.088	0.161	0.123	0.235
3/20/10 7:22	2707	0.172	0.091	0.163	0.123	0.239
3/20/10 7:23	2708	0.175	0.091	0.161	0.125	0.241
3/20/10 7:24	2709	0.172	0.093	0.163	0.127	0.239
3/20/10 7:25	2710	0.175	0.088	0.161	0.127	0.237
3/20/10 7:26	2711	0.172	0.093	0.163	0.127	0.237
3/20/10 7:27	2712	0.170	0.091	0.163	0.127	0.239
3/20/10 7:28	2713	0.168	0.091	0.165	0.123	0.239
3/20/10 7:29	2714	0.177	0.091	0.163	0.116	0.239
3/20/10 7:30	2715	0.168	0.091	0.163	0.123	0.239
3/20/10 7:31	2716	0.168	0.088	0.165	0.118	0.239
3/20/10 7:32	2717	0.170	0.088	0.163	0.120	0.237
3/20/10 7:33	2718	0.165	0.086	0.163	0.109	0.234
3/20/10 7:34	2719	0.168	0.088	0.163	0.120	0.237
3/20/10 7:35	2720	0.172	0.088	0.163	0.125	0.239
3/20/10 7:36	2721	0.175	0.091	0.163	0.123	0.241
3/20/10 7:37	2722	0.175	0.095	0.165	0.127	0.239
3/20/10 7:38	2723	0.175	0.095	0.163	0.127	0.239
3/20/10 7:39	2724	0.175	0.098	0.168	0.127	0.241
3/20/10 7:40	2725	0.179	0.098	0.163	0.130	0.241
3/20/10 7:41	2726	0.177	0.095	0.165	0.130	0.241
3/20/10 7:42	2727	0.177	0.095	0.163	0.132	0.241
3/20/10 7:43	2728	0.179	0.095	0.165	0.130	0.241
3/20/10 7:44	2729	0.177	0.100	0.165	0.134	0.241
3/20/10 7:45	2730	0.177	0.100	0.163	0.127	0.244
3/20/10 7:46	2731	0.179	0.095	0.165	0.130	0.244

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 7:47	2732	0.177	0.100	0.165	0.130	0.244
3/20/10 7:48	2733	0.179	0.102	0.165	0.132	0.246
3/20/10 7:49	2734	0.179	0.100	0.165	0.132	0.246
3/20/10 7:50	2735	0.182	0.102	0.165	0.134	0.246
3/20/10 7:51	2736	0.186	0.105	0.165	0.137	0.248
3/20/10 7:52	2737	0.186	0.105	0.165	0.132	0.246
3/20/10 7:53	2738	0.189	0.105	0.163	0.141	0.248
3/20/10 7:54	2739	0.189	0.109	0.168	0.137	0.248
3/20/10 7:55	2740	0.193	0.109	0.168	0.139	0.248
3/20/10 7:56	2741	0.194	0.114	0.165	0.144	0.248
3/20/10 7:57	2742	0.194	0.112	0.168	0.144	0.251
3/20/10 7:58	2743	0.196	0.114	0.168	0.151	0.253
3/20/10 7:59	2744	0.193	0.114	0.165	0.144	0.251
3/20/10 8:00	2745	0.193	0.114	0.168	0.141	0.253
3/20/10 8:01	2746	0.196	0.114	0.165	0.153	0.251
3/20/10 8:02	2747	0.198	0.116	0.163	0.148	0.253
3/20/10 8:03	2748	0.200	0.116	0.161	0.146	0.253
3/20/10 8:04	2749	0.196	0.114	0.163	0.151	0.253
3/20/10 8:05	2750	0.198	0.114	0.165	0.141	0.253
3/20/10 8:06	2751	0.196	0.114	0.165	0.139	0.251
3/20/10 8:07	2752	0.193	0.114	0.168	0.141	0.253
3/20/10 8:08	2753	0.191	0.112	0.165	0.148	0.253
3/20/10 8:09	2754	0.191	0.112	0.168	0.144	0.253
3/20/10 8:10	2755	0.191	0.114	0.168	0.141	0.253
3/20/10 8:11	2756	0.194	0.112	0.168	0.153	0.251
3/20/10 8:12	2757	0.194	0.114	0.168	0.146	0.253
3/20/10 8:13	2758	0.196	0.114	0.168	0.148	0.251
3/20/10 8:14	2759	0.194	0.116	0.168	0.141	0.253
3/20/10 8:15	2760	0.196	0.116	0.165	0.144	0.255
3/20/10 8:16	2761	0.196	0.114	0.168	0.148	0.255
3/20/10 8:17	2762	0.200	0.116	0.168	0.144	0.253
3/20/10 8:18	2763	0.196	0.116	0.168	0.148	0.253
3/20/10 8:19	2764	0.193	0.116	0.168	0.146	0.253
3/20/10 8:20	2765	0.193	0.114	0.170	0.148	0.255
3/20/10 8:21	2766	0.196	0.114	0.165	0.146	0.253
3/20/10 8:22	2767	0.194	0.114	0.170	0.144	0.253
3/20/10 8:23	2768	0.189	0.112	0.170	0.141	0.253
3/20/10 8:24	2769	0.189	0.109	0.168	0.141	0.253
3/20/10 8:25	2770	0.189	0.109	0.170	0.141	0.253
3/20/10 8:26	2771	0.189	0.109	0.168	0.141	0.251
3/20/10 8:27	2772	0.184	0.105	0.170	0.139	0.248
3/20/10 8:28	2773	0.184	0.105	0.168	0.141	0.251
3/20/10 8:29	2774	0.182	0.102	0.168	0.132	0.248
3/20/10 8:30	2775	0.182	0.102	0.168	0.132	0.251
3/20/10 8:31	2776	0.177	0.100	0.170	0.132	0.248
3/20/10 8:32	2777	0.179	0.100	0.170	0.132	0.246
3/20/10 8:33	2778	0.182	0.100	0.170	0.130	0.248
3/20/10 8:34	2779	0.182	0.100	0.170	0.134	0.251
3/20/10 8:35	2780	0.177	0.100	0.170	0.127	0.248

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 8:36	2781	0.177	0.100	0.170	0.132	0.248
3/20/10 8:37	2782	0.179	0.098	0.170	0.127	0.246
3/20/10 8:38	2783	0.175	0.098	0.168	0.127	0.248
3/20/10 8:39	2784	0.177	0.100	0.170	0.130	0.248
3/20/10 8:40	2785	0.177	0.098	0.170	0.130	0.248
3/20/10 8:41	2786	0.177	0.098	0.170	0.125	0.248
3/20/10 8:42	2787	0.175	0.098	0.168	0.130	0.248
3/20/10 8:43	2788	0.175	0.098	0.172	0.123	0.246
3/20/10 8:44	2789	0.172	0.095	0.168	0.127	0.246
3/20/10 8:45	2790	0.172	0.095	0.170	0.123	0.246
3/20/10 8:46	2791	0.175	0.095	0.170	0.127	0.248
3/20/10 8:47	2792	0.172	0.095	0.170	0.123	0.246
3/20/10 8:48	2793	0.170	0.093	0.170	0.120	0.246
3/20/10 8:49	2794	0.168	0.093	0.170	0.120	0.248
3/20/10 8:50	2795	0.175	0.091	0.168	0.123	0.244
3/20/10 8:51	2796	0.172	0.095	0.168	0.125	0.248
3/20/10 8:52	2797	0.175	0.095	0.170	0.127	0.251
3/20/10 8:53	2798	0.172	0.095	0.170	0.132	0.246
3/20/10 8:54	2799	0.175	0.100	0.170	0.130	0.251
3/20/10 8:55	2800	0.177	0.098	0.172	0.127	0.248
3/20/10 8:56	2801	0.177	0.098	0.170	0.127	0.248
3/20/10 8:57	2802	0.177	0.100	0.170	0.127	0.248
3/20/10 8:58	2803	0.179	0.098	0.168	0.130	0.251
3/20/10 8:59	2804	0.182	0.100	0.170	0.134	0.251
3/20/10 9:00	2805	0.184	0.105	0.170	0.123	0.251
3/20/10 9:01	2806	0.182	0.107	0.172	0.130	0.253
3/20/10 9:02	2807	0.186	0.109	0.170	0.141	0.253
3/20/10 9:03	2808	0.194	0.114	0.170	0.144	0.253
3/20/10 9:04	2809	0.196	0.116	0.170	0.144	0.255
3/20/10 9:05	2810	0.196	0.119	0.170	0.151	0.258
3/20/10 9:06	2811	0.198	0.119	0.170	0.148	0.258
3/20/10 9:07	2812	0.198	0.119	0.172	0.151	0.260
3/20/10 9:08	2813	0.198	0.119	0.172	0.148	0.260
3/20/10 9:09	2814	0.193	0.119	0.170	0.148	0.260
3/20/10 9:10	2815	0.194	0.114	0.172	0.144	0.258
3/20/10 9:11	2816	0.189	0.114	0.175	0.141	0.262
3/20/10 9:12	2817	0.191	0.112	0.175	0.139	0.255
3/20/10 9:13	2818	0.186	0.107	0.172	0.139	0.255
3/20/10 9:14	2819	0.186	0.107	0.172	0.141	0.258
3/20/10 9:15	2820	0.186	0.109	0.172	0.141	0.255
3/20/10 9:16	2821	0.189	0.112	0.172	0.141	0.253
3/20/10 9:17	2822	0.191	0.116	0.170	0.141	0.258
3/20/10 9:18	2823	0.193	0.116	0.170	0.146	0.260
3/20/10 9:19	2824	0.196	0.119	0.172	0.151	0.260
3/20/10 9:20	2825	0.198	0.121	0.175	0.153	0.258
3/20/10 9:21	2826	0.201	0.121	0.172	0.153	0.260
3/20/10 9:22	2827	0.196	0.121	0.172	0.153	0.262
3/20/10 9:23	2828	0.196	0.119	0.172	0.148	0.265
3/20/10 9:24	2829	0.198	0.119	0.175	0.151	0.260

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 9:25	2830	0.198	0.119	0.177	0.148	0.262
3/20/10 9:26	2831	0.198	0.119	0.172	0.151	0.258
3/20/10 9:27	2832	0.196	0.119	0.175	0.144	0.260
3/20/10 9:28	2833	0.194	0.116	0.177	0.148	0.262
3/20/10 9:29	2834	0.191	0.116	0.175	0.146	0.260
3/20/10 9:30	2835	0.191	0.116	0.177	0.146	0.260
3/20/10 9:31	2836	0.191	0.116	0.175	0.144	0.258
3/20/10 9:32	2837	0.191	0.114	0.175	0.146	0.260
3/20/10 9:33	2838	0.189	0.116	0.175	0.146	0.258
3/20/10 9:34	2839	0.189	0.112	0.172	0.139	0.262
3/20/10 9:35	2840	0.191	0.116	0.175	0.146	0.262
3/20/10 9:36	2841	0.189	0.114	0.172	0.134	0.260
3/20/10 9:37	2842	0.191	0.114	0.177	0.146	0.260
3/20/10 9:38	2843	0.193	0.116	0.175	0.151	0.260
3/20/10 9:39	2844	0.189	0.114	0.175	0.144	0.260
3/20/10 9:40	2845	0.196	0.119	0.177	0.144	0.258
3/20/10 9:41	2846	0.194	0.119	0.177	0.144	0.260
3/20/10 9:42	2847	0.196	0.119	0.175	0.144	0.262
3/20/10 9:43	2848	0.196	0.119	0.177	0.151	0.262
3/20/10 9:44	2849	0.200	0.121	0.175	0.146	0.262
3/20/10 9:45	2850	0.196	0.121	0.177	0.148	0.260
3/20/10 9:46	2851	0.198	0.121	0.177	0.153	0.265
3/20/10 9:47	2852	0.196	0.119	0.177	0.148	0.265
3/20/10 9:48	2853	0.194	0.121	0.175	0.146	0.260
3/20/10 9:49	2854	0.196	0.116	0.177	0.144	0.260
3/20/10 9:50	2855	0.196	0.116	0.177	0.146	0.260
3/20/10 9:51	2856	0.189	0.119	0.177	0.146	0.260
3/20/10 9:52	2857	0.193	0.119	0.177	0.146	0.262
3/20/10 9:53	2858	0.196	0.116	0.175	0.151	0.260
3/20/10 9:54	2859	0.194	0.119	0.179	0.148	0.262
3/20/10 9:55	2860	0.198	0.121	0.177	0.148	0.260
3/20/10 9:56	2861	0.198	0.121	0.177	0.151	0.262
3/20/10 9:57	2862	0.198	0.121	0.179	0.151	0.262
3/20/10 9:58	2863	0.191	0.119	0.177	0.148	0.262
3/20/10 9:59	2864	0.198	0.119	0.177	0.148	0.262
3/20/10 10:00	2865	0.194	0.116	0.177	0.151	0.262
3/20/10 10:01	2866	0.194	0.116	0.179	0.144	0.262
3/20/10 10:02	2867	0.191	0.119	0.179	0.144	0.265
3/20/10 10:03	2868	0.189	0.112	0.179	0.141	0.260
3/20/10 10:04	2869	0.189	0.114	0.177	0.148	0.262
3/20/10 10:05	2870	0.189	0.114	0.179	0.144	0.260
3/20/10 10:06	2871	0.186	0.112	0.179	0.141	0.262
3/20/10 10:07	2872	0.184	0.112	0.179	0.141	0.265
3/20/10 10:08	2873	0.186	0.109	0.179	0.139	0.258
3/20/10 10:09	2874	0.186	0.112	0.179	0.137	0.260
3/20/10 10:10	2875	0.186	0.109	0.179	0.132	0.260
3/20/10 10:11	2876	0.186	0.109	0.179	0.137	0.262
3/20/10 10:12	2877	0.189	0.109	0.179	0.139	0.260
3/20/10 10:13	2878	0.186	0.112	0.179	0.137	0.260

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 10:14	2879	0.184	0.112	0.179	0.141	0.260
3/20/10 10:15	2880	0.184	0.112	0.179	0.141	0.262
3/20/10 10:16	2881	0.186	0.112	0.182	0.139	0.260
3/20/10 10:17	2882	0.186	0.112	0.182	0.134	0.260
3/20/10 10:18	2883	0.182	0.109	0.179	0.130	0.262
3/20/10 10:19	2884	0.184	0.109	0.179	0.134	0.260
3/20/10 10:20	2885	0.179	0.105	0.182	0.132	0.260
3/20/10 10:21	2886	0.175	0.105	0.182	0.134	0.258
3/20/10 10:22	2887	0.177	0.102	0.182	0.130	0.258
3/20/10 10:23	2888	0.179	0.102	0.177	0.130	0.253
3/20/10 10:24	2889	0.179	0.100	0.179	0.130	0.255
3/20/10 10:25	2890	0.175	0.102	0.179	0.123	0.255
3/20/10 10:26	2891	0.172	0.098	0.179	0.130	0.258
3/20/10 10:27	2892	0.172	0.098	0.179	0.125	0.258
3/20/10 10:28	2893	0.172	0.098	0.182	0.123	0.253
3/20/10 10:29	2894	0.172	0.098	0.175	0.130	0.255
3/20/10 10:30	2895	0.175	0.098	0.182	0.123	0.255
3/20/10 10:31	2896	0.168	0.098	0.182	0.127	0.255
3/20/10 10:32	2897	0.168	0.098	0.179	0.120	0.255
3/20/10 10:33	2898	0.172	0.098	0.182	0.123	0.255
3/20/10 10:34	2899	0.168	0.098	0.182	0.127	0.253
3/20/10 10:35	2900	0.168	0.095	0.182	0.125	0.251
3/20/10 10:36	2901	0.168	0.095	0.179	0.125	0.253
3/20/10 10:37	2902	0.172	0.098	0.179	0.123	0.253
3/20/10 10:38	2903	0.170	0.095	0.182	0.120	0.253
3/20/10 10:39	2904	0.168	0.095	0.182	0.125	0.253
3/20/10 10:40	2905	0.168	0.093	0.182	0.123	0.255
3/20/10 10:41	2906	0.170	0.095	0.179	0.123	0.255
3/20/10 10:42	2907	0.170	0.098	0.177	0.125	0.253
3/20/10 10:43	2908	0.168	0.095	0.182	0.120	0.255
3/20/10 10:44	2909	0.165	0.095	0.179	0.118	0.251
3/20/10 10:45	2910	0.170	0.093	0.182	0.125	0.251
3/20/10 10:46	2911	0.165	0.091	0.182	0.120	0.253
3/20/10 10:47	2912	0.168	0.093	0.182	0.127	0.251
3/20/10 10:48	2913	0.163	0.093	0.182	0.116	0.246
3/20/10 10:49	2914	0.165	0.091	0.182	0.120	0.251
3/20/10 10:50	2915	0.165	0.093	0.182	0.118	0.248
3/20/10 10:51	2916	0.165	0.093	0.182	0.125	0.251
3/20/10 10:52	2917	0.165	0.093	0.182	0.125	0.251
3/20/10 10:53	2918	0.165	0.098	0.179	0.123	0.251
3/20/10 10:54	2919	0.168	0.093	0.184	0.120	0.248
3/20/10 10:55	2920	0.165	0.098	0.184	0.123	0.251
3/20/10 10:56	2921	0.168	0.093	0.182	0.125	0.251
3/20/10 10:57	2922	0.168	0.098	0.182	0.127	0.253
3/20/10 10:58	2923	0.170	0.098	0.182	0.125	0.253
3/20/10 10:59	2924	0.175	0.098	0.182	0.127	0.253
3/20/10 11:00	2925	0.170	0.098	0.177	0.127	0.253
3/20/10 11:01	2926	0.165	0.100	0.182	0.123	0.248
3/20/10 11:02	2927	0.168	0.098	0.182	0.125	0.253

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 11:03	2928	0.168	0.095	0.182	0.120	0.251
3/20/10 11:04	2929	0.170	0.098	0.182	0.123	0.253
3/20/10 11:05	2930	0.170	0.095	0.182	0.120	0.253
3/20/10 11:06	2931	0.168	0.095	0.184	0.125	0.253
3/20/10 11:07	2932	0.172	0.095	0.182	0.120	0.255
3/20/10 11:08	2933	0.170	0.100	0.182	0.125	0.253
3/20/10 11:09	2934	0.168	0.098	0.184	0.125	0.255
3/20/10 11:10	2935	0.170	0.098	0.182	0.125	0.253
3/20/10 11:11	2936	0.168	0.100	0.179	0.123	0.255
3/20/10 11:12	2937	0.170	0.100	0.182	0.127	0.255
3/20/10 11:13	2938	0.168	0.100	0.182	0.125	0.253
3/20/10 11:14	2939	0.170	0.098	0.182	0.127	0.253
3/20/10 11:15	2940	0.170	0.098	0.182	0.125	0.255
3/20/10 11:16	2941	0.172	0.102	0.182	0.130	0.255
3/20/10 11:17	2942	0.172	0.102	0.182	0.130	0.255
3/20/10 11:18	2943	0.175	0.102	0.182	0.132	0.255
3/20/10 11:19	2944	0.172	0.102	0.184	0.132	0.255
3/20/10 11:20	2945	0.172	0.102	0.179	0.130	0.258
3/20/10 11:21	2946	0.170	0.102	0.184	0.127	0.255
3/20/10 11:22	2947	0.175	0.100	0.186	0.132	0.258
3/20/10 11:23	2948	0.175	0.102	0.184	0.130	0.255
3/20/10 11:24	2949	0.170	0.102	0.184	0.132	0.258
3/20/10 11:25	2950	0.175	0.100	0.184	0.130	0.258
3/20/10 11:26	2951	0.170	0.102	0.184	0.125	0.255
3/20/10 11:27	2952	0.170	0.100	0.184	0.127	0.253
3/20/10 11:28	2953	0.170	0.100	0.182	0.123	0.258
3/20/10 11:29	2954	0.170	0.102	0.184	0.127	0.258
3/20/10 11:30	2955	0.168	0.100	0.184	0.123	0.255
3/20/10 11:31	2956	0.168	0.100	0.182	0.127	0.255
3/20/10 11:32	2957	0.168	0.098	0.184	0.125	0.255
3/20/10 11:33	2958	0.170	0.098	0.184	0.125	0.260
3/20/10 11:34	2959	0.165	0.100	0.186	0.125	0.253
3/20/10 11:35	2960	0.168	0.095	0.184	0.125	0.255
3/20/10 11:36	2961	0.168	0.095	0.186	0.123	0.253
3/20/10 11:37	2962	0.168	0.095	0.184	0.120	0.255
3/20/10 11:38	2963	0.168	0.098	0.184	0.123	0.255
3/20/10 11:39	2964	0.168	0.098	0.182	0.127	0.255
3/20/10 11:40	2965	0.168	0.098	0.186	0.125	0.255
3/20/10 11:41	2966	0.163	0.095	0.184	0.123	0.253
3/20/10 11:42	2967	0.168	0.098	0.184	0.123	0.253
3/20/10 11:43	2968	0.168	0.093	0.182	0.120	0.253
3/20/10 11:44	2969	0.163	0.093	0.182	0.118	0.253
3/20/10 11:45	2970	0.163	0.093	0.186	0.120	0.248
3/20/10 11:46	2971	0.163	0.093	0.184	0.120	0.251
3/20/10 11:47	2972	0.165	0.093	0.182	0.116	0.253
3/20/10 11:48	2973	0.168	0.093	0.184	0.120	0.253
3/20/10 11:49	2974	0.165	0.093	0.186	0.120	0.253
3/20/10 11:50	2975	0.165	0.093	0.184	0.118	0.253
3/20/10 11:51	2976	0.165	0.095	0.184	0.120	0.253

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 11:52	2977	0.165	0.095	0.184	0.116	0.253
3/20/10 11:53	2978	0.168	0.095	0.184	0.120	0.253
3/20/10 11:54	2979	0.165	0.095	0.184	0.125	0.251
3/20/10 11:55	2980	0.163	0.095	0.184	0.125	0.253
3/20/10 11:56	2981	0.165	0.095	0.186	0.127	0.253
3/20/10 11:57	2982	0.165	0.098	0.182	0.123	0.255
3/20/10 11:58	2983	0.170	0.100	0.186	0.132	0.255
3/20/10 11:59	2984	0.168	0.100	0.184	0.123	0.258
3/20/10 12:00	2985	0.168	0.098	0.184	0.127	0.255
3/20/10 12:01	2986	0.172	0.100	0.184	0.130	0.258
3/20/10 12:02	2987	0.170	0.102	0.186	0.127	0.253
3/20/10 12:03	2988	0.170	0.102	0.184	0.120	0.255
3/20/10 12:04	2989	0.170	0.100	0.184	0.130	0.258
3/20/10 12:05	2990	0.170	0.105	0.186	0.130	0.255
3/20/10 12:06	2991	0.182	0.105	0.184	0.134	0.255
3/20/10 12:07	2992	0.175	0.105	0.184	0.127	0.255
3/20/10 12:08	2993	0.170	0.102	0.186	0.127	0.258
3/20/10 12:09	2994	0.172	0.102	0.186	0.130	0.258
3/20/10 12:10	2995	0.168	0.100	0.184	0.127	0.258
3/20/10 12:11	2996	0.170	0.102	0.184	0.132	0.260
3/20/10 12:12	2997	0.170	0.100	0.184	0.127	0.258
3/20/10 12:13	2998	0.172	0.105	0.186	0.130	0.258
3/20/10 12:14	2999	0.170	0.105	0.184	0.127	0.258
3/20/10 12:15	3000	0.175	0.105	0.189	0.134	0.258
3/20/10 12:16	3001	0.175	0.105	0.186	0.134	0.258
3/20/10 12:17	3002	0.177	0.107	0.189	0.134	0.258
3/20/10 12:18	3003	0.172	0.107	0.189	0.137	0.260
3/20/10 12:19	3004	0.175	0.107	0.186	0.130	0.260
3/20/10 12:20	3005	0.177	0.105	0.186	0.132	0.258
3/20/10 12:21	3006	0.175	0.107	0.184	0.130	0.260
3/20/10 12:22	3007	0.172	0.107	0.186	0.130	0.260
3/20/10 12:23	3008	0.179	0.107	0.186	0.134	0.258
3/20/10 12:24	3009	0.177	0.107	0.186	0.134	0.260
3/20/10 12:25	3010	0.175	0.107	0.191	0.134	0.260
3/20/10 12:26	3011	0.175	0.109	0.186	0.132	0.260
3/20/10 12:27	3012	0.179	0.109	0.189	0.132	0.260
3/20/10 12:28	3013	0.177	0.107	0.186	0.134	0.260
3/20/10 12:29	3014	0.179	0.107	0.186	0.134	0.262
3/20/10 12:30	3015	0.179	0.107	0.186	0.137	0.262
3/20/10 12:31	3016	0.177	0.107	0.186	0.130	0.262
3/20/10 12:32	3017	0.175	0.107	0.186	0.134	0.262
3/20/10 12:33	3018	0.175	0.105	0.186	0.130	0.260
3/20/10 12:34	3019	0.175	0.105	0.186	0.130	0.260
3/20/10 12:35	3020	0.172	0.105	0.186	0.125	0.260
3/20/10 12:36	3021	0.170	0.100	0.186	0.125	0.258
3/20/10 12:37	3022	0.168	0.102	0.186	0.130	0.260
3/20/10 12:38	3023	0.170	0.102	0.186	0.130	0.260
3/20/10 12:39	3024	0.170	0.100	0.184	0.127	0.258
3/20/10 12:40	3025	0.170	0.100	0.186	0.125	0.260

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 12:41	3026	0.170	0.100	0.186	0.127	0.260
3/20/10 12:42	3027	0.172	0.102	0.189	0.127	0.260
3/20/10 12:43	3028	0.170	0.100	0.189	0.123	0.258
3/20/10 12:44	3029	0.170	0.100	0.186	0.125	0.260
3/20/10 12:45	3030	0.168	0.100	0.189	0.130	0.258
3/20/10 12:46	3031	0.168	0.100	0.186	0.123	0.258
3/20/10 12:47	3032	0.165	0.098	0.184	0.123	0.260
3/20/10 12:48	3033	0.165	0.093	0.189	0.116	0.253
3/20/10 12:49	3034	0.168	0.098	0.186	0.123	0.253
3/20/10 12:50	3035	0.165	0.098	0.186	0.127	0.255
3/20/10 12:51	3036	0.165	0.098	0.189	0.120	0.255
3/20/10 12:52	3037	0.165	0.098	0.189	0.123	0.258
3/20/10 12:53	3038	0.175	0.100	0.189	0.123	0.258
3/20/10 12:54	3039	0.168	0.100	0.184	0.125	0.258
3/20/10 12:55	3040	0.168	0.100	0.189	0.120	0.255
3/20/10 12:56	3041	0.168	0.098	0.189	0.120	0.258
3/20/10 12:57	3042	0.165	0.095	0.186	0.118	0.255
3/20/10 12:58	3043	0.165	0.098	0.189	0.123	0.258
3/20/10 12:59	3044	0.165	0.095	0.186	0.120	0.258
3/20/10 13:00	3045	0.163	0.093	0.189	0.116	0.253
3/20/10 13:01	3046	0.163	0.095	0.189	0.120	0.255
3/20/10 13:02	3047	0.161	0.093	0.189	0.116	0.253
3/20/10 13:03	3048	0.163	0.093	0.189	0.120	0.248
3/20/10 13:04	3049	0.161	0.095	0.186	0.118	0.251
3/20/10 13:05	3050	0.161	0.093	0.186	0.116	0.251
3/20/10 13:06	3051	0.161	0.091	0.186	0.113	0.251
3/20/10 13:07	3052	0.161	0.093	0.184	0.113	0.251
3/20/10 13:08	3053	0.158	0.093	0.189	0.118	0.251
3/20/10 13:09	3054	0.161	0.093	0.189	0.113	0.251
3/20/10 13:10	3055	0.156	0.088	0.186	0.111	0.251
3/20/10 13:11	3056	0.158	0.091	0.186	0.111	0.251
3/20/10 13:12	3057	0.154	0.088	0.186	0.113	0.248
3/20/10 13:13	3058	0.156	0.088	0.189	0.113	0.246
3/20/10 13:14	3059	0.156	0.088	0.186	0.113	0.246
3/20/10 13:15	3060	0.158	0.088	0.189	0.116	0.248
3/20/10 13:16	3061	0.156	0.086	0.189	0.111	0.248
3/20/10 13:17	3062	0.154	0.091	0.186	0.111	0.251
3/20/10 13:18	3063	0.158	0.088	0.189	0.111	0.251
3/20/10 13:19	3064	0.156	0.091	0.186	0.113	0.251
3/20/10 13:20	3065	0.158	0.088	0.189	0.111	0.251
3/20/10 13:21	3066	0.154	0.088	0.189	0.111	0.248
3/20/10 13:22	3067	0.151	0.088	0.189	0.111	0.246
3/20/10 13:23	3068	0.151	0.088	0.189	0.113	0.246
3/20/10 13:24	3069	0.151	0.088	0.189	0.104	0.246
3/20/10 13:25	3070	0.154	0.084	0.186	0.106	0.248
3/20/10 13:26	3071	0.154	0.084	0.189	0.109	0.246
3/20/10 13:27	3072	0.154	0.086	0.189	0.109	0.251
3/20/10 13:28	3073	0.149	0.086	0.186	0.111	0.244
3/20/10 13:29	3074	0.151	0.084	0.191	0.109	0.248

TABLE S3.2 (Cont.)

Date and Time	Elapsed Time (min)	Water Level, Change from Initial (ft H_2O)				
		MW45Z2	MW48Z2	MW49Z2	MW50Z2	MW51Z2
3/20/10 13:30	3075	0.149	0.084	0.189	0.102	0.248
3/20/10 13:31	3076	0.149	0.086	0.186	0.106	0.244
3/20/10 13:32	3077	0.149	0.084	0.186	0.109	0.246
3/20/10 13:33	3078	0.151	0.086	0.189	0.106	0.244
3/20/10 13:34	3079	0.151	0.084	0.186	0.109	0.246
3/20/10 13:35	3080	0.154	0.086	0.189	0.109	0.246
3/20/10 13:36	3081	0.151	0.084	0.189	0.113	0.246
3/20/10 13:37	3082	0.151	0.084	0.189	0.106	0.246
3/20/10 13:38	3083	0.151	0.081	0.189	0.104	0.244
3/20/10 13:39	3084	0.151	0.081	0.189	0.106	0.246
3/20/10 13:40	3085	0.151	0.081	0.189	0.106	0.246
3/20/10 13:41	3086	0.149	0.081	0.189	0.104	0.246
3/20/10 13:42	3087	0.149	0.084	0.186	0.109	0.246
3/20/10 13:43	3088	0.149	0.084	0.189	0.109	0.246
3/20/10 13:44	3089	0.149	0.081	0.189	0.109	0.246
3/20/10 13:45	3090	0.149	0.086	0.189	0.111	0.244
3/20/10 13:46	3091	0.147	0.084	0.186	0.111	0.246
3/20/10 13:47	3092	0.151	0.084	0.189	0.106	0.246

[a] Values measured by using PT2X™ water level recorders.

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Supplement 9:

Detailed Results of Indoor Air Sampling

Contents

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TABLE S9.2 Index of laboratory data packages for VI investigation analytical data.....S9-14

TABLE S9.1 Analytical data for the VI investigation, cross-referenced by analytical laboratory and sample delivery group.[a,b]

			On-site Laboratory[c]		Off-site Laboratory[d]				Radon		
Residence Address	Sample Location	Sample Date	Carbon Tetrachloride (µg/m^3)	Sample Delivery Group	Carbon Tetrachloride (µg/m^3)	Chloroform (µg/m^3)	Sample Delivery Group	Analytical Laboratory	Concentration (pCi/L)	Sample	Analytical Laboratory[d]
Former CCC/USDA facility											
400 N. East St.	Basement	7/11/07	–	–	3.7	ND	120862	TA	–	–	–
	First floor	2/4/09	–	–	17	ND	09-02-0406	CEL	–	–	–
	Basement	2/4/09	–	–	26	ND	09-02-0406	CEL	5.2	–	USC
	Sub-slab	2/4/09	–	–	62000	140	MC020509-12	H&P	2616	–	USC
	Sub-slab	2/4/09	–	–	28500	96.3	1088914	PAS	–	–	–
	First floor	8/12/09	–	–	8.8	1.3	133065	TA	–	–	–
	Bathroom	8/12/09	–	–	8.2	1.4	133065	TA	–	–	–
	Basement	8/12/09	–	–	11	1.2	133065	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	ND	ND	135715	TA	0.7	5662552	KSU
413 E. Kensington St.	Basement	7/11/07	–	–	4.8	ND	120862	TA	–	–	–
	First floor	2/4/09	–	–	11	ND	09-02-0406	CEL	–	–	–
	Kitchen	2/4/09	–	–	15.9	ND	1088914	PAS	–	–	–
	Basement	2/4/09	–	–	16	ND	09-02-0406	CEL	9.4	–	USC
	Basement	2/4/09	–	–	15.9	ND	1088914	PAS	–	–	–
	Sub-slab	2/4/09	–	–	350	ND	MC020509-12	H&P	2500	–	USC
	First floor	1/26/10	–	–	ND	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	ND	ND	135715	TA	0.7	5662567	KSU
400 E. Kensington St.	Basement	7/11/07	–	–	1.4	ND	120862	TA	–	–	–
	First floor	2/4/09	–	–	ND	ND	09-02-0406	CEL	–	–	–
	Basement	2/4/09	–	–	1.8	ND	09-02-0406	CEL	8.0	–	USC
	Sub-slab	2/4/09	–	–	130	ND	MC020509-12	H&P	1293	–	USC
	First floor	8/12/09	–	–	1.5	1.2	133084	TA	–	–	–
	Basement	8/12/09	–	–	1.8	1.1	133084	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	ND	ND	135715	TA	7.9	5662548	KSU
300 Westminster St.	Basement	7/11/07	–	–	ND	1.2	120862	TA	–	–	–
	First floor	3/13/09	–	–	ND	ND	09-03-1380	CEL	–	–	–
	Basement	3/13/09	–	–	ND	ND	09-03-1380	CEL	–	–	–
297 Westminster St.	Basement	7/11/07	–	–	ND	1.1	120862	TA	–	–	–
	First floor	3/13/09	–	–	ND	ND	09-03-1381	CEL	–	–	–
	Basement	3/13/09	–	–	ND	ND	09-03-1381	CEL	–	–	–
	Basement	3/13/09	–	–	ND	ND	1091136	PAS	–	–	–
300 N. Belgrave St.	Basement	7/11/07	–	–	ND	1.2	120862	TA	–	–	–
	First floor	3/13/09	–	–	ND	ND	09-03-1382	CEL	–	–	–
	Basement	3/13/09	–	–	ND	ND	09-03-1382	CEL	–	–	–

TABLE S9.1 (Cont.)

Residence Address	Sample Location	Sample Date	On-site Laboratory[c] Carbon Tetrachloride (µg/m^3)	On-site Laboratory[c] Sample Delivery Group	Off-site Laboratory[d] Carbon Tetrachloride (µg/m^3)	Off-site Laboratory[d] Chloroform (µg/m^3)	Off-site Laboratory[d] Sample Delivery Group	Off-site Laboratory[d] Analytical Laboratory	Radon Concentration (pCi/L)	Radon Sample	Radon Analytical Laboratory[d]
Former CCC/USDA facility (cont.)											
301 N. Belgrave St.	Basement	7/11/07	–	–	ND	ND	120862	TA	–	–	–
	First floor	3/13/09	–	–	2.9	ND	09-03-1383	CEL	–	–	–
	Basement	3/13/09	–	–	4.2	ND	09-03-1383	CEL	–	–	–
	First floor	8/12/09	–	–	ND	ND	133084	TA	–	–	–
	Basement	8/12/09	–	–	ND	ND	133084	TA	–	–	–
	First floor[e]	1/26/10	–	–	–	–	–	–	–	–	–
	Basement[e]	1/26/10	–	–	–	–	–	–	–	–	–
	First floor	6/17/10	–	–	ND	0.98	137834	TA	–	–	–
	Basement	6/17/10	–	–	ND	1.0	137834	TA	–	–	–
									–	–	–
298 N. Belgrave St.	Basement	7/11/07	–	–	ND	4.4	120862	TA	–	–	–
	First floor	3/13/09	–	–	ND	3.6	09-03-1385	CEL	–	–	–
	Basement	3/13/09	–	–	ND	3.4	09-03-1385	CEL	–	–	–
	Basement	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	13	BH 2009	13	ND	MC041309-13	H&P	–	–	–
414 E. Kensington St.	Basement	7/11/07	–	–	1.4	1.2	120862	TA	–	–	–
	First floor	3/13/09	–	–	2.6	ND	09-03-1386	CEL	–	–	–
	Basement	3/13/09	–	–	3.7	ND	09-03-1386	CEL	–	–	–
	First floor	8/12/09	–	–	1.4	1.7	133093	TA	–	–	–
	Basement	8/12/09	–	–	1.5	1.6	133093	TA	–	–	–
	First floor[f]	1/26/10	–	–	–	–	–	–	–	–	–
	Basement[f]	1/26/10	–	–	–	–	–	–	–	–	–
	First floor	6/17/10	–	–	–	–	–	–	–	–	–
	Basement	6/17/10	–	–	–	–	–	–	–	–	–
Ambient	300 Belgrave	7/11/07	–	–	ND	ND	120862	TA	–	–	–
Ambient	400 N. East	7/11/07	–	–	ND	ND	120862	TA	–	–	–
Ambient	Water tower	2/4/09	–	–	ND	ND	09-02-0406	CEL	–	–	–
Ambient	Water tower	3/13/09	–	–	ND	ND	09-03-1384	CEL	–	–	–
Ambient	North tree line	8/12/09	–	–	ND	ND	133065	TA	–	–	–
Ambient	Water tower	8/12/09	–	–	ND	ND	133084	TA	–	–	–
Ambient	Water tower	1/26/10	–	–	ND	ND	135746	TA	–	–	–
Ambient	Water Zone 2 homes	2/24/10	–	–	ND	ND	136146	TA	–	–	–
East Elm Street											
211 E. Elm	First floor	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Garage	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab (in garage)	4/9/09	ND	BH 2009	–	–	–	–	–	–	–

TABLE S9.1 (Cont.)

Residence Address	Sample Location	Sample Date	On-site Laboratory[c] Carbon Tetrachloride (µg/m^3)	On-site Laboratory[c] Sample Delivery Group	Off-site Laboratory[d] Carbon Tetrachloride (µg/m^3)	Off-site Laboratory[d] Chloroform (µg/m^3)	Off-site Laboratory[d] Sample Delivery Group	Off-site Laboratory[d] Analytical Laboratory	Radon Concentration (pCi/L)	Radon Sample	Radon Analytical Laboratory[d]
East Elm Street (cont.)											
304 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	16	BH 2009	–	–	–	–	–	–	–
307 E. Elm	Sub-slab	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
308 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
309 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	1.7	BH 2009	–	–	–	–	–	–	–
	Sub-slab	3/27/09	290	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	3.0	18	133093	TA	–	–	–
	Basement	8/12/09	–	–	ND	9.3	133093	TA	–	–	–
	First floor	1/26/10	–	–	2.0	1.1	135715	TA	–	–	–
	Basement	1/26/10	–	–	2.3	ND	135715	TA	16	5662571	KSU
310 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
311 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	1.8	BH 2009	–	–	–	–	–	–	–
	Basement	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/8/09	2200	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	1.6	1.4	133093	TA	–	–	–
	Basement	8/12/09	–	–	2.3	ND	133093	TA	–	–	–
	First floor	1/26/10	–	–	2.0	1.3	135746	TA	–	–	–
	Basement	1/26/10	–	–	2.4	ND	135746	TA	7.7	5662569	KSU
314 E. Elm	First floor	3/27/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/27/09	ND	BH 2009	–	–	–	–	–	–	–
315 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-dirt	4/7/09	ND	BH 2009	–	–	–	–	–	–	–

TABLE S9.1 (Cont.)

Residence Address	Sample Location	Sample Date	On-site Laboratory[c] Carbon Tetrachloride (µg/m^3)	On-site Laboratory[c] Sample Delivery Group	Off-site Laboratory[d] Carbon Tetrachloride (µg/m^3)	Off-site Laboratory[d] Chloroform (µg/m^3)	Off-site Laboratory[d] Sample Delivery Group	Off-site Laboratory[d] Analytical Laboratory	Radon Concentration (pCi/L)	Radon Sample	Radon Analytical Laboratory[d]
East Elm Street (cont.)											
400 E. Elm	First floor	3/26/09	ND	BH 2009	1.7	–	MC033109-11	H&P	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	–	2800	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	ND	ND	133084	TA	–	–	–
	Basement	8/12/09	–	–	ND	ND	133084	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135716	TA	–	–	–
	Basement	1/26/10	–	–	1.7	ND	135716	TA	4.6	5662551	KSU
401 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/8/09	400	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	ND	3.5	133093	TA	–	–	–
	Basement	8/12/09	–	–	1.6	4.6	133093	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135746	TA	–	–	–
	Basement	1/26/10	–	–	1.4	ND	135746	TA	9.1	5662557	KSU
404 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Crawl space	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
405 E. Elm	First floor	3/26/09	ND	BH 2009	2.6	–	MC033109-11	H&P	–	–	–
	First floor dup	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	22	BH 2009	–	–	–	–	–	–	–
	Basement dup	3/26/09	19	BH 2009	–	–	–	–	–	–	–
	Sub-slab	3/27/09	2800	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	2.3	3.3	133084	TA	–	–	–
	Basement	8/12/09	–	–	2.9	2.6	133084	TA	–	–	–
	First floor	1/26/10	–	–	1.9	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	4.7	ND	135715	TA	10.4	5662574	KSU
	First floor	6/17/10	–	–	ND	ND	137834	TA	–	–	–
	Basement	6/17/10	–	–	ND	ND	137834	TA	–	–	–
406 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	3.0	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	9.4	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	410	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	1.5	ND	133084	TA	–	–	–
	Basement	8/12/09	–	–	4.5	ND	133084	TA	–	–	–
	First floor	1/26/10	–	–	2.1	ND	135746	TA	–	–	–
	Basement	1/26/10	–	–	3.9	ND	135746	TA	15.3	5662556	KSU
	Basement dup	1/26/10	–	–	4.0	ND	135746	TA	–	–	–

TABLE S9.1 (Cont.)

Residence Address	Sample Location	Sample Date	On-site Laboratory[c] Carbon Tetrachloride (µg/m^3)	On-site Laboratory[c] Sample Delivery Group	Off-site Laboratory[d] Carbon Tetrachloride (µg/m^3)	Off-site Laboratory[d] Chloroform (µg/m^3)	Off-site Laboratory[d] Sample Delivery Group	Off-site Laboratory[d] Analytical Laboratory	Radon Concentration (pCi/L)	Radon Sample	Radon Analytical Laboratory[d]
East Elm Street (cont.)											
408 E. Elm	First floor	3/26/09	2.6	BH 2009	7.0[g]	–	MC033109-11	H&P	–	–	–
	Basement	3/26/09	2.3	BH 2009	–	–	–	–	–	–	–
	Sub-slab	3/27/09	1600	BH 2009	–	–	–	–	–	–	–
	First floor	4/8/09	2.7	BH 2009	–	–	–	–	–	–	–
	Basement	4/8/09	6.0	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	1900	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	11	ND	133084	TA	–	–	–
	Basement	8/12/09	–	–	17	ND	133084	TA	–	–	–
	First floor	1/26/10	–	–	5.9	ND	135716	TA	–	–	–
	Basement	1/26/10	–	–	6.9	ND	135716	TA	21.8	5662562	KSU
	First floor	6/17/10	–	–	ND	ND	137834	TA	–	–	–
	Basement	6/17/10	–	–	ND	ND	137834	TA	–	–	–
409 E. Elm	First floor	3/26/09	2.4[g]	BH 2009	1.5	–	MC033109-11	H&P	–	–	–
	First floor dup	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	6.2[g]	BH 2009	ND	–	MC033109-11	H&P	–	–	–
	Basement dup	3/26/09	2.7	BH 2009	–	–	–	–	–	–	–
	Sub-slab	3/27/09	2400	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	ND	ND	133093	TA	–	–	–
	Basement	8/12/09	–	–	1.4	ND	133093	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135746	TA	–	–	–
	Basement	1/26/10	–	–	ND	ND	135746	TA	3.4	5662549	KSU
411 E. Elm	First floor	3/25/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/25/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
412 E. Elm	First floor	4/10/09	–	–	2.1	–	MC041309-13	H&P	–	–	–
	Sub-slab	4/10/09	–	–	360	–	MC041309-13	H&P	–	–	–
	First floor	8/12/09	–	–	1.9	ND	133084	TA	–	–	–
	Basement	8/12/09	–	–	2.8	ND	133084	TA	–	–	–
	First floor	1/26/10	–	–	1.6	ND	135746	TA	–	–	–
	Basement	1/26/10	–	–	1.3	ND	135746	TA	–	–	–
415 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
500 E. Elm	Basement	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
501 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	ND	BH 2009	–	–	–	–	–	–	–

TABLE S9.1 (Cont.)

Residence Address	Sample Location	Sample Date	On-site Laboratory[c] Carbon Tetrachloride (µg/m^3)	On-site Laboratory[c] Sample Delivery Group	Off-site Laboratory[d] Carbon Tetrachloride (µg/m^3)	Off-site Laboratory[d] Chloroform (µg/m^3)	Off-site Laboratory[d] Sample Delivery Group	Off-site Laboratory[d] Analytical Laboratory	Radon Concentration (pCi/L)	Radon Sample	Radon Analytical Laboratory[d]
East Elm Street (cont.)											
504 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	100	BH 2009	91	–	MC041309-13	H&P	–	–	–
505 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
508 E. Elm	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	51	BH 2009	–	–	–	–	–	–	–
509 E. Elm	First floor	3/27/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/27/09	ND	BH 2009	–	–	–	–	–	–	–
513 E. Elm	First floor	3/26/09	2.1	BH 2009	ND	–	MC033109-11	H&P	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	3/27/09	290	BH 2009	260	–	MC033109-11	H&P	–	–	–
	First floor	8/13/09	–	–	ND	ND	133093	TA	–	–	–
	Basement	8/13/09	–	–	ND	ND	133093	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	ND	ND	135715	TA	6.8	5662554	KSU
North East Street											
210 N. East	Basement #1	3/25/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement #2	3/25/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/8/09	33	BH 2009	–	–	–	–	–	–	–
211 N. East	First floor	4/8/09	1.6	BH 2009	–	–	–	–	–	–	–
	Basement	4/8/09	2.7	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	940	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	1.8	ND	133093	TA	–	–	–
	Basement	8/12/09	–	–	2.5	ND	133093	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135716	TA	–	–	–
	Basement	1/26/10	–	–	ND	ND	135716	TA	6.3	5662560	KSU
213 N. East	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	ND	BH 2009	–	–	–	–	–	–	–

TABLE S9.1 (Cont.)

Residence Address	Sample Location	Sample Date	On-site Laboratory[c] Carbon Tetrachloride (µg/m^3)	On-site Laboratory[c] Sample Delivery Group	Off-site Laboratory[d] Carbon Tetrachloride (µg/m^3)	Off-site Laboratory[d] Chloroform (µg/m^3)	Off-site Laboratory[d] Sample Delivery Group	Off-site Laboratory[d] Analytical Laboratory	Radon Concentration (pCi/L)	Radon Sample	Radon Analytical Laboratory[d]
North East Street (cont.)											
303 N. East	First floor	8/12/09	–	–	1.4	3.4	133084	TA	–	–	–
	Basement	8/12/09	–	–	1.9	3.3	133084	TA	–	–	–
	Sub-slab	8/12/09	–	–	ND	19	133093	TA	–	–	–
	First floor	1/26/10	–	–	ND	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	ND	1.0	135715	TA	6.4	5662553	KSU
311 N. East	First floor	3/27/09	14	BH 2009	–	–	–	–	–	–	–
	First floor	4/7/09	4.3	BH 2009	–	–	–	–	–	–	–
	Basement	3/27/09	18	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	9.0	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	4500	BH 2009	–	–	–	–	–	–	–
	First floor	1/26/10	–	–	ND	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	ND	ND	135715	TA	< 0.3	5662566	KSU
East North Street											
204 E. North	First floor	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	20	BH 2009	–	–	–	–	–	–	–
214 E. North	First floor	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
312 E. North	First floor	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/26/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	300	BH 2009	–	–	–	–	–	–	–
	First floor	8/12/09	–	–	2.0	ND	133093	TA	–	–	–
	Basement	8/12/09	–	–	3.2	ND	133093	TA	–	–	–
	First floor	1/26/10	–	–	1.5	0.98	135715	TA	–	–	–
	Basement	1/26/10	–	–	2.1	ND	135715	TA	17.6	5662561	KSU
400 E. North	First floor	3/27/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/27/09	ND	BH 2009	–	–	–	–	–	–	–
404 E. North	First floor	3/27/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	3/27/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/8/09	180	BH 2009	200	–	MC041309-13	H&P	–	–	–
	First floor	8/12/09	–	–	1.6	ND	133084	TA	–	–	–
	Basement	8/12/09	–	–	1.8	ND	133084	TA	–	–	–
	First floor	1/26/10	–	–	1.3	ND	135715	TA	–	–	–
	Basement	1/26/10	–	–	1.3	ND	135715	TA	21.3	5662573	KSU

TABLE S9.1 (Cont.)

Residence Address	Sample Location	Sample Date	On-site Laboratory[c] Carbon Tetrachloride (µg/m^3)	On-site Laboratory[c] Sample Delivery Group	Off-site Laboratory[d] Carbon Tetrachloride (µg/m^3)	Off-site Laboratory[d] Chloroform (µg/m^3)	Off-site Laboratory[d] Sample Delivery Group	Off-site Laboratory[d] Analytical Laboratory	Radon Concentration (pCi/L)	Radon Sample	Radon Analytical Laboratory[d]
East North Street (cont.)											
500 E. North	First floor	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
512 E. North	North	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
	South	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
100 S. Church St	–	4/8/09	ND	BH 2009	–	–	–	–	–	–	–
107 N. Church St	First floor	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
Northwestern area											
211 N. Hanover	First floor	2/24/10	–	–	ND	ND	136146	TA	–	–	–
	Crawl space	2/24/10	–	–	ND	ND	136146	TA	2.1	5662568	KSU
309 N. Hanover	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	7.2	BH 2009	–	–	–	–	–	–	–
	First floor	2/24/10	–	–	ND	ND	136146	TA	–	–	–
	Basement	2/24/10	–	–	ND	ND	136146	TA	3.1	5662577	KSU
310 N. Hanover	First floor	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Basement	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/8/09	64	BH 2009	68	–	MC041309-13	H&P	–	–	–
	First floor	2/24/10	–	–	ND	ND	136146	TA	–	–	–
	Basement	2/24/10	–	–	ND	ND	136146	TA	11.6	5694019	KSU
	Basement dup	2/24/10	–	–	ND	ND	136146	TA	–	–	–
208 N. Hollenberg	First floor	2/24/10	–	–	ND	0.98	136146	TA	–	–	–
	Basement	2/24/10	–	–	ND	ND	136146	TA	4.1	5693980	KSU
212 N. Hollenberg	First floor	2/24/10	–	–	ND	1.7	136146	TA	–	–	–
	Basement	2/24/10	–	–	ND	ND	136146	TA	9.2	5693976	KSU
300 N. Hollenberg	First floor	2/24/10	–	–	ND	ND	136146	TA	9.8	5662576	KSU
	Crawl space	2/24/10	–	–	ND	ND	136146	TA	17.5	5693969	KSU
304 N. Hollenberg	First floor	2/24/10	–	–	ND	ND	136146	TA	–	–	–
	Basement	2/24/10	–	–	ND	ND	136146	TA	13.9	5662575	KSU
307 N. Hollenberg	First floor	4/9/09	ND	BH 2009	–	–	–	–	–	–	–

TABLE S9.1 (Cont.)

Residence Address	Sample Location	Sample Date	On-site Laboratory[c] Carbon Tetrachloride (µg/m^3)	On-site Laboratory[c] Sample Delivery Group	Off-site Laboratory[d] Carbon Tetrachloride (µg/m^3)	Off-site Laboratory[d] Chloroform (µg/m^3)	Off-site Laboratory[d] Sample Delivery Group	Off-site Laboratory[d] Analytical Laboratory	Radon Concentration (pCi/L)	Radon Sample	Radon Analytical Laboratory[d]
Northwestern area (cont.)											
308 N. Hollenberg	First floor	2/24/10	–	–	ND	ND	136146	TA	–	–	–
	Basement	2/24/10	–	–	ND	ND	136146	TA	9.8	5662550	KSU
314 N. Hollenberg	Basement	4/7/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/7/09	9.1	BH 2009	–	–	–	–	–	–	–
	First floor	2/24/10	–	–	ND	ND	136146	TA	–	–	–
	Basement	2/24/10	–	–	ND	ND	136146	TA	27.6	5693971	KSU
Multi-tenant housing east of Highland St.											
Highland Haven #2	Sub-slab north	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab south	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
Highland Haven #3	Sub-slab	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
Highland Haven #4	Indoor air	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
Highland Haven #5	Indoor air	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
Highland Haven #11	Indoor air	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
Highland Haven office	Indoor air	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
	Sub-slab	4/9/09	ND	BH 2009	–	–	–	–	–	–	–
Schools											
Hanover Public School	Kindergarten	2/23/10	ND	BH 2010	ND, ND[h]	2.3, ND[h]	136119	TA	14.2	5694063	KSU
	Weight room	2/23/10	ND	BH 2010	–	–	–	–	1.7	5694061	KSU
	Math room	2/23/10	ND	BH 2010	–	–	–	–	0.6	5694062	KSU
	Math room	2/23/10	ND	BH 2010	ND	1.7	136119	TA	2.3	5694060	KSU
	Band room	2/23/10	ND	BH 2010	ND	1.5	136119	TA	4.6	5694066	KSU
	Grades 3-4	2/23/10	ND	BH 2010	–	–	–	–	3.4	5694065	KSU
	Office	2/23/10	ND	BH 2010	–	–	–	–	< 0.3	5694047	KSU
	Office	2/23/10	ND	BH 2010	ND	2.2	136119	TA	1.0	5694058	KSU
	Grades 1-2	2/23/10	ND	BH 2010	–	–	–	–	1.8	5694071	KSU
	Special ed room	2/23/10	ND	BH 2010	–	–	–	–	3.1	5694064	KSU
	Special ed room	2/23/10	ND	BH 2010	–	–	–	–	6.0	5694048	KSU
	Back counselor room	2/23/10	ND	BH 2010	–	–	–	–	5.4	5694067	KSU
	Front counselor room	2/23/10	ND	BH 2010	–	–	–	–	7.0	5694050	KSU
	Computer room	2/23/10	ND	BH 2010	–	–	–	–	2.9	5694049	KSU
	Computer room	2/23/10	ND	BH 2010	–	–	–	–	1.8	5694043	KSU
	Chemistry	2/23/10	ND	BH 2010	–	–	–	–	2.3	5694052	KSU

TABLE S9.1 (Cont.)

Residence Address	Sample Location	Sample Date	On-site Laboratory[c] Carbon Tetrachloride (µg/m^3)	On-site Laboratory[c] Sample Delivery Group	Off-site Laboratory[d] Carbon Tetrachloride (µg/m^3)	Off-site Laboratory[d] Chloroform (µg/m^3)	Off-site Laboratory[d] Sample Delivery Group	Off-site Laboratory[d] Analytical Laboratory	Radon Concentration (pCi/L)	Radon Sample	Radon Analytical Laboratory[d]
Schools (cont.)											
Hanover Public School	Science	2/23/10	ND	BH 2010	–	–	–	–	3.1	5694041	KSU
	Chem lab	2/23/10	ND	BH 2010	–	–	–	–	2.4	5694044	KSU
	Library	2/23/10	ND	BH 2010	–	–	–	–	4.9	5694045	KSU
	English	2/23/10	ND	BH 2010	–	–	–	–	2.5	5694057	KSU
	History	2/23/10	ND	BH 2010	–	–	–	–	1.9	5694055	KSU
	Grades 5-6	2/23/10	ND	BH 2010	–	–	–	–	4.8	5694051	KSU
	Library	2/23/10	ND	BH 2010	–	–	–	–	5.2	5694046	KSU
	FCCLA classroom	2/23/10	ND	BH 2010	–	–	–	–	0.9	5694053	KSU
	Gym	2/23/10	ND	BH 2010	–	–	–	–	3.3	5694035	KSU
	Art room	2/23/10	ND	BH 2010	–	–	–	–	4.8	5694034	KSU
	Cafeteria	2/23/10	ND	BH 2010	–	–	–	–	1.1	5694038	KSU
	Woodshop 1	2/23/10	ND	BH 2010	–	–	–	–	2.1	5694056	KSU
	Woodshop 2	2/23/10	ND	BH 2010	–	–	–	–	2.6	5694059	KSU
	Woodshop 3	2/23/10	ND	BH 2010	–	–	–	–	2.8	5694054	KSU
	Woodshop 4	2/23/10	ND	BH 2010	–	–	–	–	2.7	5694069	KSU
	Ag shop 1	2/23/10	ND	BH 2010	–	–	–	–	2.8	5694068	KSU
	Ag shop 2	2/23/10	ND	BH 2010	–	–	–	–	2.1	5694036	KSU
	Math	2/23/10	ND	BH 2010	–	–	–	–	1.5	5694030	KSU
	Chemistry	2/23/10	ND	BH 2010	–	–	–	–	1.2	5694039	KSU
	English	2/23/10	ND	BH 2010	–	–	–	–	1.3	5694037	KSU
	classroom	2/23/10	ND	BH 2010	–	–	–	–	0.9	5694024	KSU
	Ambient air	2/23/10	ND	BH 2010	ND	ND	136119	TA	–	–	–
St. John's School	Gym	2/23/10	ND	BH 2010	–	–	–	–	2.0	5694032	KSU
	All-purpose room 1	2/23/10	ND	BH 2010	–	–	–	–	6.0	5694022	KSU
	All-purpose room 2	2/23/10	ND	BH 2010	ND, ND[h]	ND, ND[h]	136119	TA	3.7	5694029	KSU
	Kitchen	2/23/10	ND	BH 2010	ND	ND	136119	TA	–	–	–
	Northwest room	2/23/10	ND	BH 2010	–	–	–	–	1.2	5694033	KSU
	Northeast room	2/23/10	ND	BH 2010	ND	ND	136119	TA	1.0	5694031	KSU
	Southwest room	2/23/10	ND	BH 2010	–	–	–	–	2.2	5694023	KSU
	Southeast room	2/23/10	ND	BH 2010	ND	ND	136119	TA	< 0.3	5694016	KSU
	Northwest room	2/23/10	ND	BH 2010	–	–	–	–	0.7	5694021	KSU
	Northeast room	2/23/10	ND	BH 2010	–	–	–	–	1.1	5694028	KSU
	Office 1	2/23/10	ND	BH 2010	–	–	–	–	1.9	5694026	KSU
	Office 2	2/23/10	ND	BH 2010	–	–	–	–	1.1	5694025	KSU
	Workroom	2/23/10	ND	BH 2010	–	–	–	–	1.1	5694040	KSU
	Library	2/23/10	ND	BH 2010	–	–	–	–	1.0	5694070	KSU
	South room	2/23/10	ND	BH 2010	–	–	–	–	0.8	5692572	KSU
	Ambient air	2/23/10	ND	BH 2010	ND	ND	136119	TA	–	–	–

TABLE S9.1 (Cont.)

			On-site Laboratory[c]		Off-site Laboratory[d]				Radon		
Residence Address	Sample Location	Sample Date	Carbon Tetrachloride ($\mu g/m^3$)	Sample Delivery Group	Carbon Tetrachloride ($\mu g/m^3$)	Chloroform ($\mu g/m^3$)	Sample Delivery Group	Analytical Laboratory	Concentration (pCi/L)	Sample	Analytical Laboratory[d]

[a] Analytical reporting limits:

Carbon tetrachloride (on-site laboratory)	1.5 $\mu g/m^3$
Carbon tetrachloride (off-site laboratories)	1.3 $\mu g/m^3$
Chloroform	0.98 $\mu g/m^3$
Radon	0.3 pCi/L

[b] Regulatory levels for indoor air:

Carbon tetrachloride (KDHE)	4.1 $\mu g/m^3$
Chloroform (KDHE)	1.058 $\mu g/m^3$
Radon (EPA)	4.0 pCi/L

[c] On-site analytical services provided by Blayne Hartman, H&P Mobile Geochemistry, Carlsbad, California.

[d] Off-site analytical services:
CEL = Calscience Environmenal Laboratories, Inc., Garden Grove, California.
H&P = H&P Mobile Geochemistry, Carlsbad, California.
KSU = Kansas State University, Air Chek, Inc., Naples, North Carolina.
PAS = Pace Analytical Services, Inc., Minneapolis, Minnesota.
TA = TestAmerica Laboratories, Inc., South Burlington, Vermont.
USC = University of Southern California, Department of Earth Sciences, Los Angeles, California.

[e] Residence not sampled in January 2010; resident out of town for the winter.

[f] Residence not sampled in January or June 2010; illness in family.

[g] Laboratory reported interference possibly causing high bias in results.

[h] An 8-hr and a 24-hr canister were collected.

TABLE S9.2 Index of laboratory data packages for VI investigation analytical data.

Laboratory	Sample Delivery Group	Page of 673
Hartman (on-site)	BH 2009	15
Hartman (on-site)	BH 2010	60
Calscience	CEL 09-02-0406	168
Calscience	CEL 09-03-1380	182
Calscience	CEL 09-03-1381	190
Calscience	CEL 09-03-1382	198
Calscience	CEL 09-03-1383	206
Calscience	CEL 09-03-1384	214
Calscience	CEL 09-03-1385	222
Calscience	CEL 09-03-1386	231
H&P Mobile Geochemistry	H&P MC020509-12	239
H&P Mobile Geochemistry	H&P MC033109-11	245
H&P Mobile Geochemistry	H&P MC041309-13	253
Pace	PAS 1088914	260
Pace	PAS 1091136	268
TestAmerica	TA 120862	277
TestAmerica	TA 133065	310
TestAmerica	TA 133084	320
TestAmerica	TA 133093	349
TestAmerica	TA 135715	378
TestAmerica	TA 135716	435
TestAmerica	TA 135746	456
TestAmerica	TA 136119	491
TestAmerica	TA 136146	525
TestAmerica	TA 137834	581
Kansas State Univ. - Air Check	Radon KSU	593
Univ. of Southern California	Radon USC	672

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	CCl4 ug/m3	DL ug/m3
211 E. Elm - 1st	4/9/2009	12:32	ND	1.5
211 E. Elm - Basement	4/9/2009	12:34	ND	1.5
211 E. Elm - Garage	4/9/2009	12:37	ND	1.5
SUBSLAB (in garage)	4/9/2009	12:41	ND	6.0

DL indicates method detection level

On-site analyses performed by and data reviewed by Dr. Blayne Hartman

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Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	CCl4 ug/m3	DL ug/m3
304 E. Elm - 1st	3/26/2009	18:27	ND	1.5
304 E. Elm - Basement	3/26/2009	18:31	ND	1.5
SUBSLAB	4/7/2009	16:42	16	6.0

DL indicates method detection level

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	CCl4 ug/m3	DL ug/m3
307 E. Elm - SUBSLAB	4/8/2009	15:04	ND	6

DL indicates method detection level

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Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	CCl4 ug/m3	DL ug/m3
308 E. Elm - 1st	3/26/2009	18:15	ND	1.5
308 E. Elm - Basement	3/26/2009	18:18	ND	1.5

DL indicates method detection level

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	CCl4 ug/m3	DL ug/m3
309 E. Elm - 1st	3/26/2009	11:16	ND	1.5
309 E. Elm - Basement	3/26/2009	11:20	1.7	1.5
SUBSLAB	3/27/2009	13:10	290	6.0

DL indicates method detection level

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Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	CCl4 ug/m3	DL ug/m3
310 E. Elm - 1st	3/26/2009	9:02	ND	1.5
310 E. Elm - Basement	3/26/2009	9:09	ND	1.5
310 E. Elm - Basement	4/7/2009	15:51	ND	1.5
SUBSLAB	4/7/2009	15:56	ND	6.0

DL indicates method detection level

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	CCl4 ug/m3	DL ug/m3
311 E. Elm - 1st	3/26/2009	10:04	ND	1.5
311 E. Elm - Basement	3/26/2009	10:10	1.8	1.5
311 E. Elm - Basement	4/8/2009	18:06	ND	1.5
SUBSLAB	4/8/2009	18:15	2200	6.0

DL indicates method detection level

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	CCl4 ug/m3	DL ug/m3
314 E. Elm - 1st	3/27/2009	11:06	ND	1.5
314 E. Elm - Basement	3/27/2009	11:09	ND	1.5

DL indicates method detection level

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	CCl4 ug/m3	DL ug/m3
315 E. Elm - 1st	3/26/2009	16:57	ND	1.5
315 E. Elm - Basement	3/26/2009	17:01	ND	1.5
315 E. Elm - Basement	4/7/2009	17:09	ND	1.5
SUB-DIRT	4/7/2009	17:15	ND	6.0

DL indicates method detection level

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3	TO-15 CCl4 ug/m3	DL ug/m3
400 E. Elm - 1st	3/26/2009	9:19	ND	1.5	1.7	1.5
400 E. Elm - Basement	3/26/2009	9:23	ND	1.5		
SUBSLAB	3/27/2009	14:37	2800	6.0		

DL indicates method detection level

TO-15 confirmation samples by H&P Mobile Geochemistry
On-site 8021analyses performed by and data reviewed by Dr. Blayne Hartman

Blayne Hartman

HARTMAN
ENVIRONMENTAL GEOSCIENCE

Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
401 E. Elm - 1st	3/26/2009	18:48	ND	1.5
401 E. Elm - Basement	3/26/2009	18:52	ND	1.5
SUBSLAB	4/8/2009	11:31	400	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

Blayne Hartman

HARTMAN
ENVIRONMENTAL GEOSCIENCE

Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
404 E. Elm - 1st	3/26/2009	12:09	ND	1.5
404 E. Elm - Crawlspace	4/8/2009	15:24	ND	1.5

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

Blayne Hartman

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ENVIRONMENTAL GEOSCIENCE

Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3	TO-15 CCl4 ug/m3	DL ug/m3
405 E. Elm - 1st	3/26/2009	19:14	ND	1.5	2.6	1.5
405 E. Elm - 1st Duplicate	3/26/2009	19:39	ND	1.5		
405 E. Elm - Basement	3/26/2009	19:17	22	1.5		
405 E. Elm - Basement Dup	3/26/2009	19:43	19	1.5		
SUBSLAB	3/27/2009	13:58	2800	6.0		

DL indicates method detection level

TO-15 confirmation samples by H&P Mobile Geochemistry

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

Blayne Hartman

HARTMAN
ENVIRONMENTAL GEOSCIENCE

Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
406 E. Elm - 1st	3/26/2009	12:13	ND	1.5
406 E. Elm - Basement	3/26/2009	12:19	3.0	1.5
406 E. Elm - Basement	4/7/2009	15:27	9.4	1.5
SUBSLAB	4/7/2009	15:24	410	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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ENVIRONMENTAL GEOSCIENCE

Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3	TO-15 CCl4 ug/m3	DL ug/m3
408 E. Elm - 1st	3/26/2009	12:37	2.6	1.5	7	1.5
408 E. Elm - Basement	3/26/2009	12:40	2.3	1.5		
SUBSLAB	3/27/2009	14:07	1600	6.0		
408 E. Elm - 1st	4/8/2009	16:04	2.7	1.5		
408 E. Elm - Basement	4/8/2009	16:00	6.0	1.5		
SUBSLAB	4/7/2009	14:49	1900	6.0		

DL indicates method detection level

TO-15 confirmation samples by H&P Mobile Geochemistry
On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

Blayne Hartman

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ENVIRONMENTAL GEOSCIENCE

Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3	TO-15 CCl4 ug/m3	DL ug/m3
409 E. Elm - 1st	3/26/2009	14:47	2.4*	1.5	ND	1.5
409 E. Elm - Basement	3/26/2009	14:52	6.2*	1.5	1.5	1.5
409 E. Elm - 1st Dup	3/26/2009	16:01	ND	1.5		
409 E. Elm - Basement Dup	3/26/2009	16:05	2.7*	1.5		
SUBSLAB	3/27/2009	14:29	2400	6.0		

DL indicates method detection level

* Results may be biased high due to interferences

TO-15 confirmation samples by H&P Mobile Geochemistry

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
411 E. Elm 1st Floor	3/25/2009	19:00	ND	1.5
411 E. Elm Basement	3/25/2009	19:03	ND	1.5
411 E. Elm Basement	4/7/2009	14:54	ND	1.5
SUBSLAB	4/7/2009	14:57	ND	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: EPA Method TO-15 (GC-MS)

Sample ID	Analysis Date	TO-15 CCl4 ug/m3	DL ug/m3
412 E. Elm - 1st	4/14/2009	2.1	1.5
SUBSLAB	4/14/2009	360	1.5

DL indicates method detection level

Analysis by H&P Mobile Geochemistry

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
415 E. Elm - 1st	3/26/2009	13:24	ND	1.5
415 E. Elm - Basement	3/26/2009	13:21	ND	1.5
SUBSLAB	4/7/2009	14:27	ND	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
500 E. Elm - Basement	4/8/2009	17:40	ND	1.5
SUBSLAB	4/8/2009	17:44	ND	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
501 E. Elm - 1st	3/26/2009	13:28	ND	1.5
501 E. Elm - Basement	3/26/2009	13:32	ND	1.5
SUBSLAB	4/7/2009	14:32	ND	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3	TO-15 CCl4 ug/m3	DL ug/m3
504 E. Elm - 1st	3/26/2009	12:24	ND	1.5		
504 E. Elm - Basement	3/26/2009	12:28	ND	1.5		
504 E. Elm - Basement	4/7/2009	15:06	ND	1.5		
SUBSLAB	4/7/2009	15:01	100	6.0	91	1.5

DL indicates method detection level

TO-15 confirmation samples by H&P Mobile Geochemistry

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
505 E. Elm - 1st	3/26/2009	12:51	ND	1.5
505 E. Elm - Basement	3/26/2009	12:55	ND	1.5

DL indicates method detection level

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Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
508 E. Elm - 1st	3/26/2009	14:39	ND	1.5
508 E. Elm - Basement	3/26/2009	14:43	ND	1.5
508 E. Elm - Basement	4/7/2009	15:11	ND	1.5
SUBSLAB	4/7/2009	15:16	51	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
509 E. Elm - 1st	3/27/2009	11:51	ND	1.5
509 E. Elm - Basement	3/27/2009	11:55	ND	1.5

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3	TO-15 CCl4 ug/m3	DL ug/m3
513 E. Elm - 1st	3/26/2009	12:58	2.1	1.5	ND	1.5
513 E. Elm - Basement	3/26/2009	13:02	ND	1.5		
SUBSLAB	3/27/2009	14:14	290	6.0	260	1.5

DL indicates method detection level

TO-15 confirmation samples by H&P Mobile Geochemistry

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
210 N. East Basement #1	3/25/2009	18:33	ND	1.5
210 N. East Basement #2	3/25/2009	18:37	ND	1.5
SUBSLAB	4/8/2009	11:36	33	6.0

DL indicates method detection level

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
211 N. East - 1st	4/8/2009	12:42	1.6	1.5
211 N. East - Basement	4/8/2009	12:45	2.7	1.5
SUBSLAB	4/7/2009	17:52	940	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
213 N. East - 1st	3/26/2009	10:34	ND	1.5
213 N. East - Basement	3/26/2009	10:38	ND	1.5
213 N. East Basement	4/7/2009	16:34	ND	1.5
SUBSLAB	4/7/2009	16:38	ND	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
311 N. East - 1st	3/27/2009	9:46	14	1.5
311 N. East - 1st	4/7/2009	16:14	4.3	1.5
311 N. East - Basement	3/27/2009	9:50	18	1.5
311 N. East - Basement	4/7/2009	16:18	9.0	1.5
SUBSLAB	4/7/2009	16:28	4500	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
204 E. North - 1st	4/9/2009	19:12	ND	1.5
204 E. North - Basement	4/9/2009	19:15	ND	1.5
SUBSLAB	4/9/2009	19:19	20	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
214 E. North - 1st	4/9/2009	17:36	ND	1.5
214 E. North - basement	4/9/2009	17:40	ND	1.5
SUBSLAB	4/9/2009	18:32	ND	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
312 E. North - 1st	3/26/2009	13:55	ND	1.5
312 E. North - Basement	3/26/2009	13:59	ND	1.5
312 E. North - Basement	4/7/2009	18:28	ND	1.5
SUBSLAB	4/7/2009	18:32	300	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

Blayne Hartman

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ENVIRONMENTAL GEOSCIENCE

Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
400 E. North - 1st	3/27/2009	12:26	ND	1.5
400 E. North - Basement	3/27/2009	12:19	ND	1.5

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3	TO-15 CCl4 ug/m3	DL ug/m3
404 E. North - 1st	3/27/2009	12:15	ND	1.5		
404 E. North - Basement	3/27/2009	12:29	ND	1.5		
SUBSLAB	4/8/2009	11:46	180	6.0	200	1.5

DL indicates method detection level

TO-15 confirmation samples by H&P Mobile Geochemistry

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
500 E. North - 1st	4/8/2009	17:31	ND	1.5
500 E. North - Basement	4/8/2009	17:38	ND	1.5
SUBSLAB	4/8/2009	18:22	ND	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
Kloppenberg Parking N	4/8/2009	13:57	ND	6.0
Kloppenberg Parking S	4/8/2009	14:06	ND	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
Church Parking Lot	4/8/2009	16:07	ND	6.0

DL indicates method detection level

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
107 Church St - 1st	4/9/2009	17:28	ND	1.5
107 Church St - Basement	4/9/2009	17:31	ND	1.5
SUBSLAB	4/9/2009	18:29	ND	6.0

DL indicates method detection level

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
309 N. Hanover - Basement	4/7/2009	18:06	ND	1.5
SUBSLAB	4/7/2009	18:00	7.2	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3	TO-15 CCl4 ug/m3	DL ug/m3
310 N. Hanover - 1st	4/9/2009	16:02	ND	1.5		
310 N. Hanover - Basement	4/9/2009	16:06	ND	1.5		
SUBSLAB	4/8/2009	16:37	64	6.0	68	1.5

DL indicates method detection level

TO-15 confirmation samples by H&P Mobile Geochemistry

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
307 Hollenberg - 1st	4/9/2009	14:38	ND	1.5

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
314 N. Hollenberg - Basement	4/7/2009	18:20	ND	1.5
SUBSLAB	4/7/2009	18:23	9.1	6.0

DL indicates method detection level

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3
Highland Haven #4 SS	4/9/2009	13:55	ND	6.0
Highland Haven #3 SS	4/9/2009	14:05	ND	6.0
Highland Haven #2 SS North	4/9/2009	14:09	ND	6.0
Highland Haven #2 SS South	4/9/2009	14:22	ND	6.0
Highland Haven office SS	4/9/2009	14:19	ND	6.0
Highland Haven #11 SS	4/9/2009	16:42	ND	6.0
Highland Haven #5 SS	4/9/2009	16:49	ND	6.0
Highland Haven #4 IA	4/9/2009	14:12	ND	1.5
Highland Haven office IA	4/9/2009	14:15	ND	1.5
Highland Haven #11 IA	4/9/2009	16:38	ND	1.5
Highland Haven #5 IA	4/9/2009	16:46	ND	1.5

DL indicates method detection level

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ENVIRONMENTAL GEOSCIENCE

Indoor Air and Sub-Slab Soil Gas Vapor Data - Hanover Site, KS

Hartman EG Project # ANL-Hanover

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Sample ID	Analysis Date	Analysis Time	8021 CCl4 ug/m3	DL ug/m3	TO-15 CCl4 ug/m3	DL ug/m3	TO-15 CHCl3 ug/m3	DL ug/m3
Hagedorn - Basement	4/9/2009	12:21	ND	1.5				
SUBSLAB	4/9/2009	12:24	13	6.0	13	1.5	ND	1.5

DL indicates method detection level

TO-15 confirmation samples by H&P Mobile Geochemistry

On-site 8021 analyses performed by and data reviewed by Dr. Blayne Hartman

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On-site Indoor Air Data - Hanover Public School, Hanover KS

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Hartman EG Project # ANL-Hanover Schools

Sample ID		Analysis Date	CCl4 ug/m3	
HP-B-1	7:18	2/23/2010	ND	Kindergarten
HP-B-1	8:53	2/23/2010	ND	Kindergarten
HP-B-1	10:05	2/23/2010	ND	Kindergarten
HP-B-1	11:15	2/23/2010	ND	Kindergarten
HP-B-1	13:00	2/23/2010	ND	Kindergarten
HP-B-1	14:40	2/23/2010	ND	Kindergarten
HP-B-2		2/23/2010	ND	Math Room 1
HP-B-3		2/23/2010	ND	Math Room 2
HP-B-4		2/23/2010	ND	Weight Room
HP-B-5		2/23/2010	ND	Boiler Room
HP-B-6		2/23/2010	ND	Stairwell
HP-1-1		2/23/2010	ND	3rd & 4th Classroom
HP-1-2		2/23/2010	ND	5th & 6th Classroom
HP-1-3		2/23/2010	ND	Library
HP-1-4		2/23/2010	ND	Band Room
HP-1-5		2/23/2010	ND	1st & 2nd Classroom
HP-1-6		2/23/2010	ND	Front Office
HP-1-7		2/23/2010	ND	Principals Office
HP-1-8		2/23/2010	ND	Home Economics Rm
HP-1-9		2/23/2010	ND	FCCLA Classroom
HP-1-10		2/23/2010	ND	Gym
HP-1-11		2/23/2010	ND	Cafeteria
HP-1-10b		2/23/2010	ND	Girls Bathroom
HP-1-11b		2/23/2010	ND	Boys Bathroom
HP-1-12		2/23/2010	ND	Girls Locker Room
HP-1-13		2/23/2010	ND	Boys Locker Room #2
HP-1-14		2/23/2010	ND	Boys Locker Room
HP-1-15		2/23/2010	ND	Kitchen
HP-1-16		2/23/2010	ND	Girls Locker Room
HP-1-17		2/23/2010	ND	Boys Locker Room
HP-TF-1		2/23/2010	ND	Counselors Room
HP-TF-2		2/23/2010	ND	Records Room
HP-TF-3		2/23/2010	ND	Computer Room
HP-TF-4		2/23/2010	ND	Computer Room
HP-TF-5		2/23/2010	ND	Special Ed Room
HP-TF-6		2/23/2010	ND	Special Ed Room
HP-TF-7		2/23/2010	ND	Classroom
HP-TF-8		2/23/2010	ND	History Classroom
HP-TF-9		2/23/2010	ND	Conference Room
HP-TF-10		2/23/2010	ND	Science Room
HP-TF-11		2/23/2010	ND	Classroom
HP-TF-12		2/23/2010	ND	Library
HP-TF-13		2/23/2010	ND	Boys Bathroom
HP-TF-14		2/23/2010	ND	Girls Bathroom
HP-ART-1		2/23/2010	ND	Art Classroom
HP-NB-1		2/23/2010	ND	English Classroom
HP-NB-2		2/23/2010	ND	Chemistry Lab
HP-NB-3		2/23/2010	ND	Science Classroom
HP-NB-4		2/23/2010	ND	Math Room
HP-NB-5		2/23/2010	ND	Boys Bathroom
HP-NB-6		2/23/2010	ND	Girls Bathroom

ND indicates not detected at DL of 1.5 ug/m3
On-site analyses performed by and data reviewed by Dr. Blayne Hartman

Blayne Hartman

HARTMAN
ENVIRONMENTAL GEOSCIENCE

On-site Indoor Air Data - St. John's School, Hanover KS

Analysis Method: Modified EPA Method 8021 (GC-ECD)

Hartman EG Project # ANL-Hanover Schools

Sample ID		Analysis Date	CCl4 ug/m3	
SJ-B-2	7:27	2/23/2010	ND	Nursery
SJ-B-2	9:07	2/23/2010	ND	Nursery
SJ-B-2	10:10	2/23/2010	ND	Nursery
SJ-B-2	11:10	2/23/2010	ND	Nursery
SJ-B-2	13:00	2/23/2010	ND	Nursery
SJ-B-2	14:40	2/23/2010	ND	Nursery
SJ-B-1		2/23/2010	ND	Boiler Room
SJ-B-3		2/23/2010	ND	Gym
SJ-B-4		2/23/2010	ND	Locker Room
SJ-B-5		2/23/2010	ND	Kitchen
SJ-B-6		2/23/2010	ND	All Purpose Room
SJ-B-7		2/23/2010	ND	Large Storage Room
SJ-B-8		2/23/2010	ND	Storage Room
SJ-B-9		2/23/2010	ND	Gym Storage Room
SJ-B-10		2/23/2010	ND	Girls Bathrrom
SJ-B-11		2/23/2010	ND	Boys Bathroom
SJ-1-1		2/23/2010	ND	NW Classroom
SJ-1-2		2/23/2010	ND	NE Classroom
SJ-1-3		2/23/2010	ND	SW Classroom
SJ-1-4		2/23/2010	ND	SE Classroom
SJ-1-5		2/23/2010	ND	Girls Bathroom
SJ-1-6		2/23/2010	ND	Boys Bathroom
SJ-2-1		2/23/2010	ND	NW Classroom
SJ-2-2		2/23/2010	ND	NE Classroom
SJ-2-3		2/23/2010	ND	South Classroom
SJ-2-4		2/23/2010	ND	Library
SJ-2-5		2/23/2010	ND	Work Area
SJ-2-6		2/23/2010	ND	Girls Bathroom
SJ-2-7		2/23/2010	ND	Boys Bathroom
SJ-SF-1		2/23/2010	ND	Principals Office
SJ-SF-2		2/23/2010	ND	Admin. Office

ND indicates not detected at DL of 1.5 ug/m3
On-site analyses performed by and data reviewed by Dr. Blayne Hartman

Blayne Hartman

2/23/10

Sample	Run #	Dil	PID TCE	PID PCE	ECD cats ~~CCl4~~	ECD Amt ~~PCE~~	Comments
1ppbv	1	1			368		ECD=635 7:10
Blank	2				24		
HP-1 Kinder-1	3				38		Kindergarten 7:18
HP-B-Lit. dm	4				19		Lit. Room
SJ-B-1	5				22		Furnace Rm
SJ-B-2	6				35		Kids Classroom 7:2
HP-B-5	7				26		Boiler
SJ-B-3	8				25		Gym
SJ-B-4	9				26		Locker Room
HP-1-6	10				24		Front Office
HP-1-7	11				26		Principal
Outside Air	12				24		
HP-TF-2	13				30		Records Room
HP-TF-1	14				28		Counselor Room
1ppbv	15				393		ECD=640
SJ-SF-1	16				25		Principal
SJ-SF-2	17				25		Admin Office
Outside Air	18				26		
0.5 ppbv	19				198	0.54	
1 ppbv	20				370	1.00	ECD=673 8:40
5 ppbv	21					4.2	
Room Air HP-TF-9	22				24	0.4	
HP-B-1	23				36	0.6	Kindergarten 8:53
HP-B-3	24				28	0.5	Math Room
HP-B-2	25				37	0.6	Math Room
HP-TF-12	26				24		Library
SJ-B-2	27				35		Nursery 9:07
HP-TF-14	28				28		Girls Bath
HP-TF-10	29				23		Science Rm
HP-TF-4	30				26		Computer Rm

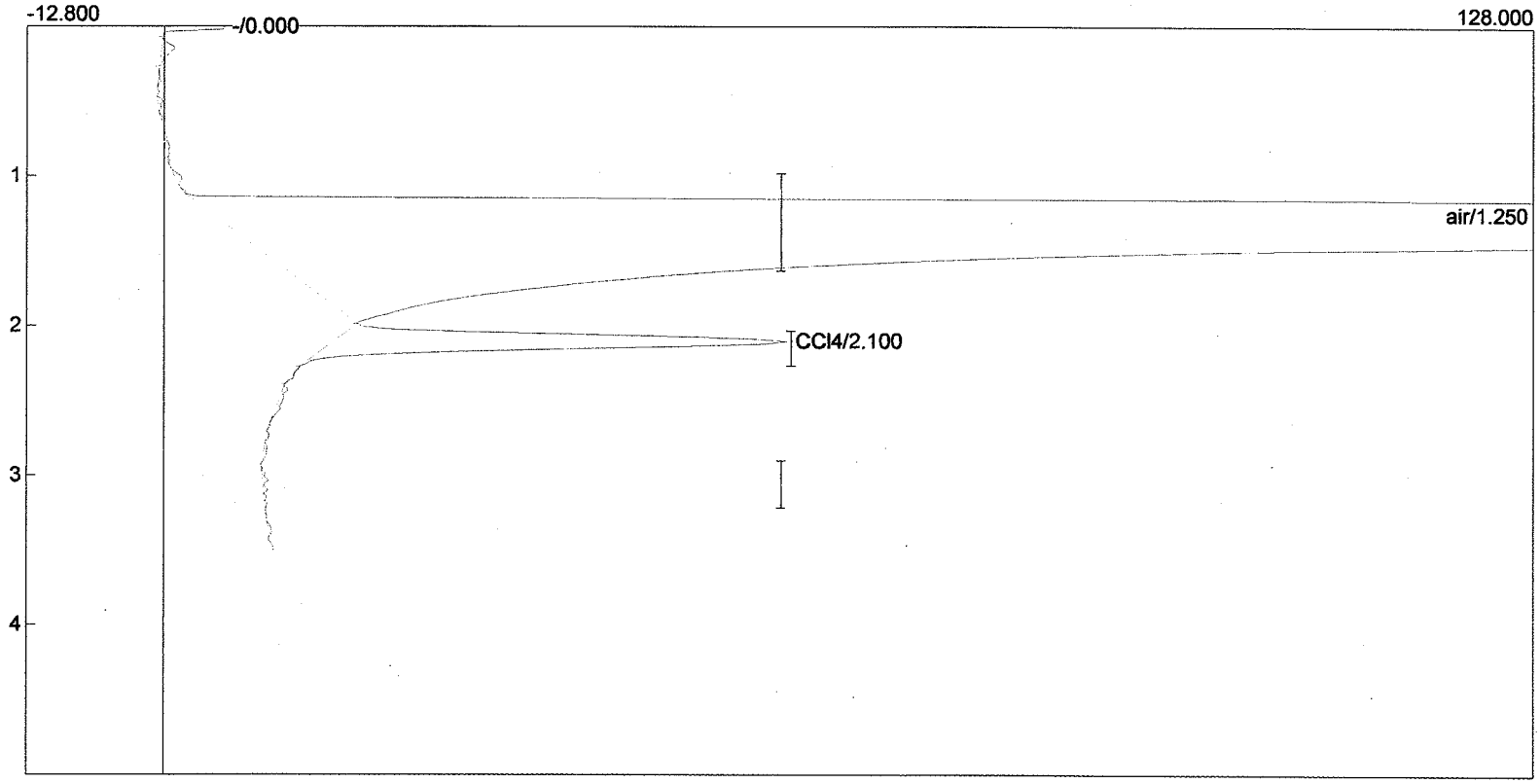
Sample	Run #	Dil	PID ~~TCE~~	PID ~~PCE~~	ECD cats ~~TCE~~	ECD Amt ~~PCE~~	Comments
HP-TF-3	31				27	0.5	Computer Rm
HP-TF-11	32				22		Classroom
HP-TF-7	33				25		Classroom
HP-TF-5	34				26		Special Ed
HP-TF-6	35				22		Special Ed
HP-TF-8	36				24		History PCE?
HP-TF-13	37				25		Boys Bathroom
1ppbv	38					0.95	
HP-1-12	39				21		Girls Locker Rm
HP-1-15	40				25		Kitchen
HP-1-11	41				29		Cafeteria
HP-1-14	42				22		Boys Locker Rm
HP-1-10	43				23		Gym
HP-1-13	44				25		Boys Locker Rm #2
HP-Art 1	45				24		Art Bldg
HP-B-1	46				25	0.4	Kindergarten 10:2
SS-B-2	47				38	0.65	Nursery 10:1
HP-1-1	48				26		Classroom
HP-1-5	49				24		Classroom
HP-1-4	50				27		Band
HP-1-9	51				23		FCCLA Classrm
HP-1-8	52				24		Home Ec.
1ppbv	53					0.95	10:40
HP-1-16	54				22		Girls Locker Rm
HP-1-3	55				26		Library PCE?
HP-1-17	56				21		Boys Locker Rm
HP-1-11	57				20		Boys Bath
HP-1-2	58				25		Classroom
HP-1-10	59				23		Girls Bathrm

Sample	Run #	Dil	PID ~~TCE~~	PID ~~PCE~~	ECD cnts ~~TCE~~	ECD CCl4 amt ~~PCE~~	Comments
HP-NB-1	60				22		English
HP-NB-2	61				23		Chem Lab
HP-NB-4	62				25		Math rm
SJ-B-1	63				34	0.6	Nursery 11:10
HP-NB-3	64				23		Science
HP-B-1	65				25		Kindergarden 11:15
HP-NB-6	66				24		Girls Bathrm
HP-NB-5	67				23		Boys Bathrm
1ppbv	68					0.89	11:40
HP-1-3	68				23		Rerun for PCE
1ppbv	69					0.85	12:53
HP-B-1	71				22		ECD = 750
SJ-B-2	72				32	0.6	1:00 pm
SJ-1-1	73				20		NW classroom
SJ-1-2	74				18		NE "
SJ-1-6	75				20		Boys bathroom
SJ-1-3	76				21		SW classroom
SJ-1-4	77				22		SE "
SJ-2-1	78				23		NW room
SJ-2-2	79				18		NE "
SJ-2-3	80				17		S "
SJ-2-7	81				19		Boys Bathroom
1ppbv	82					0.79	~~[illegible]~~ 13:51
SJ-B-7	83				37	0.65	Large storage area
SJ-B-6	84				43	0.75	All purpose room
SJ-1-5	85				16		Girls bathroom
SJ-2-6	86				17		" "
SJ-B-3	87				19		Gym
SJ-B-11	88				18		Boys bathroom

(4)

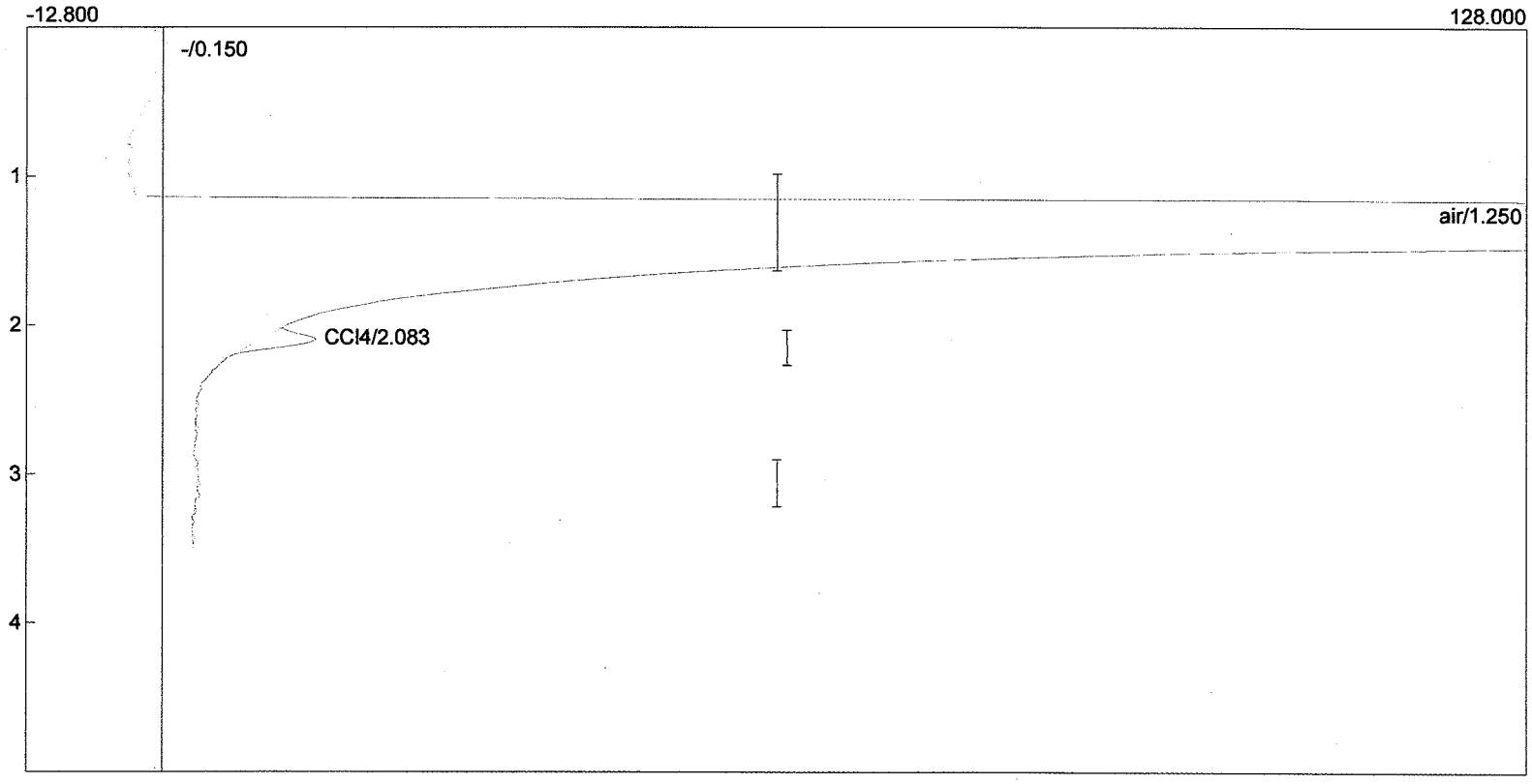
Sample	PID #	Dil	PID TCE	PID PCE	ECD CCl4 ~~TCE~~	ECD CCl4 ~~PCE~~	Comments
SJ-B-10	89				15		Girls Bathroom
SJ-B-5	90				15		Kitchen
SJ-2-5	91				22		Work area
SJ-B-4	92				20		Locker Room
SJ-B-9	93				18		gym Storage room
Outside Air	94				21		
SJ-B-V	95				31		2:40
HP-B-1	96				25		2:40
SJ-2-4	97				21		Library
SJ-B-8	98				33		Storage Rm
HP-B-6	99				19		Stairwell
1ppbv	100					0.75	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 15:10:38
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-100.CHR ()
Sample: 1 ppbv
Operator: Hartman



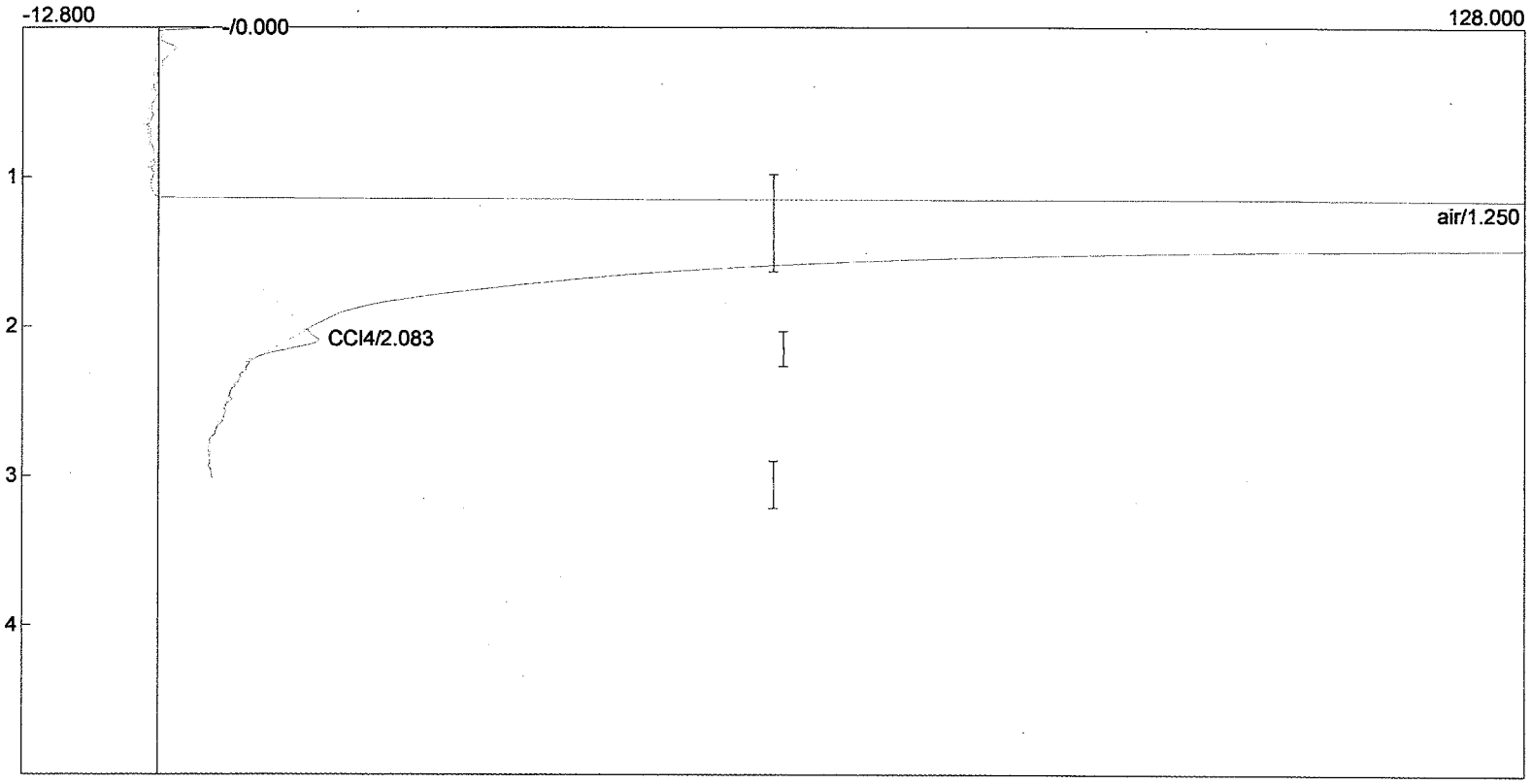
Component	Retention	Area	External	Internal	Units
air	1.250	7485.2540	0.0000	0.0000	
CCl4	2.100	271.8630	0.7388	4.7281	ug/m3
		7757.1170	0.7388	4.7281	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 15:00:47
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-98.CHR ()
Sample: SJ-B-8 (storage rm)
Operator: Hartman



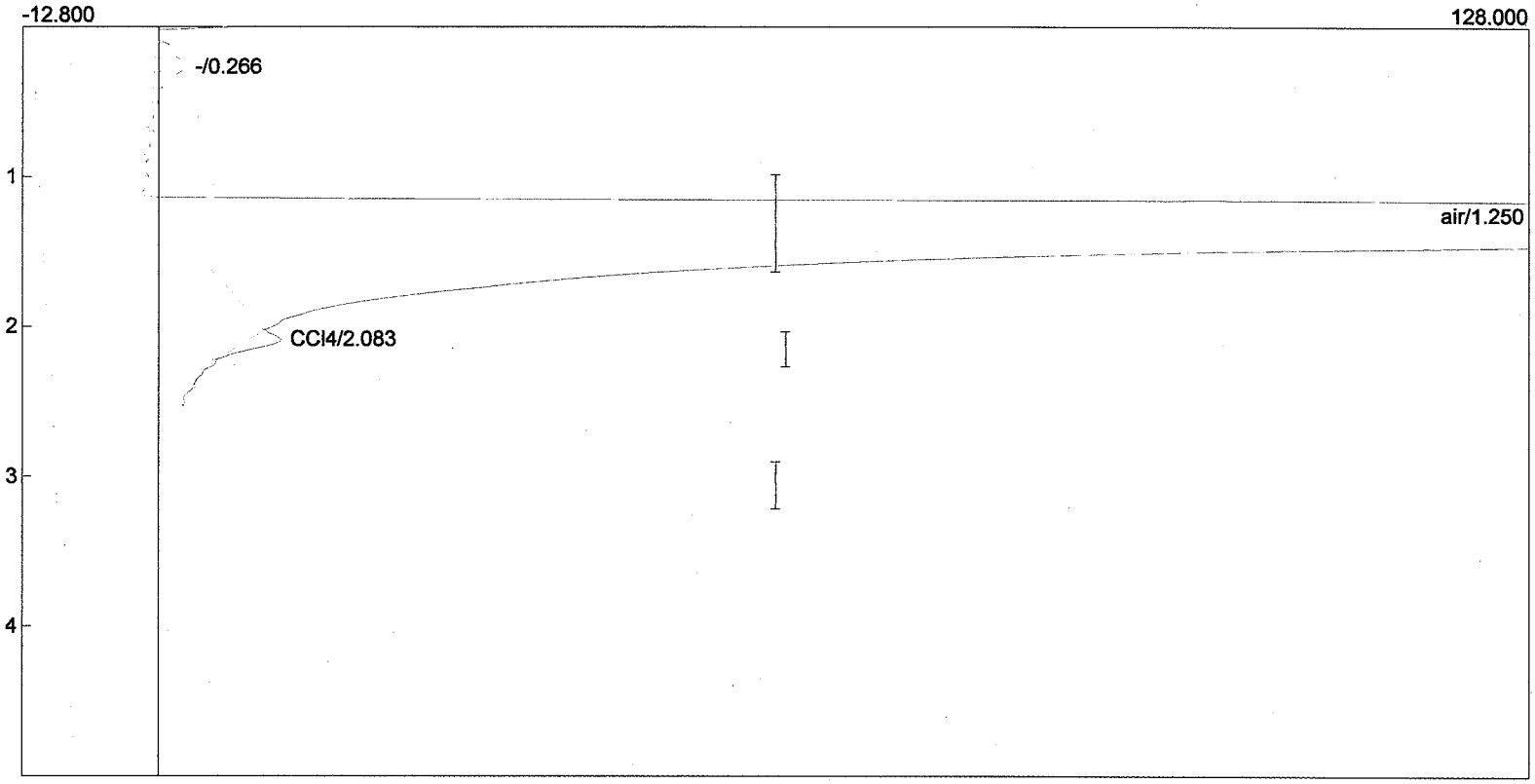
Component	Retention	Area	External	Internal	Units
air	1.250	8313.1480	0.0000	0.0000	
CCl4	2.083	32.6020	0.0886	0.5670	ug/m3
		8345.7500	0.0886	0.5670	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 15:06:45
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-99.CHR ()
Sample: HP-B-6 (stairwell)
Operator: Hartman



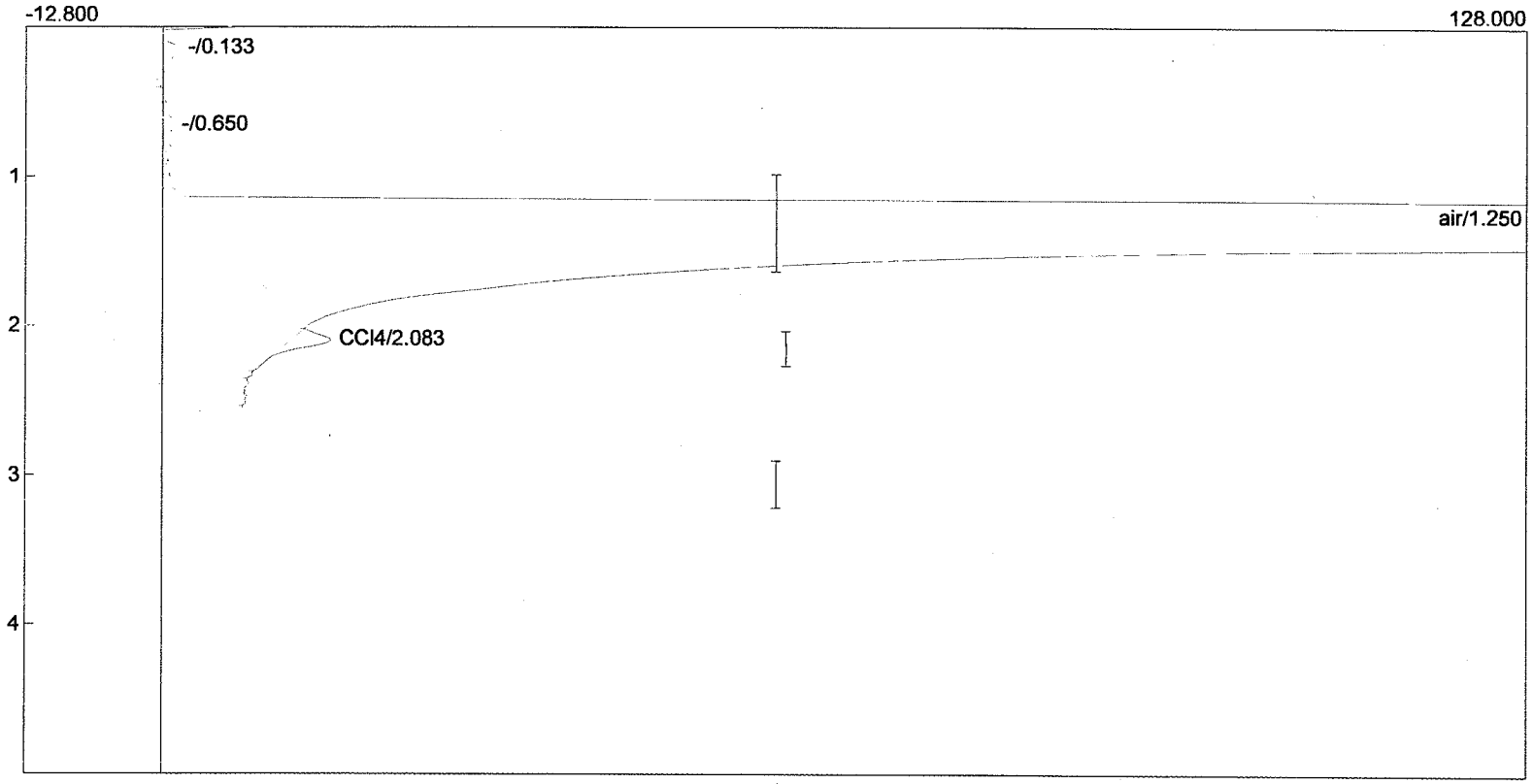
Component	Retention	Area	External	Internal	Units
air	1.250	7810.8780	0.0000	0.0000	
CCl4	2.083	19.2880	0.0524	0.3354	ug/m3
		7830.1660	0.0524	0.3354	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 14:57:37
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-97.CHR ()
Sample: SJ-2-4 (library)
Operator: Hartman



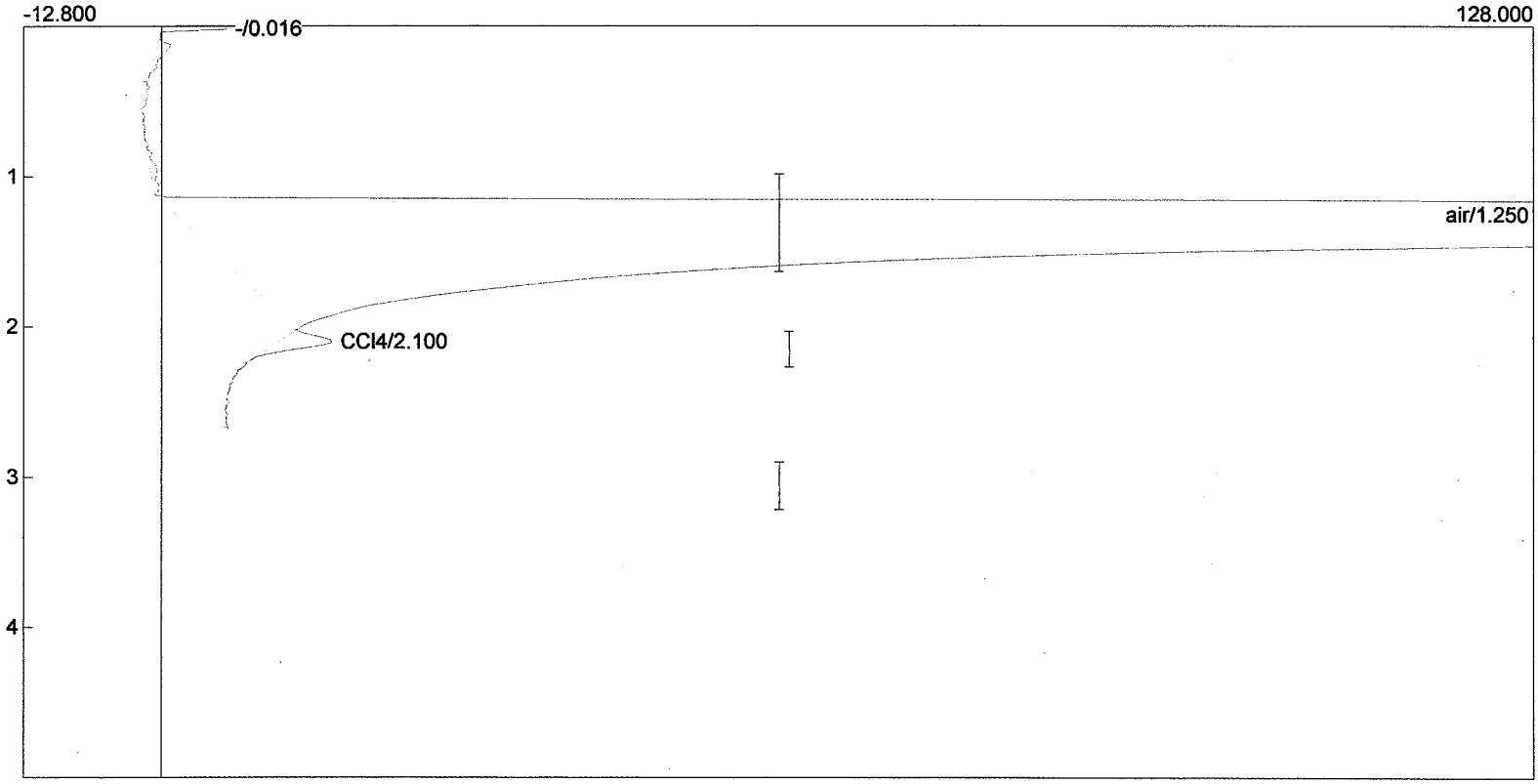
Component	Retention	Area	External	Internal	Units
air	1.250	7845.9840	0.0000	0.0000	
CCl4	2.083	21.3180	0.0579	0.3707	ug/m3
		7867.3020	0.0579	0.3707	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 14:54:18
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-96.CHR ()
Sample: HP-B-1 (kinder)
Operator: Hartman



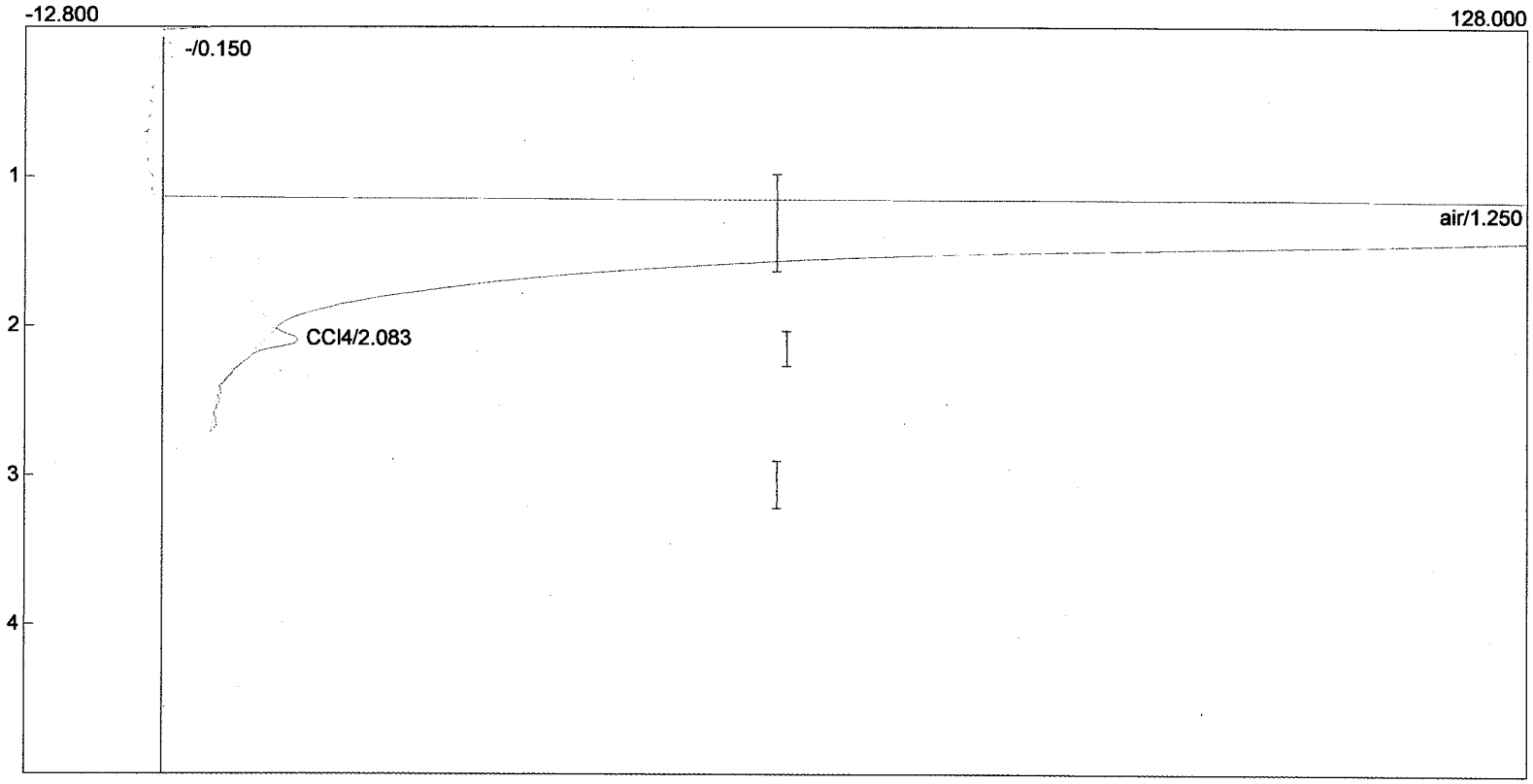
Component	Retention	Area	External	Internal	Units
air	1.250	7714.1420	0.0000	0.0000	
CCl4	2.083	24.6520	0.0670	0.4287	ug/m3
		7738.7940	0.0670	0.4287	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 14:48:46
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-95.CHR ()
Sample: SJ-B-1V(nursery)
Operator: Hartman



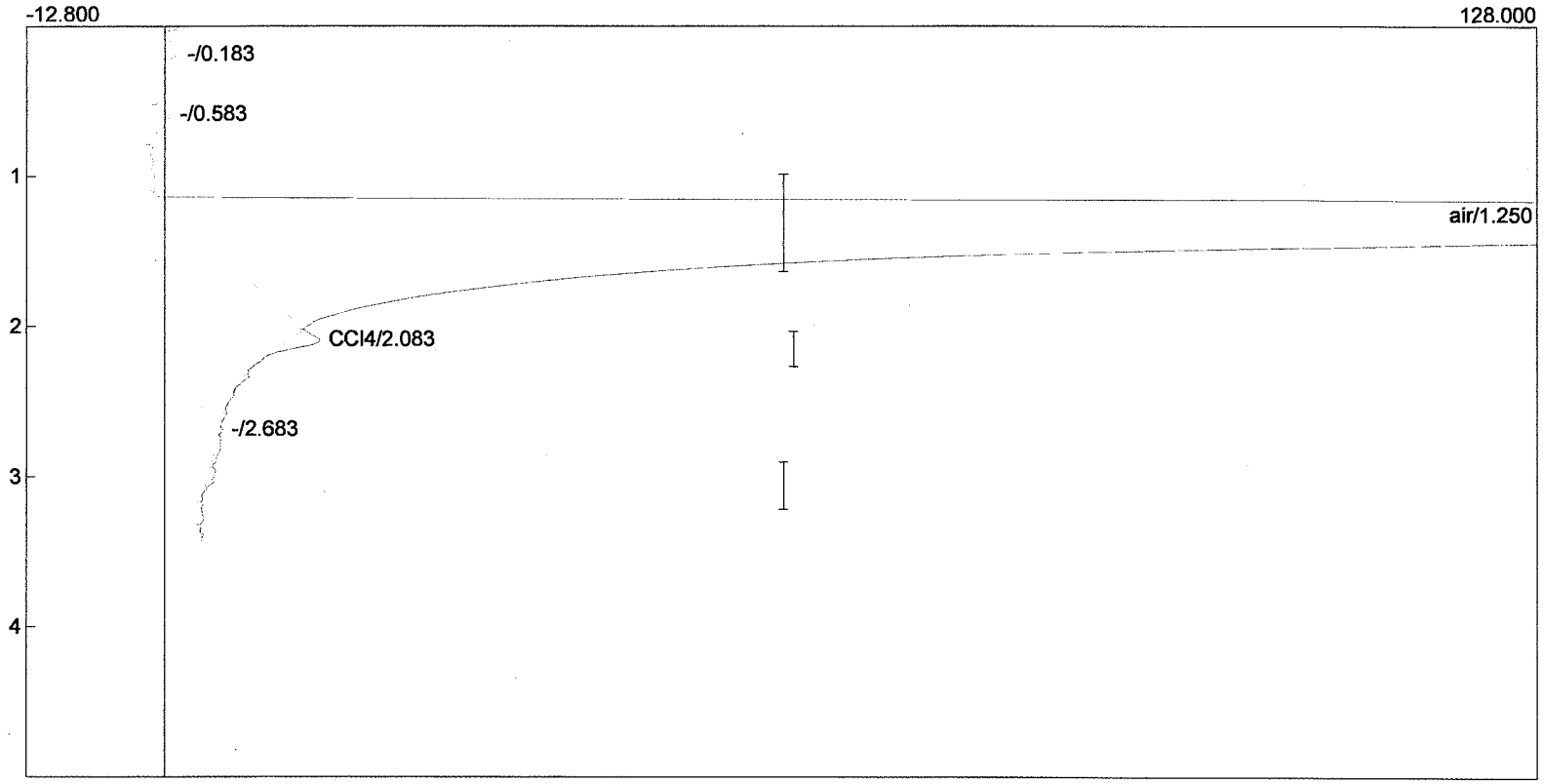
Component	Retention	Area	External	Internal	Units
air	1.250	7637.1720	0.0000	0.0000	
CCl4	2.100	30.7150	0.0835	0.5342	ug/m3
		7667.8870	0.0835	0.5342	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 14:45:11
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-94.CHR ()
Sample: Outside Air
Operator: Hartman



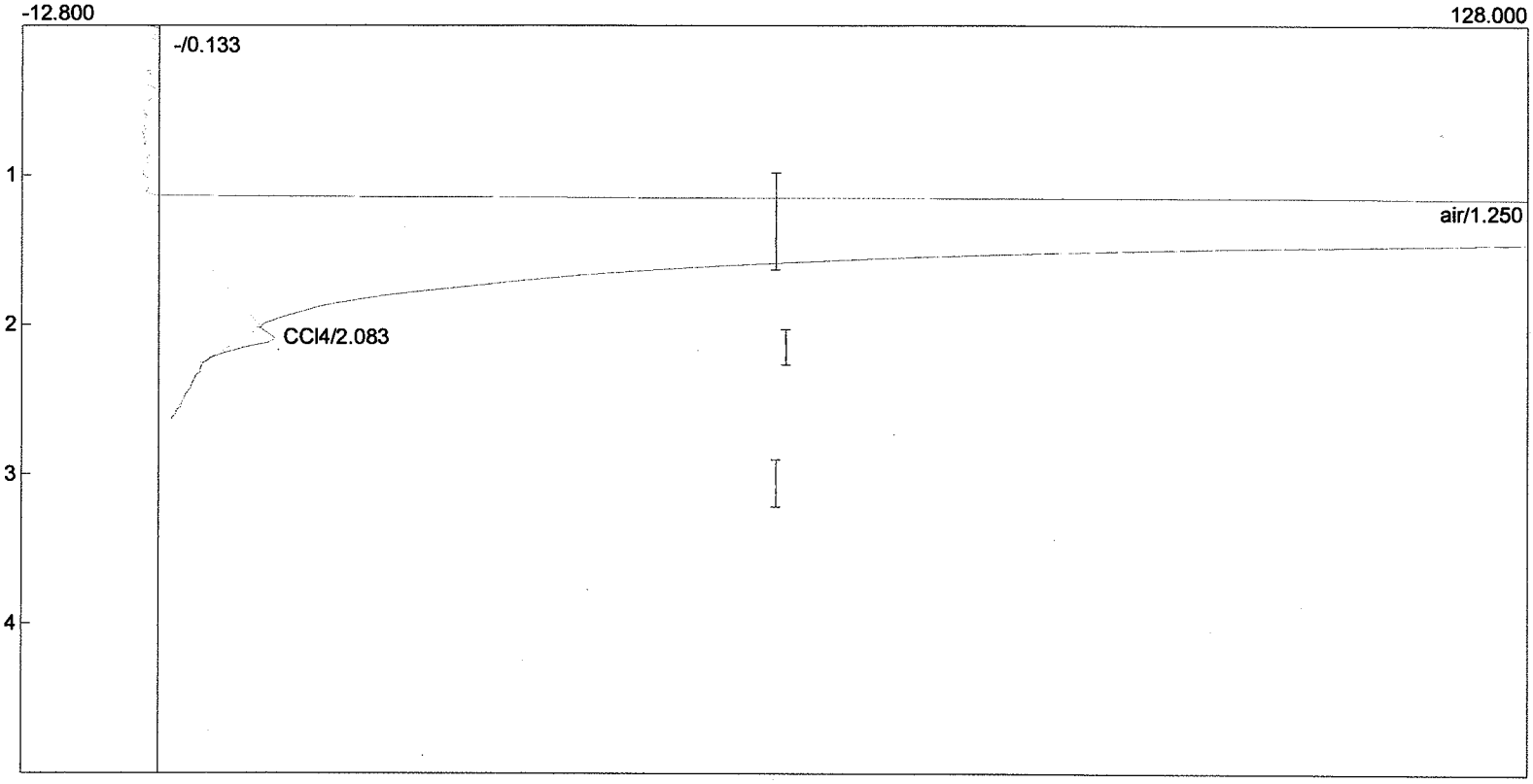
Component	Retention	Area	External	Internal	Units
air	1.250	6637.1060	0.0000	0.0000	
CCl4	2.083	20.7100	0.0563	0.3602	ug/m3
		6657.8160	0.0563	0.3602	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 14:41:26
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-93.CHR ()
Sample: SJ-B-9 (gym storage rm)
Operator: Hartman



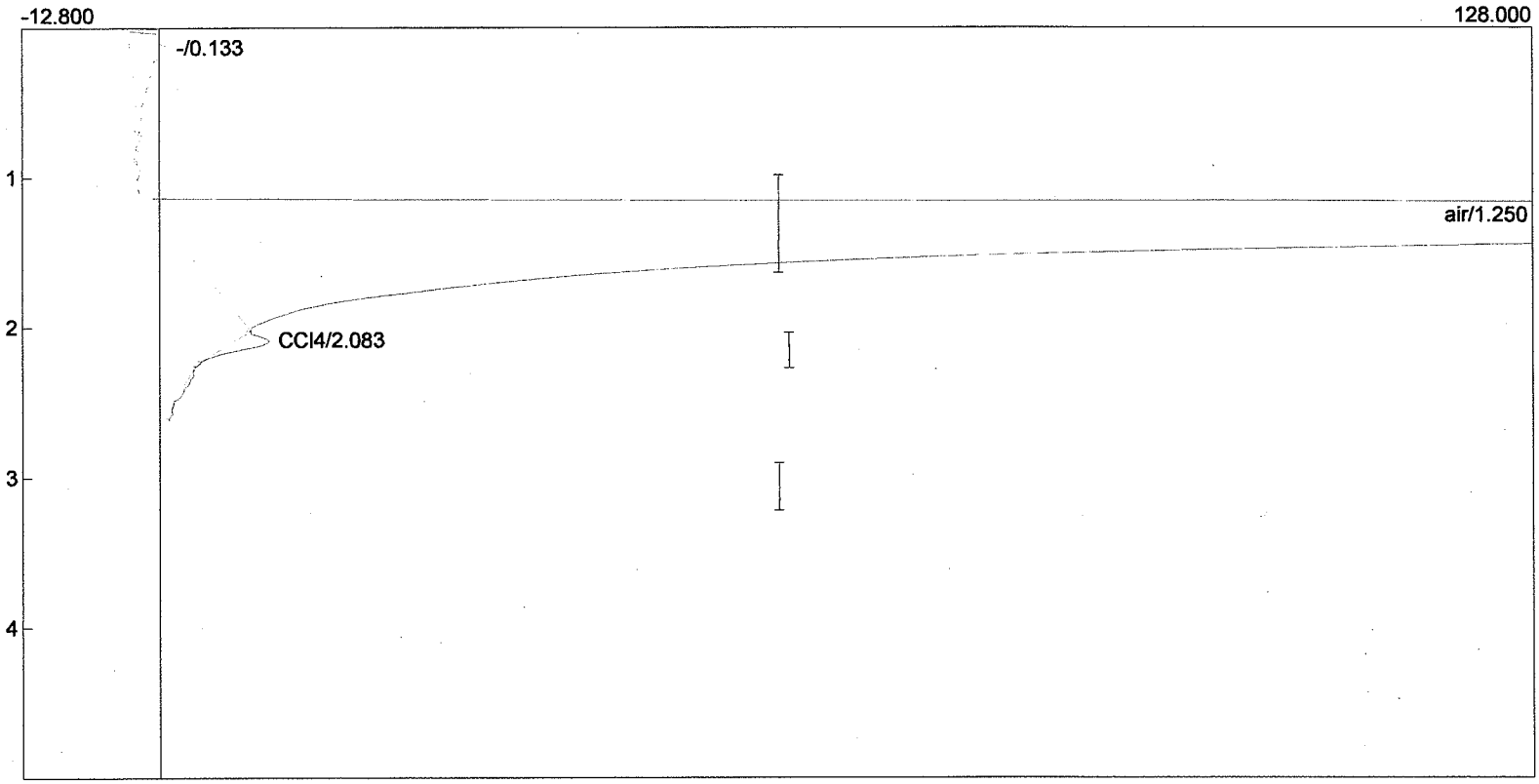
Component	Retention	Area	External	Internal	Units
air	1.250	6964.2980	0.0000	0.0000	
CCl4	2.083	18.5310	0.0504	0.3223	ug/m3
		6982.8290	0.0504	0.3223	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 14:38:28
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-92.CHR ()
Sample: SJ-B-4 (locker rm)
Operator: Hartman



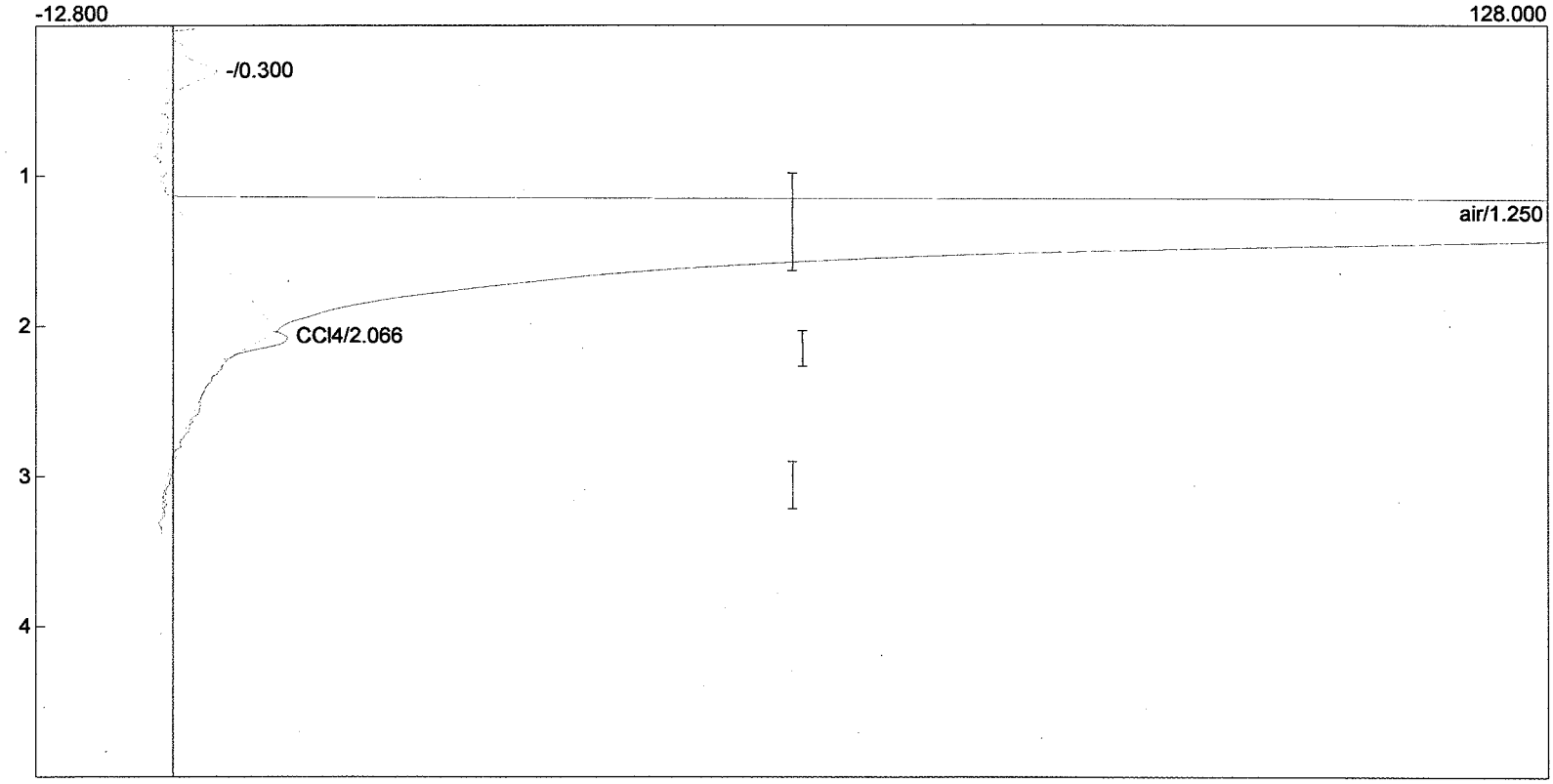
Component	Retention	Area	External	Internal	Units
air	1.250	7888.1320	0.0000	0.0000	
CCl4	2.083	20.1940	0.0549	0.3512	ug/m3
		7908.3260	0.0549	0.3512	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 14:35:19
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-91.CHR ()
Sample: SJ-2-5 (work area)
Operator: Hartman



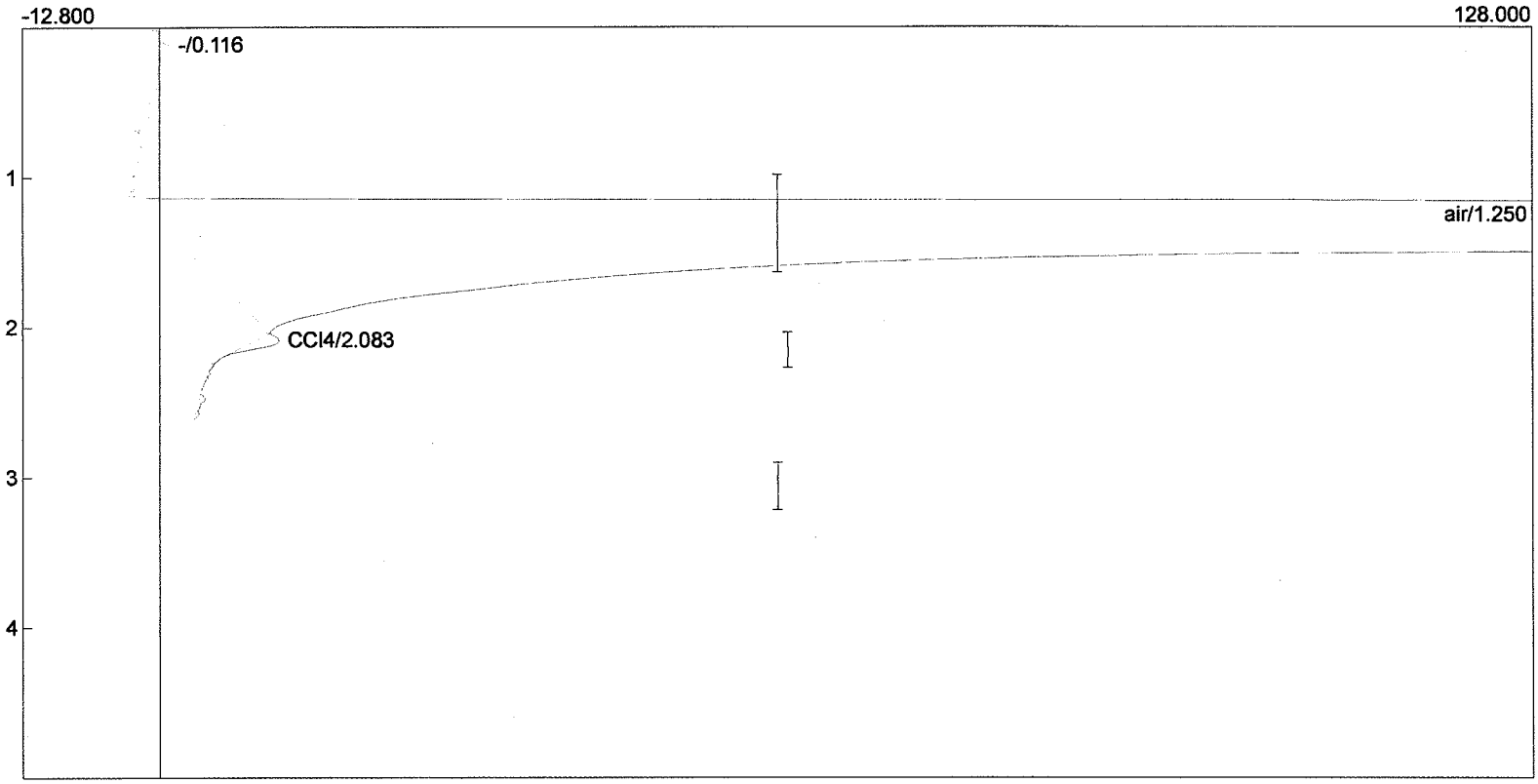
Component	Retention	Area	External	Internal	Units
air	1.250	7151.2200	0.0000	0.0000	
CCl4	2.083	21.6320	0.0588	0.3762	ug/m3
		7172.8520	0.0588	0.3762	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 14:31:14
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-90.CHR ()
Sample: SJ-B-5 (kitchen)
Operator: Hartman



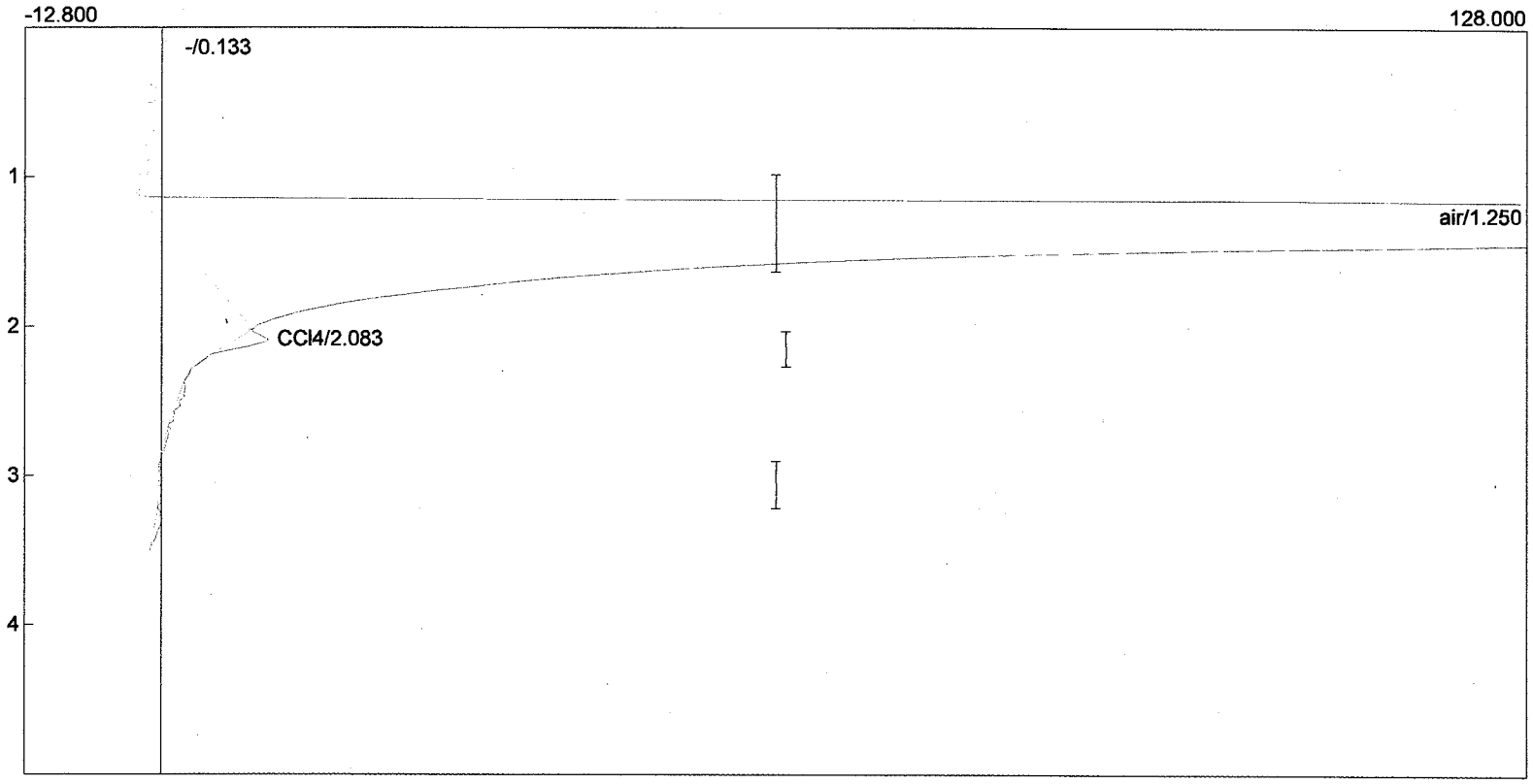
Component	Retention	Area	External	Internal	Units
air	1.250	6881.8960	0.0000	0.0000	
CCl4	2.066	14.7950	0.0402	0.2573	ug/m3
		6896.6910	0.0402	0.2573	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 14:27:57
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-89.CHR ()
Sample: SJ-B-10 (G bathroom)
Operator: Hartman



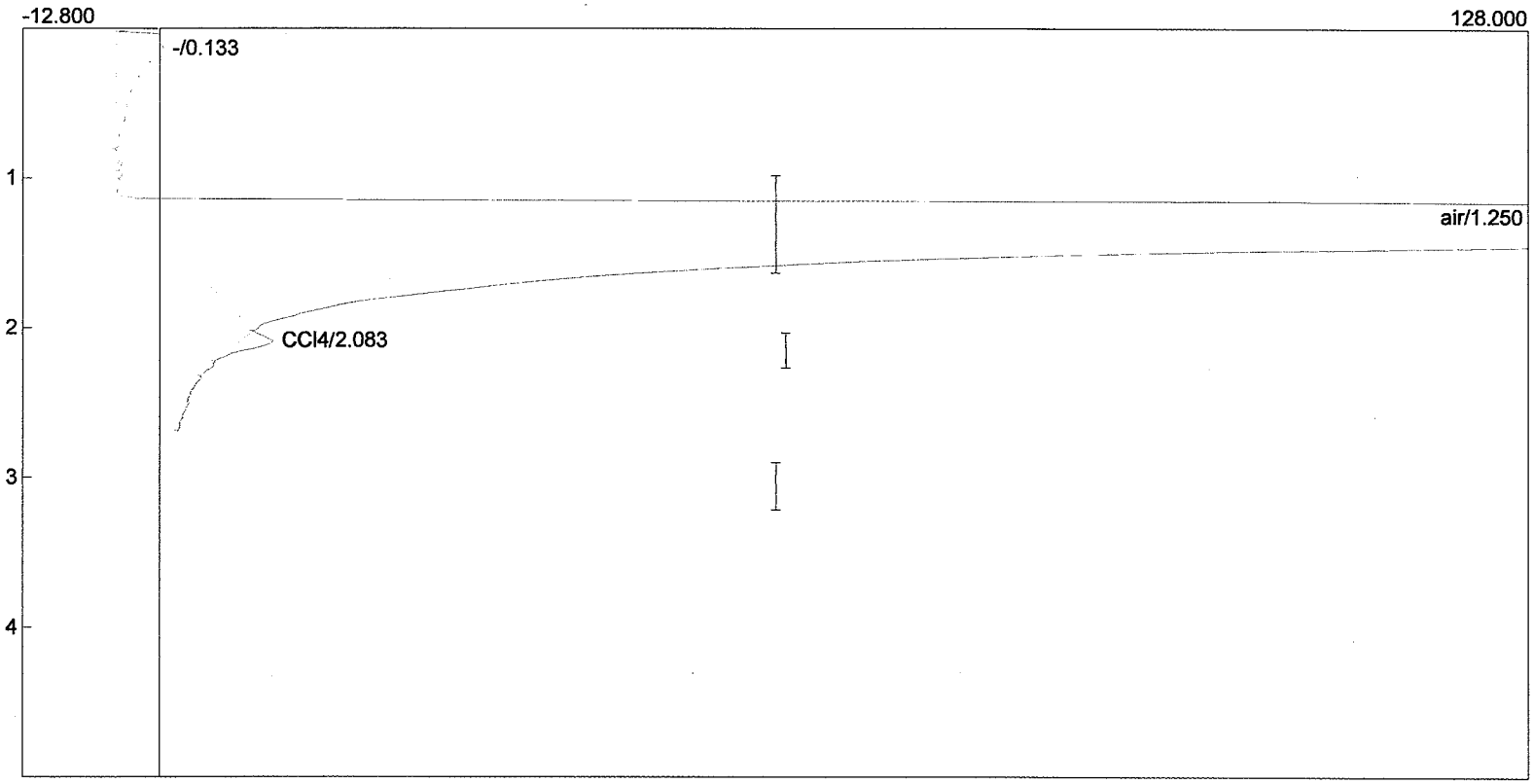
Component	Retention	Area	External	Internal	Units
air	1.250	8080.6350	0.0000	0.0000	
CCl4	2.083	14.7720	0.0401	0.2569	ug/m3
		8095.4070	0.0401	0.2569	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 14:12:31
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-88.CHR ()
Sample: SJ-B-11 (B bathroom)
Operator: Hartman



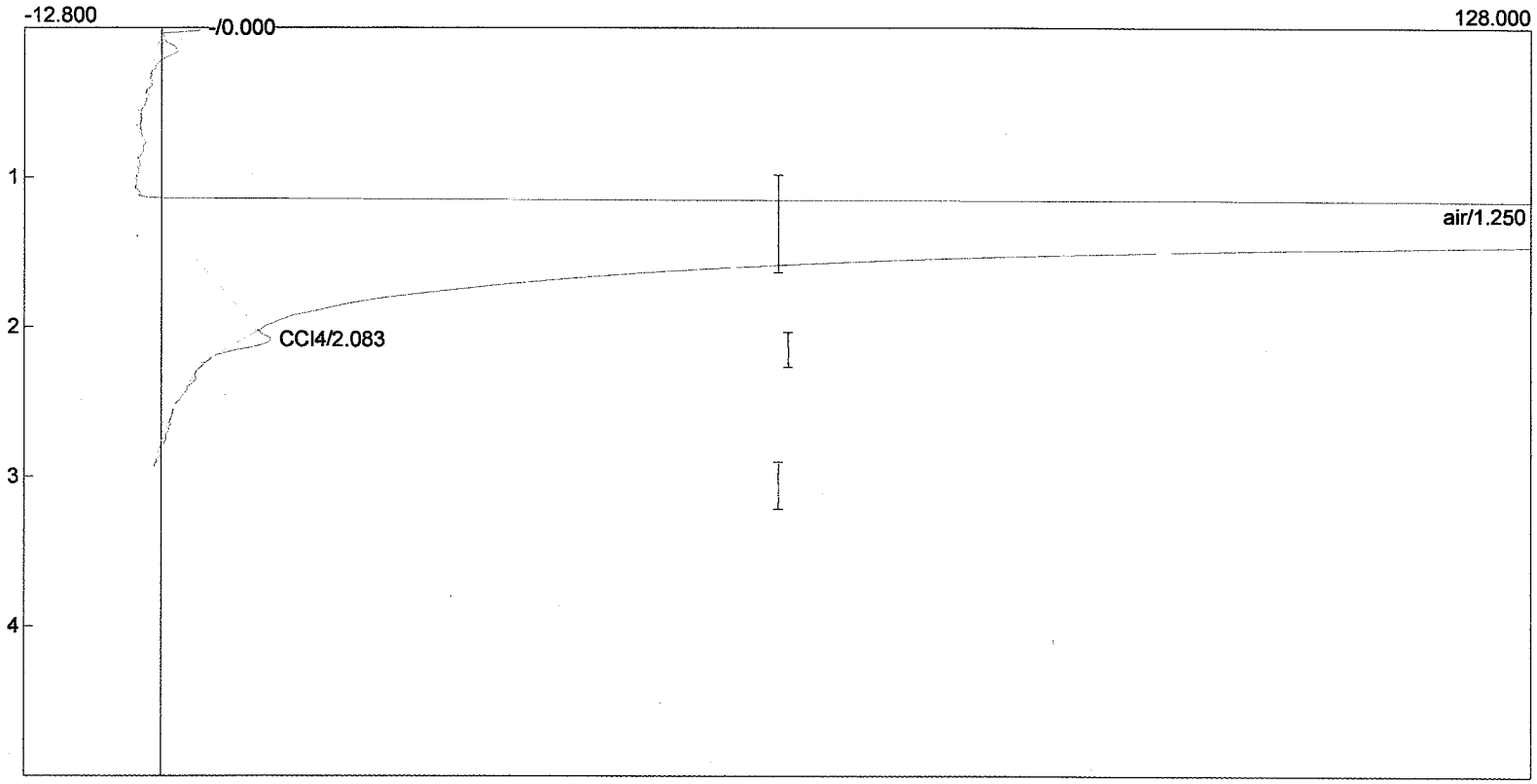
Component	Retention	Area	External	Internal	Units
air	1.250	7167.4960	0.0000	0.0000	
CCl4	2.083	18.4820	0.0502	0.3214	ug/m3
		7185.9780	0.0502	0.3214	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 14:09:32
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-87.CHR ()
Sample: SJ-B-3 (Gym)
Operator: Hartman



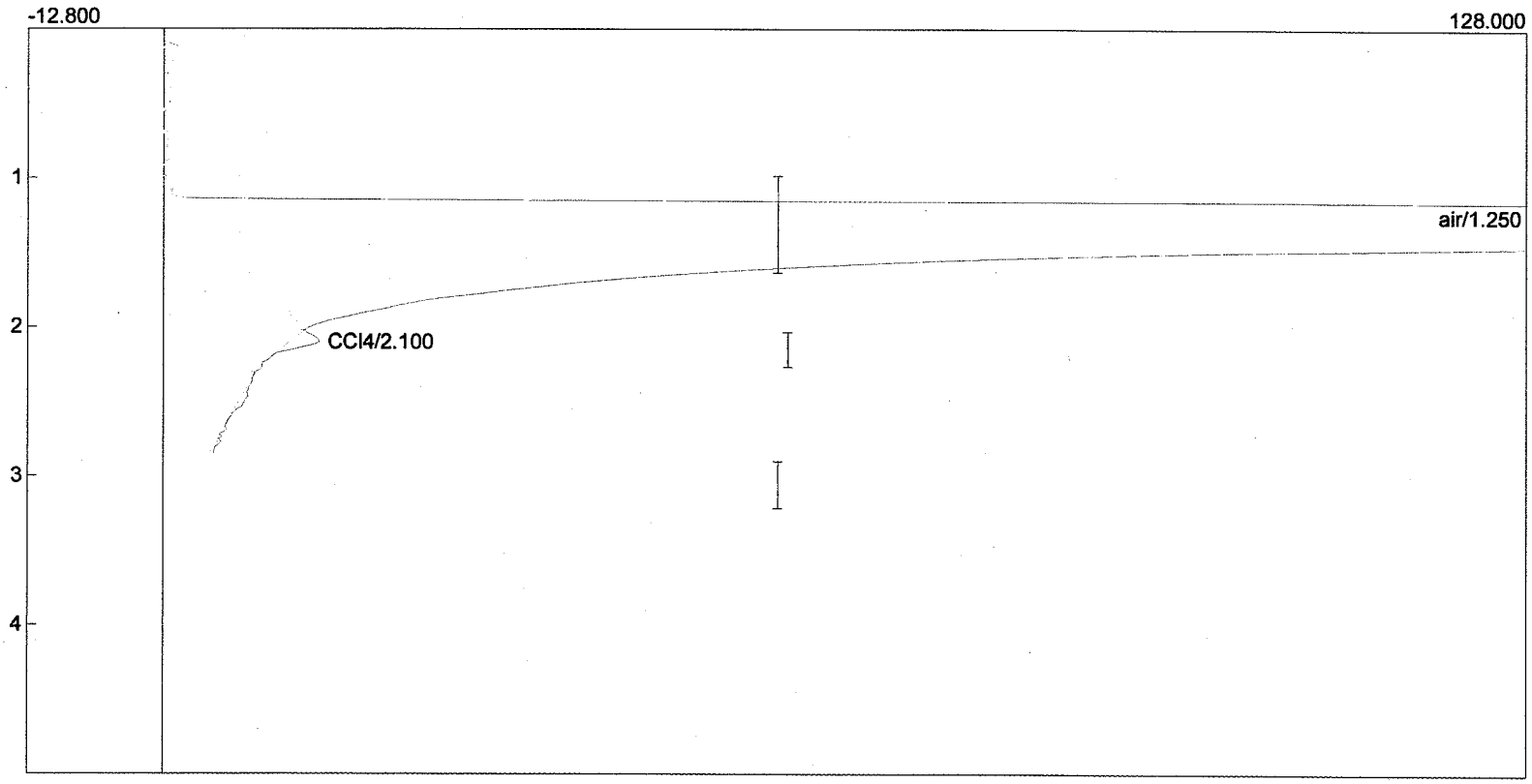
Component	Retention	Area	External	Internal	Units
air	1.250	7427.7280	0.0000	0.0000	
CCl4	2.083	19.5380	0.0531	0.3398	ug/m3
		7447.2660	0.0531	0.3398	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 14:05:50
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-86.CHR ()
Sample: SJ-2-6 (G bathroom)
Operator: Hartman



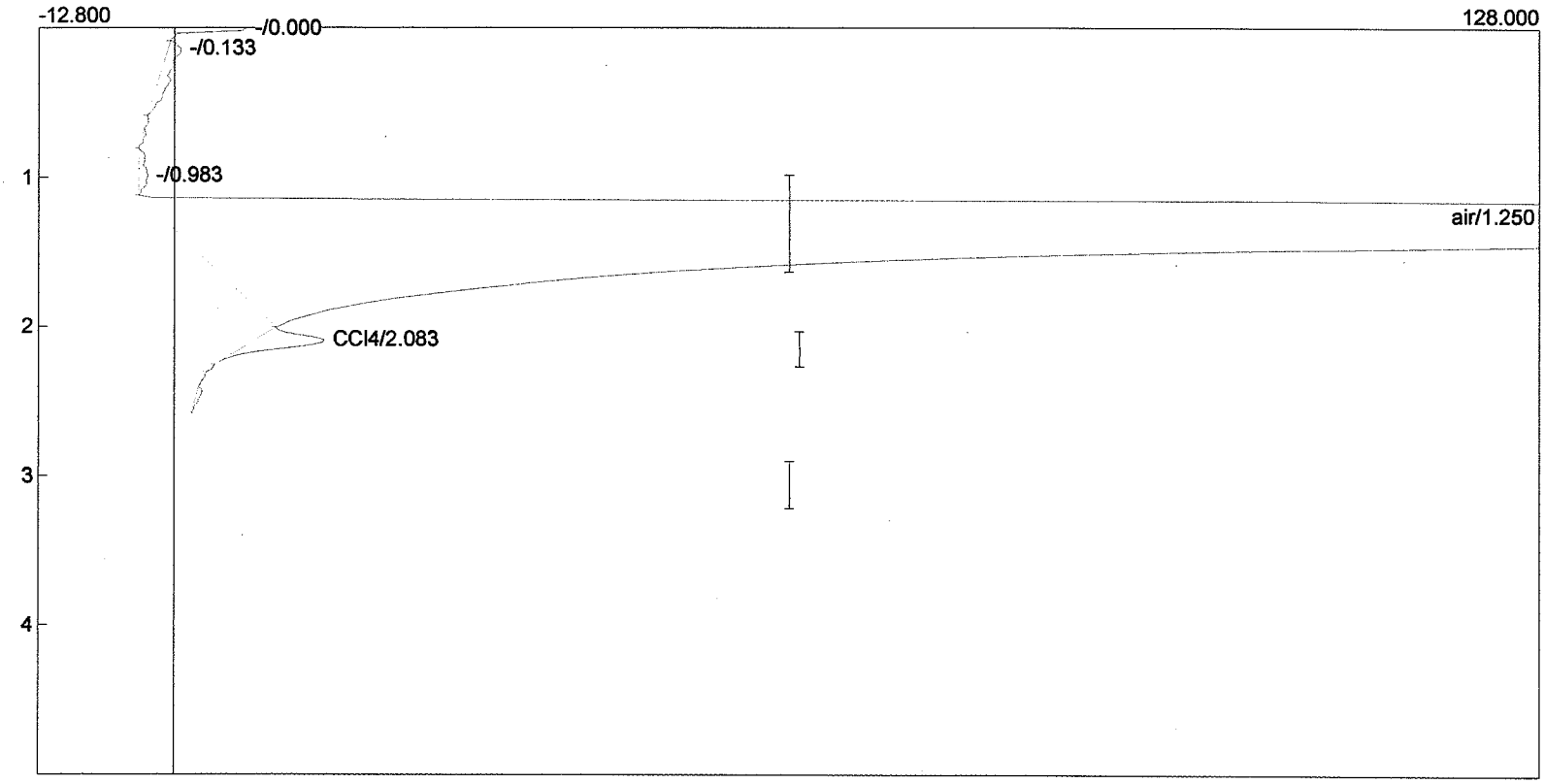
Component	Retention	Area	External	Internal	Units
air	1.250	8293.6700	0.0000	0.0000	
CCl4	2.083	17.5130	0.0476	0.3046	ug/m3
		8311.1830	0.0476	0.3046	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 14:02:18
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-85.CHR ()
Sample: SJ-1-5 (G bathroom)
Operator: Hartman



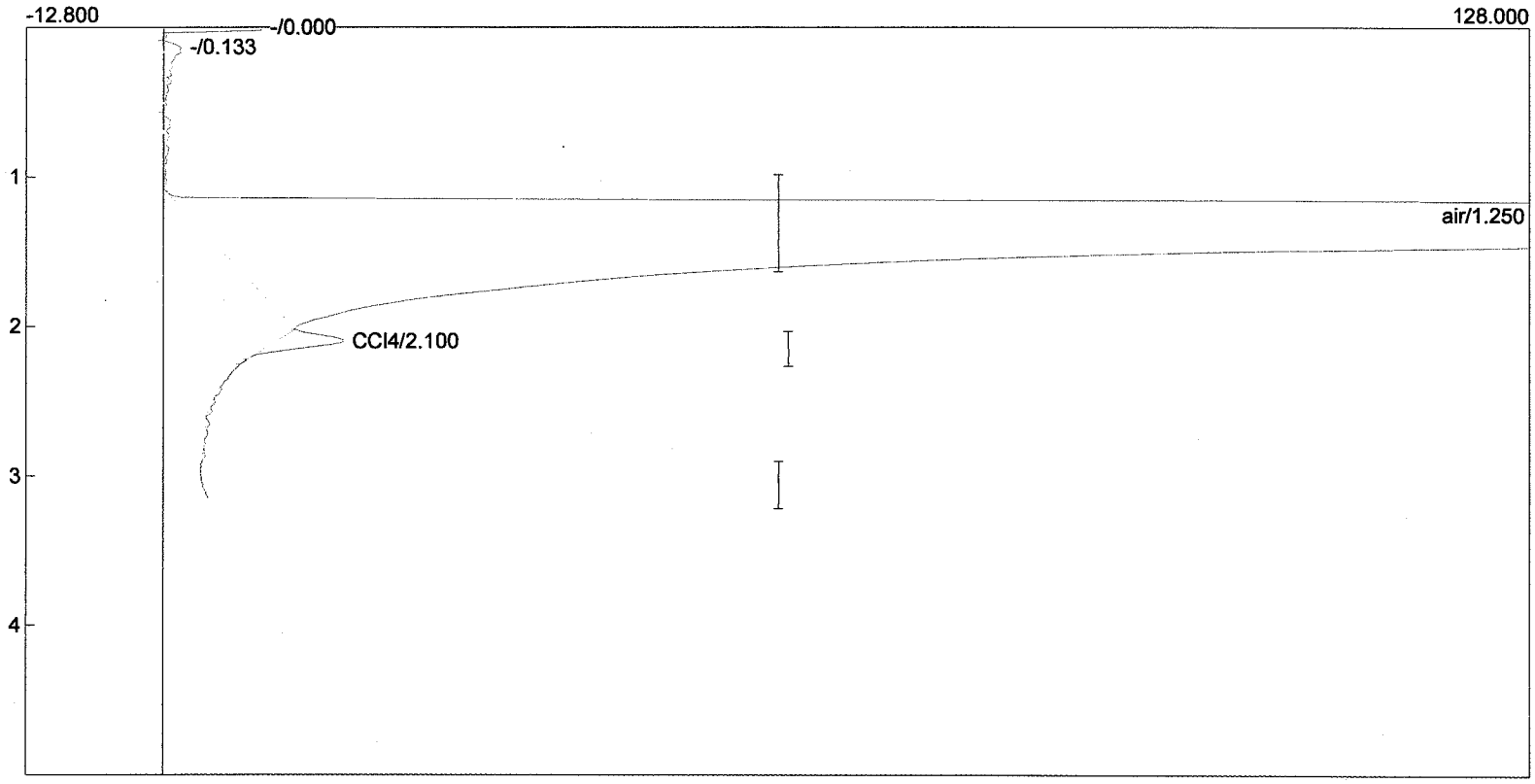
Component	Retention	Area	External	Internal	Units
air	1.250	7313.9400	0.0000	0.0000	
CCl4	2.100	16.5850	0.0451	0.2884	ug/m3
		7330.5250	0.0451	0.2884	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 13:59:09
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-84.CHR ()
Sample: SJ-B-6 (all pur rm)
Operator: Hartman



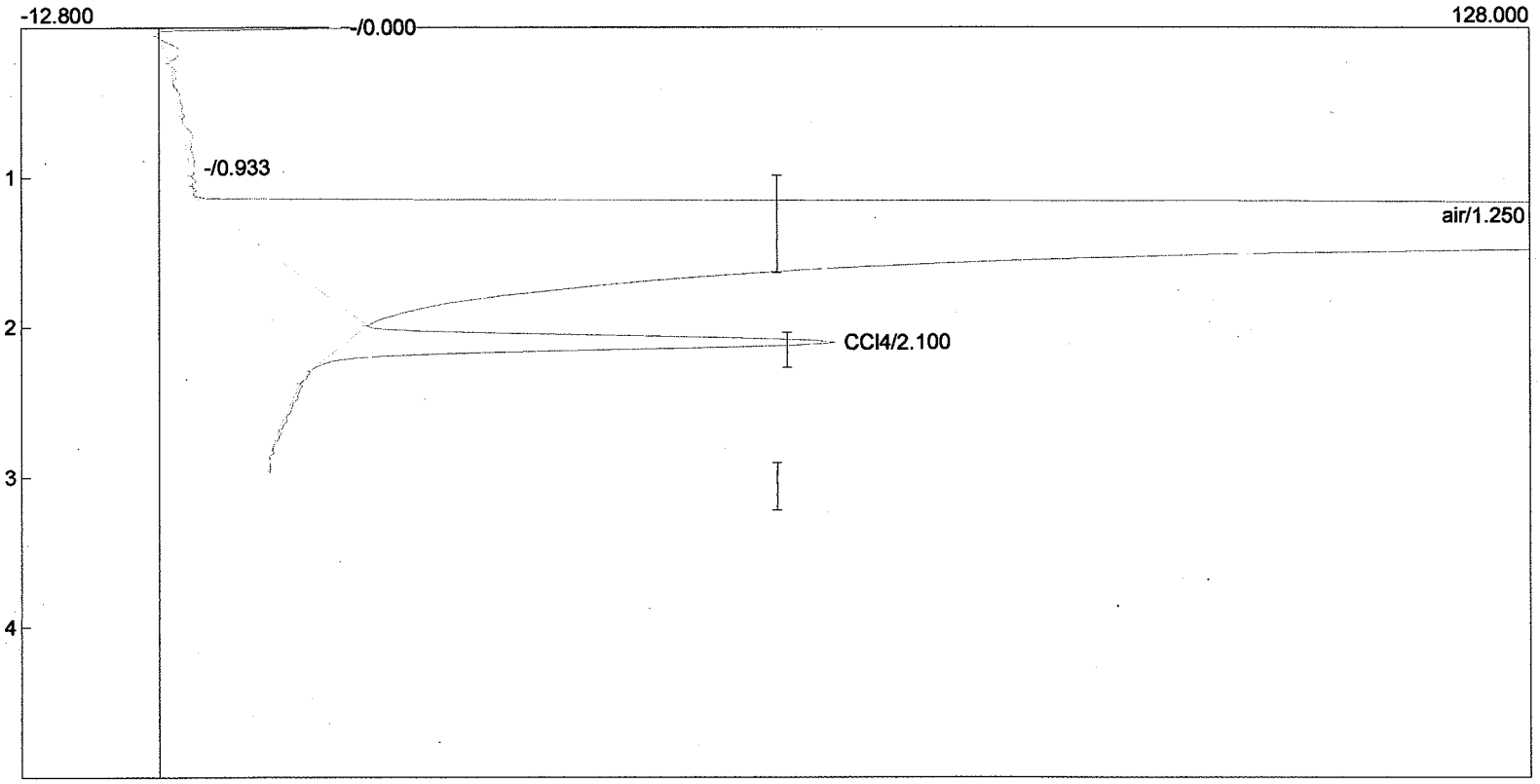
Component	Retention	Area	External	Internal	Units
air	1.250	7546.6650	0.0000	0.0000	
CCl4	2.083	43.2650	0.1176	0.7524	ug/m3
		7589.9300	0.1176	0.7524	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 13:55:34
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-83.CHR ()
Sample: SJ-B-7 (STORAGE)
Operator: Hartman



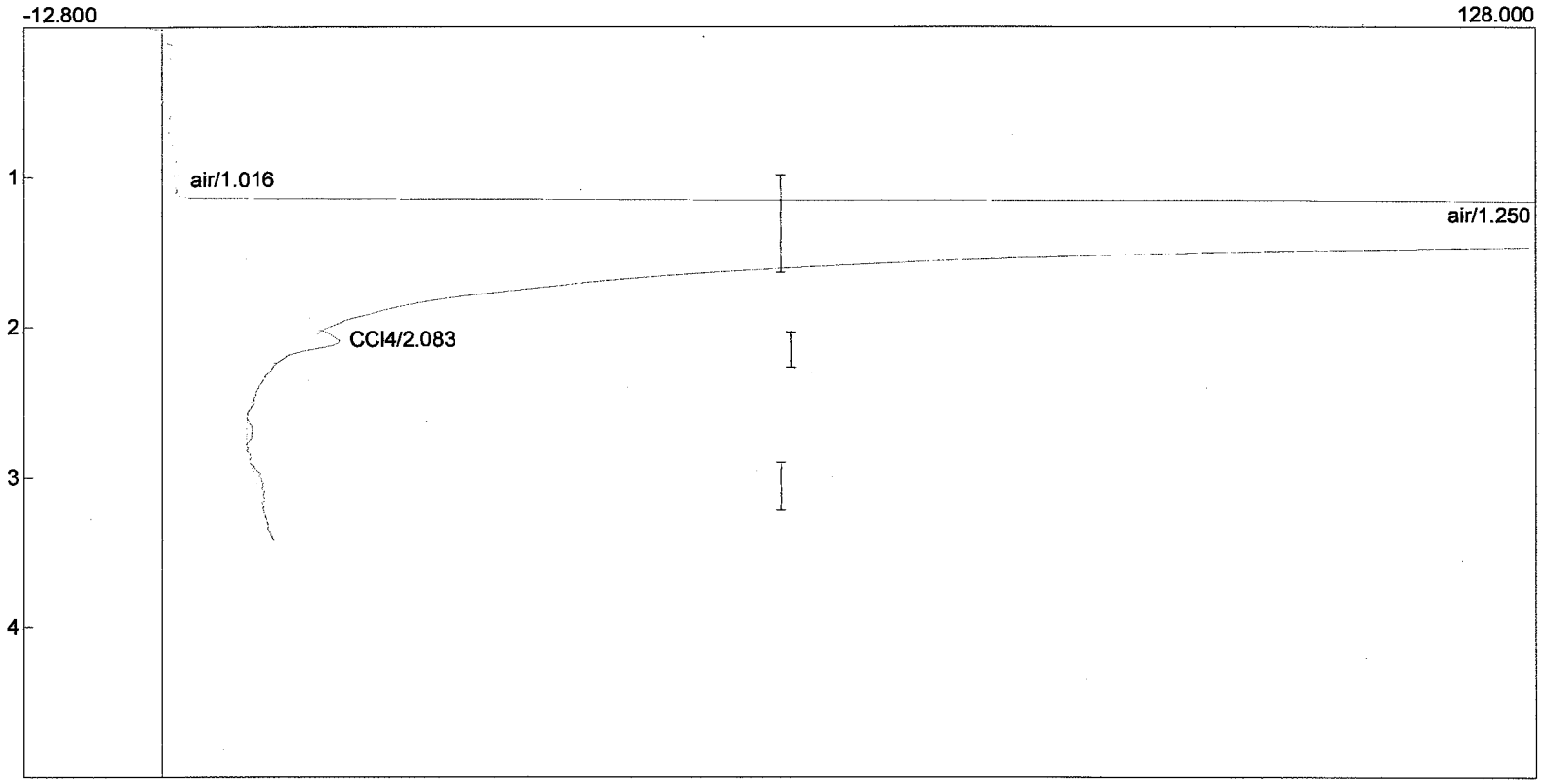
Component	Retention	Area	External	Internal	Units
air	1.250	7805.7340	0.0000	0.0000	
CCl4	2.100	37.4240	0.1017	0.6509	ug/m3
		7843.1580	0.1017	0.6509	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 13:51:38
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-82.CHR ()
Sample: 1 ppbv
Operator: Hartman



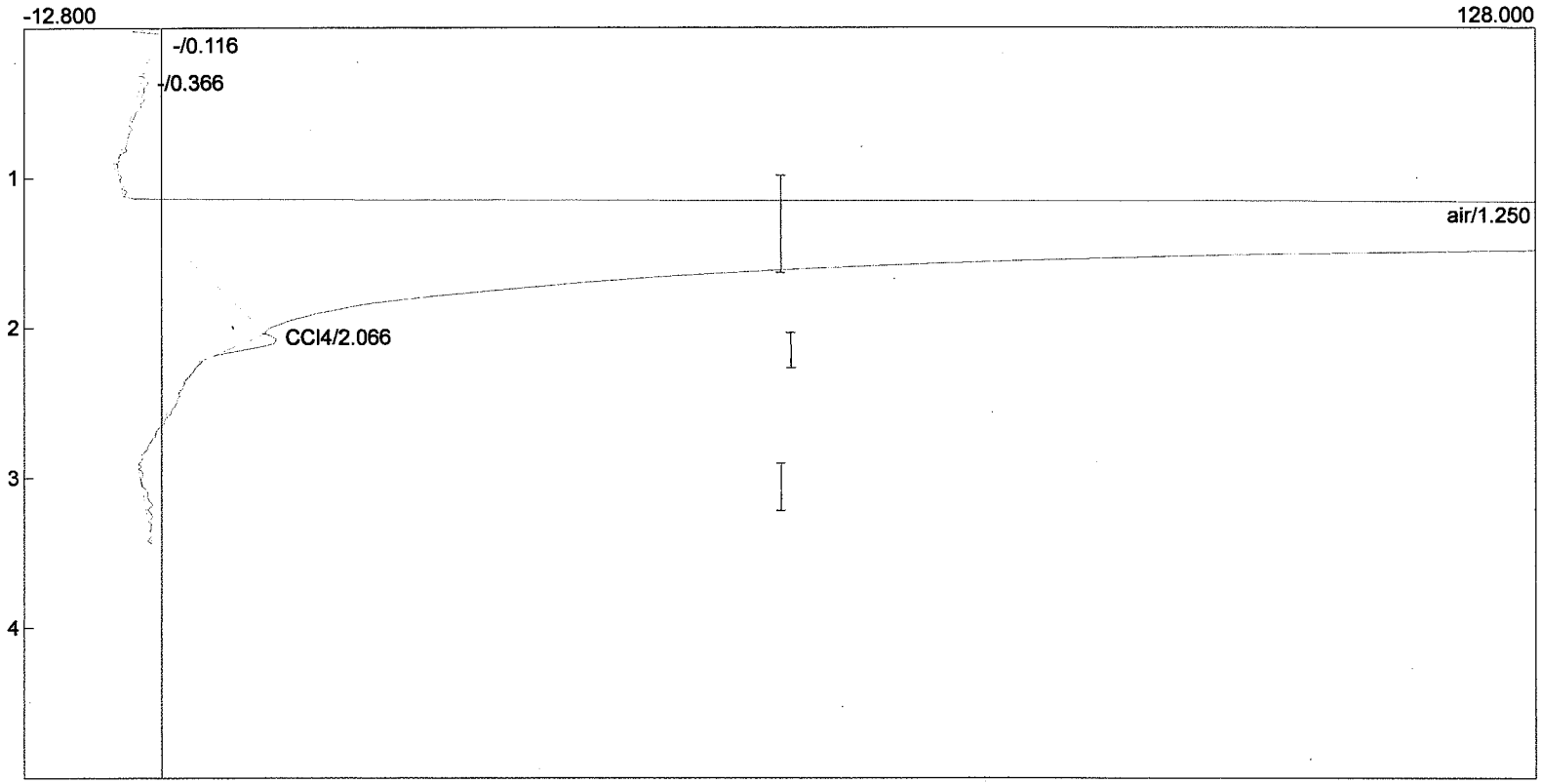
Component	Retention	Area	External	Internal	Units
air	1.250	7703.7620	0.0000	0.0000	
CCl4	2.100	291.2360	0.7914	5.0650	ug/m3
		7994.9980	0.7914	5.0650	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 13:46:49
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-81.CHR ()
Sample: SJ-2-7 (boys room)
Operator: Hartman



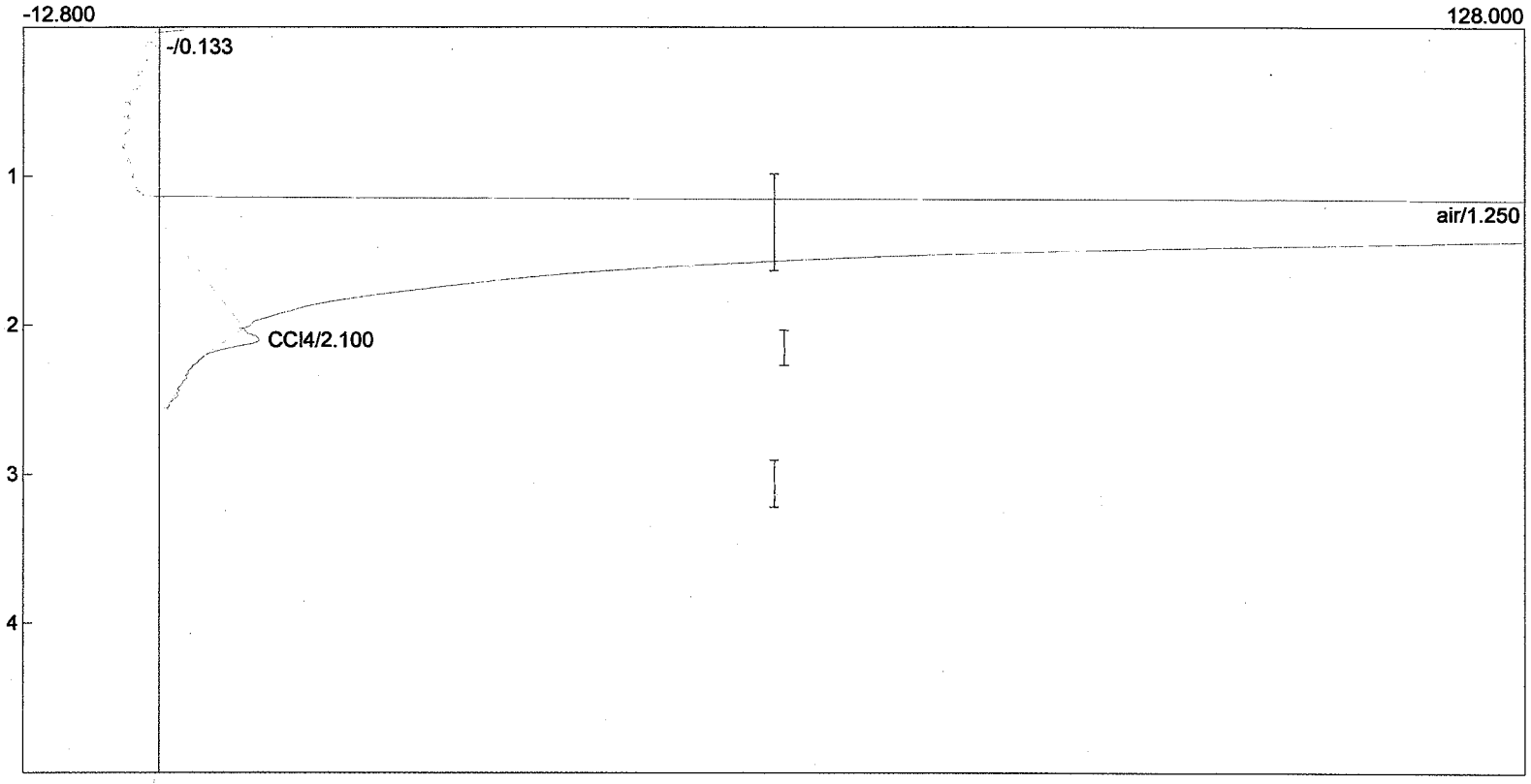
Component	Retention	Area	External	Internal	Units
air	1.016	11.7700	0.0000	0.0000	
air	1.250	7547.5760	0.0000	0.0000	
CCl4	2.083	18.7860	0.0510	0.3267	ug/m3
		7578.1320	0.0510	0.3267	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 13:42:58
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-80.CHR ()
Sample: SJ-2-3 (S classroom)
Operator: Hartman



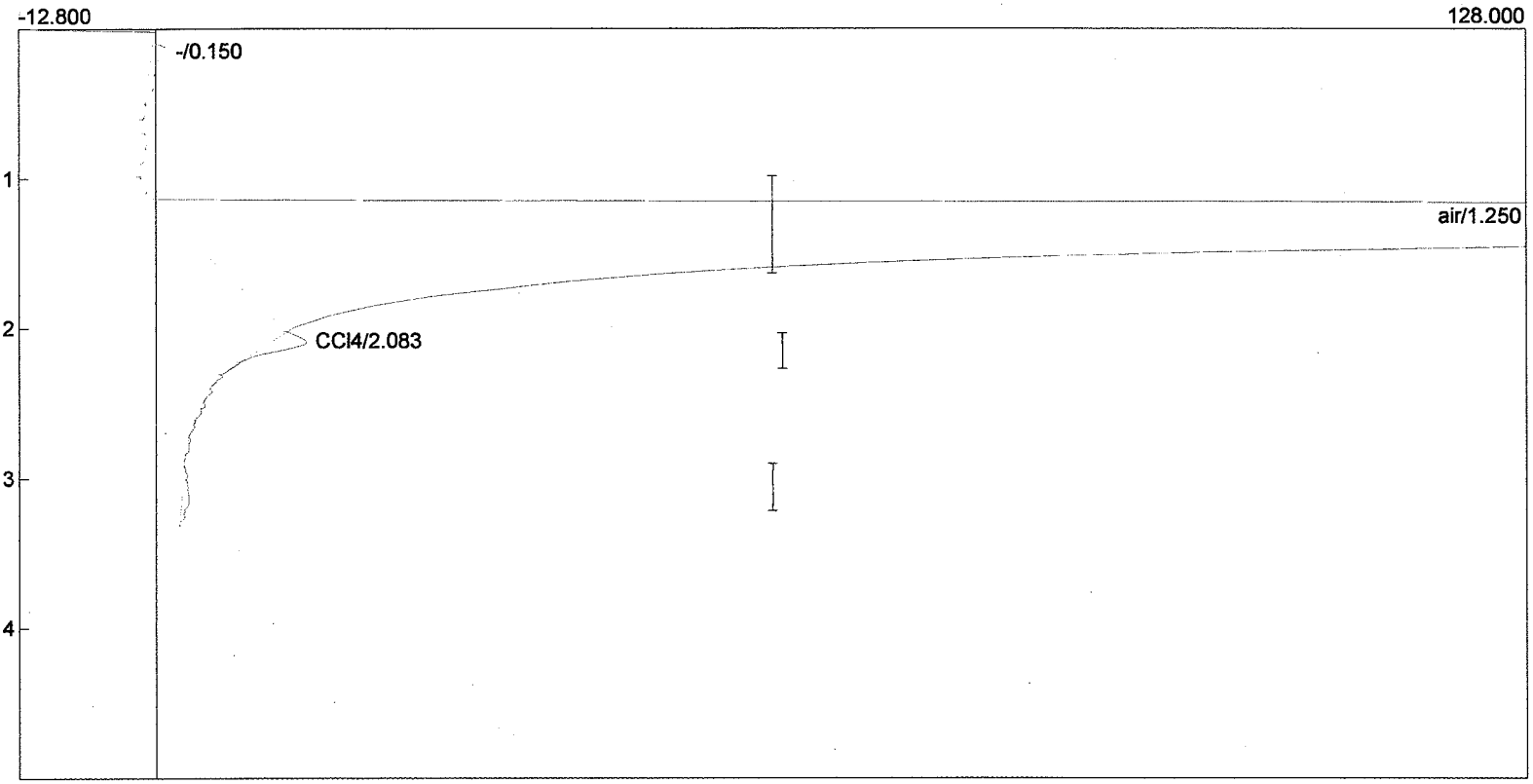
Component	Retention	Area	External	Internal	Units
air	1.250	9665.9950	0.0000	0.0000	
CCl4	2.066	17.3720	0.0472	0.3021	ug/m3
		9683.3670	0.0472	0.3021	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 13:39:28
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-79.CHR ()
Sample: SJ-2-2 (NE classroom)
Operator: Hartman



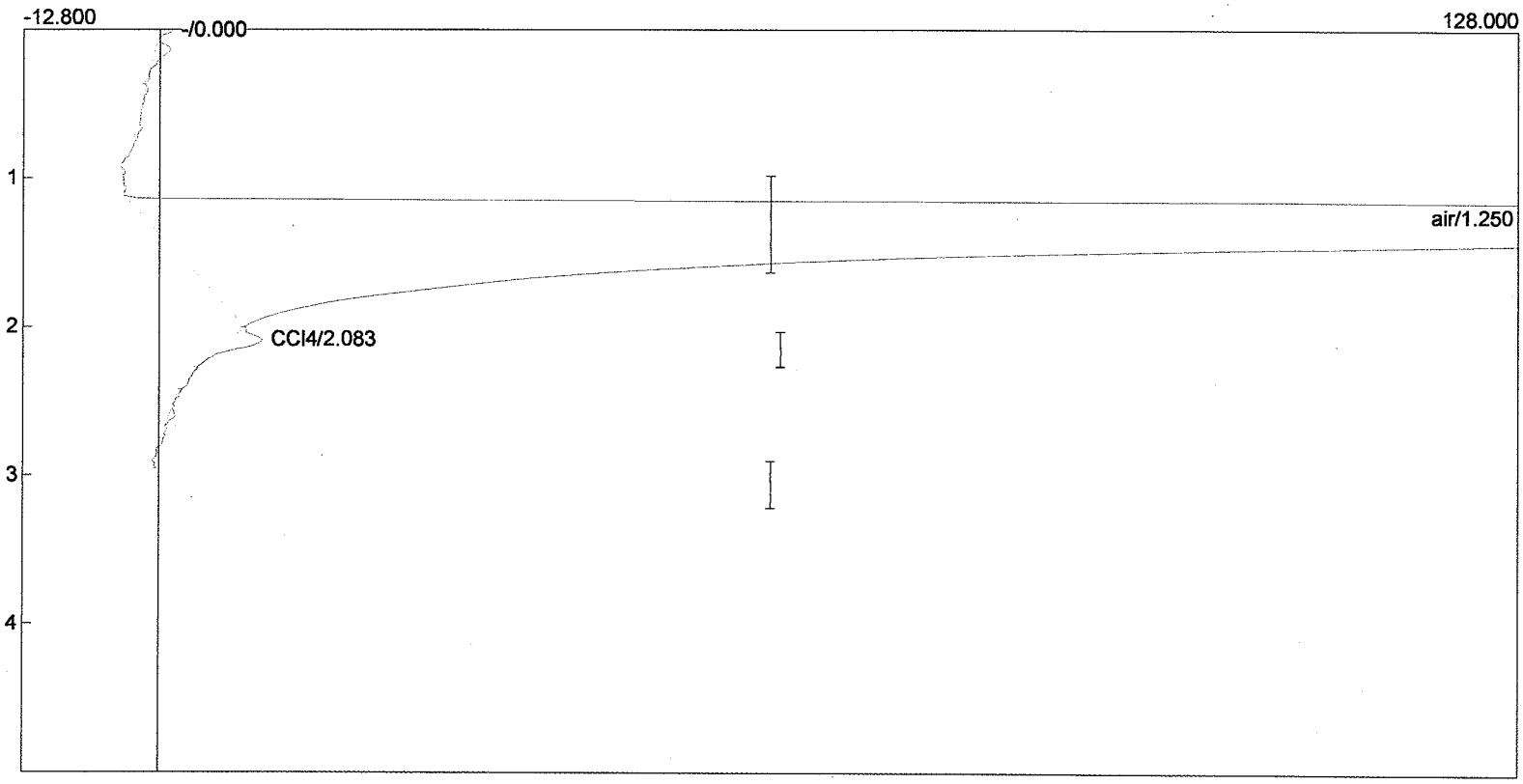
Component	Retention	Area	External	Internal	Units
air	1.250	6905.4740	0.0000	0.0000	
CCl4	2.100	18.0660	0.0491	0.3142	ug/m3
		6923.5400	0.0491	0.3142	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 13:35:52
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-78.CHR ()
Sample: SJ-2-1 (NW classroom)
Operator: Hartman



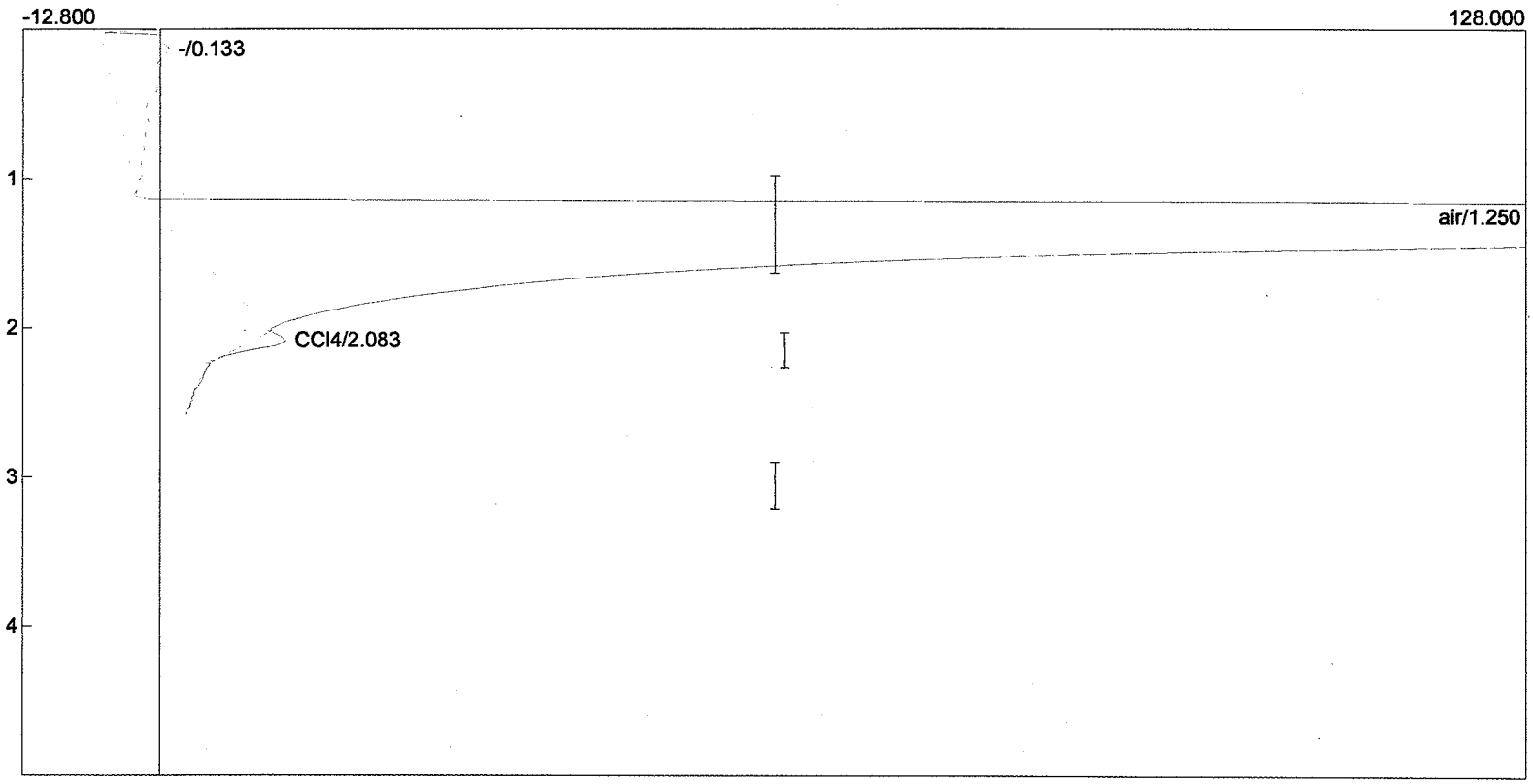
Component	Retention	Area	External	Internal	Units
air	1.250	7579.2180	0.0000	0.0000	
CCl4	2.083	22.9680	0.0624	0.3994	ug/m3
		7602.1860	0.0624	0.3994	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 13:24:56
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-77.CHR ()
Sample: SJ-1-4 (SE classroom)
Operator: Hartman



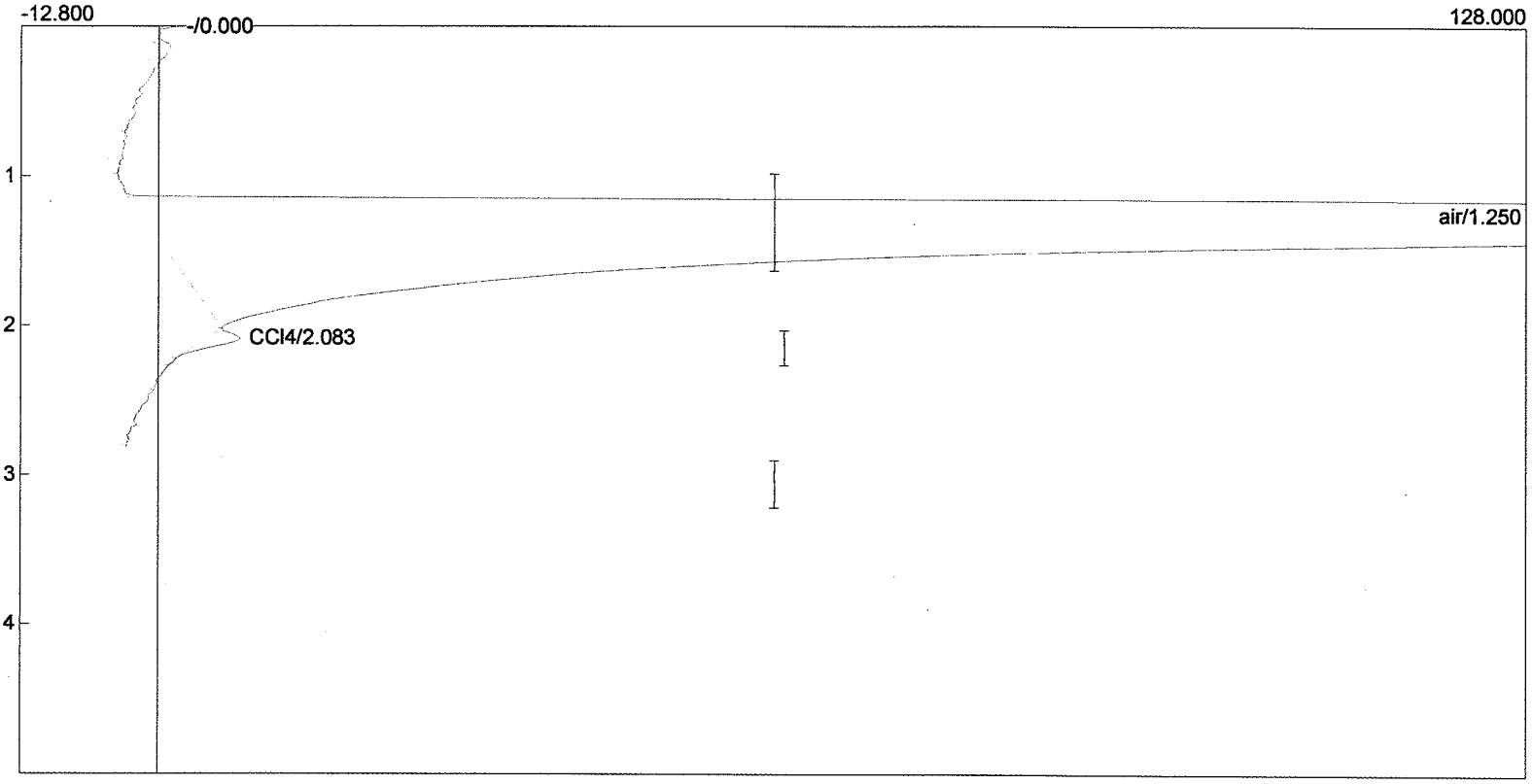
Component	Retention	Area	External	Internal	Units
air	1.250	7112.9720	0.0000	0.0000	
CCl4	2.083	21.9060	0.0595	0.3810	ug/m3
		7134.8780	0.0595	0.3810	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 13:22:03
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-76.CHR ()
Sample: SJ-1-3 (SW classroom)
Operator: Hartman



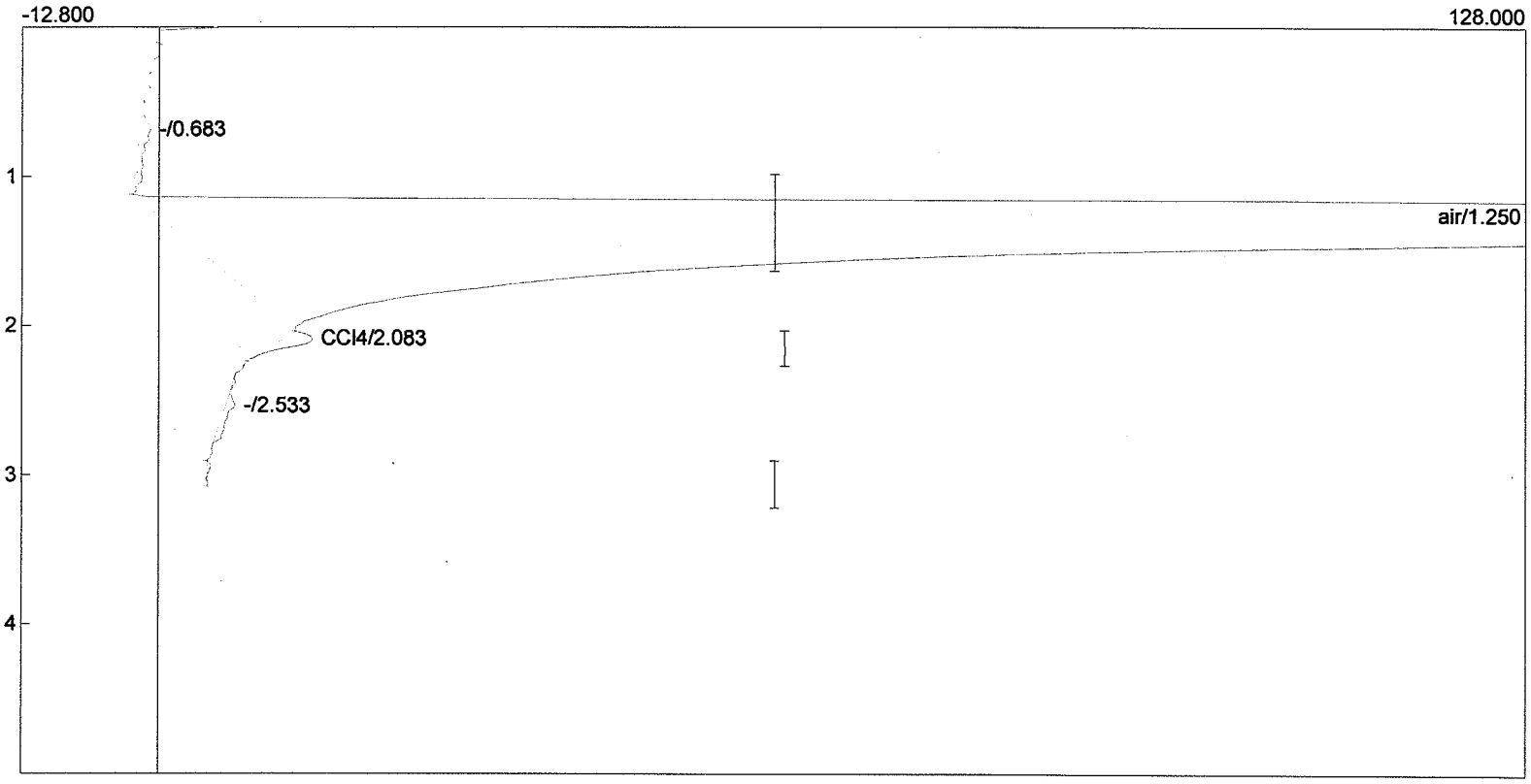
Component	Retention	Area	External	Internal	Units
air	1.250	7332.9160	0.0000	0.0000	
CCl4	2.083	21.5360	0.0585	0.3745	ug/m3
		7354.4520	0.0585	0.3745	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 13:18:49
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-75.CHR ()
Sample: SJ-1-6 (boys bathroom)
Operator: Hartman



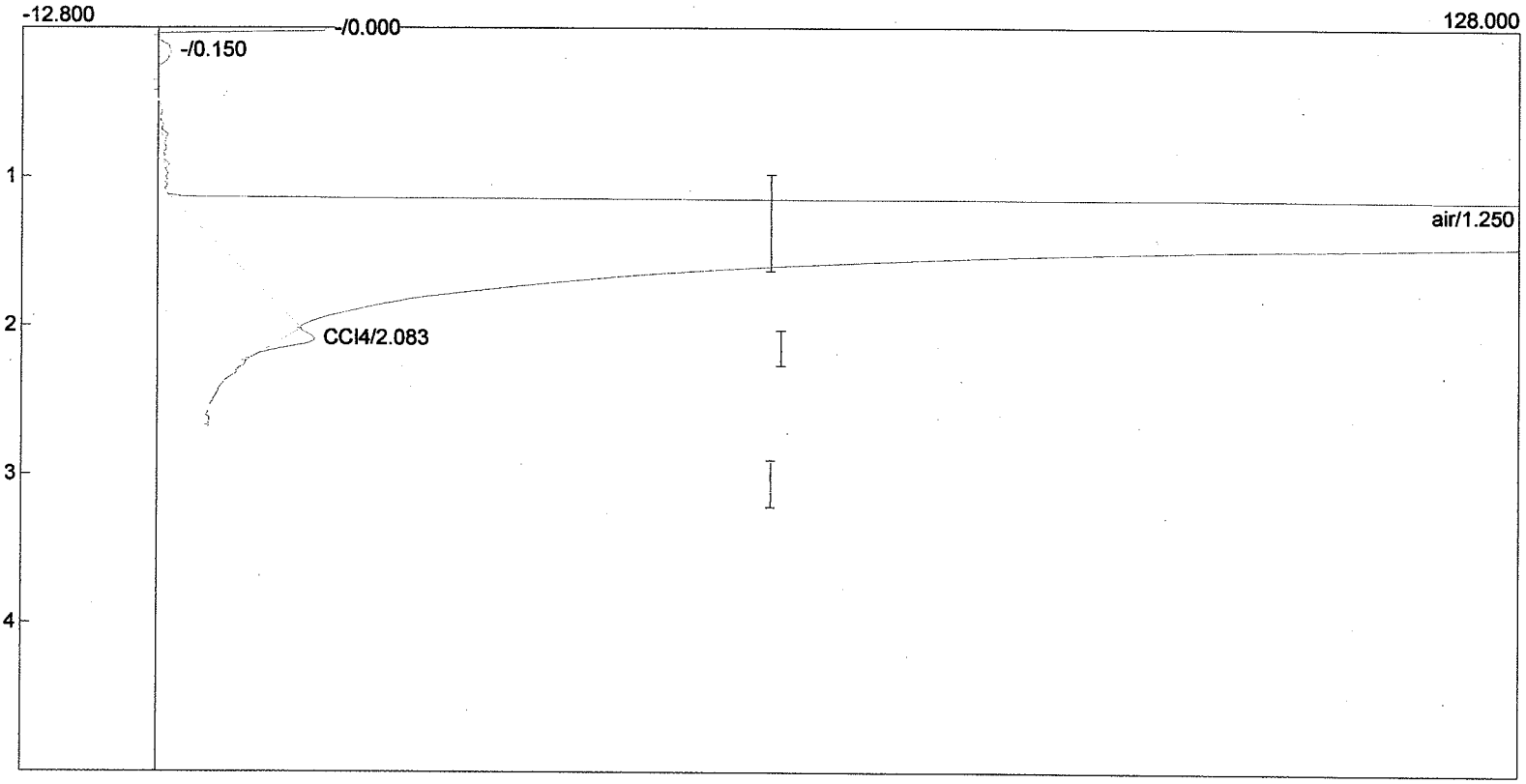
Component	Retention	Area	External	Internal	Units
air	1.250	7101.6360	0.0000	0.0000	
CCl4	2.083	20.4680	0.0556	0.3560	ug/m3
		7122.1040	0.0556	0.3560	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 13:15:22
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-74.CHR ()
Sample: SJ-1-2 (NE room)
Operator: Hartman



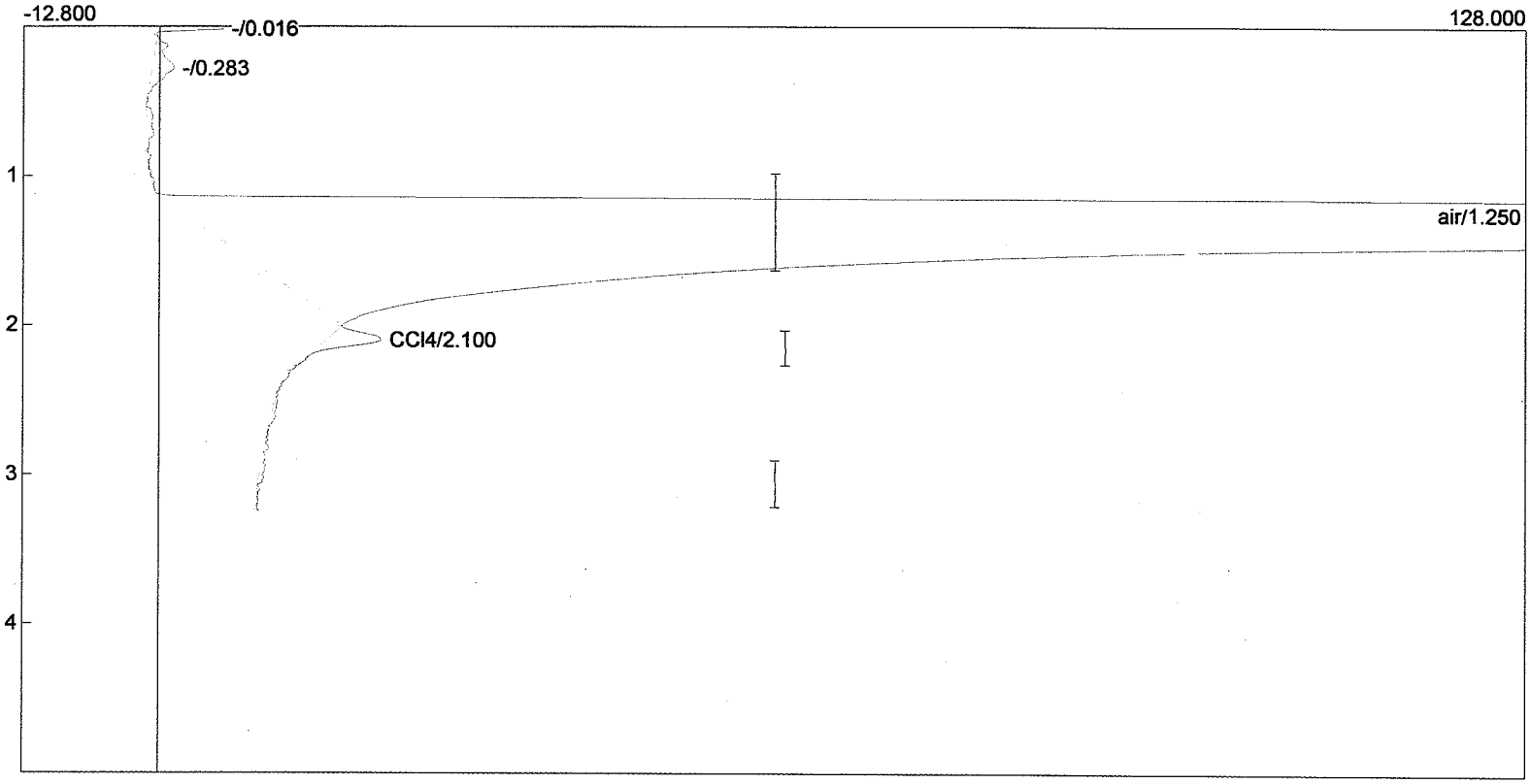
Component	Retention	Area	External	Internal	Units
air	1.250	7062.9820	0.0000	0.0000	
CCl4	2.083	18.3650	0.0499	0.3194	ug/m3
		7081.3470	0.0499	0.3194	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 13:12:10
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-73.CHR ()
Sample: SJ-1-1 (NW room)
Operator: Hartman



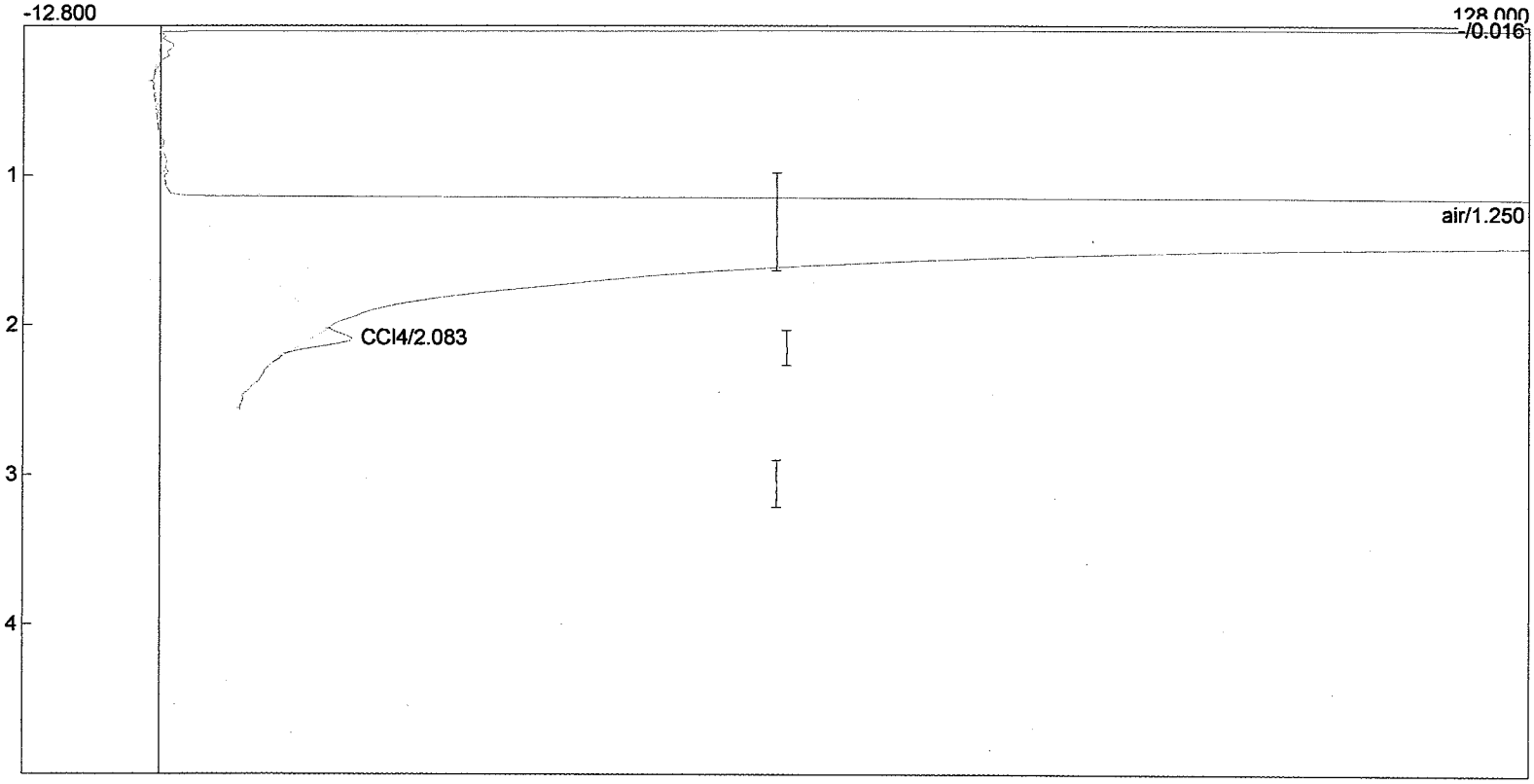
Component	Retention	Area	External	Internal	Units
air	1.250	7664.7780	0.0000	0.0000	
CCl4	2.083	19.5980	0.0533	0.3408	ug/m3
		7684.3760	0.0533	0.3408	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 13:05:06
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-72.CHR ()
Sample: SJ-B-1 (nursery)
Operator: Hartman



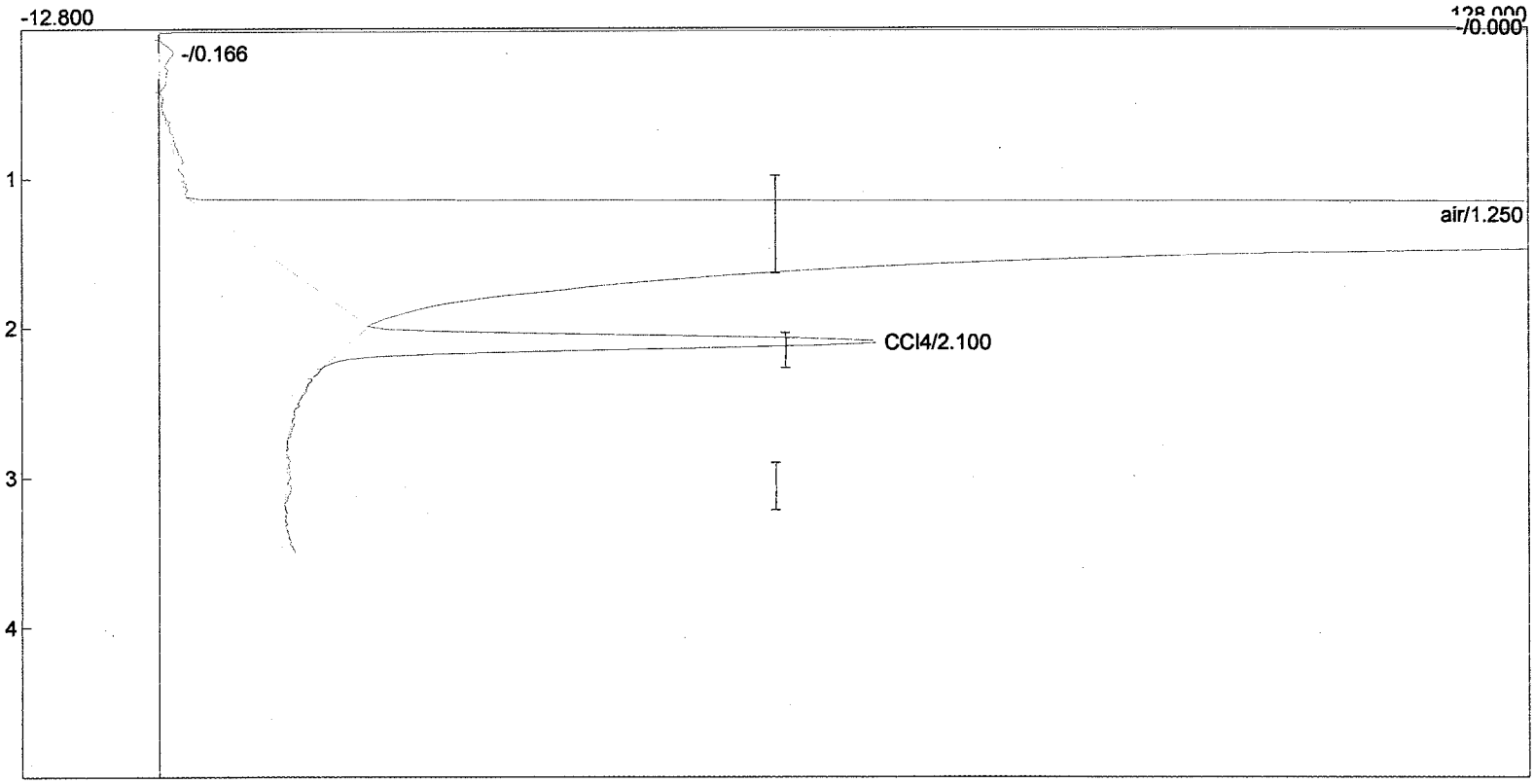
Component	Retention	Area	External	Internal	Units
air	1.250	7777.2350	0.0000	0.0000	
CCl4	2.100	32.3360	0.0879	0.5624	ug/m3
		7809.5710	0.0879	0.5624	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 13:01:49
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-71.CHR ()
Sample: HP-B-1
Operator: Hartman



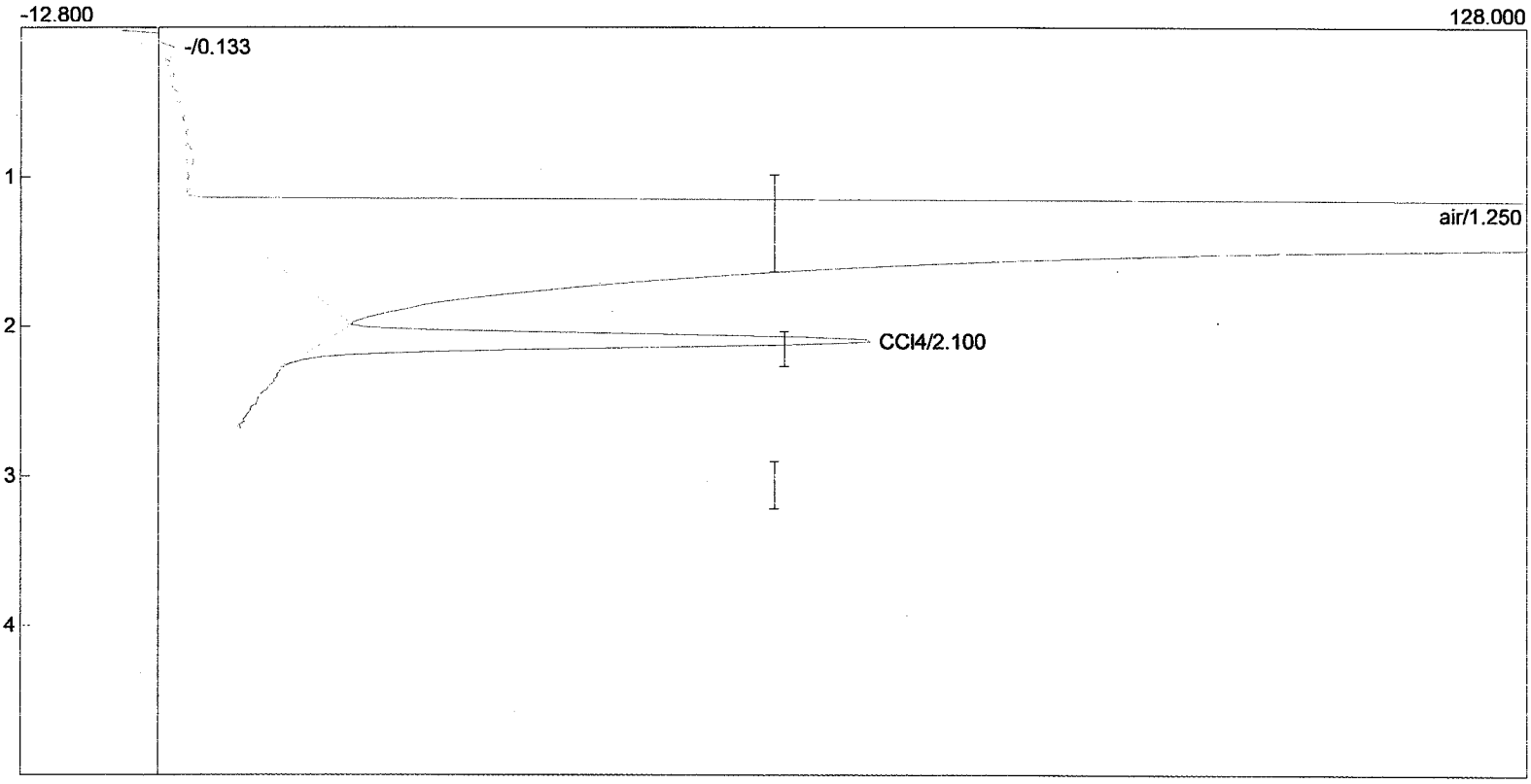
Component	Retention	Area	External	Internal	Units
air	1.250	8158.9080	0.0000	0.0000	
CCl4	2.083	22.4740	0.0611	0.3909	ug/m3
		8181.3820	0.0611	0.3909	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 12:53:43
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-70.CHR ()
Sample: 1 ppbv
Operator: Hartman



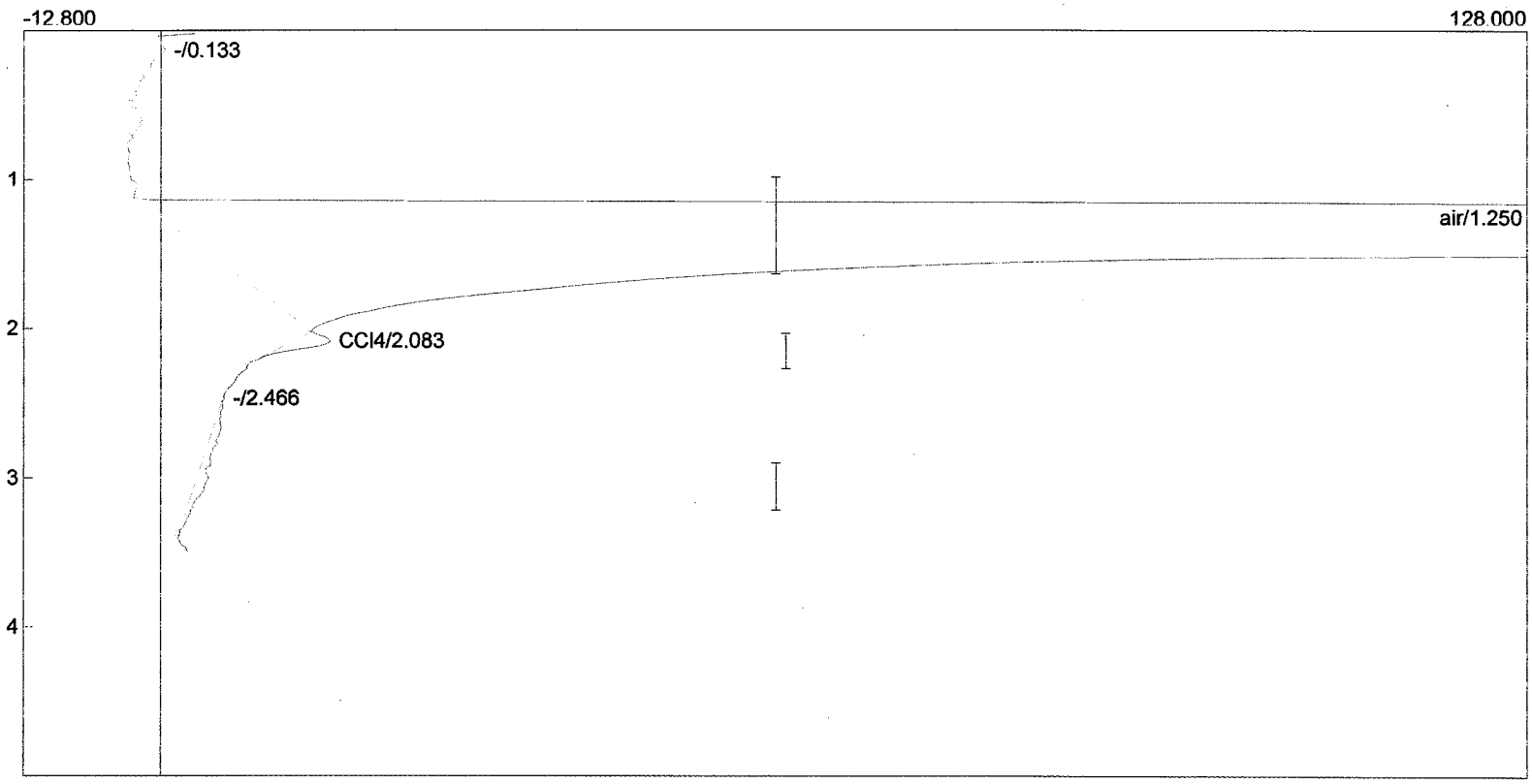
Component	Retention	Area	External	Internal	Units
air	1.250	7815.9060	0.0000	0.0000	
CCl4	2.100	312.4260	0.8490	5.4335	ug/m3
		8128.3320	0.8490	5.4335	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 11:35:23
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-69.CHR ()
Sample: 1 ppbv
Operator: Hartman



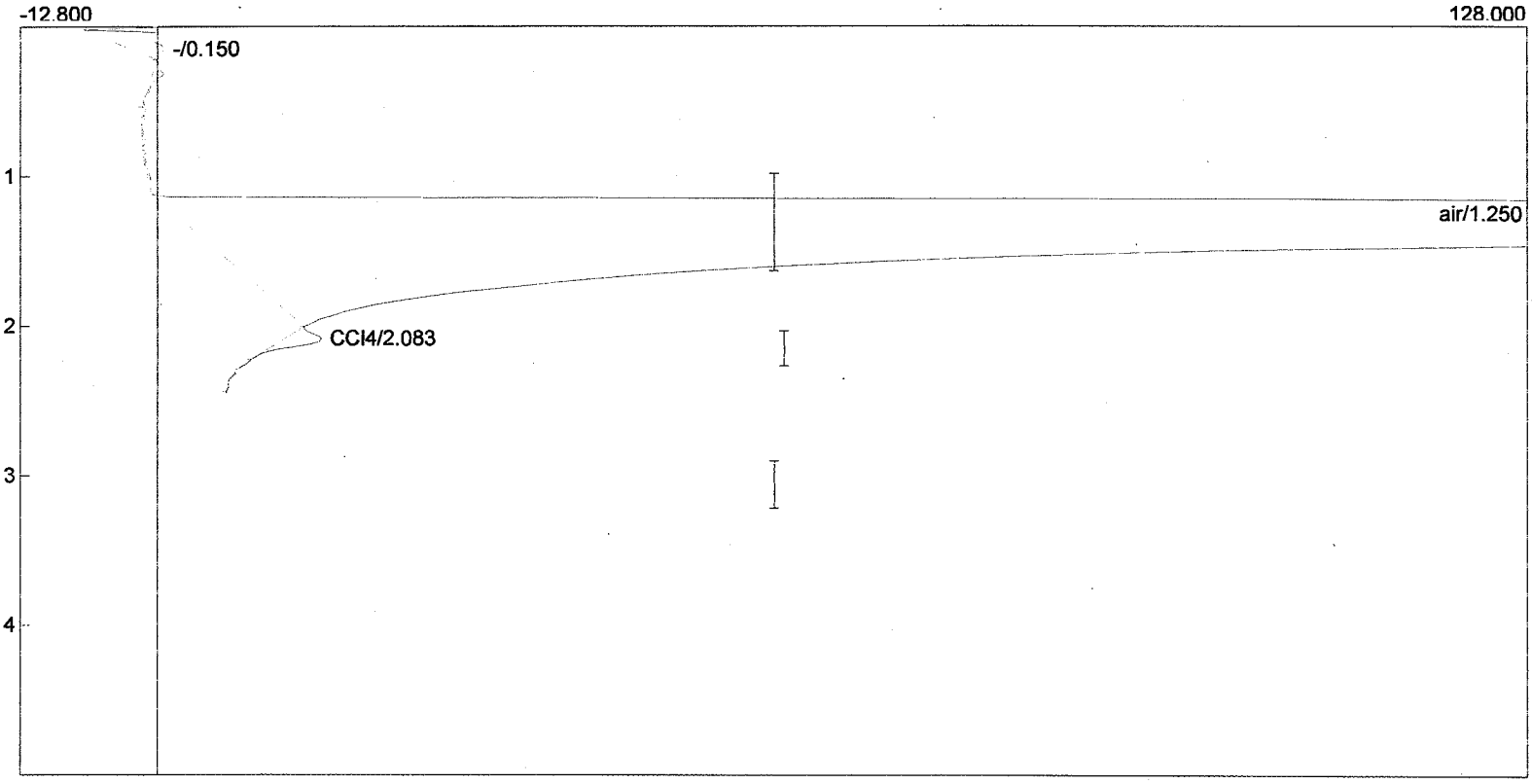
Component	Retention	Area	External	Internal	Units
air	1.250	7958.7900	0.0000	0.0000	
CCl4	2.100	325.8760	0.8855	5.6674	ug/m3
		8284.6660	0.8855	5.6674	

Lab name: HEG
Client: ANI
Client ID: Hanover
Analysis date: 02/23/2010 11:29:46
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-68.CHR ()
Sample: HP-1-3 (library)
Operator: Hartman



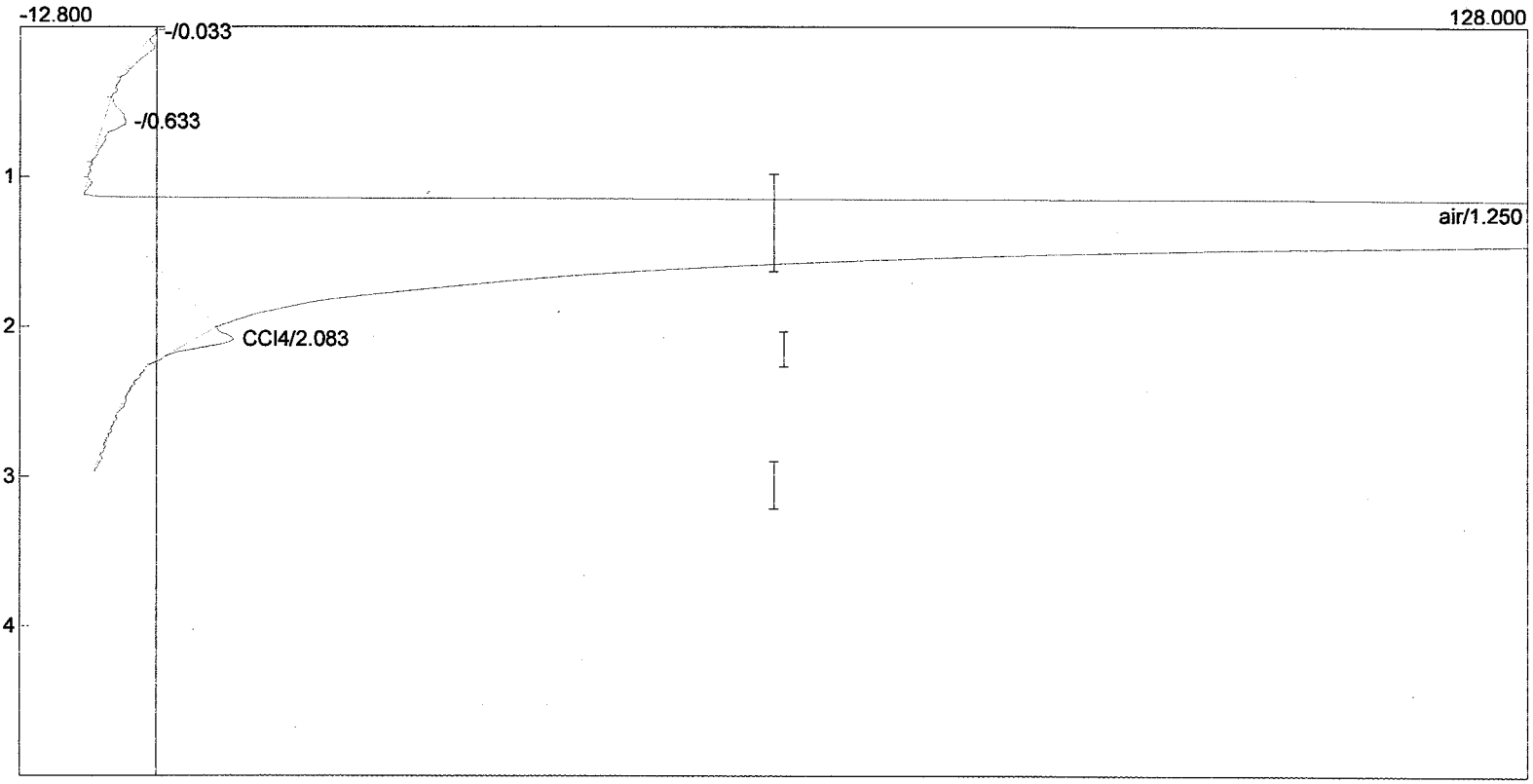
Component	Retention	Area	External	Internal	Units
air	1.250	9015.5780	0.0000	0.0000	
CCl4	2.083	22.7220	0.0617	0.3952	ug/m3
		9038.3000	0.0617	0.3952	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 11:26:49
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-67.CHR ()
Sample: HP-NB-5 (B bathrm)
Operator: Hartman



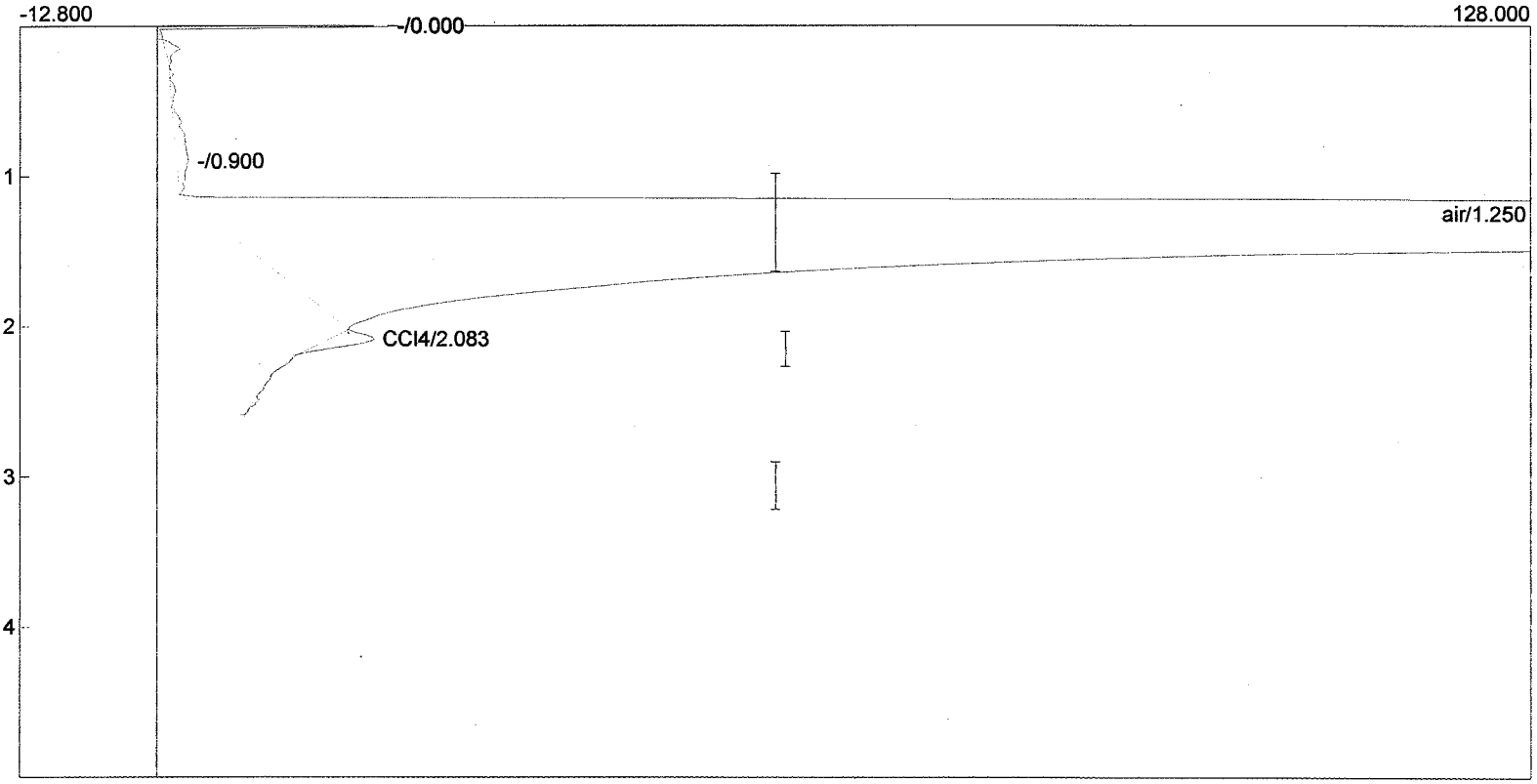
Component	Retention	Area	External	Internal	Units
air	1.250	7792.3150	0.0000	0.0000	
CCl4	2.083	22.9640	0.0624	0.3994	ug/m3
		7815.2790	0.0624	0.3994	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 11:23:34
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-66.CHR ()
Sample: HP-NB-6 (G bathrm)
Operator: Hartman



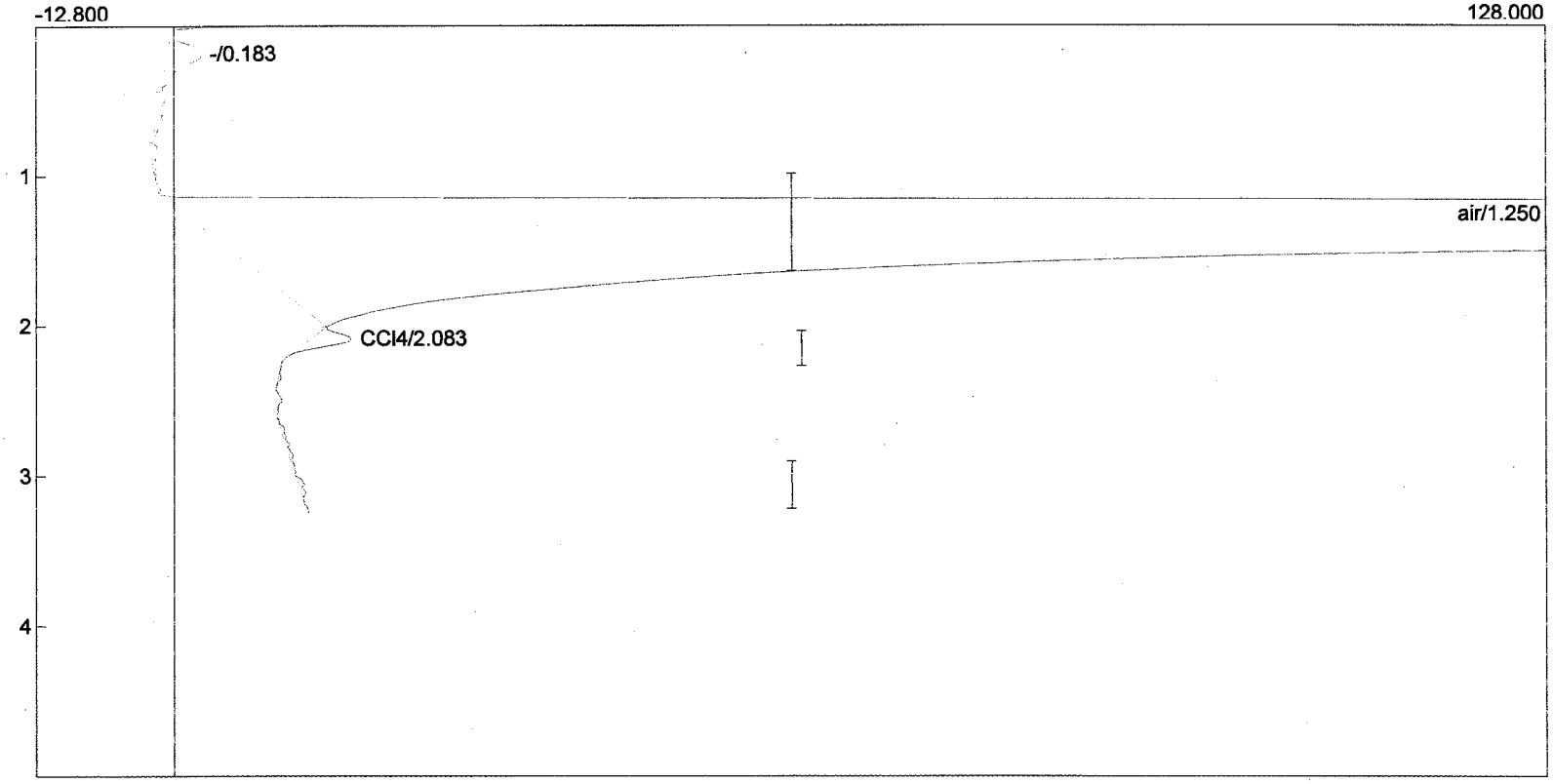
Component	Retention	Area	External	Internal	Units
air	1.250	7828.1060	0.0000	0.0000	
CCl4	2.083	24.4110	0.0663	0.4245	ug/m3
		7852.5170	0.0663	0.4245	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 11:20:37
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-65.CHR ()
Sample: HP-B-1 (kinder)
Operator: Hartman



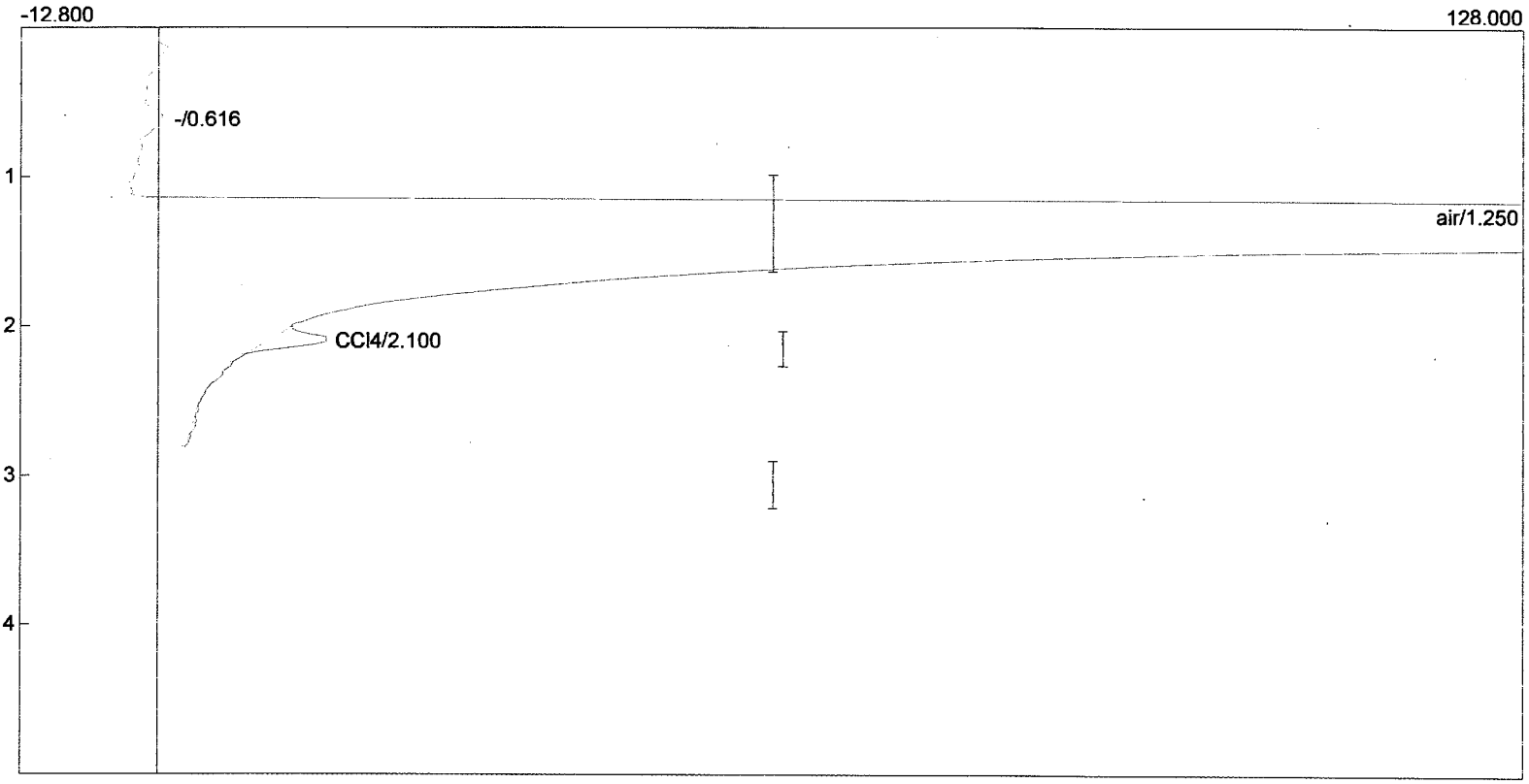
Component	Retention	Area	External	Internal	Units
air	1.250	8761.3100	0.0000	0.0000	
CCl4	2.083	25.4000	0.0690	0.4417	ug/m3
		8786.7100	0.0690	0.4417	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 11:15:39
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-64.CHR ()
Sample: HP-NB-3 (SCIENCE)
Operator: Hartman



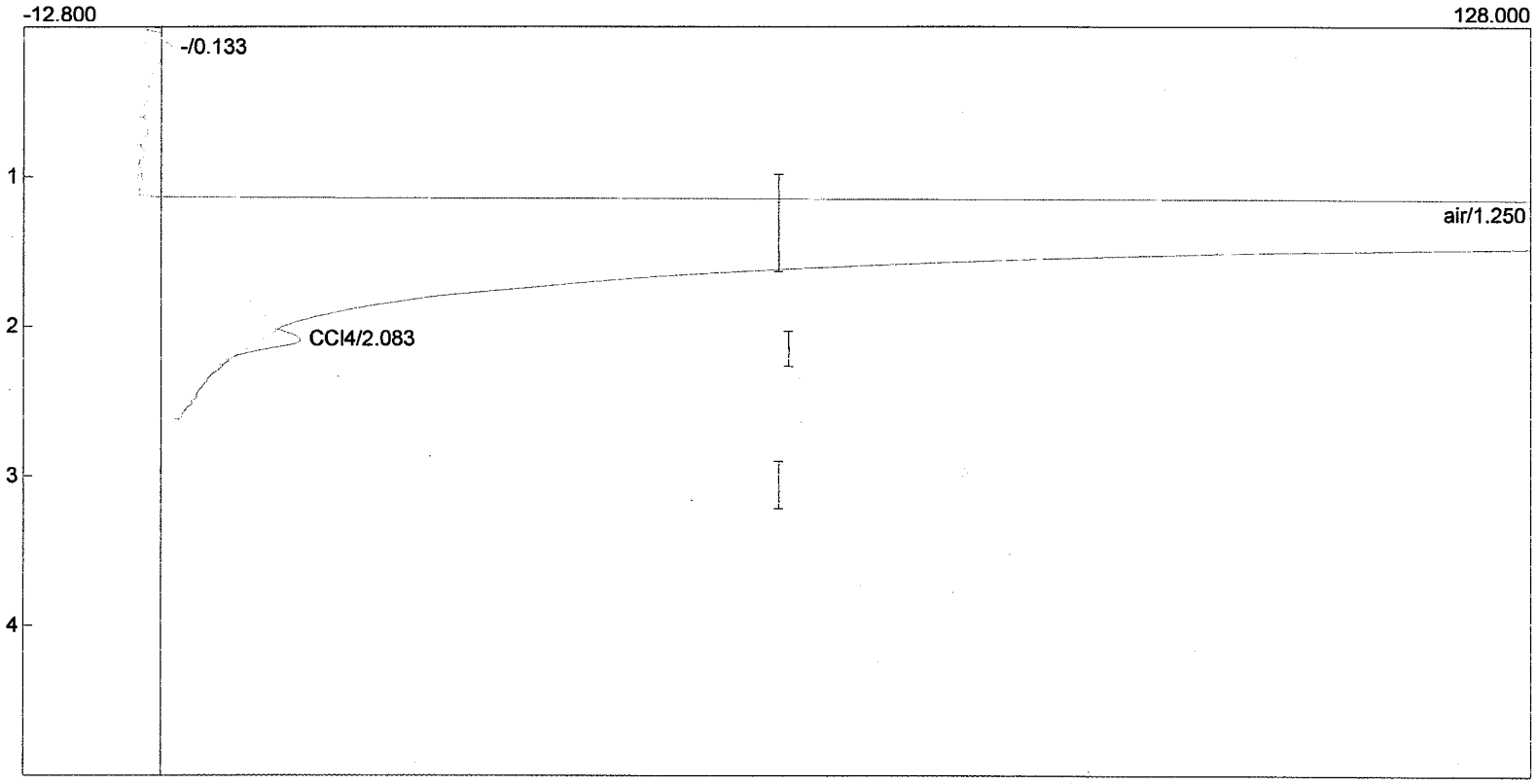
Component	Retention	Area	External	Internal	Units
air	1.250	8658.8000	0.0000	0.0000	
CCl4	2.083	23.3590	0.0635	0.4062	ug/m3
		8682.1590	0.0635	0.4062	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 11:12:18
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-63.CHR ()
Sample: SJ-B-12V(nursery)
Operator: Hartman



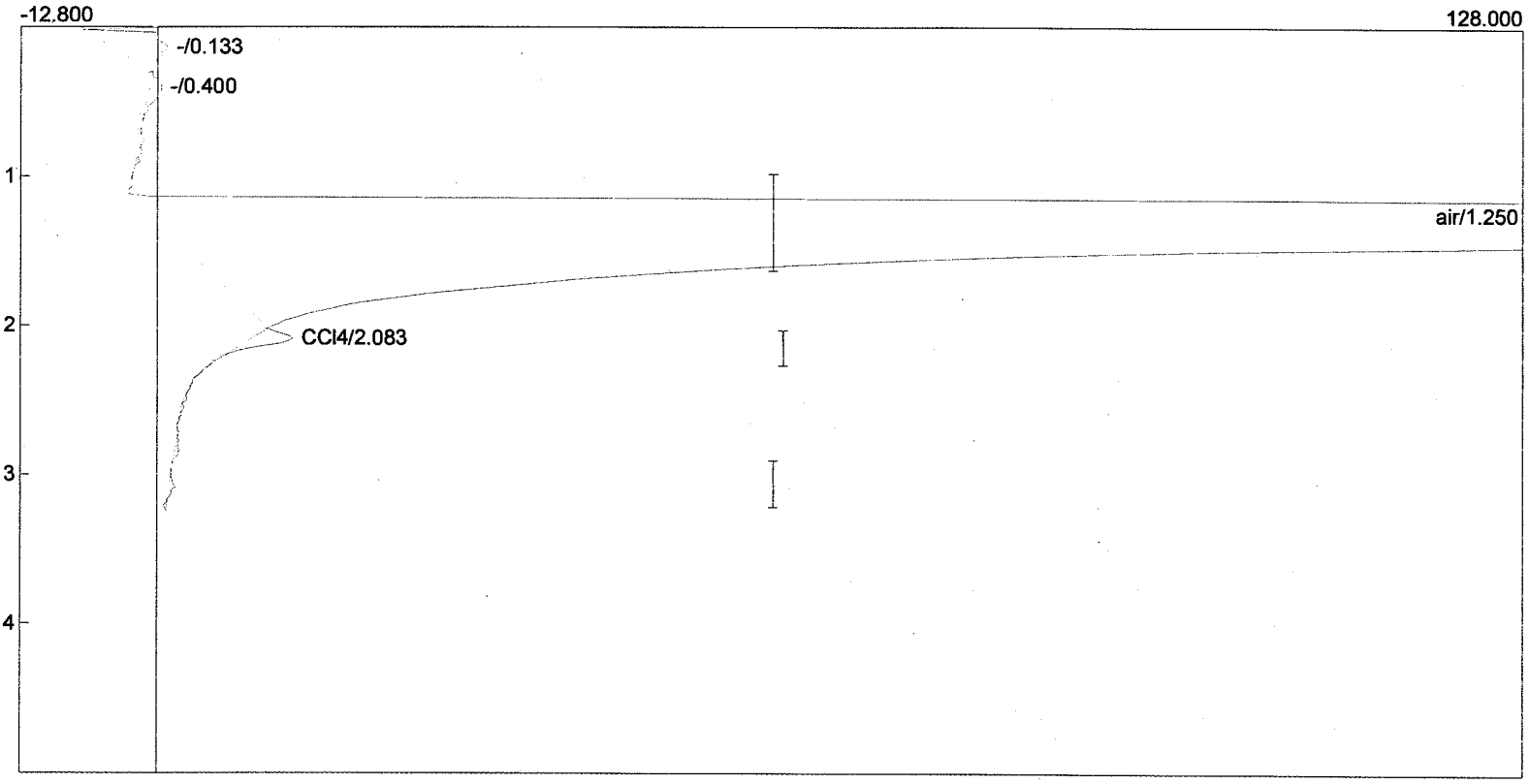
Component	Retention	Area	External	Internal	Units
air	1.250	8604.2870	0.0000	0.0000	
CCl4	2.100	33.8420	0.0920	0.5886	ug/m3
		8638.1290	0.0920	0.5886	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 11:09:21
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-62.CHR ()
Sample: HP-NB-4 (math rm)
Operator: Hartman



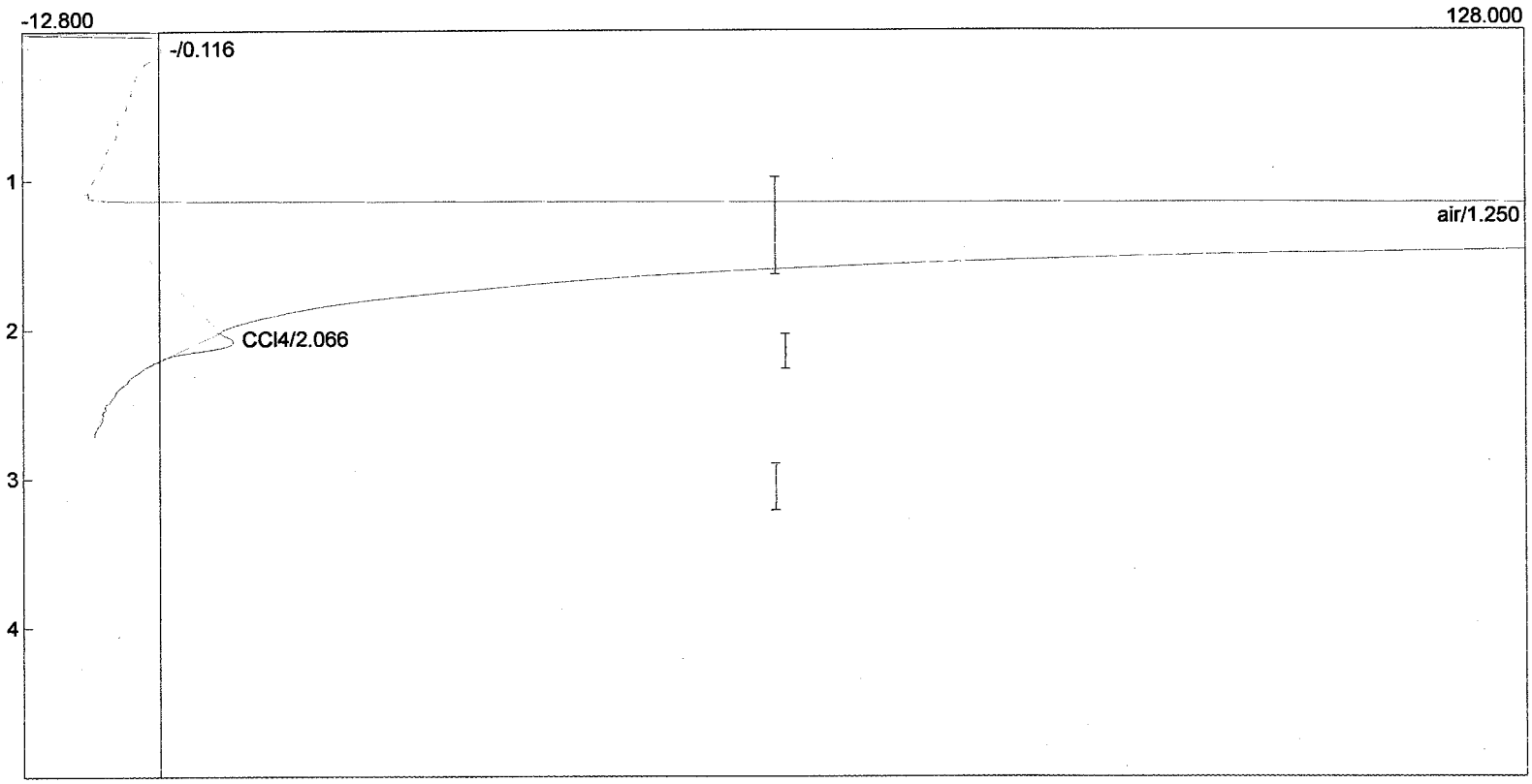
Component	Retention	Area	External	Internal	Units
air	1.250	9319.7620	0.0000	0.0000	
CCl4	2.083	24.7340	0.0672	0.4302	ug/m3
		9344.4960	0.0672	0.4302	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 11:05:14
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-61.CHR ()
Sample: HP-NB-2 (chem lab)
Operator: Hartman



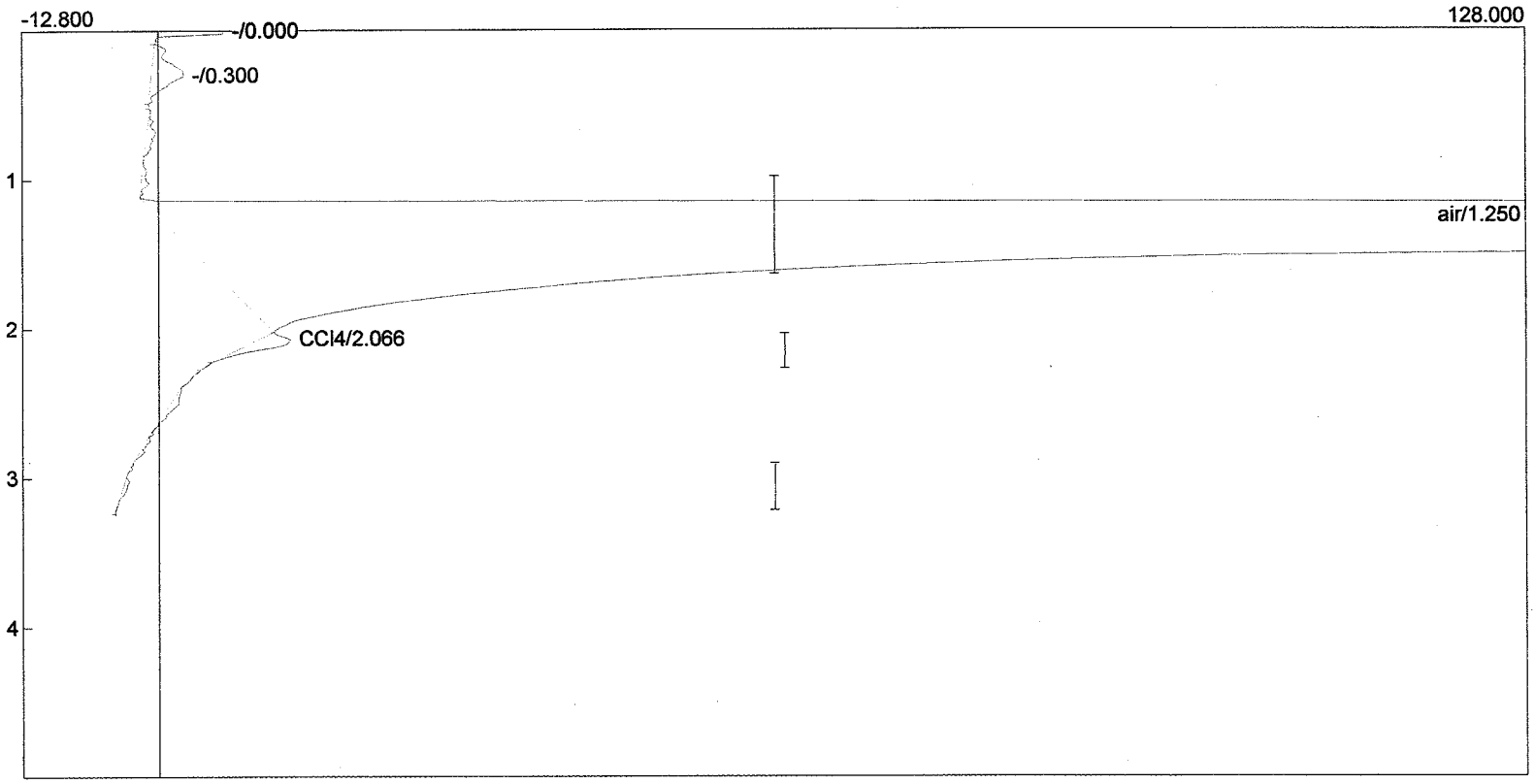
Component	Retention	Area	External	Internal	Units
air	1.250	7847.5760	0.0000	0.0000	
CCl4	2.083	22.6940	0.0617	0.3947	ug/m3
		7870.2700	0.0617	0.3947	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 11:02:04
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-60.CHR ()
Sample: HP-NB-1 (english rm)
Operator: Hartman



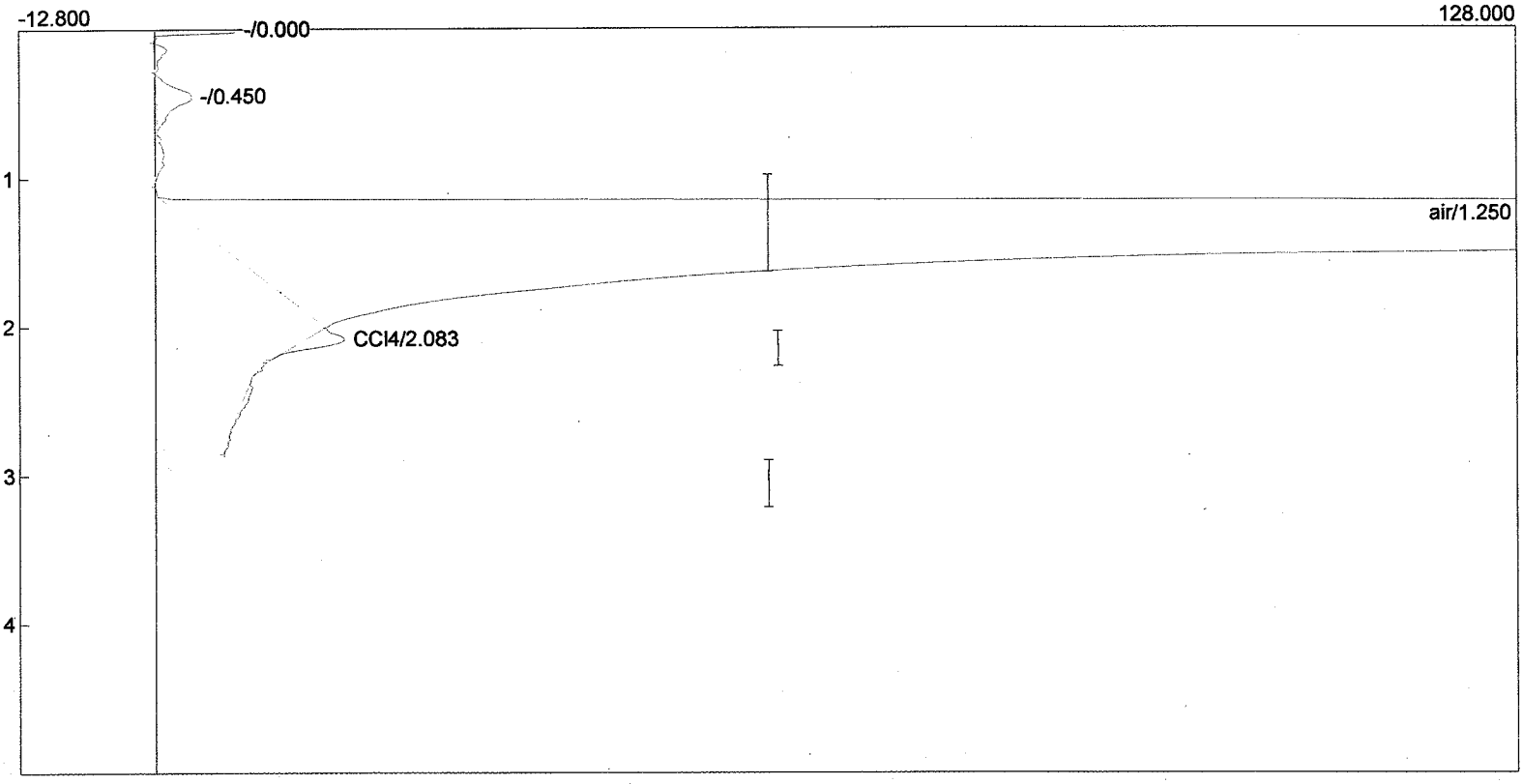
Component	Retention	Area	External	Internal	Units
air	1.250	9015.3280	0.0000	0.0000	
CCl4	2.066	21.6720	0.0589	0.3769	ug/m3
		9037.0000	0.0589	0.3769	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:57:40
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-59.CHR ()
Sample: HP-1-10 (g bath rm)
Operator: Hartman



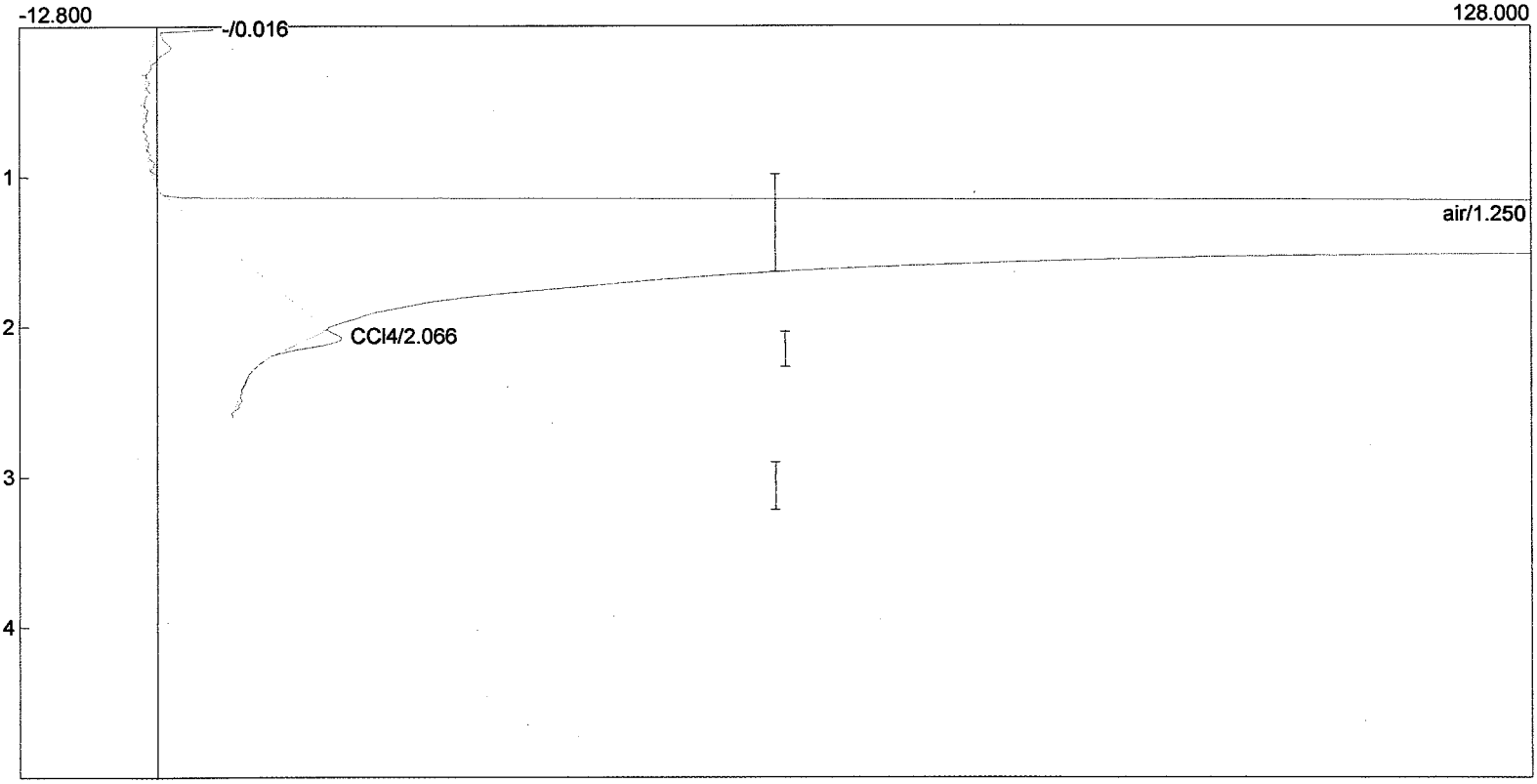
Component	Retention	Area	External	Internal	Units
air	1.250	8763.4780	0.0000	0.0000	
CCl4	2.066	23.1540	0.0629	0.4027	ug/m3
		8786.6320	0.0629	0.4027	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:54:24
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-58.CHR ()
Sample: HP-1-2 (classrm)
Operator: Hartman



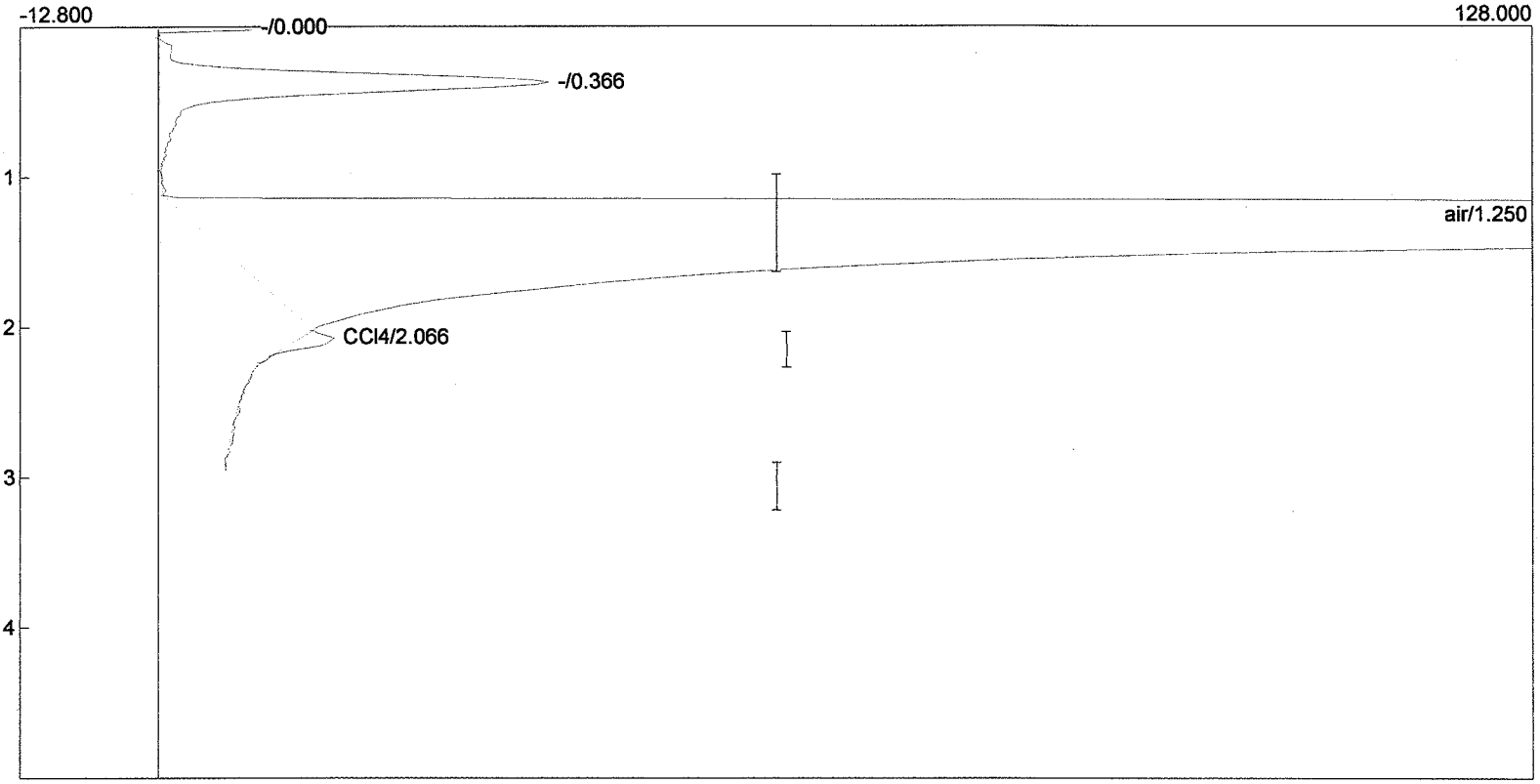
Component	Retention	Area	External	Internal	Units
air	1.250	8982.5780	0.0000	0.0000	
CCl4	2.083	24.8840	0.0676	0.4328	ug/m3
		9007.4620	0.0676	0.4328	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:51:17
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-57.CHR ()
Sample: HP-1-11 (B.bath)
Operator: Hartman



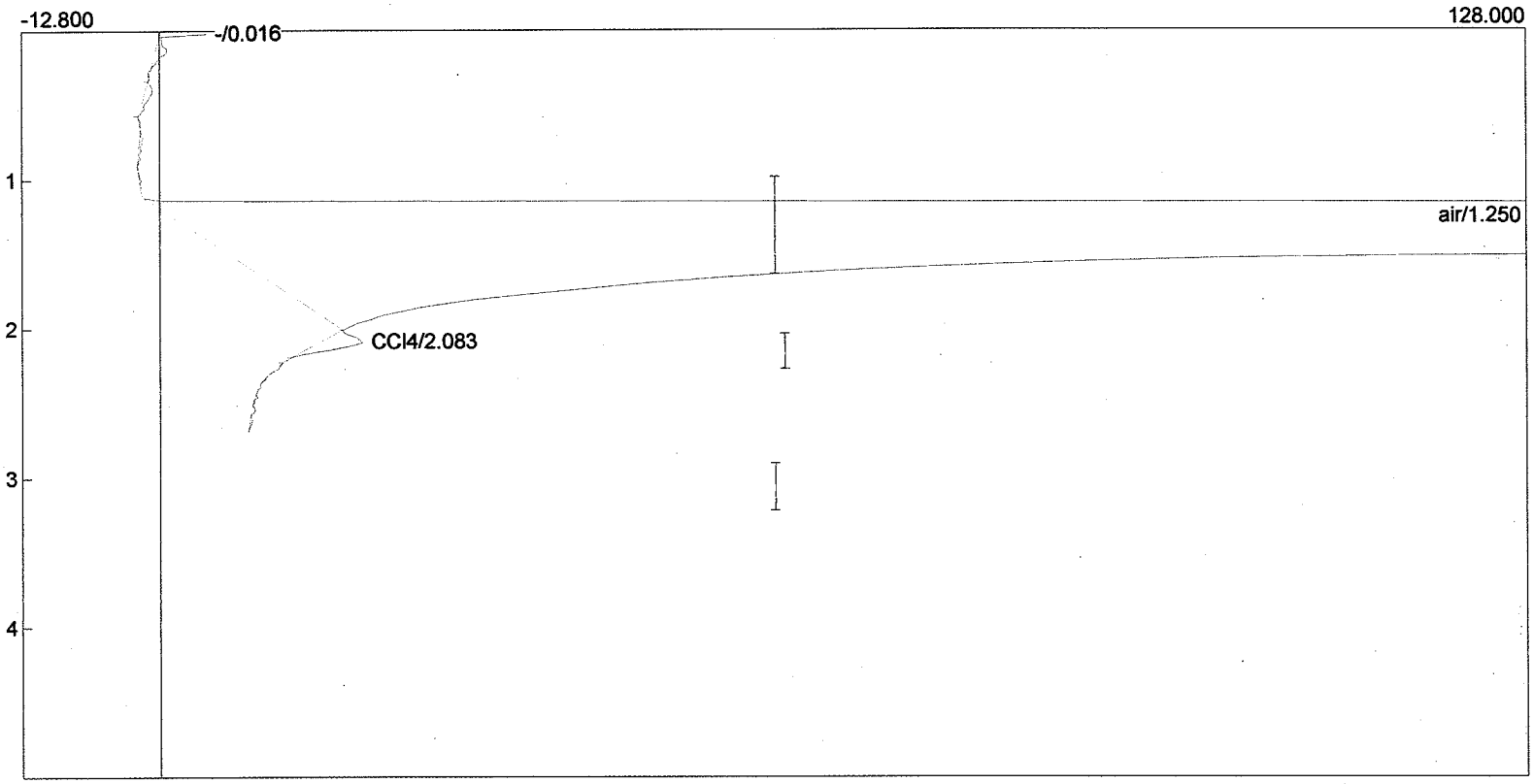
Component	Retention	Area	External	Internal	Units
air	1.250	9113.0080	0.0000	0.0000	
CCl4	2.066	20.3560	0.0553	0.3540	ug/m3
		9133.3640	0.0553	0.3540	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:47:49
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-56.CHR ()
Sample: HP-1-17 (B. lock rm)
Operator: Hartman



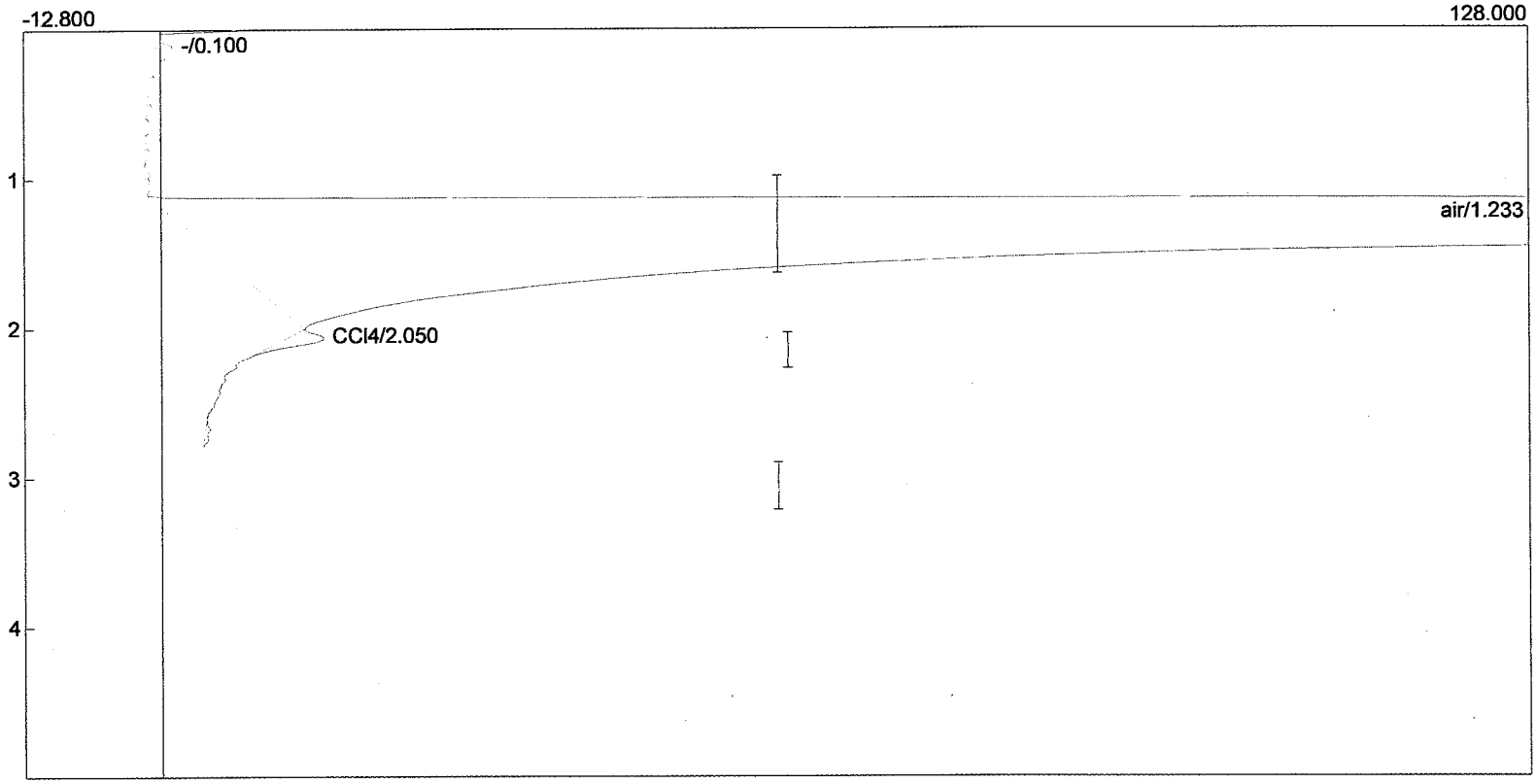
Component	Retention	Area	External	Internal	Units
air	1.250	8090.1140	0.0000	0.0000	
CCl4	2.066	20.9360	0.0569	0.3641	ug/m3
		8111.0500	0.0569	0.3641	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:44:38
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-55.CHR ()
Sample: HP-1-3 (library)
Operator: Hartman



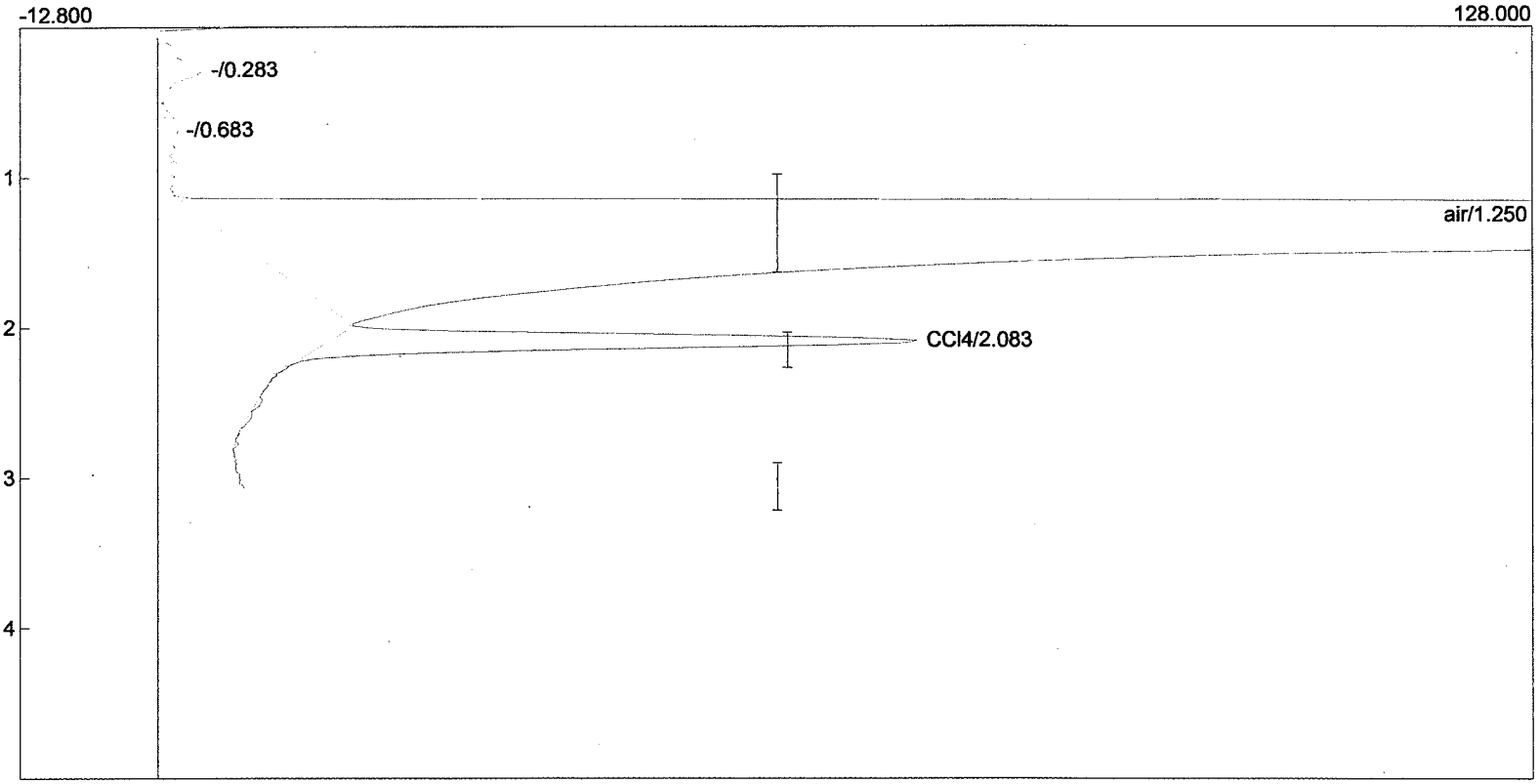
Component	Retention	Area	External	Internal	Units
air	1.250	9023.4430	0.0000	0.0000	
CCl4	2.083	25.6110	0.0696	0.4454	ug/m3
		9049.0540	0.0696	0.4454	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:41:07
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-54.CHR ()
Sample: HP-1-16 (G lock rm)
Operator: Hartman



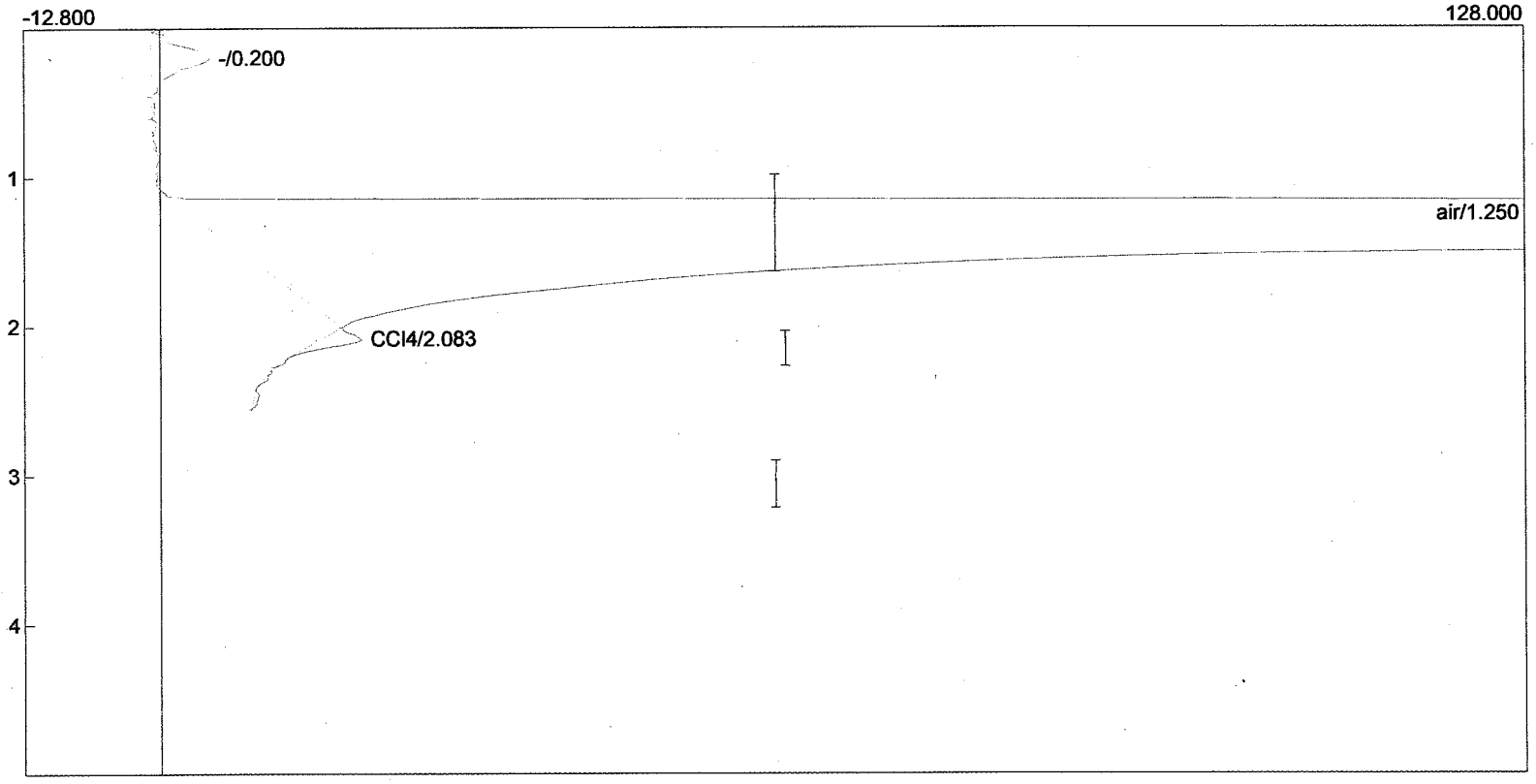
Component	Retention	Area	External	Internal	Units
air	1.233	8242.1060	0.0000	0.0000	
CCl4	2.050	22.3300	0.0607	0.3883	ug/m3
		8264.4360	0.0607	0.3883	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:37:25
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-53.CHR ()
Sample: 1 ppbv
Operator: Hartman



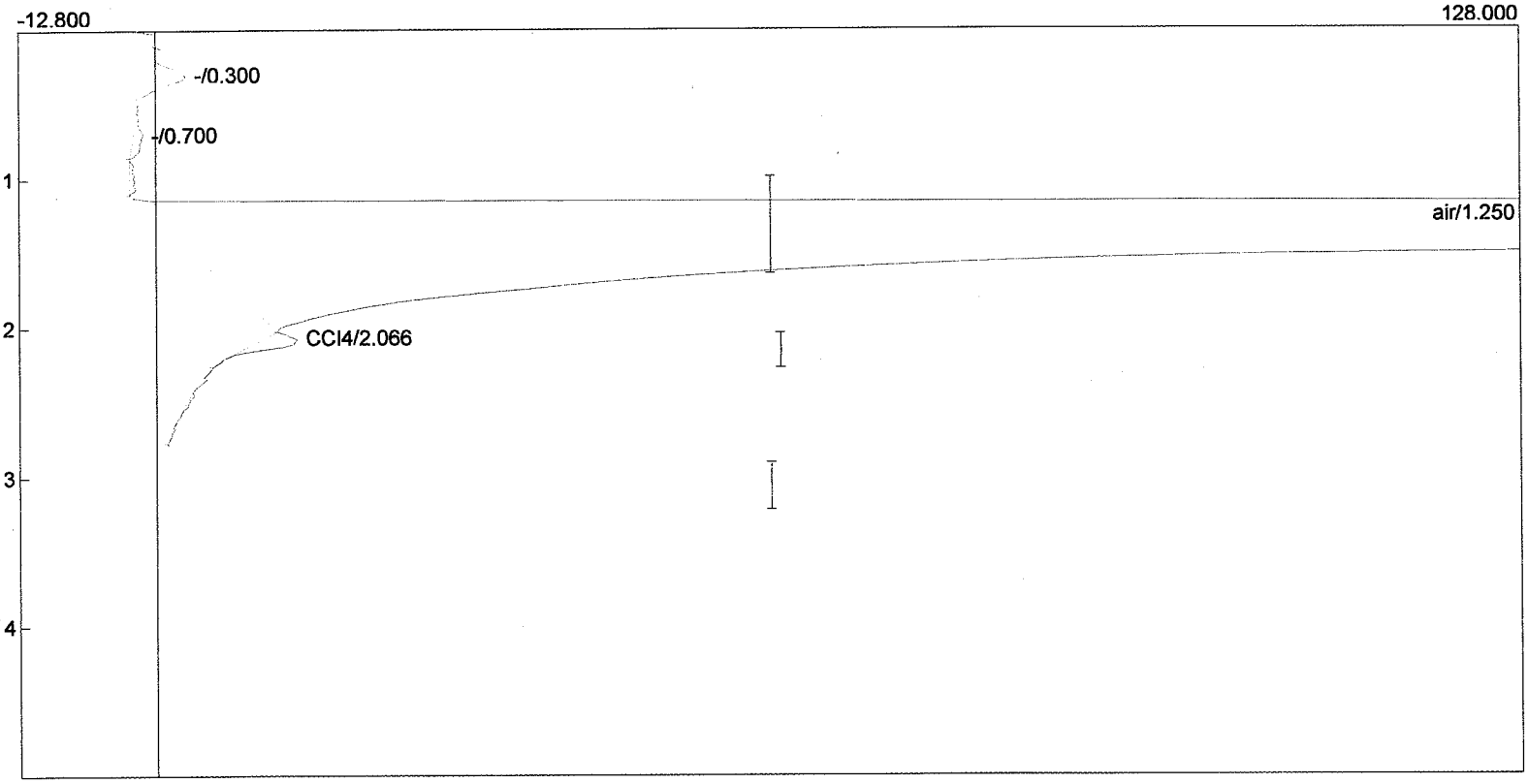
Component	Retention	Area	External	Internal	Units
air	1.250	8198.2840	0.0000	0.0000	
CCl4	2.083	348.6120	0.9473	6.0628	ug/m3
		8546.8960	0.9473	6.0628	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:34:10
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-52.CHR ()
Sample: HP-1-8 (Home Ec.)
Operator: Hartman



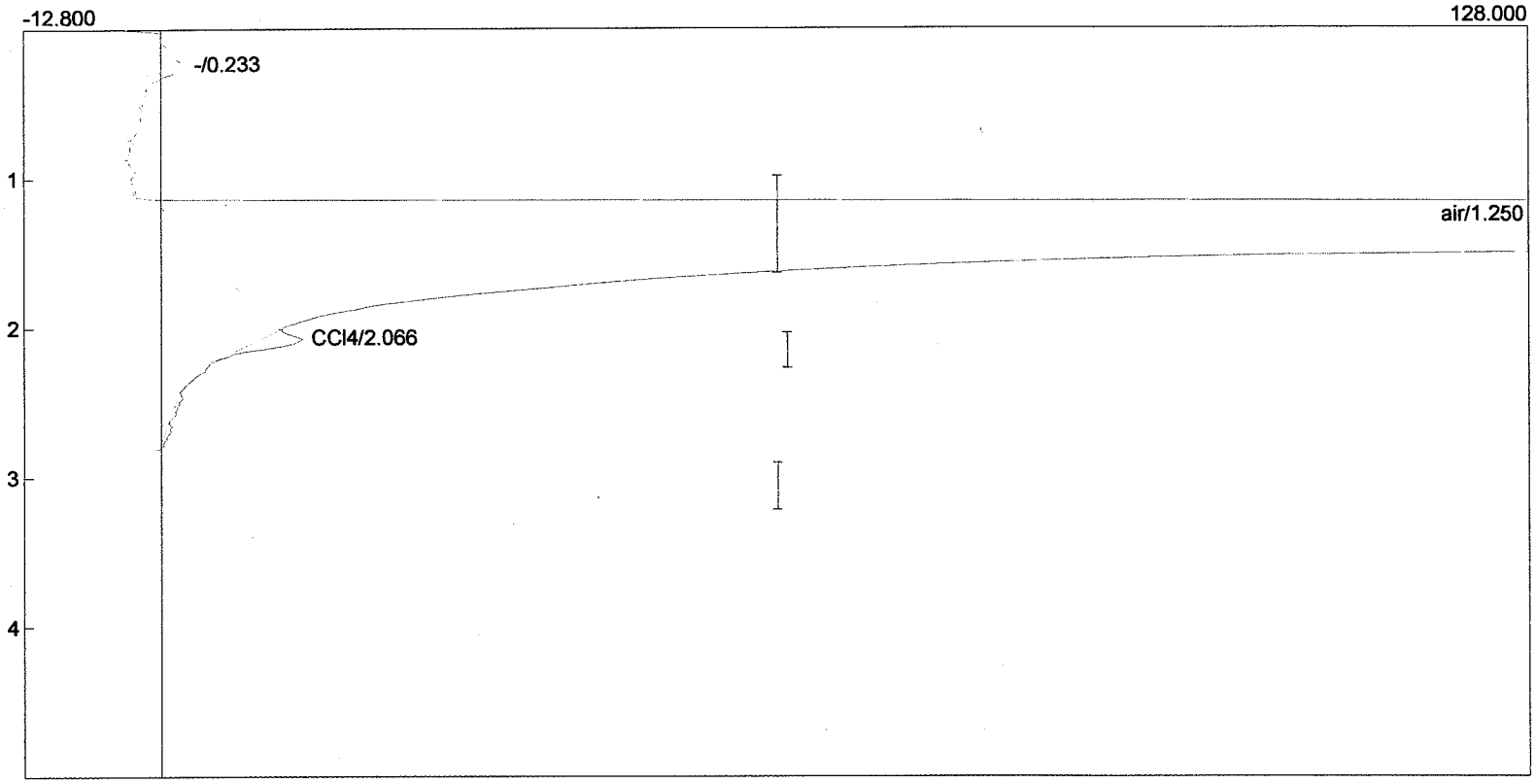
Component	Retention	Area	External	Internal	Units
air	1.250	8299.7860	0.0000	0.0000	
CCl4	2.083	24.2760	0.0660	0.4222	ug/m3
		8324.0620	0.0660	0.4222	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:30:48
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-51.CHR ()
Sample: HP-1-9 (fccla rm)
Operator: Hartman



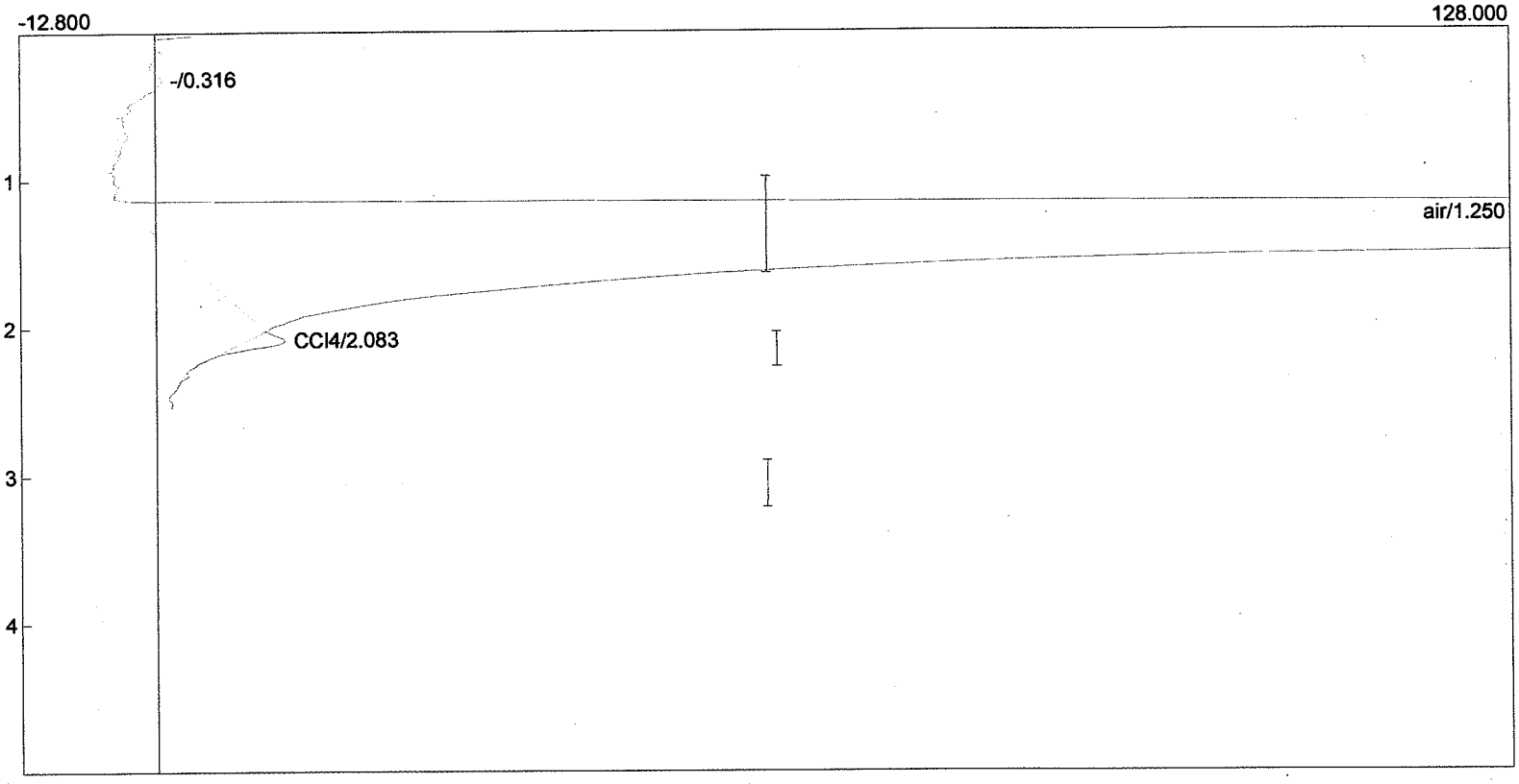
Component	Retention	Area	External	Internal	Units
air	1.250	8543.5710	0.0000	0.0000	
CCl4	2.066	23.2760	0.0633	0.4048	ug/m3
		8566.8470	0.0633	0.4048	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:27:34
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-50.CHR ()
Sample: HP-1-4 (band)
Operator: Hartman



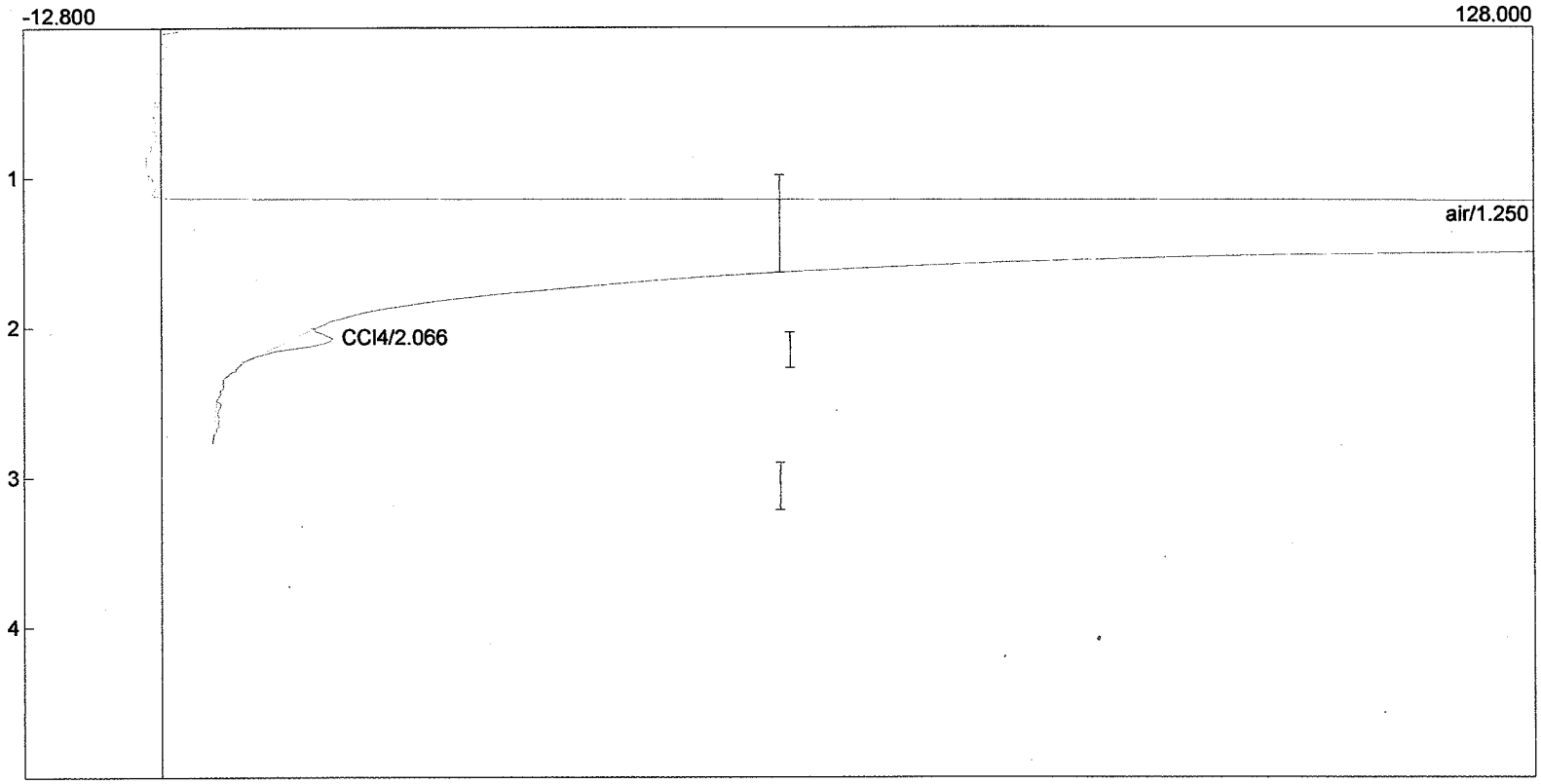
Component	Retention	Area	External	Internal	Units
air	1.250	9001.5900	0.0000	0.0000	
CCl4	2.066	27.5130	0.0748	0.4785	ug/m3
		9029.1030	0.0748	0.4785	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:24:16
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-49.CHR ()
Sample: HP-1-5 (classrm)
Operator: Hartman



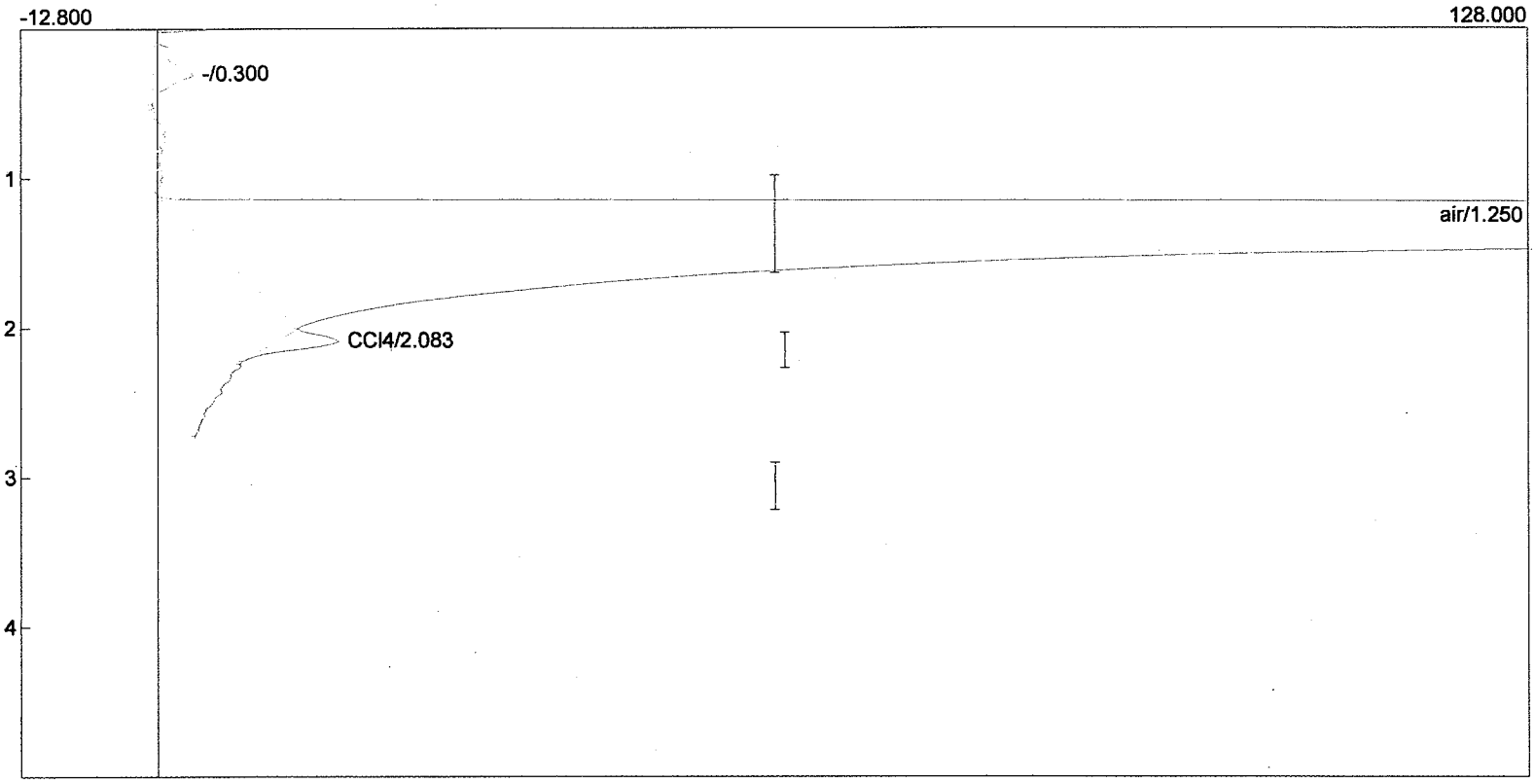
Component	Retention	Area	External	Internal	Units
air	1.250	9108.6360	0.0000	0.0000	
CCl4	2.083	24.0680	0.0654	0.4186	ug/m3
		9132.7040	0.0654	0.4186	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:21:03
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-48.CHR ()
Sample: HP-1-1 (classrm)
Operator: Hartman



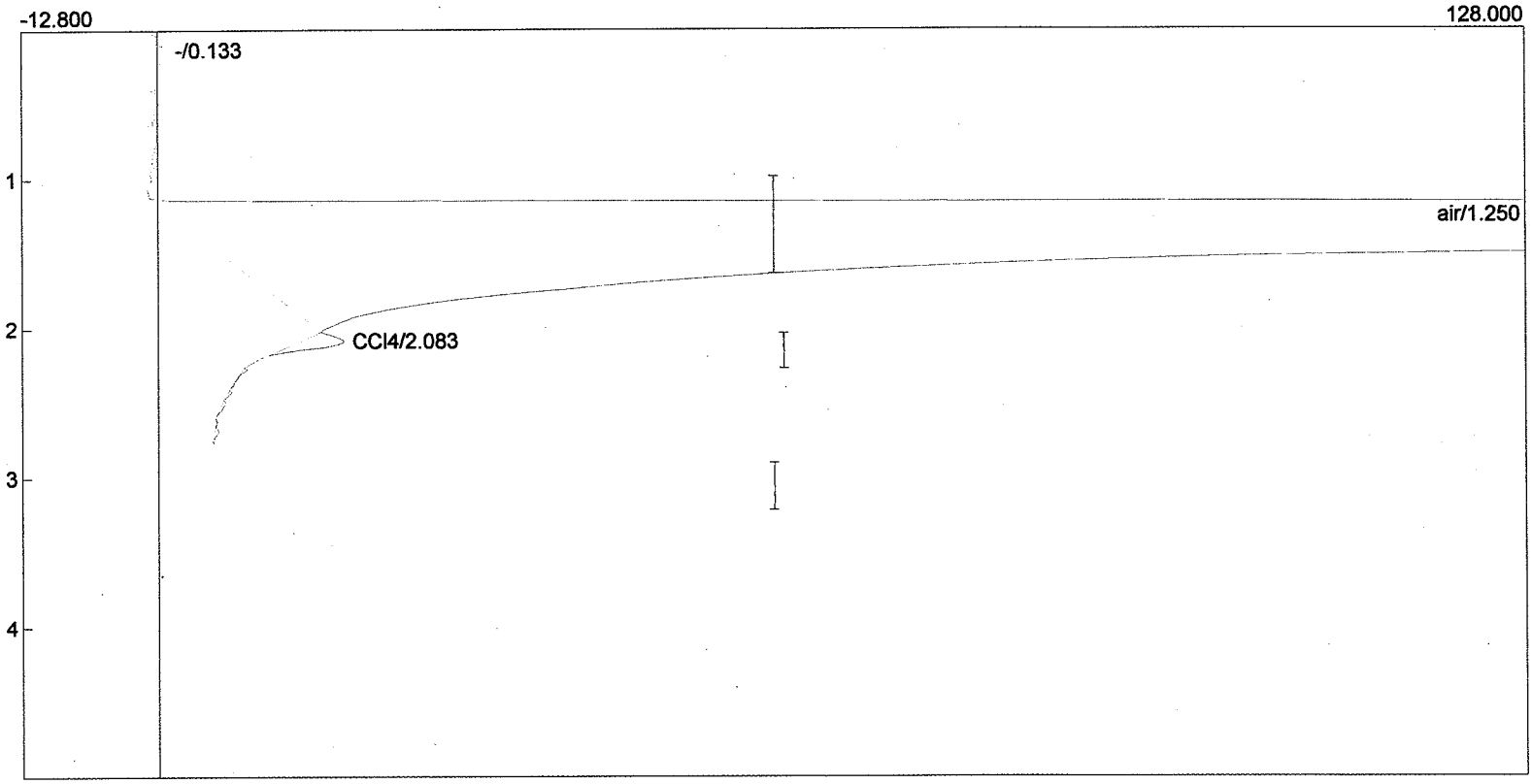
Component	Retention	Area	External	Internal	Units
air	1.250	8989.6620	0.0000	0.0000	
CCl4	2.066	26.1830	0.0711	0.4554	ug/m3
		9015.8450	0.0711	0.4554	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:17:52
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-47.CHR ()
Sample: SJ-B-2 (nursery)
Operator: Hartman



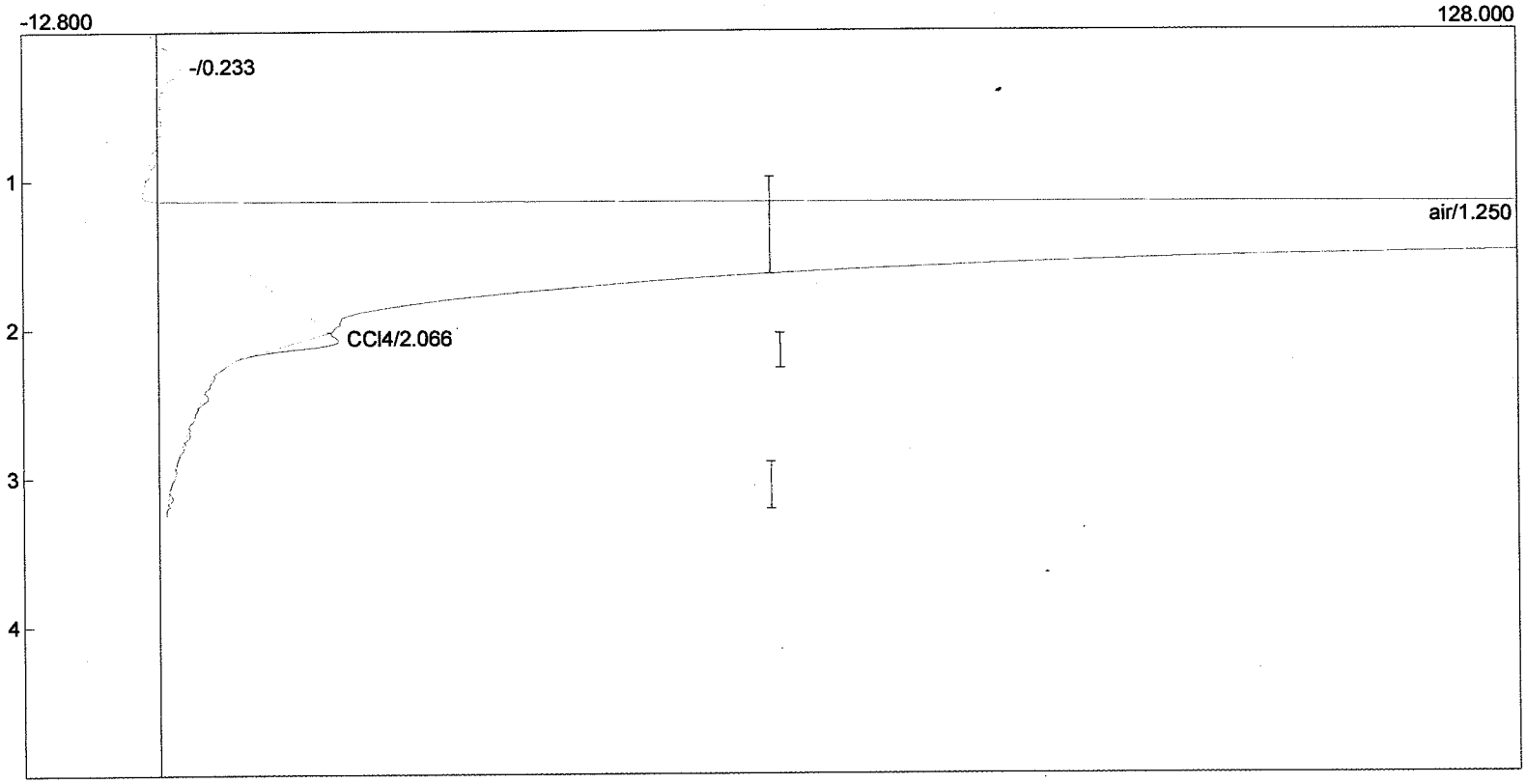
Component	Retention	Area	External	Internal	Units
air	1.250	8002.7930	0.0000	0.0000	
CCl4	2.083	37.6730	0.1024	0.6552	ug/m3
		8040.4660	0.1024	0.6552	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:14:37
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-46.CHR ()
Sample: HP-B-1 (kinder)
Operator: Hartman



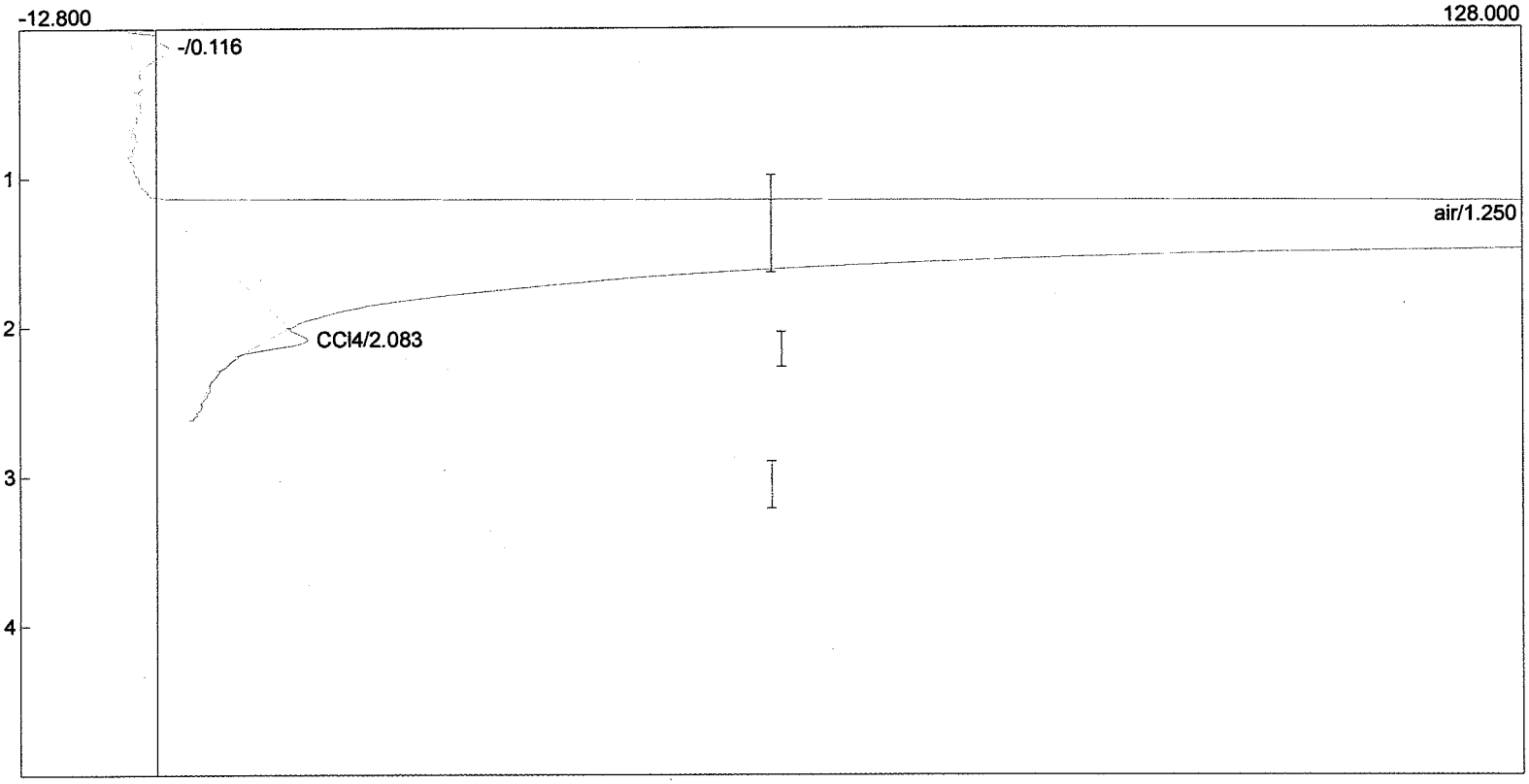
Component	Retention	Area	External	Internal	Units
air	1.250	8926.8480	0.0000	0.0000	
CCl4	2.083	24.9380	0.0678	0.4337	ug/m3
		8951.7860	0.0678	0.4337	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:10:21
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-45.CHR ()
Sample: HP-ART 1
Operator: Hartman



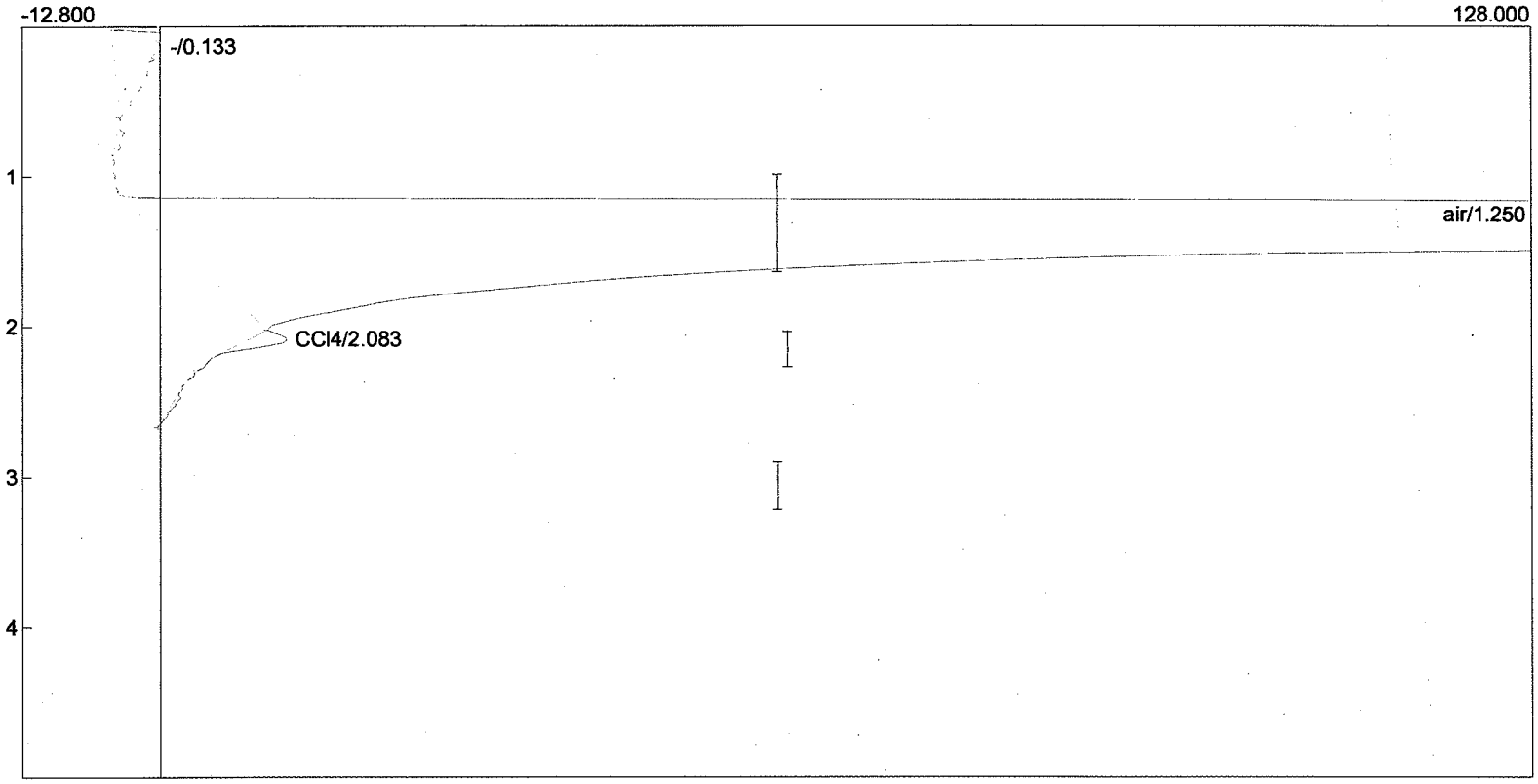
Component	Retention	Area	External	Internal	Units
air	1.250	8840.5740	0.0000	0.0000	
CCl4	2.066	24.3740	0.0662	0.4239	ug/m3
		8864.9480	0.0662	0.4239	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:07:02
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-44.CHR ()
Sample: HP-1-13 (B. Locker 2)
Operator: Hartman



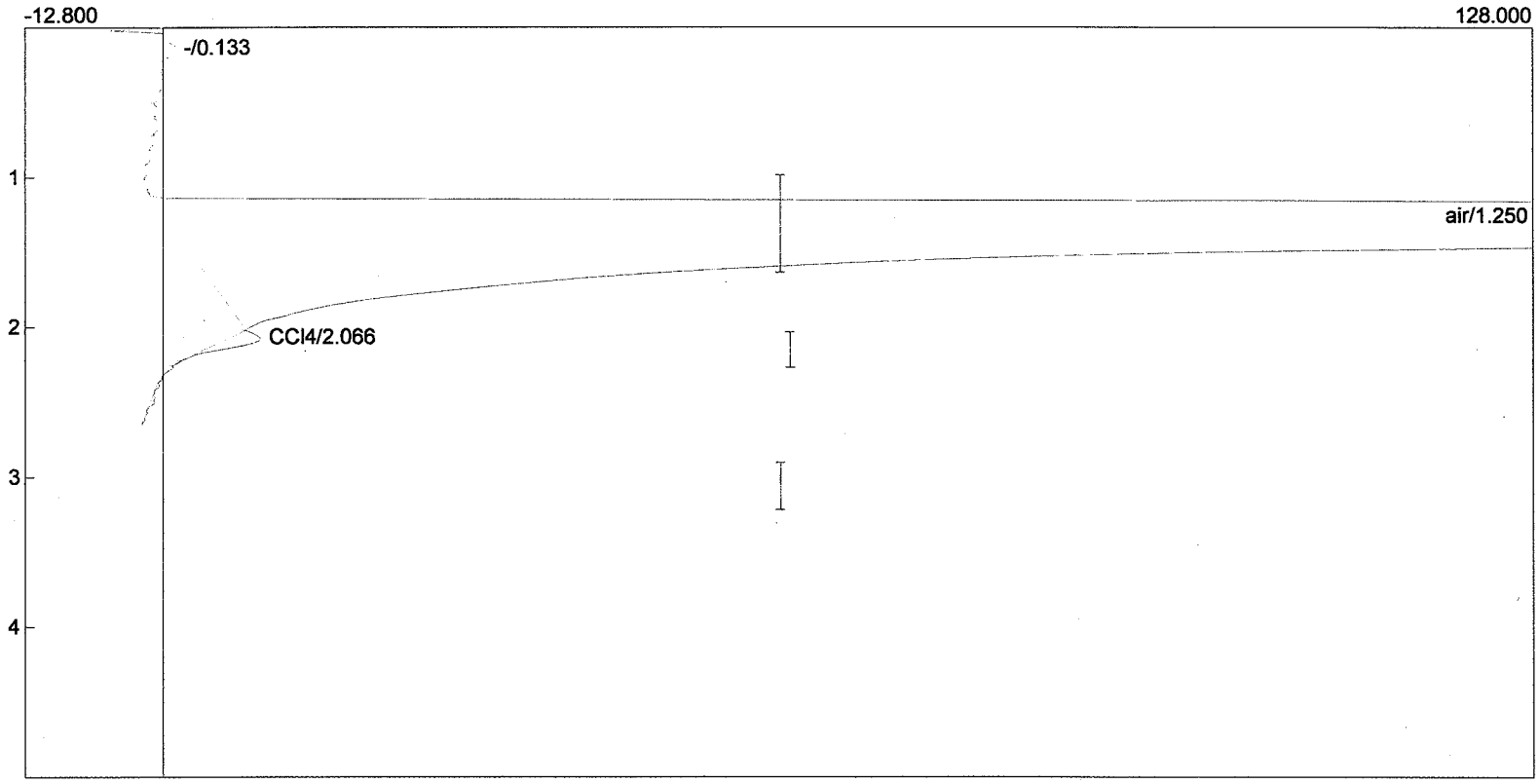
Component	Retention	Area	External	Internal	Units
air	1.250	8123.5950	0.0000	0.0000	
CCl4	2.083	25.0870	0.0682	0.4363	ug/m3
		8148.6820	0.0682	0.4363	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:03:33
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-43.CHR ()
Sample: HP-1-10 (gym)
Operator: Hartman



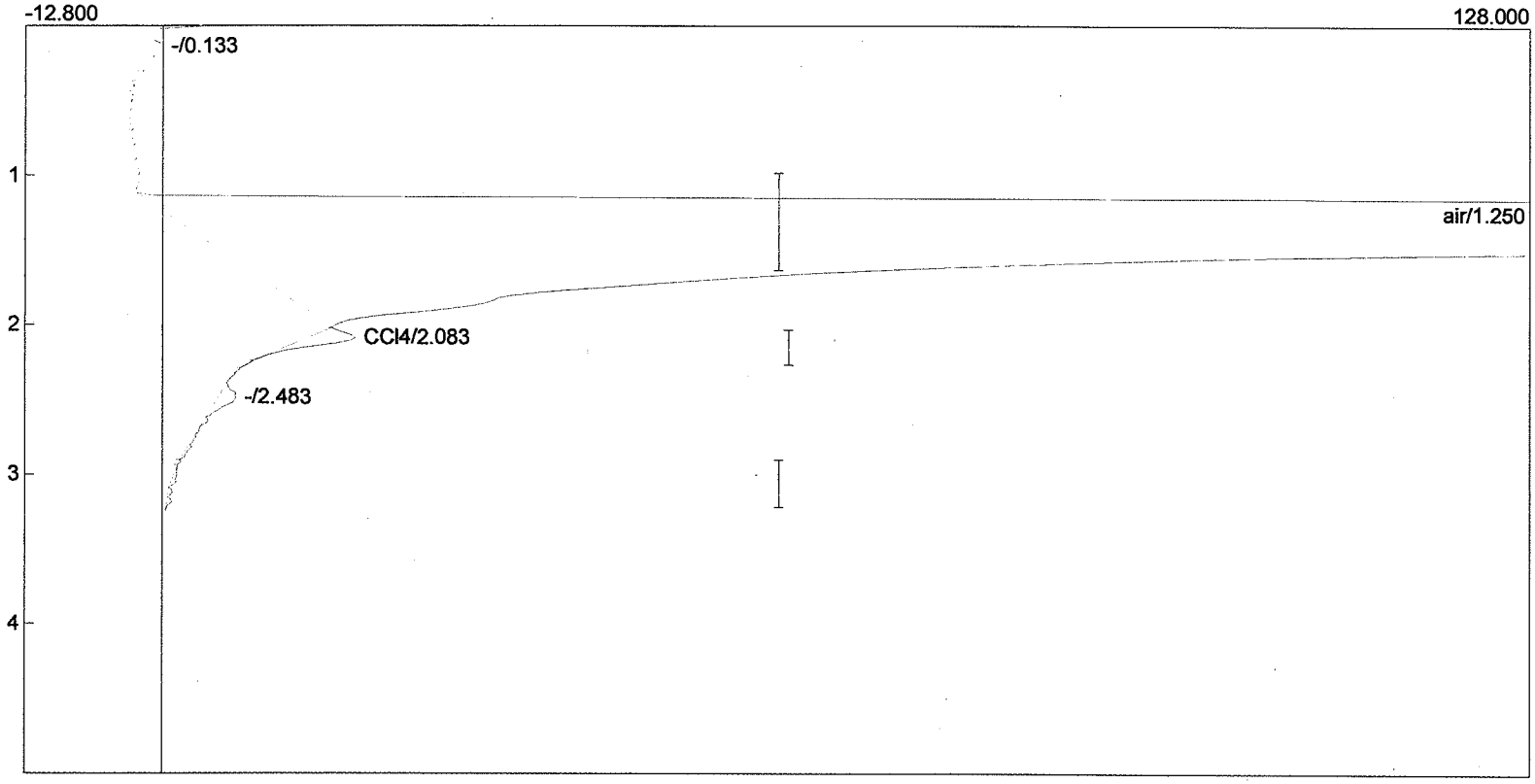
Component	Retention	Area	External	Internal	Units
air	1.250	8726.5320	0.0000	0.0000	
CCl4	2.083	23.2630	0.0632	0.4046	ug/m3
		8749.7950	0.0632	0.4046	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 10:00:22
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-42.CHR ()
Sample: HP-1-14 (boys locker 1)
Operator: Hartman



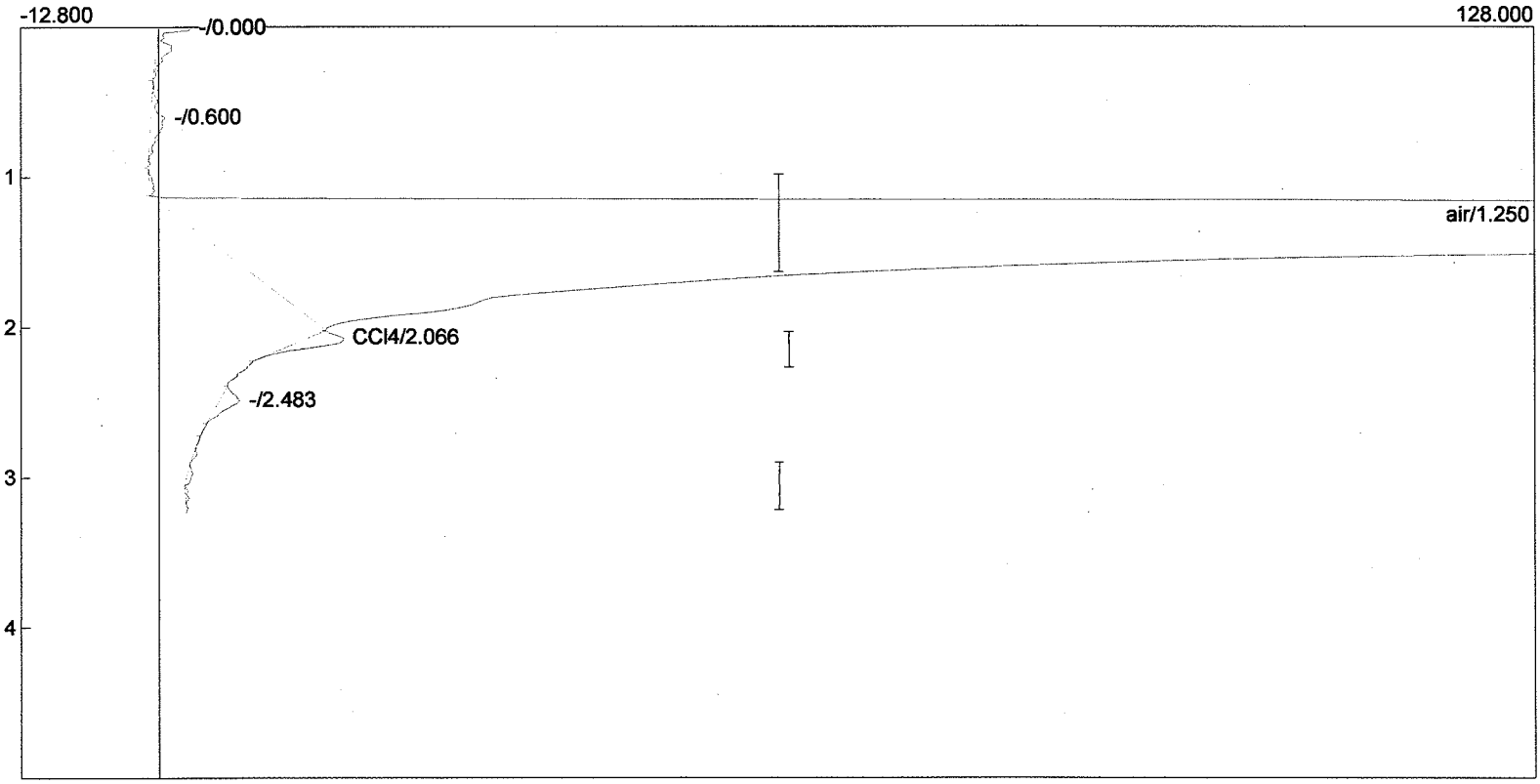
Component	Retention	Area	External	Internal	Units
air	1.250	7608.6060	0.0000	0.0000	
CCl4	2.066	22.3280	0.0607	0.3883	ug/m3
		7630.9340	0.0607	0.3883	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:55:41
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-41.CHR ()
Sample: HP-1-11 (cafeteria)
Operator: Hartman



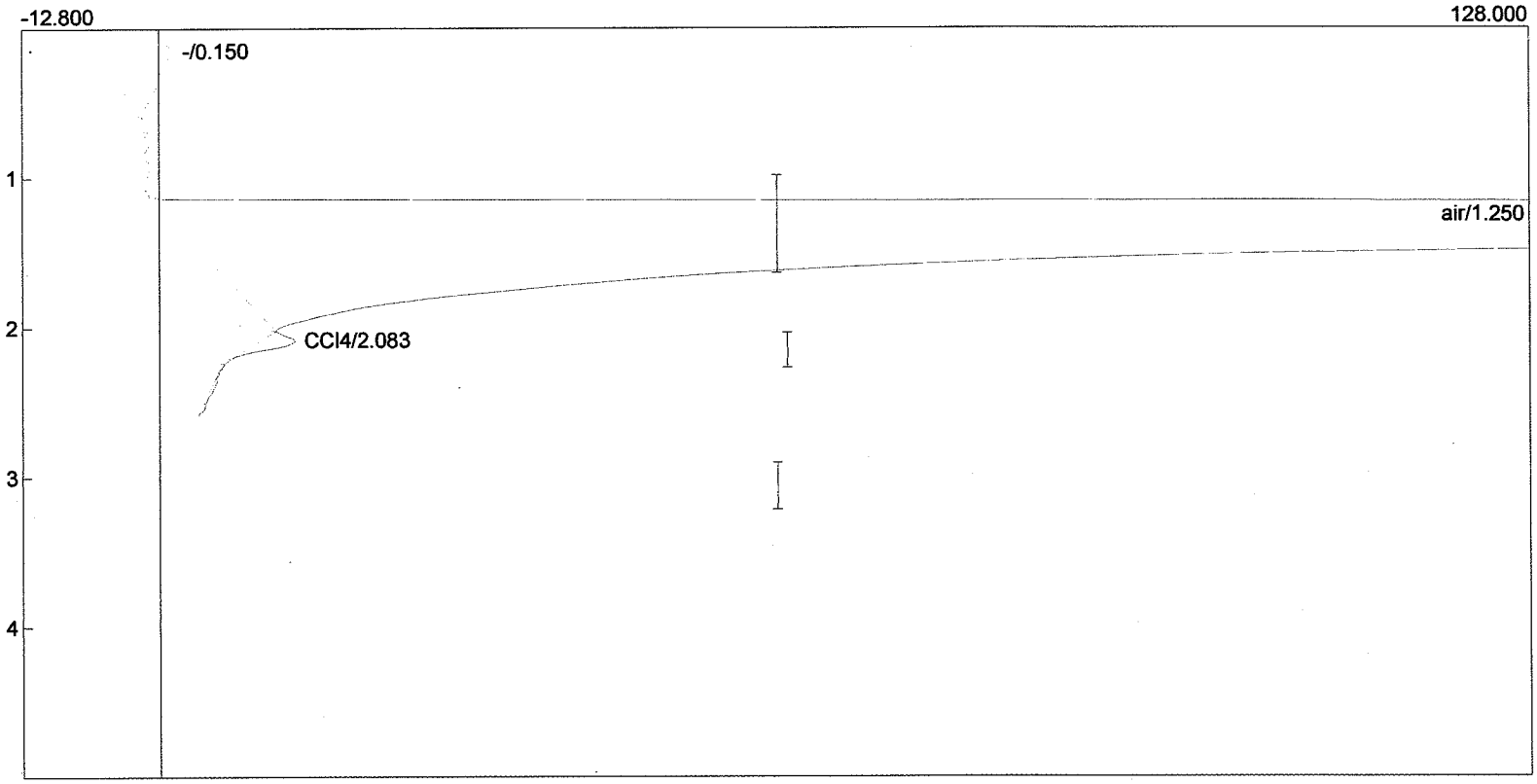
Component	Retention	Area	External	Internal	Units
air	1.250	11320.8080	0.0000	0.0000	
CCl4	2.083	29.4450	0.0800	0.5121	ug/m3
		11350.2530	0.0800	0.5121	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:52:00
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-40.CHR ()
Sample: HP-1-15 (kitchen)
Operator: Hartman



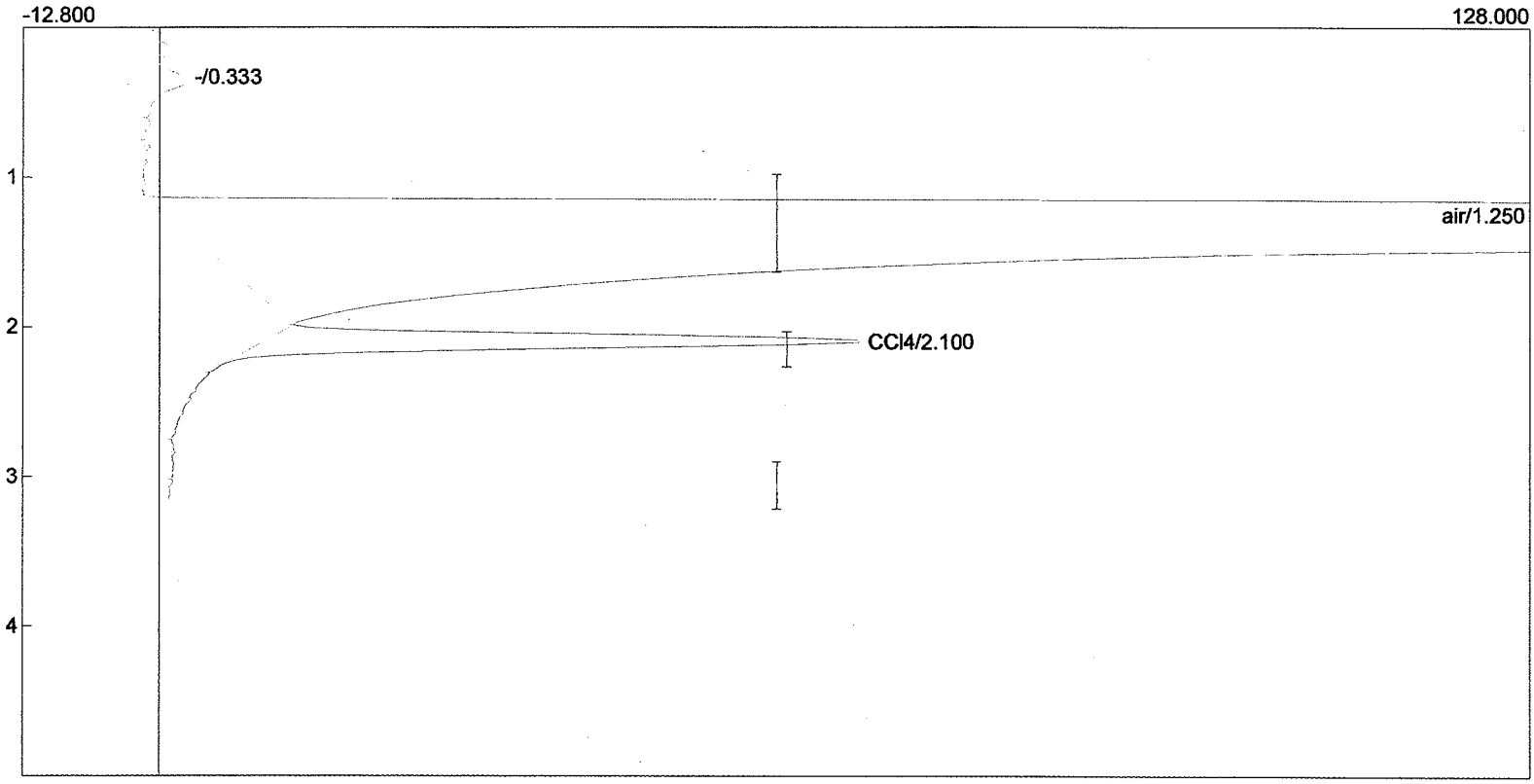
Component	Retention	Area	External	Internal	Units
air	1.250	11214.4720	0.0000	0.0000	
CCl4	2.066	25.0540	0.0681	0.4357	ug/m3
		11239.5260	0.0681	0.4357	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:49:04
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-39.CHR ()
Sample: HP-1-12 (G locker rm)
Operator: Hartman



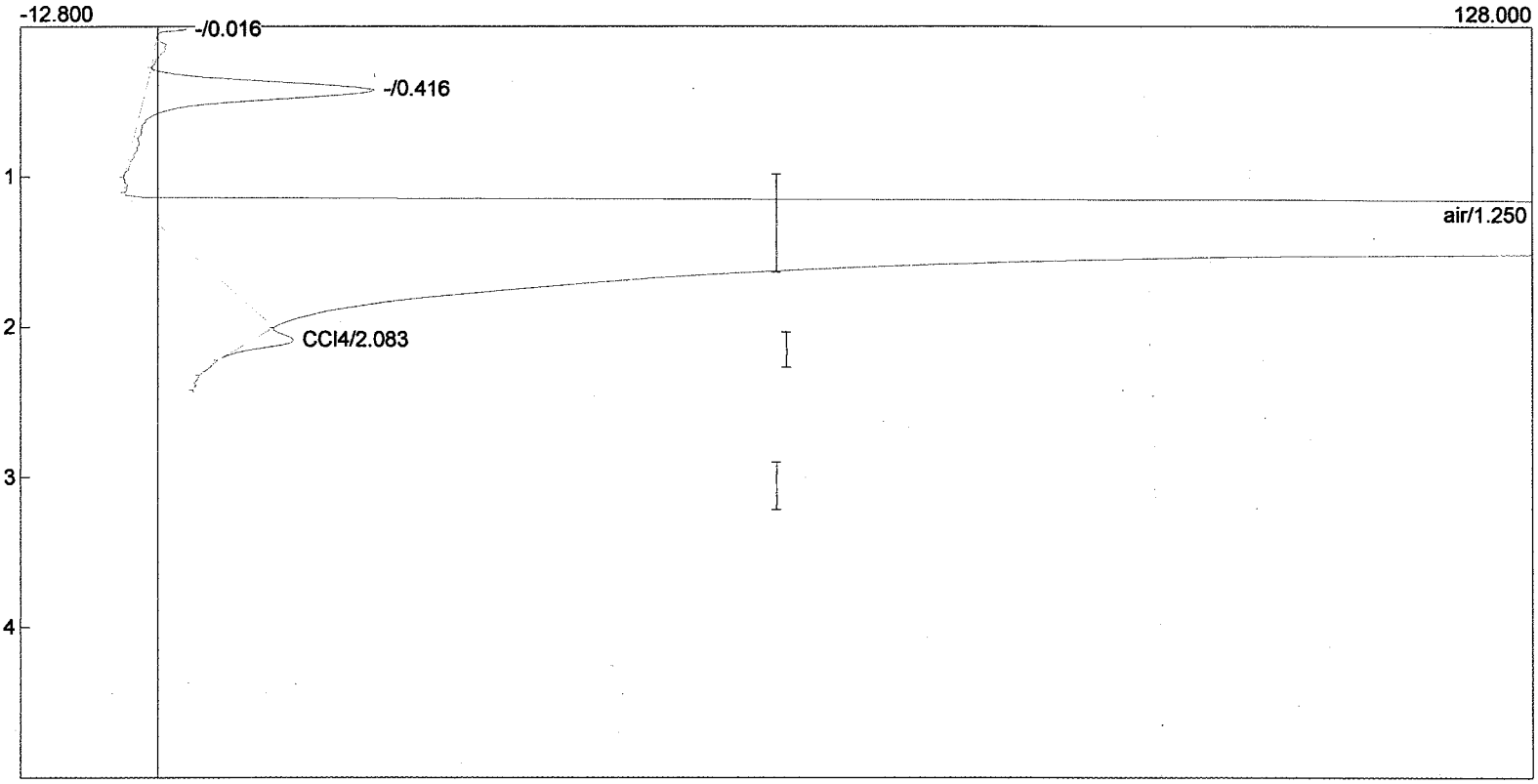
Component	Retention	Area	External	Internal	Units
air	1.250	8496.3500	0.0000	0.0000	
CCl4	2.083	21.1670	0.0575	0.3681	ug/m3
		8517.5170	0.0575	0.3681	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:45:18
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-38.CHR ()
Sample: 1 ppbv CCl4
Operator: Hartman



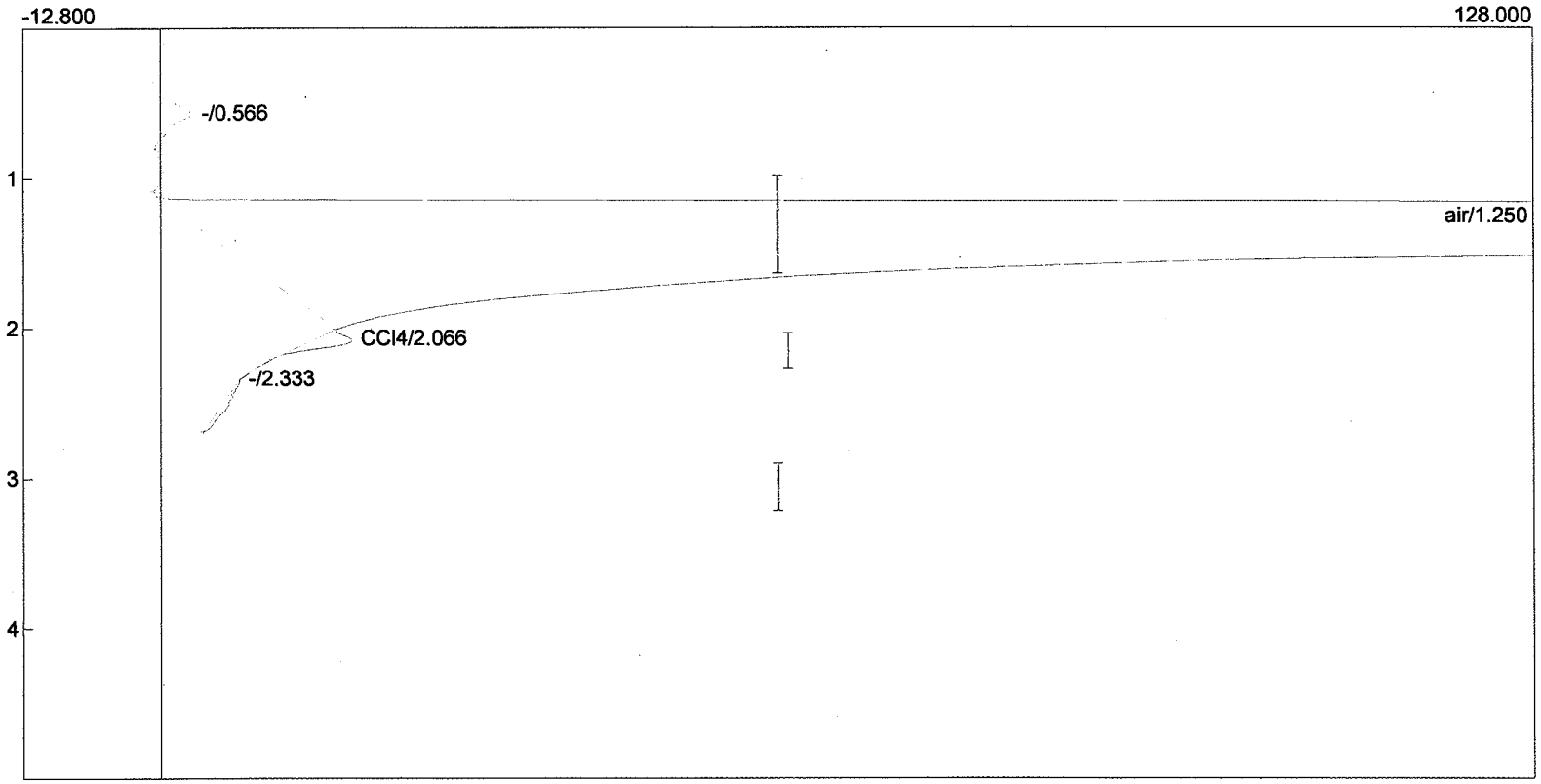
Component	Retention	Area	External	Internal	Units
air	1.250	8349.8320	0.0000	0.0000	
CCl4	2.100	351.2500	0.9545	6.1087	ug/m3
		8701.0820	0.9545	6.1087	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:42:06
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-37.CHR ()
Sample: HP-TF-13 (boys bath)
Operator: Hartman



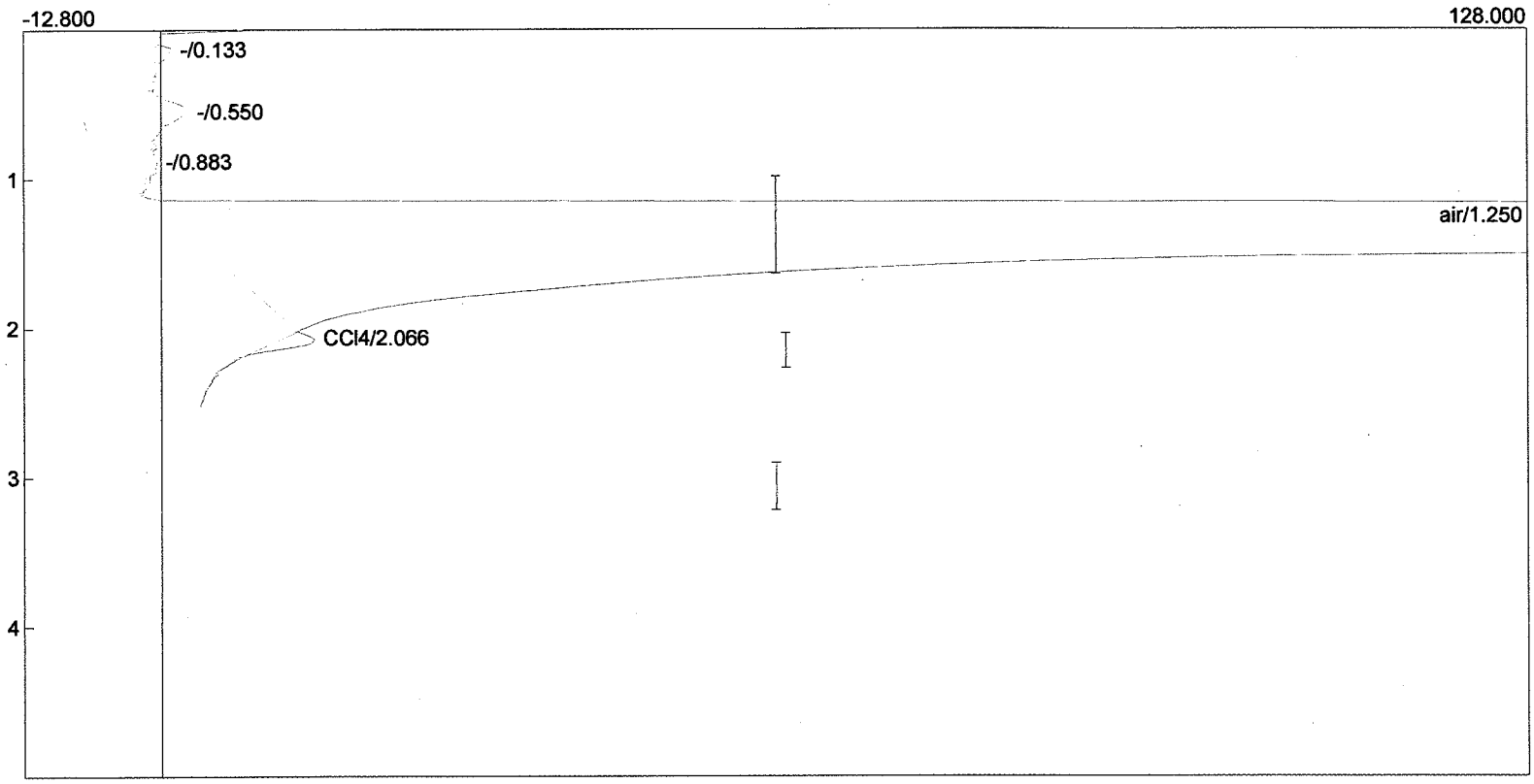
Component	Retention	Area	External	Internal	Units
air	1.250	9492.5870	0.0000	0.0000	
CCl4	2.083	25.3570	0.0689	0.4410	ug/m3
		9517.9440	0.0689	0.4410	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:38:58
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-36.CHR ()
Sample: HP-TF-8 (history)
Operator: Hartman



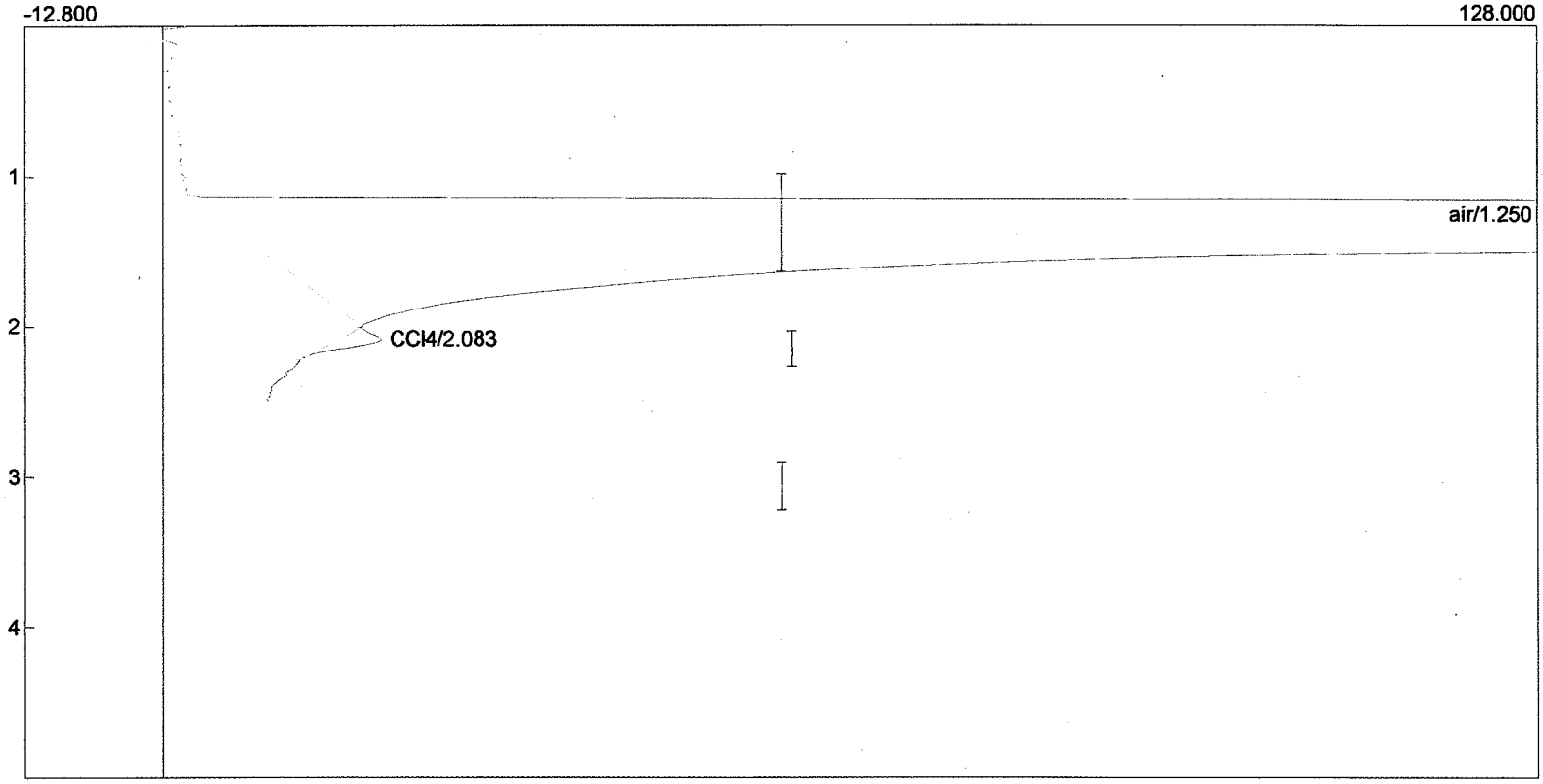
Component	Retention	Area	External	Internal	Units
air	1.250	10467.4870	0.0000	0.0000	
CCl4	2.066	24.3180	0.0661	0.4229	ug/m3
		10491.8050	0.0661	0.4229	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:35:58
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-35.CHR ()
Sample: HP-TF-6 (special ed)
Operator: Hartman



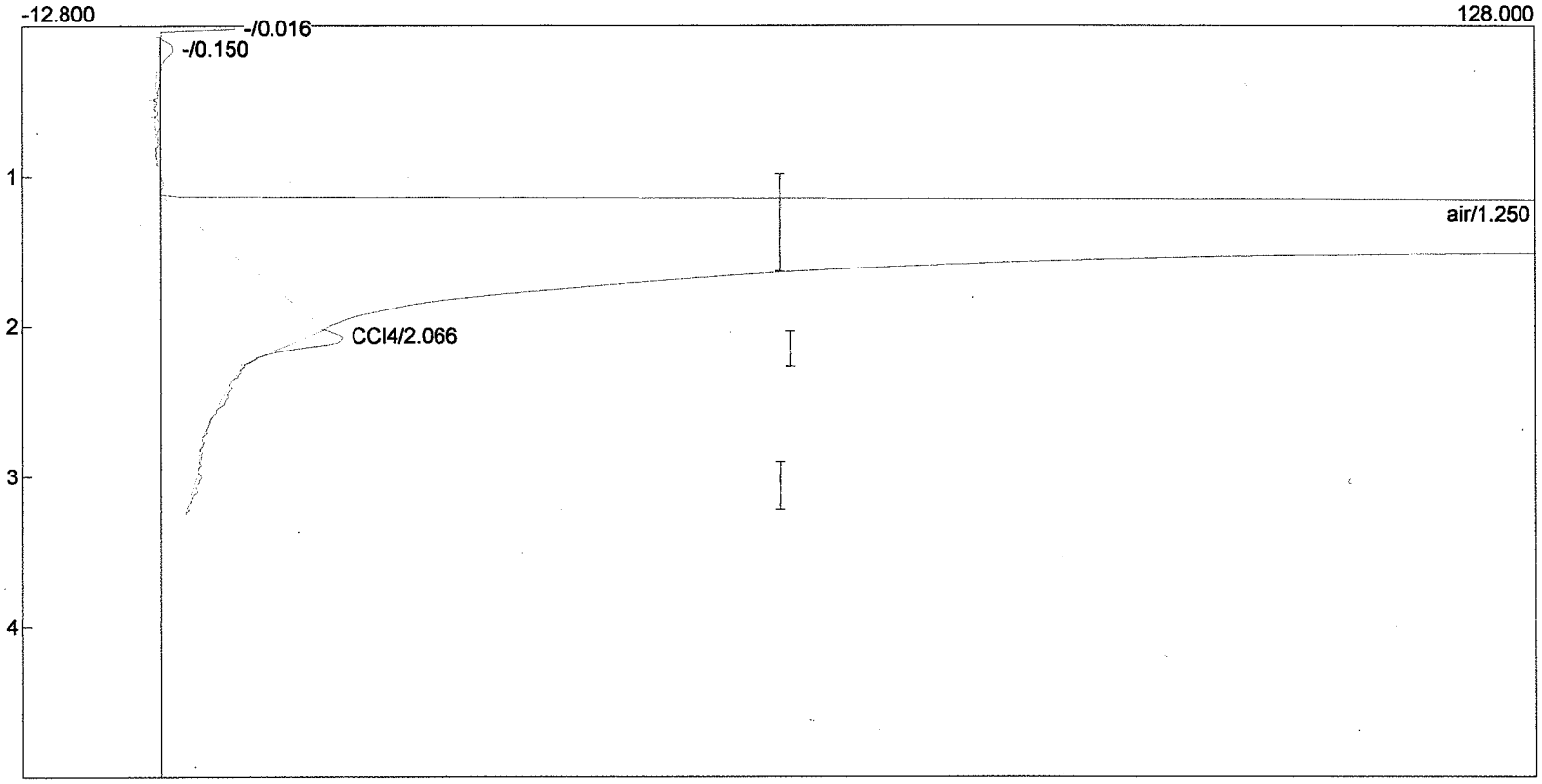
Component	Retention	Area	External	Internal	Units
air	1.250	8577.4220	0.0000	0.0000	
CCl4	2.066	21.9620	0.0597	0.3819	ug/m3
		8599.3840	0.0597	0.3819	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:32:57
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-34.CHR ()
Sample: HP-TF-5 (special ed)
Operator: Hartman



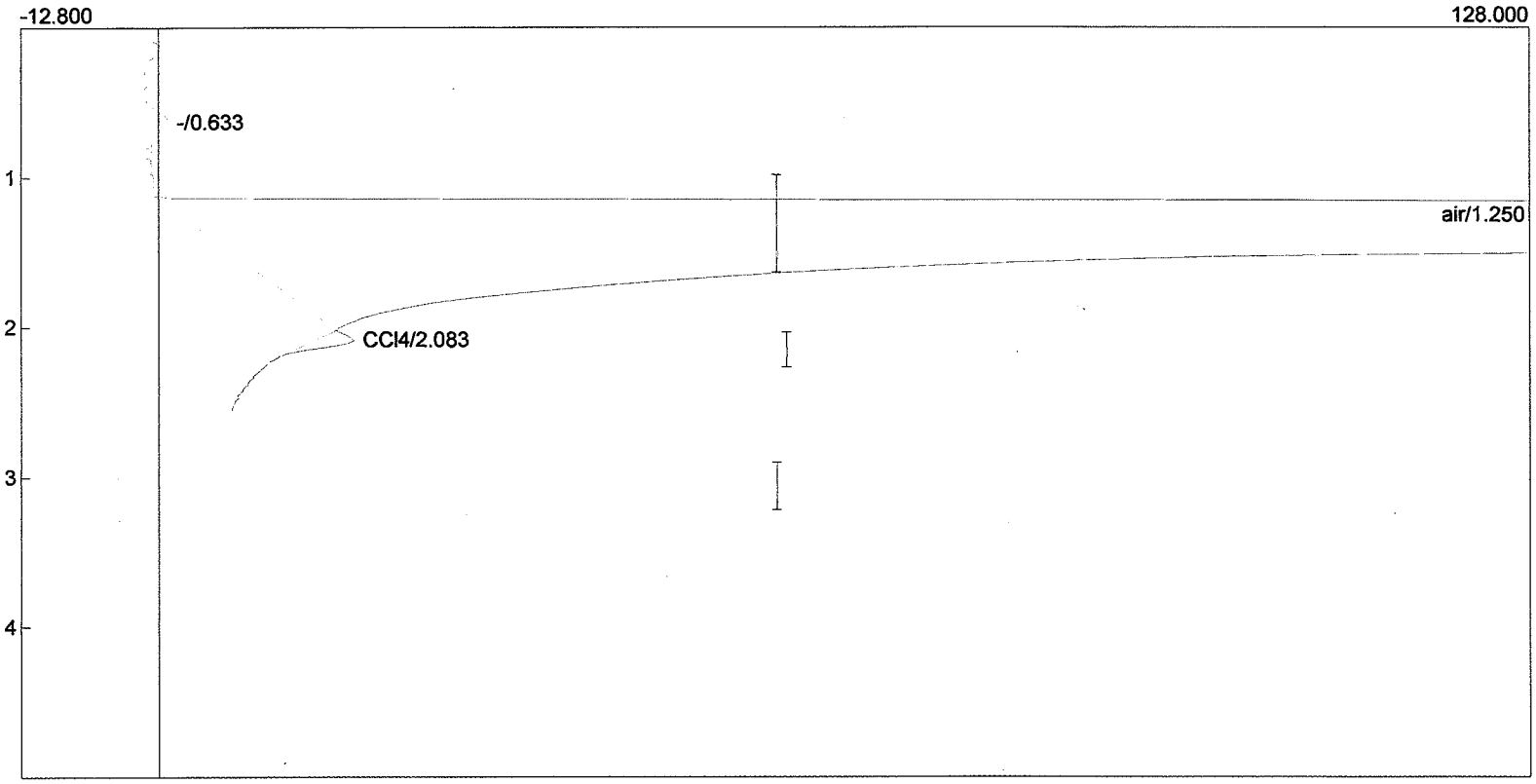
Component	Retention	Area	External	Internal	Units
air	1.250	8578.8510	0.0000	0.0000	
CCl4	2.083	26.3280	0.0715	0.4579	ug/m3
		8605.1790	0.0715	0.4579	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:29:10
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-33.CHR ()
Sample: HP-TF-7 (classrm)
Operator: Hartman



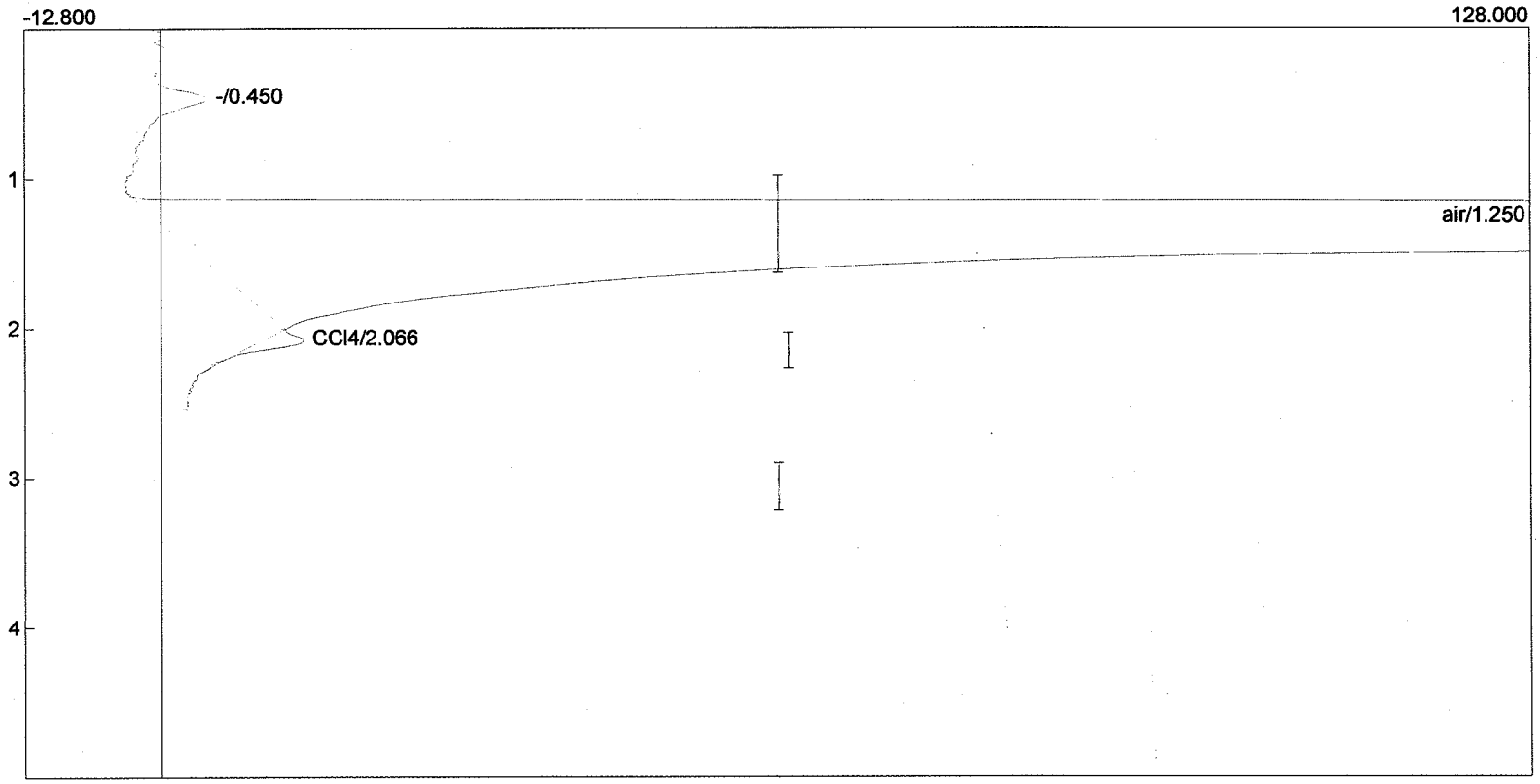
Component	Retention	Area	External	Internal	Units
air	1.250	9452.6160	0.0000	0.0000	
CCl4	2.066	25.5110	0.0693	0.4437	ug/m3
		9478.1270	0.0693	0.4437	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:24:13
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-32.CHR ()
Sample: HP-TF-11 (classrm)
Operator: Hartman



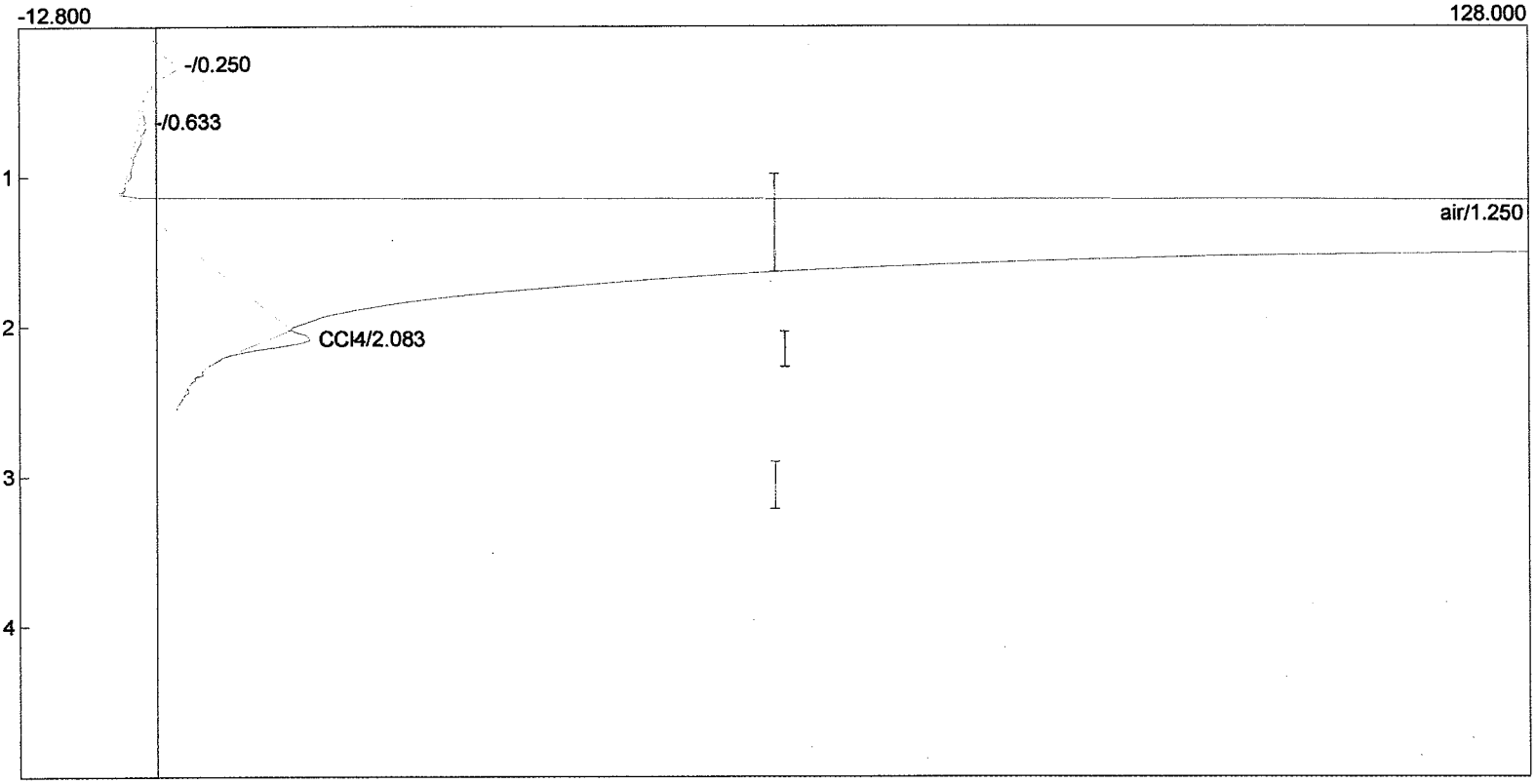
Component	Retention	Area	External	Internal	Units
air	1.250	9273.0760	0.0000	0.0000	
CCl4	2.083	22.4680	0.0611	0.3907	ug/m3
		9295.5440	0.0611	0.3907	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:21:16
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-31.CHR ()
Sample: HP-TF-3 (computer)
Operator: Hartman



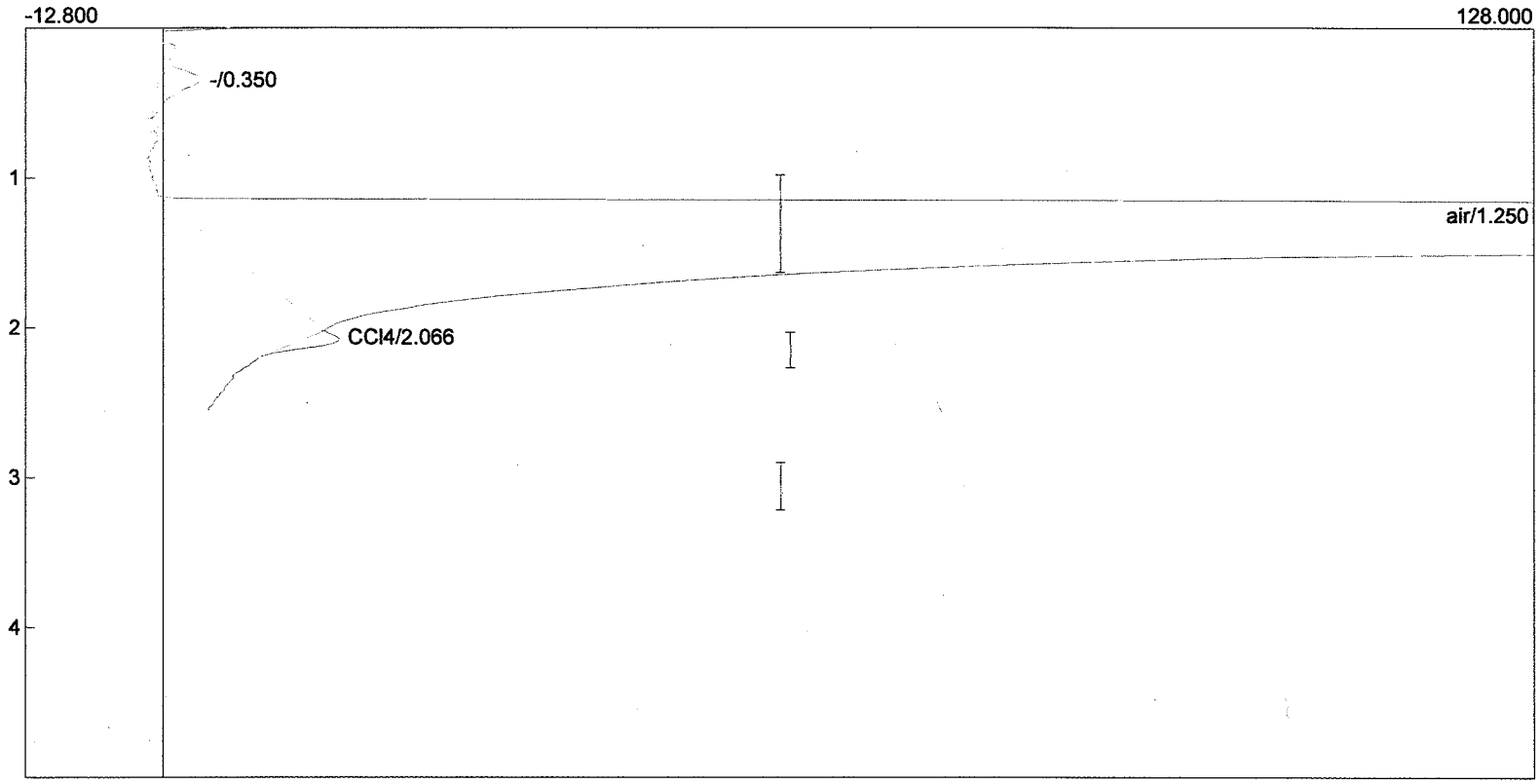
Component	Retention	Area	External	Internal	Units
air	1.250	8222.0550	0.0000	0.0000	
CCl4	2.066	26.5570	0.0722	0.4619	ug/m3
		8248.6120	0.0722	0.4619	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:18:12
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-30.CHR ()
Sample: HP-TF-4 (computer)
Operator: Hartman



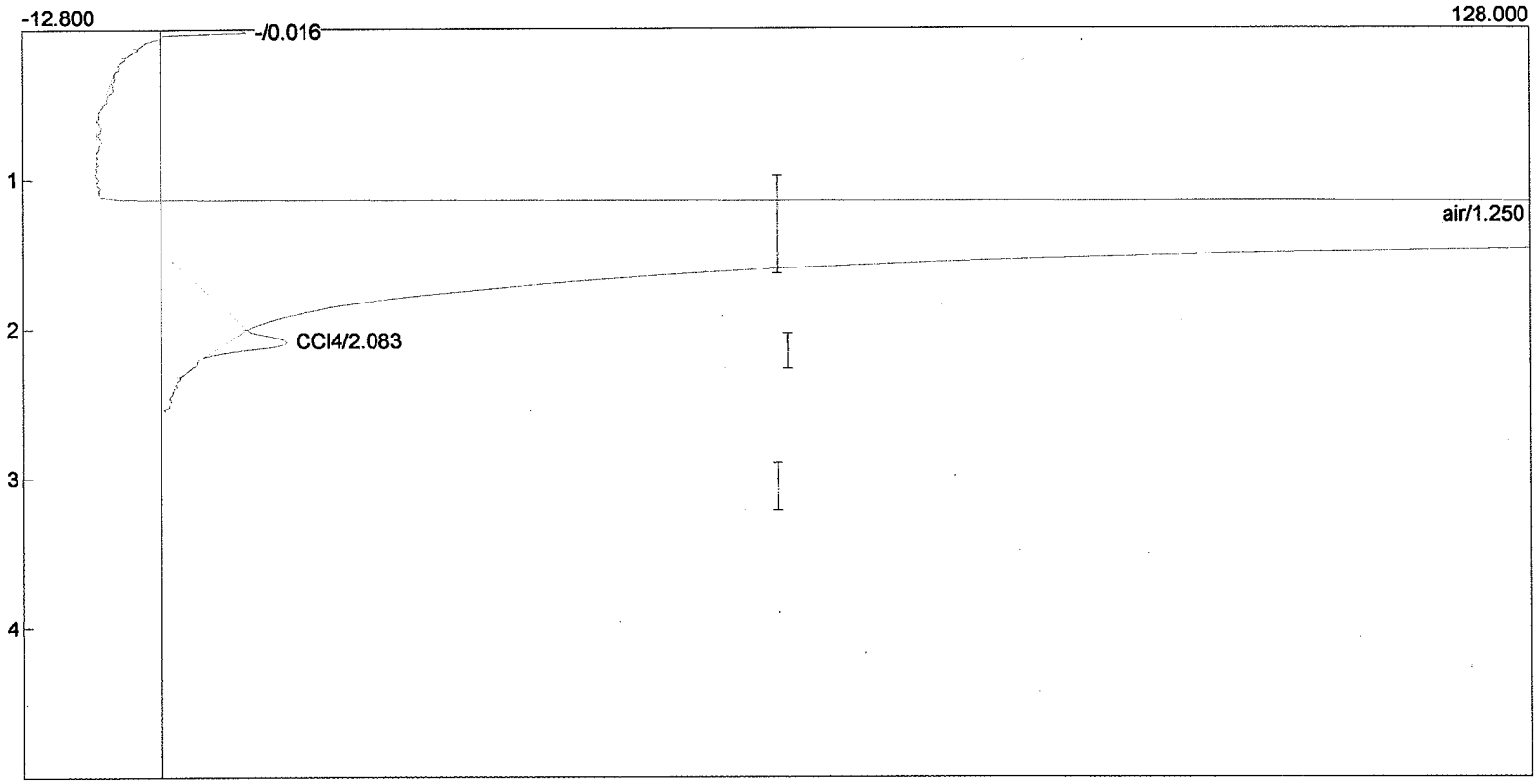
Component	Retention	Area	External	Internal	Units
air	1.250	9800.5740	0.0000	0.0000	
CCl4	2.083	25.9060	0.0704	0.4505	ug/m3
		9826.4800	0.0704	0.4505	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:14:54
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-29.CHR ()
Sample: HP-TF-10 Science Run
Operator: Hartman



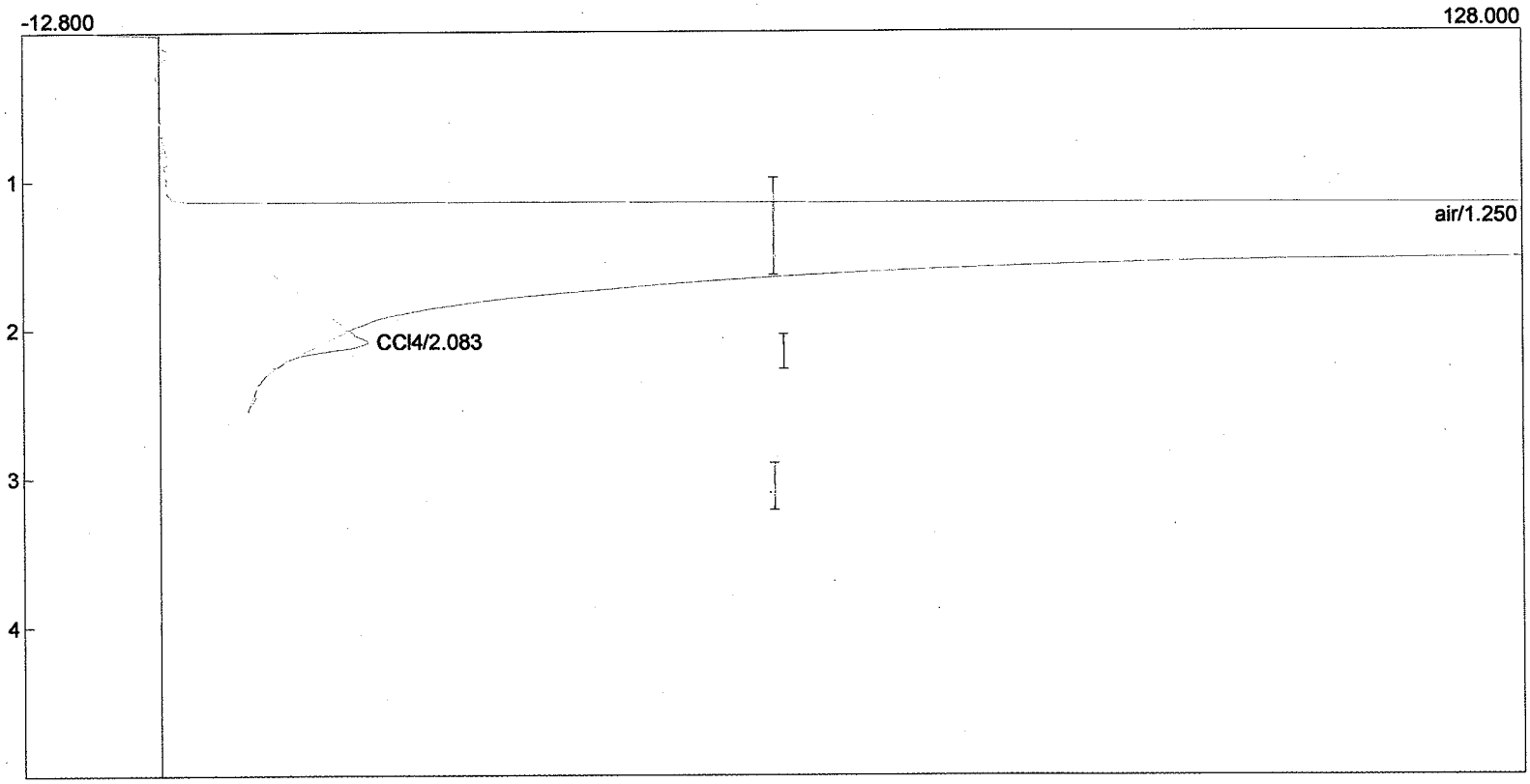
Component	Retention	Area	External	Internal	Units
air	1.250	9506.2100	0.0000	0.0000	
CCl4	2.066	22.9680	0.0624	0.3994	ug/m3
		9529.1780	0.0624	0.3994	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:07:33
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-27.CHR ()
Sample: SJ-B-2 (Nursery)
Operator: Hartman



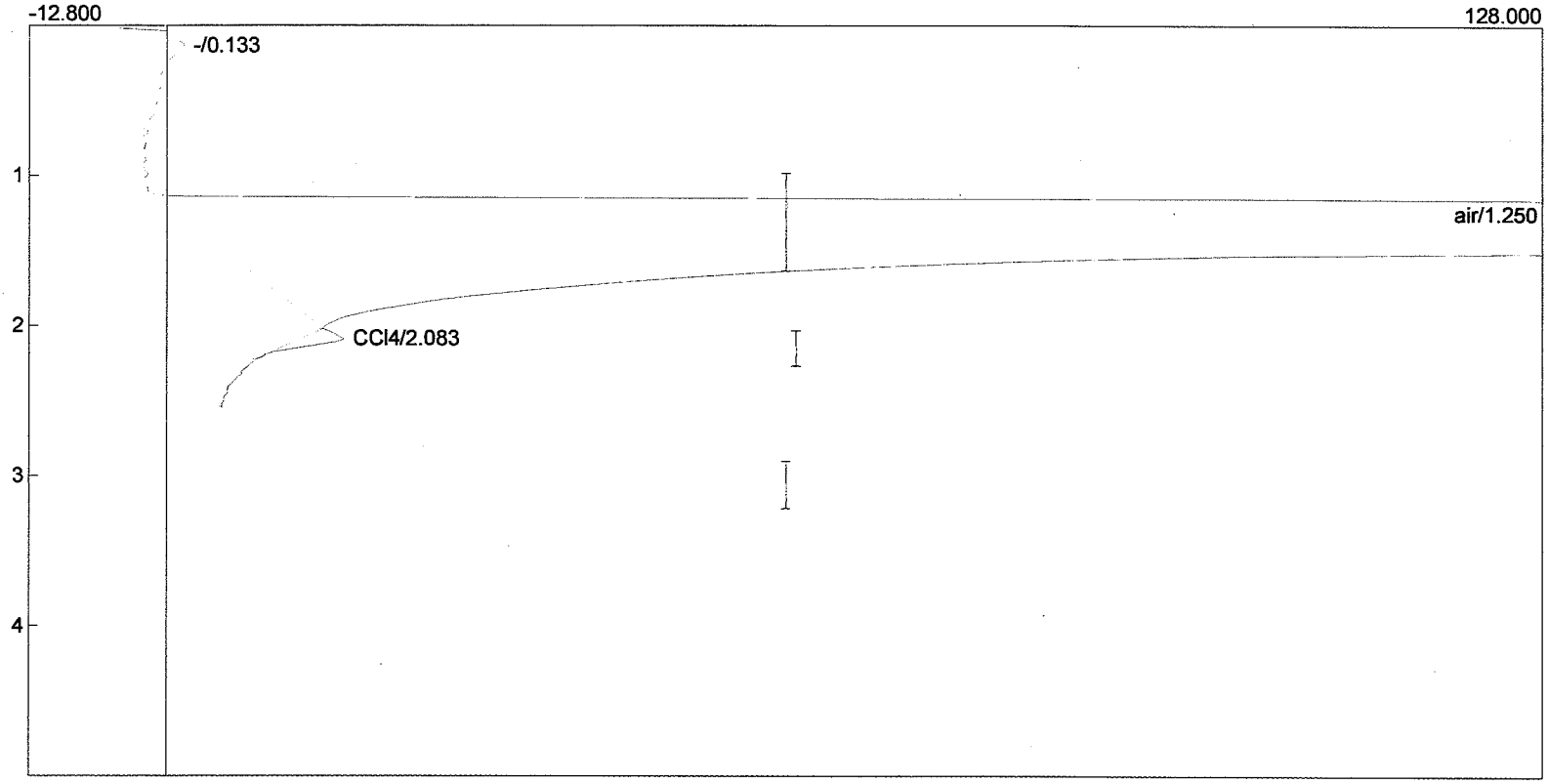
Component	Retention	Area	External	Internal	Units
air	1.250	8204.1480	0.0000	0.0000	
CCl4	2.083	35.0900	0.0954	0.6103	ug/m3
		8239.2380	0.0954	0.6103	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:11:41
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-28.CHR ()
Sample: HP-TF-14 Girls Bathroom
Operator: Hartman



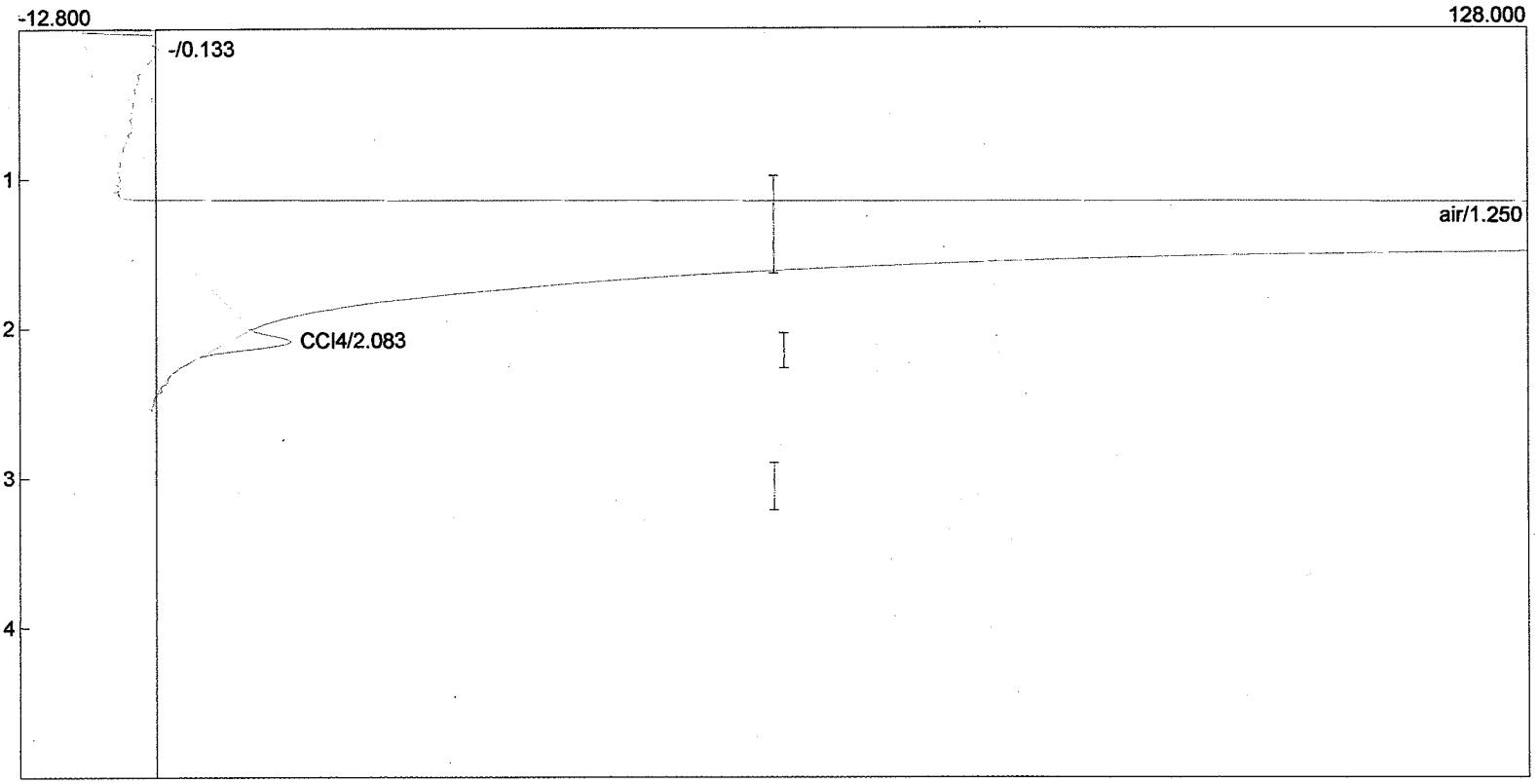
Component	Retention	Area	External	Internal	Units
air	1.250	9777.5780	0.0000	0.0000	
CCl4	2.083	27.5600	0.0749	0.4793	ug/m3
		9805.1380	0.0749	0.4793	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:04:02
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-26.CHR ()
Sample: HP-TF-12 (Library)
Operator: Hartman



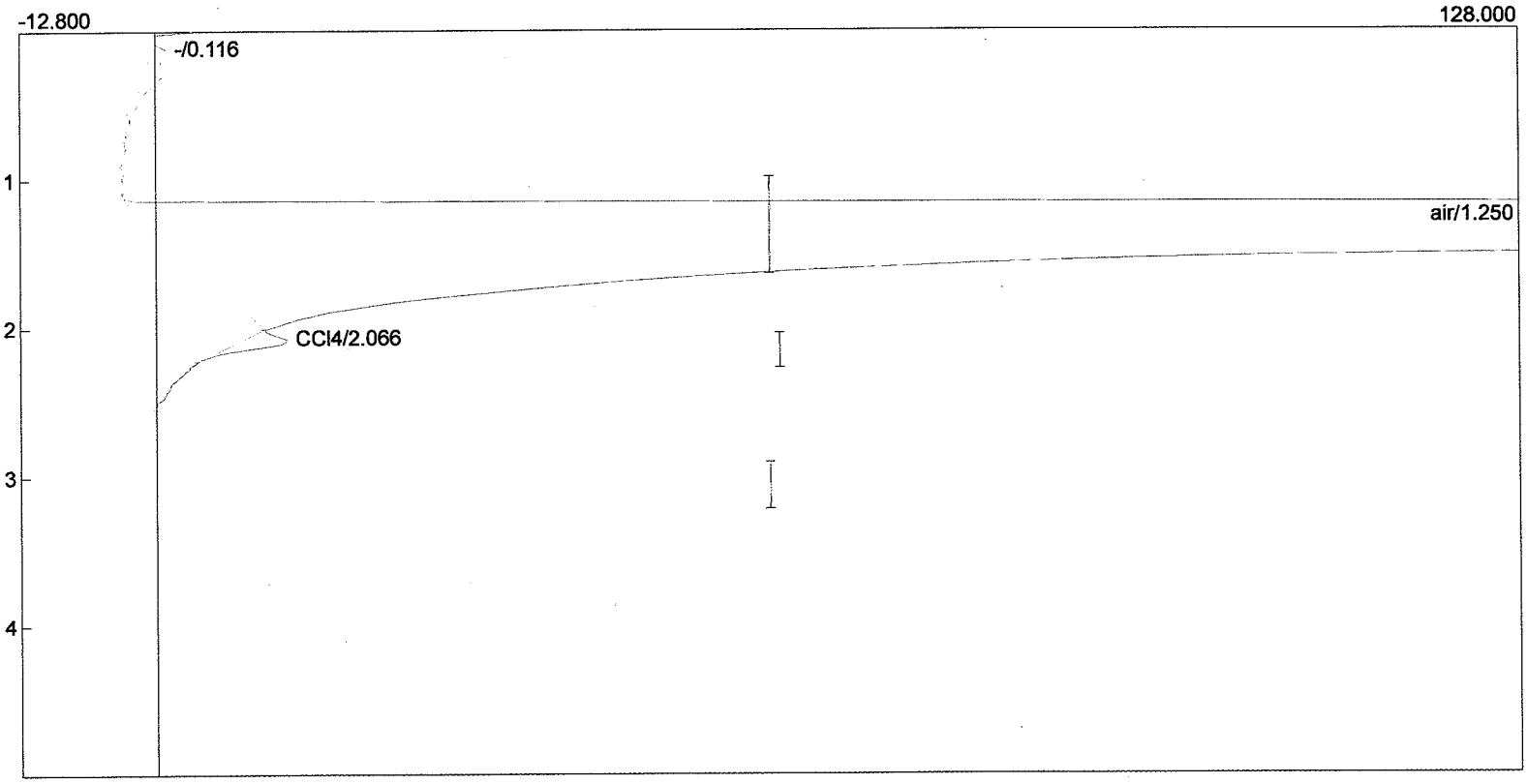
Component	Retention	Area	External	Internal	Units
air	1.250	9452.0760	0.0000	0.0000	
CCl4	2.083	23.9960	0.0652	0.4173	ug/m3
		9476.0720	0.0652	0.4173	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 09:00:34
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-25.CHR ()
Sample: HP-B-2 (Math)
Operator: Hartman



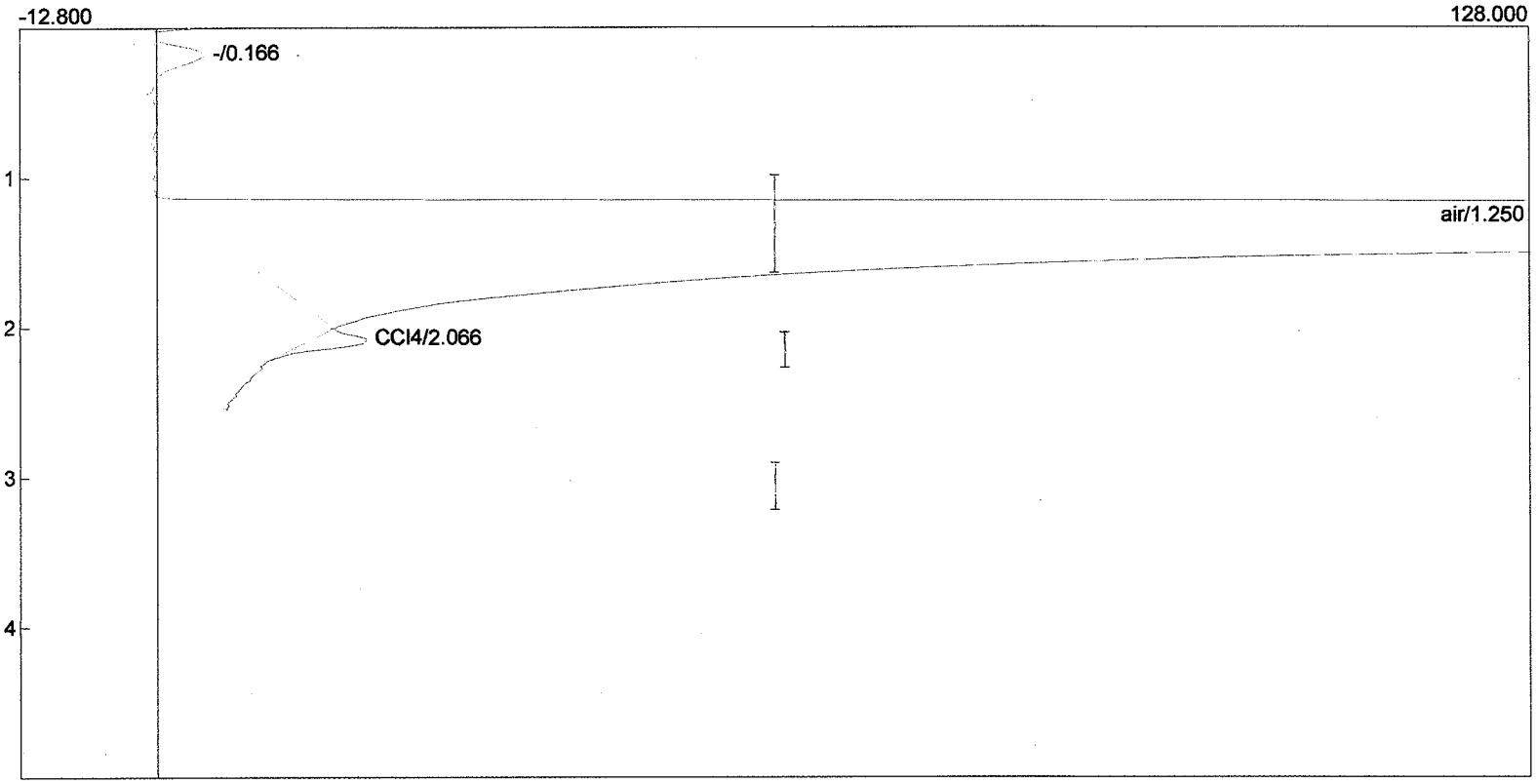
Component	Retention	Area	External	Internal	Units
air	1.250	8821.0430	0.0000	0.0000	
CCl4	2.083	36.7880	0.1000	0.6398	ug/m3
		8857.8310	0.1000	0.6398	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 08:56:32
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-24.CHR ()
Sample: HP-B-3 (Math)
Operator: Hartman



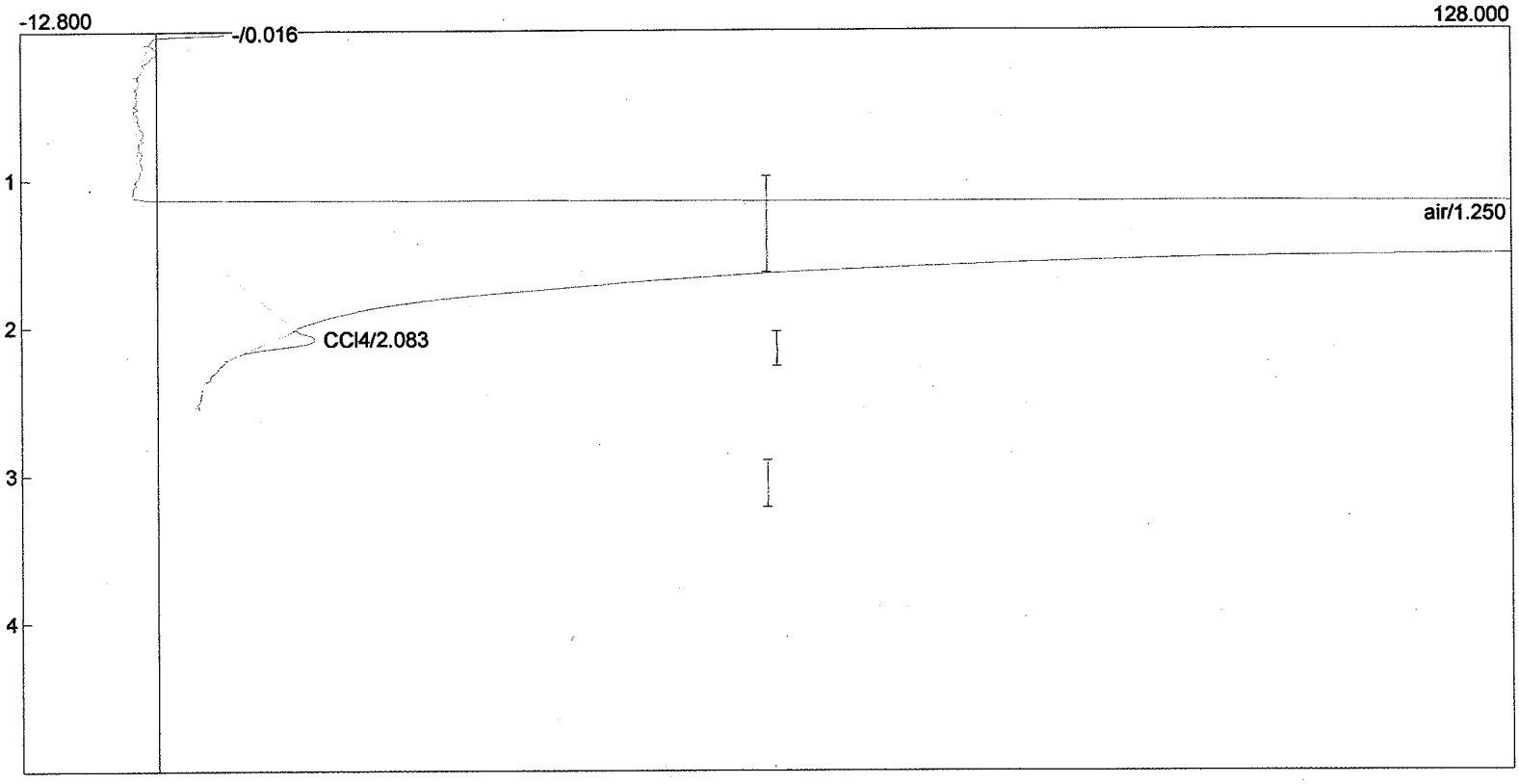
Component	Retention	Area	External	Internal	Units
air	1.250	9280.6940	0.0000	0.0000	
CCl4	2.066	28.2740	0.0768	0.4917	ug/m3
		9308.9680	0.0768	0.4917	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 08:53:16
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-23.CHR ()
Sample: HP-B-1 (kinder)
Operator: Hartman



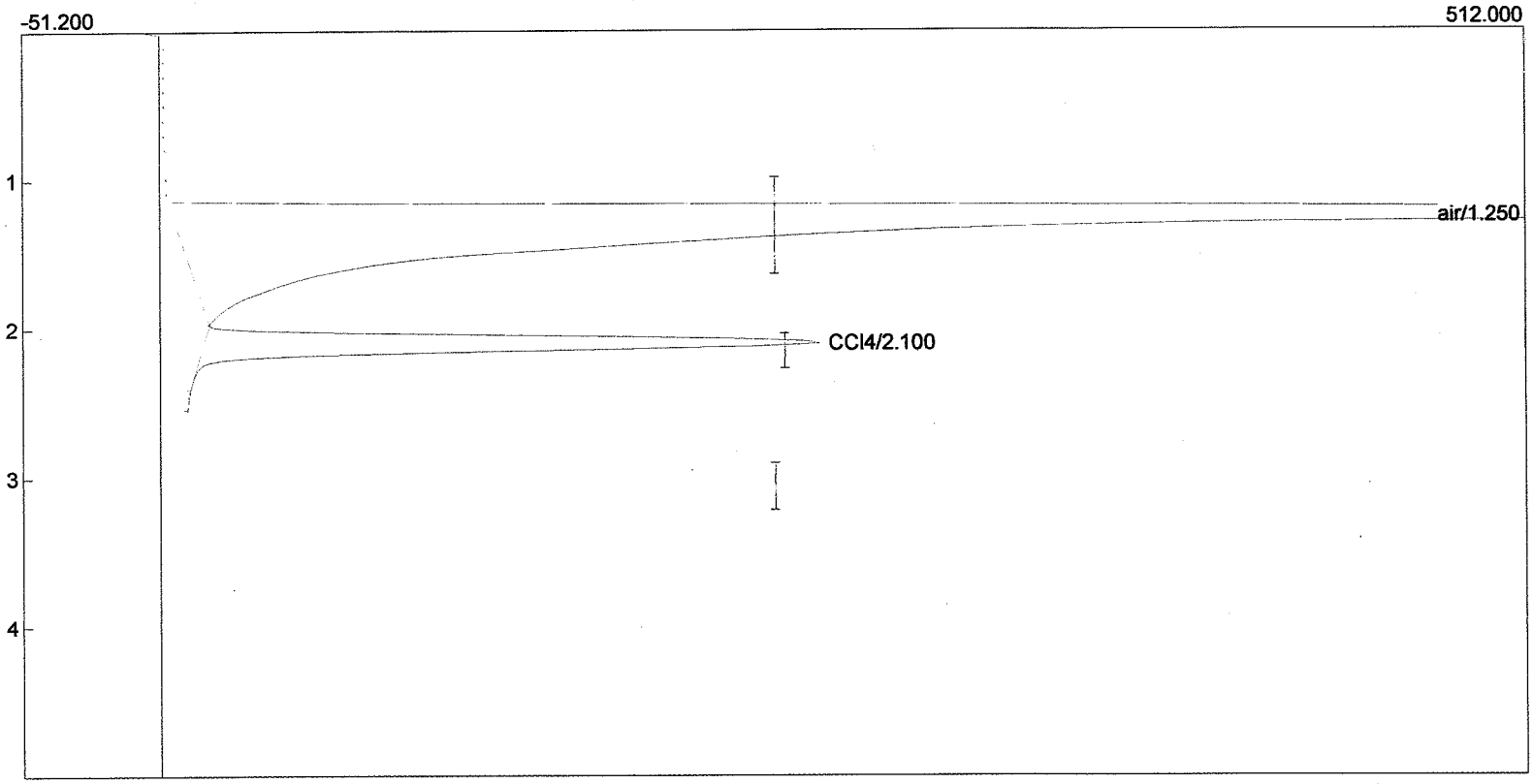
Component	Retention	Area	External	Internal	Units
air	1.250	9201.9870	0.0000	0.0000	
CCl4	2.066	36.3080	0.0987	0.6314	ug/m3
		9238.2950	0.0987	0.6314	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 08:49:55
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-22.CHR ()
Sample: Room Air
Operator: Hartman



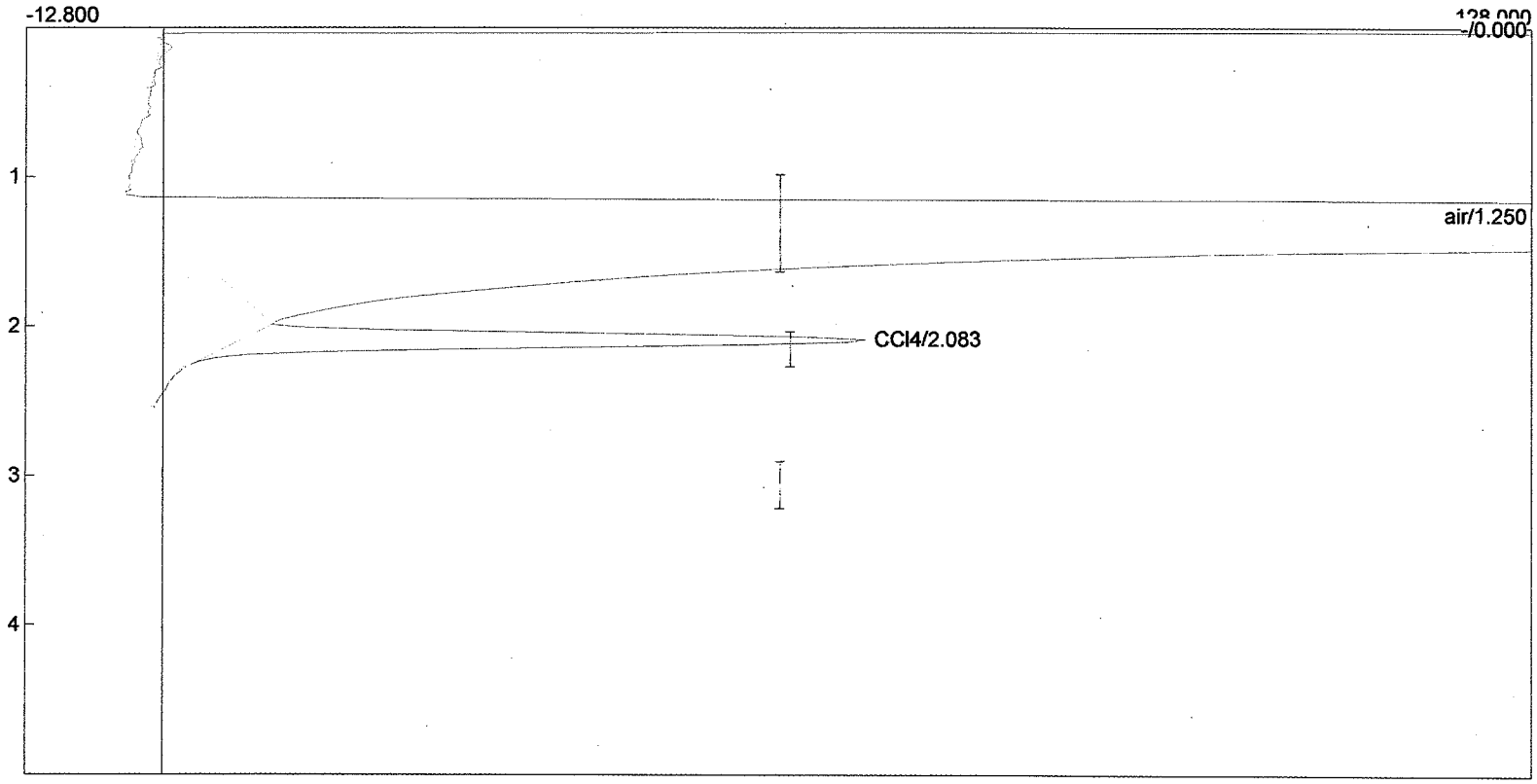
Component	Retention	Area	External	Internal	Units
air	1.250	9723.6500	0.0000	0.0000	
CCl4	2.083	24.4630	0.0665	0.4254	ug/m3
		9748.1130	0.0665	0.4254	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 08:45:55
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-21.CHR ()
Sample: 5 ppbv CCl4
Operator: Hartman



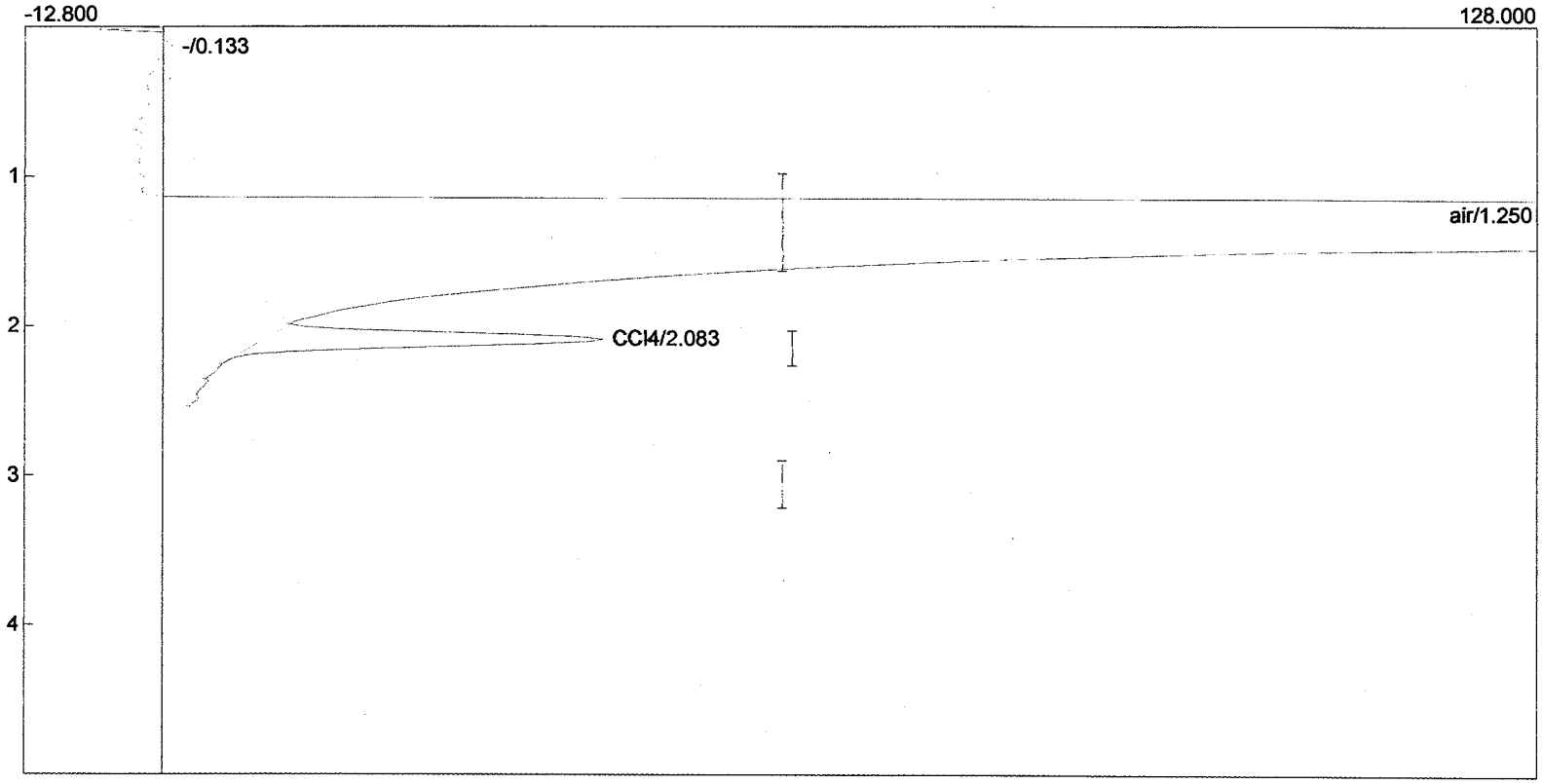
Component	Retention	Area	External	Internal	Units
air	1.250	8305.8860	0.0000	0.0000	
CCl4	2.100	1537.9500	4.1792	26.7470	ug/m3
		9843.8360	4.1792	26.7470	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 08:41:17
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-20.CHR ()
Sample: 1 ppbv (6.4 ug) CCl4
Operator: Hartman



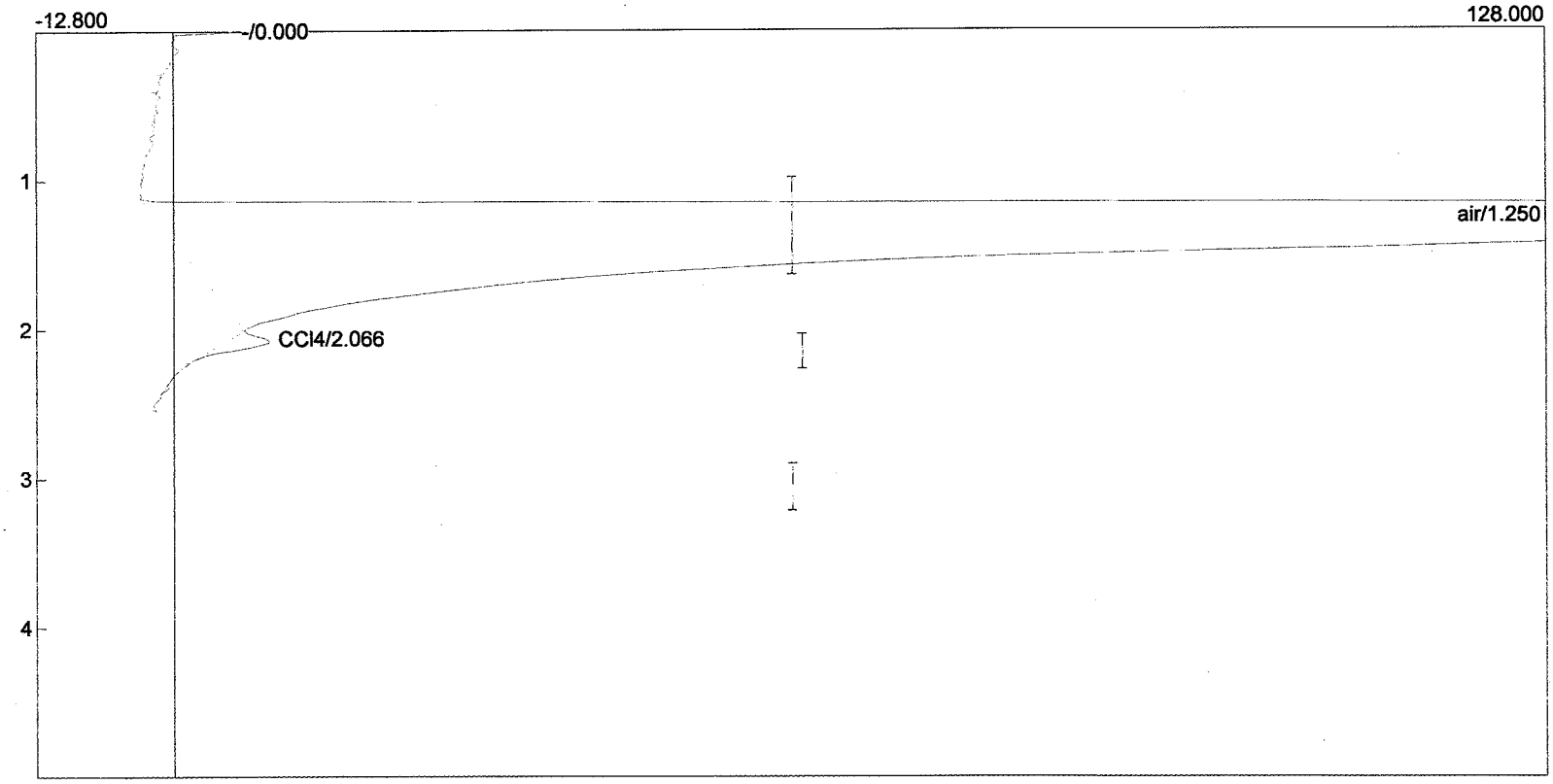
Component	Retention	Area	External	Internal	Units
air	1.250	8292.4260	0.0000	0.0000	
CCl4	2.083	370.1720	1.0059	6.4378	ug/m3
		8662.5980	1.0059	6.4378	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 08:37:05
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-19.CHR ()
Sample: 0.5 ppbv (3.2 ug) CCl4
Operator: Hartman



Component	Retention	Area	External	Internal	Units
air	1.250	8262.6260	0.0000	0.0000	
CCl4	2.083	198.1480	0.5384	3.4461	ug/m3
		8460.7740	0.5384	3.4461	

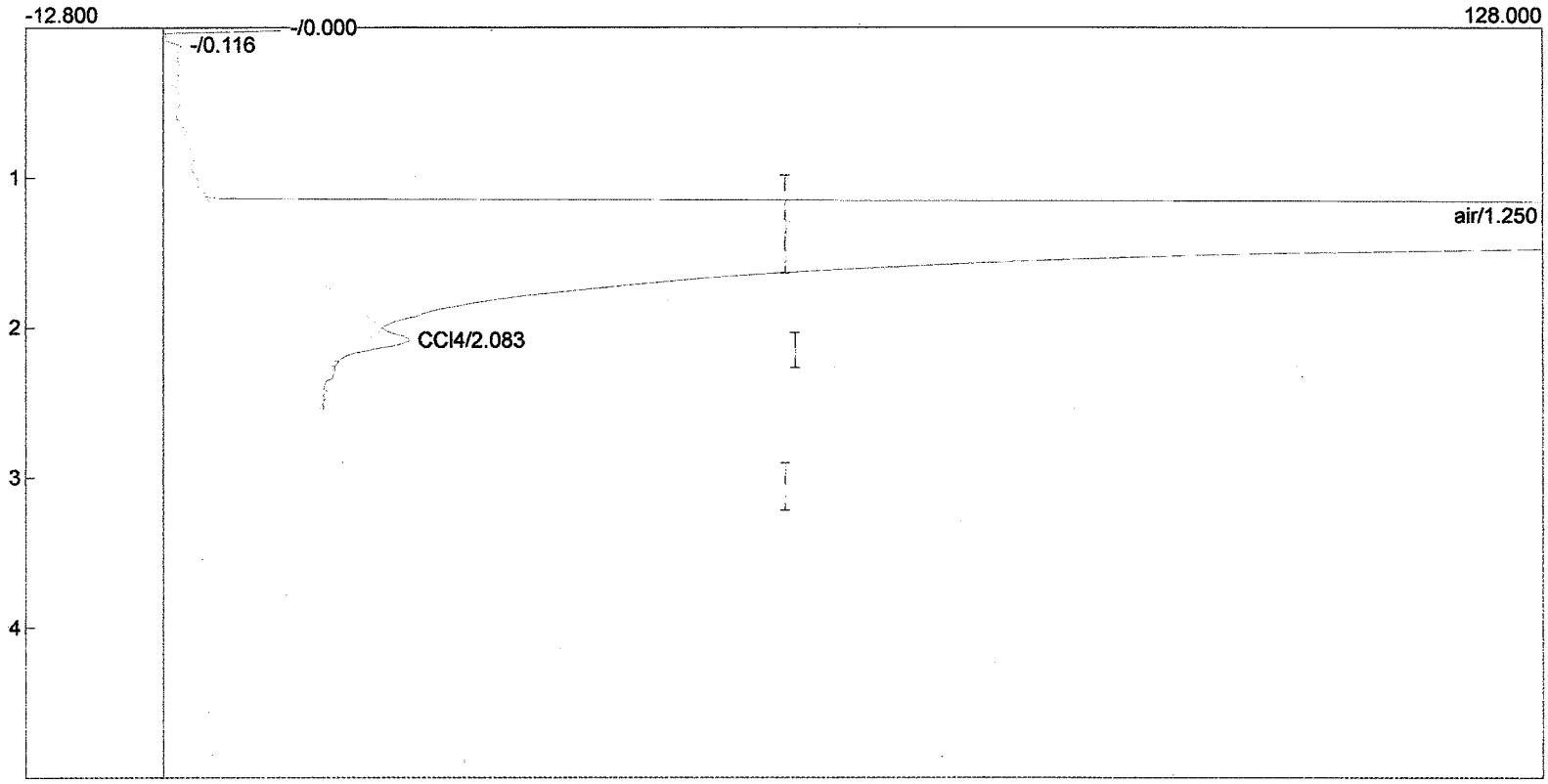
Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 08:33:37
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-18.CHR ()
Sample: Outside Air
Operator: Hartman



Component	Retention	Area	External	Internal	Units
air	1.250	7053.5600	0.0000	0.0000	
CCl4	2.066	25.8300	0.0702	0.4492	ug/m3
		7079.3900	0.0702	0.4492	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 08:26:05
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-17.CHR ()
Sample: SJ-SF-2
Operator: Hartman

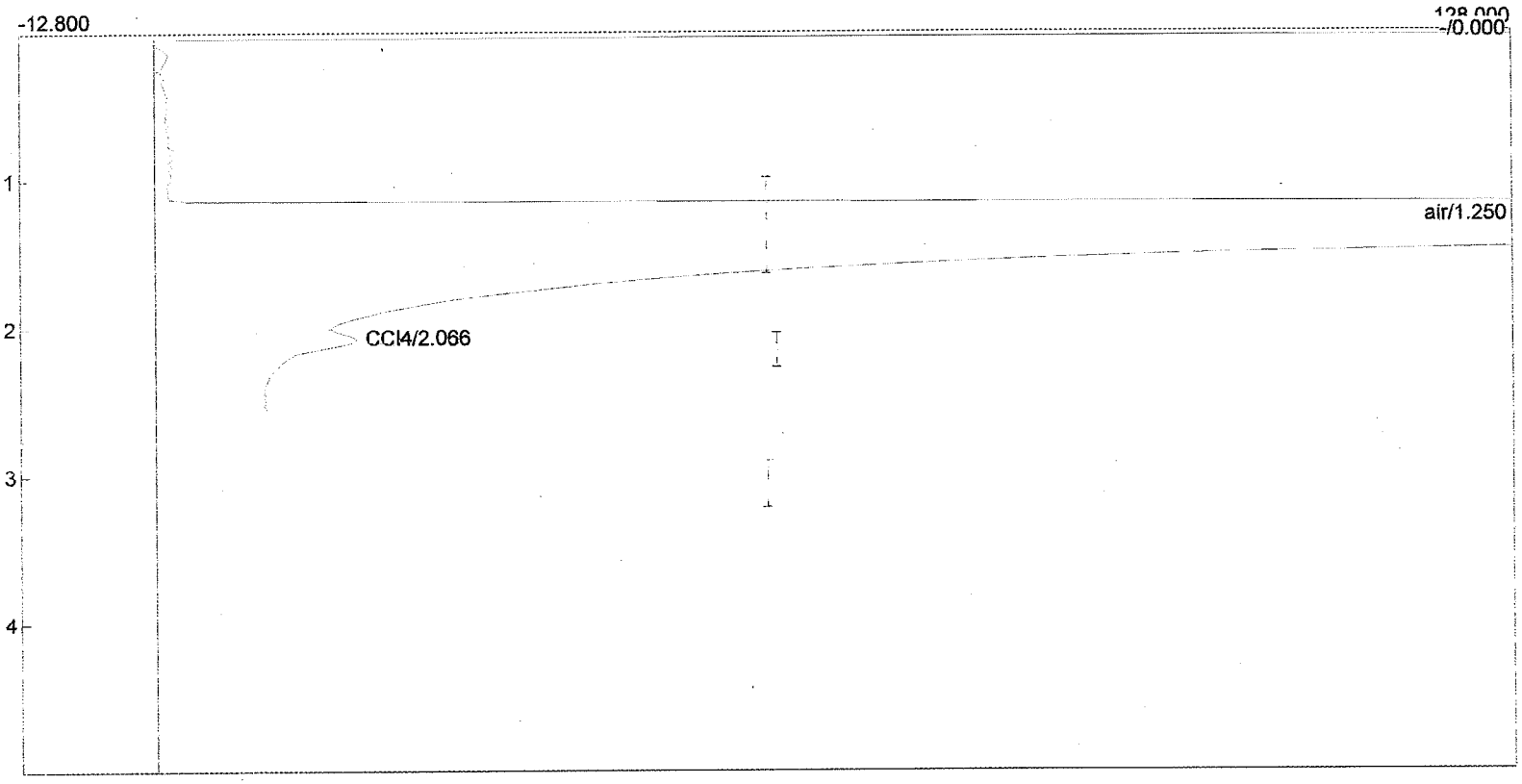
Admin. Office



Component	Retention	Area	External	Internal	Units
air	1.250	7667.4540	0.0000	0.0000	
CCl4	2.083	25.3130	0.0688	0.4402	ug/m3
		7692.7670	0.0688	0.4402	

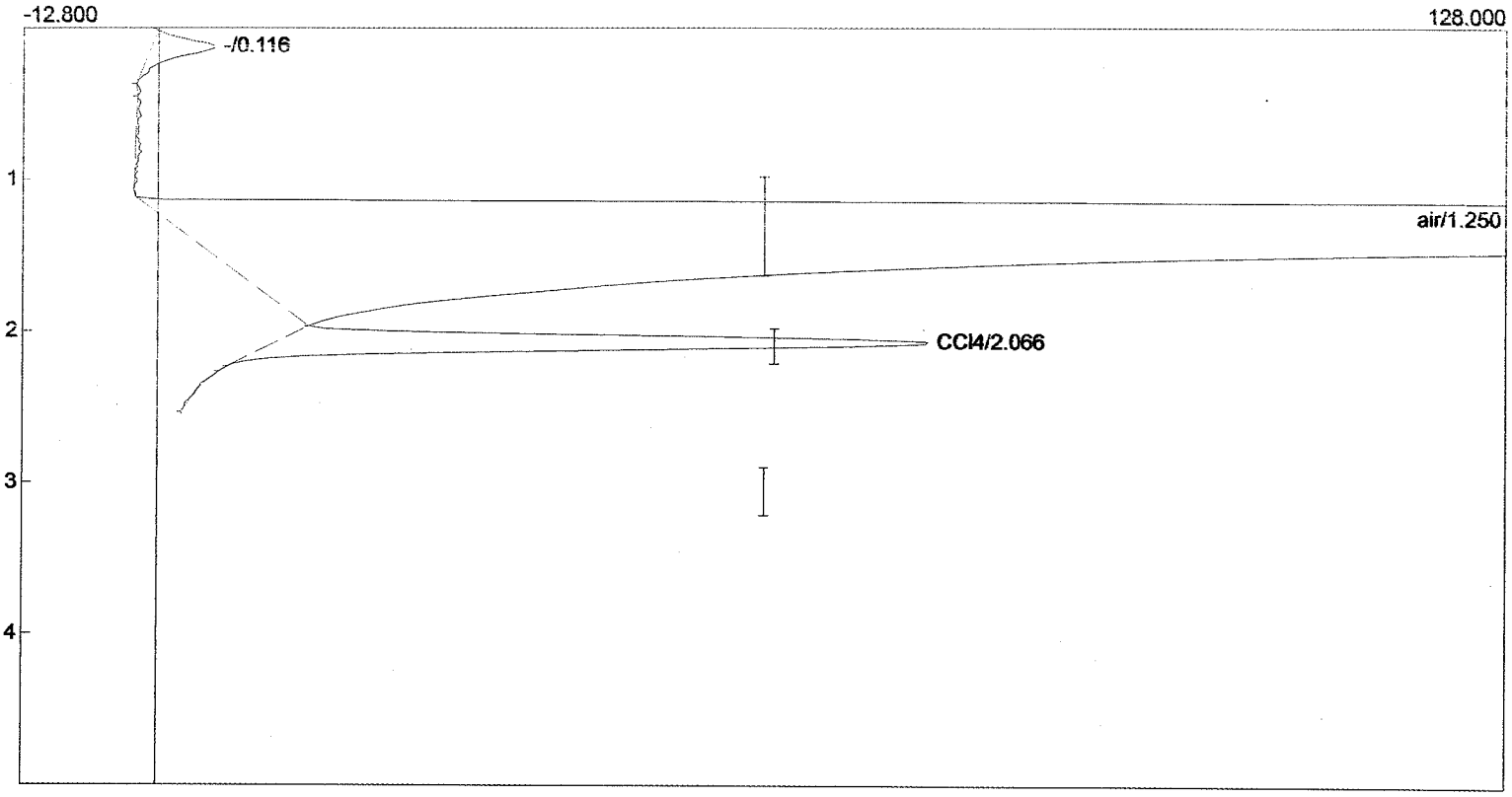
Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 08:23:16
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310F-16.CHR ()
Sample: SJ-SF-1
Operator: Hartman

Principal Office



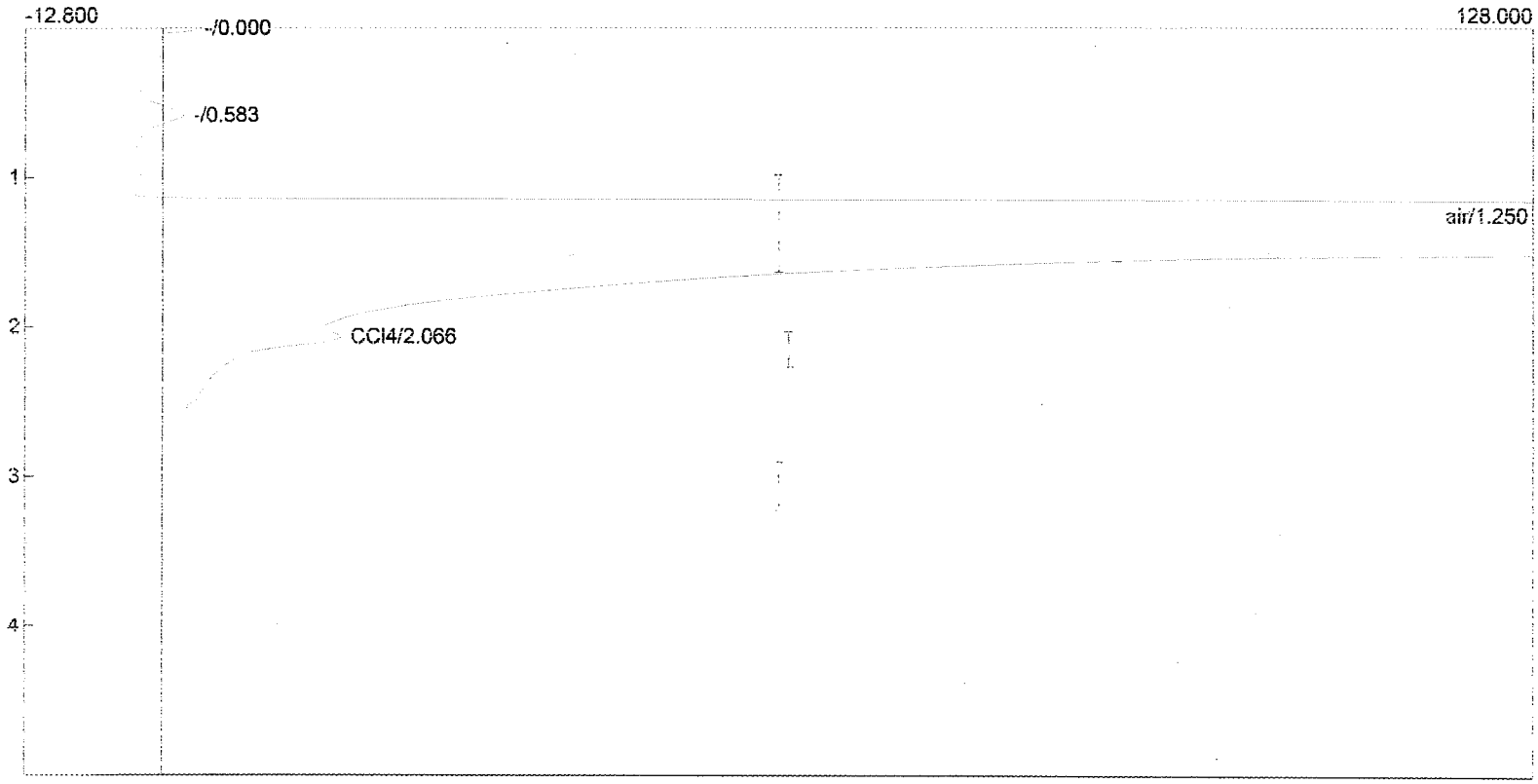
Component	Retention	Area	External	Internal	Units
air	1.250	7678.6410	0.0000	0.0000	
CCl4	2.066	25.0080	0.0680	0.0000	ug/m3
		7703.6490	0.0680	0.0000	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 08:02:50
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-15.CHR ()
Sample: 1 ppbv
Operator: Hartman



Component	Retention	Area	External	Internal	Units
air	1.250	8411.7710	0.0000	0.0000	
CCl4	2.066	393.1400	1.0683	6.8372	ug/m3
		8804.9110	1.0683	6.8372	

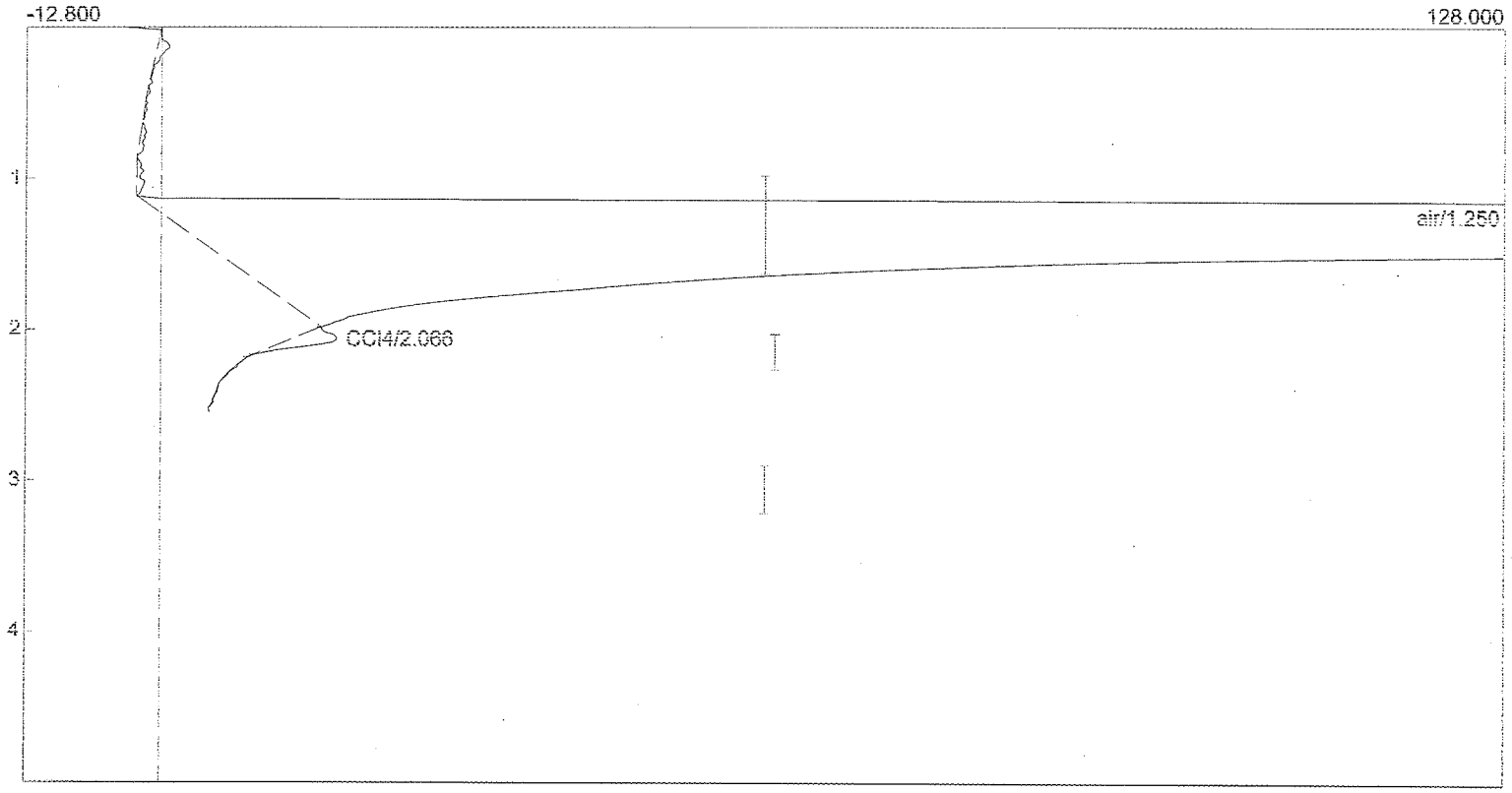
Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 07:59:27
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-14.CHR ()
Sample: HP-TF-1
Operator: Hartman Counselor Rm.



Component	Retention	Area	External	Internal	Units
air	1.250	9977.3310	0.0000	0.0000	
CCl4	2.066	27.6120	0.0750	0.0000	ug/m3
		10004.9430	0.0750	0.0000	

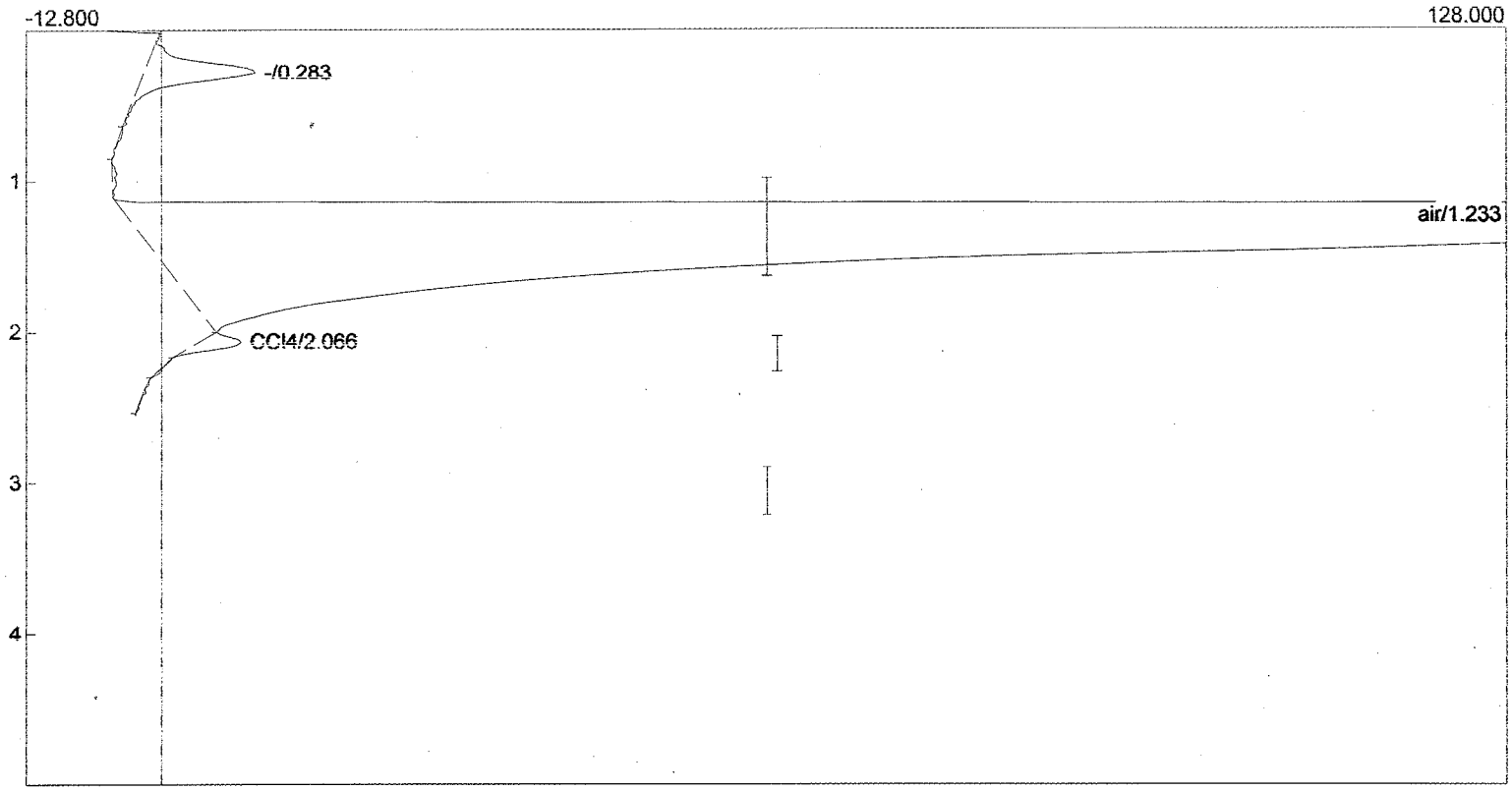
Lab name: HTG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 07:56:31
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-13.CHR ()
Sample: HP-TF-2
Operator: Hartman

Records Room



Component	Retention	Area	External	Internal	Units
air	1.250	10286.6420	0.0000	0.0000	
CCl4	2.066	29.6020	0.0804	0.5148	ug/m3
		10316.2440	0.0804	0.5148	

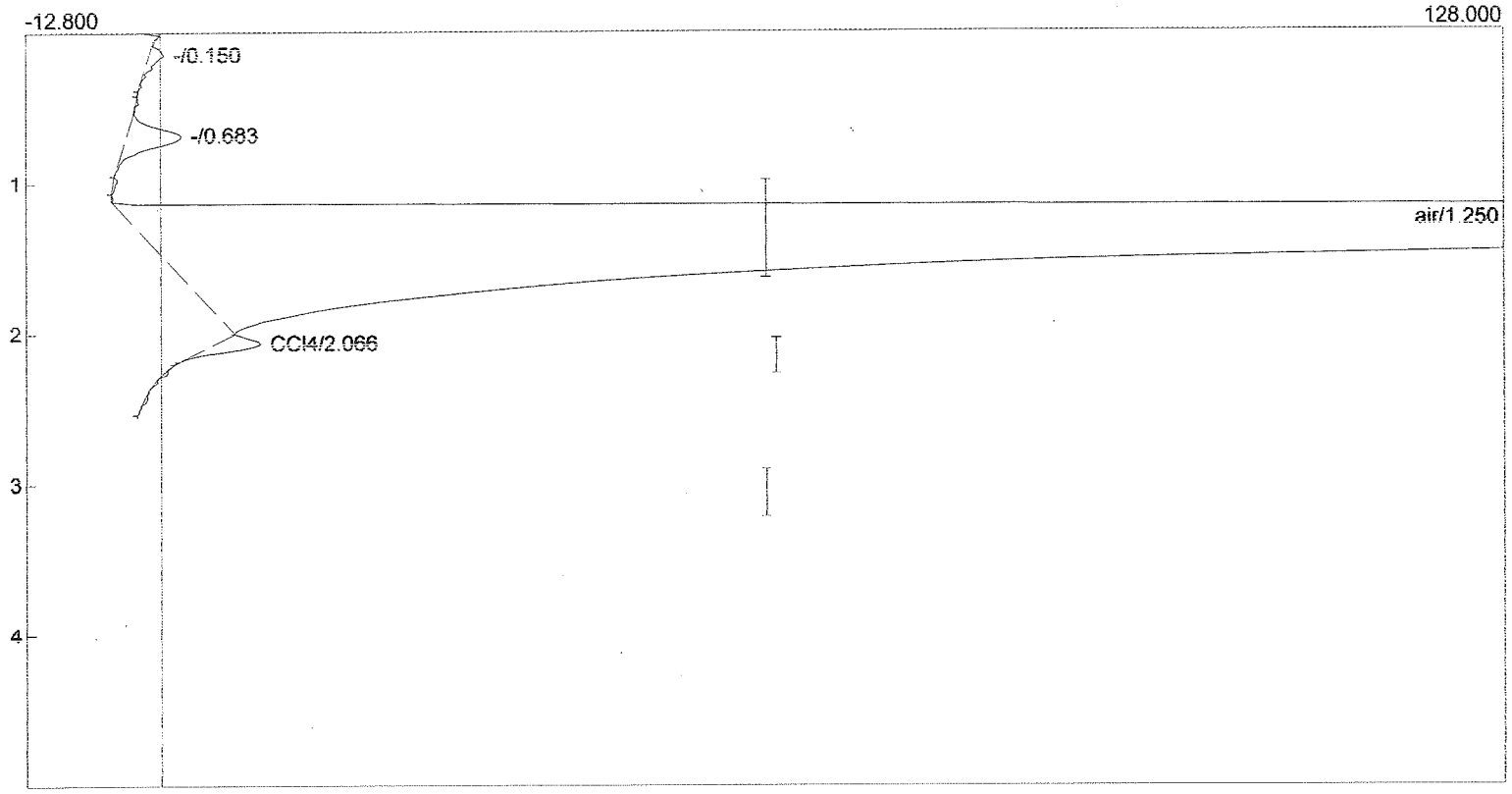
Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 07:53:38
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-12.CHR ()
Sample: Outside Air
Operator: Hartman



Component	Retention	Area	External	Internal	Units
air	1.233	7116.7040	0.0000	0.0000	
CCl4	2.066	24.2580	0.0659	0.0000	ug/m3
		7140.9620	0.0659	0.0000	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 07:50:24
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-11.CHR ()
Sample: HP-1-7 (Prin)
Operator: Hartman

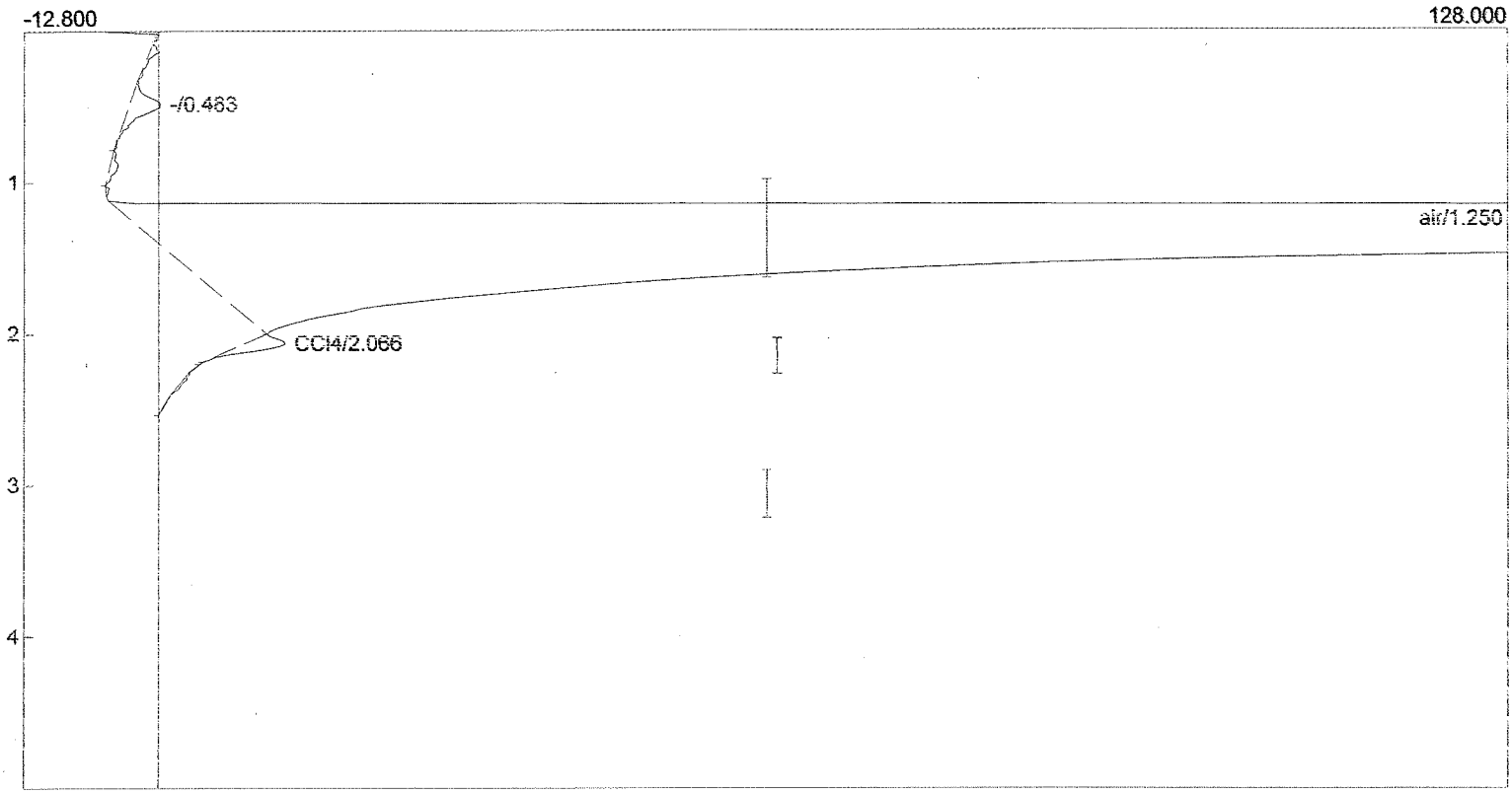
Principal office



Component	Retention	Area	External	Internal	Units
air	1.250	7849.7230	0.0000	0.0000	
CCl4	2.066	26.2250	0.0713	0.4561	ug/m3
		7875.9480	0.0713	0.4561	

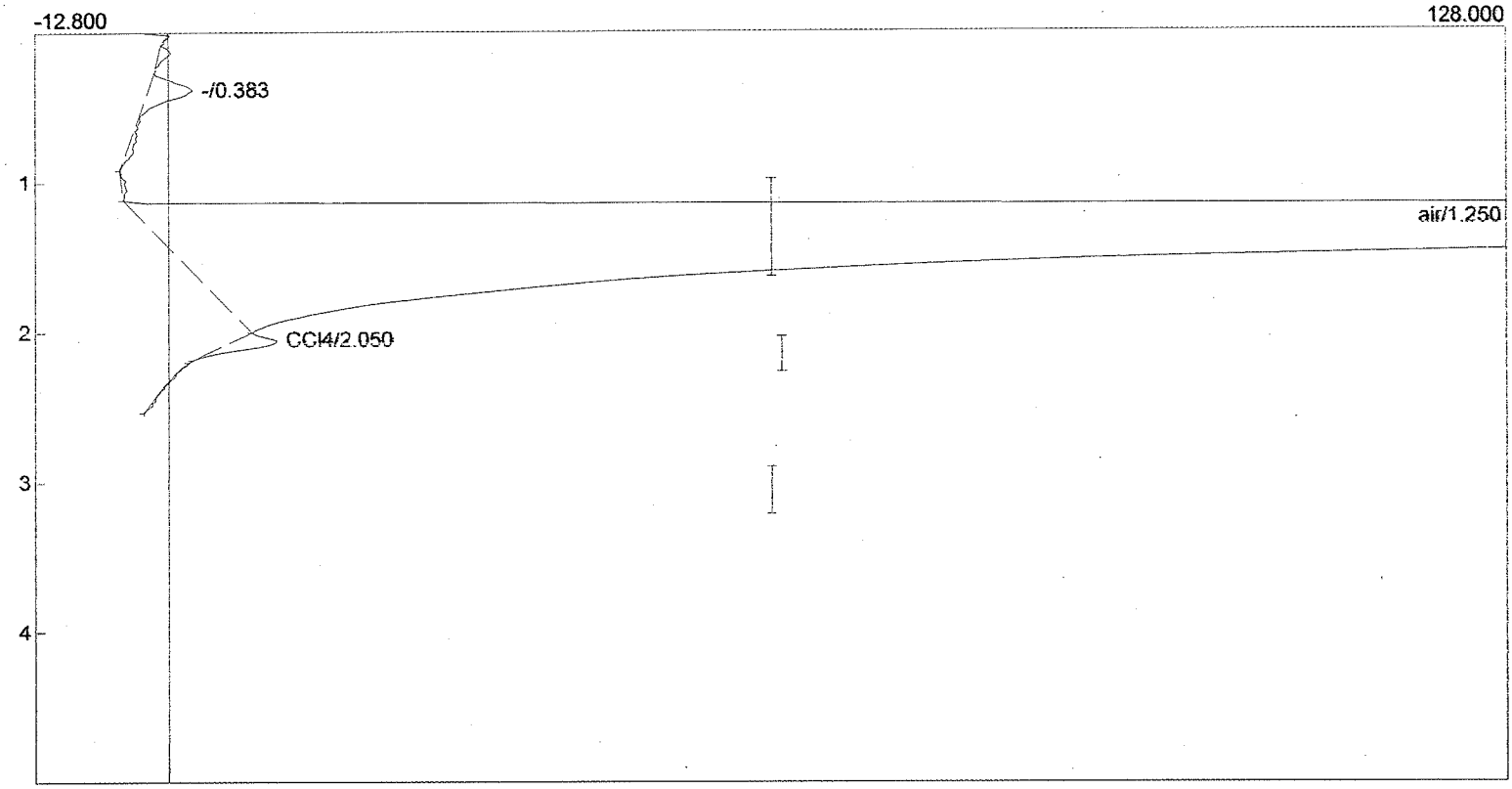
Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 07:47:35
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-10.CHR ()
Sample: HP-1-6 (F. Off)
Operator: Hartman

Front Office



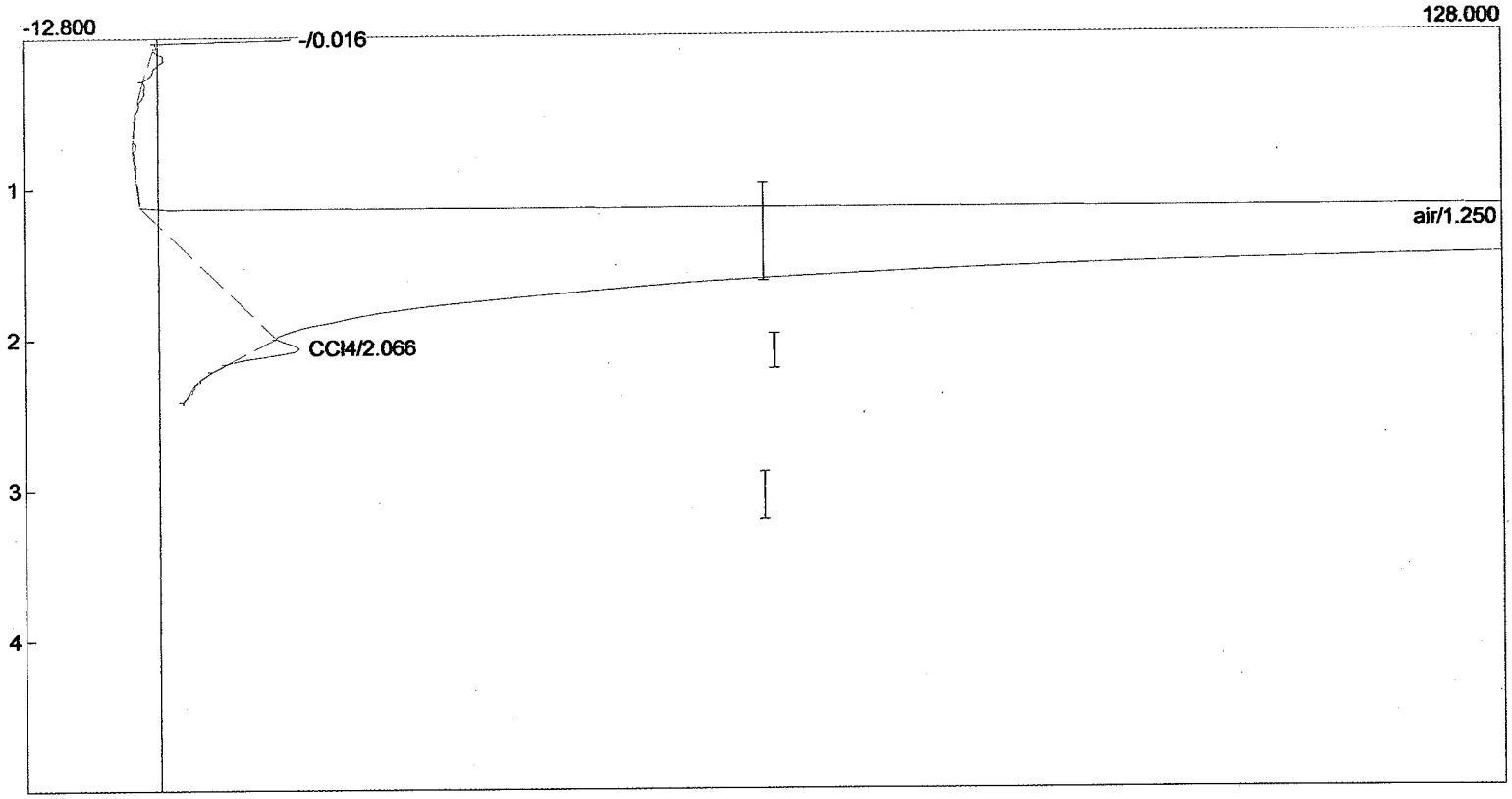
Component	Retention	Area	External	Internal	Units
air	1.250	8202.5030	0.0000	0.0000	
CCl4	2.066	23.6070	0.0641	0.0000	ug/m3
		8226.1100	0.0641	0.0000	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 07:44:34
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-09.CHR ()
Sample: SJ-B-4 (Locker)
Operator: Hartman



Component	Retention	Area	External	Internal	Units
air	1.250	7868.4960	0.0000	0.0000	
CCl4	2.050	26.3020	0.0715	0.0000	ug/m3
		7894.7980	0.0715	0.0000	

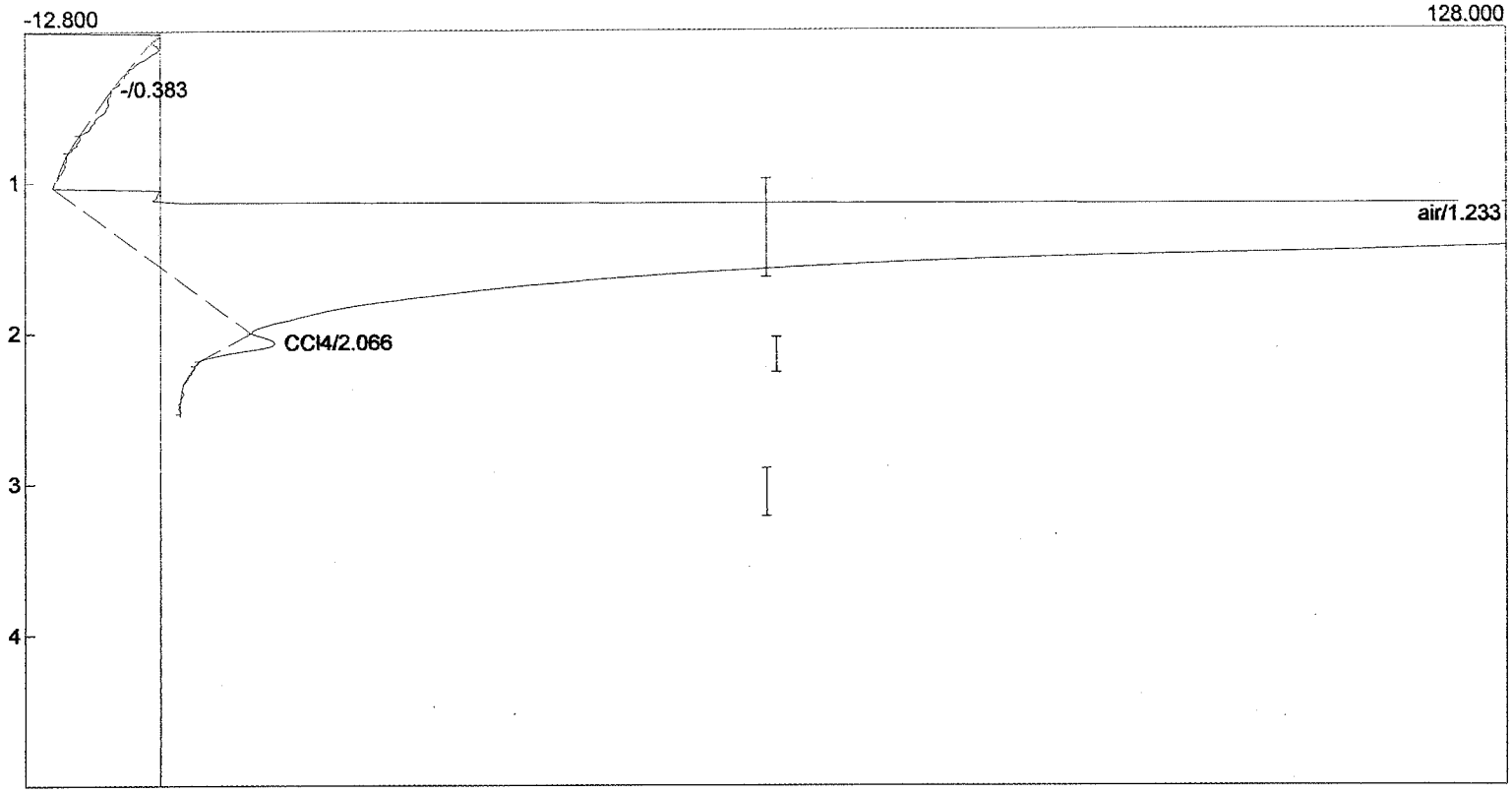
Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 07:41:28
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-08.CHR ()
Sample: SJ-B-3
Operator: Hartman 6gm



Component	Retention	Area	External	Internal	Units
air	1.250	8616.7500	0.0000	0.0000	
CCl4	2.066	24.7480	0.0673	0.4304	ug/m3
		8641.4980	0.0673	0.4304	

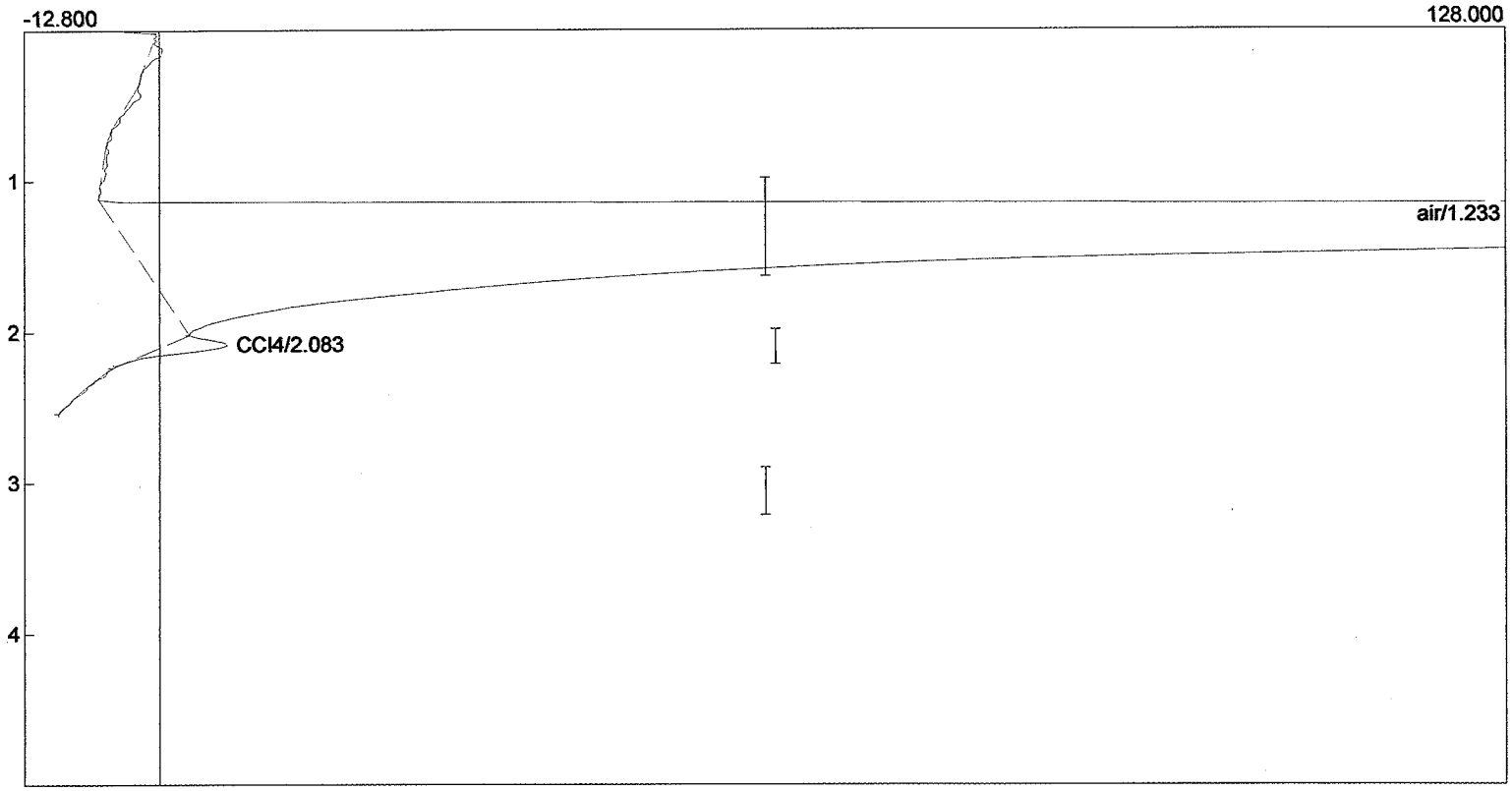
Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 07:30:44
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-07.CHR ()
Sample: HP-B-5
Operator: Hartman

Boiler Room



Component	Retention	Area	External	Internal	Units
air	1.233	7432.0240	0.0000	0.0000	
CCl4	2.066	26.2860	0.0714	0.0000	ug/m3
		7458.3100	0.0714	0.0000	

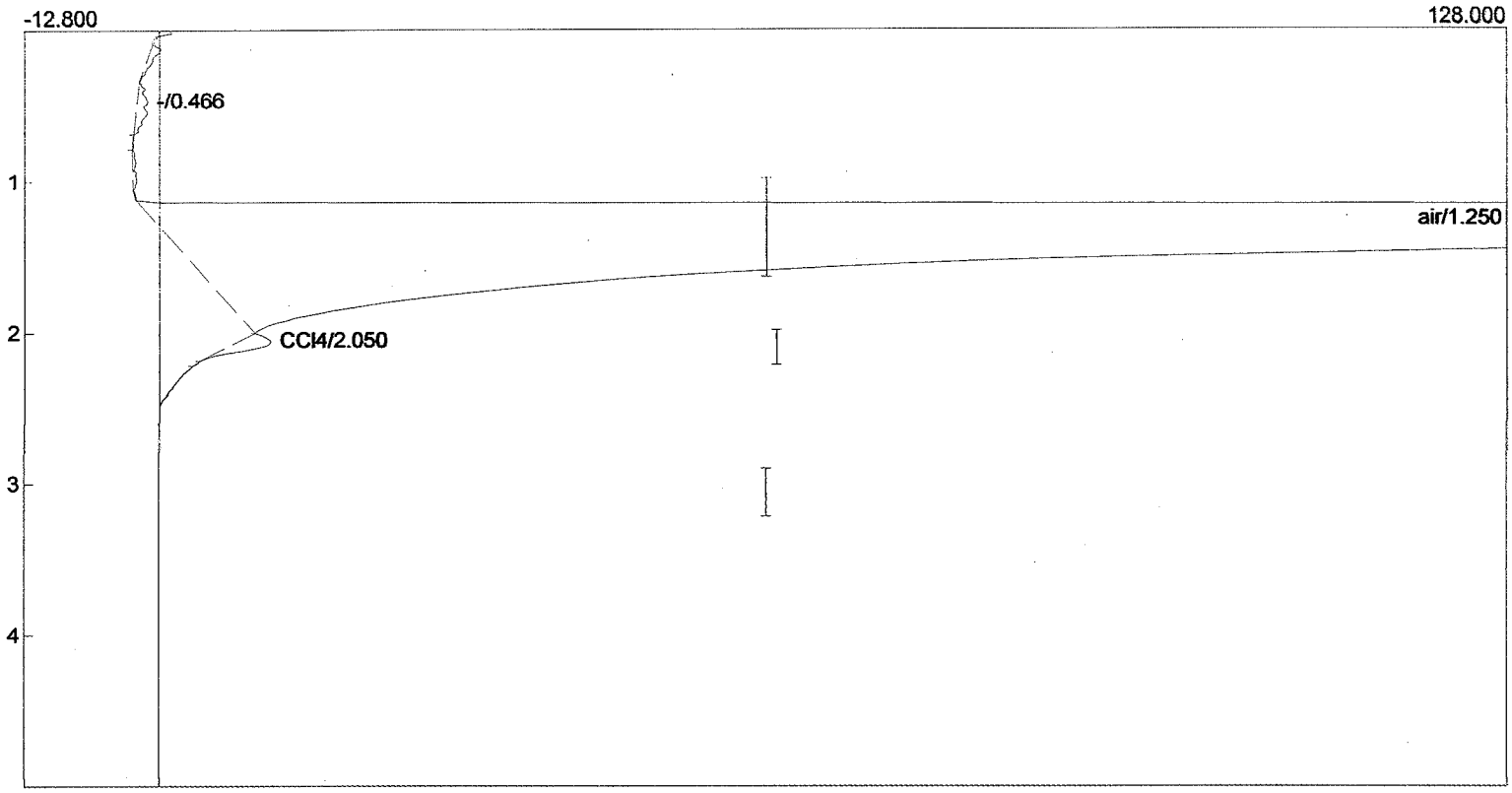
Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 07:27:43
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-06.CHR ()
Sample: SJ-B-2 Kids Classroom
Operator: Hartman



Component	Retention	Area	External	Internal	Units
air	1.233	7746.4480	0.0000	0.0000	
CCl4	2.083	35.1020	0.0954	0.6105	ug/m3
		7781.5500	0.0954	0.6105	

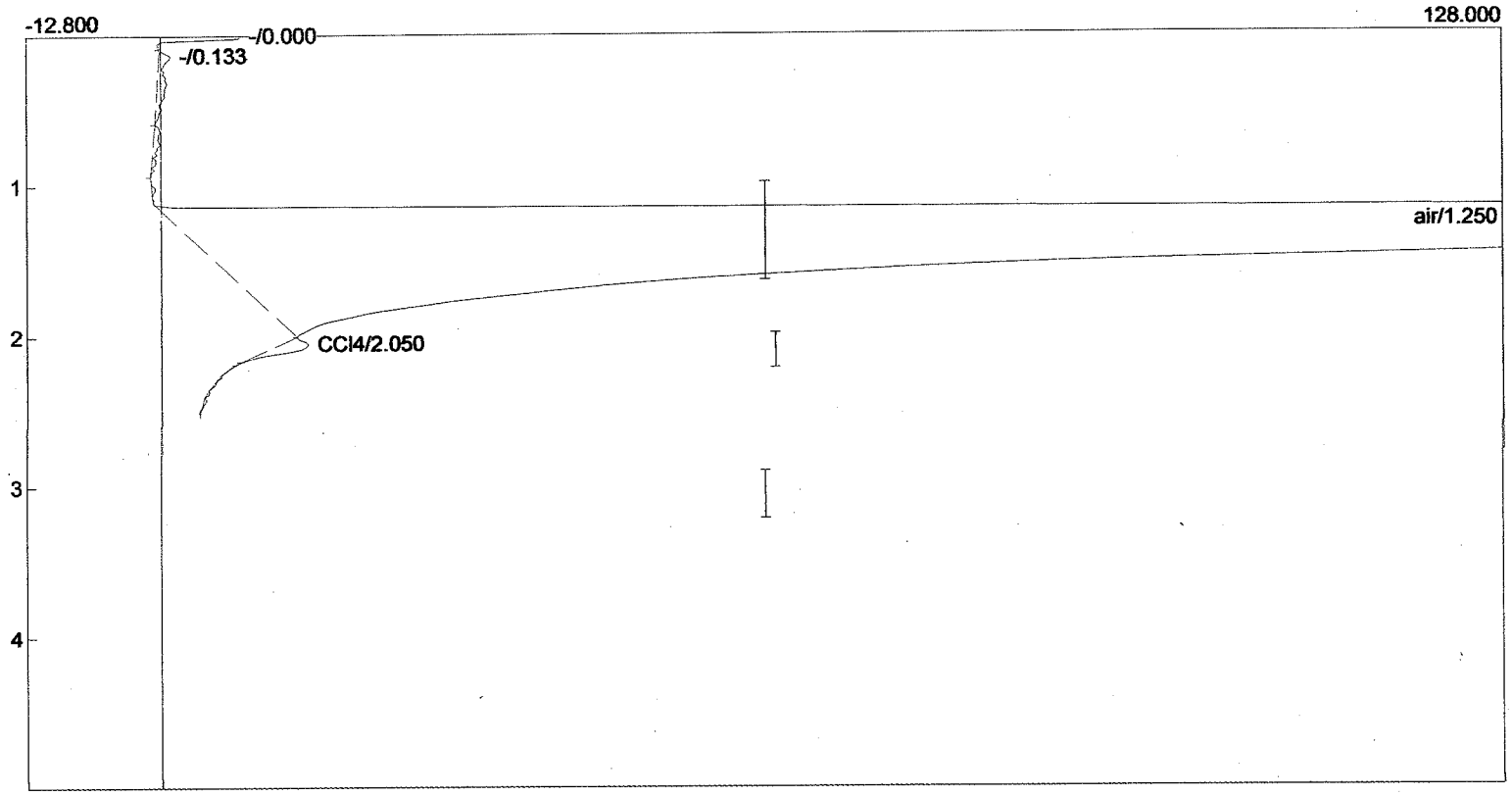
Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 07:24:39
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-05.CHR ()
Sample: SJ-B-1
Operator: Hartman

Boiler Room



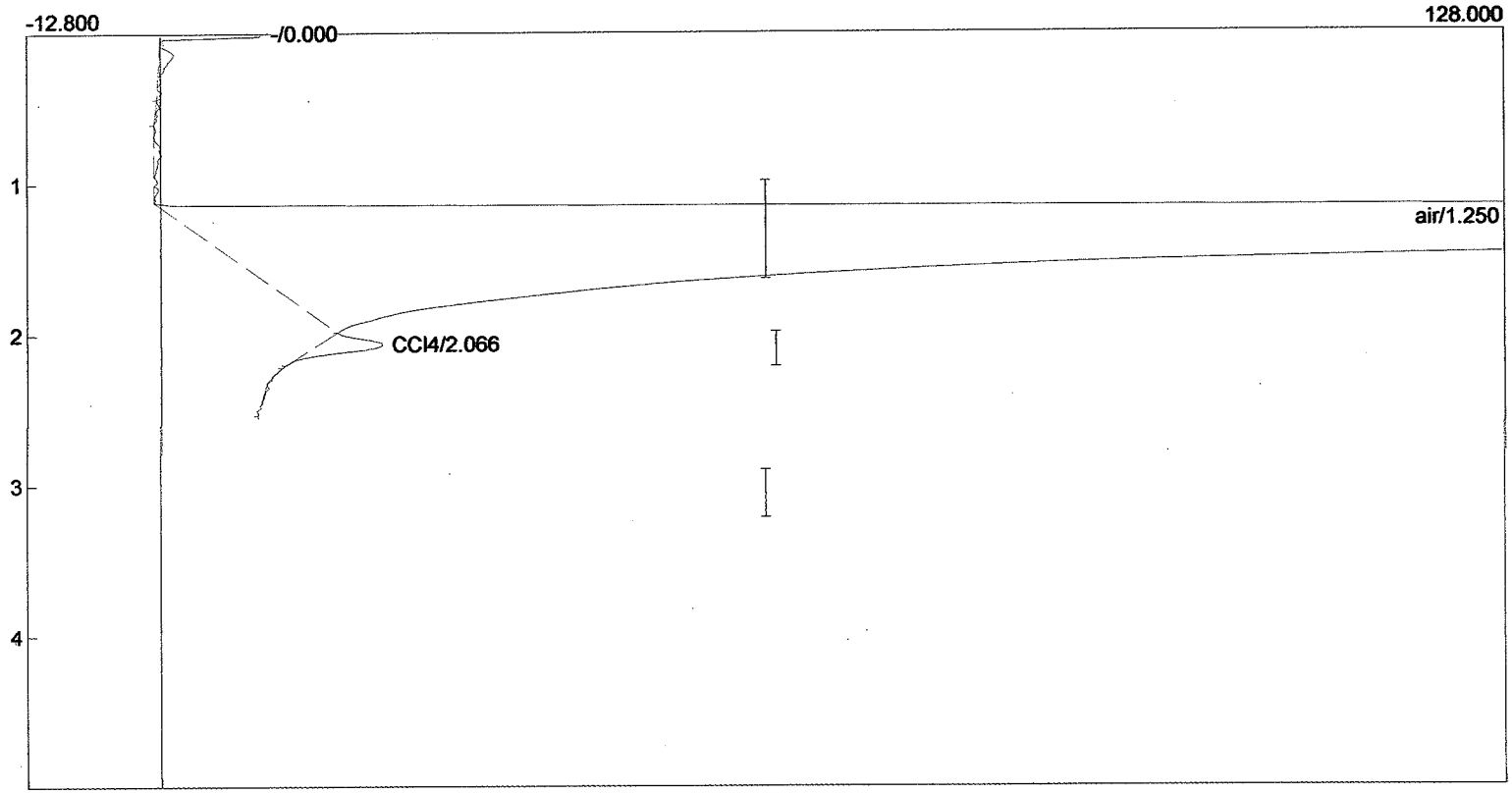
Component	Retention	Area	External	Internal	Units
air	1.250	7590.1190	0.0000	0.0000	
CCl4	2.050	22.3000	0.0606	0.3878	ug/m3
		7612.4190	0.0606	0.3878	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 07:21:38
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-04.CHR ()
Sample: HP-B-4 Weight Room
Operator: Hartman



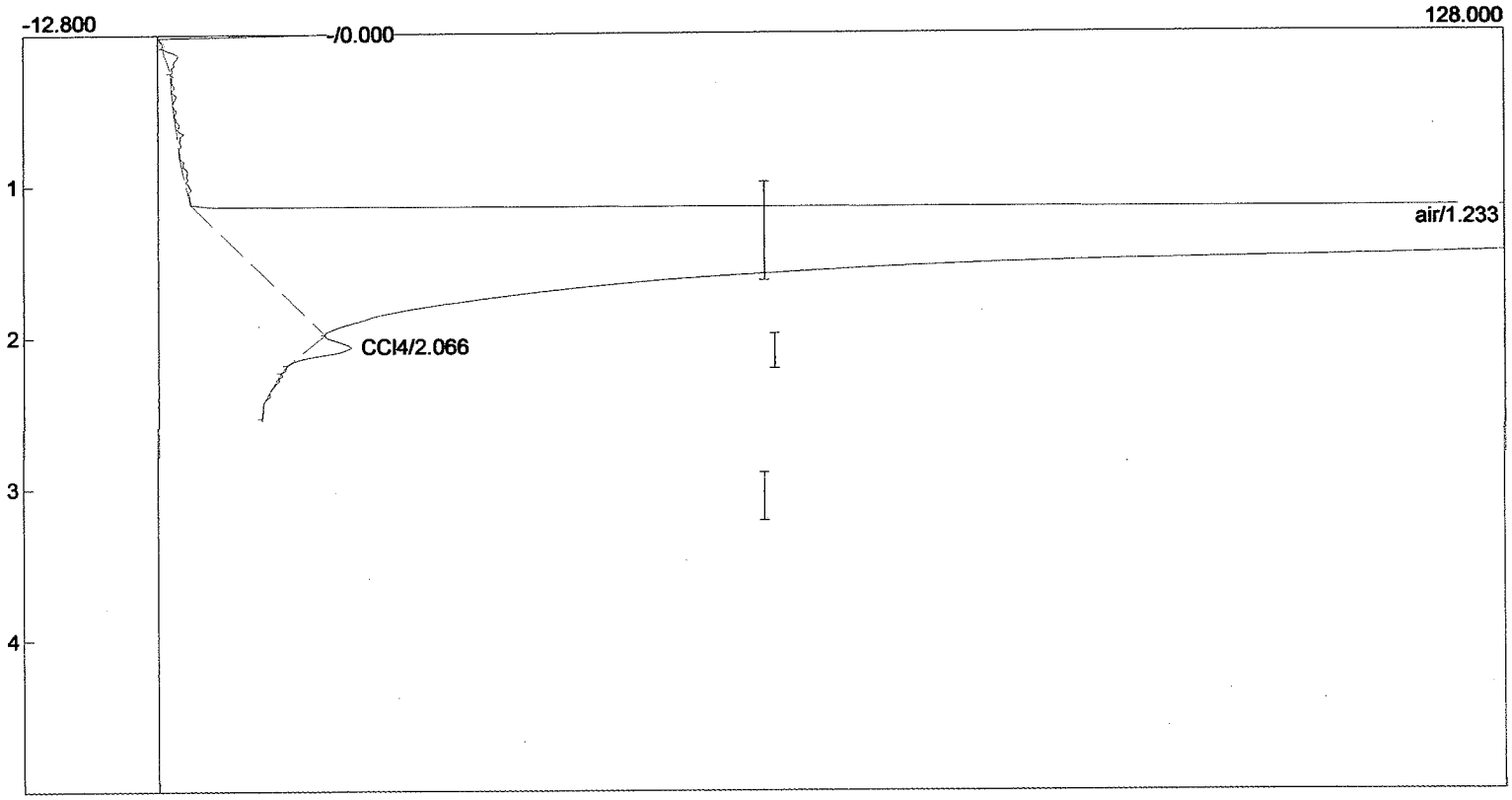
Component	Retention	Area	External	Internal	Units
air	1.250	7503.6620	0.0000	0.0000	
CCl4	2.050	18.6600	0.0507	0.3245	ug/m3
		7522.3220	0.0507	0.3245	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 07:18:29
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-03.CHR ()
Sample: HP-B-1 Kindergarten
Operator: Hartman



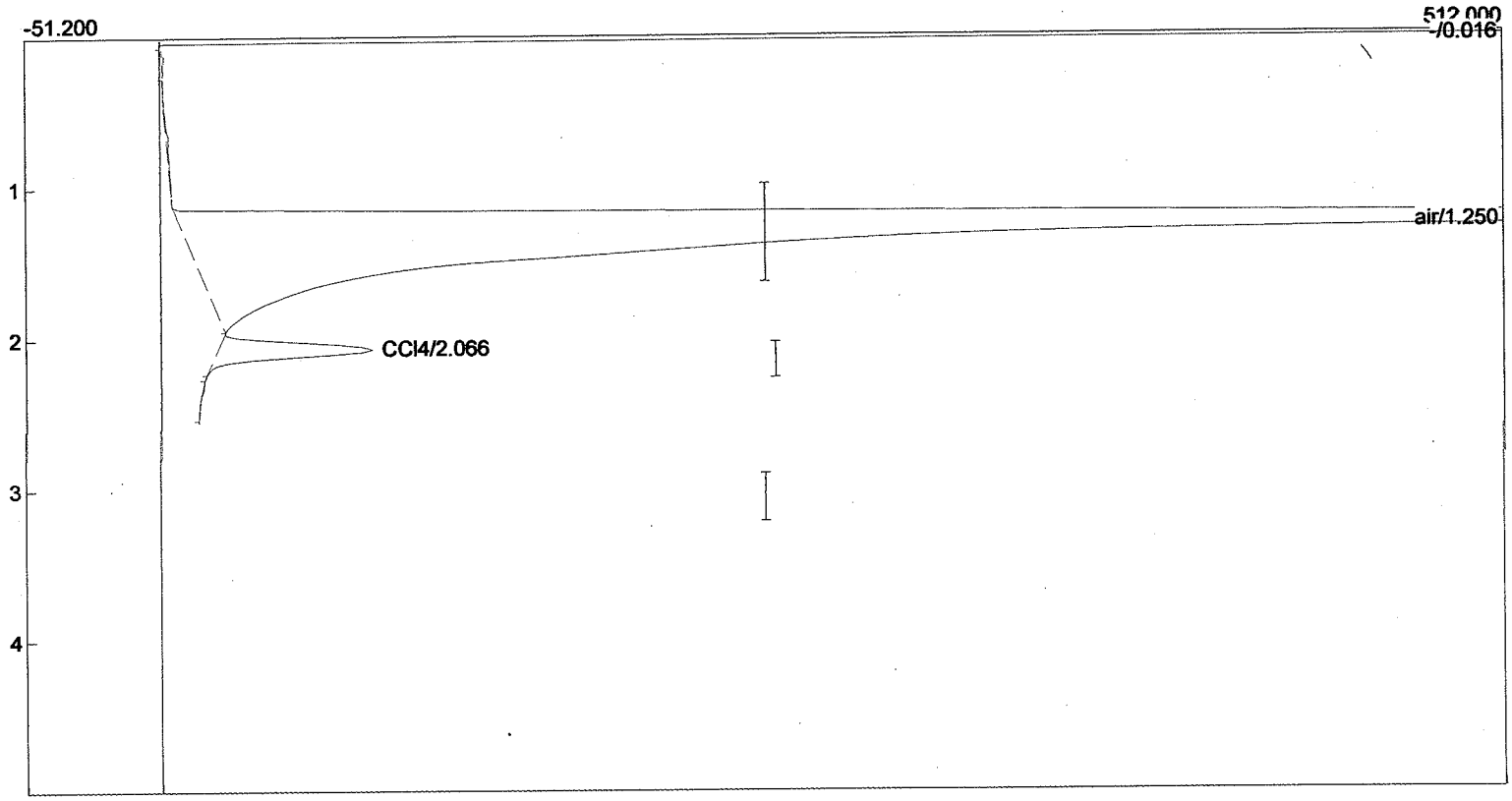
Component	Retention	Area	External	Internal	Units
air	1.250	7810.7960	0.0000	0.0000	
CCl4	2.066	38.3920	0.1043	0.6677	ug/m3
		7849.1880	0.1043	0.6677	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 07:15:22
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-02.CHR ()
Sample: Outside Air
Operator: Hartman



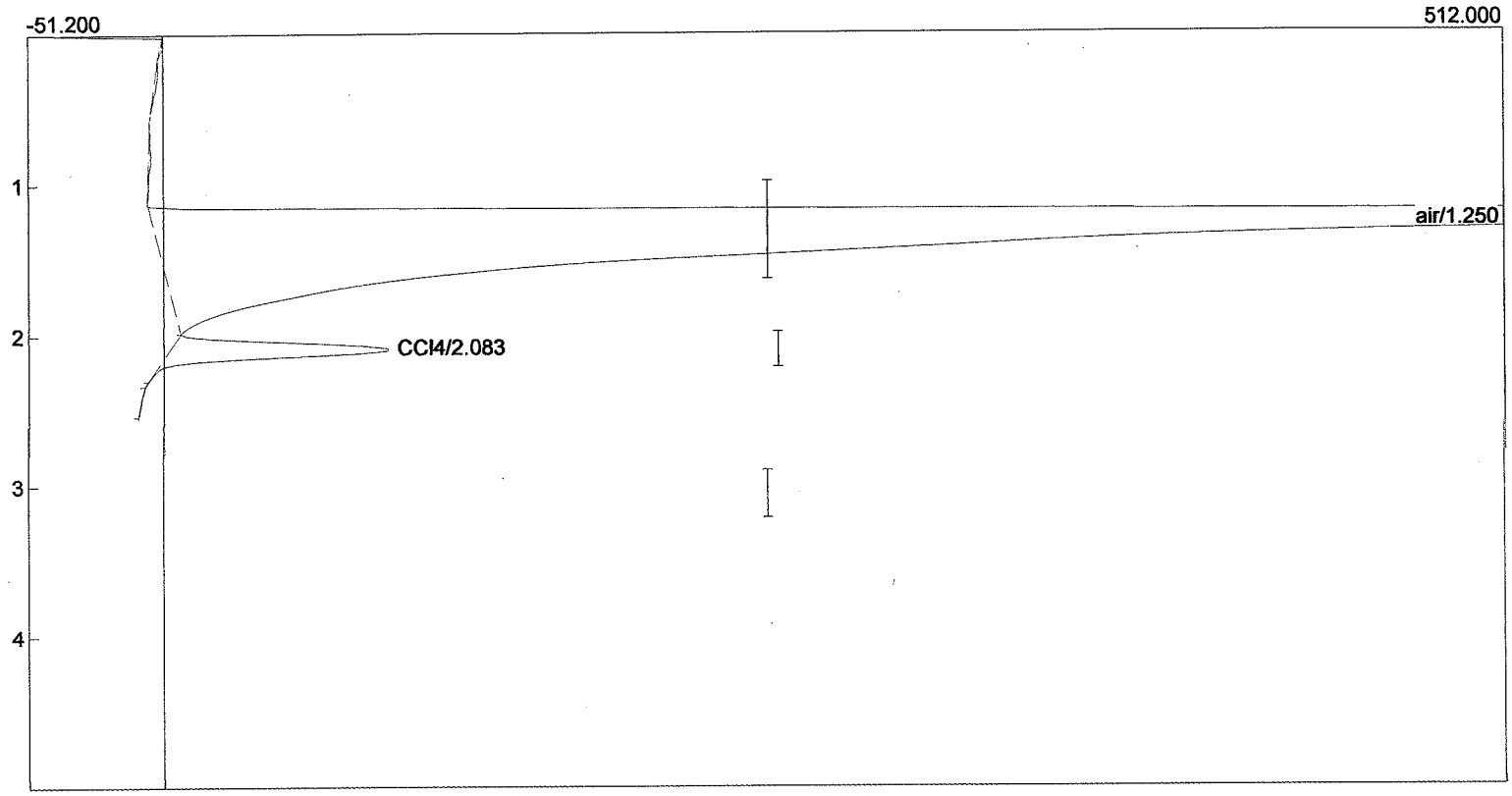
Component	Retention	Area	External	Internal	Units
air	1.233	7025.7600	0.0000	0.0000	
CCl4	2.066	24.1680	0.0657	0.4203	ug/m3
		7049.9280	0.0657	0.4203	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/23/2010 07:10:19
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022310E-01.CHR ()
Sample: New 1 ppbv CCl4
Operator: Hartman



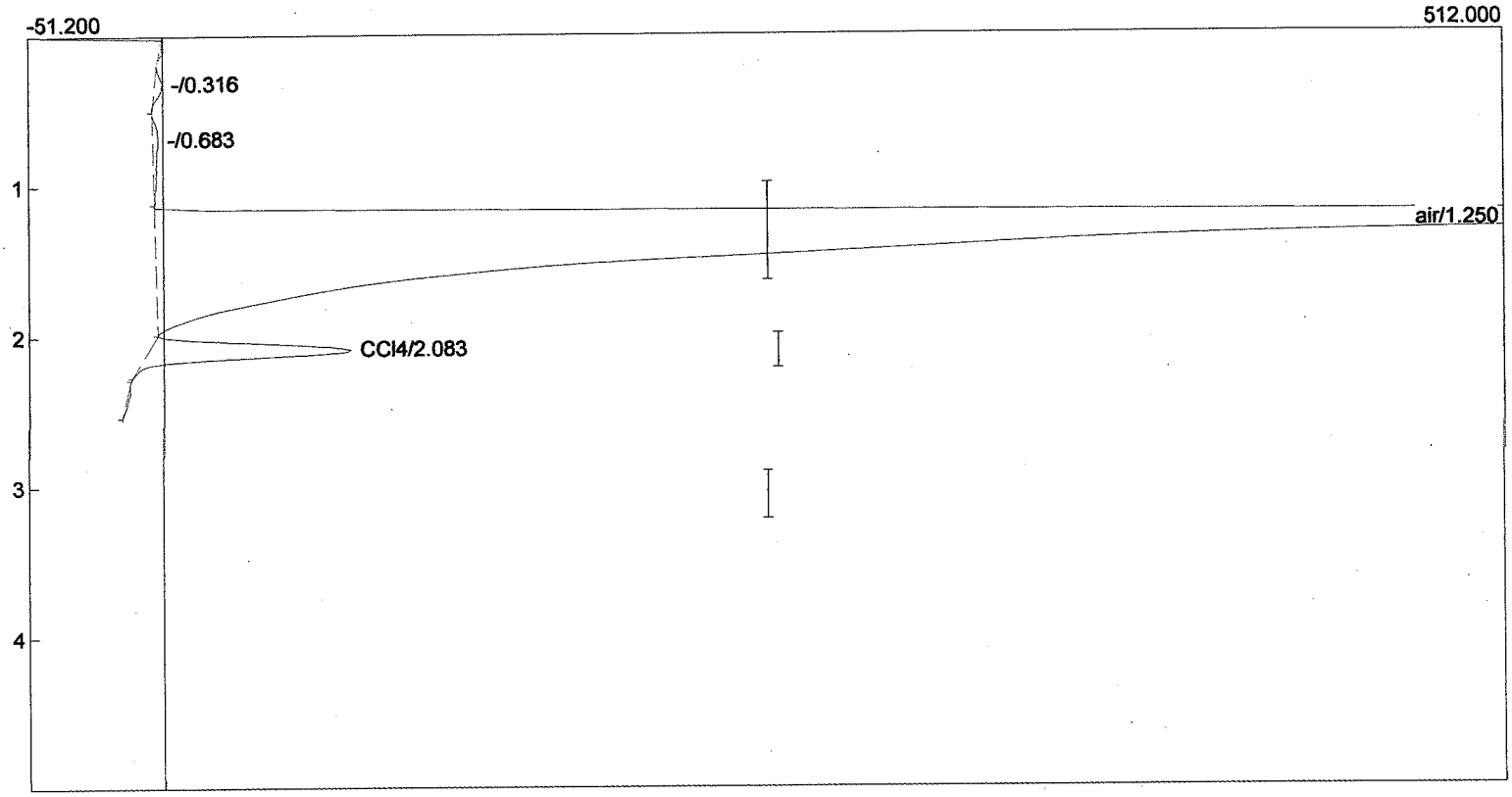
Component	Retention	Area	External	Internal	Units
air	1.250	8287.4200	0.0000	0.0000	
CCl4	2.066	368.0200	1.0001	6.4003	ug/m3
		8655.4400	1.0001	6.4003	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/22/2010 17:51:14
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022210E-07.CHR ()
Sample: New 1 ppbv CCl4
Operator: Hartman



Component	Retention	Area	External	Internal	Units
air	1.250	11975.6560	0.0000	0.0000	
CCl4	2.083	534.5720	0.7425	4.7518	ug/m3
		12510.2280	0.7425	4.7518	

Lab name: HEG
Client: ANL
Client ID: Hanover
Analysis date: 02/22/2010 17:43:09
Method: Direct Inj
Lab ID: Hanover Schools
Description: CHANNEL 2 - ECD
Data file: 022210E-06.CHR ()
Sample: New 1 ppbv CCl4
Operator: Hartman



Component	Retention	Area	External	Internal	Units
air	1.250	11771.9240	0.0000	0.0000	
CCl4	2.083	478.6590	0.6648	4.2547	ug/m3
		12250.5830	0.6648	4.2547	

Calscience Environmental Laboratories, Inc.

February 11, 2009

Lorraine LaFreniere
Argonne National Laboratories
9700 S. Cass Avenue, ANL, Bldg. 203
Lemont, IL 60439-4843

Subject: **Calscience Work Order No.: 09-02-0406**
Client Reference: Hanover

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 2/5/2009 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Robert Stearns
Project Manager

Calscience
Environmental
Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 09-02-0406

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the air samples.

Sample Condition on Receipt

Eight six-liter Summa canisters (SIM Certified) were received for this project on February 2, 2009. The as-received canister pressures as indicated on the canister gauges were:

Ambient: -1 "Hg
Meier-1st: -4 "Hg
Meier-Basement: -4 "Hg
Jueneman-1st: -4 "Hg
Jueneman-Basement: -3 "Hg
Goeckel-1st: -5 "Hg
Goeckel-Basement: -5 "Hg
Trip Blank: -29.5 "Hg

There were no receiving discrepancies.

Testing was performed in accordance with the COC instructions. The laboratory performed analysis using EPA Method TO-15 by GC/MS in the SIM acquisition mode for Carbon Tetrachloride and Chloroform.

Data Summary

Each of the following samples was analyzed with dilution in order bring carbon tetrachloride into proper calibration range. All other samples were analyzed without dilution (as-received canister vacuum).

Meier-1st
Meier-Basement
Goeckel-1st
Goeckel-Basement

The CRDL established for the project was 1.5 ug/m3.

Holding times

EPA Compendium Method TO-15 does not provide a recommended holding time, but does suggest that most VOCs can be recovered from Summa canisters near their original concentrations after storage times of up to 30 days after collection. All samples were analyzed within 30 days of their collection.

Calibration

Frequency and control criteria specified in the method for initial and continuing calibration verifications were met.

Blanks

Concentrations of target analytes in the Method Blank were found to be below reporting limits.

Laboratory Control Samples

Laboratory Control Sample analyses were performed at the required frequencies. All parameters were within the specified %Rec and RPD quality control limits.

Matrix Spikes

Matrix spiking does not apply for this method.

Surrogates

Surrogate compound recoveries for all samples were in control.

Other

None

Acronyms

GC/MS:	Gas Chromatography/Mass Spectroscopy
%Rec:	% Recovery
RPD:	Relative Percent Difference
SIM:	Selective Ion Monitoring
VOCs:	Volatile Organic Compounds

Calscience Environmental Laboratories, Inc.

Analytical Report

Argonne National Laboratories		Date Received:	02/05/09
9700 S. Cass Avenue, ANL, Bldg. 203		Work Order No:	09-02-0406
Lemont, IL 60439-4843		Preparation:	N/A
		Method:	EPA TO-15 SIM
		Units:	ug/m3
Project: Hanover			Page 1 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Ambient	**09-02-0406-1-A**	**02/04/09 00:00**	**Air**	**GC/MS HH**	**N/A**	**02/05/09 15:45**	**090205L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	ND	1.5	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	102	45-153			1,2-Dichloroethane-d4	133	37-163		
Toluene-d8	119	73-121							

Meier-1st	**09-02-0406-2-A**	**02/04/09 00:00**	**Air**	**GC/MS HH**	**N/A**	**02/05/09 16:37**	**090205L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	17	1.6	10	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	98	45-153			1,2-Dichloroethane-d4	116	37-163		
Toluene-d8	103	73-121							

Meier-Basement	**09-02-0406-3-A**	**02/04/09 00:00**	**Air**	**GC/MS HH**	**N/A**	**02/05/09 17:31**	**090205L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	26	1.6	10	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	88	45-153			1,2-Dichloroethane-d4	111	37-163		
Toluene-d8	100	73-121							

Jueneman-1st	**09-02-0406-4-A**	**02/04/09 00:00**	**Air**	**GC/MS HH**	**N/A**	**02/06/09 19:44**	**090206L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	ND	1.5	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	101	45-153			1,2-Dichloroethane-d4	128	37-163		
Toluene-d8	105	73-121							

Jueneman-Basement	**09-02-0406-5-A**	**02/04/09 00:00**	**Air**	**GC/MS HH**	**N/A**	**02/06/09 20:36**	**090206L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	1.8	1.5	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	95	45-153			1,2-Dichloroethane-d4	124	37-163		
Toluene-d8	102	73-121							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Argonne National Laboratories		Date Received:	02/05/09
9700 S. Cass Avenue, ANL, Bldg. 203		Work Order No:	09-02-0406
Lemont, IL 60439-4843		Preparation:	N/A
		Method:	EPA TO-15 SIM
		Units:	ug/m3
Project: Hanover			Page 2 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Goeckel-1st	**09-02-0406-6-A**	**02/04/09 00:00**	**Air**	**GC/MS HH**	**N/A**	**02/06/09 21:27**	**090206L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	11	1.6	10	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	106	45-153			1,2-Dichloroethane-d4	110	37-163		
Toluene-d8	110	73-121							

Goeckel-Basement	**09-02-0406-7-A**	**02/04/09 00:00**	**Air**	**GC/MS HH**	**N/A**	**02/06/09 22:19**	**090206L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	16	1.6	10	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	105	45-153			1,2-Dichloroethane-d4	122	37-163		
Toluene-d8	110	73-121							

Trip Blank	**09-02-0406-8-A**	**02/04/09 00:00**	**Air**	**GC/MS HH**	**N/A**	**02/05/09 14:55**	**090205L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	ND	1.5	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	91	45-153			1,2-Dichloroethane-d4	115	37-163		
Toluene-d8	99	73-121							

Method Blank	**095-01-052-359**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**02/06/09 15:35**	**090206L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	ND	1.5	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	100	45-153			1,2-Dichloroethane-d4	118	37-163		
Toluene-d8	101	73-121							

Method Blank	**095-01-052-360**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**02/05/09 13:53**	**090205L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	ND	1.5	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	96	45-153			1,2-Dichloroethane-d4	117	37-163		
Toluene-d8	100	73-121							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Analytical Report

Argonne National Laboratories		Date Received:	02/05/09
9700 S. Cass Avenue, ANL, Bldg. 203		Work Order No:	09-02-0406
Lemont, IL 60439-4843		Preparation:	N/A
		Method:	EPA TO-15 SIM
		Units:	ug/m3
Project: Hanover			Page 3 of 3

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**095-01-052-361**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**02/09/09 16:07**	**090209L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	ND	1.5	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	101	45-153		1,2-Dichloroethane-d4	127	37-163	
Toluene-d8	102	73-121					

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Argonne National Laboratories
9700 S. Cass Avenue, ANL, Bldg. 203
Lemont, IL 60439-4843

Date Received: N/A
Work Order No: 09-02-0406
Preparation: N/A
Method: EPA TO-15 SIM

Project: Hanover

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-052-360	**Air**	**GC/MS HH**	**N/A**	**02/05/09**	**090205L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Vinyl Chloride	100	102	44-140	28-156	3	0-33	
c-1,2-Dichloroethene	96	94	35-165	13-187	2	0-35	
1,2-Dichloroethane	113	112	28-166	5-189	1	0-40	
Benzene	91	90	27-153	6-174	1	0-34	
Carbon Tetrachloride	123	129	7-187	0-217	4	0-31	
1,1,2-Trichloroethane	113	115	27-171	3-195	2	0-38	
Toluene	82	87	28-154	7-175	6	0-42	
Trichloroethene	100	101	43-139	27-155	2	0-31	
Tetrachloroethene	101	108	34-154	14-174	7	0-33	
Ethylbenzene	92	93	27-153	6-174	2	0-46	
p/m-Xylene	95	100	21-165	0-189	5	0-51	
o-Xylene	100	107	22-160	0-183	7	0-48	

Total number of LCS compounds : 12
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Argonne National Laboratories
9700 S. Cass Avenue, ANL, Bldg. 203
Lemont, IL 60439-4843

Date Received: N/A
Work Order No: 09-02-0406
Preparation: N/A
Method: EPA TO-15 SIM

Project: Hanover

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-052-359	**Air**	**GC/MS HH**	**N/A**	**02/06/09**	**090206L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Vinyl Chloride	90	87	44-140	28-156	3	0-33	
c-1,2-Dichloroethene	84	84	35-165	13-187	1	0-35	
1,2-Dichloroethane	101	101	28-166	5-189	0	0-40	
Benzene	81	80	27-153	6-174	2	0-34	
Carbon Tetrachloride	113	113	7-187	0-217	0	0-31	
1,1,2-Trichloroethane	103	104	27-171	3-195	1	0-38	
Toluene	74	75	28-154	7-175	2	0-42	
Trichloroethene	88	89	43-139	27-155	1	0-31	
Tetrachloroethene	90	93	34-154	14-174	3	0-33	
Ethylbenzene	89	89	27-153	6-174	0	0-46	
p/m-Xylene	91	91	21-165	0-189	1	0-51	
o-Xylene	98	96	22-160	0-183	2	0-48	

Total number of LCS compounds : 12
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

Argonne National Laboratories
9700 S. Cass Avenue, ANL, Bldg. 203
Lemont, IL 60439-4843

Date Received: N/A
Work Order No: 09-02-0406
Preparation: N/A
Method: EPA TO-15 SIM

Project: Hanover

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-052-361	**Air**	**GC/MS HH**	**N/A**	**02/09/09**	**090209L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Vinyl Chloride	105	110	44-140	28-156	5	0-33	
c-1,2-Dichloroethene	90	95	35-165	13-187	6	0-35	
1,2-Dichloroethane	119	126	28-166	5-189	6	0-40	
Benzene	87	89	27-153	6-174	2	0-34	
Carbon Tetrachloride	142	147	7-187	0-217	3	0-31	
1,1,2-Trichloroethane	114	120	27-171	3-195	5	0-38	
Toluene	80	81	28-154	7-175	2	0-42	
Trichloroethene	97	103	43-139	27-155	6	0-31	
Tetrachloroethene	103	107	34-154	14-174	3	0-33	
Ethylbenzene	95	101	27-153	6-174	7	0-46	
p/m-Xylene	98	102	21-165	0-189	5	0-51	
o-Xylene	108	112	22-160	0-183	4	0-48	

Total number of LCS compounds : 12
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 09-02-0406

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

MOBILE GEOCHEMISTRY

H&P

☐ 2470 Impala Dr., Carlsbad, CA 92010 • ph 760.804.9678 • fax 760.804.9159
☐ 3825 Industry Avenue, Lakewood, CA 90712 • ph 562.426.6991 • fax 562.426.6995

Chain of Custody Record

0406

Date: 2/4/09
H&P Project #
Outside Lab:

Client: ANL/HARTMAN
Address: 9700 S. Cass Ave., ANL, Bdlg 203
Lemont, ILL 60439
Email: lafreniere@anl.gov Phone: 630-252-7969

Collector: HARTMAN
Client Project # Hanover
Location:
Fax:

Page: 1 of 1
Project Contact: Lorraine LaFreniere
Turn around time: NORMAL

EDF: Yes ☐ No ☐
Global ID:

Sample Receipt
Intact: ☐ Yes ☐ No
Seal Intact: ☐ Yes ☐ No ☐ N/A
Cold: ☐ Yes ☐ No
N/A (Received on Site)

Special Instructions:
Send results to Argonne Labs & to Wayne Hartman. 1.5 ug/m³ DL

	Sample Name	Field Point Name	Purge Vol	Time	Date	Sample Type	Container Type	TPH ☐ gasoline ☐ diesel ☐ ext	418.1 TRPH	8021 for BTEX/MTBE	8260B: BTEX / Oxygenates	8260B: TPH gas	8260B: VOC's	8260B: DTSC/LARWQCB	8260B: Ketones	TO-15: ~~Full List~~ TO-15 1.5 ug/m³	TO-15: ~~BTEX/MTBE~~ CHCl3, CCl4	LCC (specify)	Naphthalene ☐ 8260B ☐ TO-15	Methane	Fixed Gases ☐ CO2 ☐ O2 ☐ N2				Total # of containers
1	AMBIENT				2/4/09	VAPOR	Summa									X									
2	Meier - 1st																								
3	Meier - Basement																								
4	Jueneman - 1st																								
5	Jueneman - Basement																								
6	Goeckel - 1st																								
7	Goeckel - Basement																								
8	Trip Blank																								

Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
Wayne Hartman 2/4/09	12:00	Gregory A. 02/05/09 DS	CEL	02/05/09	10:00
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:

*Signature constitutes authorization to proceed with analysis and acceptance of condition on back.

Sample disposal instruction: ☐ Disposal @ $2.00 each ☐ Return to client ☐ Pickup

FEDEX # 8558768 26761 / 7955 2546 6424 / 7955 2546 6435

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 09-02-0406

SAMPLE RECEIPT FORM

~~Cooler~~ Box 1 of 3

CLIENT: H4P

DATE: 02/05/09

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature _____.____ °C - 0.2 °C (CF) = _____.____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** PS

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Initial:** PS

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** WSC

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	☑	☐	☐
COC document(s) received complete.....	☑	☐	☐
Sampler's name indicated on COC.....	☑	☐	☐
Sample container label(s) consistent with COC.....	☑	☐	☐
Sample container(s) intact and good condition.....	☑	☐	☐
Correct containers and volume for analyses requested.....	☑	☐	☐
Analyses received within holding time.....	☑	☐	☐
Proper preservation noted on COC or sample container.....	☐	☐	☑
Volatile analysis container(s) free of headspace.....	☐	☐	☑
Tedlar bag(s) free of condensation.....	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna$_2$ ☐125AGB ☐125AGBh ☐125AGBpo$_4$ ☐1AGB ☐1AGBna$_2$ ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna$_2$ ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☑Summa® ☐_____

Checked/Labeled by: WSC

Reviewed by: YL

Scanned by: WSC

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na$_2$:$Na_2S_2O_3$ na:NaOH po$_4$:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 09-02-0406

SAMPLE RECEIPT FORM

~~Cooler~~ Box 2 of 3

CLIENT: H4P

DATE: 02/05/09

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature _____.____ °C - 0.2 °C (CF) = _____.____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** PS

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Initial:** PS

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** WSC

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	☑	☐	☐
COC document(s) received complete.....	☑	☐	☐
Sampler's name indicated on COC.....	☑	☐	☐
Sample container label(s) consistent with COC.....	☑	☐	☐
Sample container(s) intact and good condition.....	☑	☐	☐
Correct containers and volume for analyses requested.....	☑	☐	☐
Analyses received within holding time.....	☑	☐	☐
Proper preservation noted on COC or sample container.....	☐	☐	☑
Volatile analysis container(s) free of headspace.....	☐	☐	☑
Tedlar bag(s) free of condensation.....	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBpo_4 ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna_2 ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☑Summa® ☐_____

Checked/Labeled by: WSC

Reviewed by: YL

Scanned by: WSC

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na_2:$Na_2S_2O_3$ na:NaOH po_4:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 09-02-0406

SAMPLE RECEIPT FORM

~~Cooler~~ Box 3 of 3

CLIENT: H4P

DATE: 02/05/09

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature ____.____ °C - 0.2 °C (CF) = ____.____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** PS

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Initial:** PS

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** WSC

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	☑	☐	☐
COC document(s) received complete.....	☑	☐	☐
Sampler's name indicated on COC.....	☑	☐	☐
Sample container label(s) consistent with COC.....	☑	☐	☐
Sample container(s) intact and good condition.....	☑	☐	☐
Correct containers and volume for analyses requested.....	☑	☐	☐
Analyses received within holding time.....	☑	☐	☐
Proper preservation noted on COC or sample container.....	☐	☐	☑
Volatile analysis container(s) free of headspace.....	☐	☐	☑
Tedlar bag(s) free of condensation.....	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBpo_4 ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna_2 ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☑Summa® ☐_____

Checked/Labeled by: WSC

Reviewed by: YL

Scanned by: WSC

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na_2:$Na_2S_2O_3$ na:NaOH po_4:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH

Calscience Environmental Laboratories, Inc.

March 19, 2009

Lorraine LaFreniere
UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Subject: **Calscience Work Order No.: 09-03-1380**
Client Reference: Hanover, Kansas

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 3/14/2009 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Robert Stearns
Project Manager

Calscience
Environmental
Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 09-03-1380

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the air samples.

Sample Condition on Receipt

Two six-liter Summa canisters (SIM Certified) were received for this project on March 14, 2009. The as-received canister pressures as indicated on the canister gauges were:

LKHynek – 1st Floor: -4.0 "Hg
LKHynek – Basement: -4.6 "Hg

There were no receiving discrepancies.

Testing was performed in accordance with the COC instructions. The laboratory performed analysis using EPA Method TO-15 by GC/MS in the SIM acquisition mode for Carbon Tetrachloride and Chloroform.

Data Summary

Each of the samples was analyzed without dilution. The CRDL established for the project was 1.5 ug/m3.

Holding times

EPA Compendium Method TO-15 does not provide a recommended holding time, but does suggest that most VOCs can be recovered from Summa canisters near their original concentrations after storage times of up to 30 days after collection. All samples were analyzed within 30 days of their collection.

Calibration

Frequency and control criteria specified in the method for initial and continuing calibration verifications were met.

Blanks

Concentrations of target analytes in the Method Blank were found to be below reporting limits.

Laboratory Control Samples

Laboratory Control Sample analyses were performed at the required frequencies. All parameters were within the specified %Rec and RPD quality control limits.

Matrix Spikes

Matrix spiking does not apply for this method.

Surrogates

Surrogate compound recoveries for all samples were in control.

Other

None

Acronyms

GC/MS:	Gas Chromatography/Mass Spectroscopy
%Rec:	% Recovery
RPD:	Relative Percent Difference
SIM:	Selective Ion Monitoring
VOCs:	Volatile Organic Compounds

Calscience Environmental Laboratories, Inc.

Analytical Report

UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Date Received:	03/14/09
Work Order No:	09-03-1380
Preparation:	N/A
Method:	EPA TO-15 SIM
Units:	ug/m3

Project: Hanover, Kansas

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LKHynek - 1st Floor	**09-03-1380-1-A**	**03/13/09 07:39**	**Air**	**GC/MS HH**	**N/A**	**03/16/09 17:51**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1.72		Carbon Tetrachloride	ND	1.5	1.72	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	88	45-153		1,2-Dichloroethane-d4	104	37-163	
Toluene-d8	100	73-121					

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LKHynek - Basement	**09-03-1380-2-A**	**03/13/09 07:40**	**Air**	**GC/MS HH**	**N/A**	**03/16/09 18:43**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1.78		Carbon Tetrachloride	ND	1.5	1.78	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	98	45-153		1,2-Dichloroethane-d4	104	37-163	
Toluene-d8	92	73-121					

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**095-01-052-371**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**03/16/09 15:50**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	ND	1.5	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	101	45-153		1,2-Dichloroethane-d4	96	37-163	
Toluene-d8	98	73-121					

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Date Received: N/A
Work Order No: 09-03-1380
Preparation: N/A
Method: EPA TO-15 SIM

Project: Hanover, Kansas

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-052-371	**Air**	**GC/MS HH**	**N/A**	**03/16/09**	**090316L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Vinyl Chloride	85	106	44-140	28-156	22	0-33	
c-1,2-Dichloroethene	85	107	35-165	13-187	22	0-35	
1,2-Dichloroethane	90	111	28-166	5-189	20	0-40	
Benzene	90	115	27-153	6-174	25	0-34	
Carbon Tetrachloride	107	134	7-187	0-217	22	0-31	
1,1,2-Trichloroethane	105	135	27-171	3-195	25	0-38	
Toluene	79	100	28-154	7-175	23	0-42	
Trichloroethene	93	118	43-139	27-155	23	0-31	
Tetrachloroethene	98	125	34-154	14-174	24	0-33	
Ethylbenzene	94	122	27-153	6-174	26	0-46	
p/m-Xylene	98	130	21-165	0-189	28	0-51	
o-Xylene	103	137	22-160	0-183	28	0-48	

Total number of LCS compounds : 12
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 09-03-1380

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

COC # 106

Calscience Environmental Laboratories, Inc.

7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 03/13/09

PAGE: 1 OF 1

LABORATORY CLIENT: Argonne National Laboratories

ADDRESS: 9700 S. Cass Avenue, Bldg 203, Lemont, Illinois 60439-4843

TEL: 630-252-7969 | FAX: 630-252-5747 | E-MAIL: lafreniere@anl.gov

CLIENT PROJECT NAME / NUMBER: Hanover, Kansas

PROJECT CONTACT: Lorraine Lafreniere

SAMPLER(S): (SIGNATURE)

COELT LOG CODE

P.O. NO.:

LAB USE ONLY: 03-1380

COOLER RECEIPT: Temp = _____ °C

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 5 DAYS ☐ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): ☐ RWQCB REPORTING ☐ COELT EDF ☐ _____

SPECIAL INSTRUCTIONS: No Rush - Analyze samples within holding times.

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	CEL SAMPLE #	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Carbon Tetrachloride	Chloroform	CONTAINER TYPE
1	LKHynek - 1st Floor		3/12-13/09	0725 - 0739	air	1	X	X	summa canister - D122
2	LKHynek - Basement		3/12-13/09	0728 - 0740	air	1	X	X	summa canister - D625

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
		3/13/09	1200
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature) FEDEX 8858 7682 6897	Received by: (Signature) CEL	3/14/09	1030

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 09-03-1380

SAMPLE RECEIPT FORM

~~Cooler~~ Box 1 of 1

CLIENT: A N L

DATE: 03/14/09

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature _____.____ °C - 0.2 °C (CF) = _____.____ °C ☐ **Blank** ☐ **Sample**

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** YL

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Initial:** YL

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** YL

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	☑	☐	☐
COC document(s) received complete.....	☑	☐	☐
Sampler's name indicated on COC.....	☑	☐	☐
Sample container label(s) consistent with COC.....	☑	☐	☐
Sample container(s) intact and good condition.....	☑	☐	☐
Correct containers and volume for analyses requested.....	☑	☐	☐
Analyses received within holding time.....	☑	☐	☐
Proper preservation noted on COC or sample container.....	☐	☐	☑
Volatile analysis container(s) free of headspace.....	☐	☐	☑
Tedlar bag(s) free of condensation.....	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBpo_4 ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna_2 ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☑Summa® ☐_____

Checked/Labeled by: YC

Reviewed by: [illegible]

Scanned by: YL

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na_2:$Na_2S_2O_3$ na:NaOH po_4:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH

Calscience Environmental Laboratories, Inc.

March 19, 2009

Lorraine LaFreniere
UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Subject: **Calscience Work Order No.: 09-03-1381**
Client Reference: Hanover, Kansas

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 3/14/2009 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Robert Stearns
Project Manager

Calscience Environmental Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 09-03-1381

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the air samples.

Sample Condition on Receipt

Two six-liter Summa canisters (SIM Certified) were received for this project on March 14, 2009. The as-received canister pressures as indicated on the canister gauges were:

RABruna – 1st Floor: -5.7 "Hg
RABruna – Basement: -6.4 "Hg

There were no receiving discrepancies.

Testing was performed in accordance with the COC instructions. The laboratory performed analysis using EPA Method TO-15 by GC/MS in the SIM acquisition mode for Carbon Tetrachloride and Chloroform.

Data Summary

Each of the samples was analyzed without dilution. The CRDL established for the project was 1.5 ug/m3.

Holding times

EPA Compendium Method TO-15 does not provide a recommended holding time, but does suggest that most VOCs can be recovered from Summa canisters near their original concentrations after storage times of up to 30 days after collection. All samples were analyzed within 30 days of their collection.

Calibration

Frequency and control criteria specified in the method for initial and continuing calibration verifications were met.

Blanks

Concentrations of target analytes in the Method Blank were found to be below reporting limits.

Laboratory Control Samples

Laboratory Control Sample analyses were performed at the required frequencies. All parameters were within the specified %Rec and RPD quality control limits.

Matrix Spikes

Matrix spiking does not apply for this method.

Surrogates

Surrogate compound recoveries for all samples were in control.

Other

None

Acronyms

GC/MS:	Gas Chromatography/Mass Spectroscopy
%Rec:	% Recovery
RPD:	Relative Percent Difference
SIM:	Selective Ion Monitoring
VOCs:	Volatile Organic Compounds

Calscience Environmental Laboratories, Inc.

Analytical Report

UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Date Received:	03/14/09
Work Order No:	09-03-1381
Preparation:	N/A
Method:	EPA TO-15 SIM
Units:	ug/m3

Project: Hanover, Kansas

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
RABruna - 1st Floor	**09-03-1381-1-A**	**03/13/09 07:10**	**Air**	**GC/MS HH**	**N/A**	**03/16/09 19:34**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1.82		Carbon Tetrachloride	ND	1.5	1.82	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	105	45-153		1,2-Dichloroethane-d4	100	37-163	
Toluene-d8	115	73-121					

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
RABruna - Basement	**09-03-1381-2-A**	**03/13/09 07:14**	**Air**	**GC/MS HH**	**N/A**	**03/16/09 20:25**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1.91		Carbon Tetrachloride	ND	1.5	1.91	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	106	45-153		1,2-Dichloroethane-d4	96	37-163	
Toluene-d8	112	73-121					

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Method Blank	**095-01-052-371**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**03/16/09 15:50**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	ND	1.5	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	101	45-153		1,2-Dichloroethane-d4	96	37-163	
Toluene-d8	98	73-121					

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Date Received: N/A
Work Order No: 09-03-1381
Preparation: N/A
Method: EPA TO-15 SIM

Project: Hanover, Kansas

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-052-371	**Air**	**GC/MS HH**	**N/A**	**03/16/09**	**090316L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Vinyl Chloride	85	106	44-140	28-156	22	0-33	
c-1,2-Dichloroethene	85	107	35-165	13-187	22	0-35	
1,2-Dichloroethane	90	111	28-166	5-189	20	0-40	
Benzene	90	115	27-153	6-174	25	0-34	
Carbon Tetrachloride	107	134	7-187	0-217	22	0-31	
1,1,2-Trichloroethane	105	135	27-171	3-195	25	0-38	
Toluene	79	100	28-154	7-175	23	0-42	
Trichloroethene	93	118	43-139	27-155	23	0-31	
Tetrachloroethene	98	125	34-154	14-174	24	0-33	
Ethylbenzene	94	122	27-153	6-174	26	0-46	
p/m-Xylene	98	130	21-165	0-189	28	0-51	
o-Xylene	103	137	22-160	0-183	28	0-48	

Total number of LCS compounds : 12
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 09-03-1381

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

COC #104

Calscience Environmental Laboratories, Inc.

7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 03/13/09

PAGE: 1 OF 1

LABORATORY CLIENT: Argonne National Laboratories

ADDRESS: 9700 S. Cass Avenue, Bldg 203, Lemont, Illinois 60439-4843

TEL: 630-252-7969 | FAX: 630-252-5767 | E-MAIL: lafreniere@anl.gov

CLIENT PROJECT NAME / NUMBER: Hanover, Kansas

PROJECT CONTACT: Lorraine Lafreniere

SAMPLER(S) (SIGNATURE)

COELT LOG CODE

P.O. NO.:

LAB USE ONLY: 03-1381

COOLER RECEIPT Temp = _____ °C

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): ☐ RWQCB REPORTING ☐ COELT EDF ☐

SPECIAL INSTRUCTIONS: No Rush - Analyze samples within holding times.

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	CEL SAMPLE #	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Carbon Tetrachloride	Chloroform	CONTAINER TYPE
1	RABruna - 1st Floor		3/12-13/09	0722 - 0710	air	1	X	X	summa canister - 013
2	RABruna - Basement		3/12-13/09	0715 - 0714	air	1	X	X	summa canister - 067

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
		3/13/09	1200
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature) FEDEX 855876826897	Received by: (Signature) CEL	Date: 3/14/09	Time: 1030

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 09-03-1381

SAMPLE RECEIPT FORM

~~Cooler ___ of ___~~ Box 1 1

CLIENT: ANL

DATE: 03/14/09

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature ____.____ °C - 0.2 °C (CF) = ____.____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only Initial: YL

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: YL

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: YL

SAMPLE CONDITION:

	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	☑	☐	☐
COC document(s) received complete.....	☑	☐	☐
Sampler's name indicated on COC.....	☑	☐	☐
Sample container label(s) consistent with COC.....	☑	☐	☐
Sample container(s) intact and good condition.....	☑	☐	☐
Correct containers and volume for analyses requested.....	☑	☐	☐
Analyses received within holding time.....	☑	☐	☐
Proper preservation noted on COC or sample container.....	☐	☐	☑
Volatile analysis container(s) free of headspace.....	☐	☐	☑
Tedlar bag(s) free of condensation.....	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna$_2$ ☐125AGB ☐125AGBh ☐125AGBpo$_4$ ☐1AGB ☐1AGBna$_2$ ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna$_2$ ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☑Summa® ☐_____

Checked/Labeled by: YL

Reviewed by: [illegible]

Scanned by: YL

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na$_2$:$Na_2S_2O_3$ na:NaOH po$_4$:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH

Calscience Environmental Laboratories, Inc.

March 19, 2009

Lorraine LaFreniere
UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Subject: **Calscience Work Order No.: 09-03-1382**
Client Reference: Hanover, Kansas

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 3/14/2009 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Robert Stearns
Project Manager

Calscience
Environmental
Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 09-03-1382

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the air samples.

Sample Condition on Receipt

Two six-liter Summa canisters (SIM Certified) were received for this project on March 14, 2009. The as-received canister pressures as indicated on the canister gauges were:

JJHynek – 1st Floor : -6.4 "Hg
JJHynek – Basement: -7.4 "Hg

There were no receiving discrepancies.

Testing was performed in accordance with the COC instructions. The laboratory performed analysis using EPA Method TO-15 by GC/MS in the SIM acquisition mode for Carbon Tetrachloride and Chloroform.

Data Summary

Each of the samples was analyzed without dilution. The CRDL established for the project was 1.5 ug/m3.

Holding times

EPA Compendium Method TO-15 does not provide a recommended holding time, but does suggest that most VOCs can be recovered from Summa canisters near their original concentrations after storage times of up to 30 days after collection. All samples were analyzed within 30 days of their collection.

Calibration

Frequency and control criteria specified in the method for initial and continuing calibration verifications were met.

Blanks

Concentrations of target analytes in the Method Blank were found to be below reporting limits.

Laboratory Control Samples

Laboratory Control Sample analyses were performed at the required frequencies. All parameters were within the specified %Rec and RPD quality control limits.

Matrix Spikes

Matrix spiking does not apply for this method.

Surrogates

Surrogate compound recoveries for all samples were in control.

Other

None

Acronyms

GC/MS:	Gas Chromatography/Mass Spectroscopy
%Rec:	% Recovery
RPD:	Relative Percent Difference
SIM:	Selective Ion Monitoring
VOCs:	Volatile Organic Compounds

Calscience Environmental Laboratories, Inc.

Analytical Report

UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Date Received:	03/14/09
Work Order No:	09-03-1382
Preparation:	N/A
Method:	EPA TO-15 SIM
Units:	ug/m3

Project: Hanover, Kansas

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
JJHynek - 1st Floor	**09-03-1382-1-A**	**03/13/09 07:39**	**Air**	**GC/MS HH**	**N/A**	**03/16/09 21:16**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1.91		Carbon Tetrachloride	ND	1.5	1.91	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	104	45-153		1,2-Dichloroethane-d4	96	37-163	
Toluene-d8	98	73-121					

JJHynek - Basement	**09-03-1382-2-A**	**03/13/09 07:40**	**Air**	**GC/MS HH**	**N/A**	**03/16/09 22:08**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1.93		Carbon Tetrachloride	ND	1.5	1.93	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	105	45-153		1,2-Dichloroethane-d4	99	37-163	
Toluene-d8	99	73-121					

Method Blank	**095-01-052-371**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**03/16/09 15:50**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	ND	1.5	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	101	45-153		1,2-Dichloroethane-d4	96	37-163	
Toluene-d8	98	73-121					

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Date Received: N/A
Work Order No: 09-03-1382
Preparation: N/A
Method: EPA TO-15 SIM

Project: Hanover, Kansas

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-052-371	**Air**	**GC/MS HH**	**N/A**	**03/16/09**	**090316L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Vinyl Chloride	85	106	44-140	28-156	22	0-33	
c-1,2-Dichloroethene	85	107	35-165	13-187	22	0-35	
1,2-Dichloroethane	90	111	28-166	5-189	20	0-40	
Benzene	90	115	27-153	6-174	25	0-34	
Carbon Tetrachloride	107	134	7-187	0-217	22	0-31	
1,1,2-Trichloroethane	105	135	27-171	3-195	25	0-38	
Toluene	79	100	28-154	7-175	23	0-42	
Trichloroethene	93	118	43-139	27-155	23	0-31	
Tetrachloroethene	98	125	34-154	14-174	24	0-33	
Ethylbenzene	94	122	27-153	6-174	26	0-46	
p/m-Xylene	98	130	21-165	0-189	28	0-51	
o-Xylene	103	137	22-160	0-183	28	0-48	

Total number of LCS compounds : 12
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 09-03-1382

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

COC # 105

Calscience Environmental Laboratories, Inc.

7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 03/13/09

PAGE: 1 OF 1

LABORATORY CLIENT: Argonne National Laboratories

ADDRESS: 9700 S. Cass Avenue, Bldg 203, Lemont, Illinois 60439-4843

TEL: 630-252-7969 | FAX: 630-252-5747 | E-MAIL: lafreniere@anl.gov

CLIENT PROJECT NAME / NUMBER: Hanover, Kansas

PROJECT CONTACT: Lorraine Lafreniere

SAMPLER(S) (SIGNATURE):

COELT LOG CODE

P.O. NO.:

LAB USE ONLY: 0 3 - 1 3 8 2

COOLER RECEIPT: Temp = ____ °C

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): ☐ RWQCB REPORTING ☐ COELT EDF ☐

SPECIAL INSTRUCTIONS: No Rush - Analyze samples within holding times.

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	CEL SAMPLE #	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Carbon Tetrachloride	Chloroform	CONTAINER TYPE
1	JJHynek - 1st Floor		3/12-13/09	0801 - 0739	air	1	X	X	summa canister - D616
2	JJHynek - Basement		3/12-13/09	0758 - 0740	air	1	X	X	summa canister - 016

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
		3/13/09	1200
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature) FEDEX 7955 0072 1916	Received by: (Signature) CCL	Date: 3/14/09	Time: 1030

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 09-03-1382

SAMPLE RECEIPT FORM

~~Cooler ___ of ___~~ Box 1 / 1

CLIENT: ANL

DATE: 03/14/09

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature ____.____ °C - 0.2 °C (CF) = ____.____ °C ☐ **Blank** ☐ **Sample**

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** YL

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Initial:** YL

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** YL

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	☑	☐	☐
COC document(s) received complete.....	☑	☐	☐
Sampler's name indicated on COC.....	☑	☐	☐
Sample container label(s) consistent with COC.....	☑	☐	☐
Sample container(s) intact and good condition.....	☑	☐	☐
Correct containers and volume for analyses requested.....	☑	☐	☐
Analyses received within holding time.....	☑	☐	☐
Proper preservation noted on COC or sample container.....	☐	☐	☑
Volatile analysis container(s) free of headspace.....	☐	☐	☑
Tedlar bag(s) free of condensation.....	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBpo_4 ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna_2 ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☑Summa® ☐_____

Checked/Labeled by: YL

Reviewed by: [illegible]

Scanned by: YL

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na_2:$Na_2S_2O_3$ na:NaOH po_4:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH

Calscience Environmental Laboratories, Inc.

March 19, 2009

Lorraine LaFreniere
UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Subject: **Calscience Work Order No.: 09-03-1383**
Client Reference: Hanover, Kansas

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 3/14/2009 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Robert Stearns
Project Manager

Calscience
Environmental
Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 09-03-1383

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the air samples.

Sample Condition on Receipt

Two six-liter Summa canisters (SIM Certified) were received for this project on March 14, 2009. The as-received canister pressures as indicated on the canister gauges were:

MPoell – 1st Floor:	-6.4 "Hg
MPoell – Basement:	-5.8 "Hg

There were no receiving discrepancies.

Testing was performed in accordance with the COC instructions. The laboratory performed analysis using EPA Method TO-15 by GC/MS in the SIM acquisition mode for Carbon Tetrachloride and Chloroform.

Data Summary

Each of the samples was analyzed without dilution. The CRDL established for the project was 1.5 ug/m3.

Holding times

EPA Compendium Method TO-15 does not provide a recommended holding time, but does suggest that most VOCs can be recovered from Summa canisters near their original concentrations after storage times of up to 30 days after collection. All samples were analyzed within 30 days of their collection.

Calibration

Frequency and control criteria specified in the method for initial and continuing calibration verifications were met.

Blanks

Concentrations of target analytes in the Method Blank were found to be below reporting limits.

Laboratory Control Samples

Laboratory Control Sample analyses were performed at the required frequencies. All parameters were within the specified %Rec and RPD quality control limits.

Matrix Spikes

Matrix spiking does not apply for this method.

Surrogates

Surrogate compound recoveries for all samples were in control.

Other

None

Acronyms

GC/MS:	Gas Chromatography/Mass Spectroscopy
%Rec:	% Recovery
RPD:	Relative Percent Difference
SIM:	Selective Ion Monitoring
VOCs:	Volatile Organic Compounds

Calscience Environmental Laboratories, Inc.

Analytical Report

UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Date Received:	03/14/09
Work Order No:	09-03-1383
Preparation:	N/A
Method:	EPA TO-15 SIM
Units:	ug/m3

Project: Hanover, Kansas

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
MPoell - 1st Floor	**09-03-1383-1-A**	**03/13/09 09:48**	**Air**	**GC/MS HH**	**N/A**	**03/16/09 23:02**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1.89		Carbon Tetrachloride	2.9	1.5	1.89	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	82	45-153		1,2-Dichloroethane-d4	96	37-163	
Toluene-d8	94	73-121					

MPoell - Basement	**09-03-1383-2-A**	**03/13/09 09:51**	**Air**	**GC/MS HH**	**N/A**	**03/16/09 23:54**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1.86		Carbon Tetrachloride	4.2	1.5	1.86	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	94	45-153		1,2-Dichloroethane-d4	98	37-163	
Toluene-d8	100	73-121					

Method Blank	**095-01-052-371**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**03/16/09 15:50**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	ND	1.5	1	

Surrogates:	REC (%)	Control Limits	Qual	Surrogates:	REC (%)	Control Limits	Qual
1,4-Bromofluorobenzene	101	45-153		1,2-Dichloroethane-d4	96	37-163	
Toluene-d8	98	73-121					

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Date Received: N/A
Work Order No: 09-03-1383
Preparation: N/A
Method: EPA TO-15 SIM

Project: Hanover, Kansas

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-052-371	**Air**	**GC/MS HH**	**N/A**	**03/16/09**	**090316L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Vinyl Chloride	85	106	44-140	28-156	22	0-33	
c-1,2-Dichloroethene	85	107	35-165	13-187	22	0-35	
1,2-Dichloroethane	90	111	28-166	5-189	20	0-40	
Benzene	90	115	27-153	6-174	25	0-34	
Carbon Tetrachloride	107	134	7-187	0-217	22	0-31	
1,1,2-Trichloroethane	105	135	27-171	3-195	25	0-38	
Toluene	79	100	28-154	7-175	23	0-42	
Trichloroethene	93	118	43-139	27-155	23	0-31	
Tetrachloroethene	98	125	34-154	14-174	24	0-33	
Ethylbenzene	94	122	27-153	6-174	26	0-46	
p/m-Xylene	98	130	21-165	0-189	28	0-51	
o-Xylene	103	137	22-160	0-183	28	0-48	

Total number of LCS compounds : 12
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 09-03-1383

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

COC # 107

Calscience Environmental Laboratories, Inc.

7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 03/13/09

PAGE: 1 OF 1

LABORATORY CLIENT: Argonne National Laboratories

ADDRESS: 9700 S. Cass Avenue, Bldg 203, Lemont, Illinois 60439-4843

TEL: 630-252-7969 | FAX: 630-252-5747 | E-MAIL: lafreniere@anl.gov

CLIENT PROJECT NAME / NUMBER: Hanover, Kansas

PROJECT CONTACT: Lorraine Lafreniere

SAMPLER(S): (SIGNATURE)

COELT LOG CODE

P.O. NO.:

LAB USE ONLY: 03-1383

COOLER RECEIPT Temp = ____ °C

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): ☐ RWQCB REPORTING ☐ COELT EDF ☐

SPECIAL INSTRUCTIONS: No Rush - Analyze samples within holding times.

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	CEL SAMPLE #	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Carbon Tetrachloride	Chloroform	CONTAINER TYPE
1	MPoell - 1st Floor		3/12-13/09	1000 - 0948	air	1	X	X	summa canister - 079
2	MPoell - Basement		3/12-13/09	1004 - 0951	air	1	X	X	summa canister - 061

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
		3/13/09	1200
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature) FEDEX 795500 7219 6	Received by: (Signature) CEL	3/14/09	1030

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 09-03-1 3 3 3

SAMPLE RECEIPT FORM

~~Cooler~~ Box 1 of 1

CLIENT: ANL

DATE: 03/14/09

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature ____.____ °C - 0.2 °C (CF) = ____.____ °C ☐ **Blank** ☐ **Sample**

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** YL

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Initial:** YL

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** YL

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	☑	☐	☐
COC document(s) received complete.....	☑	☐	☐
Sampler's name indicated on COC.....	☑	☐	☐
Sample container label(s) consistent with COC.....	☑	☐	☐
Sample container(s) intact and good condition.....	☑	☐	☐
Correct containers and volume for analyses requested.....	☑	☐	☐
Analyses received within holding time.....	☑	☐	☐
Proper preservation noted on COC or sample container.....	☐	☐	☑
Volatile analysis container(s) free of headspace.....	☐	☐	☑
Tedlar bag(s) free of condensation.....	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBpo_4 ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna_2 ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☑Summa® ☐_____

Checked/Labeled by: YL

Reviewed by: [illegible]

Scanned by: YL

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na_2:$Na_2S_2O_3$ na:NaOH po_4:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH

Calscience Environmental Laboratories, Inc.

March 19, 2009

Lorraine LaFreniere
UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Subject: **Calscience Work Order No.: 09-03-1384**
Client Reference: Hanover, Kansas

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 3/14/2009 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Robert Stearns
Project Manager

Calscience Environmental Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 09-03-1384

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the air samples.

Sample Condition on Receipt

One six-liter Summa canisters (SIM Certified) were received for this project on March 14, 2009. The as-received canister pressures as indicated on the canister gauges were:

Ambient Air - Hanover: -3.6 "Hg

There were no receiving discrepancies.

Testing was performed in accordance with the COC instructions. The laboratory performed analysis using EPA Method TO-15 by GC/MS in the SIM acquisition mode for Carbon Tetrachloride and Chloroform.

Data Summary

The sample was analyzed without dilution. The CRDL established for the project was 1.5 ug/m3.

Holding times

EPA Compendium Method TO-15 does not provide a recommended holding time, but does suggest that most VOCs can be recovered from Summa canisters near their original concentrations after storage times of up to 30 days after collection. All samples were analyzed within 30 days of their collection.

Calibration

Frequency and control criteria specified in the method for initial and continuing calibration verifications were met.

Blanks

Concentrations of target analytes in the Method Blank were found to be below reporting limits.

Laboratory Control Samples

Laboratory Control Sample analyses were performed at the required frequencies. All parameters were within the specified %Rec and RPD quality control limits.

Matrix Spikes

Matrix spiking does not apply for this method.

Surrogates

Surrogate compound recoveries for all samples were in control.

Other

None

Acronyms

GC/MS:	Gas Chromatography/Mass Spectroscopy
%Rec:	% Recovery
RPD:	Relative Percent Difference
SIM:	Selective Ion Monitoring
VOCs:	Volatile Organic Compounds

Calscience Environmental Laboratories, Inc.

Analytical Report

UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Date Received:	03/14/09
Work Order No:	09-03-1384
Preparation:	N/A
Method:	EPA TO-15 SIM
Units:	ug/m3

Project: Hanover, Kansas

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
Ambient Air - Hanover	**09-03-1384-1-A**	**03/13/09 07:47**	**Air**	**GC/MS HH**	**N/A**	**03/17/09 00:48**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1.7		Carbon Tetrachloride	ND	1.5	1.7	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	88	45-153			1,2-Dichloroethane-d4	99	37-163		
Toluene-d8	94	73-121							

Method Blank	**095-01-052-371**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**03/16/09 15:50**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	ND	1.5	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	101	45-153			1,2-Dichloroethane-d4	96	37-163		
Toluene-d8	98	73-121							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Date Received: N/A
Work Order No: 09-03-1384
Preparation: N/A
Method: EPA TO-15 SIM

Project: Hanover, Kansas

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-052-371	**Air**	**GC/MS HH**	**N/A**	**03/16/09**	**090316L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Vinyl Chloride	85	106	44-140	28-156	22	0-33	
c-1,2-Dichloroethene	85	107	35-165	13-187	22	0-35	
1,2-Dichloroethane	90	111	28-166	5-189	20	0-40	
Benzene	90	115	27-153	6-174	25	0-34	
Carbon Tetrachloride	107	134	7-187	0-217	22	0-31	
1,1,2-Trichloroethane	105	135	27-171	3-195	25	0-38	
Toluene	79	100	28-154	7-175	23	0-42	
Trichloroethene	93	118	43-139	27-155	23	0-31	
Tetrachloroethene	98	125	34-154	14-174	24	0-33	
Ethylbenzene	94	122	27-153	6-174	26	0-46	
p/m-Xylene	98	130	21-165	0-189	28	0-51	
o-Xylene	103	137	22-160	0-183	28	0-48	

Total number of LCS compounds : 12
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 09-03-1384

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

COC # 103

Calscience Environmental Laboratories, Inc.

7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 03/13/09

PAGE: 1 OF 1

LABORATORY CLIENT: Argonne National Laboratories

ADDRESS: 9700 S. Cass Avenue, Bldg 203, Lemont, Illinois 60439-4843

TEL: 630-252-7969 | FAX: 630-252-5747 | E-MAIL: lafreniere@anl.gov

CLIENT PROJECT NAME / NUMBER: Hanover, Kansas

PROJECT CONTACT: Lorraine Lafreniere

SAMPLER(S): (SIGNATURE)

COELT LOG CODE

P.O. NO.:

LAB USE ONLY: 03-1384

COOLER RECEIPT: Temp = °C

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): ☐ RWQCB REPORTING ☐ COELT EDF ☐

SPECIAL INSTRUCTIONS: Analyze samples within holding times.

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	CEL SAMPLE #	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Carbon Tetrachloride	Chloroform	CONTAINER TYPE
1	Ambient Air - Hanover		3/12-13/09	0815 - 0747	air	1	X	X	summa canister - D311

Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
		3/13/09	1200
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature) FEDEX 855876826897	Received by: (Signature) CEL	Date: 3/14/09	Time: 10:30

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 09-03-1384

SAMPLE RECEIPT FORM

~~Cooler~~ Box 1 of 1

CLIENT: A N L

DATE: 03/14/09

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature _____.____ °C - 0.2 °C (CF) = _____.____ °C ☐ **Blank** ☐ **Sample**

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** YC

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Initial:** YC

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** YC

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	☑	☐	☐
COC document(s) received complete.....	☑	☐	☐
Sampler's name indicated on COC.....	☑	☐	☐
Sample container label(s) consistent with COC.....	☑	☐	☐
Sample container(s) intact and good condition.....	☑	☐	☐
Correct containers and volume for analyses requested.....	☑	☐	☐
Analyses received within holding time.....	☑	☐	☐
Proper preservation noted on COC or sample container.....	☐	☐	☑
Volatile analysis container(s) free of headspace.....	☐	☐	☑
Tedlar bag(s) free of condensation.....	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna_2 ☐125AGB ☐125AGBh ☐125AGBpo_4 ☐1AGB ☐1AGBna_2 ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna_2 ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☑Summa® ☐_____

Checked/Labeled by: YC

Reviewed by: [illegible]

Scanned by: YC

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na_2:$Na_2S_2O_3$ na:NaOH po_4:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH

Calscience Environmental Laboratories, Inc.

March 19, 2009

Lorraine LaFreniere
UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Subject: **Calscience Work Order No.: 09-03-1385**
Client Reference: Hanover, Kansas

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 3/14/2009 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Robert Stearns
Project Manager

Calscience Environmental Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 09-03-1385

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the air samples.

Sample Condition on Receipt

Two six-liter Summa canisters (SIM Certified) were received for this project on March 14, 2009. The as-received canister pressures as indicated on the canister gauges were:

LMHagedorn – 1st Floor: -5.2 "Hg
LMHagedorn – Basement: -4.6 "Hg

There were no receiving discrepancies.

Testing was performed in accordance with the COC instructions. The laboratory performed analysis using EPA Method TO-15 by GC/MS in the SIM acquisition mode for Carbon Tetrachloride and Chloroform.

Data Summary

Each of the samples was analyzed without dilution. The CRDL established for the project was 1.5 ug/m3.

Holding times

EPA Compendium Method TO-15 does not provide a recommended holding time, but does suggest that most VOCs can be recovered from Summa canisters near their original concentrations after storage times of up to 30 days after collection. All samples were analyzed within 30 days of their collection.

Calibration

Frequency and control criteria specified in the method for initial and continuing calibration verifications were met.

Blanks

Concentrations of target analytes in the Method Blank were found to be below reporting limits.

Laboratory Control Samples

Laboratory Control Sample analyses were performed at the required frequencies. All parameters were within the specified %Rec and RPD quality control limits.

Matrix Spikes

Matrix spiking does not apply for this method.

Surrogates

Surrogate compound recoveries for all samples were in control.

Other

None

Acronyms

GC/MS:	Gas Chromatography/Mass Spectroscopy
%Rec:	% Recovery
RPD:	Relative Percent Difference
SIM:	Selective Ion Monitoring
VOCs:	Volatile Organic Compounds

Calscience Environmental Laboratories, Inc.

Analytical Report

UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Date Received:	03/14/09
Work Order No:	09-03-1385
Preparation:	N/A
Method:	EPA TO-15 SIM
Units:	ug/m3

Project: Hanover, Kansas

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LMHagedorn - 1st Floor	**09-03-1385-1-A**	**03/13/09 07:33**	**Air**	**GC/MS HH**	**N/A**	**03/17/09 01:41**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	3.6	1.5	1.8		Carbon Tetrachloride	ND	1.5	1.8	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	103	45-153			1,2-Dichloroethane-d4	105	37-163		
Toluene-d8	83	73-121							

LMHagedorn - Basement	**09-03-1385-2-A**	**03/13/09 07:34**	**Air**	**GC/MS HH**	**N/A**	**03/17/09 20:25**	**090317L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	3.4	1.5	1.76		Carbon Tetrachloride	ND	1.5	1.76	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	100	45-153			1,2-Dichloroethane-d4	102	37-163		
Toluene-d8	83	73-121							

Method Blank	**095-01-052-371**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**03/16/09 15:50**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	ND	1.5	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	101	45-153			1,2-Dichloroethane-d4	96	37-163		
Toluene-d8	98	73-121							

Method Blank	**095-01-052-372**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**03/17/09 17:45**	**090317L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	ND	1.5	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	93	45-153			1,2-Dichloroethane-d4	99	37-163		
Toluene-d8	96	73-121							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Date Received: N/A
Work Order No: 09-03-1385
Preparation: N/A
Method: EPA TO-15 SIM

Project: Hanover, Kansas

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-052-371	**Air**	**GC/MS HH**	**N/A**	**03/16/09**	**090316L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Vinyl Chloride	85	106	44-140	28-156	22	0-33	
c-1,2-Dichloroethene	85	107	35-165	13-187	22	0-35	
1,2-Dichloroethane	90	111	28-166	5-189	20	0-40	
Benzene	90	115	27-153	6-174	25	0-34	
Carbon Tetrachloride	107	134	7-187	0-217	22	0-31	
1,1,2-Trichloroethane	105	135	27-171	3-195	25	0-38	
Toluene	79	100	28-154	7-175	23	0-42	
Trichloroethene	93	118	43-139	27-155	23	0-31	
Tetrachloroethene	98	125	34-154	14-174	24	0-33	
Ethylbenzene	94	122	27-153	6-174	26	0-46	
p/m-Xylene	98	130	21-165	0-189	28	0-51	
o-Xylene	103	137	22-160	0-183	28	0-48	

Total number of LCS compounds : 12
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Date Received: N/A
Work Order No: 09-03-1385
Preparation: N/A
Method: EPA TO-15 SIM

Project: Hanover, Kansas

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-052-372	**Air**	**GC/MS HH**	**N/A**	**03/17/09**	**090317L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Vinyl Chloride	103	101	44-140	28-156	3	0-33	
c-1,2-Dichloroethene	97	97	35-165	13-187	0	0-35	
1,2-Dichloroethane	108	103	28-166	5-189	4	0-40	
Benzene	107	101	27-153	6-174	6	0-34	
Carbon Tetrachloride	134	121	7-187	0-217	10	0-31	
1,1,2-Trichloroethane	133	122	27-171	3-195	9	0-38	
Toluene	96	85	28-154	7-175	11	0-42	
Trichloroethene	112	104	43-139	27-155	8	0-31	
Tetrachloroethene	121	109	34-154	14-174	10	0-33	
Ethylbenzene	110	104	27-153	6-174	5	0-46	
p/m-Xylene	116	108	21-165	0-189	7	0-51	
o-Xylene	123	115	22-160	0-183	6	0-48	

Total number of LCS compounds : 12
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 09-03-1385

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

COC # 102

Calscience Environmental Laboratories, Inc.

7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

CHAIN OF CUSTODY RECORD

DATE: 03/13/09

PAGE: 1 OF 1

LABORATORY CLIENT: Argonne National Laboratories

ADDRESS: 9700 S. Cass Avenue, Bldg 203, Lemont, Illinois 60439-4843

TEL: 630-252-7969 | FAX: 630-252-5747 | E-MAIL: lafreniere@anl.gov

CLIENT PROJECT NAME / NUMBER: Hanover, Kansas

PROJECT CONTACT: Lorraine Lafreniere

SAMPLER(S): (SIGNATURE)

P.O. NO.:

LAB USE ONLY: 03-1385

COELT LOG CODE

COOLER RECEIPT: Temp = _____ °C

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): ☐ RWQCB REPORTING ☐ COELT EDF ☐

SPECIAL INSTRUCTIONS: No Rush - Analyze samples within holding times.

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	CEL SAMPLE #	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Carbon Tetrachloride	Chloroform	CONTAINER TYPE
1	LMHagedorn - 1st Floor		3/12-13/09	0751 - 0733	air	1	X	X	summa canister - D187
2	LMHagedorn - Basement		3/12-13/09	0748-0734	air	1	X	X	summa canister - D173

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
		3/13/09	1200
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature) FEDEX 855876 2 6897	Received by: (Signature) CEL	Date: 3/16/09	Time: 1030

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 09-03-1385

SAMPLE RECEIPT FORM

~~Cooler~~ Box 1 of 1

CLIENT: ANL

DATE: 03/14/09

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature ____.____ °C - 0.2 °C (CF) = ____.____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ Received at ambient temperature, placed on ice for transport by Courier.

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only Initial: YC

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A Initial: YC

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present Initial: YC

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	☑	☐	☐
COC document(s) received complete.....	☑	☐	☐
Sampler's name indicated on COC.....	☑	☐	☐
Sample container label(s) consistent with COC.....	☑	☐	☐
Sample container(s) intact and good condition.....	☑	☐	☐
Correct containers and volume for analyses requested.....	☑	☐	☐
Analyses received within holding time.....	☑	☐	☐
Proper preservation noted on COC or sample container.....	☐	☐	☑
Volatile analysis container(s) free of headspace.....	☐	☐	☑
Tedlar bag(s) free of condensation.....	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna$_2$ ☐125AGB ☐125AGBh ☐125AGBpo$_4$ ☐1AGB ☐1AGBna$_2$ ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna$_2$ ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☑Summa® ☐_____

Checked/Labeled by: YC

Reviewed by: [illegible]

Scanned by: YC

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na$_2$:$Na_2S_2O_3$ na:NaOH po$_4$:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH

Calscience Environmental Laboratories, Inc.

March 19, 2009

Lorraine LaFreniere
UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Subject: **Calscience Work Order No.: 09-03-1386**
Client Reference: Hanover, Kansas

Dear Client:

Enclosed is an analytical report for the above-referenced project. The samples included in this report were received 3/14/2009 and analyzed in accordance with the attached chain-of-custody.

Unless otherwise noted, all analytical testing was accomplished in accordance with the guidelines established in our Quality Systems Manual, applicable standard operating procedures, and other related documentation. The original report of subcontracted analysis, if any, is provided herein, and follows the standard Calscience data package. The results in this analytical report are limited to the samples tested and any reproduction thereof must be made in its entirety.

If you have any questions regarding this report, please do not hesitate to contact the undersigned.

Sincerely,

Calscience Environmental
Laboratories, Inc.
Robert Stearns
Project Manager

Calscience
Environmental
Laboratories, Inc.

CASE NARRATIVE

Calscience Work Order No.: 09-03-1386

Provided below is a narrative of our analytical effort, including any unique features or anomalies encountered as part of the analysis of the air samples.

Sample Condition on Receipt

Two six-liter Summa canisters (SIM Certified) were received for this project on March 14, 2009. The as-received canister pressures as indicated on the canister gauges were:

LEJueneman – 1st Floor:	-5.4 "Hg
LEJueneman – Basement:	-5.4 "Hg

There were no receiving discrepancies.

Testing was performed in accordance with the COC instructions. The laboratory performed analysis using EPA Method TO-15 by GC/MS in the SIM acquisition mode for Carbon Tetrachloride and Chloroform.

Data Summary

Each of the samples was analyzed without dilution. The CRDL established for the project was 1.5 ug/m3.

Holding times

EPA Compendium Method TO-15 does not provide a recommended holding time, but does suggest that most VOCs can be recovered from Summa canisters near their original concentrations after storage times of up to 30 days after collection. All samples were analyzed within 30 days of their collection.

Calibration

Frequency and control criteria specified in the method for initial and continuing calibration verifications were met.

Blanks

Concentrations of target analytes in the Method Blank were found to be below reporting limits.

Laboratory Control Samples

Laboratory Control Sample analyses were performed at the required frequencies. All parameters were within the specified %Rec and RPD quality control limits.

Matrix Spikes

Matrix spiking does not apply for this method.

Surrogates

Surrogate compound recoveries for all samples were in control.

Other

None

Acronyms

GC/MS:	Gas Chromatography/Mass Spectroscopy
%Rec:	% Recovery
RPD:	Relative Percent Difference
SIM:	Selective Ion Monitoring
VOCs:	Volatile Organic Compounds

Calscience Environmental Laboratories, Inc.

Analytical Report

UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Date Received:	03/14/09
Work Order No:	09-03-1386
Preparation:	N/A
Method:	EPA TO-15 SIM
Units:	ug/m3

Project: Hanover, Kansas

Client Sample Number	Lab Sample Number	Date/Time Collected	Matrix	Instrument	Date Prepared	Date/Time Analyzed	QC Batch ID
LEJueneman - 1st Floor	**09-03-1386-1-A**	**03/13/09 07:25**	**Air**	**GC/MS HH**	**N/A**	**03/17/09 03:28**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1.78		Carbon Tetrachloride	2.6	1.5	1.78	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	116	45-153			1,2-Dichloroethane-d4	104	37-163		
Toluene-d8	90	73-121							

LEJueneman - Basement	**09-03-1386-2-A**	**03/13/09 07:27**	**Air**	**GC/MS HH**	**N/A**	**03/17/09 04:21**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1.82		Carbon Tetrachloride	3.7	1.5	1.82	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	110	45-153			1,2-Dichloroethane-d4	99	37-163		
Toluene-d8	95	73-121							

Method Blank	**095-01-052-371**	**N/A**	**Air**	**GC/MS HH**	**N/A**	**03/16/09 15:50**	**090316L01**

Parameter	Result	RL	DF	Qual	Parameter	Result	RL	DF	Qual
Chloroform	ND	1.5	1		Carbon Tetrachloride	ND	1.5	1	
Surrogates:	REC (%)	Control Limits		Qual	Surrogates:	REC (%)	Control Limits		Qual
1,4-Bromofluorobenzene	101	45-153			1,2-Dichloroethane-d4	96	37-163		
Toluene-d8	98	73-121							

RL - Reporting Limit , DF - Dilution Factor , Qual - Qualifiers

Calscience Environmental Laboratories, Inc.

Quality Control - LCS/LCS Duplicate

UChicago Argonne, LLC
9700 S. Cass Avenue, Bldg. 201
Lemont, IL 60439-4832

Date Received: N/A
Work Order No: 09-03-1386
Preparation: N/A
Method: EPA TO-15 SIM

Project: Hanover, Kansas

Quality Control Sample ID	Matrix	Instrument	Date Prepared	Date Analyzed	LCS/LCSD Batch Number
095-01-052-371	**Air**	**GC/MS HH**	**N/A**	**03/16/09**	**090316L01**

Parameter	LCS %REC	LCSD %REC	%REC CL	ME_CL	RPD	RPD CL	Qualifiers
Vinyl Chloride	85	106	44-140	28-156	22	0-33	
c-1,2-Dichloroethene	85	107	35-165	13-187	22	0-35	
1,2-Dichloroethane	90	111	28-166	5-189	20	0-40	
Benzene	90	115	27-153	6-174	25	0-34	
Carbon Tetrachloride	107	134	7-187	0-217	22	0-31	
1,1,2-Trichloroethane	105	135	27-171	3-195	25	0-38	
Toluene	79	100	28-154	7-175	23	0-42	
Trichloroethene	93	118	43-139	27-155	23	0-31	
Tetrachloroethene	98	125	34-154	14-174	24	0-33	
Ethylbenzene	94	122	27-153	6-174	26	0-46	
p/m-Xylene	98	130	21-165	0-189	28	0-51	
o-Xylene	103	137	22-160	0-183	28	0-48	

Total number of LCS compounds : 12
Total number of ME compounds : 0
Total number of ME compounds allowed : 1
LCS ME CL validation result : Pass

RPD - Relative Percent Difference , CL - Control Limit

Calscience Environmental Laboratories, Inc.

Glossary of Terms and Qualifiers

Work Order Number: 09-03-1386

Qualifier	Definition
*	See applicable analysis comment.
1	Surrogate compound recovery was out of control due to a required sample dilution, therefore, the sample data was reported without further clarification.
2	Surrogate compound recovery was out of control due to matrix interference. The associated method blank surrogate spike compound was in control and, therefore, the sample data was reported without further clarification.
3	Recovery of the Matrix Spike (MS) or Matrix Spike Duplicate (MSD) compound was out of control due to matrix interference. The associated LCS and/or LCSD was in control and, therefore, the sample data was reported without further clarification.
4	The MS/MSD RPD was out of control due to matrix interference. The LCS/LCSD RPD was in control and, therefore, the sample data was reported without further clarification.
5	The PDS/PDSD associated with this batch of samples was out of control due to a matrix interference effect. The associated batch LCS/LCSD was in control and, hence, the associated sample data was reported with no further corrective action required.
A	Result is the average of all dilutions, as defined by the method.
B	Analyte was present in the associated method blank.
C	Analyte presence was not confirmed on primary column.
E	Concentration exceeds the calibration range.
H	Sample received and/or analyzed past the recommended holding time.
J	Analyte was detected at a concentration below the reporting limit and above the laboratory method detection limit. Reported value is estimated.
ME	LCS Recovery Percentage is within LCS ME Control Limit range.
N	Nontarget Analyte.
ND	Parameter not detected at the indicated reporting limit.
Q	Spike recovery and RPD control limits do not apply resulting from the parameter concentration in the sample exceeding the spike concentration by a factor of four or greater.
U	Undetected at the laboratory method detection limit.
X	% Recovery and/or RPD out-of-range.
Z	Analyte presence was not confirmed by second column or GC/MS analysis.

Calscience Environmental Laboratories, Inc.
7440 LINCOLN WAY
GARDEN GROVE, CA 92841-1432
TEL: (714) 895-5494 . FAX: (714) 894-7501

COC # 101

CHAIN OF CUSTODY RECORD

DATE: 03/13/09

PAGE: 1 OF 1

LABORATORY CLIENT: Argonne National Laboratories

ADDRESS: 9700 S. Cass Avenue, Bldg 203, Lemont, Illinois 60439-4843

TEL: 630-252-7969 | FAX: 630-252-5747 | E-MAIL: lafreniere@anl.gov

CLIENT PROJECT NAME / NUMBER: Hanover, Kansas

PROJECT CONTACT: Lorraine Lafreniere

SAMPLER(S): (SIGNATURE)

COELT LOG CODE

P.O. NO.:

LAB USE ONLY: 03-1386

COOLER RECEIPT: Temp = ____ °C

TURNAROUND TIME: ☐ SAME DAY ☐ 24 HR ☐ 48HR ☐ 72 HR ☐ 5 DAYS ☒ 10 DAYS

SPECIAL REQUIREMENTS (ADDITIONAL COSTS MAY APPLY): ☐ RWQCB REPORTING ☐ COELT EDF ☐

SPECIAL INSTRUCTIONS: No Rush - Analyze samples within holding times.

REQUESTED ANALYSIS

LAB USE ONLY	SAMPLE ID	CEL SAMPLE #	SAMPLING DATE	SAMPLING TIME	MATRIX	NO. OF CONT.	Carbon Tetrachloride	Chloroform	CONTAINER TYPE
1	LEJueneman - 1st Floor		3/12-13/09	0738 - 0725	air	1	X	X	summa canister - D175
2	LEJueneman - Basement		3/12-13/09	0740 - 0727	air	1	X	X	summa canister - D800

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
		3/13/09	1200
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature) FEDEX 855876826897	Received by: (Signature) CEL	Date: 3/14/09	Time: 1030

Calscience Environmental Laboratories, Inc.

WORK ORDER #: 09-03-1386

SAMPLE RECEIPT FORM

Cooler Box 1 of 1

CLIENT: BNL

DATE: 03/14/09

TEMPERATURE: (Criteria: 0.0 °C – 6.0 °C, not frozen)

Temperature ____.____ °C - 0.2 °C (CF) = ____.____ °C ☐ Blank ☐ Sample

☐ Sample(s) outside temperature criteria (PM/APM contacted by:_____).

☐ Sample(s) outside temperature criteria but received on ice/chilled on same day of sampling.

☐ **Received at ambient temperature, placed on ice for transport by Courier.**

Ambient Temperature: ☑ Air ☐ Filter ☐ Metals Only ☐ PCBs Only **Initial:** YL

CUSTODY SEALS INTACT:

☐ Cooler ☐_____ ☐ No (Not Intact) ☑ Not Present ☐ N/A **Initial:** YL

☐ Sample ☐_____ ☐ No (Not Intact) ☑ Not Present **Initial:** YL

SAMPLE CONDITION:	Yes	No	N/A
Chain-Of-Custody (COC) document(s) received with samples.....	☑	☐	☐
COC document(s) received complete.....	☑	☐	☐
Sampler's name indicated on COC.....	☑	☐	☐
Sample container label(s) consistent with COC.....	☑	☐	☐
Sample container(s) intact and good condition.....	☑	☐	☐
Correct containers and volume for analyses requested.....	☑	☐	☐
Analyses received within holding time.....	☑	☐	☐
Proper preservation noted on COC or sample container.....	☐	☐	☑
Volatile analysis container(s) free of headspace.....	☐	☐	☑
Tedlar bag(s) free of condensation.....	☐	☐	☑

CONTAINER TYPE:

Solid: ☐4ozCGJ ☐8ozCGJ ☐16ozCGJ ☐Sleeve ☐EnCores® ☐TerraCores® ☐_____

Water: ☐VOA ☐VOAh ☐VOAna$_2$ ☐125AGB ☐125AGBh ☐125AGBpo$_4$ ☐1AGB ☐1AGBna$_2$ ☐1AGBs ☐500AGB ☐500AGBs ☐250CGB ☐250CGBs ☐1PB ☐500PB ☐500PBna ☐250PB ☐250PBn ☐125PB ☐125PBznna ☐100PBsterile ☐100PBna$_2$ ☐_____ ☐_____ ☐_____

Air: ☐Tedlar® ☑Summa® ☐_____

Checked/Labeled by: YL

Reviewed by: [illegible]

Scanned by: YL

Container: C:Clear A:Amber P:Poly/Plastic G:Glass J:Jar B:Bottle

Preservative: h:HCL n:HNO_3 na$_2$:$Na_2S_2O_3$ na:NaOH po$_4$:H_3PO_4 s:H_2SO_4 znna:$ZnAc_2$+NaOH

H&P Mobile Geochemistry Inc.

12 February 2009

Dr. Blayne Hartman
ANL/Hartman
717 Seabright Lane
Solana Beach, CA 92075
RE: MC020509-12

Enclosed are the results of analyses for samples received by the laboratory on 05-Feb-09 . If you have any questions concerning this report, please feel free to contact me.

Sincerely,

J Villarreal

Janis Villarreal
Laboratory Director

H&P Mobile Geochemistry operates under CA Environmental Lab Accreditation Program Numbers 1317, 1561, 1667, 1745, 1746, 2088, 2278, 2543, 2579 and 2595. National Environmental Laboratory Accreditation Conference (NELAC) Standards Lab #11845

ANL/Hartman 717 Seabright Lane Solana Beach, CA 92075	Project: MC020509-12 Project Number: Hanover Project Manager: Dr. Blayne Hartman	Reported: 12-Feb-09

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Jueneman - SS	E902022-01	Vapor	04-Feb-09	05-Feb-09
Meier - SS	E902022-02	Vapor	04-Feb-09	05-Feb-09
Goeckel - SS	E902022-03	Vapor	04-Feb-09	05-Feb-09

ANL/Hartman 717 Seabright Lane Solana Beach, CA 92075	Project: MC020509-12 Project Number: Hanover Project Manager: Dr. Blayne Hartman	Reported: 12-Feb-09

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
Jueneman - SS (E902022-01) Vapor Sampled: 04-Feb-09 Received: 05-Feb-09									
Chloroform	ND	5.0	ug/m3	1	EB90616	06-Feb-09	07-Feb-09	EPA TO-15	
Carbon tetrachloride	130	5.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*97.1 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*119 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*85.4 %*	*80-120*		"	"	"	"	
Meier - SS (E902022-02) Vapor Sampled: 04-Feb-09 Received: 05-Feb-09									
Chloroform	140	50	ug/m3	10	EB90616	06-Feb-09	06-Feb-09	EPA TO-15	
Carbon tetrachloride	62000	300	"	60	"	"	07-Feb-09	"	
Surrogate: 1,2-Dichloroethane-d4		*119 %*	*80-120*		"	"	*06-Feb-09*	"	
Surrogate: Toluene-d8		*109 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*82.6 %*	*80-120*		"	"	"	"	
Goeckel - SS (E902022-03) Vapor Sampled: 04-Feb-09 Received: 05-Feb-09									
Chloroform	ND	5.0	ug/m3	1	EB90616	06-Feb-09	07-Feb-09	EPA TO-15	
Carbon tetrachloride	350	5.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*113 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*88.6 %*	*80-120*		"	"	"	"	

ANL/Hartman 717 Seabright Lane Solana Beach, CA 92075	Project: MC020509-12 Project Number: Hanover Project Manager: Dr. Blayne Hartman	Reported: 12-Feb-09

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EB90616 - TO-15										
Blank (EB90616-BLK1)				Prepared & Analyzed: 06-Feb-09						
Chloroform	ND	5.0	ug/m3							
Carbon tetrachloride	ND	5.0	"							
Surrogate: 1,2-Dichloroethane-d4	*117*		*"*	*103*		*114*	*80-120*			
Surrogate: Toluene-d8	*104*		*"*	*96.2*		*108*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*155*		*"*	*182*		*85.1*	*80-120*			
LCS (EB90616-BS1)				Prepared & Analyzed: 06-Feb-09						
Chloroform	96.7	5.0	ug/m3	99.2		97.5	65-135			
Carbon tetrachloride	125	5.0	"	128		97.8	65-135			
Surrogate: 1,2-Dichloroethane-d4	*103*		*"*	*103*		*101*	*80-120*			
Surrogate: Toluene-d8	*91.1*		*"*	*96.2*		*94.7*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*189*		*"*	*182*		*104*	*80-120*			
LCS Dup (EB90616-BSD1)				Prepared & Analyzed: 06-Feb-09						
Chloroform	111	5.0	ug/m3	99.2		111	65-135	13.3	35	
Carbon tetrachloride	140	5.0	"	128		109	65-135	11.1	35	
Surrogate: 1,2-Dichloroethane-d4	*118*		*"*	*103*		*114*	*80-120*			
Surrogate: Toluene-d8	*91.6*		*"*	*96.2*		*95.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*198*		*"*	*182*		*108*	*80-120*			

ANL/Hartman 717 Seabright Lane Solana Beach, CA 92075	Project: MC020509-12 Project Number: Hanover Project Manager: Dr. Blayne Hartman	Reported: 12-Feb-09

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

MOBILE GEOCHEMISTRY

H&P

Chain of Custody Record

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☐ 3825 Industry Avenue, Lakewood, CA 90712 • ph 562.426.6991 • fax 562.426.6995

E902022

Date: 2/4/09
H&P Project # MG020509-12
Outside Lab:

Client: ANL/HARTMAN
Address: 9700 S. Cass Ave., ANL
Lemont, ILL 60439
Email: lafreniere@anl.gov Phone: 630-252-7969

Collector: HARTMAN
Client Project # Hanover
Location:
Fax: 630-252-5747

Page: 1 of 1
Project Contact: Lorraine Lafreniere
Turn around time: NORMAL

EDF: Yes☐ No☐
Global ID:

Sample Receipt
Intact: ☐ Yes ☐ No
Seal Intact: ☐ Yes ☐ No ☐ N/A
Cold: ☐ Yes ☐ No
N/A (Received on Site) Zoe

Special Instructions: ~~UPS~~: Fed EX 7955 2546 6593
Two compounds only.
No leak compound.
UNUSED #047 | #286 #24 - Needs leak Test

Sample Name	Field Point Name	Purge Vol	Time	Date	Sample Type	Container Type	TPH ☐ gasoline ☐ diesel ☐ ext	418.1 TRPH	8021 for BTEX/MTBE	8260B: BTEX / Oxygenates	8260B: TPH gas	8260B: VOC's	8260B: DTSC/LARWQCB	8260B: Ketones	TO-15: ~~Full list~~ CCl_4, $CHCl_3$	TO-15: BTEX/MTBE	LCC (specify)	Naphthalene ☐ 8260B ☐ TO-15	Methane	Fixed Gases ☐ CO_2 ☐ O_2 ☐ N_2				Total # of containers
Jueneman-SS	#040 -1.25			2/4/09	Air	Canister									X									
Meier-SS	#048 7.5																							
Goeckel-SS	#200 -3.5																							
~~Only @ -21"~~	~~#024 -24~~																	~~NO SAMPLE~~						

Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
Blayne Hartman	2/4/09 12:00		H&P (UPS)	02-05-09	10:30 A.M.
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:

*Signature constitutes authorization to proceed with analysis and acceptance of condition on back.

Sample disposal instruction: ☐ *Disposal @ $2.00 each* ☐ *Return to client* ☐ *Pickup*

H&P Mobile Geochemistry Inc.

08 April 2009

Ms. Lorraine La Freniere
Argonne National Lab
9700 S. Cass Avenue, Bldg 203
Argonne, IL 60439
RE: MC033109-11

Enclosed are the results of analyses for samples received by the laboratory on 31-Mar-09 . If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Janis Villarreal
Laboratory Director

H&P Mobile Geochemistry operates under CA Environmental Lab Accreditation Program Numbers 1317, 1561, 1667, 1745, 1746, 2088, 2278, 2543, 2579 and 2595. National Environmental Laboratory Accreditation Conference (NELAC) Standards Lab #11845

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H&P Mobile Geochemistry Inc.

Argonne National Lab	Project: MC033109-11	
9700 S. Cass Avenue, Bldg 203	Project Number: Hanover, KS	Reported:
Argonne, IL 60439	Project Manager: Ms. Lorraine La Freniere	08-Apr-09 09:22

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
409 East Elm - Basement	E903116-03	Vapor	26-Mar-09	31-Mar-09
409 East Elm - 1st Floor	E903116-04	Vapor	26-Mar-09	31-Mar-09
513 East Elm - SS	E903116-06	Vapor	27-Mar-09	31-Mar-09
408	E903116-07	Vapor	28-Mar-09	31-Mar-09
405	E903116-08	Vapor	28-Mar-09	31-Mar-09
409	E903116-09	Vapor	28-Mar-09	31-Mar-09
400	E903116-10	Vapor	28-Mar-09	31-Mar-09
513	E903116-11	Vapor	28-Mar-09	31-Mar-09

H&P Mobile Geochemistry Inc.

Argonne National Lab	Project: MC033109-11	
9700 S. Cass Avenue, Bldg 203	Project Number: Hanover, KS	Reported:
Argonne, IL 60439	Project Manager: Ms. Lorraine La Freniere	08-Apr-09 09:22

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
409 East Elm - Basement (E903116-03) Vapor Sampled: 26-Mar-09 Received: 31-Mar-09									
Carbon tetrachloride	ND	1.5	ug/m3	0.5	EC93107	31-Mar-09	31-Mar-09	EPA TO-15	
Surrogate: 1,2-Dichloroethane-d4		*97.9 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*96.9 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*93.9 %*	*80-120*		"	"	"	"	
409 East Elm - 1st Floor (E903116-04) Vapor Sampled: 26-Mar-09 Received: 31-Mar-09									
Carbon tetrachloride	1.5	1.5	ug/m3	0.5	EC93107	31-Mar-09	31-Mar-09	EPA TO-15	
Surrogate: 1,2-Dichloroethane-d4		*98.2 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*97.3 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*89.8 %*	*80-120*		"	"	"	"	
513 East Elm - SS (E903116-06) Vapor Sampled: 27-Mar-09 Received: 31-Mar-09									
Carbon tetrachloride	260	1.5	ug/m3	0.5	EC93107	31-Mar-09	31-Mar-09	EPA TO-15	
Surrogate: 1,2-Dichloroethane-d4		*96.2 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*98.3 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*92.9 %*	*80-120*		"	"	"	"	
408 (E903116-07) Vapor Sampled: 28-Mar-09 Received: 31-Mar-09									
Carbon tetrachloride	7.0	1.5	ug/m3	0.5	EC93107	31-Mar-09	01-Apr-09	EPA TO-15	
Surrogate: 1,2-Dichloroethane-d4		*97.5 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*98.7 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*92.5 %*	*80-120*		"	"	"	"	
405 (E903116-08) Vapor Sampled: 28-Mar-09 Received: 31-Mar-09									
Carbon tetrachloride	2.6	1.5	ug/m3	0.5	EC93107	31-Mar-09	31-Mar-09	EPA TO-15	
Surrogate: 1,2-Dichloroethane-d4		*98.5 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*97.4 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*92.0 %*	*80-120*		"	"	"	"	

H&P Mobile Geochemistry Inc.

Argonne National Lab	Project: MC033109-11	
9700 S. Cass Avenue, Bldg 203	Project Number: Hanover, KS	Reported:
Argonne, IL 60439	Project Manager: Ms. Lorraine La Freniere	08-Apr-09 09:22

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
409 (E903116-09) Vapor Sampled: 28-Mar-09 Received: 31-Mar-09									
Carbon tetrachloride	ND	1.5	ug/m3	0.5	EC93107	31-Mar-09	31-Mar-09	EPA TO-15	
Surrogate: 1,2-Dichloroethane-d4		*97.2 %*		*80-120*	"	"	"	"	
Surrogate: Toluene-d8		*97.8 %*		*80-120*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*90.4 %*		*80-120*	"	"	"	"	
400 (E903116-10) Vapor Sampled: 28-Mar-09 Received: 31-Mar-09									
Carbon tetrachloride	1.7	1.5	ug/m3	0.5	EC93107	31-Mar-09	31-Mar-09	EPA TO-15	
Surrogate: 1,2-Dichloroethane-d4		*97.2 %*		*80-120*	"	"	"	"	
Surrogate: Toluene-d8		*96.9 %*		*80-120*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*92.0 %*		*80-120*	"	"	"	"	
513 (E903116-11) Vapor Sampled: 28-Mar-09 Received: 31-Mar-09									
Carbon tetrachloride	ND	1.5	ug/m3	0.5	EC93107	31-Mar-09	01-Apr-09	EPA TO-15	
Surrogate: 1,2-Dichloroethane-d4		*99.1 %*		*80-120*	"	"	"	"	
Surrogate: Toluene-d8		*96.6 %*		*80-120*	"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*92.0 %*		*80-120*	"	"	"	"	

H&P Mobile Geochemistry Inc.

Argonne National Lab 9700 S. Cass Avenue, Bldg 203 Argonne, IL 60439	Project: MC033109-11 Project Number: Hanover, KS Project Manager: Ms. Lorraine La Freniere	Reported: 08-Apr-09 09:22

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch EC93107 - TO-15										
Blank (EC93107-BLK1)				Prepared & Analyzed: 31-Mar-09						
Carbon tetrachloride	ND	5.0	ug/m3							
Surrogate: 1,2-Dichloroethane-d4	*197*		"	*206*		*95.8*	*80-120*			
Surrogate: Toluene-d8	*187*		"	*192*		*97.4*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*346*		"	*364*		*94.9*	*80-120*			
LCS (EC93107-BS1)				Prepared & Analyzed: 31-Mar-09						
Carbon tetrachloride	144	5.0	ug/m3	128		113	65-135			
Surrogate: 1,2-Dichloroethane-d4	*192*		"	*206*		*93.4*	*80-120*			
Surrogate: Toluene-d8	*187*		"	*192*		*97.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*350*		"	*364*		*95.9*	*80-120*			
LCS Dup (EC93107-BSD1)				Prepared & Analyzed: 31-Mar-09						
Carbon tetrachloride	151	5.0	ug/m3	128		118	65-135	4.60	35	
Surrogate: 1,2-Dichloroethane-d4	*197*		"	*206*		*95.9*	*80-120*			
Surrogate: Toluene-d8	*187*		"	*192*		*97.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*356*		"	*364*		*97.5*	*80-120*			

H&P Mobile Geochemistry Inc.

Argonne National Lab	Project: MC033109-11	
9700 S. Cass Avenue, Bldg 203	Project Number: Hanover, KS	Reported:
Argonne, IL 60439	Project Manager: Ms. Lorraine La Freniere	08-Apr-09 09:22

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Chain of Custody Record

H&P Mobile Geochemistry Inc.

☒ 2470 Impala Dr., Carlsbad, CA 92010 • ph 760.804.9678 • fax 760.804.9159
☐ 1855 Coronado Ave., Signal Hill, CA 90755 • ph 800.834.9888

Date: 3-25-09
H&P Project # MC033109-11
Outside Lab:

Client: ARGONNE
Collector:
Page: 1 of 1
Address:
Client Project #
Project Contact:
Location:
Email:
Phone:
Fax:
Turn around time: 24 hour TAT

Geotracker EDF: Yes ☐ No ☐
Global ID:
Excel EDD: Yes ☐ No ☐

Sample Receipt
Intact: ☒ Yes ☐ No
Seal Intact: ☐ Yes ☐ No ☒ N/A
Cold: ☐ Yes ☒ No ☐ N/A
Temperature: 20°C

Special Instructions:
Report only CCl4 @ 5 ug/m³ except for

Lab Work Order # E903116

UPS: 1Z935T6184 4056 5904

	Sample Name	Field Point Name	Purge Vol	Time	Date	Sample Type	Container Type	Total # of containers	8260B Full List	8260B ☐ BTEX/OXY ☐ TPH gas	8015M TPH ☐ g ☐ d ☐ ext	418.1 TRPH	VOC's: Full List ☐ 8260B ☐ TO-15	VOC's: Short List/DTSC ☐ 8260B ☒ TO-15 (CCl4)	VOC's: SAM, 8260B ☐ SAM A ☐ SAM B	Naphthalene ☐ 8260B ☐ TO-15	Oxygenates ☐ 8260B ☐ TO-15	TPHv gas ☐ 8260B ☐ TO-15	Ketones ☐ 8260B ☐ TO-15	Other ☐ 8260B ☐ TO-15	Leak Check Compound ☐ 1,1 DFA ☐ OTHER	Methane	Fixed Gases ☐ CO2 ☐ O2 ☐ N2	Canister #	Vacuum
									SOIL/GW				SOIL VAPOR/AIR ANALYSIS												
1	SV-34-8'			1536	3/25	VAPOR	CAN	1																031	-4.5
H	SV-50-10'			0944	3/26	"	"	1																046	-4
	409 E. Elm - Basement		1.5 ug/m³		3-26			1						X										151	-4.5
	409 E. Elm - 1st Floor				3-26			1						X										167	-4.5
H	309 E. Elm - SS			1301	3-27			1																164	-4
H	513 E. Elm - SS			1410	3-27			1						X										048	-4

Relinquished by: (Signature)	(company)	Received by: (Signature) (UPS)	(company) H+P	Date: 03/31/09	Time: 09:50AM
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:

*Signature constitutes authorization to proceed with analysis and acceptance of condition on back.

Sample disposal instruction: ☒ Disposal ☐ Return to client ☐ Pickup

Chain of Custody Record

H&P Mobile Geochemistry Inc.

☒ 2470 Impala Dr., Carlsbad, CA 92010 • ph 760.804.9678 • fax 760.804.9159
☐ 1855 Coronado Ave., Signal Hill, CA 90755 • ph 800.834.9888

E903116

Date: 3-28-09
H&P Project # MC033109-11
Outside Lab:

Client: ARGONNE NATIONAL LAB
Address: 9700 S. CASS AVENUE, BLDG-203, ARGONNE, ILL. 60439
Email: lafreniere@anl.gov
Collector: T. Kamler, M. Miller
Client Project #
Location: HANOVER, KS
Phone: Fax:
Page: 1 of 1
Project Contact: L. LaFreniere, BLAYNE HARTMAN
Turn around time: 24 hr TAT

Geotracker EDF: Yes ☐ No ☐
Global ID:
Excel EDD: Yes ☐ No ☐

Sample Receipt
Intact: ☒ Yes ☐ No
Seal Intact: ☐ Yes ☐ No ☒ N/A
Cold: ☐ Yes ☒ No ☐ N/A
Temperature: 20°C

Special Instructions: INTERIM COST CODE: 8A447-T2
Report CCl_4 only
Please contact BLAYNE HARTMAN for detailed instructions at to handling + analysis
INDOOR AIR SAMPLES

Lab Work Order #: FedEx 8558 1682 7172

Sample Name	Field Point Name	Purge Vol	Time	Date	Sample Type	Container Type	Total # of containers	8260B Full List	8260B ☐ BTEX/OXY ☐ TPH gas	8015M TPH ☐ g ☐ d ☐ ext	418.1 TRPH	VOC's: ~~Full List~~ CCl_4 ☐ 8260B ☒ TO-15	VOC's: Short List/DTSC ☐ 8260B ☐ TO-15	VOC's: SAM, 8260B ☐ SAM A ☐ SAM B	Naphthalene ☐ 8260B ☐ TO-15	Oxygenates ☐ 8260B ☐ TO-15	TPHv gas ☐ 8260B ☐ TO-15	Ketones ☐ 8260B ☐ TO-15	Other ☐ 8260B ☐ TO-15	Leak Check Compound ☐ 1,1 DFA ☐ OTHER	Methane	Fixed Gases ☐ CO_2 ☐ O_2 ☐ N_2	Canister #	Vacuum
								SOIL/GW				SOIL VAPOR/AIR ANALYSIS												
408	Container: 040	—	1420	3-28-09		Summa	1					X											040	-5
405	Container: 240	—	1408	3-28-09			1					X											240	-5.5
409	Container: 132	—	1416	3-28-09			1					X											132	-5
400	Container: 162	—	1412	3-28-09			1					X											162	-5
513	Container: 065	—	1425	3-28-09			1					X											065	-5

Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date	Time
L. LaFreniere	ARGONNE NAT LAB	(Fed Ex)	H&P	03/31/09	10:00AM
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:
Relinquished by: (Signature)	(company)	Received by: (Signature)	(company)	Date:	Time:

*Signature constitutes authorization to proceed with analysis and acceptance of condition on back.

Sample disposal instruction: ☒ Disposal ☐ Return to client ☐ Pickup

H&P Mobile Geochemistry Inc.

20 April 2009

Ms. Lorraine La Freniere
Argonne National Lab
9700 S. Cass Avenue, Bldg 203
Argonne, IL 60439
RE: MC041309-13

Enclosed are the results of analyses for samples received by the laboratory on 13-Apr-09 . If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Janis Villarreal
Laboratory Director

H&P Mobile Geochemistry operates under CA Environmental Lab Accreditation Program Numbers 1317, 1561, 1667, 1745, 1746, 2088, 2278, 2543, 2579 and 2595. National Environmental Laboratory Accreditation Conference (NELAC) Standards Lab #11845

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1855 Coronado Avenue, Signal Hill, California 90755
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H&P Mobile Geochemistry Inc.

Argonne National Lab	Project: MC041309-13	
9700 S. Cass Avenue, Bldg 203	Project Number: Hanover, KS.	Reported:
Argonne, IL 60439	Project Manager: Ms. Lorraine La Freniere	20-Apr-09 08:36

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
404 E. North SS	E904046-01	Vapor	08-Apr-09	13-Apr-09
310 N. Hanover SS	E904046-02	Vapor	08-Apr-09	13-Apr-09
504 E. Elm SS	E904046-03	Vapor	08-Apr-09	13-Apr-09
Hagedorn SS	E904046-04	Vapor	09-Apr-09	13-Apr-09
412 E. Elm SS	E904046-05	Vapor	10-Apr-09	13-Apr-09
412 E. Elm Indoor Air	E904046-06	Vapor	10-Apr-09	13-Apr-09

H&P Mobile Geochemistry Inc.

Argonne National Lab	Project: MC041309-13	
9700 S. Cass Avenue, Bldg 203	Project Number: Hanover, KS.	Reported:
Argonne, IL 60439	Project Manager: Ms. Lorraine La Freniere	20-Apr-09 08:36

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
404 E. North SS (E904046-01) Vapor Sampled: 08-Apr-09 Received: 13-Apr-09									
Carbon tetrachloride	200	5.0	ug/m3	1	ED91403	14-Apr-09	14-Apr-09	EPA TO-15	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*100 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*93.4 %*	*80-120*		"	"	"	"	
310 N. Hanover SS (E904046-02) Vapor Sampled: 08-Apr-09 Received: 13-Apr-09									
Carbon tetrachloride	68	5.0	ug/m3	1	ED91403	14-Apr-09	14-Apr-09	EPA TO-15	
Surrogate: 1,2-Dichloroethane-d4		*103 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*98.1 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*92.3 %*	*80-120*		"	"	"	"	
504 E. Elm SS (E904046-03) Vapor Sampled: 08-Apr-09 Received: 13-Apr-09									
Carbon tetrachloride	91	5.0	ug/m3	1	ED91403	14-Apr-09	14-Apr-09	EPA TO-15	
Surrogate: 1,2-Dichloroethane-d4		*103 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*101 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*93.4 %*	*80-120*		"	"	"	"	
Hagedorn SS (E904046-04) Vapor Sampled: 09-Apr-09 Received: 13-Apr-09									
Chloroform	ND	5.0	ug/m3	1	ED91403	14-Apr-09	14-Apr-09	EPA TO-15	
Carbon tetrachloride	13	5.0	"	"	"	"	"	"	
Surrogate: 1,2-Dichloroethane-d4		*102 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*99.4 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*91.0 %*	*80-120*		"	"	"	"	
412 E. Elm SS (E904046-05) Vapor Sampled: 10-Apr-09 Received: 13-Apr-09									
Carbon tetrachloride	360	5.0	ug/m3	1	ED91403	14-Apr-09	14-Apr-09	EPA TO-15	
Surrogate: 1,2-Dichloroethane-d4		*103 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*100 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*88.6 %*	*80-120*		"	"	"	"	

H&P Mobile Geochemistry Inc.

Argonne National Lab	Project: MC041309-13	
9700 S. Cass Avenue, Bldg 203	Project Number: Hanover, KS.	Reported:
Argonne, IL 60439	Project Manager: Ms. Lorraine La Freniere	20-Apr-09 08:36

Volatile Organic Compounds by EPA TO-15

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Dilution Factor	Batch	Prepared	Analyzed	Method	Notes
412 E. Elm Indoor Air (E904046-06) Vapor Sampled: 10-Apr-09 Received: 13-Apr-09									
Carbon tetrachloride	2.1	1.5	ug/m3	0.5	ED91403	14-Apr-09	14-Apr-09	EPA TO-15	
Surrogate: 1,2-Dichloroethane-d4		*103 %*	*80-120*		"	"	"	"	
Surrogate: Toluene-d8		*103 %*	*80-120*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		*92.6 %*	*80-120*		"	"	"	"	

H&P Mobile Geochemistry Inc.

Argonne National Lab 9700 S. Cass Avenue, Bldg 203 Argonne, IL 60439	Project: MC041309-13 Project Number: Hanover, KS. Project Manager: Ms. Lorraine La Freniere	Reported: 20-Apr-09 08:36

Volatile Organic Compounds by EPA TO-15 - Quality Control

H&P Mobile Geochemistry

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch ED91403 - TO-15										
Blank (ED91403-BLK1)				Prepared & Analyzed: 14-Apr-09						
Chloroform	ND	5.0	ug/m3							
Carbon tetrachloride	ND	5.0	"							
Surrogate: 1,2-Dichloroethane-d4	*207*		"	*206*		*101*	*80-120*			
Surrogate: Toluene-d8	*191*		"	*192*		*99.1*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*333*		"	*364*		*91.4*	*80-120*			
LCS (ED91403-BS1)				Prepared & Analyzed: 14-Apr-09						
Chloroform	115	5.0	ug/m3	99.2		116	65-135			
Carbon tetrachloride	142	5.0	"	128		111	65-135			
Surrogate: 1,2-Dichloroethane-d4	*208*		"	*206*		*101*	*80-120*			
Surrogate: Toluene-d8	*189*		"	*192*		*98.3*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*353*		"	*364*		*96.9*	*80-120*			
LCS Dup (ED91403-BSD1)				Prepared & Analyzed: 14-Apr-09						
Chloroform	114	5.0	ug/m3	99.2		115	65-135	0.524	35	
Carbon tetrachloride	143	5.0	"	128		111	65-135	0.232	35	
Surrogate: 1,2-Dichloroethane-d4	*209*		"	*206*		*102*	*80-120*			
Surrogate: Toluene-d8	*193*		"	*192*		*100*	*80-120*			
Surrogate: 4-Bromofluorobenzene	*342*		"	*364*		*93.8*	*80-120*			

Mobile Geochemistry Inc.

Argonne National Lab 9700 S. Cass Avenue, Bldg 203 Argonne, IL 60439	Project: MC041309-13 Project Number: Hanover, KS. Project Manager: Ms. Lorraine La Freniere	Reported: 20-Apr-09 08:36

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

Argonne National Laboratory
Environmental Research Division
9700 South Cass Avenue/ER 203
Argonne, IL 60439

CHAIN-OF-CUSTODY RECORD

Chain of Custody NO. 115

Receiving Entity H + P Mobil Geochemistry Inc.
Entity Contact Lorraine LaFrance
Phone 630-252-7969

ANL Project Manager
ANL Site Phone
ANL Project Manager Phone

MC041309-13 / E904046

Project Sponsor and Contact

UPS # 1Z 43T T61 84 4083 0206

Project Name, City, State: Hanover, KS

Project No.
P.O. No.
Transfer No. 1 2 3 4

Analysis Parameters

Item Number	Date	Time	Sample Number	Number & Size of Containers	Sample Location and Description
	4/8	1142	264 -3.0	Vapor Mini Can	404 E. North SS
	4/8	1614	059 -4.0	Vapor Mini Can	310 N. Hanover SS
	4/8	1800	330 -4.0	Vapor Mini Can	504 E. Elm SS
	4/9	1216	067 -4.25	Vapor Mini Can	Hagedorn SS
	4/10	1145	154 -4.0	Vapor Mini Can	412 E. Elm SS
	4/10	1059	165 -4.5	Vapor Mini Can	412 E. Elm Indoor Air
			CHCl3 & CCl4	Only	TO-15

TOTALS

Trans. #	Item #	Samples Relinquised By	Accepted By	Date	Time
1		UPS	[signature]	4-13-09	11:00
2					
3					
4					

Method of Shipment: ~~USPS~~ UPS

Airbill Number:

Person Responsible for Samples	Affiliation	Date	Time	Disposal Record No.

Special Instructions (use back of form if necessary – attach photocopies to other pages)

White – To Laboratory Yellow – To Laboratory (include with reports) Pink – Field Sampling Records Gold – ANL Project Manager (QA/QC) Blank – ANL Project Manager (file)

ER-159 (2-92)

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(612)607-1700

February 19, 2009

Beth Finzer
State of Kansas KDHE/BER
1000 SW Jackson Street
Suite 410
Topeka, KS 66612

RE: Project: C5-101-71668 Hanover USDA
Pace Project No.: 1088914

Dear Beth Finzer:
Enclosed are the analytical results for sample(s) received by the laboratory on February 06, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Colin Schuft

Colin Schuft

colin.schuft@pacelabs.com
Project Manager

Enclosures

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CERTIFICATIONS

Project: C5-101-71668 Hanover USDA
Pace Project No.: 1088914

Minnesota Certification IDs

Tennessee Certification #: 02818
Wisconsin Certification #: 999407970
Washington Certification #: C754
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Maine Certification #: 2007029
Louisiana Certification #: LA080009
Louisiana Certification #: 03086
Kansas Certification #: E-10167
Iowa Certification #: 368
Illinois Certification #: 200011
Florida/NELAP Certification #: E87605
California Certification #: 01155CA
Arizona Certification #: AZ-0014
Alaska Certification #: UST-078

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SAMPLE SUMMARY

Project: C5-101-71668 Hanover USDA
Pace Project No.: 1088914

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1088914001	**HV01 Goeckel Kitchen**	Air	02/04/09 07:05	02/06/09 09:00
1088914002	**HV02 Goeckel Basement**	Air	02/04/09 07:07	02/06/09 09:00
1088914003	**Meier sub slab**	Air	02/04/09 09:45	02/06/09 09:00

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SAMPLE ANALYTE COUNT

Project: C5-101-71668 Hanover USDA
Pace Project No.: 1088914

Lab ID	Sample ID	Method	Analysts	Analytes Reported
1088914001	**HV01 Goeckel Kitchen**	TO-15	LCW	3
1088914002	**HV02 Goeckel Basement**	TO-15	LCW	3
1088914003	**Meier sub slab**	TO-15	LCW	3

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ANALYTICAL RESULTS

Project: C5-101-71668 Hanover USDA
Pace Project No.: 1088914

Sample: HV01 Goeckel Kitchen **Lab ID: 1088914001** Collected: 02/04/09 07:05 Received: 02/06/09 09:00 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Carbon tetrachloride	**15.9**	ug/m3	3.6	2.74		02/12/09 18:21	56-23-5	
Chloroform	ND	ug/m3	2.7	2.74		02/12/09 18:21	67-66-3	
Methylene Chloride	**20.3**	ug/m3	1.9	2.74		02/11/09 17:42	75-09-2	

Sample: HV02 Goeckel Basement **Lab ID: 1088914002** Collected: 02/04/09 07:07 Received: 02/06/09 09:00 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Carbon tetrachloride	**15.9**	ug/m3	3.8	2.93		02/12/09 18:51	56-23-5	
Chloroform	ND	ug/m3	2.9	2.93		02/12/09 18:51	67-66-3	
Methylene Chloride	**9.3**	ug/m3	2.1	2.93		02/11/09 18:12	75-09-2	

Sample: Meier sub slab **Lab ID: 1088914003** Collected: 02/04/09 09:45 Received: 02/06/09 09:00 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Carbon tetrachloride	**28500**	ug/m3	387	297.6		02/13/09 04:42	56-23-5	A3
Chloroform	**96.3**	ug/m3	1.8	1.86		02/10/09 22:48	67-66-3	
Methylene Chloride	**1.4**	ug/m3	1.3	1.86		02/10/09 22:48	75-09-2	

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QUALITY CONTROL DATA

Project: C5-101-71668 Hanover USDA
Pace Project No.: 1088914

QC Batch: AIR/8092
QC Batch Method: TO-15
Analysis Method: TO-15
Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 1088914003

METHOD BLANK: 580993
Matrix: Air
Associated Lab Samples: 1088914003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Carbon tetrachloride	ug/m3	ND	1.3	02/10/09 17:24	
Chloroform	ug/m3	ND	0.99	02/10/09 17:24	
Methylene Chloride	ug/m3	ND	0.71	02/10/09 17:24	

LABORATORY CONTROL SAMPLE: 580994

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/m3	64.6	55.6	86	58-135	
Chloroform	ug/m3	48.5	45.3	93	50-150	
Methylene Chloride	ug/m3	34.6	23.9	69	56-138	

SAMPLE DUPLICATE: 581260

Parameter	Units	1088977001 Result	Dup Result	RPD	Max RPD	Qualifiers
Carbon tetrachloride	ug/m3	ND	ND		25	
Chloroform	ug/m3	ND	ND		25	
Methylene Chloride	ug/m3	ND	0.88		25	

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QUALITY CONTROL DATA

Project: C5-101-71668 Hanover USDA
Pace Project No.: 1088914

QC Batch: AIR/8096 | Analysis Method: TO-15
QC Batch Method: TO-15 | Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 1088914001, 1088914002

METHOD BLANK: 581492 | Matrix: Air
Associated Lab Samples: 1088914001, 1088914002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Carbon tetrachloride	ug/m3	ND	1.3	02/12/09 17:21	
Chloroform	ug/m3	ND	0.99	02/12/09 17:21	
Methylene Chloride	ug/m3	ND	0.71	02/11/09 16:12	

LABORATORY CONTROL SAMPLE: 581493

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/m3	64.6	63.0	98	58-135	
Chloroform	ug/m3	48.5	50.7	105	50-150	
Methylene Chloride	ug/m3	34.6	42.0	121	56-138	

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QUALIFIERS

Project: C5-101-71668 Hanover USDA
Pace Project No.: 1088914

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

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U - Indicates the compound was analyzed for, but not detected.

ANALYTE QUALIFIERS

A3 The sample was analyzed by serial dilution.

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(612)607-1700

March 27, 2009

Beth Finzer
State of Kansas KDHE/BER
1000 SW Jackson Street
Suite 410
Topeka, KS 66612

RE: Project: C5-101-71668 Hanover USDA
Pace Project No.: 1091136

Dear Beth Finzer:
Enclosed are the analytical results for sample(s) received by the laboratory on March 17, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Colin Schuft

Colin Schuft

colin.schuft@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: C5-101-71668 Hanover USDA
Pace Project No.: 1091136

Minnesota Certification IDs

Tennessee Certification #: 02818
Wisconsin Certification #: 999407970
Washington Certification #: C754
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137
Maine Certification #: 2007029
Louisiana Certification #: LA080009
Louisiana Certification #: 03086
Kansas Certification #: E-10167
Iowa Certification #: 368
Illinois Certification #: 200011
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SAMPLE SUMMARY

Project: C5-101-71668 Hanover USDA
Pace Project No.: 1091136

Lab ID	Sample ID	Matrix	Date Collected	Date Received
1091136001	**Bruna BSMT Can#0856**	Air	03/13/09 07:10	03/17/09 09:06

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SAMPLE ANALYTE COUNT

Project: C5-101-71668 Hanover USDA
Pace Project No.: 1091136

Lab ID	Sample ID	Method	Analysts	Analytes Reported
1091136001	**Bruna BSMT Can#0856**	TO-15	DB1	2

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ANALYTICAL RESULTS

Project: C5-101-71668 Hanover USDA
Pace Project No.: 1091136

Sample: Bruna BSMT Can#0856 **Lab ID: 1091136001** Collected: 03/13/09 07:10 Received: 03/17/09 09:06 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
Carbon tetrachloride	ND	ug/m3	1.7	1.34		03/27/09 02:39	56-23-5	
Chloroform	ND	ug/m3	1.3	1.34		03/27/09 02:39	67-66-3	

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QUALITY CONTROL DATA

Project: C5-101-71668 Hanover USDA
Pace Project No.: 1091136

QC Batch: AIR/8302
QC Batch Method: TO-15
Analysis Method: TO-15
Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 1091136001

METHOD BLANK: 598640
Matrix: Air
Associated Lab Samples: 1091136001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Carbon tetrachloride	ug/m3	ND	1.3	03/26/09 21:06	
Chloroform	ug/m3	ND	0.99	03/26/09 21:06	

LABORATORY CONTROL SAMPLE: 598641

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/m3	64.6	64.4	100	58-135	
Chloroform	ug/m3	48.5	51.7	107	50-150	

SAMPLE DUPLICATE: 599545

Parameter	Units	1091134001 Result	Dup Result	RPD	Max RPD	Qualifiers
Carbon tetrachloride	ug/m3	ND	ND		25	
Chloroform	ug/m3	ND	ND		25	

SAMPLE DUPLICATE: 599546

Parameter	Units	1091136001 Result	Dup Result	RPD	Max RPD	Qualifiers
Carbon tetrachloride	ug/m3	ND	ND		25	
Chloroform	ug/m3	ND	ND		25	

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(612)607-1700

QUALIFIERS

Project: C5-101-71668 Hanover USDA
Pace Project No.: 1091136

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

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U - Indicates the compound was analyzed for, but not detected.

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Pace Analytical®
www.pacelabs.com

CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

1091136

Page: of

1265770

Section A Required Client Information:

Company: KDHE
Address: 1000 SW Jackson St 410, Topeka KS 66612
Email To: bfinzer@KDHE.ks.gov
Phone: 785-296-1886 Fax: 785-296-1656
Requested Due Date/TAT: 03/20/09

Section B Required Project Information:

Report To: Beth Finzer / KDHE
Copy To:
Purchase Order No.:
Project Name: Hanover USDA
Project Number: CC-101-7166X

Section C Invoice Information:

Attention: Teresa Hattan
Company Name: See Section A
Address: See Section A
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER

Site Location STATE: Kansas

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW, Water WT, Waste Water WW, Product P, Soil/Solid SL, Oil OL, Wipe WP, Air AR, Tissue TS, Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test (Y/N)	Requested Analysis Filtered (Y/N): TO-15 Carbon Tet & Chloroform	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	Bruna BSMT Can# 0856		C	0712	3/12/09	0710	3/13/09			X									X		10911360001
2																					Flow # 183
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					
11																					
12																					

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
	Elizabeth Finzer	03/16/09	1000	[signature] Pace	3-17-09	09:06	AMB	N	N	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Elizabeth Finzer

SIGNATURE of SAMPLER: Elizabeth Finzer DATE Signed (MM/DD/YY): 03/12/09

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

2

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt

Pace Analytical

Client Name: STATE OF KANSAS Project # 1091136

Courier: [X] Fed Ex [ ] UPS [ ] USPS [ ] Client [ ] Commercial [ ] Pace Other _____

Tracking #: 8610 3136 6174, 6163

Custody Seal on Cooler/Box Present: [ ] yes [X] no Seals intact: [ ] yes [ ] no

Optional: Proj. Due Date: Proj. Name:

Packing Material: [ ] Bubble Wrap [X] Bubble Bags [ ] None [X] Other _____ Temp Blank: Yes ____ No X

Thermometer Used ~~80344042, 470425~~ Type of Ice: Wet Blue None [ ] Samples on ice, cooling process has begun

Cooler Temperature AMB Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 3-17-09

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	[X] Yes [ ] No [ ] N/A	1.
Chain of Custody Filled Out:	[X] Yes [ ] No [ ] N/A	2.
Chain of Custody Relinquished:	[X] Yes [ ] No [ ] N/A	3.
Sampler Name & Signature on COC:	[X] Yes [ ] No [ ] N/A	4.
Samples Arrived within Hold Time:	[X] Yes [ ] No [ ] N/A	5.
Short Hold Time Analysis (<72hr):	[ ] Yes [X] No [ ] N/A	6.
Rush Turn Around Time Requested:	[ ] Yes [X] No [ ] N/A	7.
Sufficient Volume:	[X] Yes [ ] No [ ] N/A	8.
Correct Containers Used:	[X] Yes [ ] No [ ] N/A	9.
-Pace Containers Used:	[X] Yes [ ] No [ ] N/A	
Containers Intact:	[X] Yes [ ] No [ ] N/A	10.
Filtered volume received for Dissolved tests	[ ] Yes [ ] No [X] N/A	11.
Sample Labels match COC:	[X] Yes [ ] No [ ] N/A	12.
-Includes date/time/ID/Analysis Matrix: AR (CM)		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	[ ] Yes [ ] No [X] N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	[ ] Yes [ ] No [X] N/A	
Exceptions: VOA,Coliform, TOC, Oil and Grease, WI-DRO (water)	[ ] Yes [ ] No	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	[ ] Yes [ ] No [X] N/A	14.
Headspace in VOA Vials (>6mm):	[ ] Yes [ ] No [X] N/A	15.
Trip Blank Present:	[ ] Yes [ ] No [X] N/A	16.
Trip Blank Custody Seals Present	[ ] Yes [ ] No [X] N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: 2 CANS, 2 FC'S

Project Manager Review: [signature] Date: 3/17/09

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

July 24, 2007

STL

STL Burlington
30 Community Drive, Suite 11
South Burlington, VT 05403

Tel: 802 660 1990 Fax: 802 660 1919
www.stl-inc.com

Mr. Clyde Dennis
Argonne National Laboratory
9700 S. Cass Avenue
Building 203, Office 149
Argonne, IL 60439

Re: Laboratory Project No. 21005
Case: HANOVER; SDG: 120862

Dear Mr. Dennis:

Enclosed are analytical results for samples that were received by STL Burlington on July 13th, 2007. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 07/13/07 ETR No: 120862		
717305	HA-GOEC-A-001	07/11/07	AIR
717306	HA-LJUEN-A-002	07/11/07	AIR
717307	HA-KHYN-A-003	07/11/07	AIR
717308	HA-SJUEN-A-006	07/11/07	AIR
717309	HA-HAG-A-007	07/11/07	AIR
717310	HA-BGA-005	07/11/07	AIR
717311	HA-JHYN-A-004	07/11/07	AIR
717312	HA-BRU-A-009	07/11/07	AIR
717313	HA-BG2-A-010	07/11/07	AIR
717314	HA-MEI-A-011	07/11/07	AIR
717315	HA-POE-A-008	07/11/07	AIR

Documentation of the condition of the samples at the time of receipt and any exceptions to the laboratory's Sample Acceptance Policy is included in the Sample Handling section of this submittal. The summa canisters and flow regulators that were used in the collection of the samples were prepared and supplied by STL Burlington.

The samples were analyzed by Method TO-15. The analytical results for the analysis of the samples in this sample set are reported in terms of parts per billion on a volume/volume basis (PPBV). An electronic record has been generated with a conversion of the results to a weight/volume basis (ug/cubic meter), and this is included as part of this submittal. A report from the electronic file is also included with this submittal, and immediately follows this transmittal letter.

The responses in the initial calibration for each of the target analytes met the 30 percent relative standard deviation criterion. The response for each target analyte met the 30 percent difference criterion in the calibration check acquisition. Each of the analyses associated with the analytical

Leaders in Environmental Testing

work exhibited acceptable internal standard responses. A laboratory control sample was analyzed in duplicate in the analytical sequence. There was an acceptable recovery of each target analyte in each analysis, and for each target analytes there was an acceptable correlation of the results in the interanalysis comparison. The method blank that was analyzed in association with the samples was free of contamination.

The result for acetone in the analysis of samples HA-GOEC-A-001, HA-LJUEN-A-002, HA-JHYN-A-004, HA-BRU-A-009, and HA-MEI-A-011 was derived from a response that exceeded the calibrated range, as were the results for acetone and isopropyl alcohol in the analysis of samples HA-KHYN-A-003 and HA-HAG-A-007. Based on the direction that was received from Jorge Alvarado, the laboratory did not pursue a further, dilution analysis of the samples.

If there are any questions regarding this submittal, please contact me at 802 660-1990.

The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

Sincerely,

Kirk F. Young
Project Manager

KFY/hsf
Enclosure

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-GOEC-A-001

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717305

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	3.0		0.50	15		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.81		0.50	1.7		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	2.4		0.20	13		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	40	E	5.0	95	E	12
Isopropyl Alcohol	67-63-0	18		5.0	44		12
Carbon Disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene Chloride	75-09-2	0.85		0.50	3.0		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	2.2		0.50	7.8		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
1,2-Dichloroethene (total)	540-59-0	0.20	U	0.20	0.79	U	0.79
Methyl Ethyl Ketone	78-93-3	2.8		0.50	8.3		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
1,1,1-Trichloroethane	71-55-6	0.89		0.20	4.9		1.1
Cyclohexane	110-82-7	0.89		0.20	3.1		0.69
Carbon Tetrachloride	56-23-5	0.76		0.20	4.8		1.3
2,2,4-Trimethylpentane	540-84-1	0.61		0.20	2.8		0.93
Benzene	71-43-2	3.2		0.20	10		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.82		0.20	3.4		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-GOEC-A-001

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717305

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	8.9		0.20	34		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.26		0.20	1.8		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	1.1		0.20	4.8		0.87
Xylene (m,p)	1330-20-7	3.4		0.50	15		2.2
Xylene (o)	95-47-6	1.1		0.20	4.8		0.87
Xylene (total)	1330-20-7	4.6		0.20	20		0.87
Styrene	100-42-5	0.25		0.20	1.1		0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.74		0.20	3.6		0.98
1,3,5-Trimethylbenzene	108-67-8	0.23		0.20	1.1		0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.91		0.20	4.5		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-LJUEN-A-002

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717306

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	1.5		0.50	7.4		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.75		0.50	1.5		1.0
Vinyl Chloride	75-01-4	0.30		0.20	0.77		0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	3.5		0.20	20		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	45	E	5.0	110	E	12
Isopropyl Alcohol	67-63-0	14		5.0	34		12
Carbon Disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene Chloride	75-09-2	5.6		0.50	19		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
1,2-Dichloroethene (total)	540-59-0	0.20	U	0.20	0.79	U	0.79
Methyl Ethyl Ketone	78-93-3	2.6		0.50	7.7		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
Chloroform	67-66-3	0.25		0.20	1.2		0.98
1,1,1-Trichloroethane	71-55-6	1.3		0.20	7.1		1.1
Cyclohexane	110-82-7	0.20		0.20	0.69		0.69
Carbon Tetrachloride	56-23-5	0.23		0.20	1.4		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.24		0.20	0.77		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.72		0.20	3.0		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-LJUEN-A-002

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717306

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	9.9		0.20	37		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.80		0.20	3.5		0.87
Xylene (m,p)	1330-20-7	2.2		0.50	9.6		2.2
Xylene (o)	95-47-6	0.56		0.20	2.4		0.87
Xylene (total)	1330-20-7	2.8		0.20	12		0.87
Styrene	100-42-5	0.36		0.20	1.5		0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.31		0.20	1.5		0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.41		0.20	2.0		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.44		0.20	2.6		1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-KHYN-A-003

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717307

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.86		0.50	1.8		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.30		0.20	1.7		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	81	E	5.0	190	E	12
Isopropyl Alcohol	67-63-0	66	E	5.0	160	E	12
Carbon Disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene Chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
1,2-Dichloroethene (total)	540-59-0	0.20	U	0.20	0.79	U	0.79
Methyl Ethyl Ketone	78-93-3	4.1		0.50	12		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
Chloroform	67-66-3	0.25		0.20	1.2		0.98
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.35		0.20	1.2		0.69
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	1.0		0.20	3.2		0.64
1,2-Dichloroethane	107-06-2	0.48		0.20	1.9		0.81
n-Heptane	142-82-5	0.93		0.20	3.8		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-KHYN-A-003

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717307

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.27		0.20	1.5		1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.57		0.50	2.3		2.0
Toluene	108-88-3	6.3		0.20	24		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	3.0		0.20	20		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.48		0.20	2.1		0.87
Xylene (m,p)	1330-20-7	1.4		0.50	6.1		2.2
Xylene (o)	95-47-6	0.46		0.20	2.0		0.87
Xylene (total)	1330-20-7	2.0		0.20	8.7		0.87
Styrene	100-42-5	0.60		0.20	2.6		0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.32		0.20	1.6		0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.62		0.20	3.0		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-SJUEN-A-006

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717308

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.60		0.50	1.2		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.68		0.20	3.8		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	61	E	5.0	140	E	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon Disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene Chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
1,2-Dichloroethene (total)	540-59-0	0.20	U	0.20	0.79	U	0.79
Methyl Ethyl Ketone	78-93-3	1.6		0.50	4.7		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.31		0.20	1.1		0.69
Carbon Tetrachloride	56-23-5	0.23		0.20	1.4		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20		0.20	0.82		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-SJUEN-A-006

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717308

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	2.4		0.20	9.0		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.22		0.20	0.96		0.87
Xylene (m,p)	1330-20-7	0.59		0.50	2.6		2.2
Xylene (o)	95-47-6	0.23		0.20	1.0		0.87
Xylene (total)	1330-20-7	0.83		0.20	3.6		0.87
Styrene	100-42-5	0.20		0.20	0.85		0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.26		0.20	1.3		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-HAG-A-007

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717309

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.81		0.50	1.7		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.27		0.20	1.5		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	91	E	5.0	220	E	12
Isopropyl Alcohol	67-63-0	47	E	5.0	120	E	12
Carbon Disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene Chloride	75-09-2	0.50		0.50	1.7		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	5.5		0.50	19		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
1,2-Dichloroethene (total)	540-59-0	0.20	U	0.20	0.79	U	0.79
Methyl Ethyl Ketone	78-93-3	3.0		0.50	8.8		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
Chloroform	67-66-3	0.90		0.20	4.4		0.98
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	1.2		0.20	4.1		0.69
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	2.4		0.20	11		0.93
Benzene	71-43-2	9.0		0.20	29		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	2.4		0.20	9.8		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-HAG-A-007

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717309

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.31		0.20	1.7		1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	1.6		0.50	6.6		2.0
Toluene	108-88-3	34		0.20	130		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	3.8		0.20	17		0.87
Xylene (m,p)	1330-20-7	16		0.50	69		2.2
Xylene (o)	95-47-6	5.2		0.20	23		0.87
Xylene (total)	1330-20-7	22		0.20	96		0.87
Styrene	100-42-5	1.4		0.20	6.0		0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	3.4		0.20	17		0.98
1,3,5-Trimethylbenzene	108-67-8	1.2		0.20	5.9		0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	4.1		0.20	20		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-BGA-005

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717310

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.50	U	0.50	1.0	U	1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.20		0.20	1.1		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	6.0		5.0	14		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon Disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene Chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
1,2-Dichloroethene (total)	540-59-0	0.20	U	0.20	0.79	U	0.79
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-BGA-005

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717310

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.46		0.20	1.7		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.50	U	0.50	2.2	U	2.2
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylene (total)	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-JHYN-A-004

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717311

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.71		0.50	3.5		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.67		0.50	1.4		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.54		0.20	3.0		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	52	E	5.0	120	E	12
Isopropyl Alcohol	67-63-0	14		5.0	34		12
Carbon Disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene Chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.58		0.50	2.0		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
1,2-Dichloroethene (total)	540-59-0	0.20	U	0.20	0.79	U	0.79
Methyl Ethyl Ketone	78-93-3	8.4		0.50	25		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
Chloroform	67-66-3	0.24		0.20	1.2		0.98
1,1,1-Trichloroethane	71-55-6	0.39		0.20	2.1		1.1
Cyclohexane	110-82-7	0.33		0.20	1.1		0.69
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	1.3		0.20	4.2		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.75		0.20	3.1		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-JHYN-A-004

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717311

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	9.6		0.20	36		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.66		0.20	2.9		0.87
Xylene (m,p)	1330-20-7	2.2		0.50	9.6		2.2
Xylene (o)	95-47-6	0.77		0.20	3.3		0.87
Xylene (total)	1330-20-7	3.0		0.20	13		0.87
Styrene	100-42-5	0.39		0.20	1.7		0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.75		0.20	3.7		0.98
1,3,5-Trimethylbenzene	108-67-8	0.27		0.20	1.3		0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	1.1		0.20	5.4		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	1.8		0.20	11		1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-BRU-A-009

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717312

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.69		0.50	1.4		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.22		0.20	1.2		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	110	E	5.0	260	E	12
Isopropyl Alcohol	67-63-0	23		5.0	57		12
Carbon Disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene Chloride	75-09-2	3.1		0.50	11		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	1.7		0.50	6.0		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
1,2-Dichloroethene (total)	540-59-0	0.20	U	0.20	0.79	U	0.79
Methyl Ethyl Ketone	78-93-3	3.7		0.50	11		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
Chloroform	67-66-3	0.22		0.20	1.1		0.98
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.33		0.20	1.1		0.69
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	1.5		0.20	7.0		0.93
Benzene	71-43-2	3.1		0.20	9.9		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	1.4		0.20	5.7		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-BRU-A-009

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717312

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	16		0.20	60		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.28		0.20	1.9		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	2.3		0.20	10		0.87
Xylene (m,p)	1330-20-7	8.6		0.50	37		2.2
Xylene (o)	95-47-6	3.0		0.20	13		0.87
Xylene (total)	1330-20-7	12		0.20	52		0.87
Styrene	100-42-5	4.4		0.20	19		0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	2.2		0.20	11		0.98
1,3,5-Trimethylbenzene	108-67-8	0.76		0.20	3.7		0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	6.0		0.20	29		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-BG2-A-010

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717313

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.50	U	0.50	1.0	U	1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.23		0.20	1.3		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	6.4		5.0	15		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon Disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene Chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
1,2-Dichloroethene (total)	540-59-0	0.20	U	0.20	0.79	U	0.79
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-BG2-A-010

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717313

Date Analyzed: 7/19/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.20	U	0.20	0.75	U	0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.50	U	0.50	2.2	U	2.2
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylene (total)	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-MEI-A-011

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717314

Date Analyzed: 7/20/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	1.6		0.50	7.9		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.64		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.56		0.20	3.1		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	41	E	5.0	97	E	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon Disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene Chloride	75-09-2	1.6		0.50	5.6		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
1,2-Dichloroethene (total)	540-59-0	0.20	U	0.20	0.79	U	0.79
Methyl Ethyl Ketone	78-93-3	2.4		0.50	7.1		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
1,1,1-Trichloroethane	71-55-6	0.26		0.20	1.4		1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon Tetrachloride	56-23-5	0.59		0.20	3.7		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.40		0.20	1.3		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-MEI-A-011

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717314

Date Analyzed: 7/20/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	3.1		0.20	12		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	1.6		0.50	6.6		2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.31		0.20	1.3		0.87
Xylene (m,p)	1330-20-7	0.94		0.50	4.1		2.2
Xylene (o)	95-47-6	0.33		0.20	1.4		0.87
Xylene (total)	1330-20-7	1.3		0.20	5.6		0.87
Styrene	100-42-5	0.29		0.20	1.2		0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.27		0.20	1.3		0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.42		0.20	2.1		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-POE-A-008

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717315

Date Analyzed: 7/20/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.62		0.50	3.1		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.65		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.41		0.20	2.3		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	25		5.0	59		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon Disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene Chloride	75-09-2	14		0.50	49		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
1,2-Dichloroethene (total)	540-59-0	0.20	U	0.20	0.79	U	0.79
Methyl Ethyl Ketone	78-93-3	1.6		0.50	4.7		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
1,1,1-Trichloroethane	71-55-6	0.22		0.20	1.2		1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	1.9		0.20	8.9		0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.71		0.20	2.9		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HA-POE-A-008

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: 717315

Date Analyzed: 7/20/2007

Date Received: 7/13/2007

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	3.9		0.20	15		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.64		0.20	2.8		0.87
Xylene (m,p)	1330-20-7	2.2		0.50	9.6		2.2
Xylene (o)	95-47-6	1.1		0.20	4.8		0.87
Xylene (total)	1330-20-7	3.3		0.20	14		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	1.2		0.20	5.9		0.98
1,3,5-Trimethylbenzene	108-67-8	0.59		0.20	2.9		0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	1.7		0.20	8.4		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

GA071907LCS

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: GA071907

Date Analyzed: 7/19/2007

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	12		0.50	59		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	11		0.20	77		1.4
Chloromethane	74-87-3	11		0.50	23		1.0
Vinyl Chloride	75-01-4	11		0.20	28		0.51
1,3-Butadiene	106-99-0	12		0.50	27		1.1
Bromomethane	74-83-9	12		0.20	47		0.78
Chloroethane	75-00-3	12		0.50	32		1.3
Bromoethene	593-60-2	12		0.20	52		0.87
Trichlorofluoromethane	75-69-4	12		0.20	67		1.1
Freon TF	76-13-1	11		0.20	84		1.5
1,1-Dichloroethene	75-35-4	11		0.20	44		0.79
Acetone	67-64-1	9.7		5.0	23		12
Isopropyl Alcohol	67-63-0	9.0		5.0	22		12
Carbon Disulfide	75-15-0	9.9		0.50	31		1.6
3-Chloropropene	107-05-1	9.3		0.50	29		1.6
Methylene Chloride	75-09-2	10		0.50	35		1.7
tert-Butyl Alcohol	75-65-0	9.3		5.0	28		15
Methyl tert-Butyl Ether	1634-04-4	9.7		0.50	35		1.8
trans-1,2-Dichloroethene	156-60-5	9.9		0.20	39		0.79
n-Hexane	110-54-3	9.4		0.50	33		1.8
1,1-Dichloroethane	75-34-3	9.7		0.20	39		0.81
1,2-Dichloroethene (total)	540-59-0	20		0.20	79		0.79
Methyl Ethyl Ketone	78-93-3	9.4		0.50	28		1.5
cis-1,2-Dichloroethene	156-59-2	10		0.20	40		0.79
Tetrahydrofuran	109-99-9	8.7		5.0	26		15
Chloroform	67-66-3	10		0.20	49		0.98
1,1,1-Trichloroethane	71-55-6	11		0.20	60		1.1
Cyclohexane	110-82-7	9.8		0.20	34		0.69
Carbon Tetrachloride	56-23-5	11		0.20	69		1.3
2,2,4-Trimethylpentane	540-84-1	9.4		0.20	44		0.93
Benzene	71-43-2	9.5		0.20	30		0.64
1,2-Dichloroethane	107-06-2	11		0.20	45		0.81
n-Heptane	142-82-5	9.3		0.20	38		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

GA071907LCS

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: GA071907

Date Analyzed: 7/19/2007

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	9.9		0.20	53		1.1
1,2-Dichloropropane	78-87-5	9.2		0.20	43		0.92
1,4-Dioxane	123-91-1	8.6		5.0	31		18
Bromodichloromethane	75-27-4	11		0.20	74		1.3
cis-1,3-Dichloropropene	10061-01-5	9.6		0.20	44		0.91
Methyl Isobutyl Ketone	108-10-1	9.5		0.50	39		2.0
Toluene	108-88-3	8.7		0.20	33		0.75
trans-1,3-Dichloropropene	10061-02-6	9.9		0.20	45		0.91
1,1,2-Trichloroethane	79-00-5	8.7		0.20	47		1.1
Tetrachloroethene	127-18-4	9.2		0.20	62		1.4
Methyl Butyl Ketone	591-78-6	9.4		0.50	39		2.0
Dibromochloromethane	124-48-1	11		0.20	94		1.7
1,2-Dibromoethane	106-93-4	9.3		0.20	71		1.5
Chlorobenzene	108-90-7	9.1		0.20	42		0.92
Ethylbenzene	100-41-4	9.1		0.20	40		0.87
Xylene (m,p)	1330-20-7	18		0.50	78		2.2
Xylene (o)	95-47-6	9.0		0.20	39		0.87
Xylene (total)	1330-20-7	28		0.20	120		0.87
Styrene	100-42-5	9.5		0.20	40		0.85
Bromoform	75-25-2	11		0.20	110		2.1
1,1,2,2-Tetrachloroethane	79-34-5	8.7		0.20	60		1.4
4-Ethyltoluene	622-96-8	9.0		0.20	44		0.98
1,3,5-Trimethylbenzene	108-67-8	9.8		0.20	48		0.98
2-Chlorotoluene	95-49-8	9.5		0.20	49		1.0
1,2,4-Trimethylbenzene	95-63-6	8.9		0.20	44		0.98
1,3-Dichlorobenzene	541-73-1	9.1		0.20	55		1.2
1,4-Dichlorobenzene	106-46-7	9.1		0.20	55		1.2
1,2-Dichlorobenzene	95-50-1	8.9		0.20	54		1.2
1,2,4-Trichlorobenzene	120-82-1	8.1		0.50	60		3.7
Hexachlorobutadiene	87-68-3	8.1		0.20	86		2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

GA071907LCSD

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: GA071907

Date Analyzed: 7/19/2007

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	12		0.50	59		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	12		0.20	84		1.4
Chloromethane	74-87-3	11		0.50	23		1.0
Vinyl Chloride	75-01-4	12		0.20	31		0.51
1,3-Butadiene	106-99-0	12		0.50	27		1.1
Bromomethane	74-83-9	12		0.20	47		0.78
Chloroethane	75-00-3	12		0.50	32		1.3
Bromoethene	593-60-2	13		0.20	57		0.87
Trichlorofluoromethane	75-69-4	13		0.20	73		1.1
Freon TF	76-13-1	12		0.20	92		1.5
1,1-Dichloroethene	75-35-4	12		0.20	48		0.79
Acetone	67-64-1	9.9		5.0	24		12
Isopropyl Alcohol	67-63-0	9.3		5.0	23		12
Carbon Disulfide	75-15-0	11		0.50	34		1.6
3-Chloropropene	107-05-1	10		0.50	31		1.6
Methylene Chloride	75-09-2	10		0.50	35		1.7
tert-Butyl Alcohol	75-65-0	9.7		5.0	29		15
Methyl tert-Butyl Ether	1634-04-4	9.8		0.50	35		1.8
trans-1,2-Dichloroethene	156-60-5	10		0.20	40		0.79
n-Hexane	110-54-3	10		0.50	35		1.8
1,1-Dichloroethane	75-34-3	10		0.20	40		0.81
1,2-Dichloroethene (total)	540-59-0	21		0.20	83		0.79
Methyl Ethyl Ketone	78-93-3	9.3		0.50	27		1.5
cis-1,2-Dichloroethene	156-59-2	11		0.20	44		0.79
Tetrahydrofuran	109-99-9	8.7		5.0	26		15
Chloroform	67-66-3	11		0.20	54		0.98
1,1,1-Trichloroethane	71-55-6	11		0.20	60		1.1
Cyclohexane	110-82-7	10		0.20	34		0.69
Carbon Tetrachloride	56-23-5	11		0.20	69		1.3
2,2,4-Trimethylpentane	540-84-1	9.8		0.20	46		0.93
Benzene	71-43-2	10		0.20	32		0.64
1,2-Dichloroethane	107-06-2	11		0.20	45		0.81
n-Heptane	142-82-5	9.7		0.20	40		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

GA071907LCSD

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: GA071907

Date Analyzed: 7/19/2007

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	10		0.20	54		1.1
1,2-Dichloropropane	78-87-5	9.6		0.20	44		0.92
1,4-Dioxane	123-91-1	8.7		5.0	31		18
Bromodichloromethane	75-27-4	11		0.20	74		1.3
cis-1,3-Dichloropropene	10061-01-5	10		0.20	45		0.91
Methyl Isobutyl Ketone	108-10-1	9.4		0.50	39		2.0
Toluene	108-88-3	9.3		0.20	35		0.75
trans-1,3-Dichloropropene	10061-02-6	10		0.20	45		0.91
1,1,2-Trichloroethane	79-00-5	9.0		0.20	49		1.1
Tetrachloroethene	127-18-4	9.7		0.20	66		1.4
Methyl Butyl Ketone	591-78-6	9.4		0.50	39		2.0
Dibromochloromethane	124-48-1	11		0.20	94		1.7
1,2-Dibromoethane	106-93-4	9.7		0.20	75		1.5
Chlorobenzene	108-90-7	9.5		0.20	44		0.92
Ethylbenzene	100-41-4	9.1		0.20	40		0.87
Xylene (m,p)	1330-20-7	18		0.50	78		2.2
Xylene (o)	95-47-6	9.1		0.20	40		0.87
Xylene (total)	1330-20-7	28		0.20	120		0.87
Styrene	100-42-5	9.6		0.20	41		0.85
Bromoform	75-25-2	11		0.20	110		2.1
1,1,2,2-Tetrachloroethane	79-34-5	8.7		0.20	60		1.4
4-Ethyltoluene	622-96-8	9.2		0.20	45		0.98
1,3,5-Trimethylbenzene	108-67-8	9.2		0.20	45		0.98
2-Chlorotoluene	95-49-8	9.5		0.20	49		1.0
1,2,4-Trimethylbenzene	95-63-6	8.7		0.20	43		0.98
1,3-Dichlorobenzene	541-73-1	9.0		0.20	54		1.2
1,4-Dichlorobenzene	106-46-7	9.1		0.20	55		1.2
1,2-Dichlorobenzene	95-50-1	8.7		0.20	52		1.2
1,2,4-Trichlorobenzene	120-82-1	7.6		0.50	56		3.7
Hexachlorobutadiene	87-68-3	7.5		0.20	80		2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK071907GA

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: MBLK0719

Date Analyzed: 7/19/2007

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.50	U	0.50	1.0	U	1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.20	U	0.20	1.1	U	1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon Disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene Chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
1,2-Dichloroethene (total)	540-59-0	0.20	U	0.20	0.79	U	0.79
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK071907GA

Lab Name: STL Burlington

SDG Number: 120862

Case Number:

Sample Matrix: AIR

Lab Sample No.: MBLK0719

Date Analyzed: 7/19/2007

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.20	U	0.20	0.75	U	0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.50	U	0.50	2.2	U	2.2
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylene (total)	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

STL Burlington Data Qualifier Definitions

Organic

U: Compound analyzed but not detected at a concentration above the reporting limit.

J: Estimated value.

N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.

P: SW-846: Greater than 40% difference for detected concentrations between two GC columns. Unless otherwise specified the higher of the two values is reported on the Form I.

CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.

C: Pesticide result whose identification has been confirmed by GC/MS.

B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.

E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.

D: Concentrations identified from analysis of the sample at a secondary dilution.

A: Tentatively identified compound is a suspected aldol condensation product.

X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

E: Reported value is estimated due to the presence of interference.

N: Matrix spike sample recovery is not within control limits.

* Duplicate sample analysis is not within control limits.

B: The result reported is less than the reporting limit but greater than the instrument detection limit.

U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

P ICP-AES
MS ICP-MS
CV Cold Vapor AA
AS Semi-Automated Spectrophotometric

SEVERN TRENT STL
SEVERN TRENT LABORATORIES, INC.

STL Burlington
30 Community Drive, Suite 11
South Burlington, VT 05403 Tel: 802 660 1990

CHAIN OF CUSTODY RECORD

Report to: 203/B145
Company: ARGONNE NAT. LAB
Address: 9700 S. CASS AVE
Argonne IL 60439
Contact: CLYDE DENNIS
Phone: 630 252 5999
Fax: 630 252 5747
Contract/ Quote:

Invoice to:
Company: Argonne NAT. LAB
Address: 9700 S. CASS AVE
Argonne IL 60439
Contact: Jorge ALVARADO
Phone: 630 252 5267
Fax: 630 252 5747

Sampler's Name: CLYDE DENNIS
Sampler's Signature: Clyde B Dennis

Proj. No.:
Project Name: HANOVER

ANALYSIS REQUESTED: TO-15

Lab Use Only
Due Date:
Temp. of coolers when received (C°): 1 | 2 | 3 | 4 | 5
Custody Seal N / Y
Intact N / Y
Screened For Radioactivity ☐

Matrix[1]	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	VOA	A/G 1 Lt.	250 ml	P/O	Lab/Sample ID (Lab Use Only)
A	7/11				HA-GOEC-A-001	✓				
					HA-LJUEN-A-002					
					HA-KHYN-A-003					
					HA-SJUEN-A-006					
					HA-HAG-A-007					
					HA-BGA-005					
					HA-JHYN-A-004					
					HA-BRU-A-009					
					HA-BGZ-A-010					
					HA-MEI-A-011					

Relinquished by: (Signature)	Date	Time	Received by: (Signature	Date	Time
Clyde B Dennis	7/11/07	12:00	Thomas Jackson	7-13-07	1040
Relinquished by: (Signature)	Date	Time	Received by: (Signature	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature	Date	Time

Remarks

Client's delivery of samples constitutes acceptance of Severn Trent Laboratories terms and conditions contained in the Price Schedule.

[1]Matrix WW - Wastewater W - Water S - Soil L - Liquid A - Air bag C - Charcoal Tube SL - Sludge O - Oil
[2]Container VOA - 40 ml vial A/G - Amber / Or Glass 1 Liter 250 ml - Glass wide mouth P/O - Plastic or other _____

STL Cannot accept verbal changes. Please Fax written changes to (802) 660-1919

STL8234-200 (02/07)

SEVERN TRENT STL

SEVERN TRENT LABORATORIES, INC.

STL Burlington
30 Community Drive, Suite 11
South Burlington, VT 05403 Tel: 802 660 1990

2 of 2

CHAIN OF CUSTODY RECORD

Report to:
Company: ARGONNE NAT. LAB
Address: 9700 S. CASS AVE
ARGONNE IL 60439
Contact: CLYDE DENNIS
Phone: 630 252 5999
Fax: 630 252 5747
Contract/ Quote:

Invoice to:
Company: ARGONNE NAT. LAB
Address: 9700 S. CASS AVE
ARGONNE IL 60439
Contact: Jorge ALVARADO
Phone: 630 252 5267
Fax: 630 252 5747

ANALYSIS REQUESTED

Lab Use Only
Due Date:

Temp. of coolers when received (C°):

1	2	3	4	5

Custody Seal N / Y
Intact N / Y

Screened For Radioactivity ☐

Sampler's Name: CLYDE DENNIS
Sampler's Signature: Clyde B Dennis

Proj. No.
Project Name
No/Type of Containers[2]

Matrix[1]	Date	Time	Comp	Grab	Identifying Marks of Sample(s)	VOA	A/G 1 Lt.	250 ml	P/O	Lab/Sample ID (Lab Use Only)
A	7/11				HA-POE-A-008					

Relinquished by: (Signature)	Date	Time	Received by: (Signature	Date	Time
Clyde B Dennis	7/11/07	12:00	Thomas Jackson	7-13-07	1040
Relinquished by: (Signature)	Date	Time	Received by: (Signature	Date	Time
Relinquished by: (Signature)	Date	Time	Received by: (Signature	Date	Time

Remarks

Client's delivery of samples constitutes acceptance of Severn Trent Laboratories terms and conditions contained in the Price Schedule.

[1]Matrix WW - Wastewater W - Water S - Soil L - Liquid A - Air bag C - Charcoal Tube SL - Sludge O - Oil
[2]Container VOA - 40 ml vial A/G - Amber / Or Glass 1 Liter 250 ml - Glass wide mouth P/O - Plastic or other _____

STL Cannot accept verbal changes. Please Fax written changes to (802) 660-1919

STL8234-200 (02/07)

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

August 17, 2009

Mr. Clyde Dennis
Argonne National Laboratory
9700 S. Cass Avenue
Building 203, Office B149
Argonne, IL 60439

Re: Laboratory Project No. 21005
Case: HANOVER; SDG: 133065

Dear Mr. Dennis:

Enclosed are analytical results for samples that were received by TestAmerica Burlington on August 13th, 2009. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 08/13/09 ETR No: 133065		
803402	400NESBATH	08/12/09	AIR
803403	400NES1F	08/12/09	AIR
803404	400NESBASE	08/12/09	AIR
803405	NTLAMBIENT	08/12/09	AIR

Documentation of the condition of the samples at the time of receipt and any exceptions to the laboratory's Sample Acceptance Policy is included in the Sample Handling section of this submittal. The summa canisters and flow regulators that were used in the collection of the samples were prepared and supplied by TestAmerica Burlington.

The laboratory did abbreviate the sample identifiers as they were rendered from the field. The leading numeric represents the street number, which is followed by an abbreviation of the street name. The ending suffix references the sample location within the structure; BATH (bathroom), 1F (first floor), and BASE (basement). In the case of the ambient sample, the sample station is abbreviated, followed by the suffix AMBIENT to reflect the sample type.

The canister associated with sample 400NESBATH was received with a high residual vacuum (-13.4 in Hg). The laboratory did evaluate the flow rate of the flow controller associated with the collection of the sample, and the measured flow rate was 2.4 mL/min. The measured flow rate of the controller as it was sent to the field was 3.2 mL/min. The condition of the sample was identified to Dr. Jorge Alvarado, and a decision was made to analyze sample 400NESBATH.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

The samples were analyzed for chloroform and carbon tetrachloride by Method TO-15. The analytical results for the analysis of the samples in this sample set are reported in terms of parts per billion on a volume/volume basis (PPBV). An electronic record has been generated with a conversion of the results to a weight/volume basis (ug/cubic meter), and this is included as part of this submittal. A report from the electronic file is also included with this submittal, and immediately follows this transmittal letter.

In order to provide for the analysis of sample 400NESBATH, it was necessary to introduce analyte free air to the canister. This is reflected in the reported dilution factor of 1.3 that was applied in deriving the results for the analysis of that sample. The responses in the initial calibration for each target analyte met the 30 percent relative standard deviation criterion. The response for each target analyte met the 30 percent difference criterion in the calibration check acquisition. Each of the analyses associated with the analytical work exhibited an acceptable internal standard performance. A laboratory control sample was analyzed in the analytical sequence, and there was an acceptable recovery of each target analyte in that analysis. The method blank that was analyzed in association with the samples was free of contamination.

Any reference within this report to Severn Trent Laboratories, Inc. or STL, should be understood to refer to TestAmerica Laboratories, Inc. (formerly known as Severn Trent Laboratories, Inc.) The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

If there are any questions regarding this submittal, please contact me at 802 660-1990.

Sincerely,

Kirk F. Young
Project Manager

KFY/hsf
Enclosure

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400NESBATH

Lab Name: TAL Burlington

SDG Number: 133065

Dilution Factor: 1.30

Sample Matrix: AIR

Lab Sample No.: 803402

Date Analyzed: 8/13/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.29		0.26	1.4		1.3
Carbon Tetrachloride	56-23-5	1.3		0.26	8.2		1.6

Printed: 8/17/2009 11:25:09 AM

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400NES1F

Lab Name: TAL Burlington

SDG Number: 133065

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803403

Date Analyzed: 8/13/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.27		0.20	1.3		0.98
Carbon Tetrachloride	56-23-5	1.4		0.20	8.8		1.3

Printed: 8/17/2009 11:25:10 AM

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400NESBASE

Lab Name: TAL Burlington

SDG Number: 133065

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803404

Date Analyzed: 8/13/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.25		0.20	1.2		0.98
Carbon Tetrachloride	56-23-5	1.8		0.20	11		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

NTLAMBIENT

Lab Name: TAL Burlington

SDG Number: 133065

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803405

Date Analyzed: 8/13/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

Printed: 8/17/2009 11:25:11 AM

TO-14/15
Result Summary

CLIENT SAMPLE NO.

FA081209LCS

Lab Name: TAL Burlington

SDG Number: 133065

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: FA081209

Date Analyzed: 8/12/2009

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	11		0.20	54		0.98
Carbon Tetrachloride	56-23-5	11		0.20	69		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK081209FA

Lab Name: TAL Burlington

SDG Number: 133065

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0812

Date Analyzed: 8/12/2009

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

Printed: 8/17/2009 11:25:12 AM

TestAmerica Burlington Data Qualifier Definitions

Organic

U: Compound analyzed but not detected at a concentration above the reporting limit.

J: Estimated value.

N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.

P: SW-846: The relative percent difference for detected concentrations between two GC columns is greater than 40%. Unless otherwise specified the higher of the two values is reported on the Form I.

CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.

C: Pesticide result whose identification has been confirmed by GC/MS.

B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.

E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.

D: Concentrations identified from analysis of the sample at a secondary dilution.

A: Tentatively identified compound is a suspected aldol condensation product.

X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

E: Reported value is estimated due to the presence of interference.

N: Matrix spike sample recovery is not within control limits.

* Duplicate sample analysis is not within control limits.

B: The result reported is less than the reporting limit but greater than the instrument detection limit.

U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

P	ICP-AES
MS	ICP-MS
CV	Cold Vapor AA
AS	Semi-Automated Spectrophotometric

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Lorraine LaFreniere	Samples Collected By:	8 of 8 COCs
Company: Argonne National Lab	Phone: 630-252-7969		
Address: 9700 S Cass AVE	Email:		
City/State/Zip Lemont IL 60439			
Phone: 630-252-5267	Site Contact:		
FAX:	TA Contact:		
Project Name: Vapor Intrusion	Analysis Turnaround Time		
Site: Hanover KS	Standard (Specify)		
PO # 8A727-9D	(Rush) (Specify) ASAP		

Sample Identification	Aug 2009 Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
400 N East St Bathroom		14:13	14:05	-29	-12	3784	4294	X							X				
1st Floor		14:11	14:04	-28	-06	4724	4820	X							X				
Basement		14:15	14:07	-32	-10	3857	4121	X							X				
North Tree Line		14:45	14:19	-26	-06	3782	4458	X								X			

Rush ASAP

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Rush ASAP

Samples Shipped by: Travis Kamler	Date/Time: 8-12-09 14:30	Samples Received by:	8/13/09 1050
Samples Relinquished by:	Date/Time:	Received by:	
Relinquished by:	Date/Time:	Received by:	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

August 24, 2009

Mr. Clyde Dennis
Argonne National Laboratory
9700 S. Cass Avenue
Bldg. 203, Office B149
Argonne, IL 60439

Re: Laboratory Project No. 21005
Case: HANOVER; SDG: 133084

Dear Mr. Dennis:

Enclosed are analytical results for samples that were received by TestAmerica Burlington on August 13th, 2009. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 08/13/09 ETR No: 133084		
803513	405EE1F	08/12/09	AIR
803514	405EEBASE	08/12/09	AIR
803515	303NESBASE	08/12/09	AIR
803516	303NES1F	08/12/09	AIR
803517	408EE1F	08/12/09	AIR
803518	408EEBASE	08/12/09	AIR
803519	400EEBASE	08/12/09	AIR
803520	400EE1F	08/12/09	AIR
803521	412EE1F	08/12/09	AIR
803522	412EEBASE	08/12/09	AIR
803523	400EK1F	08/12/09	AIR
803524	400EKBASE	08/12/09	AIR
803525	404ENS1F	08/12/09	AIR
803526	404ENSBASE	08/12/09	AIR
803527	406EES1F	08/12/09	AIR
803528	406EESBASE	08/12/09	AIR
803529	301NB1F	08/12/09	AIR
803530	301NBLOWERBASE	08/12/09	AIR
803531	WTAMBIENT	08/12/09	AIR

Documentation of the condition of the samples at the time of receipt and any exceptions to the laboratory's Sample Acceptance Policy is included in the Sample Handling section of this

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

submittal. The summa canisters and flow regulators that were used in the collection of the samples were prepared and supplied by TestAmerica Burlington.

The laboratory did abbreviate the sample identifiers as they were rendered from the field. The leading numeric represents the street number, which is followed by an abbreviation of the street name. The ending suffix references the sample location within the structure; 1F (first floor), BASE (basement), and LOWERBASE (lower basement). In the case of the ambient sample, the sample station is abbreviated, followed by the suffix AMBIENT to reflect the sample type. The sample identified on the chain-of-custody record as "Hoover Basement" was identified on the sample tag as "400 E. Elm St - Basement". For consistency, the sample was logged in for analysis with "400EEBASE" as the sample identifier.

The samples were analyzed for chloroform and carbon tetrachloride by Method TO-15. The analytical results for the analysis of the samples in this sample set are reported in terms of parts per billion on a volume/volume basis (PPBV). An electronic record has been generated with a conversion of the results to a weight/volume basis (ug/cubic meter), and this is included as part of this submittal. A report from the electronic file is also included with this submittal, and immediately follows this transmittal letter.

Each sample in the sample set was analyzed without a dilution. Each of the analyses associated with the analytical work exhibited an acceptable internal standard performance. The responses in the initial calibration for each target analyte met the 30 percent relative standard deviation criterion. The response for each target analyte met the 30 percent difference criterion in the calibration check acquisition. A laboratory control sample was analyzed in the analytical sequence, and there was an acceptable recovery of each target analyte in that analysis. The method blank that was analyzed in association with the samples was free of analyte contamination.

Any reference within this report to Severn Trent Laboratories, Inc. or STL, should be understood to refer to TestAmerica Laboratories, Inc. (formerly known as Severn Trent Laboratories, Inc.) The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

If there are any questions regarding this submittal, please contact me at 802 660-1990.

Sincerely,

Kirk F. Young
Project Manager

KFY/hsf
Enclosure

TO-14/15
Result Summary

CLIENT SAMPLE NO.

405EE1F

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803513

Date Analyzed: 8/17/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.68		0.20	3.3		0.98
Carbon Tetrachloride	56-23-5	0.36		0.20	2.3		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

405EEBASE

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803514

Date Analyzed: 8/17/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.54		0.20	2.6		0.98
Carbon Tetrachloride	56-23-5	0.46		0.20	2.9		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

303NESBASE

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803515

Date Analyzed: 8/17/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.68		0.20	3.3		0.98
Carbon Tetrachloride	56-23-5	0.30		0.20	1.9		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

303NES1F

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803516

Date Analyzed: 8/17/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.69		0.20	3.4		0.98
Carbon Tetrachloride	56-23-5	0.22		0.20	1.4		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

408EE1F

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803517

Date Analyzed: 8/17/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	1.8		0.20	11		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

408EEBASE

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803518

Date Analyzed: 8/17/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	2.7		0.20	17		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400EEBASE

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803519

Date Analyzed: 8/17/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400EE1F

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803520

Date Analyzed: 8/17/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

412EE1F

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803521

Date Analyzed: 8/17/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.30		0.20	1.9		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

412EEBASE

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803522

Date Analyzed: 8/17/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.44		0.20	2.8		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400EK1F

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803523

Date Analyzed: 8/17/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.24		0.20	1.2		0.98
Carbon Tetrachloride	56-23-5	0.24		0.20	1.5		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400EKBASE

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803524

Date Analyzed: 8/17/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.22		0.20	1.1		0.98
Carbon Tetrachloride	56-23-5	0.29		0.20	1.8		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

404ENS1F

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803525

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.25		0.20	1.6		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

404ENSBASE

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803526

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.28		0.20	1.8		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

406EES1F

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803527

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.24		0.20	1.5		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

406EESBASE

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803528

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.71		0.20	4.5		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

301NB1F

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803529

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

301NBLOWERBASE

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803530

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

WTAMBIENT

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803531

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

CA081709LCS

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: CA081709

Date Analyzed: 8/17/2009

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	11		0.20	54		0.98
Carbon Tetrachloride	56-23-5	11		0.20	69		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK081709CA

Lab Name: TAL Burlington

SDG Number: 133084

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0817

Date Analyzed: 8/17/2009

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TestAmerica Burlington Data Qualifier Definitions

Organic

U: Compound analyzed but not detected at a concentration above the reporting limit.

J: Estimated value.

N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.

P: SW-846: The relative percent difference for detected concentrations between two GC columns is greater than 40%. Unless otherwise specified the higher of the two values is reported on the Form I.

CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.

C: Pesticide result whose identification has been confirmed by GC/MS.

B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.

E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.

D: Concentrations identified from analysis of the sample at a secondary dilution.

A: Tentatively identified compound is a suspected aldol condensation product.

X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

E: Reported value is estimated due to the presence of interference.

N: Matrix spike sample recovery is not within control limits.

* Duplicate sample analysis is not within control limits.

B: The result reported is less than the reporting limit but greater than the instrument detection limit.

U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

P ICP-AES
MS ICP-MS
CV Cold Vapor AA
AS Semi-Automated Spectrophotometric

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass Ave
City/State/Zip Lemont IL 60439
Phone: 630-252-5267
FAX:
Project Name: Vapor Intrusion
Site: Hanover KS
PO # 8A727-9D

Project Manager: Lorraine LaFreniere
Phone: 630-252-7969
Email: lafreniere@anl.gov
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By:

1 of 8 COCs

Sample Identification	Aug 2009 Sample Date(s)	8-11 Time Start	8-12 Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
405 East Elm 1st Floor		7:38	7:36	-28	-04	4765	2543	X							X				
Basement		7:41	7:38	-30	-10	4105	4120	X							X				
303 N East St Basement		8:35	8:34	-28	-07	4518	4128	X							X				
1st Floor		8:50	8:31	-30	-02	4764	4442	X							X				

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: 8-12-09 14:30	Samples Received by: 8/13/09 1030
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

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Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip Lemont IL 60439
Phone: 630-252-5267
FAX:
Project Name: Vapor Intrusion
Site: Hanover KS
PO # 8A727-9D

Project Manager: Lorraine LaFrenieve
Phone: 630-252-7969
Email:
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By:

2 of 8 COCs

Sample Identification	Aug 2009 Sample Date(s)	8-11 Time Start	8-12 Time Stop	Canister Vacuum In Field, "Hg (Start)	Canister Vacuum In Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type: Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
408 East Elm 1st Floor		907	9:04	-30	-06	3693	4303	X						X				
Basement		9:13	9:06	-28	-07	3470	4378	X						X				
Hoover Basement		10:05	9:55	-24	-05	3687	3034	X						X				
400 East Elm 1st Floor		10:13	9:57	-29	-06	4044	3036	X						X				

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (Inches of Hg)	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: 8-12-09 14:30	Samples Received by: 8/13/09 1030
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

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Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip Lemont IL 60439
Phone: 630-252-5267
FAX:
Project Name: Vapor Intrusion
Site: Hanover KS
PO # 8A727-9D

Project Manager: Lorraine LaFreniere
Phone: 630-252-7969
Email:
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By: [signature]

3 of 8 COCs

Sample Identification	Aug 2009 Sample Date(s)	8-11 Time Start	8-12 Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, 'Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
412 E. Elm 1st	8/12/09	10:50	13:24	-29	-5	3064	2641	x											
412 E Elm Bsmt	8/12/09	10:54	13:25	-28.5	-6	3720	2897	x											
400 E. Kensington 1st	8/12/09	13:50	13:54	-30	-8	4730	2554	x											
400 E. Kensington Bsmt	8/12/09	13:54	13:55	-29	-6	4247	2553	x											

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (Inches of Hg)	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by: [signature]	Date/Time: 8-12-09 14:30	Samples Received by: [signature] 8/13/09 1030
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:

30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip Lemont IL 60439
Phone: 630-252-5267
FAX:
Project Name: Vapor Intrusion
Site: Hanover KS
PO # 8A727-9D

Project Manager: Lorraine LaFreniere
Phone: 630-252-7969
Email:
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By:

4 of 8 COCs

Sample Identification	Aug 2009 Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type: Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
404 E North St 1st Floor		9:48	9:50	-26	-6	3302	3029	X						X				
Basement		9:53	9:54	-26	-6	4046	2574	X						X				
406 E Elm St 1st Floor		11:14	11:15	-29	-5	2917	2688	X						X				
Basement		11:18	11:18	-27.5	-.7	4490	4381	X						X				

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (Inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: 8-12-09 14:30	Samples Received by: 8/13/09 1030
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
Phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

5 of 8 COCs

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip: Lemont IL 60439
Phone: 630-252-3267
FAX:
Project Name: Br Vapor Intrusion
Site: Hopper KS
PO# #A222-9D

Project Manager: Lorraine LaFreniere
Phone: 630-252-2969
Email:
Site Contact:
TA Contact:
Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By:

Sample Identification	Aug 2009 Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type: Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
301 N Belgrave 1st Floor		11:14	11:06	-30	-07	3940	3017	X						X				
Lower Basement		11:05	11:05	-29	-06	4755	3014	X						X				
Water Tower - Ambient Air		11:27	11:28	-30	-09	4200	4349	X							X			
NOT USED						3069	4343	—										

Temperature (Fahrenheit)

	Interior	Ambient
Start		
Stop		

Pressure (Inches of Hg)

	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Samples Shipped by: Date/Time: 8-12-09 14:30
Samples Relinquished by: Date/Time:
Relinquished by: Date/Time:
Samples Received by: 8/13/09 1030
Received by:
Received by:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

August 24, 2009

Mr. Clyde Dennis
Argonne National Laboratory
9700 S. Cass Avenue
Bldg. 203, Office B149
Argonne, IL 60439

Re: Laboratory Project No. 21005
Case: HANOVER; SDG: 133093

Dear Mr. Dennis:

Enclosed are analytical results for samples that were received by TestAmerica Burlington on August 13th and August 14th, 2009. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 08/13/09 ETR No: 133093		
803570	312ENSBASE	08/12/09	AIR
803571	312ENS1F	08/12/09	AIR
803572	409EESBASE	08/12/09	AIR
803573	409EES1F	08/12/09	AIR
803574	309EE1F	08/12/09	AIR
803575	309EEBASE	08/12/09	AIR
803576	311EE1F	08/12/09	AIR
803577	311EEBASE	08/12/09	AIR
803578	303NESSUBSLAB	08/12/09	AIR
	Received: 08/14/09 ETR No: 133096		
803579	401EESBASE	08/12/09	AIR
803580	401EES1F	08/12/09	AIR
803581	211NES1F	08/12/09	AIR
803582	211NESBASE	08/12/09	AIR
803583	414EK1F	08/12/09	AIR
803584	414EKBASE	08/12/09	AIR
803585	513EE1F	08/13/09	AIR
803586	513EEBASE	08/13/09	AIR

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Documentation of the condition of the samples at the time of receipt and any exceptions to the laboratory's Sample Acceptance Policy is included in the Sample Handling section of this submittal. The summa canisters and flow regulators that were used in the collection of the samples were prepared and supplied by TestAmerica Burlington.

The laboratory did abbreviate the sample identifiers as they were rendered from the field. The leading numeric represents the street number, which is followed by an abbreviation of the street name. The ending suffix references the sample location within the structure; 1F (first floor), BASE (basement), and SUBSLAB (sub slab).

The canister associated with sample 311EESBASE was received with a high residual vacuum (-15.1in Hg). The laboratory did evaluate the flow rate of the flow controller associated with the collection of the sample, and the measured flow rate was 1.7 mL/min. The measured flow rate of the controller as it was sent to the field was 3.4 mL/min. The condition of the sample was identified to Dr. Jorge Alvarado, and a decision was made to analyze sample 311EESBASE.

Sample 303NESSUBSLAB was collected in a 1 L canister, and the laboratory performed the analysis using a 20 milliliter sample volume. This equates to a 10-fold dilution over the method normally employed by the laboratory for the analysis of a 6 L canister.

The samples were analyzed for chloroform and carbon tetrachloride by Method TO-15. The analytical results for the analysis of the samples in this sample set are reported in terms of parts per billion on a volume/volume basis (PPBV). An electronic record has been generated with a conversion of the results to a weight/volume basis (ug/cubic meter), and this is included as part of this submittal. A report from the electronic file is also included with this submittal, and immediately follows this transmittal letter.

In order to provide for the analysis of sample 311EESBASE, it was necessary to introduce analyte free air to the canister. This is reflected in the reported dilution factor of 1.35 that was applied in deriving the results for the analysis of that sample. The responses in the initial calibration for each target analyte met the 30 percent relative standard deviation criterion. The response for each target analyte met the 30 percent difference criterion in the calibration check acquisition. Each of the analyses associated with the analytical work exhibited an acceptable internal standard performance. A laboratory control sample was analyzed in the analytical sequence, and there was an acceptable recovery of each target analyte in that analysis. The method blank that was analyzed in association with the samples was free of analyte contamination.

Any reference within this report to Severn Trent Laboratories, Inc. or STL, should be understood to refer to TestAmerica Laboratories, Inc. (formerly known as Severn Trent Laboratories, Inc.) The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

If there are any questions regarding this submittal, please contact me at 802 660-1990.

Sincerely,

Kirk F. Young
Project Manager

KFY/hsf
Enclosure

TO-14/15
Result Summary

CLIENT SAMPLE NO.

312ENSBASE

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803570

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.51		0.20	3.2		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

312ENS1F

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803571

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.31		0.20	2.0		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

409EESBASE

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803572

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.23		0.20	1.4		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

409EES1F

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803573

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

309EE1F

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803574

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	3.6		0.20	18		0.98
Carbon Tetrachloride	56-23-5	0.48		0.20	3.0		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

309EEBASE

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803575

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	1.9		0.20	9.3		0.98
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

311EE1F

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803576

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.29		0.20	1.4		0.98
Carbon Tetrachloride	56-23-5	0.25		0.20	1.6		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

311EEBASE

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.35

Sample Matrix: AIR

Lab Sample No.: 803577

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.27	U	0.27	1.3	U	1.3
Carbon Tetrachloride	56-23-5	0.37		0.27	2.3		1.7

TO-14/15
Result Summary

CLIENT SAMPLE NO.

303NESSUBSLAB

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 10.00

Sample Matrix: AIR

Lab Sample No.: 803578

Date Analyzed: 8/18/2009

Date Received: 8/13/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	3.8		2.0	19		9.8
Carbon Tetrachloride	56-23-5	2.0	U	2.0	13	U	13

TO-14/15
Result Summary

CLIENT SAMPLE NO.

401EESBASE

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803579

Date Analyzed: 8/18/2009

Date Received: 8/14/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.95		0.20	4.6		0.98
Carbon Tetrachloride	56-23-5	0.25		0.20	1.6		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

401EES1F

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803580

Date Analyzed: 8/18/2009

Date Received: 8/14/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.71		0.20	3.5		0.98
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

211NES1F

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803581

Date Analyzed: 8/18/2009

Date Received: 8/14/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.29		0.20	1.8		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

211NESBASE

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803582

Date Analyzed: 8/18/2009

Date Received: 8/14/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.40		0.20	2.5		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

414EK1F

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803583

Date Analyzed: 8/18/2009

Date Received: 8/14/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.35		0.20	1.7		0.98
Carbon Tetrachloride	56-23-5	0.22		0.20	1.4		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

414EKBASE

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803584

Date Analyzed: 8/19/2009

Date Received: 8/14/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.32		0.20	1.6		0.98
Carbon Tetrachloride	56-23-5	0.24		0.20	1.5		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

513EE1F

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803585

Date Analyzed: 8/19/2009

Date Received: 8/14/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

513EEBASE

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 803586

Date Analyzed: 8/19/2009

Date Received: 8/14/2009

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

CA081809LCS

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: CA081809

Date Analyzed: 8/18/2009

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	11		0.20	54		0.98
Carbon Tetrachloride	56-23-5	11		0.20	69		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK081809CA

Lab Name: TAL Burlington

SDG Number: 133093

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0818

Date Analyzed: 8/18/2009

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon Tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TestAmerica Burlington Data Qualifier Definitions

Organic

U: Compound analyzed but not detected at a concentration above the reporting limit.

J: Estimated value.

N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.

P: SW-846: The relative percent difference for detected concentrations between two GC columns is greater than 40%. Unless otherwise specified the higher of the two values is reported on the Form I.

CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.

C: Pesticide result whose identification has been confirmed by GC/MS.

B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.

E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.

D: Concentrations identified from analysis of the sample at a secondary dilution.

A: Tentatively identified compound is a suspected aldol condensation product.

X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

E: Reported value is estimated due to the presence of interference.

N: Matrix spike sample recovery is not within control limits.

* Duplicate sample analysis is not within control limits.

B: The result reported is less than the reporting limit but greater than the instrument detection limit.

U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

P ICP-AES
MS ICP-MS
CV Cold Vapor AA
AS Semi-Automated Spectrophotometric

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

1 of 3 COCs

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip Lemont IL 60439
Phone: 630-252-5267
FAX:
Project Name: Vapor Intrusion
Site: Hanover KS
PO # 8A727-9D

Project Manager: Lorraine LaFreniere
Phone: 630-252-7969
Email:
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By:

Sample Identification	Aug 2009 Sample Date(s)	8-11 Time Start	8-12 Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, 'Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
401 E Elm St Basement		17:31	17:33	-30	-08	4029	3095	X							X				
1st Floor		17:28	17:32	-26	-06	2940	4790	X							X				

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: 8-13-09 16:30	Samples Received by: 8/14/09 620
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip Lemont IL 60439
Phone: 630-252-5267
FAX:
Project Name: Vapor Intrusion
Site: Hanover KS
PO # 8A727-9D

Project Manager: Lorraine LaFreniere
Phone: 630-252-7969
Email:
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By: Matt Kelly

2 of 3 COCs

Sample Identification	Aug 2009 Sample Date(s)	8-11 Time Start	8-12 Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
211 N. East St 1st Floor		17:18	17:11	-29.5	-6.5	39.77	3790	X							X				
Basement		17:20	17:12	-29.5	-6.5	3998	3427	X							X				
414 E. Kensington 1st Floor		19:05	1905	-26	-4	4405	4438	X							X				
Basement		19:07	19:06	-29.5	-8	3181	4468	X							X				

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (Inches of Hg)	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: 8-13-09 16:30	Samples Received by: 8/14/09 1020
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

3 of 3 COCs

Client Contact Information		Project Manager: Lorraine LaFreniere	Samples Collected By: Matt Mill
Company: Argonne National Lab		Phone: 630-252-7969	
Address: 9700 S. Cass Ave.		Email: lafreniere@anl.gov.	
City/State/Zip Lemont, IL 60439			
Phone: 630-252-5267		Site Contact:	
FAX:		TA Contact:	
Project Name: Vapor Intrusion		Analysis Turnaround Time	
Site: Hanover, KS		Standard (Specify)	
PO # 8A727-9D		Rush (Specify)	

Sample Identification	Sample Date(s) (Aug 2009)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
513 E. Elm 1st	8/13/09	9:32	10:05	28.5	-7	4530	4297	X							X				
513 E. Elm. Bsmt	8/13/09	9:36	10:07	30.5	-8	3027	4370	X							X				

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: 8-13-09 16:30	Samples Received by: [signature] 8/14/09 1020
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

6 of 8 COCs

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip: Lemont IL 60439
Phone: 630-252-5262
FAX:
Project Name: Vapor Intrusion
Site: Hanover KS
PO #: SA227-90

Project Manager: Lorraine LaFrance
Phone: 630-252-7969
Email:
Site Contact:
TA Contact:
Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By:

Sample Identification	Aug 2009 Sample Date(s)	8-11 Time Start	8-12 Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
312 E. North St Basement		12:10	12:06	-30	-08	3116	4787	X							X				
1st Floor		12:08	12:05	-29	-04	4526	3421	X							X				
409 E Elm St Basement		13:07	13:05	-34	-10	3171	2977	X							X				
1st Floor		13:14	13:07	-26	-06	4102	4118	X							X				

Temperature (Fahrenheit)

	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)

	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Samples Shipped by: Date/Time: 8-12-09 14:30 Samples Received by: 8/13/09 1030
Samples Relinquished by: Date/Time: Received by:
Relinquished by: Date/Time: Received by:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Lorraine LaFreniere	Samples Collected By: [signature]	7 of 8 COCs
Company: Argonne National Lab	Phone: 630-252-7969		
Address: 9700 S Cass AVE	Email:		
City/State/Zip Lemont IL 60439			
Phone: 630-252-5267	Site Contact:		
FAX:	TA Contact:		
Project Name: Vapor Intrusion	Analysis Turnaround Time		
Site: Hanover KS	Standard (Specify)		
PO # 8A727-9D	Rush (Specify)		

Sample Identification	Aug 2009 Sample Date(s)	8-11 Time Start	8-12 Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
309 E. Elm 1st	8/12/09	13:06	13:07	-29	-7	4203	3372	X											
309 E. Elm Bsmt	8/12/09	13:10	13:09	-29	-8	4180	3369	X											
311 E. Elm 1st	8/12/09	12:53	13:00	-26	-6.5	3022	4147	X											
311 E. Elm Bsmt	8/12/09	12:56	13:01	-26.5	-6	4931	2585	X											

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: 8-12-09 14:30	Samples Received by: [signature] 8/13/09 10:50
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only: Shipper Name: Opened by: Condition:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Lorraine LaFreniere	Samples Collected By:	1 of 1 COCs
Company: Argonne National Lab	Phone: 630-252-7969		
Address: 9700 S Cass AVE	Email:		
City/State/Zip Lemont IL 60439			
Phone: 630-252-5267	Site Contact:		
FAX:	TA Contact:		
Project Name: Vapor Intrusion	Analysis Turnaround Time		
Site: Hanover KS	Standard (Specify)		
PO # 8A727-9D	Rush (Specify)		

Sample Identification	Sample Date(s) (Aug 2009)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, 'Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section) Sub Slab
303 N East St Sub Slab	8-12	10:15	10:30	-30	-04	4868	3591	X											X
NOT USED	—	—	—	—	—	4679	4267	—	—	—	—	—	—	—	—	—	—	—	—

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (Inches of Hg)	Interior	Ambient	
Start			
Stop			

Sample Type - Sub Slab

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: 8-12-09 14:30	Samples Received by: 8/13/09 1030
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

February 11, 2010

Mr. Clyde Dennis
Argonne National Laboratory
9700 S. Cass Avenue
Bldg. 203, Office B149
Argonne, IL 60439

Re: Laboratory Project No. 21005
Case: Hanover; SDG: 135715

Dear Mr. Dennis:

Enclosed are analytical results for samples that were received by TestAmerica Burlington on January 28th, 2010. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 01/28/10 ETR No: 135715		
818834	413 EKS-MAIN	01/27/10	AIR
818835	413 EKS-BASE	01/27/10	AIR
818836	400 EKS-MAIN	01/27/10	AIR
818837	400 EKS-BASE	01/27/10	AIR
818838	405 EES-MAIN	01/27/10	AIR
818839	405 EES-BASE	01/27/10	AIR
818840	312 ENS-MAIN	01/27/10	AIR
818841	312 ENS-BASE	01/27/10	AIR
818842	513 EES-MAIN	01/27/10	AIR
818843	513 EES-BASE	01/27/10	AIR
818844	400 NES-MAIN	01/27/10	AIR
818845	400 NES-BASE	01/27/10	AIR
818846	311 NES-MAIN	01/27/10	AIR
818847	311 NES-BASE	01/27/10	AIR
818848	303 NES-MAIN	01/27/10	AIR
818849	303 NES-BASE	01/27/10	AIR
818850	404 ENS-MAIN	01/27/10	AIR
818851	404 ENS-BASE	01/27/10	AIR
818852	309 EES-MAIN	01/27/10	AIR
818853	309 EES-BASE	01/27/10	AIR

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

Documentation of the condition of the samples at the time of receipt and any exceptions to the laboratory's Sample Acceptance Policy is included in the Sample Handling section of this submittal. The summa canisters and flow regulators that were used in the collection of the samples were prepared and supplied by TestAmerica Burlington.

The laboratory did abbreviate the sample identifiers as they were rendered from the field. The leading numeric represents the street number, which is followed by an abbreviation of the street name. The ending suffix references the sample location within the structure; BASE (basement), and MAIN (main floor).

The canister associated with sample 312 ENS-MAIN was received with a relatively high residual vacuum (-15.8 in. Hg). The laboratory did evaluate the flow rate of the flow controller associated with the collection of that sample, and the measured flow rate was 1.7 mL/min. The measured flow rate of the controller as it was sent to the field was 3.3 mL/min. The condition of the sample was identified to Dr. Jorge Alvarado, and a decision was made to analyze sample 312 ENS-MAIN. It was possible to provide for the analysis of sample 312 ENS-MAIN without the need to introduce analyte free air to the canister.

The samples in this sample set were analyzed for volatile organics by Method TO-15. The analytical results for the analysis of the samples in this sample set are reported in terms of parts per billion on a volume/volume basis (PPBV). An electronic record has been generated with a conversion of the results to a weight/volume basis (ug/cubic meter), and this is included as part of this submittal. A report from the electronic file is also included with this submittal, and immediately follows this transmittal letter.

Isopropyl alcohol was identified as a constituent of samples 312 ENS-BASE, 303 NES-BASE, 404 ENS-MAIN, 404 ENS-BASE, 309 EES-MAIN, and 309 EES-BASE at concentration levels that exceeded the range of calibrated instrument response. The laboratory did identify the issue to the project team, and a decision was made not to pursue a further, dilution analysis of the referenced samples.

The responses in the initial calibration for each target analyte met the 30 percent relative standard deviation criterion. The response for each target analyte met the 30 percent difference criterion in each calibration check acquisition. Each of the analyses associated with the analytical work exhibited an acceptable internal standard performance. A laboratory control sample was analyzed in each analytical sequence, and there was an acceptable recovery of each target analyte in each of those analyses. The analysis of each method blank associated with the analytical work was free of analyte contamination.

Any reference within this report to Severn Trent Laboratories, Inc. or STL, should be understood to refer to TestAmerica Laboratories, Inc. (formerly known as Severn Trent Laboratories, Inc.) The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

If there are any questions regarding this submittal, please contact me at 802 660-1990.

Sincerely,

Kirk F. Young
Project Manager

KFY/hsf
Enclosure

TO-14/15
Result Summary

CLIENT SAMPLE NO.

413 EKS-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818834

Date Analyzed: 01/30/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	1.1		0.50	5.4		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.63		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.55		0.20	3.1		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	9.7		5.0	23		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	2.1		0.50	7.4		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.86		0.50	2.5		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.60		0.20	2.1		0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	1.1		0.20	5.1		0.93
Benzene	71-43-2	2.7		0.20	8.6		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.83		0.20	3.4		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

413 EKS-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818834

Date Analyzed: 01/30/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	5.8		0.20	22		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.21		0.20	1.4		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.72		0.20	3.1		0.87
Xylene (m,p)	1330-20-7	2.5		0.40	11		1.7
Xylene (o)	95-47-6	0.78		0.20	3.4		0.87
Xylenes, Total	1330-20-7	3.2		0.20	14		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.29		0.20	1.4		0.98
1,3,5-Trimethylbenzene	108-67-8	0.24		0.20	1.2		0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.72		0.20	3.5		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

413 EKS-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818835

Date Analyzed: 01/30/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.99		0.50	4.9		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.64		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.46		0.20	2.6		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	6.2		5.0	15		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	1.8		0.50	6.3		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.62		0.50	1.8		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.47		0.20	1.6		0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.88		0.20	4.1		0.93
Benzene	71-43-2	2.2		0.20	7.0		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.69		0.20	2.8		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

413 EKS-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818835

Date Analyzed: 01/30/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	4.5		0.20	17		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.31		0.20	2.1		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.56		0.20	2.4		0.87
Xylene (m,p)	1330-20-7	1.9		0.40	8.3		1.7
Xylene (o)	95-47-6	0.58		0.20	2.5		0.87
Xylenes, Total	1330-20-7	2.5		0.20	11		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.46		0.20	2.3		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400 EKS-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818836

Date Analyzed: 01/30/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.55		0.50	2.7		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.67		0.50	1.4		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.41		0.20	2.3		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	7.2		5.0	17		12
Isopropyl Alcohol	67-63-0	6.3		5.0	15		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.21		0.20	0.72		0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.45		0.20	1.4		0.64
1,2-Dichloroethane	107-06-2	0.28		0.20	1.1		0.81
n-Heptane	142-82-5	0.22		0.20	0.90		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400 EKS-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818836

Date Analyzed: 01/30/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.1		0.20	4.1		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.22		0.20	1.5		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400 EKS-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818837

Date Analyzed: 01/30/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.55		0.50	2.7		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.51		0.50	1.1		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.43		0.20	2.4		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.5		5.0	13		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.36		0.20	1.2		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400 EKS-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818837

Date Analyzed: 01/30/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.68		0.20	2.6		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.45		0.20	3.1		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

405 EES-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818838

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.52		0.50	2.6		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.50	U	0.50	1.0	U	1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.25		0.20	1.4		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	7.6		5.0	18		12
Isopropyl Alcohol	67-63-0	6.8		5.0	17		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.62		0.50	1.8		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.22		0.20	0.76		0.69
Carbon tetrachloride	56-23-5	0.30		0.20	1.9		1.3
2,2,4-Trimethylpentane	540-84-1	0.36		0.20	1.7		0.93
Benzene	71-43-2	0.52		0.20	1.7		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.23		0.20	0.94		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

405 EES-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818838

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.7		0.20	6.4		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	1.3		0.20	8.8		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.21		0.20	0.91		0.87
Xylene (m,p)	1330-20-7	0.63		0.40	2.7		1.7
Xylene (o)	95-47-6	0.21		0.20	0.91		0.87
Xylenes, Total	1330-20-7	0.83		0.20	3.6		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

405 EES-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818839

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.53		0.50	2.6		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.61		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.25		0.20	1.4		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	7.5		5.0	18		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.74		0.50	2.2		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.75		0.20	4.7		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

405 EES-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818839

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.70		0.20	2.6		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.23		0.20	1.6		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

312 ENS-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818840

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.72		0.50	3.6		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.73		0.50	1.5		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.50		0.20	2.8		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	25		5.0	59		12
Isopropyl Alcohol	67-63-0	21		5.0	52		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	3.1		0.50	11		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	1.2		0.50	3.5		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20		0.20	0.98		0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.68		0.20	2.3		0.69
Carbon tetrachloride	56-23-5	0.24		0.20	1.5		1.3
2,2,4-Trimethylpentane	540-84-1	0.38		0.20	1.8		0.93
Benzene	71-43-2	0.96		0.20	3.1		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.52		0.20	2.1		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

312 ENS-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818840

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	5.9		0.20	22		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.63		0.20	4.3		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.62		0.20	2.7		0.87
Xylene (m,p)	1330-20-7	1.8		0.40	7.8		1.7
Xylene (o)	95-47-6	0.54		0.20	2.3		0.87
Xylenes, Total	1330-20-7	2.3		0.20	10		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.23		0.20	1.1		0.98
2-Chlorotoluene	95-49-8	1.1		0.20	5.7		1.0
1,2,4-Trimethylbenzene	95-63-6	0.65		0.20	3.2		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

312 ENS-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818841

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.60		0.50	3.0		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.68		0.50	1.4		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.47		0.20	2.6		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	14		5.0	33		12
Isopropyl Alcohol	67-63-0	49	E	5.0	120	E	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	1.9		0.50	6.7		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.80		0.50	2.4		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.54		0.20	1.9		0.69
Carbon tetrachloride	56-23-5	0.33		0.20	2.1		1.3
2,2,4-Trimethylpentane	540-84-1	0.52		0.20	2.4		0.93
Benzene	71-43-2	1.0		0.20	3.2		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.44		0.20	1.8		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

312 ENS-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818841

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	3.9		0.20	15		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	1.2		0.20	8.1		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.47		0.20	2.0		0.87
Xylene (m,p)	1330-20-7	1.4		0.40	6.1		1.7
Xylene (o)	95-47-6	0.46		0.20	2.0		0.87
Xylenes, Total	1330-20-7	1.9		0.20	8.3		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.25		0.20	1.2		0.98
2-Chlorotoluene	95-49-8	0.66		0.20	3.4		1.0
1,2,4-Trimethylbenzene	95-63-6	0.64		0.20	3.1		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

513 EES-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818842

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.56		0.50	2.8		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.63		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.21		0.20	1.2		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.69		0.50	2.4		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.44		0.20	2.4		1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

513 EES-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818842

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.20	U	0.20	0.75	U	0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

513 EES-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818843

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.70		0.50	3.5		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.50		0.50	1.0		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.24		0.20	1.3		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20		0.20	0.93		0.93
Benzene	71-43-2	0.63		0.20	2.0		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

513 EES-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818843

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.1		0.20	4.1		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.22		0.20	1.5		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.47		0.40	2.0		1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.47		0.20	2.0		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400 NES-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818844

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.97		0.50	4.8		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.56		0.50	1.2		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.26		0.20	1.5		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	10		5.0	24		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.52		0.50	1.8		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.85		0.50	2.5		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	1.2		0.20	6.5		1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.31		0.20	1.4		0.93
Benzene	71-43-2	0.49		0.20	1.6		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.23		0.20	0.94		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400 NES-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818844

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.3		0.20	4.9		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.81		0.20	5.5		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40		0.40	1.7		1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.39		0.20	1.7		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400 NES-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818845

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	1.3		0.50	6.4		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.54		0.50	1.1		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.26		0.20	1.5		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	9.1		5.0	22		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.59		0.50	2.0		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	1.1		0.50	3.2		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.72		0.20	3.9		1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.22		0.20	0.70		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400 NES-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818845

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.70		0.20	2.6		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.23		0.20	1.6		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

311 NES-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818846

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.57		0.50	2.8		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.63		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.69		0.20	3.9		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	9.7		5.0	23		12
Isopropyl Alcohol	67-63-0	10		5.0	25		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	8.3		0.50	29		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	2.6		0.50	7.7		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.72		0.20	2.5		0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.27		0.20	0.86		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.40		0.20	1.6		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

311 NES-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818846

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	2.1		0.20	7.9		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.40		0.20	2.7		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20		0.20	0.87		0.87
Xylene (m,p)	1330-20-7	0.51		0.40	2.2		1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.51		0.20	2.2		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

311 NES-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818847

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.57		0.50	2.8		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.59		0.50	1.2		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.67		0.20	3.8		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	9.4		5.0	22		12
Isopropyl Alcohol	67-63-0	15		5.0	37		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	8.7		0.50	30		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	2.9		0.50	8.6		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.32		0.20	1.1		0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.23		0.20	0.73		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.39		0.20	1.6		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

311 NES-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818847

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.8		0.20	6.8		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.35		0.20	2.4		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.41		0.40	1.8		1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.41		0.20	1.8		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

303 NES-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818848

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.53		0.50	2.6		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.63		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.33		0.20	1.9		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.6		5.0	13		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.73		0.50	2.5		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	5.2		0.50	18		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	1.2		0.20	4.1		0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	3.4		0.20	16		0.93
Benzene	71-43-2	3.5		0.20	11		0.64
1,2-Dichloroethane	107-06-2	0.44		0.20	1.8		0.81
n-Heptane	142-82-5	2.1		0.20	8.6		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

303 NES-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818848

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	12		0.20	45		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	1.7		0.20	7.4		0.87
Xylene (m,p)	1330-20-7	5.7		0.40	25		1.7
Xylene (o)	95-47-6	1.9		0.20	8.3		0.87
Xylenes, Total	1330-20-7	7.6		0.20	33		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.54		0.20	2.7		0.98
1,3,5-Trimethylbenzene	108-67-8	0.53		0.20	2.6		0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	1.8		0.20	8.8		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

303 NES-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818849

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.54		0.50	2.7		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.58		0.50	1.2		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.30		0.20	1.7		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	7.7		5.0	18		12
Isopropyl Alcohol	67-63-0	57	E	5.0	140	E	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.55		0.50	1.9		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	3.3		0.50	12		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.68		0.50	2.0		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.21		0.20	1.0		0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.81		0.20	2.8		0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	2.2		0.20	10		0.93
Benzene	71-43-2	2.5		0.20	8.0		0.64
1,2-Dichloroethane	107-06-2	0.71		0.20	2.9		0.81
n-Heptane	142-82-5	1.4		0.20	5.7		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

303 NES-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818849

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	8.0		0.20	30		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	1.2		0.20	8.1		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.99		0.20	4.3		0.87
Xylene (m,p)	1330-20-7	2.7		0.40	12		1.7
Xylene (o)	95-47-6	0.78		0.20	3.4		0.87
Xylenes, Total	1330-20-7	3.4		0.20	15		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.41		0.20	2.0		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

404 ENS-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818850

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.56		0.50	2.8		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.54		0.50	1.1		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	1.0		0.20	5.6		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	15		5.0	36		12
Isopropyl Alcohol	67-63-0	190	E	5.0	470	E	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.21		0.20	1.3		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.25		0.20	0.80		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

404 ENS-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818850

Date Analyzed: 01/31/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.48		0.20	1.8		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.29		0.20	2.0		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

404 ENS-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818851

Date Analyzed: 02/01/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.55		0.50	2.7		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.50	U	0.50	1.0	U	1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.71		0.20	4.0		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	13		5.0	31		12
Isopropyl Alcohol	67-63-0	120	E	5.0	290	E	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.21		0.20	1.3		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20		0.20	0.64		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

404 ENS-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818851

Date Analyzed: 02/01/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.31		0.20	1.2		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.22		0.20	1.5		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

309 EES-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818852

Date Analyzed: 02/01/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.59		0.50	2.9		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.79		0.50	1.6		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.49		0.20	2.8		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	25		5.0	59		12
Isopropyl Alcohol	67-63-0	200	E	5.0	490	E	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	2.9		0.50	10		1.7
tert-Butyl Alcohol	75-65-0	12		5.0	36		15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	3.8		0.50	11		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.22		0.20	1.1		0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.25		0.20	1.4		1.1
Cyclohexane	110-82-7	0.60		0.20	2.1		0.69
Carbon tetrachloride	56-23-5	0.32		0.20	2.0		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.51		0.20	1.6		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	1.5		0.20	6.1		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

309 EES-MAIN

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818852

Date Analyzed: 02/01/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	3.4		0.20	13		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.40		0.20	2.7		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.38		0.20	1.7		0.87
Xylene (m,p)	1330-20-7	1.0		0.40	4.3		1.7
Xylene (o)	95-47-6	0.33		0.20	1.4		0.87
Xylenes, Total	1330-20-7	1.4		0.20	6.1		0.87
Styrene	100-42-5	0.32		0.20	1.4		0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.42		0.20	2.1		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.26		0.20	1.6		1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

309 EES-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818853

Date Analyzed: 02/01/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.65		0.50	3.2		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.66		0.50	1.4		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.26		0.20	1.0		0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.51		0.20	2.9		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	21		5.0	50		12
Isopropyl Alcohol	67-63-0	140	E	5.0	340	E	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	4.1		0.50	14		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	5.5		0.50	16		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.32		0.20	1.7		1.1
Cyclohexane	110-82-7	0.68		0.20	2.3		0.69
Carbon tetrachloride	56-23-5	0.37		0.20	2.3		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.44		0.20	1.4		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	1.3		0.20	5.3		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

309 EES-BASE

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818853

Date Analyzed: 02/01/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	2.8		0.20	11		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.24		0.20	1.6		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.33		0.20	1.4		0.87
Xylene (m,p)	1330-20-7	0.98		0.40	4.3		1.7
Xylene (o)	95-47-6	0.33		0.20	1.4		0.87
Xylenes, Total	1330-20-7	1.3		0.20	5.6		0.87
Styrene	100-42-5	0.24		0.20	1.0		0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.44		0.20	2.2		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.35		0.20	2.1		1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

GA012910LCS

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: GA012910

Date Analyzed: 01/29/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	10		0.50	49		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	10		0.20	70		1.4
Chloromethane	74-87-3	9.8		0.50	20		1.0
Vinyl Chloride	75-01-4	11		0.20	28		0.51
1,3-Butadiene	106-99-0	12		0.50	27		1.1
Bromomethane	74-83-9	10		0.20	39		0.78
Chloroethane	75-00-3	10		0.50	26		1.3
Bromoethene	593-60-2	11		0.20	48		0.87
Trichlorofluoromethane	75-69-4	10		0.20	56		1.1
Freon TF	76-13-1	12		0.20	92		1.5
1,1-Dichloroethene	75-35-4	12		0.20	48		0.79
Acetone	67-64-1	9.4		5.0	22		12
Isopropyl Alcohol	67-63-0	11		5.0	27		12
Carbon disulfide	75-15-0	11		0.50	34		1.6
3-Chloropropene	107-05-1	11		0.50	34		1.6
Methylene chloride	75-09-2	11		0.50	38		1.7
tert-Butyl Alcohol	75-65-0	9.3		5.0	28		15
Methyl tert-Butyl Ether	1634-04-4	11		0.50	40		1.8
trans-1,2-Dichloroethene	156-60-5	11		0.20	44		0.79
n-Hexane	110-54-3	11		0.50	39		1.8
1,1-Dichloroethane	75-34-3	11		0.20	45		0.81
Methyl Ethyl Ketone	78-93-3	11		0.50	32		1.5
cis-1,2-Dichloroethene	156-59-2	11		0.20	44		0.79
1,2-Dichloroethene,Total	540-59-0	22		0.20	87		0.79
Chloroform	67-66-3	10		0.20	49		0.98
Tetrahydrofuran	109-99-9	11		5.0	32		15
1,1,1-Trichloroethane	71-55-6	11		0.20	60		1.1
Cyclohexane	110-82-7	12		0.20	41		0.69
Carbon tetrachloride	56-23-5	11		0.20	69		1.3
2,2,4-Trimethylpentane	540-84-1	11		0.20	51		0.93
Benzene	71-43-2	11		0.20	35		0.64
1,2-Dichloroethane	107-06-2	11		0.20	45		0.81
n-Heptane	142-82-5	11		0.20	45		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

GA012910LCS

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: GA012910

Date Analyzed: 01/29/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	11		0.20	59		1.1
1,2-Dichloropropane	78-87-5	11		0.20	51		0.92
1,4-Dioxane	123-91-1	11		5.0	40		18
Bromodichloromethane	75-27-4	11		0.20	74		1.3
cis-1,3-Dichloropropene	10061-01-5	11		0.20	50		0.91
Methyl Isobutyl Ketone	108-10-1	12		0.50	49		2.0
Toluene	108-88-3	10		0.20	38		0.75
trans-1,3-Dichloropropene	10061-02-6	11		0.20	50		0.91
1,1,2-Trichloroethane	79-00-5	10		0.20	55		1.1
Tetrachloroethene	127-18-4	9.9		0.20	67		1.4
Methyl Butyl Ketone	591-78-6	12		0.50	49		2.0
Dibromochloromethane	124-48-1	11		0.20	94		1.7
1,2-Dibromoethane	106-93-4	10		0.20	77		1.5
Chlorobenzene	108-90-7	10		0.20	46		0.92
Ethylbenzene	100-41-4	11		0.20	48		0.87
Xylene (m,p)	1330-20-7	21		0.40	91		1.7
Xylene (o)	95-47-6	10		0.20	43		0.87
Xylenes, Total	1330-20-7	31		0.20	130		0.87
Styrene	100-42-5	11		0.20	47		0.85
Bromoform	75-25-2	11		0.20	110		2.1
1,1,2,2-Tetrachloroethane	79-34-5	10		0.20	69		1.4
4-Ethyltoluene	622-96-8	11		0.20	54		0.98
1,3,5-Trimethylbenzene	108-67-8	11		0.20	54		0.98
2-Chlorotoluene	95-49-8	11		0.20	57		1.0
1,2,4-Trimethylbenzene	95-63-6	10		0.20	49		0.98
1,3-Dichlorobenzene	541-73-1	10		0.20	60		1.2
1,4-Dichlorobenzene	106-46-7	10		0.20	60		1.2
1,2-Dichlorobenzene	95-50-1	9.7		0.20	58		1.2
1,2,4-Trichlorobenzene	120-82-1	8.6		0.50	64		3.7
Hexachlorobutadiene	87-68-3	9.6		0.20	100		2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

GA013110LCS

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: GA013110

Date Analyzed: 01/31/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	7.9		0.50	39		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	7.7		0.20	54		1.4
Chloromethane	74-87-3	7.8		0.50	16		1.0
Vinyl Chloride	75-01-4	8.3		0.20	21		0.51
1,3-Butadiene	106-99-0	8.7		0.50	19		1.1
Bromomethane	74-83-9	8.4		0.20	33		0.78
Chloroethane	75-00-3	8.3		0.50	22		1.3
Bromoethene	593-60-2	8.6		0.20	38		0.87
Trichlorofluoromethane	75-69-4	8.1		0.20	46		1.1
Freon TF	76-13-1	8.4		0.20	64		1.5
1,1-Dichloroethene	75-35-4	8.7		0.20	34		0.79
Acetone	67-64-1	8.5		5.0	20		12
Isopropyl Alcohol	67-63-0	8.3		5.0	20		12
Carbon disulfide	75-15-0	8.6		0.50	27		1.6
3-Chloropropene	107-05-1	8.8		0.50	28		1.6
Methylene chloride	75-09-2	8.3		0.50	29		1.7
tert-Butyl Alcohol	75-65-0	7.6		5.0	23		15
Methyl tert-Butyl Ether	1634-04-4	8.6		0.50	31		1.8
trans-1,2-Dichloroethene	156-60-5	8.9		0.20	35		0.79
n-Hexane	110-54-3	8.5		0.50	30		1.8
1,1-Dichloroethane	75-34-3	8.9		0.20	36		0.81
Methyl Ethyl Ketone	78-93-3	8.8		0.50	26		1.5
cis-1,2-Dichloroethene	156-59-2	8.7		0.20	34		0.79
1,2-Dichloroethene,Total	540-59-0	18		0.20	71		0.79
Chloroform	67-66-3	8.5		0.20	42		0.98
Tetrahydrofuran	109-99-9	8.6		5.0	25		15
1,1,1-Trichloroethane	71-55-6	8.4		0.20	46		1.1
Cyclohexane	110-82-7	8.9		0.20	31		0.69
Carbon tetrachloride	56-23-5	8.4		0.20	53		1.3
2,2,4-Trimethylpentane	540-84-1	8.9		0.20	42		0.93
Benzene	71-43-2	8.4		0.20	27		0.64
1,2-Dichloroethane	107-06-2	8.4		0.20	34		0.81
n-Heptane	142-82-5	9.0		0.20	37		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

GA013110LCS

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: GA013110

Date Analyzed: 01/31/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	8.4		0.20	45		1.1
1,2-Dichloropropane	78-87-5	8.8		0.20	41		0.92
1,4-Dioxane	123-91-1	7.5		5.0	27		18
Bromodichloromethane	75-27-4	8.7		0.20	58		1.3
cis-1,3-Dichloropropene	10061-01-5	8.7		0.20	39		0.91
Methyl Isobutyl Ketone	108-10-1	8.9		0.50	36		2.0
Toluene	108-88-3	8.3		0.20	31		0.75
trans-1,3-Dichloropropene	10061-02-6	8.6		0.20	39		0.91
1,1,2-Trichloroethane	79-00-5	8.7		0.20	47		1.1
Tetrachloroethene	127-18-4	8.0		0.20	54		1.4
Methyl Butyl Ketone	591-78-6	9.0		0.50	37		2.0
Dibromochloromethane	124-48-1	8.7		0.20	74		1.7
1,2-Dibromoethane	106-93-4	8.7		0.20	67		1.5
Chlorobenzene	108-90-7	8.4		0.20	39		0.92
Ethylbenzene	100-41-4	8.8		0.20	38		0.87
Xylene (m,p)	1330-20-7	17		0.40	74		1.7
Xylene (o)	95-47-6	8.7		0.20	38		0.87
Xylenes, Total	1330-20-7	26		0.20	110		0.87
Styrene	100-42-5	9.2		0.20	39		0.85
Bromoform	75-25-2	8.6		0.20	89		2.1
1,1,2,2-Tetrachloroethane	79-34-5	8.9		0.20	61		1.4
4-Ethyltoluene	622-96-8	9.0		0.20	44		0.98
1,3,5-Trimethylbenzene	108-67-8	9.0		0.20	44		0.98
2-Chlorotoluene	95-49-8	8.8		0.20	46		1.0
1,2,4-Trimethylbenzene	95-63-6	8.9		0.20	44		0.98
1,3-Dichlorobenzene	541-73-1	8.4		0.20	51		1.2
1,4-Dichlorobenzene	106-46-7	8.3		0.20	50		1.2
1,2-Dichlorobenzene	95-50-1	8.4		0.20	51		1.2
1,2,4-Trichlorobenzene	120-82-1	7.3		0.50	54		3.7
Hexachlorobutadiene	87-68-3	9.0		0.20	96		2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK012910GA

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0129

Date Analyzed: 01/29/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.50	U	0.50	1.0	U	1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.20	U	0.20	1.1	U	1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK012910GA

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0129

Date Analyzed: 01/29/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.20	U	0.20	0.75	U	0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK013110GA

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0131

Date Analyzed: 01/31/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.50	U	0.50	1.0	U	1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.20	U	0.20	1.1	U	1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK013110GA

Lab Name: TAL Burlington

SDG Number: 135715

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0131

Date Analyzed: 01/31/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.20	U	0.20	0.75	U	0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TestAmerica Burlington Data Qualifier Definitions

Organic

U: Compound analyzed but not detected at a concentration above the reporting limit.

J: Estimated value.

N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.

P: SW-846: The relative percent difference for detected concentrations between two GC columns is greater than 40%. Unless otherwise specified the higher of the two values is reported on the Form I.

CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.

C: Pesticide result whose identification has been confirmed by GC/MS.

B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.

E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.

D: Concentrations identified from analysis of the sample at a secondary dilution.

A: Tentatively identified compound is a suspected aldol condensation product.

X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

E: Reported value is estimated due to the presence of interference.

N: Matrix spike sample recovery is not within control limits.

* Duplicate sample analysis is not within control limits.

B: The result reported is less than the reporting limit but greater than the instrument detection limit.

U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

P ICP-AES
MS ICP-MS
CV Cold Vapor AA
AS Semi-Automated Spectrophotometric

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Fex 2X 8558
7682
7117

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip Lemont IL 60439
Phone: (630) 252 - 5267
FAX: (630) 252 - 5747
Project Name: 21 Indoor Air
Site: Hanover Kansas
PO #

Project Manager: Lorraine LaFreniere
Phone: (630) 252 - 7969
Email: lafreniere@anl.gov
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By: MATT & CARL

___ of ___ COCs

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
Goekel 413 E Kensington main kitch	1/26/10	710A	707A	-31	-7	3183	4073	X											
" " basement kitchen	1/26/10	710A	707A	-31	-8	3113	4319	X											
main living room Juenemann 400 E. Kensington	1/26/10	750A	748A	-29	-5 (-5)	4517	3381	X											
" " basement	1/26/10	750A	748A	-28	-6	3069	4440	X											

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (Inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Samples Shipped by: [signature]	Date/Time: 1/27/10	Samples Received by: [signature] 01/28/10 1025
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

FedEx # 8558 7682 7117

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip Lemont IL 60439
Phone: (630) 252 - 5267
FAX:
Project Name: Hanover 21 Indoor
Site: Hanover Kansas
PO # 8A727 - 9D - 167

Project Manager: Lorraine LaFreniere
Phone: (630) 252 - 7969
Email: lafreniere@anl.gov
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By:

1 of 1 COCs

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
405 E. Elm St - Main	2010 1-26	0737	0730	-30	-02	3112	2676	X							X				
Basement	1-26	0740	0732	-30	-12	4513	4115	X							X				
Radon Kit # 5662574																			
312 E North St - Main		1014	1012	-24	-12	4173	2971	X							X				
Basement		1015	1014	-29	-08	2935	2712	X							X				
Radon Kit # 5662561																			

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: 10:30 Jan 27 2010	Samples Received by: TA 01/28/10 1025
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

FedX 8558 7682 7117

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip Lemont IL 60439
Phone: (630) 252 - 5267
FAX: (630) 252 - 5747
Project Name: 21 Indoor Air
Site: Hanover Kansas
PO #

Project Manager: Lorraine LaFreniere
Phone: (630) 252 - 7969
Email: lafreniere@anl.gov
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By: [illegible]

1 of 1 COCs

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
Landoll 513 E Elm main basement	1/26/10	9:00A	8:55A	-29	-8	4768	3348	X											
	1/26/10 27	9:00A	8:55A	-31	-8	4733	4429	X											
Meier 400 N. East main basement	1/26/10 27	9:30A	9:32A	-28	-5	2913	3085	X											
	1/26/10 27	9:30A	9:32A	-32	-10	4035	4068	X											

Temperature (Fahrenheit)

	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)

	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by: [illegible]	Date/Time: 1/27/10	Samples Received by: TA 01/28/10 1625
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

FedEx # 8558 7682 7117

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip Lemont IL 60439
Phone: (630) 252 - 5267
FAX: (630) 252 - 5747
Project Name: 21 Indoor Air
Site: Hanover Kansas
PO # 8A727-9D-167

Project Manager: Lorraine LaFreniere
Phone: (630) 252 - 7969
Email: lafreniere@anl.gov
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By:

___ of ___ COCs

Sample Identification	2010 Sample Date(s)	1-26 Time Start	1-27 Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
311 N East St. - Main		0920	0936	-30	-08	4750	4544	X							X				
Basement		0913	0924	-28	-02	4728	4343	X							X				
Radon Kit # 5662566																			
303 N East St - Main		0942	0952	-26	-08	3742	4547	X							X				
Basement		0945	0953	-30	-02	4734	4266	X							X				
Radon Kit # 5662553																			

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: Jan 27 2010 10:37	Samples Received by: TA 01/28/10 1025
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

FedX 8550 7682 7117

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip Lemont IL 60439
Phone: (630) 252 - 5267
FAX: (630) 252 - 5747
Project Name: 21 Indoor Air
Site: Hanover Kansas
PO #

Project Manager: Lorraine LaFreniere
Phone: (630) 252 - 7969
Email: lafreniere@anl.gov
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By: MATT & CMP

___ of ___ COCs

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
Schroeder 404 E North main	1/26/10	1100A	956A	-31	-9	4200	3073	X								X			
basement	1/26/10 27	1100A	956A	-29	-9	4031	4455	X								X			
Auering 309 E Elm St main	1/26/10 27	1100A	1056A	-32	-10	3134	2859	X								X			
basement	1/26/10 27	1100A	1056A	-29	-8	4936	2889	X								X			

Temperature (Fahrenheit)

	Interior	Ambient
Start		
Stop		

Pressure (Inches of Hg)

	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: 1/27/10	Samples Received by: TA 01/28/10 1025
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

February 15, 2010

Mr. Clyde Dennis
Argonne National Laboratory
9700 S. Cass Avenue
Bldg. 203, Office B149
Argonne, IL 60439

Re: Laboratory Project No. 21005
Case: HANOVER; SDG: 135716

Dear Mr. Dennis:

Enclosed are analytical results for samples that were received by TestAmerica Burlington on January 28th, 2010. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 01/28/10 ETR No: 135716		
818854	400EES-MAIN	01/27/10	AIR
818855	400EES-BASE	01/27/10	AIR
818856	408EES-MAIN	01/27/10	AIR
818857	408EES-BASE	01/27/10	AIR
818858	211NES-MAIN	01/27/10	AIR
818859	211NES-BASE	01/27/10	AIR

Documentation of the condition of the samples at the time of receipt and any exceptions to the laboratory's Sample Acceptance Policy is included in the Sample Handling section of this submittal. The summa canisters and flow regulators that were used in the collection of the samples were prepared and supplied by TestAmerica Burlington.

The laboratory did abbreviate the sample identifiers as they were rendered from the field. The leading numeric represents the street number, which is followed by an abbreviation of the street name. The ending suffix references the sample location within the structure; BASE (basement), and MAIN (main floor).

The samples in this sample set were analyzed for volatile organics by Method TO-15. The analytical results for the analysis of the samples in this sample set are reported in terms of parts per billion on a volume/volume basis (PPBV). An electronic record has been generated with a conversion of the results to a weight/volume basis (ug/cubic meter), and this is included as part

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

of this submittal. A report from the electronic file is also included with this submittal, and immediately follows this transmittal letter.

The responses in the initial calibration for each target analyte met the 30 percent relative standard deviation criterion. The response for each target analyte met the 30 percent difference criterion in the calibration check acquisition. Each of the analyses associated with the analytical work exhibited an acceptable internal standard performance. A laboratory control sample was analyzed in the analytical sequence, and there was an acceptable recovery of each target analyte in that analysis. The analysis of the method blank associated with the analytical work was free of analyte contamination.

Any reference within this report to Severn Trent Laboratories, Inc. or STL, should be understood to refer to TestAmerica Laboratories, Inc. (formerly known as Severn Trent Laboratories, Inc.) The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

If there are any questions regarding this submittal, please contact me at 802 660-1990.

Sincerely,

Kirk F. Young
Project Manager

KFY/hsf
Enclosure

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400EES-MAIN

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818854

Date Analyzed: 01/29/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	1.0		0.50	4.9		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.89		0.50	1.8		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.32		0.20	1.8		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	22		5.0	52		12
Isopropyl Alcohol	67-63-0	15		5.0	37		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.57		0.50	1.7		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.33		0.20	1.1		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400EES-MAIN

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818854

Date Analyzed: 01/29/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.55		0.20	2.1		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.46		0.20	3.1		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400EES-BASE

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818855

Date Analyzed: 01/29/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.70		0.50	3.5		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.66		0.50	1.4		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.27		0.20	1.5		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.27		0.20	1.7		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.22		0.20	0.70		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

400EES-BASE

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818855

Date Analyzed: 01/29/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.39		0.20	1.5		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.32		0.20	2.2		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

408EES-MAIN

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818856

Date Analyzed: 01/29/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.61		0.50	3.0		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.70		0.50	1.4		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.28		0.20	1.6		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.93		0.20	5.9		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.58		0.20	1.9		0.64
1,2-Dichloroethane	107-06-2	0.30		0.20	1.2		0.81
n-Heptane	142-82-5	0.21		0.20	0.86		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

408EES-MAIN

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818856

Date Analyzed: 01/29/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.5		0.20	5.7		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.33		0.20	2.2		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.22		0.20	0.96		0.87
Xylene (m,p)	1330-20-7	0.65		0.40	2.8		1.7
Xylene (o)	95-47-6	0.26		0.20	1.1		0.87
Xylenes, Total	1330-20-7	0.94		0.20	4.1		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.44		0.20	2.2		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	16		0.20	96		1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

408EES-BASE

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818857

Date Analyzed: 01/29/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.59		0.50	2.9		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.66		0.50	1.4		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.29		0.20	1.6		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	1.1		0.20	6.9		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.57		0.20	1.8		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.22		0.20	0.90		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

408EES-BASE

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818857

Date Analyzed: 01/29/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.3		0.20	4.9		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.21		0.20	0.91		0.87
Xylene (m,p)	1330-20-7	0.60		0.40	2.6		1.7
Xylene (o)	95-47-6	0.22		0.20	0.96		0.87
Xylenes, Total	1330-20-7	0.85		0.20	3.7		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.45		0.20	2.2		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	13		0.20	78		1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

211NES-MAIN

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818858

Date Analyzed: 01/30/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.68		0.50	3.4		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.79		0.50	1.6		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.44		0.20	2.5		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	12		5.0	29		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.94		0.50	2.8		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.39		0.20	1.8		0.93
Benzene	71-43-2	0.24		0.20	0.77		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.26		0.20	1.1		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

211NES-MAIN

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818858

Date Analyzed: 01/30/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.7		0.20	6.4		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.65		0.20	4.4		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.41		0.40	1.8		1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.43		0.20	1.9		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

211NES-BASE

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818859

Date Analyzed: 01/30/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.68		0.50	3.4		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.72		0.50	1.5		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.40		0.20	2.2		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	11		5.0	26		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.91		0.50	2.7		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.30		0.20	1.4		0.93
Benzene	71-43-2	0.32		0.20	1.0		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.26		0.20	1.1		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

211NES-BASE

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 818859

Date Analyzed: 01/30/10

Date Received: 01/28/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.6		0.20	6.0		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.65		0.20	4.4		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.42		0.40	1.8		1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.44		0.20	1.9		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

FA012910LCS

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: FA012910

Date Analyzed: 01/29/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	10		0.50	49		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	11		0.20	77		1.4
Chloromethane	74-87-3	10		0.50	21		1.0
Vinyl Chloride	75-01-4	11		0.20	28		0.51
1,3-Butadiene	106-99-0	11		0.50	24		1.1
Bromomethane	74-83-9	10		0.20	39		0.78
Chloroethane	75-00-3	10		0.50	26		1.3
Bromoethene	593-60-2	11		0.20	48		0.87
Trichlorofluoromethane	75-69-4	11		0.20	62		1.1
Freon TF	76-13-1	11		0.20	84		1.5
1,1-Dichloroethene	75-35-4	11		0.20	44		0.79
Acetone	67-64-1	11		5.0	26		12
Isopropyl Alcohol	67-63-0	9.7		5.0	24		12
Carbon disulfide	75-15-0	10		0.50	31		1.6
3-Chloropropene	107-05-1	10		0.50	31		1.6
Methylene chloride	75-09-2	11		0.50	38		1.7
tert-Butyl Alcohol	75-65-0	9.6		5.0	29		15
Methyl tert-Butyl Ether	1634-04-4	10		0.50	36		1.8
trans-1,2-Dichloroethene	156-60-5	10		0.20	40		0.79
n-Hexane	110-54-3	10		0.50	35		1.8
1,1-Dichloroethane	75-34-3	10		0.20	40		0.81
Methyl Ethyl Ketone	78-93-3	10		0.50	29		1.5
cis-1,2-Dichloroethene	156-59-2	11		0.20	44		0.79
1,2-Dichloroethene,Total	540-59-0	21		0.20	83		0.79
Chloroform	67-66-3	11		0.20	54		0.98
Tetrahydrofuran	109-99-9	10		5.0	29		15
1,1,1-Trichloroethane	71-55-6	11		0.20	60		1.1
Cyclohexane	110-82-7	10		0.20	34		0.69
Carbon tetrachloride	56-23-5	11		0.20	69		1.3
2,2,4-Trimethylpentane	540-84-1	10		0.20	47		0.93
Benzene	71-43-2	10		0.20	32		0.64
1,2-Dichloroethane	107-06-2	10		0.20	40		0.81
n-Heptane	142-82-5	10		0.20	41		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

FA012910LCS

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: FA012910

Date Analyzed: 01/29/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	10		0.20	54		1.1
1,2-Dichloropropane	78-87-5	10		0.20	46		0.92
1,4-Dioxane	123-91-1	8.7		5.0	31		18
Bromodichloromethane	75-27-4	11		0.20	74		1.3
cis-1,3-Dichloropropene	10061-01-5	10		0.20	45		0.91
Methyl Isobutyl Ketone	108-10-1	11		0.50	45		2.0
Toluene	108-88-3	9.5		0.20	36		0.75
trans-1,3-Dichloropropene	10061-02-6	10		0.20	45		0.91
1,1,2-Trichloroethane	79-00-5	9.4		0.20	51		1.1
Tetrachloroethene	127-18-4	9.8		0.20	66		1.4
Methyl Butyl Ketone	591-78-6	10		0.50	41		2.0
Dibromochloromethane	124-48-1	11		0.20	94		1.7
1,2-Dibromoethane	106-93-4	9.8		0.20	75		1.5
Chlorobenzene	108-90-7	9.6		0.20	44		0.92
Ethylbenzene	100-41-4	9.7		0.20	42		0.87
Xylene (m,p)	1330-20-7	19		0.40	83		1.7
Xylene (o)	95-47-6	9.5		0.20	41		0.87
Xylenes, Total	1330-20-7	29		0.20	130		0.87
Styrene	100-42-5	10		0.20	43		0.85
Bromoform	75-25-2	11		0.20	110		2.1
1,1,2,2-Tetrachloroethane	79-34-5	9.6		0.20	66		1.4
4-Ethyltoluene	622-96-8	10		0.20	49		0.98
1,3,5-Trimethylbenzene	108-67-8	10		0.20	49		0.98
2-Chlorotoluene	95-49-8	10		0.20	52		1.0
1,2,4-Trimethylbenzene	95-63-6	9.8		0.20	48		0.98
1,3-Dichlorobenzene	541-73-1	9.7		0.20	58		1.2
1,4-Dichlorobenzene	106-46-7	9.5		0.20	57		1.2
1,2-Dichlorobenzene	95-50-1	9.3		0.20	56		1.2
1,2,4-Trichlorobenzene	120-82-1	9.0		0.50	67		3.7
Hexachlorobutadiene	87-68-3	9.4		0.20	100		2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK012910FA

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0129

Date Analyzed: 01/29/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.50	U	0.50	1.0	U	1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.20	U	0.20	1.1	U	1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK012910FA

Lab Name: TAL Burlington

SDG Number: 135716

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0129

Date Analyzed: 01/29/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.20	U	0.20	0.75	U	0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TestAmerica Burlington Data Qualifier Definitions

Organic

U: Compound analyzed but not detected at a concentration above the reporting limit.

J: Estimated value.

N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.

P: SW-846: The relative percent difference for detected concentrations between two GC columns is greater than 40%. Unless otherwise specified the higher of the two values is reported on the Form I.

CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.

C: Pesticide result whose identification has been confirmed by GC/MS.

B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.

E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.

D: Concentrations identified from analysis of the sample at a secondary dilution.

A: Tentatively identified compound is a suspected aldol condensation product.

X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

E: Reported value is estimated due to the presence of interference.

N: Matrix spike sample recovery is not within control limits.

* Duplicate sample analysis is not within control limits.

B: The result reported is less than the reporting limit but greater than the instrument detection limit.

U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

P ICP-AES
MS ICP-MS
CV Cold Vapor AA
AS Semi-Automated Spectrophotometric

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

FedEx # 8558 7682 7117

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip Lemont IL 60439
Phone: (630) 252-5267
FAX: (630) 252-5747
Project Name: 21 Indoor Air
Site: Hanover Kansas
PO # 8A727-9D-167

Project Manager: Lorraine LaFreniere
Phone: (630) 252-7969
Email: lafreniere@anl.gov
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By:

of ___ COCs

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
400 E. Elm St-Main	2010	1-26 1002	1-27 1002	-29	-04	4755	2602	X							X				
Basement		1004	1003	-28	-03	2806	4553	X							X				
Radon Kit # 5662551																			
408 E. Elm St-Main		1055	1057	-25	-02	3739	3159	X							X				
Basement		1056	1058	-30	-08	3935	3310	X							X				
Radon Kit # 5662562																			

Temperature (Fahrenheit)

	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)

	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: Jan 27, 2010 11:13	Samples Received by: TA 01/28/10 1025
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name:

South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

FEDX 8558 7682 7147

Client Contact Information		
Company: Argonne National Lab	Project Manager: Lorraine LaFreniere	Samples Collected By: Matt / CMR
Address: 9700 S Cass AVE	Phone: (630) 252 - 7969	___ of ___ COCs
City/State/Zip Lemont IL 60439	Email: lafreniere@anl.gov	
Phone: (630) 252 - 5267	Site Contact:	
FAX: (630) 252 - 5747	TA Contact:	
Project Name: 21 Indoor Air	Analysis Turnaround Time	
Site: Hanover Kansas	Standard (Specify)	
PO # 8A727 - 9D - 167	Rush (Specify)	

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
Neiman 211 N East main basement	1/26/10	12:05p	1208p	-28	-6	3959	4292	X								X			
	1/26/10	12:05p	1208p	-29	-6	4721	4565	X								X			

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (Inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Samples Shipped by: [signature]	Date/Time: 1/27/10	Samples Received by: [signature] TA 01/28/10 1025
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

February 16, 2010

Mr. Clyde Dennis
Argonne National Laboratory
9700 S. Cass Avenue
Bldg. 203, Office B149
Argonne, IL 60439

Re: Laboratory Project No. 21005
Case: HANOVER; SDG: 135746

Dear Mr. Dennis:

Enclosed are analytical results for samples that were received by TestAmerica Burlington on January 29th, 2010. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 01/29/10 ETR No: 135746		
819068	409EESMAIN	01/27/10	AIR
819069	409EESBASE	01/27/10	AIR
819070	401EESMAIN	01/27/10	AIR
819071	401EESBASE	01/27/10	AIR
819072	311EESMAIN	01/27/10	AIR
819073	311EESBASE	01/27/10	AIR
819074	412EESMAIN	01/27/10	AIR
819075	412ESSBASE	01/27/10	AIR
819076	406EESMAIN	01/28/10	AIR
819077	406EESBASE	01/28/10	AIR
819078	406EESBASEDUP	01/28/10	AIR
819079	AMBIENT AIR	01/27/10	AIR

Documentation of the condition of the samples at the time of receipt and any exceptions to the laboratory's Sample Acceptance Policy is included in the Sample Handling section of this submittal. The summa canisters and flow regulators that were used in the collection of the samples were prepared and supplied by TestAmerica Burlington.

The laboratory did abbreviate the sample identifiers as they were rendered from the field. The leading numeric represents the street number, which is followed by an abbreviation of the street name. The ending suffix references the sample location within the structure; BASE (basement), and MAIN (main floor).

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

The samples in this sample set were analyzed for volatile organics by Method TO-15. The analytical results for the analysis of the samples in this sample set are reported in terms of parts per billion on a volume/volume basis (PPBV). An electronic record has been generated with a conversion of the results to a weight/volume basis (ug/cubic meter), and this is included as part of this submittal. A report from the electronic file is also included with this submittal, and immediately follows this transmittal letter.

Acetone was identified as a constituent of sample 311EESMAIN at a concentration level that exceeded the range of calibrated instrument response. The laboratory did identify the issue to the project team, and a decision was made not to pursue a further, dilution analysis of the referenced sample.

The responses in the initial calibration for each target analyte met the 30 percent relative standard deviation criterion. The response for each target analyte met the 30 percent difference criterion in the calibration check acquisition. Each of the analyses associated with the analytical work exhibited an acceptable internal standard performance. A laboratory control sample was analyzed in the analytical sequence, and there was an acceptable recovery of each target analyte in that analysis. The analysis of the method blank associated with the analytical work was free of analyte contamination.

Any reference within this report to Severn Trent Laboratories, Inc. or STL, should be understood to refer to TestAmerica Laboratories, Inc. (formerly known as Severn Trent Laboratories, Inc.) The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

If there are any questions regarding this submittal, please contact me at 802 660-1990.

Sincerely,

Kirk F. Young
Project Manager

KFY/hsf
Enclosure

TO-14/15
Result Summary

CLIENT SAMPLE NO.

409EESMAIN

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819068

Date Analyzed: 2/8/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.54		0.50	1.1		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.26		0.20	1.5		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	15		5.0	37		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.83		0.50	2.9		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	1.0		0.50	3.5		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.52		0.50	1.5		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.43		0.20	2.3		1.1
Cyclohexane	110-82-7	0.31		0.20	1.1		0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.84		0.20	3.9		0.93
Benzene	71-43-2	1.0		0.20	3.2		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.39		0.20	1.6		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

409EESMAIN

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819068

Date Analyzed: 2/8/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	3.3		0.20	12		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	4.5		0.20	31		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.39		0.20	1.7		0.87
Xylene (m,p)	1330-20-7	1.2		0.40	5.2		1.7
Xylene (o)	95-47-6	0.42		0.20	1.8		0.87
Xylenes, Total	1330-20-7	1.6		0.20	6.9		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.34		0.20	1.7		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

409EESBASE

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819069

Date Analyzed: 2/8/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.51		0.50	2.5		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.58		0.50	1.2		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.26		0.20	1.5		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.85		0.50	3.0		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.44		0.20	2.4		1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20		0.20	0.64		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

409EESBASE

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819069

Date Analyzed: 2/8/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.2		0.20	4.5		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

401EESMAIN

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819070

Date Analyzed: 2/8/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50		0.50	2.5		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.65		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.25		0.20	1.4		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	6.5		5.0	15		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.29		0.20	0.93		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.23		0.20	0.94		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

401EESMAIN

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819070

Date Analyzed: 2/8/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.0		0.20	3.8		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.72		0.20	4.9		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

401EESBASE

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819071

Date Analyzed: 2/8/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50		0.50	2.5		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.63		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.24		0.20	1.3		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.6		5.0	13		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.22		0.20	1.4		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20		0.20	0.64		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.25		0.20	1.0		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

401EESBASE

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819071

Date Analyzed: 2/8/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.93		0.20	3.5		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.69		0.20	4.7		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.59		0.40	2.6		1.7
Xylene (o)	95-47-6	0.22		0.20	0.96		0.87
Xylenes, Total	1330-20-7	0.82		0.20	3.6		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.55		0.20	2.7		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

311EESMAIN

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819072

Date Analyzed: 2/8/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.52		0.50	2.6		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.70		0.50	1.4		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.36		0.20	2.0		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	57	E	5.0	140	E	12
Isopropyl Alcohol	67-63-0	16		5.0	39		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.84		0.50	3.0		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	1.3		0.50	3.8		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.26		0.20	1.3		0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.33		0.20	1.1		0.69
Carbon tetrachloride	56-23-5	0.32		0.20	2.0		1.3
2,2,4-Trimethylpentane	540-84-1	0.20		0.20	0.93		0.93
Benzene	71-43-2	0.39		0.20	1.2		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.47		0.20	1.9		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

311EESMAIN

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819072

Date Analyzed: 2/8/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.5		0.20	5.7		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.55		0.20	3.7		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	1.0		0.20	4.6		0.92
Ethylbenzene	100-41-4	0.28		0.20	1.2		0.87
Xylene (m,p)	1330-20-7	0.51		0.40	2.2		1.7
Xylene (o)	95-47-6	0.20		0.20	0.87		0.87
Xylenes, Total	1330-20-7	0.72		0.20	3.1		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.21		0.20	1.3		1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

311EESBASE

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819073

Date Analyzed: 2/8/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50		0.50	2.5		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.69		0.50	1.4		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.31		0.20	1.7		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	25		5.0	59		12
Isopropyl Alcohol	67-63-0	7.8		5.0	19		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.77		0.50	2.7		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.53		0.50	1.6		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.30		0.20	1.0		0.69
Carbon tetrachloride	56-23-5	0.38		0.20	2.4		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.36		0.20	1.2		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.35		0.20	1.4		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

311EESBASE

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819073

Date Analyzed: 2/8/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.3		0.20	4.9		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.36		0.20	2.4		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

412EESMAIN

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819074

Date Analyzed: 2/8/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.63		0.50	3.1		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.56		0.50	1.2		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.32		0.20	1.8		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.51		0.50	1.5		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	5.1		0.20	28		1.1
Cyclohexane	110-82-7	0.24		0.20	0.83		0.69
Carbon tetrachloride	56-23-5	0.25		0.20	1.6		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

412EESMAIN

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819074

Date Analyzed: 2/8/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.70		0.20	2.6		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

412ESSBASE

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819075

Date Analyzed: 2/9/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.62		0.50	3.1		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.65		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.31		0.20	1.7		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.70		0.50	2.1		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	1.9		0.20	10		1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20		0.20	1.3		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

412ESSBASE

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819075

Date Analyzed: 2/9/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.84		0.20	3.2		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

406EESMAIN

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819076

Date Analyzed: 2/9/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.52		0.50	2.6		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.64		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.46		0.20	2.6		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	8.7		5.0	21		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.69		0.50	2.0		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.34		0.20	2.1		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.24		0.20	0.97		0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

406EESMAIN

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819076

Date Analyzed: 2/9/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.3		0.20	4.9		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

406EESBASE

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819077

Date Analyzed: 2/9/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.53		0.50	2.6		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.55		0.50	1.1		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.26		0.20	1.5		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.62		0.20	3.9		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.27		0.20	0.86		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

406EESBASE

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819077

Date Analyzed: 2/9/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.64		0.20	2.4		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.54		0.20	3.7		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

406EESBASEDUP

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819078

Date Analyzed: 2/9/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.54		0.50	2.7		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.57		0.50	1.2		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.27		0.20	1.5		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.64		0.20	4.0		1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.22		0.20	0.70		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

406EESBASEDUP

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819078

Date Analyzed: 2/9/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.49		0.20	1.8		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.26		0.20	1.8		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

AMBIENT AIR

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819079

Date Analyzed: 2/9/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.54		0.50	2.7		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.58		0.50	1.2		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.24		0.20	1.3		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

AMBIENT AIR

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 819079

Date Analyzed: 2/9/2010

Date Received: 1/29/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.20	U	0.20	0.75	U	0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

FA020810LCS

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: FA020810

Date Analyzed: 2/8/2010

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	12		0.50	59		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	12		0.20	84		1.4
Chloromethane	74-87-3	11		0.50	23		1.0
Vinyl Chloride	75-01-4	12		0.20	31		0.51
1,3-Butadiene	106-99-0	12		0.50	27		1.1
Bromomethane	74-83-9	11		0.20	43		0.78
Chloroethane	75-00-3	9.9		0.50	26		1.3
Bromoethene	593-60-2	11		0.20	48		0.87
Trichlorofluoromethane	75-69-4	11		0.20	62		1.1
Freon TF	76-13-1	11		0.20	84		1.5
1,1-Dichloroethene	75-35-4	12		0.20	48		0.79
Acetone	67-64-1	10		5.0	24		12
Isopropyl Alcohol	67-63-0	9.5		5.0	23		12
Carbon disulfide	75-15-0	10		0.50	31		1.6
3-Chloropropene	107-05-1	11		0.50	34		1.6
Methylene chloride	75-09-2	11		0.50	38		1.7
tert-Butyl Alcohol	75-65-0	9.8		5.0	30		15
Methyl tert-Butyl Ether	1634-04-4	11		0.50	40		1.8
trans-1,2-Dichloroethene	156-60-5	11		0.20	44		0.79
n-Hexane	110-54-3	9.8		0.50	35		1.8
1,1-Dichloroethane	75-34-3	11		0.20	45		0.81
Methyl Ethyl Ketone	78-93-3	10		0.50	29		1.5
cis-1,2-Dichloroethene	156-59-2	11		0.20	44		0.79
1,2-Dichloroethene,Total	540-59-0	22		0.20	87		0.79
Chloroform	67-66-3	11		0.20	54		0.98
Tetrahydrofuran	109-99-9	10		5.0	29		15
1,1,1-Trichloroethane	71-55-6	11		0.20	60		1.1
Cyclohexane	110-82-7	11		0.20	38		0.69
Carbon tetrachloride	56-23-5	11		0.20	69		1.3
2,2,4-Trimethylpentane	540-84-1	11		0.20	51		0.93
Benzene	71-43-2	10		0.20	32		0.64
1,2-Dichloroethane	107-06-2	11		0.20	45		0.81
n-Heptane	142-82-5	10		0.20	41		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

FA020810LCS

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: FA020810

Date Analyzed: 2/8/2010

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	11		0.20	59		1.1
1,2-Dichloropropane	78-87-5	10		0.20	46		0.92
1,4-Dioxane	123-91-1	8.9		5.0	32		18
Bromodichloromethane	75-27-4	12		0.20	80		1.3
cis-1,3-Dichloropropene	10061-01-5	11		0.20	50		0.91
Methyl Isobutyl Ketone	108-10-1	11		0.50	45		2.0
Toluene	108-88-3	9.8		0.20	37		0.75
trans-1,3-Dichloropropene	10061-02-6	11		0.20	50		0.91
1,1,2-Trichloroethane	79-00-5	10		0.20	55		1.1
Tetrachloroethene	127-18-4	10		0.20	68		1.4
Methyl Butyl Ketone	591-78-6	10		0.50	41		2.0
Dibromochloromethane	124-48-1	12		0.20	100		1.7
1,2-Dibromoethane	106-93-4	11		0.20	85		1.5
Chlorobenzene	108-90-7	10		0.20	46		0.92
Ethylbenzene	100-41-4	11		0.20	48		0.87
Xylene (m,p)	1330-20-7	21		0.40	91		1.7
Xylene (o)	95-47-6	11		0.20	48		0.87
Xylenes, Total	1330-20-7	32		0.20	140		0.87
Styrene	100-42-5	11		0.20	47		0.85
Bromoform	75-25-2	12		0.20	120		2.1
1,1,2,2-Tetrachloroethane	79-34-5	10		0.20	69		1.4
4-Ethyltoluene	622-96-8	11		0.20	54		0.98
1,3,5-Trimethylbenzene	108-67-8	11		0.20	54		0.98
2-Chlorotoluene	95-49-8	11		0.20	57		1.0
1,2,4-Trimethylbenzene	95-63-6	11		0.20	54		0.98
1,3-Dichlorobenzene	541-73-1	11		0.20	66		1.2
1,4-Dichlorobenzene	106-46-7	11		0.20	66		1.2
1,2-Dichlorobenzene	95-50-1	10		0.20	60		1.2
1,2,4-Trichlorobenzene	120-82-1	9.0		0.50	67		3.7
Hexachlorobutadiene	87-68-3	10		0.20	110		2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK020810FA

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0208

Date Analyzed: 2/8/2010

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.50	U	0.50	1.0	U	1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.20	U	0.20	1.1	U	1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK020810FA

Lab Name: TAL Burlington

SDG Number: 135746

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0208

Date Analyzed: 2/8/2010

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.20	U	0.20	0.75	U	0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TestAmerica Burlington Data Qualifier Definitions

Organic

U: Compound analyzed but not detected at a concentration above the reporting limit.

J: Estimated value.

N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.

P: SW-846: The relative percent difference for detected concentrations between two GC columns is greater than 40%. Unless otherwise specified the higher of the two values is reported on the Form I.

CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.

C: Pesticide result whose identification has been confirmed by GC/MS.

B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.

E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.

D: Concentrations identified from analysis of the sample at a secondary dilution.

A: Tentatively identified compound is a suspected aldol condensation product.

X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

E: Reported value is estimated due to the presence of interference.

N: Matrix spike sample recovery is not within control limits.

* Duplicate sample analysis is not within control limits.

B: The result reported is less than the reporting limit but greater than the instrument detection limit.

U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

P ICP-AES
MS ICP-MS
CV Cold Vapor AA
AS Semi-Automated Spectrophotometric

South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

FedEx #8558 7682 7128

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip Lemont IL 60439
Phone: (630) 252 - 5267
FAX: (630) 252 - 5747
Project Name: 21 Indoor Air
Site: Hanover Kansas
PO # 8A727 - 9D - 167

Project Manager: Lorraine LaFreniere
Phone: (630) 252 - 7969
Email: lafreniere@anl.gov
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By:

1 of 1 COCs

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
409 E. Elm St - Main	2010	1602	1558	-30	-07	3130	2554	X							X				
Basement		1604	1600	-26	-06	3108	4303	X							X				
Radon Kit # 5662549																			
401 E. Elm St - Main		1654	1653	-30	-07	4058	3236	X							X				
Basement		1656	1655	-30	-08	3068	4116	X							X				
Radon Kit # 5662557																			

Temperature (Fahrenheit)

	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)

	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: Jan 27 2010 1715	Samples Received by: Chan Kalr 1/29/10 1031
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:

30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

FEDX ... 7682-7128

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip Lemont IL 60439
Phone: (630) 252-5267
FAX: (630) 252-5747
Project Name: 21 Indoor Air
Site: Hanover Kansas
PO # 8A727-9D-167

Project Manager: Lorraine LaFreniere
Phone: (630) 252-7969
Email: lafreniere@anl.gov
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By: CMR / Matt

___ of ___ COCs

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
Horst 311 E. Elm St. main floor	1/26/10	338p	333p	-29	-8	3121	4356	X								X			
basement floor	1/26/10	338p	333p	-29	-7	3296	3527	X								X			
Poell 412 E. Elm main	1/26/10	6:46p	6:33	-29	-1	4730	3166	X								X			
by furnace basement	1/26/10	646p	6:33	-31	-9	3854	2715	X								X			

Temperature (Fahrenheit)

	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)

	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by: CMRose	Date/Time: 1/27/10	Samples Received by:	
Samples Relinquished by:	Date/Time:	Received by:	
Relinquished by:	Date/Time:	Received by:	

Lab Use Only Shipper Name: Opened by: Condition:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

FedEx # 8558 7682 7128

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip Lemont IL 60439
Phone: (630) 252 - 5267
FAX: (630) 252 - 5747
Project Name: 21 Indoor Air
Site: Hanover Kansas
PO # 8A727-9D-167

Project Manager: Lorraine LaFreniere
Phone: (630) 252 - 7969
Email: lafreniere@anl.gov
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By:

2 of 2 COCs

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
406 E. Elm St - Main	2010	0908	0909	-28	-09	2929	4316	X							X				
Basement		0910	0910	-30	-08	4740	2947	X							X				
Radon Kit # 5662556																			
Duplicate of above - ~~Main~~								X							X				
Basement		0911	0912	-28	-05	4739	3307	X							X				

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: Jan 28 2010 0918	Samples Received by: 1/29/10 1031
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

FedEx # 8558 7682 7128

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information
Company: Argonne National Lab
Address: 9700 S Cass AVE
City/State/Zip Lemont IL 60439
Phone: (630) 252 - 5267
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Project Name: 21 Indoor Air
Site: Hanover Kansas
PO # 8A727-9D-167

Project Manager: Lorraine LaFreniere
Phone: (630) 252 - 7969
Email: lafreniere@anl.gov
Site Contact:
TA Contact:

Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By:

1 of 2 COCs

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type: Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
Ambient Air	2010	1105	1102	-30	-06	4330	3517	X							X			
Near New Water Tower		~~1002~~																

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: Jan 28 2010 0920	Samples Received by:	1/29/10 1031
Samples Relinquished by:	Date/Time:	Received by:	
Relinquished by:	Date/Time:	Received by:	

Lab Use Only Shipper Name: Opened by: Condition:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

March 19, 2010

Mr. Clyde Dennis
Argonne National Laboratory
9700 S. Cass Avenue
Building 203, Office B149
Argonne, IL 60439

Re: Laboratory Project No. 21005
Case: HANOVER; SDG: 136119

Dear Mr. Dennis:

Enclosed are analytical results for samples that were received by TestAmerica Burlington on February 25th, 2010. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 02/25/10 ETR No: 136119		
821187	SJSE8HR	02/24/10	AIR
821188	SJNE8HR	02/24/10	AIR
821189	SJK8HR	02/24/10	AIR
821190	SJNS8HR	02/24/10	AIR
821191	HPAO8HR	02/24/10	AIR
821192	HPKG8HR	02/24/10	AIR
821193	HPMC8HR	02/24/10	AIR
821194	HPB8HR	02/24/10	AIR
821195	HPKG24HR	02/24/10	AIR
821196	SJNS24HR	02/24/10	AIR
821197	SJAMBIENT8HR	02/24/10	AIR
821198	HPAMBIENT8HR	02/24/10	AIR

Documentation of the condition of the samples at the time of receipt and any exceptions to the laboratory's Sample Acceptance Policy is included in the Sample Handling section of this submittal. The summa canisters and flow regulators that were used in the collection of the samples were prepared and supplied by TestAmerica Burlington.

The laboratory did abbreviate the sample identifiers as they were rendered from the field. The leading alpha characters represent an abbreviation of the school (SJ or HP) and the sampling location. The ending suffix references the sampling time.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

The canisters associated with samples HPAO8HR, HPKG8HR, SJNS24HR, and SJAMBIENT8HR were received with a high residual vacuums. The condition of each sample was identified to Dr. Jorge Alvarado, and a decision was made to analyze the samples. In the case of samples HPAO8HR, HPKG8HR, and SJNS24HR it was necessary to add analyte free air to the canister in order to moderate the residual vacuum and allow for sample volume to be drawn. For each of those samples the laboratory did analyze a larger sample volume to offset the canister dilution and to maintain the reporting limits.

The samples were analyzed by Method TO-15. The analytical results for the analysis of the samples in this sample set are reported in terms of parts per billion on a volume/volume basis (PPBV). An electronic record has been generated with a conversion of the results to a weight/volume basis (ug/cubic meter), and this is included as part of this submittal. A report from the electronic file is also included with this submittal, and immediately follows this transmittal letter.

Samples HPAO8HR, HPB8HR, HPKG8HR, and HPMC8HR had high constituent concentrations of isopropyl alcohol. This was identified to Dr. Jorge Alvarado, and a decision was made not to pursue a quantitative analysis of isopropyl alcohol in those samples.

The responses in the initial calibration for each target analyte met the 30 percent relative standard deviation criterion. The response for each target analyte met the 30 percent difference criterion in the calibration check acquisition. Each of the analyses associated with the analytical work exhibited an acceptable internal standard performance. A laboratory control sample was analyzed in the analytical sequence, and there was an acceptable recovery of each target analyte in that analysis. The method blank that was analyzed in association with the samples was free of contamination.

Any reference within this report to Severn Trent Laboratories, Inc. or STL, should be understood to refer to TestAmerica Laboratories, Inc. (formerly known as Severn Trent Laboratories, Inc.) The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

If there are any questions regarding this submittal, please contact me at 802 660-1990.

Sincerely,

Kirk F. Young
Project Manager

KFY/hsf
Enclosure

TO-14/15
Result Summary

CLIENT SAMPLE NO.

SJSE8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821187

Date Analyzed: 03/05/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.81		0.50	4.0		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.54		0.50	1.1		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.23		0.20	1.3		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	20		5.0	49		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.24		0.20	0.98		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

SJSE8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821187

Date Analyzed: 03/05/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.61		0.20	2.3		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

SJNE8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821188

Date Analyzed: 03/05/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.74		0.50	3.7		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.63		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.25		0.20	1.4		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.1		5.0	12		12
Isopropyl Alcohol	67-63-0	26		5.0	64		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.36		0.20	1.2		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.43		0.20	1.8		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

SJNE8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821188

Date Analyzed: 03/05/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.75		0.20	2.8		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.21		0.20	1.4		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

SJK8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821189

Date Analyzed: 03/05/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	5.9		0.50	29		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.53		0.50	1.1		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.27		0.20	1.5		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

SJK8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821189

Date Analyzed: 03/05/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.34		0.20	1.3		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

SJNS8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821190

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	1.3		0.50	6.4		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.51		0.50	1.1		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.25		0.20	1.4		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

SJNS8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821190

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	5.6		0.50	23		2.0
Toluene	108-88-3	0.35		0.20	1.3		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HPAO8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821191

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50		0.50	2.5		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.61		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	1.2		0.20	6.7		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	17		5.0	40		12
Isopropyl Alcohol	67-63-0	54	E	5.0	130	E	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.45		0.20	2.2		0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.43		0.20	1.5		0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.24		0.20	0.77		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.83		0.20	3.4		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HPAO8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821191

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	1.8		0.50	7.4		2.0
Toluene	108-88-3	1.3		0.20	4.9		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.22		0.20	1.5		1.4
Methyl Butyl Ketone	591-78-6	0.81		0.50	3.3		2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.51		0.40	2.2		1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.52		0.20	2.3		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HPKG8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821192

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.53		0.50	2.6		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.57		0.50	1.2		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.37		0.20	2.1		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	12		5.0	29		12
Isopropyl Alcohol	67-63-0	59	E	5.0	150	E	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.94		0.50	2.8		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.48		0.20	2.3		0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.38		0.20	1.6		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HPKG8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821192

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.63		0.50	2.6		2.0
Toluene	108-88-3	0.58		0.20	2.2		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HPMC8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821193

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.54		0.50	2.7		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.57		0.50	1.2		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	1.0		0.20	5.6		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	17		5.0	40		12
Isopropyl Alcohol	67-63-0	210	E	5.0	520	E	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.34		0.20	1.7		0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.23		0.20	0.73		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.41		0.20	1.7		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HPMC8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821193

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.64		0.20	2.4		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HPB8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821194

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.69		0.50	3.4		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.59		0.50	1.2		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	1.5		0.20	8.4		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	16		5.0	38		12
Isopropyl Alcohol	67-63-0	41	E	5.0	100	E	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.31		0.20	1.5		0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.26		0.20	0.89		0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20		0.20	0.64		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	1.1		0.20	4.5		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HPB8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821194

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	1.0		0.50	4.1		2.0
Toluene	108-88-3	1.2		0.20	4.5		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20		0.20	1.4		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HPKG24HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821195

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.58		0.50	2.9		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.54		0.50	1.1		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.38		0.20	2.1		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	7.8		5.0	19		12
Isopropyl Alcohol	67-63-0	18		5.0	44		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.63		0.50	2.2		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	2.0		0.50	7.0		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.91		0.50	2.7		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.84		0.20	2.9		0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	1.8		0.20	8.4		0.93
Benzene	71-43-2	1.8		0.20	5.8		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	1.3		0.20	5.3		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HPKG24HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821195

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	8.5		0.20	32		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.37		0.20	2.5		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.92		0.20	4.0		0.87
Xylene (m,p)	1330-20-7	3.1		0.40	13		1.7
Xylene (o)	95-47-6	1.0		0.20	4.3		0.87
Xylenes, Total	1330-20-7	4.2		0.20	18		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.21		0.20	1.0		0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.57		0.20	2.8		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

SJNS24HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821196

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.87		0.50	4.3		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.59		0.50	1.2		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.27		0.20	1.5		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	6.5		5.0	15		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.77		0.50	2.3		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.21		0.20	0.67		0.64
1,2-Dichloroethane	107-06-2	0.22		0.20	0.89		0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

SJNS24HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821196

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	1.8		0.50	7.4		2.0
Toluene	108-88-3	0.66		0.20	2.5		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

SJAMBIENT8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821197

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.58		0.50	2.9		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.54		0.50	1.1		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.23		0.20	1.3		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.25		0.20	1.2		0.93
Benzene	71-43-2	0.39		0.20	1.2		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

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TO-14/15
Result Summary

CLIENT SAMPLE NO.

SJAMBIENT8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821197

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.96		0.20	3.6		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.50		0.40	2.2		1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.51		0.20	2.2		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

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TO-14/15
Result Summary

CLIENT SAMPLE NO.

HPAMBIENT8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821198

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.59		0.50	2.9		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.52		0.50	1.1		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.24		0.20	1.3		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

HPAMBIENT8HR

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821198

Date Analyzed: 03/06/10

Date Received: 02/25/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.20	U	0.20	0.75	U	0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

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TO-14/15
Result Summary

CLIENT SAMPLE NO.

FA030510LCS

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: FA030510

Date Analyzed: 03/05/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	12		0.50	59		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	11		0.20	77		1.4
Chloromethane	74-87-3	8.9		0.50	18		1.0
Vinyl Chloride	75-01-4	9.2		0.20	24		0.51
1,3-Butadiene	106-99-0	9.4		0.50	21		1.1
Bromomethane	74-83-9	9.2		0.20	36		0.78
Chloroethane	75-00-3	8.0		0.50	21		1.3
Bromoethene	593-60-2	10		0.20	44		0.87
Trichlorofluoromethane	75-69-4	10		0.20	56		1.1
Freon TF	76-13-1	12		0.20	92		1.5
1,1-Dichloroethene	75-35-4	12		0.20	48		0.79
Acetone	67-64-1	8.8		5.0	21		12
Isopropyl Alcohol	67-63-0	8.0		5.0	20		12
Carbon disulfide	75-15-0	9.5		0.50	30		1.6
3-Chloropropene	107-05-1	8.3		0.50	26		1.6
Methylene chloride	75-09-2	8.9		0.50	31		1.7
tert-Butyl Alcohol	75-65-0	9.1		5.0	28		15
Methyl tert-Butyl Ether	1634-04-4	10		0.50	36		1.8
trans-1,2-Dichloroethene	156-60-5	9.4		0.20	37		0.79
n-Hexane	110-54-3	8.2		0.50	29		1.8
1,1-Dichloroethane	75-34-3	9.4		0.20	38		0.81
Methyl Ethyl Ketone	78-93-3	8.8		0.50	26		1.5
cis-1,2-Dichloroethene	156-59-2	11		0.20	44		0.79
1,2-Dichloroethene,Total	540-59-0	20		0.20	79		0.79
Chloroform	67-66-3	10		0.20	49		0.98
Tetrahydrofuran	109-99-9	8.0		5.0	24		15
1,1,1-Trichloroethane	71-55-6	11		0.20	60		1.1
Cyclohexane	110-82-7	10		0.20	34		0.69
Carbon tetrachloride	56-23-5	12		0.20	75		1.3
2,2,4-Trimethylpentane	540-84-1	9.2		0.20	43		0.93
Benzene	71-43-2	9.4		0.20	30		0.64
1,2-Dichloroethane	107-06-2	11		0.20	45		0.81
n-Heptane	142-82-5	8.3		0.20	34		0.82

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TO-14/15
Result Summary

CLIENT SAMPLE NO.

FA030510LCS

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: FA030510

Date Analyzed: 03/05/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	11		0.20	59		1.1
1,2-Dichloropropane	78-87-5	9.2		0.20	43		0.92
1,4-Dioxane	123-91-1	9.0		5.0	32		18
Bromodichloromethane	75-27-4	12		0.20	80		1.3
cis-1,3-Dichloropropene	10061-01-5	10		0.20	45		0.91
Methyl Isobutyl Ketone	108-10-1	8.7		0.50	36		2.0
Toluene	108-88-3	9.5		0.20	36		0.75
trans-1,3-Dichloropropene	10061-02-6	10		0.20	45		0.91
1,1,2-Trichloroethane	79-00-5	9.8		0.20	53		1.1
Tetrachloroethene	127-18-4	12		0.20	81		1.4
Methyl Butyl Ketone	591-78-6	8.7		0.50	36		2.0
Dibromochloromethane	124-48-1	13		0.20	110		1.7
1,2-Dibromoethane	106-93-4	11		0.20	85		1.5
Chlorobenzene	108-90-7	11		0.20	51		0.92
Ethylbenzene	100-41-4	10		0.20	43		0.87
Xylene (m,p)	1330-20-7	21		0.40	91		1.7
Xylene (o)	95-47-6	10		0.20	43		0.87
Xylenes, Total	1330-20-7	32		0.20	140		0.87
Styrene	100-42-5	11		0.20	47		0.85
Bromoform	75-25-2	13		0.20	130		2.1
1,1,2,2-Tetrachloroethane	79-34-5	9.6		0.20	66		1.4
4-Ethyltoluene	622-96-8	11		0.20	54		0.98
1,3,5-Trimethylbenzene	108-67-8	11		0.20	54		0.98
2-Chlorotoluene	95-49-8	11		0.20	57		1.0
1,2,4-Trimethylbenzene	95-63-6	10		0.20	49		0.98
1,3-Dichlorobenzene	541-73-1	11		0.20	66		1.2
1,4-Dichlorobenzene	106-46-7	11		0.20	66		1.2
1,2-Dichlorobenzene	95-50-1	11		0.20	66		1.2
1,2,4-Trichlorobenzene	120-82-1	9.9		0.50	73		3.7
Hexachlorobutadiene	87-68-3	10		0.20	110		2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK030510FA

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0305

Date Analyzed: 03/05/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.50	U	0.50	1.0	U	1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.20	U	0.20	1.1	U	1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK030510FA

Lab Name: TAL Burlington

SDG Number: 136119

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0305

Date Analyzed: 03/05/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.20	U	0.20	0.75	U	0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

Printed: 03/19/10 9:09:13 AM

TestAmerica Burlington Data Qualifier Definitions

Organic

U: Compound analyzed but not detected at a concentration above the reporting limit.

J: Estimated value.

N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.

P: SW-846: The relative percent difference for detected concentrations between two GC columns is greater than 40%. Unless otherwise specified the higher of the two values is reported on the Form I.

CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.

C: Pesticide result whose identification has been confirmed by GC/MS.

B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.

E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.

D: Concentrations identified from analysis of the sample at a secondary dilution.

A: Tentatively identified compound is a suspected aldol condensation product.

X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

E: Reported value is estimated due to the presence of interference.

N: Matrix spike sample recovery is not within control limits.

* Duplicate sample analysis is not within control limits.

B: The result reported is less than the reporting limit but greater than the instrument detection limit.

U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

P ICP-AES
MS ICP-MS
CV Cold Vapor AA
AS Semi-Automated Spectrophotometric

Cardare

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Lorraine LaFrenniere	Samples Collected By: CMR	1 of 1 COCs
Company: Argonne National	Phone:		
Address: 9700 S Cass	Email:		
City/State/Zip Argonne IL	Jorge Alvarado		
Phone: 630 252-5267	Site Contact:		
FAX: 630 252-5747	TA Contact:		
Project Name: Hanover	Analysis Turnaround Time		
Site:	Standard (Specify)		
PO #	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
SJ SE (SJ-1-4)	2/24	8:00	1550	-31	-2	4025	4162	X							X		8hr		
(																			
SJ NE (SJ-1-2)	2/24	8:02	1551	-29.5	-7.5	4527	3474	X							X		8hr		
SJ Kitchen (SJ-B-5)	2/24	8:05	1545	-30	0	3945	4570	X							X		8hr		
SJ Nursery school (SJ-B-2)	2/24	807	1550	-30	0	3223	4130	X							X		8hr.		

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (Inches of Hg)	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time:	Samples Received by:	2/25/10 1015
Samples Relinquished by:	Date/Time:	Received by:	
Relinquished by:	Date/Time:	Received by:	

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Cordova

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Lorraine LaFrenniere	Samples Collected By: CMR	1 of 1 COCs
Company: Argonne National	Phone:		
Address: 9700 S Cass	Email: Jorge Alonso		
City/State/Zip Argonne IL			
Phone: 630 252-5267	Site Contact:		
FAX: 630 252-5747	TA Contact:		
Project Name: Hanover	**Analysis Turnaround Time**		
Site:	Standard (Specify)		
PO #	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
HP At office (HP-1-6)	2/24	739	1507	-31	-20	3484	2748	X							X			8hr	
HP KINDERGARDEN (HP B-1)	2/24	740	1533	-29.5	-12	4516	4340	X							X			8hr	
HP MATH Classroom (HP-B-3)	2/24	7:43	1540	-29.0	-8.5	3179	3645	X							X			8hr	
HP Band (HP-1-4)	2/24	7:45	1541	-30	-7.0	3736	2566	X							X			8hr	

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time:	Samples Received by:	2/25/10 1045
Samples Relinquished by:	Date/Time:	Received by:	
Relinquished by:	Date/Time:	Received by:	

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
Phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information
Company: Argonne National
Address: 9700 S Cass
City/State/Zip Argonne IL
Phone: 630 252-5267
FAX: 630 252-5747
Project Name: Hanover
Site:
PO #

Project Manager: Lorraine LaFreniere
Phone: (630) 252-5267 Jorge Alvarado contact #
Email: llafreniere@anl.gov
Site Contact:
TA Contact:
Analysis Turnaround Time
Standard (Specify)
Rush (Specify)

Samples Collected By: CMR

1 of 1 COCs

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type: Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)	
Kindergarden (HP-B-1)	2/23	3:30p	2/24 7:40A	-28	-11	3738	4352	X						X					
(RA# 5694029)		* 16 hr 10 mins																	
St John's Nursery School	2/23	3:50	2/24 8:07	-31	-20	2934	4818	X						X					
(RA# 5694029) (SJ-B-2)		*	16 hr 17 min.																
S.J. Ambient Air	2/24	830p	4:50p	-29	-7.5	2768	4234	X							X				8hr
HP Ambient Air	2/24	8:37p	4:58p	-29	-7.5	3058	4921	X							X				8hr

Temperature (Fahrenheit)

	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)

	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time:	Samples Received by:	2/25/10 1045
Samples Relinquished by:	Date/Time:	Received by:	
Relinquished by:	Date/Time:	Received by:	

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

March 19, 2010

Mr. Clyde Dennis
Argonne National Laboratory
9700 S. Cass Avenue
Building 203, Office B149
Argonne, IL 60439

Re: Laboratory Project No. 21005
Case: HANOVER; SDG: 136146

Dear Mr. Dennis:

Enclosed are analytical results for samples that were received by TestAmerica Burlington on February 27th, 2010. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 02/27/10 ETR No: 136146		
821357	208NHOLMF	02/24/10	AIR
821358	208NHOLB	02/24/10	AIR
821359	304NHOLMF	02/24/10	AIR
821360	304NHOLB	02/24/10	AIR
821361	212NHOLMF	02/24/10	AIR
821362	212NHOLB	02/24/10	AIR
821363	300NHOLMF	02/24/10	AIR
821364	300NHOLB	02/24/10	AIR
821365	309HANMF	02/24/10	AIR
821366	309HANB	02/24/10	AIR
821367	WZ2AMBIENT	02/24/10	AIR
821368	310NHANBDUP	02/25/10	AIR
821369	308NHOLMF	02/24/10	AIR
821370	308NHOLB	02/24/10	AIR
821371	314NHOLMF	02/25/10	AIR
821372	314NHOLB	02/25/10	AIR
821373	310NHANMF	02/25/10	AIR
821374	310NHANB	02/25/10	AIR
821375	211NHANMF	02/25/10	AIR
821376	211NHANCS	02/25/10	AIR

Documentation of the condition of the samples at the time of receipt and any exceptions to the

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

laboratory's Sample Acceptance Policy is included in the Sample Handling section of this submittal. The summa canisters and flow regulators that were used in the collection of the samples were prepared and supplied by TestAmerica Burlington.

The laboratory did abbreviate the sample identifiers as they were rendered from the field. The leading numeric represents the street number, which is followed by an abbreviation of the street name. The ending suffix references the sample location within the structure; Main Floor (main floor), BASE (basement), and CS (crawlspace).

The samples were analyzed by Method TO-15. The analytical results for the analysis of the samples in this sample set are reported in terms of parts per billion on a volume/volume basis (PPBV). An electronic record has been generated with a conversion of the results to a weight/volume basis (ug/cubic meter), and this is included as part of this submittal. A report from the electronic file is also included with this submittal, and immediately follows this transmittal letter.

Samples 314NHOLMF and 314NHOLMF had high constituent concentrations of isopropyl alcohol. This was identified to Dr. Jorge Alvarado, and a decision was made not to pursue a quantitative analysis of isopropyl alcohol in those samples.

The responses in the initial calibration for each target analyte met the 30 percent relative standard deviation criterion. The response for each target analyte met the 30 percent difference criterion in each calibration check acquisition. Each of the analyses associated with the analytical work exhibited an acceptable internal standard performance. A laboratory control sample was analyzed in each analytical sequence, and there was an acceptable recovery of each target analyte in each of those analyses. Each method blank that was analyzed in association with the samples was free of contamination.

Any reference within this report to Severn Trent Laboratories, Inc. or STL, should be understood to refer to TestAmerica Laboratories, Inc. (formerly known as Severn Trent Laboratories, Inc.) The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

If there are any questions regarding this submittal, please contact me at 802 660-1990.

Sincerely,

Kirk F. Young
Project Manager

KFY/hsf
Enclosure

TO-14/15
Result Summary

CLIENT SAMPLE NO.

208NHOLMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821357

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.52		0.50	2.6		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.53		0.50	1.1		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.55		0.20	3.1		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20		0.20	0.98		0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.38		0.20	1.2		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

208NHOLMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821357

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.93		0.20	3.5		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

208NHOLB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821358

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.53		0.50	2.6		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.50		0.50	1.0		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	2.3		0.20	13		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50		0.50	1.8		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.54		0.50	1.6		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.40		0.20	1.9		0.93
Benzene	71-43-2	0.50		0.20	1.6		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.26		0.20	1.1		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

208NHOLB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821358

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.1		0.20	4.1		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.42		0.40	1.8		1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.42		0.20	1.8		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

304NHOLMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821359

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.56		0.50	2.8		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.61		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.48		0.20	2.7		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	9.2		5.0	22		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	1.1		0.50	3.2		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.28		0.20	0.89		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

304NHOLMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821359

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.33		0.20	1.2		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

304NHOLB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821360

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.57		0.50	2.8		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.61		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.47		0.20	2.6		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	6.4		5.0	15		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.61		0.50	1.8		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.25		0.20	0.80		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

304NHOLB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821360

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.25		0.20	0.94		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

212NHOLMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821361

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.54		0.50	2.7		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	2.3		0.50	4.7		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	1.1		0.50	2.4		1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.31		0.20	1.7		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	12		5.0	29		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	1.3		0.50	3.8		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.35		0.20	1.7		0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.93		0.20	3.0		0.64
1,2-Dichloroethane	107-06-2	0.29		0.20	1.2		0.81
n-Heptane	142-82-5	0.31		0.20	1.3		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

212NHOLMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821361

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.9		0.20	7.2		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	1.2		0.20	8.1		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.32		0.20	1.4		0.87
Xylene (m,p)	1330-20-7	0.86		0.40	3.7		1.7
Xylene (o)	95-47-6	0.23		0.20	1.0		0.87
Xylenes, Total	1330-20-7	1.1		0.20	4.8		0.87
Styrene	100-42-5	0.73		0.20	3.1		0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

212NHOLB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821362

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.55		0.50	2.7		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	1.1		0.50	2.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.29		0.20	1.6		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.21		0.20	0.98		0.93
Benzene	71-43-2	0.56		0.20	1.8		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.24		0.20	0.98		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

212NHOLB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821362

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.2		0.20	4.5		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.47		0.20	3.2		1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.28		0.20	1.2		0.87
Xylene (m,p)	1330-20-7	0.69		0.40	3.0		1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.69		0.20	3.0		0.87
Styrene	100-42-5	0.74		0.20	3.2		0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

300NHOLMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821363

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.72		0.50	3.6		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.70		0.50	1.4		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.61		0.20	3.4		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	13		5.0	31		12
Isopropyl Alcohol	67-63-0	15		5.0	37		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.66		0.50	1.9		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.23		0.20	0.73		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

300NHOLMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821363

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.71		0.20	2.7		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

300NHOLB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821364

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	1.1		0.50	5.4		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.62		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	1.3		0.20	7.3		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.2		5.0	13		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.31		0.20	1.4		0.93
Benzene	71-43-2	0.49		0.20	1.6		0.64
1,2-Dichloroethane	107-06-2	0.34		0.20	1.4		0.81
n-Heptane	142-82-5	0.26		0.20	1.1		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

300NHOLB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821364

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.2		0.20	4.5		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

309HANMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821365

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.59		0.50	2.9		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.63		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.24		0.20	1.3		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.60		0.50	2.1		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.57		0.50	1.7		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20		0.20	0.69		0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.28		0.20	1.1		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

309HANMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821365

Date Analyzed: 3/4/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.23		0.20	0.87		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

309HANB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821366

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.62		0.50	3.1		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.66		0.50	1.4		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.25		0.20	1.4		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.22		0.20	0.70		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

309HANB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821366

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.34		0.20	1.3		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

WZ2AMBIENT

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821367

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.58		0.50	2.9		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.68		0.50	1.4		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.25		0.20	1.4		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

WZ2AMBIENT

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821367

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.20	U	0.20	0.75	U	0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

310NHANBDUP

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821368

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.70		0.50	3.5		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.64		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.38		0.20	2.1		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	6.1		5.0	15		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.65		0.50	2.3		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.67		0.50	2.0		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	1.2		0.20	6.5		1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.21		0.20	0.98		0.93
Benzene	71-43-2	0.34		0.20	1.1		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20		0.20	0.82		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

310NHANBDUP

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821368

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.2		0.20	4.5		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.45		0.20	2.0		0.87
Xylene (m,p)	1330-20-7	1.6		0.40	6.9		1.7
Xylene (o)	95-47-6	0.63		0.20	2.7		0.87
Xylenes, Total	1330-20-7	2.2		0.20	9.6		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20		0.20	0.98		0.98
1,3,5-Trimethylbenzene	108-67-8	0.25		0.20	1.2		0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.76		0.20	3.7		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

308NHOLMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821369

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.62		0.50	3.1		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.62		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.39		0.20	2.2		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	9.1		5.0	22		12
Isopropyl Alcohol	67-63-0	6.1		5.0	15		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.56		0.50	2.0		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.59		0.50	1.7		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.35		0.20	1.1		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.39		0.20	1.6		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

308NHOLMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821369

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.8		0.20	6.8		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

308NHOLB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821370

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.57		0.50	2.8		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.58		0.50	1.2		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.33		0.20	1.9		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.2		5.0	12		12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	1.4		0.50	4.9		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50		0.50	1.5		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.43		0.20	1.5		0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.99		0.20	4.6		0.93
Benzene	71-43-2	1.1		0.20	3.5		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.77		0.20	3.2		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

308NHOLB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821370

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	3.3		0.20	12		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.32		0.20	1.4		0.87
Xylene (m,p)	1330-20-7	0.87		0.40	3.8		1.7
Xylene (o)	95-47-6	0.29		0.20	1.3		0.87
Xylenes, Total	1330-20-7	1.2		0.20	5.2		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

314NHOLMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821371

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.58		0.50	2.9		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.67		0.50	1.4		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.24		0.20	1.3		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	11		5.0	26		12
Isopropyl Alcohol	67-63-0	320	E	5.0	790	E	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.90		0.50	3.2		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.26		0.20	1.2		0.93
Benzene	71-43-2	0.39		0.20	1.2		0.64
1,2-Dichloroethane	107-06-2	0.28		0.20	1.1		0.81
n-Heptane	142-82-5	0.21		0.20	0.86		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

314NHOLMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821371

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.5		0.20	5.7		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

314NHOLB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821372

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.61		0.50	3.0		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.74		0.50	1.5		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.25		0.20	1.4		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	28		5.0	67		12
Isopropyl Alcohol	67-63-0	270	E	5.0	660	E	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	2.3		0.50	8.1		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	1.1		0.50	3.2		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.29		0.20	1.0		0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.61		0.20	2.8		0.93
Benzene	71-43-2	0.81		0.20	2.6		0.64
1,2-Dichloroethane	107-06-2	0.93		0.20	3.8		0.81
n-Heptane	142-82-5	0.48		0.20	2.0		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

314NHOLB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821372

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	3.8		0.20	14		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.30		0.20	1.3		0.87
Xylene (m,p)	1330-20-7	0.91		0.40	4.0		1.7
Xylene (o)	95-47-6	0.33		0.20	1.4		0.87
Xylenes, Total	1330-20-7	1.2		0.20	5.2		0.87
Styrene	100-42-5	0.37		0.20	1.6		0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

310NHANMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821373

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.74		0.50	3.7		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.63		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.58		0.20	3.3		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	12		5.0	29		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.69		0.50	2.4		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.56		0.50	2.0		1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.79		0.50	2.3		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.61		0.20	3.3		1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.70		0.20	3.3		0.93
Benzene	71-43-2	0.58		0.20	1.9		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.41		0.20	1.7		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

310NHANMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821373

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	3.6		0.20	14		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	1.4		0.20	6.1		0.87
Xylene (m,p)	1330-20-7	5.0		0.40	22		1.7
Xylene (o)	95-47-6	2.1		0.20	9.1		0.87
Xylenes, Total	1330-20-7	7.1		0.20	31		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.63		0.20	3.1		0.98
1,3,5-Trimethylbenzene	108-67-8	0.71		0.20	3.5		0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	2.3		0.20	11		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

310NHANB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821374

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	1.2		0.50	5.9		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.64		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	1.3		0.20	7.3		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	15		5.0	37		12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.56		0.50	1.9		1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.60		0.50	1.8		1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.60		0.20	3.3		1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.26		0.20	1.2		0.93
Benzene	71-43-2	0.33		0.20	1.1		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20		0.20	0.82		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

310NHANB

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821374

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	1.6		0.20	6.0		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.68		0.20	3.0		0.87
Xylene (m,p)	1330-20-7	2.5		0.40	11		1.7
Xylene (o)	95-47-6	1.0		0.20	4.3		0.87
Xylenes, Total	1330-20-7	3.5		0.20	15		0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.35		0.20	1.7		0.98
1,3,5-Trimethylbenzene	108-67-8	0.40		0.20	2.0		0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	1.3		0.20	6.4		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

211NHANMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821375

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.61		0.50	3.0		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.64		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.25		0.20	1.4		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

211NHANMF

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821375

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.86		0.20	3.2		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.27		0.20	1.3		0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

211NHANCS

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821376

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.61		0.50	3.0		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.65		0.50	1.3		1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.24		0.20	1.3		1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.27		0.20	1.3		0.93
Benzene	71-43-2	0.38		0.20	1.2		0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20		0.20	0.82		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

211NHANCS

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 821376

Date Analyzed: 3/5/2010

Date Received: 2/27/2010

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.94		0.20	3.5		0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

GA030410LCS

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: GA030410

Date Analyzed: 3/4/2010

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	11		0.50	54		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	11		0.20	77		1.4
Chloromethane	74-87-3	11		0.50	23		1.0
Vinyl Chloride	75-01-4	11		0.20	28		0.51
1,3-Butadiene	106-99-0	11		0.50	24		1.1
Bromomethane	74-83-9	10		0.20	39		0.78
Chloroethane	75-00-3	10		0.50	26		1.3
Bromoethene	593-60-2	11		0.20	48		0.87
Trichlorofluoromethane	75-69-4	11		0.20	62		1.1
Freon TF	76-13-1	12		0.20	92		1.5
1,1-Dichloroethene	75-35-4	12		0.20	48		0.79
Acetone	67-64-1	10		5.0	24		12
Isopropyl Alcohol	67-63-0	9.4		5.0	23		12
Carbon disulfide	75-15-0	11		0.50	34		1.6
3-Chloropropene	107-05-1	11		0.50	34		1.6
Methylene chloride	75-09-2	11		0.50	38		1.7
tert-Butyl Alcohol	75-65-0	9.8		5.0	30		15
Methyl tert-Butyl Ether	1634-04-4	9.6		0.50	35		1.8
trans-1,2-Dichloroethene	156-60-5	11		0.20	44		0.79
n-Hexane	110-54-3	11		0.50	39		1.8
1,1-Dichloroethane	75-34-3	11		0.20	45		0.81
Methyl Ethyl Ketone	78-93-3	9.3		0.50	27		1.5
cis-1,2-Dichloroethene	156-59-2	11		0.20	44		0.79
1,2-Dichloroethene,Total	540-59-0	22		0.20	87		0.79
Chloroform	67-66-3	10		0.20	49		0.98
Tetrahydrofuran	109-99-9	9.8		5.0	29		15
1,1,1-Trichloroethane	71-55-6	11		0.20	60		1.1
Cyclohexane	110-82-7	11		0.20	38		0.69
Carbon tetrachloride	56-23-5	11		0.20	69		1.3
2,2,4-Trimethylpentane	540-84-1	11		0.20	51		0.93
Benzene	71-43-2	10		0.20	32		0.64
1,2-Dichloroethane	107-06-2	10		0.20	40		0.81
n-Heptane	142-82-5	10		0.20	41		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

GA030410LCS

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: GA030410

Date Analyzed: 3/4/2010

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	10		0.20	54		1.1
1,2-Dichloropropane	78-87-5	10		0.20	46		0.92
1,4-Dioxane	123-91-1	8.5		5.0	31		18
Bromodichloromethane	75-27-4	10		0.20	67		1.3
cis-1,3-Dichloropropene	10061-01-5	9.9		0.20	45		0.91
Methyl Isobutyl Ketone	108-10-1	9.9		0.50	41		2.0
Toluene	108-88-3	9.9		0.20	37		0.75
trans-1,3-Dichloropropene	10061-02-6	9.8		0.20	44		0.91
1,1,2-Trichloroethane	79-00-5	9.5		0.20	52		1.1
Tetrachloroethene	127-18-4	9.4		0.20	64		1.4
Methyl Butyl Ketone	591-78-6	9.9		0.50	41		2.0
Dibromochloromethane	124-48-1	10		0.20	85		1.7
1,2-Dibromoethane	106-93-4	9.6		0.20	74		1.5
Chlorobenzene	108-90-7	9.6		0.20	44		0.92
Ethylbenzene	100-41-4	10		0.20	43		0.87
Xylene (m,p)	1330-20-7	20		0.40	87		1.7
Xylene (o)	95-47-6	9.8		0.20	43		0.87
Xylenes, Total	1330-20-7	30		0.20	130		0.87
Styrene	100-42-5	10		0.20	43		0.85
Bromoform	75-25-2	10		0.20	100		2.1
1,1,2,2-Tetrachloroethane	79-34-5	9.5		0.20	65		1.4
4-Ethyltoluene	622-96-8	10		0.20	49		0.98
1,3,5-Trimethylbenzene	108-67-8	9.9		0.20	49		0.98
2-Chlorotoluene	95-49-8	10		0.20	52		1.0
1,2,4-Trimethylbenzene	95-63-6	9.6		0.20	47		0.98
1,3-Dichlorobenzene	541-73-1	9.4		0.20	57		1.2
1,4-Dichlorobenzene	106-46-7	9.4		0.20	57		1.2
1,2-Dichlorobenzene	95-50-1	9.2		0.20	55		1.2
1,2,4-Trichlorobenzene	120-82-1	7.1		0.50	53		3.7
Hexachlorobutadiene	87-68-3	8.8		0.20	94		2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

GA030510LCS

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: GA030510

Date Analyzed: 3/5/2010

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	12		0.50	59		2.5
1,2-Dichlorotetrafluoroethane	76-14-2	12		0.20	84		1.4
Chloromethane	74-87-3	12		0.50	25		1.0
Vinyl Chloride	75-01-4	12		0.20	31		0.51
1,3-Butadiene	106-99-0	12		0.50	27		1.1
Bromomethane	74-83-9	11		0.20	43		0.78
Chloroethane	75-00-3	11		0.50	29		1.3
Bromoethene	593-60-2	11		0.20	48		0.87
Trichlorofluoromethane	75-69-4	11		0.20	62		1.1
Freon TF	76-13-1	12		0.20	92		1.5
1,1-Dichloroethene	75-35-4	12		0.20	48		0.79
Acetone	67-64-1	10		5.0	24		12
Isopropyl Alcohol	67-63-0	10		5.0	25		12
Carbon disulfide	75-15-0	11		0.50	34		1.6
3-Chloropropene	107-05-1	12		0.50	38		1.6
Methylene chloride	75-09-2	12		0.50	42		1.7
tert-Butyl Alcohol	75-65-0	11		5.0	33		15
Methyl tert-Butyl Ether	1634-04-4	9.4		0.50	34		1.8
trans-1,2-Dichloroethene	156-60-5	12		0.20	48		0.79
n-Hexane	110-54-3	11		0.50	39		1.8
1,1-Dichloroethane	75-34-3	11		0.20	45		0.81
Methyl Ethyl Ketone	78-93-3	9.3		0.50	27		1.5
cis-1,2-Dichloroethene	156-59-2	11		0.20	44		0.79
1,2-Dichloroethene,Total	540-59-0	23		0.20	91		0.79
Chloroform	67-66-3	11		0.20	54		0.98
Tetrahydrofuran	109-99-9	10		5.0	29		15
1,1,1-Trichloroethane	71-55-6	12		0.20	65		1.1
Cyclohexane	110-82-7	12		0.20	41		0.69
Carbon tetrachloride	56-23-5	12		0.20	75		1.3
2,2,4-Trimethylpentane	540-84-1	12		0.20	56		0.93
Benzene	71-43-2	11		0.20	35		0.64
1,2-Dichloroethane	107-06-2	11		0.20	45		0.81
n-Heptane	142-82-5	11		0.20	45		0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

GA030510LCS

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: GA030510

Date Analyzed: 3/5/2010

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	11		0.20	59		1.1
1,2-Dichloropropane	78-87-5	11		0.20	51		0.92
1,4-Dioxane	123-91-1	9.6		5.0	35		18
Bromodichloromethane	75-27-4	11		0.20	74		1.3
cis-1,3-Dichloropropene	10061-01-5	10		0.20	45		0.91
Methyl Isobutyl Ketone	108-10-1	12		0.50	49		2.0
Toluene	108-88-3	10		0.20	38		0.75
trans-1,3-Dichloropropene	10061-02-6	10		0.20	45		0.91
1,1,2-Trichloroethane	79-00-5	9.8		0.20	53		1.1
Tetrachloroethene	127-18-4	9.4		0.20	64		1.4
Methyl Butyl Ketone	591-78-6	12		0.50	49		2.0
Dibromochloromethane	124-48-1	10		0.20	85		1.7
1,2-Dibromoethane	106-93-4	9.8		0.20	75		1.5
Chlorobenzene	108-90-7	9.7		0.20	45		0.92
Ethylbenzene	100-41-4	10		0.20	43		0.87
Xylene (m,p)	1330-20-7	20		0.40	87		1.7
Xylene (o)	95-47-6	9.6		0.20	42		0.87
Xylenes, Total	1330-20-7	30		0.20	130		0.87
Styrene	100-42-5	9.9		0.20	42		0.85
Bromoform	75-25-2	10		0.20	100		2.1
1,1,2,2-Tetrachloroethane	79-34-5	9.5		0.20	65		1.4
4-Ethyltoluene	622-96-8	9.8		0.20	48		0.98
1,3,5-Trimethylbenzene	108-67-8	9.4		0.20	46		0.98
2-Chlorotoluene	95-49-8	11		0.20	57		1.0
1,2,4-Trimethylbenzene	95-63-6	9.2		0.20	45		0.98
1,3-Dichlorobenzene	541-73-1	9.2		0.20	55		1.2
1,4-Dichlorobenzene	106-46-7	9.3		0.20	56		1.2
1,2-Dichlorobenzene	95-50-1	8.9		0.20	54		1.2
1,2,4-Trichlorobenzene	120-82-1	7.6		0.50	56		3.7
Hexachlorobutadiene	87-68-3	8.2		0.20	87		2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK030410GA

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0304

Date Analyzed: 3/4/2010

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.50	U	0.50	1.0	U	1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.20	U	0.20	1.1	U	1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK030410GA

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0304

Date Analyzed: 3/4/2010

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.20	U	0.20	0.75	U	0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK030510GA

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0305

Date Analyzed: 3/5/2010

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Dichlorodifluoromethane	75-71-8	0.50	U	0.50	2.5	U	2.5
1,2-Dichlorotetrafluoroethane	76-14-2	0.20	U	0.20	1.4	U	1.4
Chloromethane	74-87-3	0.50	U	0.50	1.0	U	1.0
Vinyl Chloride	75-01-4	0.20	U	0.20	0.51	U	0.51
1,3-Butadiene	106-99-0	0.50	U	0.50	1.1	U	1.1
Bromomethane	74-83-9	0.20	U	0.20	0.78	U	0.78
Chloroethane	75-00-3	0.50	U	0.50	1.3	U	1.3
Bromoethene	593-60-2	0.20	U	0.20	0.87	U	0.87
Trichlorofluoromethane	75-69-4	0.20	U	0.20	1.1	U	1.1
Freon TF	76-13-1	0.20	U	0.20	1.5	U	1.5
1,1-Dichloroethene	75-35-4	0.20	U	0.20	0.79	U	0.79
Acetone	67-64-1	5.0	U	5.0	12	U	12
Isopropyl Alcohol	67-63-0	5.0	U	5.0	12	U	12
Carbon disulfide	75-15-0	0.50	U	0.50	1.6	U	1.6
3-Chloropropene	107-05-1	0.50	U	0.50	1.6	U	1.6
Methylene chloride	75-09-2	0.50	U	0.50	1.7	U	1.7
tert-Butyl Alcohol	75-65-0	5.0	U	5.0	15	U	15
Methyl tert-Butyl Ether	1634-04-4	0.50	U	0.50	1.8	U	1.8
trans-1,2-Dichloroethene	156-60-5	0.20	U	0.20	0.79	U	0.79
n-Hexane	110-54-3	0.50	U	0.50	1.8	U	1.8
1,1-Dichloroethane	75-34-3	0.20	U	0.20	0.81	U	0.81
Methyl Ethyl Ketone	78-93-3	0.50	U	0.50	1.5	U	1.5
cis-1,2-Dichloroethene	156-59-2	0.20	U	0.20	0.79	U	0.79
1,2-Dichloroethene,Total	540-59-0	0.20	U	0.20	0.79	U	0.79
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Tetrahydrofuran	109-99-9	5.0	U	5.0	15	U	15
1,1,1-Trichloroethane	71-55-6	0.20	U	0.20	1.1	U	1.1
Cyclohexane	110-82-7	0.20	U	0.20	0.69	U	0.69
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3
2,2,4-Trimethylpentane	540-84-1	0.20	U	0.20	0.93	U	0.93
Benzene	71-43-2	0.20	U	0.20	0.64	U	0.64
1,2-Dichloroethane	107-06-2	0.20	U	0.20	0.81	U	0.81
n-Heptane	142-82-5	0.20	U	0.20	0.82	U	0.82

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK030510GA

Lab Name: TAL Burlington

SDG Number: 136146

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0305

Date Analyzed: 3/5/2010

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Trichloroethene	79-01-6	0.20	U	0.20	1.1	U	1.1
1,2-Dichloropropane	78-87-5	0.20	U	0.20	0.92	U	0.92
1,4-Dioxane	123-91-1	5.0	U	5.0	18	U	18
Bromodichloromethane	75-27-4	0.20	U	0.20	1.3	U	1.3
cis-1,3-Dichloropropene	10061-01-5	0.20	U	0.20	0.91	U	0.91
Methyl Isobutyl Ketone	108-10-1	0.50	U	0.50	2.0	U	2.0
Toluene	108-88-3	0.20	U	0.20	0.75	U	0.75
trans-1,3-Dichloropropene	10061-02-6	0.20	U	0.20	0.91	U	0.91
1,1,2-Trichloroethane	79-00-5	0.20	U	0.20	1.1	U	1.1
Tetrachloroethene	127-18-4	0.20	U	0.20	1.4	U	1.4
Methyl Butyl Ketone	591-78-6	0.50	U	0.50	2.0	U	2.0
Dibromochloromethane	124-48-1	0.20	U	0.20	1.7	U	1.7
1,2-Dibromoethane	106-93-4	0.20	U	0.20	1.5	U	1.5
Chlorobenzene	108-90-7	0.20	U	0.20	0.92	U	0.92
Ethylbenzene	100-41-4	0.20	U	0.20	0.87	U	0.87
Xylene (m,p)	1330-20-7	0.40	U	0.40	1.7	U	1.7
Xylene (o)	95-47-6	0.20	U	0.20	0.87	U	0.87
Xylenes, Total	1330-20-7	0.20	U	0.20	0.87	U	0.87
Styrene	100-42-5	0.20	U	0.20	0.85	U	0.85
Bromoform	75-25-2	0.20	U	0.20	2.1	U	2.1
1,1,2,2-Tetrachloroethane	79-34-5	0.20	U	0.20	1.4	U	1.4
4-Ethyltoluene	622-96-8	0.20	U	0.20	0.98	U	0.98
1,3,5-Trimethylbenzene	108-67-8	0.20	U	0.20	0.98	U	0.98
2-Chlorotoluene	95-49-8	0.20	U	0.20	1.0	U	1.0
1,2,4-Trimethylbenzene	95-63-6	0.20	U	0.20	0.98	U	0.98
1,3-Dichlorobenzene	541-73-1	0.20	U	0.20	1.2	U	1.2
1,4-Dichlorobenzene	106-46-7	0.20	U	0.20	1.2	U	1.2
1,2-Dichlorobenzene	95-50-1	0.20	U	0.20	1.2	U	1.2
1,2,4-Trichlorobenzene	120-82-1	0.50	U	0.50	3.7	U	3.7
Hexachlorobutadiene	87-68-3	0.20	U	0.20	2.1	U	2.1

TestAmerica Burlington Data Qualifier Definitions

Organic

U: Compound analyzed but not detected at a concentration above the reporting limit.

J: Estimated value.

N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.

P: SW-846: The relative percent difference for detected concentrations between two GC columns is greater than 40%. Unless otherwise specified the higher of the two values is reported on the Form I.

CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.

C: Pesticide result whose identification has been confirmed by GC/MS.

B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.

E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.

D: Concentrations identified from analysis of the sample at a secondary dilution.

A: Tentatively identified compound is a suspected aldol condensation product.

X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

E: Reported value is estimated due to the presence of interference.

N: Matrix spike sample recovery is not within control limits.

* Duplicate sample analysis is not within control limits.

B: The result reported is less than the reporting limit but greater than the instrument detection limit.

U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

P ICP-AES
MS ICP-MS
CV Cold Vapor AA
AS Semi-Automated Spectrophotometric

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Lorraine LaFrenniere	Samples Collected By:	___ of ___ COCs
Company: Argonne National	Phone:		
Address: 9700 S Cass	Email:		
City/State/Zip Argonne IL			
Phone: 630 252-5267	Site Contact:		
FAX: 630 252-5747	TA Contact:		
Project Name: Hanover	**Analysis Turnaround Time**		
Site:	Standard (Specify)		
PO #	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
208 N. Hollenberg Main Floor	2/23/10	17:05	17:00	-31	-10	3998	3604	X							X				
C208 N. Hollenberg Basement	2/23/10	17:00	17:05	-29	-10	4753	4138	X							X				
5693980 (Radon)																			
304 N. Hollenberg Main Floor	2/23/10	17:30	17:33	-30	-9	4504	4555	X							X				
304 N. Hollenberg Basement	2/23/10	17:32	17:35	-29	-7	3239	4310	X							X				
5662575 (Radon)																			

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time:	Samples Received by: Chris Kalb 2/27/10 1100
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Lorraine LaFrenniere	Samples Collected By:	___ of ___ COCs
Company: Argonne National	Phone:		
Address: 9700 S Cass	Email:		
City/State/Zip Argonne IL			
Phone: 630 252-5267	Site Contact:		
FAX: 630 252-5747	TA Contact:		
Project Name: Hanover	Analysis Turnaround Time		
Site:	Standard (Specify)		
PO #	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
212 N. Hollenberg Main Floor	2/23/10	18:00	18:28	-30	-9	3105	4801	x							x				
212 N. Hollenberg Basement	2/23/10	18:03	18:31	-29	-6	3056	3280	x							x				
5693976 (Radon)																			
300 N. Hollenberg Main Floor	2/23/10	18:15	18:20	-29	-5	4724	3708	x							x				
300 N. Hollenberg Basement	2/23/10	18:20	18:23	-28	-6	3778	3369	x							x				
5662576 (Radon)																			

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time:	Samples Received by: 2/27/10 1100
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Loraine LaFrenegere	Samples Collected By: CML	___ of ___ COCs
Company: Argonne National	Phone:		
Address: 9700 S Cass	Email:		
City/State/Zip Argonne IL			
Phone: 630 252-5267	Site Contact:		
FAX: 630 252-5747	TA Contact:		
Project Name: Hanover	**Analysis Turnaround Time**		
Site:	Standard (Specify)		
PO #	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
309 Hanover 1st Floor	2/23	500p	4:35p	-31	-5	4524	4449	X							X				
(RA#5662577) Basement	2/23	5:00p	4:40	-29.5	-7.5	4208	3264	X							X				
W22 Ambient Air	2/24	8:42a	4:00p	-31	-7.5	3933	4375	X								X			
310 N. Hanover South Second Basement	2/24/10	10:46	10:45	-30	-7	3717	2862	X							X	NA			

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time:	Samples Received by: Chris Kelly 2/27/10 1100
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only Shipper Name: Opened by: Condition:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Lorraine LaFrenniere	Samples Collected By:	___ of ___ COCs
Company: Argonne National	Phone:		
Address: 9700 S Cass	Email:		
City/State/Zip Argonne IL			
Phone: 630 252-5267	Site Contact:		
FAX: 630 252-5747	TA Contact:		
Project Name: Hanover	**Analysis Turnaround Time**		
Site:	Standard (Specify)		
PO #	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
308 N Hollenberg Main Floor	2/23/10	18:47	18:39	-29	-7	2794	3436	x							x				
308 N Hollenberg Basement	2/23/10	18:50	18:42	-29	-8	2758	3473	x							x				
5662550 (Radon)																			
314 N. Hollenberg Main Floor	2/24/10	18:05	18:00	-30	-9	3546	2644	x							x				
314 N. Hollenberg Basement	2/24/10	18:05	18:03	-30	-8	4062	4796	x							x				
5693971 (Radon)																			

Temperature (Fahrenheit)	Interior	Ambient
Start		
Stop		

Pressure (inches of Hg)	Interior	Ambient
Start		
Stop		

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time:	Samples Received by: Oliver Kalb 2/27/10 1100
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Lorraine LaFrenniere	Samples Collected By:	___ of ___ COCs
Company: Argonne National	Phone:		
Address: 9700 S Cass	Email:		
City/State/Zip Argonne IL			
Phone: 630 252-5267	Site Contact:		
FAX: 630 252-5747	TA Contact:		
Project Name: Hanover	**Analysis Turnaround Time**		
Site:	Standard (Specify)		
PO #	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
310 N. Hanover Main Floor	2/24/10	10:40	10:38	-29	-8	3755	4362	X							X				
C 310 N. Hanover Basement South	2/24/10	10:43	10:39	-25	-5	4052	4271	X							X				
~~310 N. Hanover Sump Basement~~	~~2/24/10~~	~~10:46~~		~~-30~~		~~3717~~	~~2862~~								~~X~~				
5694019 (Radon)																			
5662 211 N. Hanover Main Floor	2/24/10	10:30	10:30	-28	-7	4514	2889	X							X				
5668 211 N. Hanover Crawl Space	2/24/10	10:32	10:33	-32	-8	3987	3153	X							X				

Radon

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time:	Samples Received by: [illegible] 2/27/10 1100
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

TestAmerica Laboratories, Inc.

July 8, 2010

Mr. Clyde Dennis
Argonne National Laboratory
9700 S. Cass Avenue
Bldg. 203, Office B149
Argonne, IL 60439

Re: Laboratory Project No. 21005
Case: HANOVER; SDG: 137834

Dear Mr. Dennis:

Enclosed are the analytical results for the samples that were received by TestAmerica Burlington on June 19th, 2010. Laboratory identification numbers were assigned, and designated as follows:

Lab ID	Client Sample ID	Sample Date	Sample Matrix
	Received: 06/19/10 ETR No: 137834		
833280	FRANKS UP	06/17/10	AIR
833281	FRANKS DOWN	06/17/10	AIR
833282	KRUSE UP	06/17/10	AIR
833283	KRUSE DOWN	06/17/10	AIR
833284	POELL UP	06/17/10	AIR
833285	POELL DOWN	06/17/10	AIR

Documentation of the condition of the samples at the time of receipt and any exceptions to the laboratory's Sample Acceptance Policy is included in the Sample Handling section of this submittal. The summa canisters and flow regulators that were used in the collection of the samples were prepared and supplied by TestAmerica Burlington.

The laboratory did abbreviate the sample identifiers as they were rendered from the field. The character string "STAIRS" was deleted from the end of each identifier.

The samples were analyzed for chloroform and carbon tetrachloride by Method TO-15. The analytical results for the analysis of the samples in this sample set are reported in terms of parts per billion on a volume/volume basis (PPBV). An electronic record has been generated with a conversion of the results to a weight/volume basis (ug/cubic meter), and this is included as part of this submittal. A report from the electronic file is also included with this submittal, and immediately follows this transmittal letter.

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

The responses in the initial calibration for each target analyte met the 30 percent relative standard deviation criterion. The response for each target analyte met the 30 percent difference criterion in the calibration check acquisition. Each of the analyses associated with the analytical work exhibited an acceptable internal standard performance. A laboratory control sample was analyzed in the analytical sequence, and there was an acceptable recovery of each target analyte in that analysis. The method blank that was analyzed in association with the samples was free of contamination.

Any reference within this report to Severn Trent Laboratories, Inc. or STL, should be understood to refer to TestAmerica Laboratories, Inc. (formerly known as Severn Trent Laboratories, Inc.) The analytical results associated with the samples presented in this test report were generated under a quality system that adheres to requirements specified in the NELAC standard. Release of the data in this test report and any associated electronic deliverables is authorized by the Laboratory Director's designee as verified by the following signature.

If there are any questions regarding this submittal, please contact me at 802 660-1990.

Sincerely,

Kirk F. Young
Project Manager

KFY/hsf
Enclosure

TO-14/15
Result Summary

CLIENT SAMPLE NO.

FRANKS UP

Lab Name: TAL Burlington

SDG Number: 137834

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 833280

Date Analyzed: 06/29/10

Date Received: 06/19/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

FRANKS DOWN

Lab Name: TAL Burlington

SDG Number: 137834

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 833281

Date Analyzed: 06/29/10

Date Received: 06/19/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

KRUSE UP

Lab Name: TAL Burlington

SDG Number: 137834

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 833282

Date Analyzed: 06/29/10

Date Received: 06/19/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

KRUSE DOWN

Lab Name: TAL Burlington

SDG Number: 137834

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 833283

Date Analyzed: 06/29/10

Date Received: 06/19/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

POELL UP

Lab Name: TAL Burlington

SDG Number: 137834

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 833284

Date Analyzed: 06/29/10

Date Received: 06/19/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20		0.20	0.98		0.98
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

POELL DOWN

Lab Name: TAL Burlington

SDG Number: 137834

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: 833285

Date Analyzed: 06/29/10

Date Received: 06/19/10

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.21		0.20	1.0		0.98
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

CA062910LCS

Lab Name: TAL Burlington

SDG Number: 137834

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: CA062910

Date Analyzed: 06/29/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	11		0.20	54		0.98
Carbon tetrachloride	56-23-5	11		0.20	69		1.3

TO-14/15
Result Summary

CLIENT SAMPLE NO.

MBLK062910CA

Lab Name: TAL Burlington

SDG Number: 137834

Dilution Factor: 1.00

Sample Matrix: AIR

Lab Sample No.: MBLK0629

Date Analyzed: 06/29/10

Date Received: / /

Target Compound	CAS Number	Results in ppbv	Q	RL in ppbv	Results in ug/m3	Q	RL in ug/m3
Chloroform	67-66-3	0.20	U	0.20	0.98	U	0.98
Carbon tetrachloride	56-23-5	0.20	U	0.20	1.3	U	1.3

TestAmerica Burlington Data Qualifier Definitions

Organic

U: Compound analyzed but not detected at a concentration above the reporting limit.

J: Estimated value.

N: Indicates presumptive evidence of a compound. This flag is used only for tentatively identified compounds (TICs) where the identification of a compound is based on a mass spectral library search.

P: SW-846: The relative percent difference for detected concentrations between two GC columns is greater than 40%. Unless otherwise specified the higher of the two values is reported on the Form I.

CLP SOW: Greater than 25% difference for detected concentrations between two GC columns. Unless otherwise specified the lower of the two values is reported on the Form I.

C: Pesticide result whose identification has been confirmed by GC/MS.

B: Analyte is found in the sample and the associated method blank. The flag is used for tentatively identified compounds as well as positively identified compounds.

E: Compounds whose concentrations exceed the upper limit of the calibration range of the instrument for that specific analysis.

D: Concentrations identified from analysis of the sample at a secondary dilution.

A: Tentatively identified compound is a suspected aldol condensation product.

X,Y,Z: Laboratory defined flags that may be used alone or combined, as needed. If used, the description of the flag is defined in the project narrative.

Inorganic/Metals

E: Reported value is estimated due to the presence of interference.

N: Matrix spike sample recovery is not within control limits.

* Duplicate sample analysis is not within control limits.

B: The result reported is less than the reporting limit but greater than the instrument detection limit.

U: Analyte was analyzed for but not detected above the reporting limit.

Method Codes:

P ICP-AES
MS ICP-MS
CV Cold Vapor AA
AS Semi-Automated Spectrophotometric

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Lorraine LaFreniere	Samples Collected By:	1 of 1 COCs
Company: Argonne National Lab	Phone: (630) 252-7969	Matt Miller	6 Canisters / 1 1/2 boxes
Address: 9700 S Cass AVE	Email: lafreniere@anl.gov		
City/State/Zip Lemont IL 60439			
Phone: (630) 252-5267	Site Contact:		
FAX: (630) 252-5747	TA Contact:		
Project Name: Hanover	**Analysis Turnaround Time**		
Site: Hanover KS	Standard (Specify)_____		
PO # 8A727-9D-167	Rush (Specify)_____		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, 'Hg (Stop)	Flow Controller ID	Canister ID	TO-15	TO-14A	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
Franks Upstairs	6/17/2010	9:55	9:55	-30	-10	3189	4209	X											
Franks Downstairs	6/17/2010	9:56	9:56	-29	-8	4491	4334	X											
Kruse Upstairs	6/17/2010	10:10	10:10	-29	-8	2761	4154	X											
Kruse Downstairs	6/17/2010	10:11	10:11	-31	-9	3952	4805	X											
Poell Upstairs	6/17/2010	10:15	10:15	-28	-8	4530	4326	X											
Poell Downstairs	6/17/2010	10:16	10:16	-29	-10	4767	2661	X											

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (Inches of Hg)	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time: 6-18-2010 14:30	Samples Received by:	6/19/10 0945
Samples Relinquished by:	Date/Time:	Received by:	
Relinquished by:	Date/Time:	Received by:	

Lab Use Only Shipper Name: Opened by: Condition:

02/01/10 ACTIVATED CHARCOAL RADON TEST #5662567

Radon Test Result = 0.7 pCi/L

Test Started 01/26/10 at 7:00 am
Test Ended 01/29/10 at 4:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

READ THIS FIRST

This result has been rounded to one-tenth (0.1) of a pCi/L (picoCurie per liter), the most common method of reporting radon in air.

NEXT...*PLEASE*...READ
everything (printed in black) under the heading "INTERPRETING YOUR TEST RESULT"

Visit our web site: http://www.radon.com for additional radon related information.

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that there is little short-term risk with test results in this range (0.6 to 1.9 pCi/L). However, because radon levels fluctuate daily as well as seasonally, you may want to retest during another season. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

You may be able to obtain additional information about radon related subjects by calling your **state radon officer at 800-325-1245**. Or call the "Radon Fix-It Line" at 800-644-6999 Monday thru Friday between NOON and 8 pm EST

This test result reflects the amount of radon measured in this sample AFTER it arrived at our laboratory. All analysis computations are automatically adjusted to reflect the length of test, the amount of moisture in the sample, time from the end of test, and the amount of radiation measured.
If ALL the test instructions were carefully followed, then it is reasonable to assume this is an accurate assessment of the average level of the radon this sample was exposed to during the time indicated on the test packet.

Your health risk

The primary health risk from long-term exposure to radon is lung cancer. The risk of developing a lung cancer from radon exposure depends **both** on **how much** radon is present **and** **how long** you are exposed to radon. The higher the radon level or the longer the time of exposure, **even if the levels are relatively low**, the greater the risk. Exposures up to 4 pCi/L may present some risk of contracting lung cancer to more sensitive occupants, especially children. Recently the US Congress set as a goal the lowering of radon levels in buildings to equal the levels of outside air.

What is a picoCurie

For those interested in the numbers, a picoCurie is 0.000,000,000,001 (one-trillionth) of a Curie, an international measurement unit of radioactivity. One pCi/L means that in one liter of air there will be 2.2 radioactive disintegrations each minute. For example, at 4 pCi/L there will be approximately 12,672 radioactive disintegrations in **one liter of air**, during a 24-hour period.

Conducting Follow-up Measurements

USEPA protocol describes two general types of radon measurements: short-term tests conducted from 48 hours up to 90 days, and long-term tests that last from 90 to 365 days. Your first test (initial/screening) should be a short-term "worst-case" screening to see if there is a potential for high exposure to radon. Screening tests should be conducted under **closed-building conditions, in the lowest lived-in area in the house**, because the highest concentrations of radon will usually be found in a room closest to the underlying soil. Tests made under these conditions are less likely to miss a house with a potential for high concentrations. On the other hand, if the results of worst-case screening tests are very low, there is a high probability that the **average annual concentrations** in the house are also low.

(OVER PLEASE)

Most states have a radon office to assist citizens with questions about radon. They offer information on radon and radon reduction techniques. Most also keep a list of qualified radon mitigation businesses. If you have access to the internet, you can visit our web site: http://www.radon.com for a direct link to the US EPA and other important radon sites.

Conducting Follow-up Measurements (continued)

The higher your initial (screening) tests, the sooner you should conduct follow-up measurements. The EPA states that you should **retest the same location** that was tested initially. **For additional or follow-up testing**, make sure at least one test is conducted in the **lowest lived-in level** of the home. Also choose regularly used rooms, such as family rooms, dens, playrooms, or bedrooms. A bedroom on the lower level may be a good choice, because people generally spend the most time in their bedrooms (approximately one-third of the year). If there are children, it may be appropriate to test their rooms or other areas where they spend a lot of time, especially at the lower levels. All short-term follow-up tests **must** be conducted under closed-building conditions. If closed-building conditions cannot be maintained, a long-term measurement conducted under normal living conditions could be used to help estimate average annual exposures.

Tests **should not be conducted** in a kitchen or a bathroom because high humidity, exhaust fans, and other factors can adversely affect the test results. Tests **should not be conducted** in storage areas or laundry rooms, because relatively little time is spent there. Although radon in water may be a contributor to the concentration of airborne radon, radon in air should be **confirmed** before a test for radon in water is performed.

It is recommended that before spending any time or money on radon mitigation, one should conduct multiple (three or more) tests to be certain there is a need. A few more tests will most certainly cost considerably less than any mitigation work.

If follow-up measurements have **confirmed** that the average annual level of radon is equal to or greater than 4 pCi/L, the USEPA recommends that the building or home be mitigated for radon. Consider also that a future buyer is likely to demand that the building pass a radon test before purchasing.

Variations in Radon Levels: what can affect your test results and why it may be important to conduct confirmation tests.

When tests are performed in different seasons or under different weather conditions, the initial screening and follow-up tests may vary considerably. Radon levels can vary significantly between seasons, so different values **are to be expected**. Even during normal weather, indoor radon levels may rise and fall by a factor of two on a daily cycle; for example, from 5 pCi/L to 10 pCi/L in 24 hours. During rapidly changing or stormy weather, the levels may change more dramatically. Because continual changes in radon levels are considered the norm, expose the testing device for as long as is practical, while following the manufacturer's recommendations. This, of course, provides a better overall average of the measurement.

If you are comparing tests, or are averaging a series of tests, bear in mind that any radon test returns only the average of the levels present during a **specific period of time** at the **precise location** of the test. Conditions during a different test period or at a different location in the building are **expected to be different**.

Test results can also vary if the radon test instructions were not carefully followed. A laboratory measuring radon in samples taken outside the lab **must rely on the person conducting the test**. For example, the wrong starting or ending date of a test will significantly affect the calculated result. The location of each radon test can also influence the result. For example, a test placed in the blowing air stream of a fan is likely to collect more radon than it would under normal conditions. Also, three tests conducted in one home, but in three different rooms, **would be expected to have at least slightly different test results**.

Test results from a properly used activated charcoal test will more closely reflect the average radon concentrations over the last three to five days of the test period. This happens because the radon collected by the activated charcoal has a *radioactive half-life* of only *four days*. This means, for example, over *one-half* of the radon collected during the *first three days* of a *seven day test* "died" *before* the test ended. Seven day exposures of activated charcoal test devices are suggested because this allows the charcoal to equilibrate with its environment, averaging out the peaks and valleys that normally occur in real-life radon levels. Also the aspect of user convenience is considered, because most find it easier to remember to end a test on the same day of the week it was started.

If you have further questions regarding this test or need advice on follow-up testing, call fax or write to our technical service department listed below or **visit our web site at: http://www.radon.com**

Thank you for choosing the Air Chek radon test device.

PERFORMING RADON TESTS FOR A REAL ESTATE TRANSACTION

EPA guidelines recommend that at least two short-term tests should be conducted, either together or sequentially, at the same location in the building. If the average of all the tests is below 4 pCi/L, then no further action is necessary at this time. However, it is **highly recommended** that any property transaction tests be conducted by a non-interested third party. To locate a listed or certified radon tester, contact your state or regional EPA radon office or visit our web site at http://www.radon.com to download a list of NEHA-certified testers.

Ask for or download publication number EPA 402-K-00-008 "Home Buyer's and Seller's Guide to Radon."

Limitation of Liability: While we at Air Chek, Inc. make every effort to maintain the highest possible quality control and include several checks and verification steps in our procedures, we make NO WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FIT-NESS with respect to any item furnished, information supplied or services rendered you by Air Chek, Inc. Before any action is taken on the basis of test results given to you by Air Chek, Inc. we recommend that further testing be done. Neither Air Chek, Inc., nor any of our employees or agents, shall be liable under any claim, charge, or demand, whether in contract, tort or otherwise, for any and all losses, costs, charges, claims, demands, fees, expenses, injuries or damages (including without limitation INCIDENTAL OR CONSEQUENTIAL DAMAGES WHICH ARE EXCLUDED) of any nature or kind arising out of, connected with, resulting from, or sustained as a result of any item furnished, information supplied, or service rendered to you by Air Chek, Inc.

Notice to Pennsylvania Residents: The Radon Certification Act requires that anyone who provides any radon-related service or product to the general public must be certified by the Pennsylvania Department of Environmental Protection. You are entitled to evidence of certification from any person who provides such services or products. You are also entitled to a price list for services or products offered. All radon measurement data will be sent to the Department as required in the Act and will be kept confidential. If you have any questions, comments, or complaints concerning persons who provide radon-related services, please contact the Department of Environmental Protection, P.O. Box 8469, Harrisburg, PA 17105-8469 (717-783-3594).

The radon test kit(s) used for this report is certified by the NEHA-NRPP, Lab ID: 101138, for use in all fifty states. It is also listed or certified for use in all states that have a radon program.

For technical information, call (**828**) 684-0893. Office hours are Mon-Fri 8:30 to 5:30 EASTERN.
You can reach us by Fax at (**828**) 684-8498 or write to Air Chek, Inc., Box 2000, Naples, NC 28760.
Web Site: **http://www.radon.com** Email to: info@radon.com

02/01/10 ACTIVATED CHARCOAL RADON TEST #5662548

Radon Test Result = 7.9 pCi/L

Test Started 01/26/10 at 8:00 am
Test Ended 01/29/10 at 4:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (4 to 8 pCi/L) you should conduct either a short- or long-term follow-up measurement. If, however, this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

You may be able to obtain additional information about radon related subjects by calling your **state radon officer at 800-325-1245**. Or call the "Radon Fix-It Line" at 800-644-6999 Monday thru Friday between NOON and 8 pm EST

Page 2 Same for each report. Not Re-produced.

This test result reflects the amount of radon measured in this sample AFTER it arrived at our laboratory. All analysis computations are automatically adjusted to reflect the length of test, the amount of moisture in the sample, time from the end of test, and the amount of radiation measured.
If ALL the test instructions were carefully followed, then it is reasonable to assume this is an accurate assessment of the average level of the radon this sample was exposed to during the time indicated on the test packet.

READ THIS FIRST

This result has been rounded to one-tenth (0.1) of a pCi/L (picoCurie per liter), the most common method of reporting radon in air.

NEXT...*PLEASE*...READ
everything (printed in black) under the heading "INTERPRETING YOUR TEST RESULT"

Visit our web site: http://www.radon.com for additional radon related information.

Your health risk

The primary health risk from long-term exposure to radon is lung cancer. The risk of developing a lung cancer from radon exposure depends **both** on **how much** radon is present **and how long** you are exposed to radon. The higher the radon level or the longer the time of exposure, **even if the levels are relatively low**, the greater the risk. Exposures up to 4 pCi/L may present some risk of contracting lung cancer to more sensitive occupants, especially children. Recently the US Congress set as a goal the lowering of radon levels in buildings to equal the levels of outside air.

What is a picoCurie

For those interested in the numbers, a picoCurie is 0.000,000,000,001 (one-trillionth) of a Curie, an international measurement unit of radioactivity. One pCi/L means that in one liter of air there will be 2.2 radioactive disintegrations each minute. For example, at 4 pCi/L there will be approximately 12,672 radioactive disintegrations in **one liter of air**, during a 24-hour period.

Conducting Follow-up Measurements

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(OVER PLEASE)

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02/01/10 ACTIVATED CHARCOAL RADON TEST #5662574

Radon Test Result = 10.4 pCi/L

Test Started 01/26/10 at 7:00 am
Test Ended 01/29/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (8 to 100 pCi/L) you should conduct a short-term follow-up measurement within the next few weeks, under closed house conditions. A long-term measurement is NOT recommended because additional exposure at these levels could pose an increased health risk. If, however this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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If ALL the test instructions were carefully followed, then it is reasonable to assume this is an accurate assessment of the average level of the radon this sample was exposed to during the time indicated on the test packet.

READ THIS FIRST

This result has been rounded to one-tenth (0.1) of a pCi/L (picoCurie per liter), the most common method of reporting radon in air.

NEXT...*PLEASE*...READ
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Your health risk

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02/01/10 ACTIVATED CHARCOAL RADON TEST #5662561

Radon Test Result = 17.6 pCi/L

Test Started 01/26/10 at 10:00 am
Test Ended 01/29/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (8 to 100 pCi/L) you should conduct a short-term follow-up measurement within the next few weeks, under closed house conditions. A long-term measurement is NOT recommended because additional exposure at these levels could pose an increased health risk. If, however this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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READ THIS FIRST

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Your health risk

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02/01/10 ACTIVATED CHARCOAL RADON TEST #5662554

Radon Test Result = 6.8 pCi/L

Test Started 01/26/10 at 9:00 am
Test Ended 01/29/10 at 4:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (4 to 8 pCi/L) you should conduct either a short- or long-term follow-up measurement. If, however, this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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READ THIS FIRST

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Your health risk

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What is a picoCurie

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02/01/10 ACTIVATED CHARCOAL RADON TEST #5662552

Radon Test Result = 0.7 pCi/L

Test Started 01/26/10 at 9:00 am
Test Ended 01/29/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that there is little short-term risk with test results in this range (0.6 to 1.9 pCi/L). However, because radon levels fluctuate daily as well as seasonally, you may want to retest during another season. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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READ THIS FIRST

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Your health risk

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What is a picoCurie

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Conducting Follow-up Measurements

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02/01/10 ACTIVATED CHARCOAL RADON TEST #5662566

Radon Test Result = < 0.3 pCi/L

Test Started 01/26/10 at 9:00 am
Test Ended 01/29/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that test results in this range(0.5 pCi/L or less) are for all practical purposes equivalent to the radon levels found in fresh air. However, if you make any structural changes or start to use a lower level of the building more frequently you should test again.

You may be able to obtain additional information about radon related subjects by calling your **state radon officer at 800-325-1245**. Or call the "Radon Fix-It Line" at 800-644-6999 Monday thru Friday between NOON and 8 pm EST

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Your health risk

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02/01/10 ACTIVATED CHARCOAL RADON TEST #5662553

Radon Test Result = 6.4 pCi/L

Test Started 01/26/10 at 10:00 am
Test Ended 01/29/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (4 to 8 pCi/L) you should conduct either a short- or long-term follow-up measurement. If, however, this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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02/01/10 ACTIVATED CHARCOAL RADON TEST #5662573

Radon Test Result = 21.3 pCi/L

Test Started 01/26/10 at 10:00 am
Test Ended 01/29/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

INTERPRETING YOUR TEST RESULT

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KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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02/01/10 ACTIVATED CHARCOAL RADON TEST #5662571

Radon Test Result = 16.0 pCi/L

Test Started 01/26/10 at 11:00 am
Test Ended 01/29/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

INTERPRETING YOUR TEST RESULT

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KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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(OVER PLEASE)

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02/01/10 ACTIVATED CHARCOAL RADON TEST #5662551

Radon Test Result = 4.6 pCi/L

Test Started 01/26/10 at 10:00 am
Test Ended 01/29/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (4 to 8 pCi/L) you should conduct either a short- or long-term follow-up measurement. If, however, this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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If ALL the test instructions were carefully followed, then it is reasonable to assume this is an accurate assessment of the average level of the radon this sample was exposed to during the time indicated on the test packet.

READ THIS FIRST

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NEXT...*PLEASE*...READ
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Your health risk

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02/01/10 ACTIVATED CHARCOAL RADON TEST #5662562

Radon Test Result = 21.8 pCi/L

Test Started 01/26/10 at 11:00 am
Test Ended 01/29/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (8 to 100 pCi/L) you should conduct a short-term follow-up measurement within the next few weeks, under closed house conditions. A long-term measurement is NOT recommended because additional exposure at these levels could pose an increased health risk. If, however this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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READ THIS FIRST

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(OVER PLEASE)

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02/01/10 ACTIVATED CHARCOAL RADON TEST #5662560

Radon Test Result = 6.3 pCi/L

Test Started 01/26/10 at 3:00 pm
Test Ended 01/29/10 at 4:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

READ THIS FIRST

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INTERPRETING YOUR TEST RESULT

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KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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02/01/10 ACTIVATED CHARCOAL RADON TEST #5662549

Radon Test Result = 3.4 pCi/L

Test Started 01/26/10 at 4:00 pm
Test Ended 01/29/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

With results in this range (2.0 to 3.9 pCi/L) the USEPA recommends that you conduct further tests to determine the true annual average. If the result remains between 2 and 4 there is little short-term risk, but you should consider fixing your home. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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02/01/10 ACTIVATED CHARCOAL RADON TEST #5662557

Radon Test Result = 9.1 pCi/L

Test Started 01/26/10 at 5:00 pm
Test Ended 01/29/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

READ THIS FIRST

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INTERPRETING YOUR TEST RESULT

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KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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02/01/10 ACTIVATED CHARCOAL RADON TEST #5662569

Radon Test Result = 7.7 pCi/L

Test Started 01/26/10 at 11:00 am
Test Ended 01/29/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

INTERPRETING YOUR TEST RESULT

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KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (4 to 8 pCi/L) you should conduct either a short- or long-term follow-up measurement. If, however, this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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02/01/10 ACTIVATED CHARCOAL RADON TEST #5662556

Radon Test Result = 15.3 pCi/L

Test Started 01/27/10 at 9:00 am
Test Ended 01/29/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

ARGONNE NAT LAB ATTN C DENNIS BLD 203
9700 S CASS
ARGONNE, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

This test result may NOT be within our normal accuracy range because it was NOT left in place for the minimum recommended amount of time.

HOWEVER, it is estimated to be within the limits set by the U.S.E.P.A. and is therefore considered a valid test.

The USEPA states that for test results in this range (8 to 100 pCi/L) you should conduct a short-term follow-up measurement within the next few weeks, under closed house conditions. A long-term measurement is NOT recommended because additional exposure at these levels could pose an increased health risk. If, however this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5662568

Radon Test Result = 2.1 pCi/L

Test Started 02/24/10 at 10:00 am
Test Ended 03/01/10 at 5:00 pm
Closed house conditions maintained during test.

CLYDE DENNIS
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

With results in this range (2.0 to 3.9 pCi/L) the USEPA recommends that you conduct further tests to determine the true annual average. If the result remains between 2 and 4 there is little short-term risk, but you should consider fixing your home. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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Your health risk

The primary health risk from long-term exposure to radon is lung cancer. The risk of developing a lung cancer from radon exposure depends **both** on **how much** radon is present **and how long** you are exposed to radon. The higher the radon level or the longer the time of exposure, **even if the levels are relatively low**, the greater the risk. Exposures up to 4 pCi/L may present some risk of contracting lung cancer to more sensitive occupants, especially children. Recently the US Congress set as a goal the lowering of radon levels in buildings to equal the levels of outside air.

What is a picoCurie

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Conducting Follow-up Measurements

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5662577

Radon Test Result = 3.1 pCi/L

Test Started 02/23/10 at 5:00 pm
Test Ended 03/01/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

CLYDE DENNIS BLDG 203
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

With results in this range (2.0 to 3.9 pCi/L) the USEPA recommends that you conduct further tests to determine the true annual average. If the result remains between 2 and 4 there is little short-term risk, but you should consider fixing your home. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

You may be able to obtain additional information about radon related subjects by calling your **state radon officer at 800-325-1245**. Or call the "Radon Fix-It Line" at 800-644-6999 Monday thru Friday between NOON and 8 pm EST

This test result reflects the amount of radon measured in this sample AFTER it arrived at our laboratory. All analysis computations are automatically adjusted to reflect the length of test, the amount of moisture in the sample, time from the end of test, and the amount of radiation measured.
If ALL the test instructions were carefully followed, then it is reasonable to assume this is an accurate assessment of the average level of the radon this sample was exposed to during the time indicated on the test packet.

READ THIS FIRST

This result has been rounded to one-tenth (0.1) of a pCi/L (picoCurie per liter), the most common method of reporting radon in air.

NEXT...*PLEASE*...READ
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Your health risk

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694019

Radon Test Result = 11.6 pCi/L

Test Started 02/24/10 at 10:00 am
Test Ended 03/01/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

CLYDE DENNIS
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (8 to 100 pCi/L) you should conduct a short-term follow-up measurement within the next few weeks, under closed house conditions. A long-term measurement is NOT recommended because additional exposure at these levels could pose an increased health risk. If, however this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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READ THIS FIRST

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Your health risk

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5693980

Radon Test Result = 4.1 pCi/L

Test Started 02/23/10 at 5:00 pm
Test Ended 03/01/10 at 6:00 pm
Closed house conditions maintained during test.

Location Basement

CLYDE DENNIS
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (4 to 8 pCi/L) you should conduct either a short- or long-term follow-up measurement. If, however, this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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READ THIS FIRST

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Your health risk

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5693976

Radon Test Result = 9.2 pCi/L

Test Started 02/23/10 at 6:00 pm
Test Ended 03/01/10 at 6:00 pm
Closed house conditions maintained during test.

CLYDE DENNIS
9700 S CASS AVE
LEMONT, IL 60439

READ THIS FIRST

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INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5662576

Radon Test Result = 9.8 pCi/L

Test Started 02/23/10 at 6:00 pm
Test Ended 03/01/10 at 5:00 pm
Closed house conditions maintained during test.

CLYDE DENNIS
9700 S CASS AVE
LEMONT, IL 60439

READ THIS FIRST

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INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (8 to 100 pCi/L) you should conduct a short-term follow-up measurement within the next few weeks, under closed house conditions. A long-term measurement is NOT recommended because additional exposure at these levels could pose an increased health risk. If, however this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5693969

Radon Test Result = 17.5 pCi/L

Test Started 02/24/10 at 6:00 pm
Test Ended 03/01/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

CLYDE DENNIS
9700 S CASS AVE
LEMONT, IL 60439

READ THIS FIRST

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INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (8 to 100 pCi/L) you should conduct a short-term follow-up measurement within the next few weeks, under closed house conditions. A long-term measurement is NOT recommended because additional exposure at these levels could pose an increased health risk. If, however this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5662575

Radon Test Result = 13.9 pCi/L

Test Started 02/23/10 at 5:00 pm
Test Ended 03/01/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

CLYDE DENNIS
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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READ THIS FIRST

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03/08/10 ACTIVATED CHARCOAL RADON TEST #5662550

Radon Test Result = 9.8 pCi/L

Test Started 02/23/10 at 7:00 pm
Test Ended 03/02/10 at 7:00 pm
Closed house conditions maintained during test.

Location Basement

CLYDE DENNIS
9700 S CASS AVE
LEMONT, IL 60439

READ THIS FIRST

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INTERPRETING YOUR TEST RESULT

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KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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If ALL the test instructions were carefully followed, then it is reasonable to assume this is an accurate assessment of the average level of the radon this sample was exposed to during the time indicated on the test packet.

Your health risk

The primary health risk from long-term exposure to radon is lung cancer. The risk of developing a lung cancer from radon exposure depends **both** on **how much** radon is present **and how long** you are exposed to radon. The higher the radon level or the longer the time of exposure, **even if the levels are relatively low**, the greater the risk. Exposures up to 4 pCi/L may present some risk of contracting lung cancer to more sensitive occupants, especially children. Recently the US Congress set as a goal the lowering of radon levels in buildings to equal the levels of outside air.

What is a picoCurie

For those interested in the numbers, a picoCurie is 0.000,000,000,001 (one-trillionth) of a Curie, an international measurement unit of radioactivity. One pCi/L means that in one liter of air there will be 2.2 radioactive disintegrations each minute. For example, at 4 pCi/L there will be approximately 12,672 radioactive disintegrations in **one liter of air**, during a 24-hour period.

Conducting Follow-up Measurements

USEPA protocol describes two general types of radon measurements: short-term tests conducted from 48 hours up to 90 days, and long-term tests that last from 90 to 365 days. Your first test (initial/screening) should be a short-term "worst-case" screening to see if there is a potential for high exposure to radon. Screening tests should be conducted under **closed-building conditions, in the lowest lived-in area in the house**, because the highest concentrations of radon will usually be found in a room closest to the underlying soil. Tests made under these conditions are less likely to miss a house with a potential for high concentrations. On the other hand, if the results of worst-case screening tests are very low, there is a high probability that the **average annual concentrations** in the house are also low.

(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5693971

Radon Test Result = 27.6 pCi/L

Test Started 02/24/10 at 6:00 pm
Test Ended 03/01/10 at 5:00 pm
Closed house conditions maintained during test.

Location Basement

CLYDE DENNIS BLDG 203
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (8 to 100 pCi/L) you should conduct a short-term follow-up measurement within the next few weeks, under closed house conditions. A long-term measurement is NOT recommended because additional exposure at these levels could pose an increased health risk. If, however this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

You may be able to obtain additional information about radon related subjects by calling your **state radon officer at 800-325-1245**. Or call the "Radon Fix-It Line" at 800-644-6999 Monday thru Friday between NOON and 8 pm EST

This test result reflects the amount of radon measured in this sample AFTER it arrived at our laboratory. All analysis computations are automatically adjusted to reflect the length of test, the amount of moisture in the sample, time from the end of test, and the amount of radiation measured.
If ALL the test instructions were carefully followed, then it is reasonable to assume this is an accurate assessment of the average level of the radon this sample was exposed to during the time indicated on the test packet.

READ THIS FIRST

This result has been rounded to one-tenth (0.1) of a pCi/L (picoCurie per liter), the most common method of reporting radon in air.

NEXT...*PLEASE*...READ
everything (printed in black) under the heading "INTERPRETING YOUR TEST RESULT"

Visit our web site: http://www.radon.com for additional radon related information.

Your health risk

The primary health risk from long-term exposure to radon is lung cancer. The risk of developing a lung cancer from radon exposure depends **both** on **how much** radon is present **and how long** you are exposed to radon. The higher the radon level or the longer the time of exposure, **even if the levels are relatively low**, the greater the risk. Exposures up to 4 pCi/L may present some risk of contracting lung cancer to more sensitive occupants, especially children. Recently the US Congress set as a goal the lowering of radon levels in buildings to equal the levels of outside air.

What is a picoCurie

For those interested in the numbers, a picoCurie is 0.000,000,000,001 (one-trillionth) of a Curie, an international measurement unit of radioactivity. One pCi/L means that in one liter of air there will be 2.2 radioactive disintegrations each minute. For example, at 4 pCi/L there will be approximately 12,672 radioactive disintegrations in **one liter of air**, during a 24-hour period.

Conducting Follow-up Measurements

USEPA protocol describes two general types of radon measurements: short-term tests conducted from 48 hours up to 90 days, and long-term tests that last from 90 to 365 days. Your first test (initial/screening) should be a short-term "worst-case" screening to see if there is a potential for high exposure to radon. Screening tests should be conducted under **closed-building conditions, in the lowest lived-in area in the house**, because the highest concentrations of radon will usually be found in a room closest to the underlying soil. Tests made under these conditions are less likely to miss a house with a potential for high concentrations. On the other hand, if the results of worst-case screening tests are very low, there is a high probability that the **average annual concentrations** in the house are also low.

(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694063

Radon Test Result = 14.2 pCi/L

Test Started 02/23/10 at 7:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location Basement

CLYDE DENNIS BLDG 203 MATH HPB1
9700 S CASS AVE
LEMONT, IL 60439

READ THIS FIRST

This result has been rounded to one-tenth (0.1) of a pCi/L (picoCurie per liter), the most common method of reporting radon in air.

NEXT...*PLEASE*...READ
everything (printed in black) under the heading "INTERPRETING YOUR TEST RESULT"

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INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (8 to 100 pCi/L) you should conduct a short-term follow-up measurement within the next few weeks, under closed house conditions. A long-term measurement is NOT recommended because additional exposure at these levels could pose an increased health risk. If, however this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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Your health risk

The primary health risk from long-term exposure to radon is lung cancer. The risk of developing a lung cancer from radon exposure depends **both** on **how much** radon is present **and how long** you are exposed to radon. The higher the radon level or the longer the time of exposure, **even if the levels are relatively low**, the greater the risk. Exposures up to 4 pCi/L may present some risk of contracting lung cancer to more sensitive occupants, especially children. Recently the US Congress set as a goal the lowering of radon levels in buildings to equal the levels of outside air.

What is a picoCurie

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Conducting Follow-up Measurements

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694061

Radon Test Result = 0.6 pCi/L

Test Started 02/23/10 at 7:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 MATH HPB4
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that there is little short-term risk with test results in this range (0.6 to 1.9 pCi/L). However, because radon levels fluctuate daily as well as seasonally, you may want to retest during another season. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

You may be able to obtain additional information about radon related subjects by calling your **state radon officer at 800-325-1245**. Or call the "Radon Fix-It Line" at 800-644-6999 Monday thru Friday between NOON and 8 pm EST

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READ THIS FIRST

This result has been rounded to one-tenth (0.1) of a pCi/L (picoCurie per liter), the most common method of reporting radon in air.

NEXT...*PLEASE*...READ
everything (printed in black) under the heading "INTERPRETING YOUR TEST RESULT"

Visit our web site: http://www.radon.com for additional radon related information.

Your health risk

The primary health risk from long-term exposure to radon is lung cancer. The risk of developing a lung cancer from radon exposure depends **both** on **how much** radon is present **and how long** you are exposed to radon. The higher the radon level or the longer the time of exposure, **even if the levels are relatively low**, the greater the risk. Exposures up to 4 pCi/L may present some risk of contracting lung cancer to more sensitive occupants, especially children. Recently the US Congress set as a goal the lowering of radon levels in buildings to equal the levels of outside air.

What is a picoCurie

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Conducting Follow-up Measurements

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694062

Radon Test Result = 1.7 pCi/L

Test Started 02/23/10 at 7:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location Basement

CLYDE DENNIS BLDG 203 MATH HPB2 MATH ROO
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that there is little short-term risk with test results in this range (0.6 to 1.9 pCi/L). However, because radon levels fluctuate daily as well as seasonally, you may want to retest during another season. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

You may be able to obtain additional information about radon related subjects by calling your **state radon officer at 800-325-1245**. Or call the "Radon Fix-It Line" at 800-644-6999 Monday thru Friday between NOON and 8 pm EST

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READ THIS FIRST

This result has been rounded to one-tenth (0.1) of a pCi/L (picoCurie per liter), the most common method of reporting radon in air.

NEXT...*PLEASE*...READ
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Visit our web site: http://www.radon.com for additional radon related information.

Your health risk

The primary health risk from long-term exposure to radon is lung cancer. The risk of developing a lung cancer from radon exposure depends **both** on **how much** radon is present **and how long** you are exposed to radon. The higher the radon level or the longer the time of exposure, **even if the levels are relatively low**, the greater the risk. Exposures up to 4 pCi/L may present some risk of contracting lung cancer to more sensitive occupants, especially children. Recently the US Congress set as a goal the lowering of radon levels in buildings to equal the levels of outside air.

What is a picoCurie

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Conducting Follow-up Measurements

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694060

Radon Test Result = 2.3 pCi/L

Test Started 02/23/10 at 7:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location Basement

CLYDE DENNIS BLDG 203 MATH HPB3
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

With results in this range (2.0 to 3.9 pCi/L) the USEPA recommends that you conduct further tests to determine the true annual average. If the result remains between 2 and 4 there is little short-term risk, but you should consider fixing your home. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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If ALL the test instructions were carefully followed, then it is reasonable to assume this is an accurate assessment of the average level of the radon this sample was exposed to during the time indicated on the test packet.

READ THIS FIRST

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NEXT...*PLEASE*...READ
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Visit our web site: http://www.radon.com for additional radon related information.

Your health risk

The primary health risk from long-term exposure to radon is lung cancer. The risk of developing a lung cancer from radon exposure depends **both** on **how much** radon is present **and how long** you are exposed to radon. The higher the radon level or the longer the time of exposure, **even if the levels are relatively low**, the greater the risk. Exposures up to 4 pCi/L may present some risk of contracting lung cancer to more sensitive occupants, especially children. Recently the US Congress set as a goal the lowering of radon levels in buildings to equal the levels of outside air.

What is a picoCurie

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Conducting Follow-up Measurements

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694066

Radon Test Result = 4.6 pCi/L

Test Started 02/23/10 at 7:00 am
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 HP 1-4 BAND ROOM
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (4 to 8 pCi/L) you should conduct either a short- or long-term follow-up measurement. If, however, this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

You may be able to obtain additional information about radon related subjects by calling your **state radon officer at 800-325-1245**. Or call the "Radon Fix-It Line" at 800-644-6999 Monday thru Friday between NOON and 8 pm EST

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READ THIS FIRST

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Your health risk

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694065

Radon Test Result = 3.4 pCi/L

Test Started 02/23/10 at 7:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 S84 HB-1-1
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

With results in this range (2.0 to 3.9 pCi/L) the USEPA recommends that you conduct further tests to determine the true annual average. If the result remains between 2 and 4 there is little short-term risk, but you should consider fixing your home. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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READ THIS FIRST

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Your health risk

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694047

Radon Test Result = < 0.3 pCi/L

Test Started 02/23/10 at 8:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions not indicated by user.

Location 1st Floor

CLYDE DENNIS BLDG 203 HP 1-7
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that test results in this range(0.5 pCi/L or less) are for all practical purposes equivalent to the radon levels found in fresh air. However, if you make any structural changes or start to use a lower level of the building more frequently you should test again.

You may be able to obtain additional information about radon related subjects by calling your **state radon officer at 800-325-1245**. Or call the "Radon Fix-It Line" at 800-644-6999 Monday thru Friday between NOON and 8 pm EST

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READ THIS FIRST

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NEXT...*PLEASE*...READ
everything (printed in black) under the heading "INTERPRETING YOUR TEST RESULT"

Visit our web site: http://www.radon.com for additional radon related information.

Your health risk

The primary health risk from long-term exposure to radon is lung cancer. The risk of developing a lung cancer from radon exposure depends **both** on **how much** radon is present **and how long** you are exposed to radon. The higher the radon level or the longer the time of exposure, **even if the levels are relatively low**, the greater the risk. Exposures up to 4 pCi/L may present some risk of contracting lung cancer to more sensitive occupants, especially children. Recently the US Congress set as a goal the lowering of radon levels in buildings to equal the levels of outside air.

What is a picoCurie

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694058

Radon Test Result = 1.0 pCi/L

Test Started 02/23/10 at 8:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 HP 1-6
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that there is little short-term risk with test results in this range (0.6 to 1.9 pCi/L). However, because radon levels fluctuate daily as well as seasonally, you may want to retest during another season. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694071

Radon Test Result = 1.8 pCi/L

Test Started 02/23/10 at 9:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203
9700 CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that there is little short-term risk with test results in this range (0.6 to 1.9 pCi/L). However, because radon levels fluctuate daily as well as seasonally, you may want to retest during another season. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694064

Radon Test Result = 3.1 pCi/L

Test Started 02/23/10 at 8:00 am
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

With results in this range (2.0 to 3.9 pCi/L) the USEPA recommends that you conduct further tests to determine the true annual average. If the result remains between 2 and 4 there is little short-term risk, but you should consider fixing your home. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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Your health risk

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694048

Radon Test Result = 6.0 pCi/L

Test Started 02/23/10 at 8:00 am
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG 203 LEFT SPECIAL ED
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (4 to 8 pCi/L) you should conduct either a short- or long-term follow-up measurement. If, however, this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694067

Radon Test Result = 5.4 pCi/L

Test Started 02/23/10 at 7:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG 203 HP BACK ELM
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (4 to 8 pCi/L) you should conduct either a short- or long-term follow-up measurement. If, however, this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694050

Radon Test Result = 7.0 pCi/L

Test Started 02/23/10 at 7:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG 203 FRONT COUNSELER
9700 S CASS AVE
LEMONT, IL 60439

READ THIS FIRST

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INTERPRETING YOUR TEST RESULT

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694049

Radon Test Result = 2.9 pCi/L

Test Started 02/23/10 at 8:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG 203
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694043

Radon Test Result = 1.8 pCi/L

Test Started 02/23/10 at 8:00 am
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 COMPUTER
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that there is little short-term risk with test results in this range (0.6 to 1.9 pCi/L). However, because radon levels fluctuate daily as well as seasonally, you may want to retest during another season. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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READ THIS FIRST

This result has been rounded to one-tenth (0.1) of a pCi/L (picoCurie per liter), the most common method of reporting radon in air.

NEXT...*PLEASE*...READ
everything (printed in black) under the heading "INTERPRETING YOUR TEST RESULT"

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Your health risk

The primary health risk from long-term exposure to radon is lung cancer. The risk of developing a lung cancer from radon exposure depends **both** on **how much** radon is present **and how long** you are exposed to radon. The higher the radon level or the longer the time of exposure, **even if the levels are relatively low**, the greater the risk. Exposures up to 4 pCi/L may present some risk of contracting lung cancer to more sensitive occupants, especially children. Recently the US Congress set as a goal the lowering of radon levels in buildings to equal the levels of outside air.

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Conducting Follow-up Measurements

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694052

Radon Test Result = 2.3 pCi/L

Test Started 02/23/10 at 8:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG 203
9700 S CASS AVE
LEMONT, IL 60439

READ THIS FIRST

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INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

With results in this range (2.0 to 3.9 pCi/L) the USEPA recommends that you conduct further tests to determine the true annual average. If the result remains between 2 and 4 there is little short-term risk, but you should consider fixing your home. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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Your health risk

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694041

Radon Test Result = 3.1 pCi/L

Test Started 02/23/10 at 8:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG 203 SAME ROOM
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694044

Radon Test Result = 2.4 pCi/L

Test Started 02/23/10 at 8:00 am
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694045

Radon Test Result = 4.9 pCi/L

Test Started 02/23/10 at 8:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG 203 LIBRARY
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (4 to 8 pCi/L) you should conduct either a short- or long-term follow-up measurement. If, however, this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694057

Radon Test Result = 2.5 pCi/L

Test Started 02/23/10 at 8:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG 203 ENGLISH
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

With results in this range (2.0 to 3.9 pCi/L) the USEPA recommends that you conduct further tests to determine the true annual average. If the result remains between 2 and 4 there is little short-term risk, but you should consider fixing your home. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694055

Radon Test Result = 1.9 pCi/L

Test Started 02/23/10 at 8:00 am
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG 203 HISTORY
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694051

Radon Test Result = 4.8 pCi/L

Test Started 02/23/10 at 9:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 S AND B GRADE
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694046

Radon Test Result = 5.2 pCi/L

Test Started 02/23/10 at 9:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (4 to 8 pCi/L) you should conduct either a short- or long-term follow-up measurement. If, however, this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

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READ THIS FIRST

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NEXT...*PLEASE*...READ
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Your health risk

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694053

Radon Test Result = 0.9 pCi/L

Test Started 02/23/10 at 10:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 FCCLA
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that there is little short-term risk with test results in this range (0.6 to 1.9 pCi/L). However, because radon levels fluctuate daily as well as seasonally, you may want to retest during another season. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694035

Radon Test Result = 3.3 pCi/L

Test Started 02/23/10 at 10:00 am
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 GYM
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

With results in this range (2.0 to 3.9 pCi/L) the USEPA recommends that you conduct further tests to determine the true annual average. If the result remains between 2 and 4 there is little short-term risk, but you should consider fixing your home. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694034

Radon Test Result = 4.8 pCi/L

Test Started 02/24/10 at 10:00 am
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 ART BLDG
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694038

Radon Test Result = 1.1 pCi/L

Test Started 02/23/10 at 10:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions not indicated by user.

Location 1st Floor

CLYDE DENNIS BLDG 203 CAFE
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694056

Radon Test Result = 2.1 pCi/L

Test Started 02/23/10 at 11:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203
9700 S CASS AVE
LEMONT, IL 60439

READ THIS FIRST

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INTERPRETING YOUR TEST RESULT

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KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694059

Radon Test Result = 2.6 pCi/L

Test Started 02/24/10 at 10:00 am
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203
9700 S CASS AVE
LEMONT, IL 60439

READ THIS FIRST

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INTERPRETING YOUR TEST RESULT

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KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694054

Radon Test Result = 2.8 pCi/L

Test Started 02/23/10 at 10:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694069

Radon Test Result = 2.7 pCi/L

Test Started 02/23/10 at 10:00 am
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203
9700 S CASS AVE
LEMONT, IL 60439

READ THIS FIRST

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NEXT...*PLEASE*...READ
everything (printed in black) under the heading "INTERPRETING YOUR TEST RESULT"

Visit our web site: http://www.radon.com for additional radon related information.

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

With results in this range (2.0 to 3.9 pCi/L) the USEPA recommends that you conduct further tests to determine the true annual average. If the result remains between 2 and 4 there is little short-term risk, but you should consider fixing your home. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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Your health risk

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694068

Radon Test Result = 2.8 pCi/L

Test Started 02/23/10 at 10:00 am
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694036

Radon Test Result = 2.1 pCi/L

Test Started 02/23/10 at 10:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203
9700 S CASS AVE
LEMONT, IL 60439

READ THIS FIRST

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INTERPRETING YOUR TEST RESULT

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KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694030

Radon Test Result = 1.5 pCi/L

Test Started 02/23/10 at 11:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 MATT
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that there is little short-term risk with test results in this range (0.6 to 1.9 pCi/L). However, because radon levels fluctuate daily as well as seasonally, you may want to retest during another season. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694039

Radon Test Result = 1.2 pCi/L

Test Started 02/23/10 at 11:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 CHEM
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694037

Radon Test Result = 1.3 pCi/L

Test Started 02/23/10 at 11:00 am
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 ENGLISH
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694024

Radon Test Result = 0.9 pCi/L

Test Started 02/23/10 at 11:00 am
Test Ended 03/01/10 at 9:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203
9700 S CASS AVE
LEMONT, IL 60439

READ THIS FIRST

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INTERPRETING YOUR TEST RESULT

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694032

Radon Test Result = 2.0 pCi/L

Test Started 02/23/10 at 1:00 pm
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location Basement

CLYDE DENNIS BLDG 203 GYM
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

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KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694022

Radon Test Result = 6.0 pCi/L

Test Started 02/23/10 at 1:00 pm
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location Basement

CLYDE DENNIS BLDG 203 ALL PURPOSE RM
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that for test results in this range (4 to 8 pCi/L) you should conduct either a short- or long-term follow-up measurement. If, however, this is a follow-up (confirming) test, it is recommended that you take remedial action to reduce these radon levels.

You may be able to obtain additional information about radon related subjects by calling your **state radon officer at 800-325-1245**. Or call the "Radon Fix-It Line" at 800-644-6999 Monday thru Friday between NOON and 8 pm EST

This test result reflects the amount of radon measured in this sample AFTER it arrived at our laboratory. All analysis computations are automatically adjusted to reflect the length of test, the amount of moisture in the sample, time from the end of test, and the amount of radiation measured.
If ALL the test instructions were carefully followed, then it is reasonable to assume this is an accurate assessment of the average level of the radon this sample was exposed to during the time indicated on the test packet.

READ THIS FIRST

This result has been rounded to one-tenth (0.1) of a pCi/L (picoCurie per liter), the most common method of reporting radon in air.

NEXT...*PLEASE*...READ
everything (printed in black) under the heading "INTERPRETING YOUR TEST RESULT"

Visit our web site: http://www.radon.com for additional radon related information.

Your health risk

The primary health risk from long-term exposure to radon is lung cancer. The risk of developing a lung cancer from radon exposure depends **both** on **how much** radon is present **and how long** you are exposed to radon. The higher the radon level or the longer the time of exposure, **even if the levels are relatively low**, the greater the risk. Exposures up to 4 pCi/L may present some risk of contracting lung cancer to more sensitive occupants, especially children. Recently the US Congress set as a goal the lowering of radon levels in buildings to equal the levels of outside air.

What is a picoCurie

For those interested in the numbers, a picoCurie is 0.000,000,000,001 (one-trillionth) of a Curie, an international measurement unit of radioactivity. One pCi/L means that in one liter of air there will be 2.2 radioactive disintegrations each minute. For example, at 4 pCi/L there will be approximately 12,672 radioactive disintegrations in **one liter of air**, during a 24-hour period.

Conducting Follow-up Measurements

USEPA protocol describes two general types of radon measurements: short-term tests conducted from 48 hours up to 90 days, and long-term tests that last from 90 to 365 days. Your first test (initial/screening) should be a short-term "worst-case" screening to see if there is a potential for high exposure to radon. Screening tests should be conducted under **closed-building conditions, in the lowest lived-in area in the house**, because the highest concentrations of radon will usually be found in a room closest to the underlying soil. Tests made under these conditions are less likely to miss a house with a potential for high concentrations. On the other hand, if the results of worst-case screening tests are very low, there is a high probability that the **average annual concentrations** in the house are also low.

(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694029

Radon Test Result = 3.7 pCi/L

Test Started 02/23/10 at 1:00 pm
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location Basement

CLYDE DENNIS BLDG 203 NURSERY
9700 S CASS AVE
LEMONT, IL 60439

READ THIS FIRST

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INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

With results in this range (2.0 to 3.9 pCi/L) the USEPA recommends that you conduct further tests to determine the true annual average. If the result remains between 2 and 4 there is little short-term risk, but you should consider fixing your home. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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Your health risk

The primary health risk from long-term exposure to radon is lung cancer. The risk of developing a lung cancer from radon exposure depends **both** on **how much** radon is present **and how long** you are exposed to radon. The higher the radon level or the longer the time of exposure, **even if the levels are relatively low**, the greater the risk. Exposures up to 4 pCi/L may present some risk of contracting lung cancer to more sensitive occupants, especially children. Recently the US Congress set as a goal the lowering of radon levels in buildings to equal the levels of outside air.

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694033

Radon Test Result = 1.2 pCi/L

Test Started 02/23/10 at 2:00 pm
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 NW ROOM
9700 S CASS AVE
LEMONT, IL 60439

READ THIS FIRST

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INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that there is little short-term risk with test results in this range (0.6 to 1.9 pCi/L). However, because radon levels fluctuate daily as well as seasonally, you may want to retest during another season. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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Your health risk

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694031

Radon Test Result = 1.0 pCi/L

Test Started 02/23/10 at 2:00 pm
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 NE ROOM
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that there is little short-term risk with test results in this range (0.6 to 1.9 pCi/L). However, because radon levels fluctuate daily as well as seasonally, you may want to retest during another season. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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Your health risk

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694023

Radon Test Result = 2.2 pCi/L

Test Started 02/23/10 at 2:00 pm
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 SW ROOM
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

With results in this range (2.0 to 3.9 pCi/L) the USEPA recommends that you conduct further tests to determine the true annual average. If the result remains between 2 and 4 there is little short-term risk, but you should consider fixing your home. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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Your health risk

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694016

Radon Test Result = < 0.3 pCi/L

Test Started 02/23/10 at 2:00 pm
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 1st Floor

CLYDE DENNIS BLDG 203 SE ROOM
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that test results in this range(0.5 pCi/L or less) are for all practical purposes equivalent to the radon levels found in fresh air. However, if you make any structural changes or start to use a lower level of the building more frequently you should test again.

You may be able to obtain additional information about radon related subjects by calling your **state radon officer at 800-325-1245**. Or call the "Radon Fix-It Line" at 800-644-6999 Monday thru Friday between NOON and 8 pm EST

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READ THIS FIRST

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Your health risk

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694021

Radon Test Result = 0.7 pCi/L

Test Started 02/23/10 at 3:00 pm
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG 203 NW ROOM
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

The USEPA states that there is little short-term risk with test results in this range (0.6 to 1.9 pCi/L). However, because radon levels fluctuate daily as well as seasonally, you may want to retest during another season. Additionally, if you make any structural changes or start to use a lower level of the building more frequently, you should test again.

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694028

Radon Test Result = 1.1 pCi/L

Test Started 02/23/10 at 3:00 pm
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG NE ROOM
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694026

Radon Test Result = 1.9 pCi/L

Test Started 02/23/10 at 3:00 pm
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG 203 OFFICE 1
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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everything (printed in black) under the heading "INTERPRETING YOUR TEST RESULT"

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(OVER PLEASE)

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694025

Radon Test Result = 1.1 pCi/L

Test Started 02/23/10 at 3:00 pm
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG 203 OFFICE
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694040

Radon Test Result = 1.1 pCi/L

Test Started 02/23/10 at 3:00 pm
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG 203 WORKROOM
9700 S CASS AVE
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5694070

Radon Test Result = 1.0 pCi/L

Test Started 02/23/10 at 3:00 pm
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG 203
9700 CASS AVE
LEMONT, IL 60439

READ THIS FIRST

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03/03/10 ACTIVATED CHARCOAL RADON TEST #5662572

Radon Test Result = 0.8 pCi/L

Test Started 02/23/10 at 3:00 pm
Test Ended 03/01/10 at 10:00 am
Closed house conditions maintained during test.

Location 2nd Floor

CLYDE DENNIS BLDG 203
9700 S CASS AVE SOUTHROOM
LEMONT, IL 60439

INTERPRETING YOUR TEST RESULT

This radon test was provided to you by
KANSAS STATE UNIVERSITY. You can contact them at 785-532-6026

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Radon Analysis (EPA Method GS: Grab Sample/Scintillation Cell counting)

For ANL: Lorraine LaFreniere Client Project Number: Hanover

lafreniere@anl.gov

Samples Collected by: Blayne Hartman Sample Date: 02/04/09

Site: Hanover Sample containers: Tedlar bags

Analyst: Doug Hammond Phone: 310-490-7896

email: dhammond@usc.edu

	Summary	Collection Date	Collection time (MST)	Analysis Date	Analysis time (PST)	Vol run (cc)	Conc. pCi/L	±1 sig pCi/L	Lab Duplicates mean pCi/L	Lab Duplicates ±1ssd pCi/L	Notes
	Received 02/05/09										
1	**SS Jueneman**	2/4/2009	10:20	2/5/2009	11:15	40	**1279**	**64**	1293	20	
		2/4/2009	10:20	2/6/2009	12:04	20	**1307**	**65**			
2	**Rn Jueneman**	2/4/2009	8:22	2/5/2009	11:00	120	**8.0**	**0.4**			
3	**SS Goeckel**	2/4/2009	9:10	2/5/2009	11:19	40	**2500**	**125**			
4	**Rn Goeckel**	2/4/2009	7:24	2/5/2009	11:03	120	**9.4**	**0.5**			
5	**SS Meier**	2/4/2009	9:50	2/5/2009	11:22	40	**2616**	**131**			
6	**Rn Meier**	2/4/2009	8:00	2/5/2009	11:07	120	**5.2**	**0.3**			

Uncertainty given in pCi/liter is based on counting statistics for low activity samples. For high activity samples uncertainty is ±5%.

The Lower Limit of Detection for Rn (95% confidence level as recommended by EPA 402-R-95-012, Oct. 97) is 0.14 pCi/liter.

Results corrected to in situ pressure of 0.97 atm based on assumed Hanover KN elevation of 1230 ft

Results are reported based on standardization with NIST-traceable radon sources.

These results are for application of naturally-occurring radon as a tracer of soil vapor intrusion, but are not intended for evaluation of radon hazards.

Raw Data, Calculation factors, and Analytical Details

	Sample ID	Collection Date	Collection Time (MST)	Analysis Date	Analysis Time (PST)	Count in cell/ch	He eff	Air/He eff	Vol run (cc)	Press factor	obs dpm	sig dpm	Decay T (hours)	Decay factor	Concentration dpm/lite	Concentration pCi/liter	count stats pCi/lite ±1 sig	Notes
	Received 02/05/09																	
1	SS Jueneman	2/4/2009	10:20	2/5/2009	11:15	58/31	0.925	0.99	40	0.97	82.9	1.3	25.9	1.216	2839	1279	20	
	dupe	2/4/2009	10:20	2/6/2009	12:04	Z13/31	0.808	0.99	20	0.97	30.7	0.7	50.7	1.467	2901	1307	28	
2	Rn Jueneman	2/4/2009	8:22	2/5/2009	11:00	81/31	0.857	0.98	120	0.97	1.41	0.05	27.6	1.232	17.8	8.0	0.3	
3	SS Goeckel	2/4/2009	9:10	2/5/2009	11:19	SC6/32	0.736	0.99	40	0.97	127.9	1.6	27.2	1.228	5552	2500	31	
4	Rn Goeckel	2/4/2009	7:24	2/5/2009	11:03	82/33	0.810	0.98	120	0.97	1.56	0.05	28.7	1.242	21.0	9.4	0.3	
5	SS Meier	2/4/2009	9:50	2/5/2009	11:22	61/33	0.850	0.99	40	0.97	155.2	1.7	26.5	1.222	5809	2616	29	
6	Rn Meier	2/4/2009	8:00	2/5/2009	11:07	83/31	0.850	0.98	120	0.97	0.91	0.04	28.1	1.237	11.6	5.2	0.2	

Decay correctiions based on Rn d 0.1813 per day

Conversion from dpm based on 0.4504 pCi/dpm

Radon Conc = {(0.4504)(1000)(obs dpm)(decay factor)}/{(cc used)(He eff)(Air/He)(Press factor)} (in pCi/liter)

Blanks are negligible.

Definitions:

Cell/ch:	Counting cell and channel used	sig dpm	uncertainty (± 1 sig) in dpm based on counting statistics
He eff:	Cell and counter efficiency using helium matrix	Decay T:	time elapsed from sampling to analysis
Air/He:	Correction for matrix counting gas density	Decay factor:	Correction factor for decay from collection to analysis
Sample vol:	Volume analyzed (cc)	dpm/liter:	Radon concentration in disintigrations per minute per liter of sample
Press factor:	Correction to in situ pressure based on collection altitude	piC/liter:	Radon concentration in picoCuries per liter
obs dpm:	observed radon activity (disintigrations per minute) when anal	count stats:	uncertainty in observed radon based on counting statistics

Supplement 10:

EnviroGroup Report of Mitigation System Installation in August 2009

EnviroGroup Limited
The Environmental Solutions Company

TECHNICAL MEMORANDUM

To: Lorraine LaFreniere, Argonne National Labs **Date:** 10/19/09
From: Bill Morris, EnviroGroup
Project: Former USDA Grain Bin Site, Hanover, Kansas
Subject: Vapor Intrusion Mitigation System Installations
cc: AN-0658 File

This technical memorandum presents a summary of the design, installation and baseline monitoring of vapor intrusion mitigation systems installed by EnviroGroup Limited (EGL) on behalf of Argonne National Labs (Argonne) and its client, Chemical Commodity Corporation/USDA (CCC), at the Former USDA Grain Bin Site in Hanover, Kansas (Site) on August 25-27, 2009 and September 28, 2009. All work was conducted pursuant to the consulting services agreement between EGL and Argonne (Contract #9F-31882).

INTRODUCTION

Argonne is investigating the nature and extent of carbon tetrachloride contamination at the Site. These investigations included the collection of indoor air and sub-slab vapor samples to evaluate the potential for vapor intrusion at the three residences mitigated during this time frame.

It is EGL's understanding that the Kansas Department of Health & Environment (KDHE) required CCC/USDA to install vapor mitigation systems at three residences because of the “unacceptable risk posed by exposure to the concentrations of carbon tetrachloride detected in the sub-slab and in the indoor air”, as determined by KDHE. Therefore, EGL’s objective was to install sub-slab depressurization (SSD) systems at these three residences to depressurize soils below the building slab and to prevent any significant upward flow of soil vapor into the building. This is consistent with the work plan submitted by Argonne to KDHE on August 11, 2009 and approved by KDHE on August 24, 2009. A minimum negative pressure below the slab of -0.003" water column (WC) compared to indoor air pressures is considered sufficient for this purpose.

BUILDING CONDITIONS AT THE SITE

The design of the vapor intrusion mitigation system was based in part on the following understanding of Site conditions. If actual conditions are different or change in the future, EGL should be contacted to evaluate any potential impacts of these changes on the systems.

Building Structures

The structures are all ranch style, single level homes built over poured concrete wall basements. Two of the three are wood construction and were built on site. The third is a mobile home attached to a permanent foundation. Based on each building’s structure (i.e., relatively intact concrete floor slab over the occupied portion of the building's footprint) and the presence of unsaturated and semi-permeable soils below the slab, it was assumed that sub-slab depressurization (SSD) systems were best for mitigating the Hanover residences. Experience with radon and chemical vapor intrusion over the past two decades has shown that SSD is

typically the most successful and most cost effective for mitigating vapor intrusion. (e.g., EPA 1994, ITRC 2007).

The house located at 311 N. East Street (Schlabach residence) is a mobile home with a partially finished basement. This structure has the smallest basement of the three; it totals approximately 935 ft^2. The home is 6' wider than the basement (3' on each of two opposite sides), supported by steel I-beams across the basement, and is flush with the basement on the other two sides. Sand was encountered below the basement slab. The fan was installed on the exterior north side of the home.

The second home, located at 400 N. East Street (Meier residence), is a brick-veneered ranch with full basement and partial slab on grade behind the garage. This basement is currently unfinished, relatively open, and covers approximately 1350 ft^2. The partial slab on grade at the back of the garage measures approximately 20' x 7'. The concrete slab in the basement has many cracks that were sealed during the system installation to prevent short-circuiting of air flow. Sand was encountered below the slab at this home as well. The fan was installed in the attic space above the garage.

The third structure, located at 413 E. Kensington Street (Goeckel residence), is conventionally framed with lap siding and a fully finished basement. The basement covers approximately 1200 ft^2 and has a full bathroom. A panel behind the tub allowed access to the concrete box-out for sealing purposes, which was done to prevent short circuiting. The condition of the concrete slab is unknown due to floor coverings. Sand was encountered below the slab. The fan was installed on the exterior south side of the home.

Heating, Ventilation, and Air Conditioning

All three houses have forced air gas furnaces and air conditioning with all units and water heaters located in the basements. The Meier residence has an electric water heater and the other two homes use natural gas. Each home includes typical oven exhaust hoods and bathroom exhaust fans. No other fans or HVAC equipment were evident. All homes appear to be in good condition and are expected to have air exchange rates typical of residential construction.

Sub-Surface Conditions

The sediments beneath the slabs at the suction pit locations consisted of sands ranging from 3” to 5” in thickness introduced as part of the construction process for the basements. The soils underlying the basement fill are clayey silts to silty clays with limited permeability. The water bearing interval of Zone 1located beneath these clays is characterized by a section, generally 3’ in thickness, consisting of multiple thin layers of fractured shale bedrock. The depth to this zone ranges from 9’ to 12’ below the basement floors in the vicinity of the three mitigated homes which are located on or directly adjacent to the former CCC/USDA facility. Detailed subsurface investigations indicate the presence of groundwater contaminated with carbon tetrachloride underlying this general area.

SYSTEM DESIGN

The following sections of this technical memorandum describe the design of the vapor intrusion mitigation systems at the three Site residences.

Type of System

Based on the building structures (e.g., relatively intact concrete floor slabs over the occupied portion of the building footprints) and the presence of unsaturated sand below the slabs, all parties agreed that sub-slab depressurization (SSD) systems were the preferred method of mitigation.

Design Approach

The design and installation of an SSD system can be approached two ways, depending on the complexity of the system and other factors (ITRC 2007). For complex buildings, diagnostic tests are usually conducted before final design and installation to determine the number of suction points needed to depressurize the slab and the most appropriate type and size of fan(s). This requires at least two site visits (not including site visits for permit inspections or any post-mitigation performance testing that may be required). For simpler structures the general layout of the system and fan sizes can usually be determined in advance, so that diagnostic testing and final installation can be conducted during one site visit. In this case, an initial suction point is installed and tested to see whether additional suction points are required; if so, additional suction points are installed and diagnostic testing is repeated until results indicate the performance criteria for depressurization have been met.

EGL followed this second approach for design and installation of the SSD systems in these Hanover residences.

Preliminary Design

The fans were selected at the preliminary design stage, prior to site mobilization and diagnostic testing (consistent with the second design approach, discussed above) and based on expected air flow through the sand below the slabs. In general, fans that provide higher vacuum (2-4" WC) and lower air flow rates (less than 70 cfm) are used for slabs over sands that may contain higher moisture content (as is typical for sands in Kansas). The GP501 has a maximum static vacuum of 4.2" WC and flow rate of 10 cfm, and will pull approximately 95 cfm at 1.0" WC (see Attachment 1). This was deemed appropriate for the expected conditions of all three homes being mitigated. Actual static vacuum and flow rates depend on structure geometry, sand characteristics, and specific system configurations.

SYSTEM INSTALLATIONS

EnviroGroup personnel mobilized to the site on August 25th, along with a local certified radon contractor, and then met with the client and the first two homeowners to discuss system component locations. Based on those discussions, initial suction point locations were determined and installations began. The third homeowner was contacted on August 26th; state regulatory personnel were also on site that day. System installations for each structure are discussed in the following sections.

Schlabach Residence (311 N. East St.)

The first sub-slab suction point (SP1) was installed in the middle of the basement, as shown on Figure 1. A three inch diameter hole was drilled through the concrete floor and approximately 3-6 gallons of sand and clay were removed from below the slab, resulting in a circular pit approximately 14" wide and 10" deep. As

expected, the soil below the slab at this location consisted of sand approximately four inches thick overlying native clayey soils.

A 3" PVC closet flange was installed upside down over the hole and suction pit. The flange was sealed to the concrete slab using concrete screws and polyurethane caulk. This prevents horizontal and vertical movement of the pipe and allows the riser pipe to be glued to the flange. A 3" diameter riser pipe was then continued from the flange up an interior wall (Photo 1) to the basement ceiling, where the pipe was run horizontally (with a slight grade back toward the suction pit for drainage) and made to penetrate the exterior wall at the rim joist. The PVC riser pipe joints were not glued until initial system diagnostic tests were completed, as described below. The fan was temporarily installed to perform these diagnostics.

Diagnostic Testing and Final System Installation

For diagnostic tests, the GP501 fan was attached to the vent pipe from suction point SP1. Several 1/4" diameter holes were drilled through the floor and slightly into the sub-slab sands in opposite directions from the suction pit. These test holes (T1, T2, T3, & T4) allowed monitoring of the differential air pressures (above and below the slab). Initial pressure differentials were recorded with the fan off. The fan was then turned on (exhausting the gases outside the home) and the static vacuum in the riser pipe at SP1 and differential pressure at T1-T4 were measured using an Energy Conservatory DG500 digital micro-manometer (Photo 9), with a resolution of 0.0001" WC and an accuracy of ± 1% of the reading or ±0.0005. Air flow was also measured using a Dwyer Series 160 stainless steel pitot tube and an air velocity calculator. A conversion factor was applied using the cross-sectional area of the 3" pipe because the pitot tube is made for a minimum pipe diameter of 3.75". This increases the margin of error from ±2% to around ±5% and has an effective range down to approximately 19 cfm.

The static vacuum measured in the riser pipe was -3.632" WC and air flow was calculated to be approximately 20.2 cfm, reflecting the low permeability of the sand below the slab (i.e., higher resistance to air flow). Measurements taken 24 hours later were -3.690" WC and approximately 23.6 cfm respectively. Measured air flow and vacuum were within the fan's performance specifications (see Attachment 1). Differential air pressures at T1-T4 are listed in Table 1.

Table 1. Differential Pressure Measurements (Schlabach Residence)

Test Hole	Before Suction	After Suction	24hrs Later	~ 30 Days Later
T1	0.0002" WC	-0.2087" WC	-0.2066" WC	-0.220" WC
T2	0.0002" WC	-0.0293" WC	-0.0320" WC	-0.015" WC
T3	0.0006" WC	-0.1819" WC	-0.2110" WC	-0.185" WC
T4	0.0010" WC	-0.0324" WC	-0.0463" WC	-0.050" WC

The -0.003" WC differential pressure criterion was met at all sub-slab monitoring points. All pipe joints were glued and the final installation of the fan on the exterior of the house was completed (Photo 2). A schematic

of the general type of system installed is shown in Attachment 2. This represents a vent pipe, riser pipe, and fan configuration that is very similar to the system installed at the Schlabach Residence.

Back-draft testing of the water heater was done before and after fan installation, using chemical smoke, to see if the smoke was being pulled up the flue of the appliance. The furnace is a >90% efficient and has a sealed combustion chamber and was not tested and the water heater was not drafting properly before installation of the fan. Hot water was run in one of the bathrooms until the water heater turned on, to see if back-drafting would occur with the water heater burner on. The chemical smoke was drawn up the flue with ease. This was repeated with the fan installed, to ensure that the water heater would not back-draft once the fan was operational. The homeowner was instructed about the undesirability of a back-drafting water heater. A carbon monoxide detector was installed in the basement near the water heater, approximately 12-16" above the floor.

Meier Residence (400 N. East Street)

The Meier residence is slightly larger than the Schlabach house and has a brick exterior. The homeowner preferred an interior fan mounting and, considering these conditions, the garage attic was determined to be the best location for the fan. The first sub-slab suction point (SP1) was installed directly inside the basement next to the garage (as shown on Figure 2) to control any moisture build up (Photo 3). Due to the size of the basement and the fact that sand was present under the slab, a second sub-slab suction point (SP2) was located along the west wall about 2/3 of the way across the basement. Three-inch diameter holes were drilled through the concrete floor at each suction pit location. Approximately 3-6 gallons of sand and clay were removed from below the slab resulting in circular pits approximately 14" wide and 10" deep at both locations. As expected, the soil below the slab consisted of sand approximately four inches thick overlying native clayey soils. An additional suction point (SP3) was installed under the basement stairs and into the basement wall, approximately 12" from the top of the wall, using 2" PVC pipe. Approximately two gallons of sand were removed from this area, displaying a visible void under the slab.

Three-inch PVC closet flanges were installed upside down over the holes and suction pits (SP1 & SP2). The flanges were sealed to the concrete slab using concrete screws and polyurethane caulk. This prevents horizontal and vertical movement of the pipe and allows the riser pipe to be glued to the flange. Three-inch diameter riser pipes were installed and connected together. For the 2" suction pit (SP3), a short section of 2" pipe was inserted into the hole and sealed using polyurethane caulk. The PVC vent and riser pipe joints were glued, except for the elbows of the final turn towards SP2. If another suction pit had been needed, these elbows would have been replaced by a tee and another suction leg would have been installed. The fan was temporarily installed to perform system diagnostics and the elbows were not glued until after tests were completed, as described below.

Diagnostic Testing and Final System Installation

To test the system before final installation, the GP501 fan was attached to the vent pipe from all three suction points. Several 1/4" diameter holes were drilled through the floor slightly into the sub-slab sands in opposite directions from the suction pits. These test holes (T1, T2, T3, & T4) allowed monitoring of the differential air pressures above and below the slab. Initial pressure differentials were recorded with the fan off. The fan was turned on, exhausting the gases outside the home, and the static vacuum and flow in the riser pipes at SP1-

SP2 and differential pressure at T1-T4 were measured using an Energy Conservatory DG500 digital micro-manometer, as described earlier. Air flow was also measured using a Dwyer Series 160 stainless steel pitot tube, an air velocity calculator and a conversion factor using the cross-sectional area of the 3" pipe. The same limitations described above apply.

The static vacuum measured in the combined vent pipe in the garage was -2.178" WC and air flow was calculated to be approximately 61.4 cfm, higher than expected. This was probably due to the void space at SP3 and the large number of cracks in the slab, both of which contributed to lower resistance to air flow. Based on the performance specifications of the fan, air flow and vacuum were within its specification range (see Attachment 1), but below what was expected due to sand encountered under the slab. Differential air pressures at T1-T4 are listed in Table 2. Measurements for the before and after suction tests were completed on the first day before the end of the workday.

Table 2. Differential Pressure Measurements (Meier Residence)

Test Hole	Before Suction	After Suction	After Sealing Cracks	8 hrs Later	~ 30 Days Later
T1	-0.0025" WC	-0.0009" WC	-0.0837" WC	-0.0690" WC	-0.030" WC
T2	0.0004" WC	-0.0173" WC	-0.0519" WC	-0.0832" WC	-0.060" WC
T3	-0.0027" WC	-0.0006" WC	-0.0102" WC	-0.0115" WC	-0.011" WC
T4	0.0002" WC	-0.0253" WC	-0.0415" WC	-0.1075" WC	-0.083" WC

Based on the initial pressure differential measurements, an approach for completing the system on the second day was formulated. This included installing a 2" ball valve on the vent line from SP3 and caulking and sealing cracks in the basement slab (Photo 4) and at the perimeter, near the suction pits. These tasks were completed before deciding whether another suction pit was necessary.

The -0.003" WC differential pressure criterion was met at all sub-slab monitoring points after balancing the system and sealing cracks in the slab. All pipe joints were glued and the fan was securely installed in the garage's attic. A schematic of the general type of system installed is shown in Attachment 3. This represents a vent pipe, riser pipe, and fan configuration that is very similar to the system installed at the Meier Residence. Vacuum and flow measurements are shown in Table 3.

Table 3. Vacuum and Flow Measurements (Meier Residence)

	Initial		8 hrs. Later	
	Vacuum	**Flow**	**Vacuum**	**Flow**
Combined Vent	-2.178" WC	~61.4 cfm	2.693" WC	~51.5 cfm
SP1	-2.178" WC	~32.3 cfm	2.566" WC	~34.8 cfm
SP2	-1.820" WC	< 19.0 cfm	2.574" WC	<19.0 cfm

Back-draft testing was not necessary at this residence. The hot water heater is electric and the furnace is a >90% efficient furnace with a sealed combustion chamber that uses outside air for combustion.

Goeckel Residence (413 E. Kensignton St.)

For this final installation, the homeowner preferred the vent piping and fan in the interior of the home. However, due to the layout of the basement and first floor rooms, it was not possible to run the piping up through the house without damaging sheetrock or installing additional walls to enclose the piping runs. The first sub-slab suction point (SP1) was installed in the middle of the basement in a closet, as shown on Figure 3. A 3" diameter hole was drilled through the concrete floor in the corner of a bedroom closet (Photo 5). Approximately 8-10 gallons of sand and clay were removed from below the slab, resulting in a circular pit that was approximately 20" wide and 15" deep. As expected, the soil below the slab consisted of sand approximately 4" thick overlying native clayey soils.

The plumbing access panel behind the tub in the basement was removed to allow sealing the concrete box-out. This area presents an opportunity for vapors to enter the building and for air to short circuit the mitigation system. Expanding foam was used to ensure an airtight seal for the box-out (Photo 7) before initial diagnostic testing.

A 3" PVC closet flange was installed upside down over the hole and suction pit. The flange was sealed to the concrete slab using concrete screws and polyurethane caulk. This prevents horizontal and vertical movement of the pipe and allows the riser pipe to be glued to the flange. A 3" diameter riser pipe was then continued from the flange up the wall to the basement ceiling, where the pipe was run horizontally (with a slight grade back toward the suction pit for drainage) and penetrated the exterior wall at the rim joist under the deck. The PVC riser pipe joints were not glued until the initial system diagnostic tests were completed, as described below. The fan was temporarily installed to perform the system diagnostics.

Diagnostic Testing and Final System Installation

To test the adequacy of the initial installation, the GP501 fan was attached to the vent pipe from suction point SP1. Two 1/4" diameter holes were drilled through the floor slightly into the sub-slab sands in opposite directions from the suction pit. These test holes (T1 & T2) allowed monitoring differential air pressures above and below the slab. Initial pressure differentials were recorded with the fan off. The fan was turned on,

exhausting the gases outside the home and the static vacuum in the riser pipe at SP1 and differential pressure at T1-T2 were measured using the Energy Conservatory DG500 digital micro-manometer previously described. Air flow was also measured using a Dwyer Series 160 stainless steel pitot tube, an air velocity calculator and a conversion factor using the cross-sectional area of the 3" pipe, as previously described and with the same limitations.

The static vacuum measured in the riser pipe was -3.721" WC and air flow was calculated to be approximately 20.6 cfm, reflecting the low permeability of the sand below the slab (i.e., a higher resistance to air flow). Measurements taken 12 hours later were -3.725" WC and ~20.1 cfm respectively. Based on the fan's performance specifications, air flow and vacuum were in its specification range (see Attachment 1). Differential air pressures at T1-T2 are listed in Table 4.

Table 4. Differential Pressure Measurements (Goeckel Residence)

Test Hole	Before Suction	After Suction	12hrs Later	~ 30 Days Later
T1	-0.0006" WC	-0.0780" WC	-0.0736" WC	-0.050" WC
T2	0.0035" WC	-0.0260" WC	-0.0253" WC	-0.030" WC

The -0.003" WC differential pressure criterion was met at all sub-slab monitoring points. All pipe joints were glued and the final installation of the fan on the exterior of the house was completed (Photo 6). A schematic of the general type of system installed is shown in Attachment 2. This represents a vent pipe, riser pipe, and fan configuration that is very similar to the system installed at the Goeckel Residence.

Back-draft testing was performed at this residence on the water heater (Photo 8). The furnace is a > 90% efficient system and has a sealed combustion chamber that draws outdoor air in for combustion. With the fan on there was substantial draw up the water heater flue.

All electrical hook ups are completed and have disconnects installed adjacent to each operating fan. Audible alarm systems for possible system failures have been installed at all residences. Each of the residents were instructed how the alarms work and directed to the contact person in the event of a problem with the system.

ADDITIONAL MONITORING

Operation and maintenance of the system will be conducted by Argonne personnel or their representatives. The thirty-day baseline event was performed by Argonne personnel under EGL oversight. These activities are described below.

Thirty-Day Baseline Monitoring Event

Baseline system measurements taken during this event included the following:

1) System vacuum readings from all risers, including the combination vent pipe at the Meier Residence;
2) System flow readings from all risers, including the combination vent pipe at the Meier Residence;
3) Pressure differential readings from all test ports installed during system diagnostics;

A second monitoring event should be conducted during the 2009-2010 heating season (approximately November through February) to ensure that the system maintains performance criteria during cold weather under closed-house conditions, which typically represent the worst case scenario. During this event, indoor air sampling should also be performed to ensure that the systems are operating as designed.

Operation and Maintenance

SSD systems typically require little maintenance. Occasionally a bearing can fail (indicated by noisy fan operation or audible alarm warning), which requires replacement of the fan. A five-year warranty is provided by the manufacturer. Otherwise, we recommend that Argonne inspect the system annually thereafter to ensure that the fan is running properly and with adequate vacuum and no other indications of problems (e.g., noisy operation). Two of the measurements listed above (items 1 – 3) should be sufficient to evaluate system performance during periodic monitoring events, if there are no other problem indications. If future readings are within an acceptable range of their original system baseline value, the system would be operating as originally designed and additional measurements are not needed. If the measurements are not within this value, additional measurements, inspections, and/or system modifications may be necessary.

Argonne has chosen to use items 1 and 2 from the list above to do the performance monitoring at the three residences. There was some variability in the measurements from system commissioning to the 30 day baseline monitoring event as expected. The performance range chosen for these homes is listed in Table 5 along with the original measurements taken at each of the properties. The performance range was calculated from the 30 day baseline monitoring event and will be the operating range to evaluate system performance.

Table 5. Performance Criteria for Periodic Monitoring

	Schlabach SP1		Meier Combined		Goeckel SP1	
	Vacuum	Flow	Vacuum	Flow	Vacuum	Flow
Day 1	-3.69" WC	23.6 cfm	-2.69" WC	51.5 cfm	-3.72" WC	20.1 cfm
Day 30	-3.82" WC	38.5 cfm	-2.50" WC	52.9 cfm	-3.75" WC	39.2 cfm
Performance range	± 0.5" WC (-4.32 to -3.32)	± 20 % (46.2 to 30.8)	± 0.5" WC (-2.0 to -3.0)	± 20 % (63.5 to 42.3)	± 0.5" WC (-4. 25 to -3. 25)	± 20 % (47.0 to 31.4)

LIMITATIONS

It should be noted that vapor intrusion mitigation systems, including SSDs, will not address sources of chemicals that are in building materials or above the slab, such as contaminated concrete or fabrics that have absorbed these chemicals, or in ambient air that is pulled in to the unit from outdoors or adjacent units. All work was performed in a manner consistent with that level of care normally exercised by members of our profession practicing in the U.S. at the time the work was performed. No other warranty is made, expressed or implied, regarding our work.

Attachments:

Figure 1. Schlabach Mitigation System Layout
Figure 2. Meier Mitigation System Layout
Figure 3. Goeckel Mitigation System Layout
Attachment 1. GP501 Fan Specifications
Attachment 2. Schematic of Typical SSD System
Attachment 3. Schematic of Typical SSD System
Attachment 4. Site Photos (provided by Argonne Personnel)

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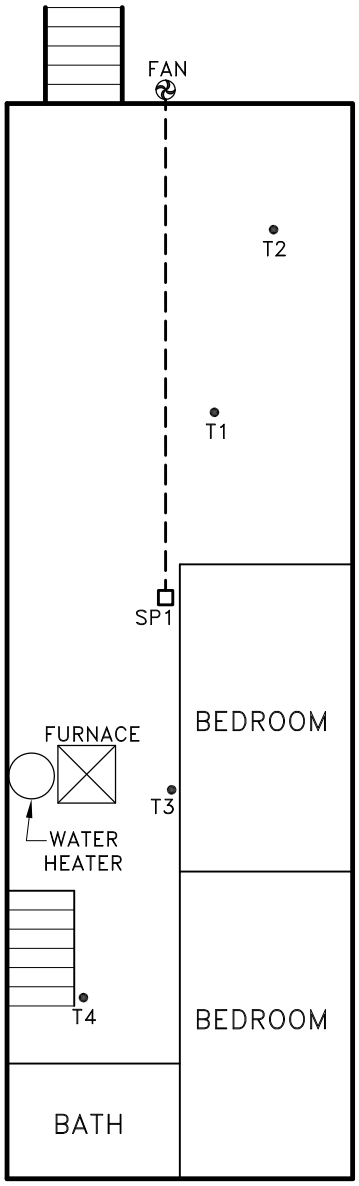

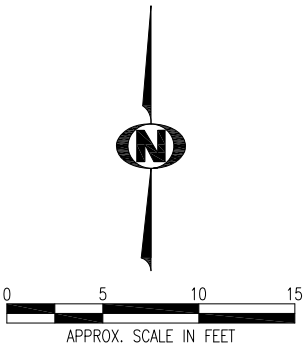

LEGEND

T1 ● PRESSURE DIFFERENTIAL TEST HOLE

SP1 □ SUCTION PIT

FAN

– – – VENT PIPING

ARGONNE NATIONAL LABORATORY
Hanover, Kansas

SUB-SLAB VENTING SYSTEM
SCHLABACH RESIDENCE
311 N. EAST ST.

EnviroGroup Limited
Centennial, Colorado

FIGURE 1	SEPT 2009
AN-0658	

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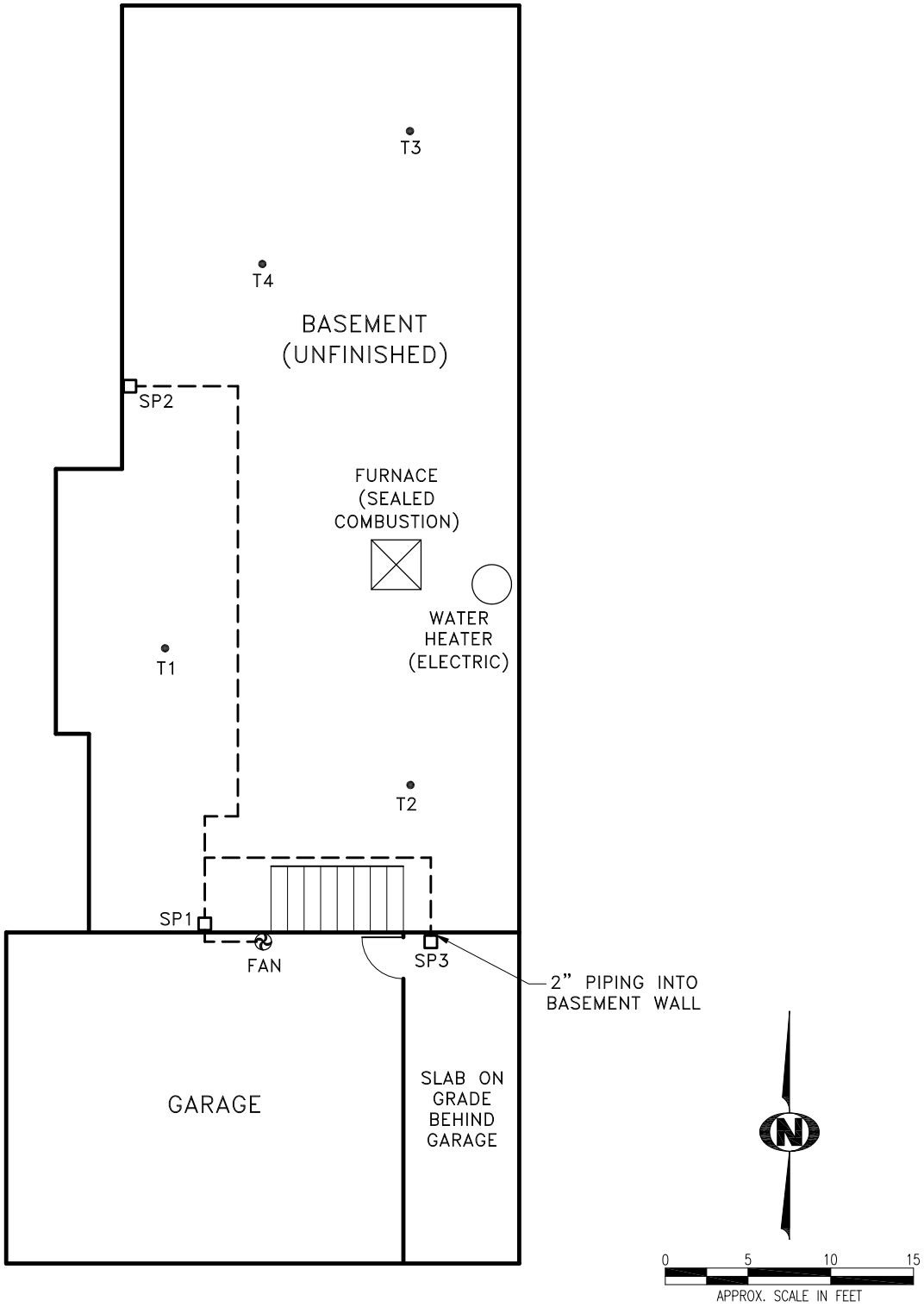

LEGEND

T1● PRESSURE DIFFERENTIAL TEST HOLE

SP1□ SUCTION PIT

FAN

VENT PIPING

ARGONNE NATIONAL LABORATORY
Hanover, Kansas

SUB-SLAB VENTING SYSTEM
MEIR RESIDENCE
400 N. EAST ST.

EnviroGroup Limited
Centennial, Colorado

FIGURE 2	SEPT 2009
AN-0658	

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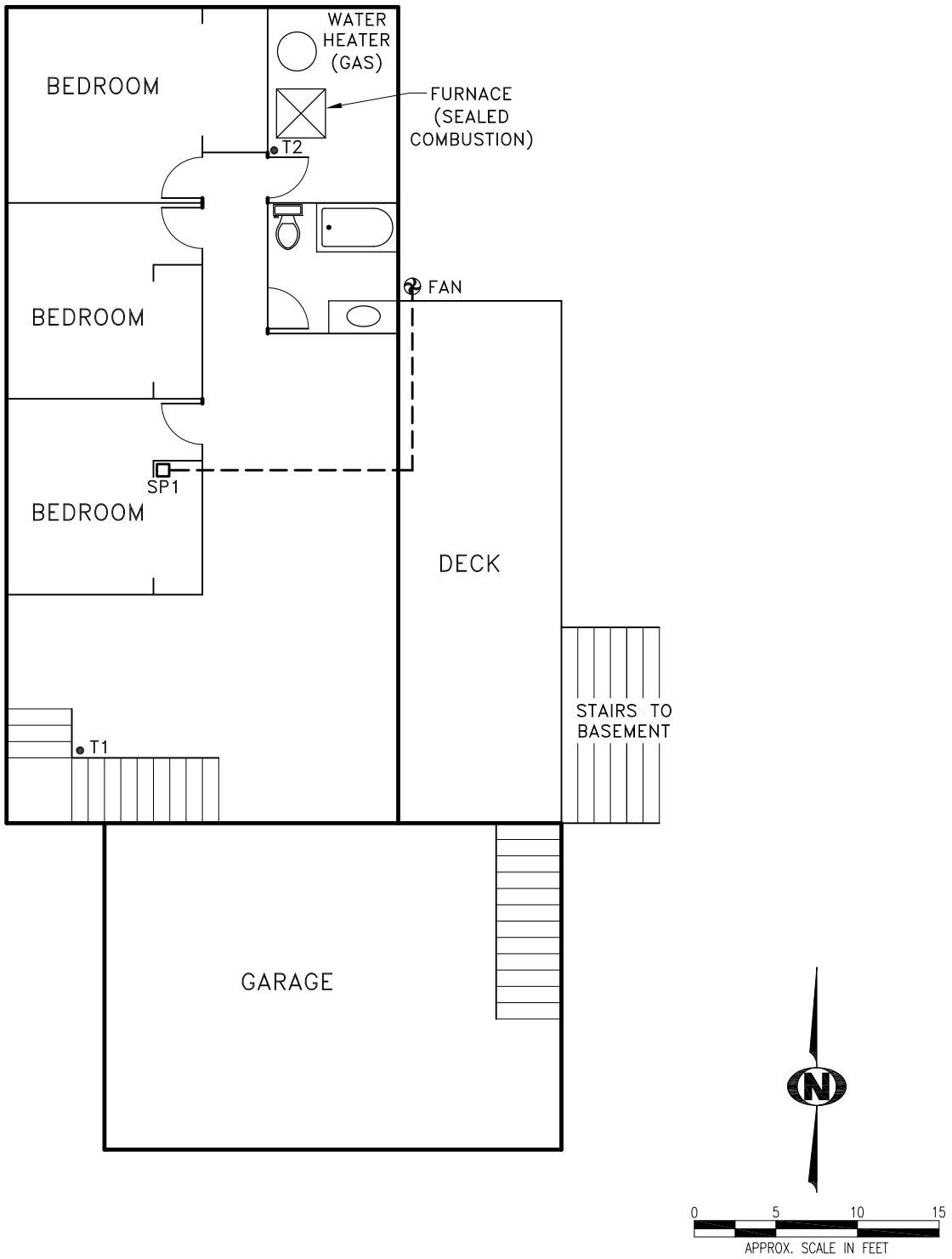


LEGEND

T1● PRESSURE DIFFERENTIAL TEST HOLE

SP1□ SUCTION PIT

FAN

VENT PIPING

ARGONNE NATIONAL LABORATORY
Hanover, Kansas

SUB-SLAB VENTING SYSTEM
GOECKEL RESIDENCE
413 E. KENSINGTON ST.

EnviroGroup Limited
Centennial, Colorado

FIGURE 3	SEPT 2009
AN-0658	

ATTACHMENT 1

GP Series

(excludes GP500)
Designed especially for radon mitigation, RadonAway's GP Series fans provide superb performance and are ultra-quiet and attractive. They are ideal for most active subslab radon mitigation systems. Choice of model is dependent on building characteristics and should be made by a radon professional.

Features:

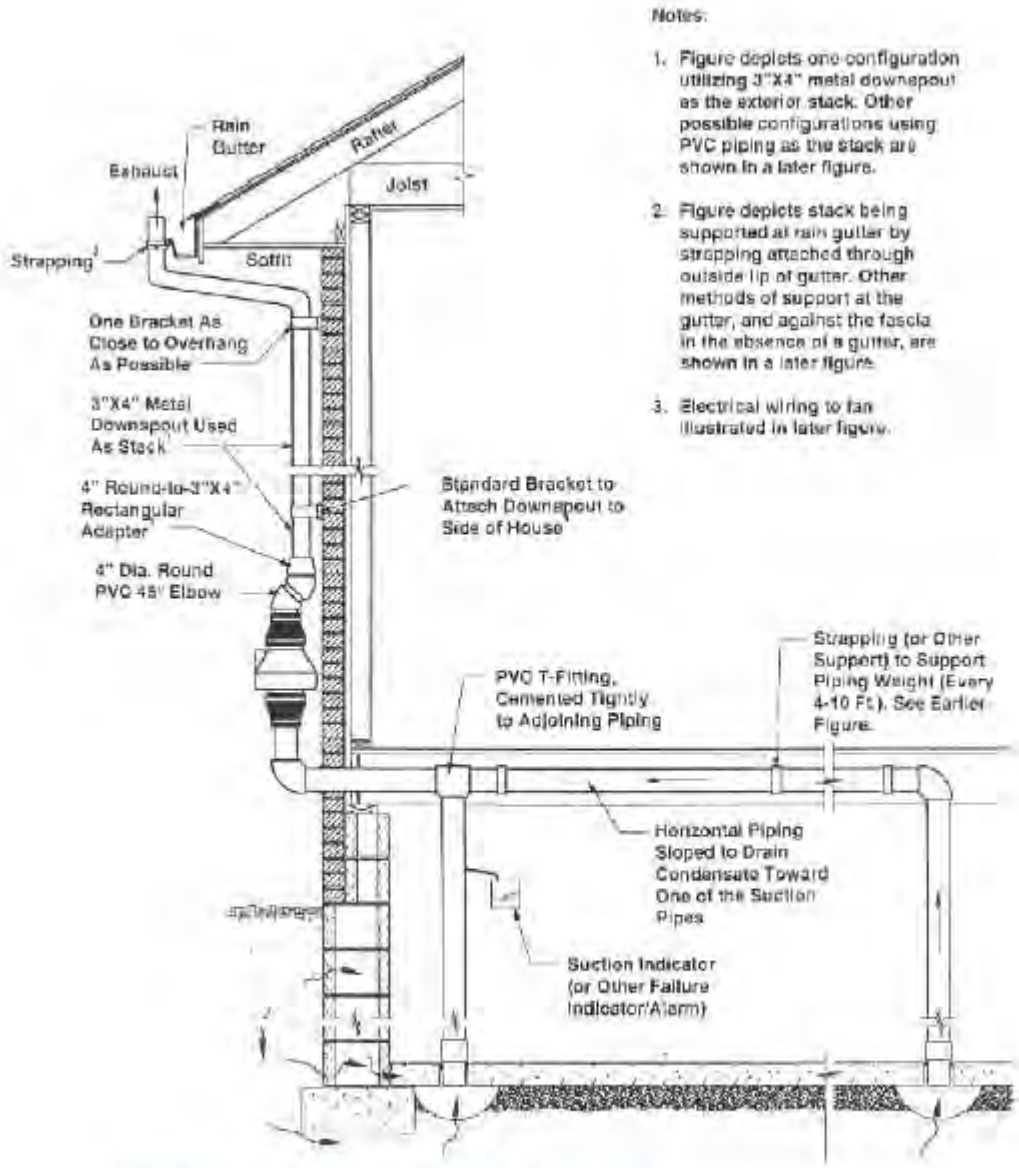
- Five-year limited warranty
- Mounts on duct pipe or with integral flange
- 3" diameter ducts for use with 3" or 4" pipe
- Electrical box for hard wire or plug in
- ETL Listed - for indoor or outdoor use
- 4 interchangeable models

Model	P/N	Fan Duct Diameter	Watts	Maximum Pressure "WC	Typical CFM vs. Static Pressure WC						
					1.0"	1.5"	2.0"	2.5"	3.0"	3.5"	4.0"
GP201	23007-1	3"	40-60	2.0	82	58	5	-	-	-	-
GP301	23006-1	3"	55-90	2.6	92	77	45	10	-	-	-
GP401	23009-1	3"	60-110	3.4	93	82	60	40	15	-	-
GP501	23005-1	3"	70-140	4.2	95	87	80	70	57	30	10

*Calculate your estimated annual electrical cost.

ATTACHMENT 1-Fan Specifications

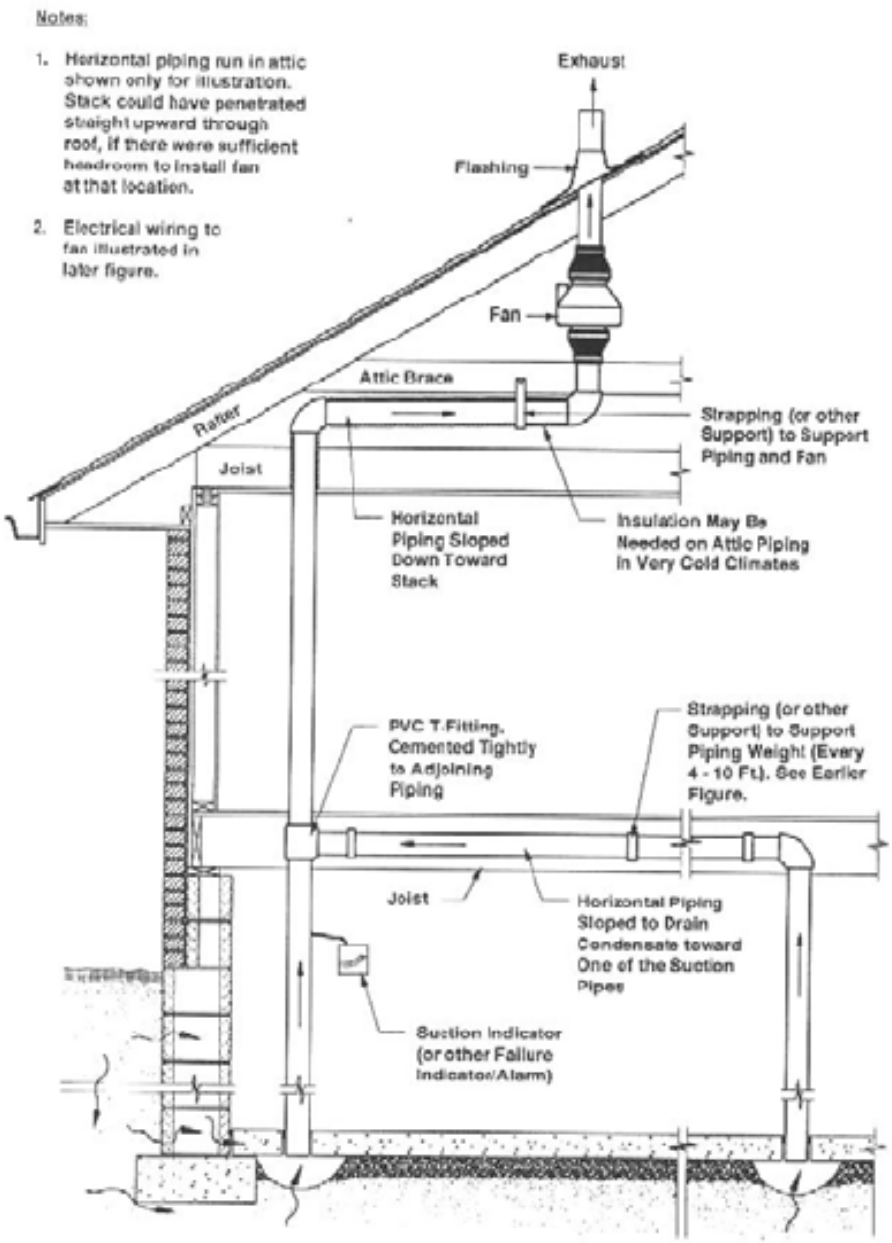
ATTACHMENT 2



SSD with Exterior Fan (EPA, 1994)

ATTACHMENT 2 – Typical Schematic of an SSD System with an Exterior Fan Mounting

ATTACHMENT 3



SSD with Attic Fan (EPA 1994)

ATTACHMENT 3 – Typical Schematic of an SSD System with an Attic Fan Mounting

ATTACHMENT 4

Photo 1. SP1 riser -Schlabach Residence

Photo 2. Fan -Schlabach Residence

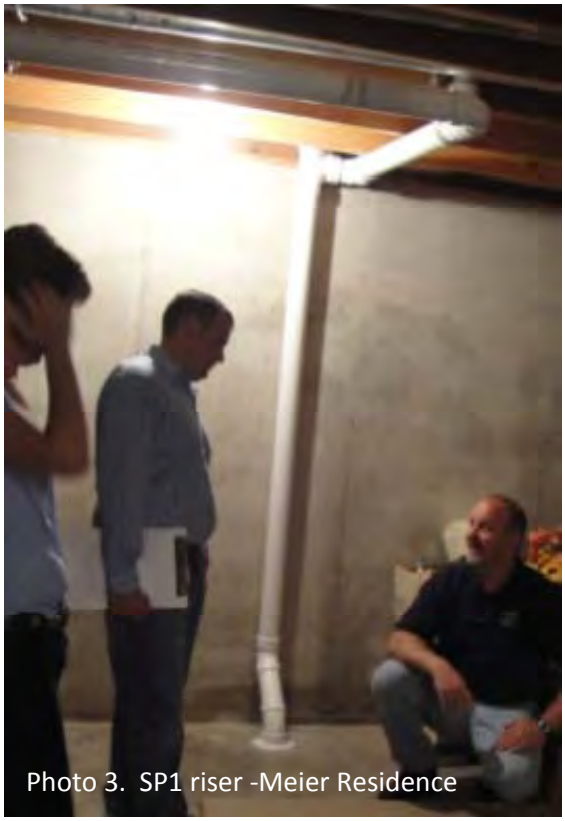


Photo 3. SP1 riser -Meier Residence

Photo 4. Crack sealing – Meier Residence

Photo 5. SP1 riser - Goeckel Residence

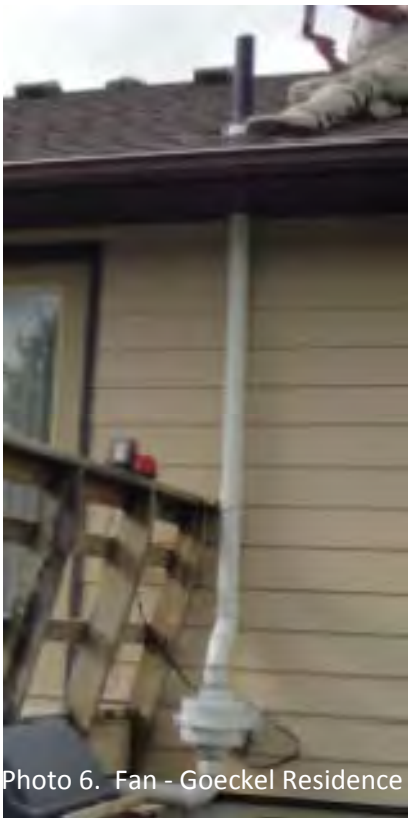


Photo 6. Fan - Goeckel Residence

Photo 7. Tub Seal - Goeckel Residence

Photo 8. Back-draft testing - Goeckel Residence

Photo 9. DG500 Micro manometer - Pressure Differential Measurements

Supplement 11:

EnviroGroup Report of Mitigation System Installation in May 2010

EnviroGroup Limited
The Environmental Solutions Company

TECHNICAL MEMORANDUM

To: Lorraine LaFreniere, Argonne National Labs **Date:** 07/01/10
From: Bill Morris, EnviroGroup
Project: Former USDA Grain Bin Site, Hanover, Kansas
Subject: Vapor Intrusion Mitigation System Installations
cc: AN-0658 File

This technical memorandum presents a summary of the design, installation and baseline monitoring of vapor intrusion mitigation systems installed by EnviroGroup Limited (EGL) on behalf of Argonne National Labs (Argonne) and its client, Chemical Commodity Corporation/USDA (CCC), at the Former USDA Grain Bin Site in Hanover, Kansas (Site) on May 12-13, 2010 and June 18, 2010. All work was conducted pursuant to the consulting services agreement between EGL and Argonne (Contract #9F-31882).

INTRODUCTION

Argonne is investigating the nature and extent of carbon tetrachloride contamination at the Site. These investigations included the collection of indoor air and sub-slab vapor samples to evaluate the potential for vapor intrusion at the two residences mitigated during this time frame.

It is EGL's understanding that the Kansas Department of Health & Environment (KDHE) required CCC/USDA to install vapor mitigation systems at two residences because of the “unacceptable risk posed by exposure to the concentrations of carbon tetrachloride detected in the sub-slab and in the indoor air”, as determined by KDHE. Therefore, EGL’s objective was to install sub-slab depressurization (SSD) systems at the two residences to depressurize soils below the building slab and to prevent any significant upward flow of soil vapor into the building. This is consistent with the work plan submitted by Argonne to KDHE in April 2010 and approved by KDHE. A minimum negative pressure below the slab of -0.003" water column (WC) compared to indoor air pressures is considered sufficient for this purpose.

BUILDING CONDITIONS AT THE SITE

The design of the vapor intrusion mitigation system was based in part on the following understanding of Site conditions. If actual conditions are different or change in the future, EGL should be contacted to evaluate any potential impacts of these changes on the systems.

Building Structures

The structures are all ranch style, single level homes built over poured concrete wall basements. Both are wood construction and were built on site. Based on each building’s structure (i.e., relatively intact concrete floor slab over the occupied portion of the building's footprint) and the presence of unsaturated and semi-permeable soils below the slab, it was assumed that sub-slab depressurization (SSD) systems were best for mitigating the Hanover residences. Experience with radon and chemical vapor intrusion over the past two

decades has shown that SSD is typically the most successful and most cost effective for mitigating vapor intrusion. (e.g., EPA 1994, ITRC 2007).

The first home, located at 408 E. Elm Street (Jandera residence), is conventionally framed with lap siding and a full basement. This basement is currently unfinished, relatively open, and covers approximately 1150 ft^2. The concrete slab in the basement has many cracks that were sealed during the system installation to prevent short-circuiting of air flow. Minimal sand and native clays were encountered below the slab at this home. The fan was installed in the attic space above the garage.

The second structure, located at 405 E. Elm Street (Kruse residence), is conventionally framed with lap siding and an eighty-five percent finished basement. The basement covers approximately 1100 ft^2. The basement also has a three quarter bathroom with no access to the bottom of the shower where there may be a concrete box-out for the drain, which may short circuit air flow currently and/or in the future. There was no way to seal the box out to prevent short circuiting. However, the shower is located at one of the distal corners and there appears to be no short circuiting at this point. The condition of the concrete slab is unknown due to floor coverings. Native clayey materials and a small percentage of sand were encountered under the slab. The fan was installed in the attic space with the vent pipe running up an interior wall of the home.

Heating, Ventilation, and Air Conditioning

The Jandera home had a forced air, natural gas furnace and the Kruse home had a natural gas fired boiler for heating. Both houses had forced air, air conditioning units and gas water heaters located in the basements. Both homes include typical oven exhaust hoods and bathroom exhaust fans. No other fans or HVAC equipment were evident. All homes appear to be in good condition and are expected to have air exchange rates typical of residential construction.

Sub-Surface Conditions

The sediments beneath the slabs at the suction pit locations consisted of sands ranging from 0.5 inches to one inch in thickness introduced as part of the construction process for the basements. The soils underlying the basement fill are clayey silts to silty clays with limited permeability. The water bearing interval of uppermost zone is located beneath these clays and characterized by a section, generally 3’ in thickness, consisting of multiple thin layers of fractured shale bedrock. The depth to this zone ranges from 9’ to 12’ below the basement floors in the vicinity of the mitigated homes which are located down gradient of the former CCC/USDA facility. Detailed subsurface investigations indicate the presence of groundwater contaminated with carbon tetrachloride underlying this general area.

SYSTEM DESIGN

The following sections of this technical memorandum describe the design of the vapor intrusion mitigation systems at the two Site residences.

Type of System

Based on the building structures (e.g., relatively intact concrete floor slabs over the occupied portion of the building footprints), the presence of some unsaturated sand below the slabs, and previous experience at other

homes in the area with successful sub-slab depressurization (SSD) system installations, all parties agreed that SSD systems were the preferred method of mitigation.

Design Approach

The design and installation of an SSD system can be approached two ways, depending on the complexity of the system and other factors (ITRC 2007). For complex buildings, diagnostic tests are usually conducted before final design and installation to determine the number of suction points needed to depressurize the slab and the most appropriate type and size of fan(s). This requires at least two site visits (not including site visits for permit inspections or any post-mitigation performance testing that may be required). For simpler structures the general layout of the system and fan sizes can usually be determined in advance, so that diagnostic testing and final installation can be conducted during one site visit. In this case, an initial suction point is installed and tested to see whether additional suction points are required; if so, additional suction points are installed and diagnostic testing is repeated until results indicate the performance criteria for depressurization have been met.

EGL followed this second approach for design and installation of the SSD systems in these Hanover residences.

Preliminary Design

The fans were selected at the preliminary design stage, prior to site mobilization and diagnostic testing (consistent with the second design approach, discussed above) and based on expected air flow through the sand below the slabs. In general, fans that provide higher vacuum (2-4" WC) and lower air flow rates (less than 70 cfm) are used for slabs over sands that may contain higher moisture content (as is typical for sands in Kansas). The GP501 has a maximum static vacuum of 4.2" WC and flow rate of 10 cfm, and will pull approximately 95 cfm at 1.0" WC (see Attachment 1). This was deemed appropriate for the expected conditions of all three homes being mitigated. Actual static vacuum and flow rates depend on structure geometry, sand characteristics, and specific system configurations.

SYSTEM INSTALLATIONS

EnviroGroup personnel mobilized to the site on May 12th, along with a certified radon contractor, and then met with the client and the two homeowners to discuss system component locations. Based on those discussions, initial suction point locations were determined and installations began. System installations for each structure are discussed in the following sections.

Jandera Residence (408 E. Elm St.)

The initial sub-slab suction point (SP1) was installed near the eastern end of the basement near the main plumbing stack, as shown on Figure 1. A three inch diameter hole was drilled through the concrete floor and approximately 3-6 gallons of clay and sand were removed from below the slab, resulting in a circular pit approximately 18" wide and 10" deep. As expected, the soil below the slab at this location consisted of sand approximately one to two inches thick overlying native clayey soils. The suction pit was further excavated towards the plumbing stack to potentially access more permeable materials around the subsurface plumbing piping and increase the potential radius of influence of the fan.

A 3" PVC closet flange was installed upside down over the hole and suction pit. The flange was sealed to the concrete slab using concrete screws and polyurethane caulk. This prevents horizontal and vertical movement of the pipe and allows the riser pipe to be glued to the flange. A 3" diameter riser pipe was then continued from the flange up (Photo 1) to the basement ceiling, where the pipe was run horizontally (with a slight grade back toward the suction pit for drainage) and made to penetrate the exterior wall at the rim joist. The PVC riser pipe joints were not glued until initial system diagnostic tests were completed, as described below. The fan was temporarily installed to perform these diagnostics.

Diagnostic Testing and Final System Installation

For diagnostic tests, the GP501 fan was attached to the vent pipe from suction point SP1. Several 1/4" diameter holes were drilled through the floor and slightly into the sub-slab soils across the slab away from the suction pit. These test holes (T1, T2, T3, T4, & T5) allowed monitoring of the differential air pressures (above and below the slab). Initial pressure differentials were recorded with the fan off. The fan was then turned on (exhausting the gases outside the home) and the static vacuum in the riser pipe at SP1 and differential pressure at T1-T5 were measured using an Energy Conservatory DG500 digital micro-manometer (Photo 2), with a resolution of 0.0001" WC and an accuracy of ± 1% of the reading or ±0.0005. Air flow was also measured using a Dwyer Series 160 stainless steel pitot tube and an air velocity calculator. A conversion factor was applied using the cross-sectional area of the 3" pipe because the pitot tube is made for a minimum pipe diameter of 3.75". This increases the margin of error from ±2% to around ±5% and has an effective range down to approximately 19 cfm.

The static vacuum measured in the riser pipe was -2.88" WC and air flow was calculated to be approximately 27.9 cfm, reflecting the low permeability of the sand below the slab (i.e., higher resistance to air flow). Measurements taken 30 days later were -2.388" WC and an estimated air flow of approximately 30 cfm (due to problems with pitot tube) respectively. Measured air flow and vacuum were within the fan's performance specifications (see Attachment 1). Differential air pressures at T1-T5 are listed in Table 1.

Test Hole	Before Suction	After Suction	~ 30 Days Later
T1	0.0078" WC	-0.3215" WC	-0.4452" WC
T2	0.0029" WC	-0.0447" WC	-0.0761" WC
T3	0.0017" WC	-0.0091" WC	-0.1171" WC
T4	0.0027" WC	-0.1382" WC	-0.2094" WC
T5	0.0068" WC	-0.0141" WC	-0.0359" WC

The -0.003" WC differential pressure criterion was met at all sub-slab monitoring points. All pipe joints were glued and the final installation of the fan in the attic above the garage was completed (Photo 3, 4 & 5). A schematic of the general type of system installed is shown in Attachment 2. This represents a vent pipe, riser pipe, and fan configuration that is very similar to the system installed at the Jandera Residence.

Back-draft testing of the water heater (Photo 6) and furnace were done before and after fan installation, using chemical smoke, to see if the smoke was being pulled up the flue of the appliance. The chemical smoke was drawn up the flue with ease on both the furnace and water heater without the fan and with the fan installed and operational. The furnace was in operation during the pressure field testing to ensure worst case scenario measurements were being taken.

All electrical hook ups are completed and have disconnects installed adjacent to each operating fan. Audible alarm systems for possible system failures and U-Tube manometers (Photo 7) have been installed at all residences. Each of the residents were instructed how the alarms work and directed to the contact person in the event of a problem with the system.

Kruse Residence (405 E. Elm Street)

The Kruse residence is roughly the same size as the Jandera home, but appears to be constructed many years earlier and has at least one addition. The home has a finished basement and does not have an attached garage. Considering these conditions, the attic was determined to be the best location for the fan with vent piping running up through the first floor in either a closet or interior wall. An abandoned cast iron vent stack was located near suction point one that ran from the basement to the attic and was used to run 3 inch PVC through to access the attic and not disturb any sheetrock or leave the riser pipe visible in a closet or corner of a room. The first sub-slab suction point (SP1) was installed in the utility room next to the water heater and boiler as shown on Figure 2, (Photo 8). Due to the addition to the basement and the storm shelter it was assumed that footings between the original basement and the added basement as well as the storm shelter would be present and possibly limit the suction field. A three-inch diameter hole was drilled through the concrete floor at the suction pit location and approximately 4-8 gallons of sand and clay were removed from below the slab resulting in circular pits approximately 20" wide and 10" deep. As expected, the soil below the slab consisted of native clayey soils and a seam of permeable material was encounter approximately 12 inches away from the opening to the east.

Three-inch PVC closet flanges were installed upside down over the hole and suction pit (SP1). The flange was sealed to the concrete slab using concrete screws and polyurethane caulk. This prevents horizontal and vertical movement of the pipe and allows the riser pipe to be glued to the flange. A short section of three-inch diameter riser pipe was installed and connected to the suction pit and was not glued to test if additional suction points were going to be needed to meet performance objectives. The fan was temporarily installed to perform system diagnostics and the elbows were not glued until after tests were completed, as described below.

Diagnostic Testing and Final System Installation

To test the system before final installation, the GP501 fan was attached to the vent pipe at the suction point and a number of 1/4" diameter holes were drilled through the floor slightly into the sub-slab soil in each corner of the original basement, on the opposite side of the suspected footing, in the corners of the added basement and in the storm shelter. These test holes (T1, T2, T3, T4, T5, T6, T7, T8, & T9) allowed monitoring of the differential air pressures above and below the slab. Initial pressure differentials were recorded with the fan off. The fan was turned on and the static vacuum and flow in the riser pipe at SP1and differential pressure at T1-T9 were measured using an Energy Conservatory DG500 digital micro-manometer,

as described earlier. Air flow was also measured using an Extech vane anemometer which provide an air velocity and a conversion factor using the cross-sectional area of the 3" pipe.

The static vacuum measured in the riser pipe was -3.32" WC and air flow was calculated to be approximately 32.1 cfm, reflecting the low permeability of the below the slab (i.e., higher resistance to air flow). Measurements taken 30 days later were -3.04" WC and approximately 40.2 cfm respectively. Measured air flow and vacuum were within the fan's performance specifications (see Attachment 1). Differential air pressures at T1-T9 are listed in Table 2.

Table 2. Differential Pressure Measurements (Kruse Residence)

Test Hole	Before Suction	After Suction	~ 30 Days Later
T1	0.0004" WC	-0.0936" WC	-0.1497" WC
T2	0.0005" WC	-0.0795" WC	-0.1075" WC
T3	0.0014" WC	-0.3405" WC	-0.3710" WC
T4	0.0036" WC	-0.2084" WC	-0.2524" WC
T5	-0.0002" WC	-0.1914" WC	-0.2529" WC
T6	-0.0004" WC	-0.4907" WC	-0.5702" WC
T7	0.0020" WC	-0.1809" WC	-0.1976" WC
T8	-0.0007" WC	-0.1508" WC	-0.1804" WC
T9	DNM	-0.2058" WC	-0.2068" WC

The -0.003" WC differential pressure criterion was met at all sub-slab monitoring points and it appeared that any footing present between the original basement, the add-on basement and the storm shelter did not affect the propagation of the suction field below the slab. All pipe joints were glued and the fan was securely installed in the attic (Photos 9). A schematic of the general type of system installed is shown in Attachment 3. This represents a vent pipe, riser pipe, and fan configuration that is very similar to the system installed at the Kruse Residence.

Back-draft testing was performed at this residence on the water heater and boiler (Photo 10) and with the fan operational there was substantial draw up each flue.

All electrical hook ups are completed and have disconnects installed adjacent to each operating fan. Audible alarm systems for possible system failures have been installed at all residences. Each of the residents were instructed how the alarms work and directed to the contact person in the event of a problem with the system.

ADDITIONAL MONITORING

Operation and maintenance of the system will be conducted by Argonne personnel or their representatives. The thirty-day baseline event was performed by Argonne personnel under EGL oversight. These activities are described below.

Thirty-Day Baseline Monitoring Event

Baseline system measurements taken during this event included the following:

1) System vacuum readings from all risers;
2) System flow readings from all risers;
3) Pressure differential readings from all test ports installed during system diagnostics.

The 30 day baseline monitoring data is contained in Table 1, Table 2 and summarized in Table 3. A second monitoring event should be conducted during the 2010-2011 heating season (approximately November through February) to ensure that the system maintains performance criteria during cold weather under closed-house conditions, which typically represent the worst case scenario. During this event, indoor air sampling should also be performed to ensure that the systems are operating as designed.

Operation and Maintenance

SSD systems typically require little maintenance. Occasionally a bearing can fail (indicated by noisy fan operation or audible alarm warning), which requires replacement of the fan. A five-year warranty is provided by the manufacturer. Otherwise, we recommend that Argonne inspect the system annually thereafter to ensure that the fan is running properly and with adequate vacuum and no other indications of problems (e.g., noisy operation). Two of the measurements listed above (items 1 – 3) should be sufficient to evaluate system performance during periodic monitoring events, if there are no other problem indications. If future readings are within an acceptable range of their original system baseline value, the system would be operating as originally designed and additional measurements are not needed. If the measurements are not within this value, additional measurements, inspections, and/or system modifications may be necessary.

Argonne has chosen to use items 1 and 2 from the list above to do the performance monitoring at the two residences. There was some variability in the measurements from system commissioning to the 30 day baseline monitoring event as expected. The performance range chosen for these homes is listed in Table 3 along with the original measurements taken at each of the properties. The performance range was calculated from the 30 day baseline monitoring event and will be the operating range to evaluate system performance.

Table 3. Performance Criteria for Periodic Monitoring

	Jandera Residence SP1		Kruse Residence SP1	
	Vacuum	Flow	Vacuum	Flow
Day 1	-2.88" WC	27.9 cfm	-3.32" WC	32.1 cfm
Day 30	-2.38" WC	≈30 cfm	-3.04" WC	40.2 cfm
Performance range	± 0.5" WC	± 20 %	± 0.5" WC	± 20 %
	(-2.88 to -1.88)	(36 to 24)	(-3.54 to -2.54)	(48.2 to 32.2)

LIMITATIONS

It should be noted that vapor intrusion mitigation systems, including SSDs, will not address sources of chemicals that are in building materials or above the slab, such as contaminated concrete or fabrics that have absorbed these chemicals, or in ambient air that is pulled in to the unit from outdoors or adjacent units. All work was performed in a manner consistent with that level of care normally exercised by members of our profession practicing in the U.S. at the time the work was performed. No other warranty is made, expressed or implied, regarding our work.

Attachments:

Figure 1. Jandera Mitigation System Layout
Figure 2. Kruse Mitigation System Layout
Attachment 1. GP501 Fan Specifications
Attachment 2. Schematic of Typical SSD System
Attachment 3. Site Photos

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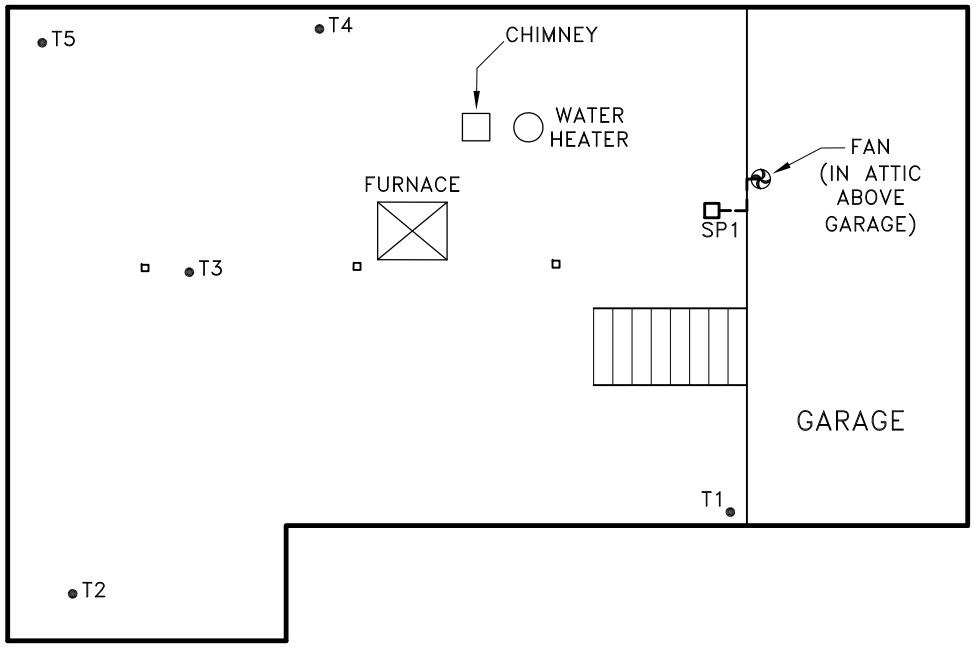

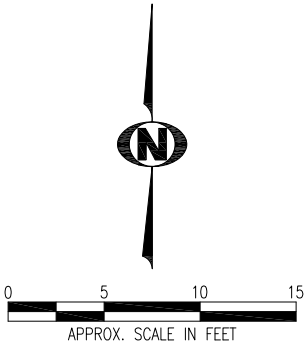

LEGEND

T1●	PRESSURE DIFFERENTIAL TEST HOLE
SP1□	SUCTION PIT
⊕	FAN
– – –	VENT PIPING

ARGONNE NATIONAL LABORATORY
Hanover, Kansas

SUB-SLAB VENTING SYSTEM
JANDERA RESIDENCE
408 E. ELM ST.

EnviroGroup Limited
Centennial, Colorado

FIGURE 1	JUNE 2010
AN–0658	

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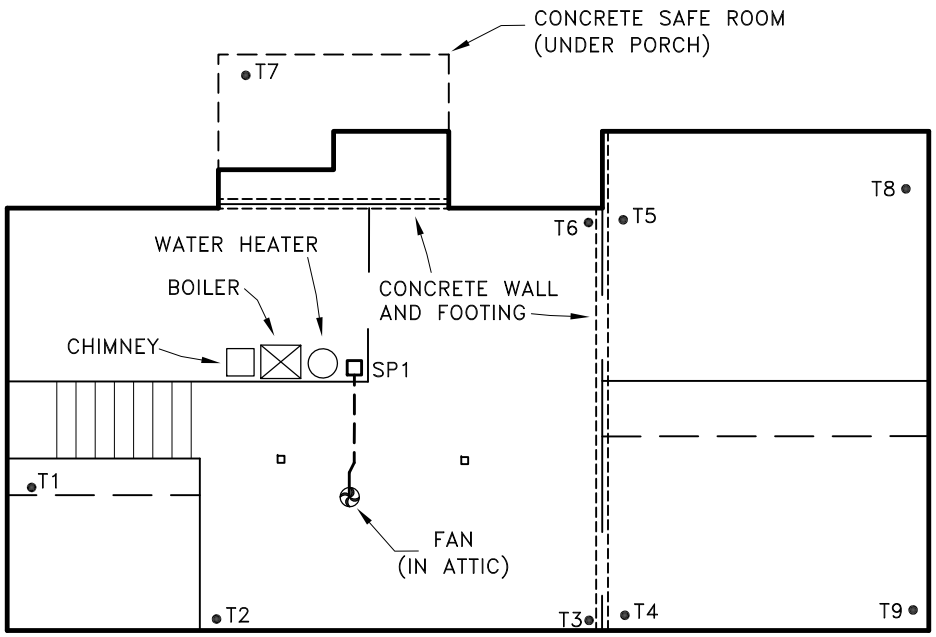
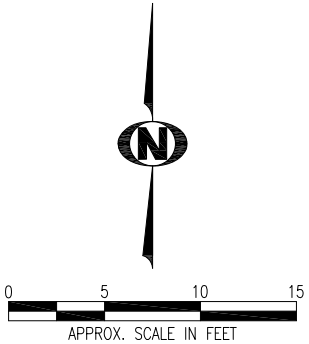




LEGEND

T1●	PRESSURE DIFFERENTIAL TEST HOLE
SP1□	SUCTION PIT
⊛	FAN
– – –	VENT PIPING

ARGONNE NATIONAL LABORATORY

Hanover, Kansas

SUB-SLAB VENTING SYSTEM
KRUSE RESIDENCE
405 E. ELM ST.

EnviroGroup Limited
Centennial, Colorado

FIGURE 2	JUNE 2010
AN–0658	

ATTACHMENT 1

GP Series

(excludes GP500)
Designed especially for radon mitigation, RadonAway's GP Series fans provide superb performance and are ultra-quiet and attractive. They are ideal for most active subslab radon mitigation systems. Choice of model is dependent on building characteristics and should be made by a radon professional.

Features:

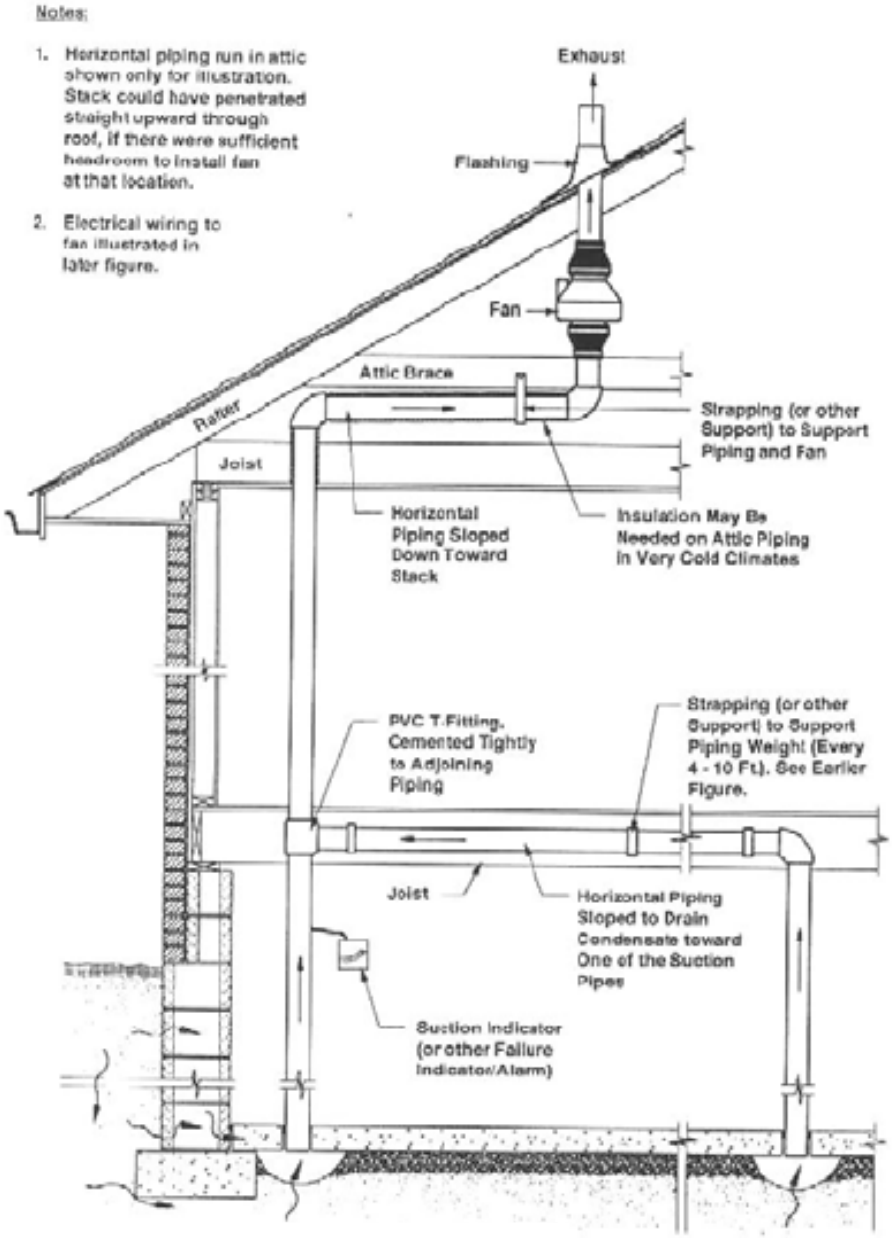
- Five-year limited warranty
- Mounts on duct pipe or with integral flange
- 3" diameter ducts for use with 3" or 4" pipe
- Electrical box for hard wire or plug in
- ETL Listed - for indoor or outdoor use
- 4 interchangeable models

Model	P/N	Fan Duct Diameter	Watts	Maximum Pressure "WC	Typical CFM vs. Static Pressure WC						
					1.0"	1.5"	2.0"	2.5"	3.0"	3.5"	4.0"
GP201	23007-1	3"	40-60	2.0	82	58	5	-	-	-	-
GP301	23006-1	3"	55-90	2.6	92	77	45	10	-	-	-
GP401	23009-1	3"	60-110	3.4	93	82	60	40	15	-	-
GP501	23005-1	3"	70-140	4.2	95	87	80	70	57	30	10

*Calculate your estimated annual electrical cost.

ATTACHMENT 1-Fan Specifications

ATTACHMENT 2



SSD with Attic Fan (EPA 1994)

ATTACHMENT 2 – Typical Schematic of an SSD System with an Attic Fan Mounting

ATTACHMENT 3

Photo 1

Photo 2

Photo 3

Photo 4

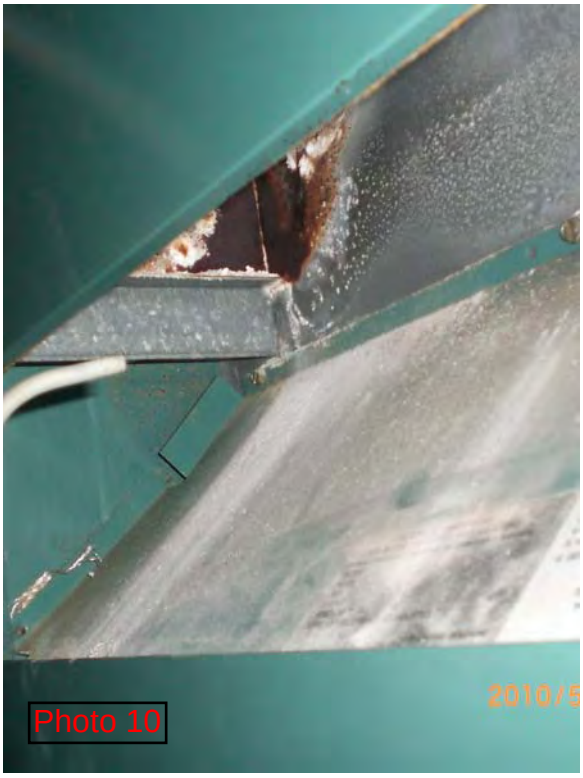
Photo 5

Photo 6

Photo 7

Photo 8

2010/5/12
Photo 9


2010/5
Photo 10

Supplement 12:

Quality Control for Sample Collection, Handling, and Analysis

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Supplement 12:

Quality Control for Sample Collection, Handling, and Analysis

This supplement documents the quality of the analytical data generated during the site characterization and vapor intrusion investigations at Hanover and the suitability of the data to support conclusions regarding contaminant distribution and migration and associated risk. The QA/QC procedures for sample collection, handling, and analysis during the investigations were described in detail in the *Master Work Plan* (Argonne 2002) and the site-specific *Final Work Plan* (Argonne 2008a) and *Supplemental VI Work Plan* (Argonne 2008b). Evaluation of the organic analytical data was consistent with EPA (1994) guidelines.

S12.1 Sampling to Monitor Sampling Collection, Handling, and Analysis Activities

Sample collection and handling activities were monitored by the documentation of samples as they were collected and the use of chain-of-custody (COC) forms and custody seals to ensure sample integrity during handling and shipping. The QA/QC samples collected included field blanks, equipment rinsates, and trip blanks. Field replicate samples were collected, and samples were selected for duplicate analysis as a measure of analytical precision. The QA/QC samples are listed in Table S12.1. Analytical results for carbon tetrachloride and chloroform in QA/QC samples collected to monitor sample collection and handling are in Table S12.2.

S12.1.1 Field Blanks

Two field blanks were collected to represent the water used during equipment decontamination, which had been obtained from the Hanover public water supply. Carbon tetrachloride was not detected in the field blanks. Chloroform, a by-product of water chlorination, was detected at trace concentration (1.1 µg/L; Table S12.2).

S12.1.2 Equipment Rinsate

One equipment rinsate was collected to monitor decontamination procedures for reusable sampling equipment. Neither carbon tetrachloride nor chloroform was detected in the rinsate sample (Table S12.2), indicating that cross-contamination of groundwater samples did not occur during sample collection.

S12.1.3 Trip Blanks

As an indicator of cross-contamination during shipment, 57 trip blanks were prepared and included with soil or water samples shipped for VOCs analysis. Carbon tetrachloride and chloroform were not detected in these trip blanks (Table S12.2).

S12.1.4 Replicate Samples and Duplicate Analyses

As an indicator of the consistency of the sampling methodology and to provide a measure of analytical precision, 29 replicate soil and groundwater samples were collected. In addition, 33 samples were selected by the AGEM Laboratory for duplicate organic analysis. Selected samples were submitted for verification organic analysis at a secondary laboratory. Replicate samples and samples selected for duplicate analysis are listed in Table S12.1.

S12.1.5 Sample Representativeness

During the field investigations to characterize the extent of groundwater contamination, 33 groundwater samples were collected as field evaluation samples that are considered non-representative of site conditions. This category includes samples collected prior to completion or prior to development of monitoring wells. These samples, identified in Table S12.1, were collected and submitted for overnight analysis to aid in evaluation of site contamination during the field effort. After well completion and development, each well was later sampled to provide quantitative data for determination of contaminant distribution.

S12.2 Quality Control for Organic Analysis of Soil and Water Samples at the AGEM Laboratory

Vertical-profile subsurface soil sampling was conducted at 39 locations, from which 206 soil samples (plus 23 field replicate samples) were collected. The subsurface soils were analyzed at the AGEM Laboratory in Argonne, Illinois, for VOCs, including carbon tetrachloride and chloroform, by using a modification of EPA Method 8260B (purge-and-trap method), as referenced in the EPA's SW-846 (EPA 1998), to achieve a quantitation limit of 10 µg/kg.

Soil samples were quick-frozen on dry ice as they were collected. At the laboratory, the VOCs present in each soil sample were extracted with methanol from the sample matrix. For the purge-and-trap soil analyses, an aliquot of the methanol extract was purged, and the volatile species were transferred to a sorbent tube. After purging, the sorbent tube was heated and backflushed with an inert gas to desorb the components into the GC-MS system.

Groundwater sampling was conducted at 70 locations, including 19 private wells, 5 monitoring wells installed during an investigation of an unrelated contaminated site (Bill's Service Station), and 54 of the monitoring wells established during the current investigation. In total, 110 groundwater samples (plus 6 field replicate samples) were collected for organic analysis at the AGEM Laboratory by EPA Method 524.2 (EPA 1995) to achieve a quantitation limit of 1.0 µg/L. (The field evaluation samples [Section S12.1.5] are considered non-representative of site conditions and are not included in this total of 110 samples.)

Water samples shipped to the AGEM Laboratory were analyzed by the purge-and-trap method with a GC-MS system. For the purge-and-trap analyses, the VOCs present in each groundwater sample were extracted (purged) from the sample matrix by bubbling an inert gas through the sample. The purged components were trapped in a sorbent tube. After the purging, the sorbent tube was heated and backflushed with an inert gas to desorb the components into the GC-MS system.

For both the soil and water analyses, the compounds eluting from the GC column were identified by retention time and by comparison with reference library spectra. The concentration of each component was calculated by comparison of the MS response for the quantitation ion to corresponding calibration curves, the response for internal standards, or both. The internal standard recovery limits were 80-120%. If the internal standard recovery was outside these

limits, the data were flagged accordingly. Calibration checks with each sample delivery group (SDG) were required to be within ±20% of the standard.

Samples submitted to the AGEM Laboratory for organic analysis were analyzed in 59 SDGs, as shown in Table S12.3. The QA/QC procedures included analysis of instrument calibration check standards, analysis of laboratory blanks, monitoring of surrogate spike recovery, and duplicate laboratory analyses. Significant results include the following:

- Samples shipped to the AGEM Laboratory were received with custody seals intact and at the appropriate temperature. All samples were analyzed within required holding times.

- Carbon tetrachloride and chloroform, contaminants of concern in the investigation, were not detected in laboratory method blanks analyzed with the samples.

- For each SDG, analytical instrument calibration was monitored by the analysis of calibration check standards. Table S12.3 shows the relative percent difference (RPD) between the known and calculated concentrations of the standards. The concentrations of calibration check standards measured in all SDGs were within the acceptable range of ±20%.

- Surrogate standard determinations were performed on samples and blanks by using surrogate spike compounds fluorobenzene, 1,4-dichlorobenzene-d_4, and bromofluorobenzene. Table S12.3 shows the percent recovery of these system-monitoring compounds for each of the analyses. The surrogate recoveries were within the specified range of 80-120% for all samples, in either the initial analysis or a successful reanalysis.

- Dual analyses of soil and groundwater samples were conducted at the AGEM Laboratory as a measure of consistency in the sampling and analytical methodologies. This was accomplished through the analysis of replicate samples submitted to the laboratory or duplicate analysis of samples selected by the laboratory. Table S12.4 summarizes the analytical results for the primary samples and the associated replicate or duplicate analyses.

Consistency in both the sampling and analytical methodologies is indicated by the average RPD values of 6% for carbon tetrachloride and 8% for chloroform for dual analyses with the contaminants present.

- In accord with the QA/QC procedures defined in the *Master Work Plan* (Argonne 2002), selected soil and groundwater samples analyzed at the AGEM Laboratory for VOCs were subjected to verification analysis at a second laboratory. Verification samples were analyzed at TestAmerica Laboratories, Inc., South Burlington, Vermont. Results for the verification samples support the AGEM Laboratory results.

The analytical data from the AGEM Laboratory are acceptable for quantitative determination of contaminant distribution.

S12.3 Quality Control for Organic Analysis of Sub-Slab Vapor and Air Samples by TestAmerica

During the VI investigation, a total of 344 sub-slab, indoor air, and ambient air samples were collected to identify the investigation area and the residences at risk for VI, then subsequently to monitor residences where carbon tetrachloride or chloroform (the fumigant compound of interest and its primary degradation product, respectively) were present. Analyses were conducted as follows:

- On-site analysis for carbon tetrachloride in indoor air grab samples collected in glass syringes and sub-slab grab samples collected in Tedlar bags, by EPA Method 8021 with a reporting limit of 1.5 $\mu g/m^3$ for indoor air samples and 6 $\mu g/m^3$ for sub-slab samples. On-site analysis and subsequent data review were performed by Dr. Blayne Hartman.

- Off-site laboratory analysis of 24-hr indoor air samples for carbon tetrachloride and chloroform at Calscience Environmental Laboratories, Inc., Garden Grove, California, with EPA Method TO-15 on a GC-MS system in the selective ion acquisition mode (SIM), at a reporting limit of 1.5 $\mu g/m^3$.

- Off-site laboratory analysis of indoor air samples for carbon tetrachloride and chloroform by H&P Mobile Geochemistry, Inc., Carlsbad, California, with EPA Method TO-15 on GC-MS system, at a reporting limit of 1.5 $\mu g/m^3$.

- Off-site laboratory analysis of sub-slab samples for carbon tetrachloride and chloroform by H&P with EPA Method TO-15 on a GC-MS system, at a reporting limit of 5 $\mu g/m^3$.

- Off-site laboratory analysis of spilt samples collected by the KDHE for carbon tetrachloride and chloroform at Pace Analytical Services, Inc., Lenexa, Kansas, by EPA Method TO-15, with reporting limits of 1.7 $\mu g/m^3$ for carbon tetrachloride and 1.5 $\mu g/m^3$ for chloroform.

- Off-site laboratory analysis, for most of the sub-slab vapor and air samples, at TestAmerica Laboratories, Inc., South Burlington, Vermont, by EPA Method TO-15, to provide quantitative measures of contaminant concentrations at method detection limits of 1.3 $\mu g/m^3$ for carbon tetrachloride and 0.98 $\mu g/m^3$ for chloroform.

For each SDG, the responses for target analytes in initial calibration standards and subsequent calibration checks met the criterion of 30% relative standard deviation. Acceptable recoveries of target analytes were achieved in analyses of laboratory control samples. Method blanks were free of contamination. Duplicate samples were collected as a measure of consistency in sampling and analytical methodology. The results in Table S12.5 indicate good agreement.

S12.4 Quality Control for Organic Analysis of Vegetation Samples

Vegetation sampling was conducted during the 2009-2010 investigation to provide data supporting an evaluation of phytoremediation as a potential remedial alternative.

A total of 342 vegetation samples (branches and leaves from 171 existing mature trees and bushes located across the investigation area) were analyzed for carbon tetrachloride and chloroform at the AGEM Laboratory by using a modification of the protocol in EPA Method 5021 (headspace analysis by GC-ECD) to achieve the low detection limits required.

Typical detection limits achieved were 0.3 µg/kg for carbon tetrachloride and 0.75 µg/kg for chloroform. A limitation of the chloroform analysis is the presence of chloroform (at very low concentrations) in the methanol solvent used in standard preparation. An 11-point calibration of the GC system was established on the basis of the mass of known quantities of carbon tetrachloride and chloroform, ranging in concentration from 0.125 ng to 4 ng. The analytical data are acceptable for qualitative determination of contaminant distribution.

S12.5 Quality Control for Tritium Analyses of Groundwater Samples

Selected groundwater samples were analyzed for tritium at the University of Miami Tritium Laboratory in Miami, Florida. Tritium concentrations were reported on the basis of the U.S. National Institute of Standards and Technology tritium water standard #4926, as measured on September 3, 1961, and again on September 3, 1978, with a half-life of 12.43 yr. Concentrations were reported in tritium units (TU), equivalent to 3.193 picocuries (pCi) per kilogram of water. Because counting efficiency and background concentration are different for each instrument, the reported concentrations were corrected for cosmic intensity and gas pressure. Typical efficiencies are equivalent to 1 count per minute (cpm) per TU. Background is about 0.3 cpm, known to ±0.02 cpm. The RPD values for duplicate analyses are typically < 5%.

S12.6 Quality Control for Radon Analyses of Indoor Air Samples

Analysis of vapor intrusion samples for radon was initially conducted to employ radon as a tracer compound for evaluation of an attenuation factor in migration of contaminants from the subsurface to indoor air. Because of the inherent serious health risks associated with radon levels detected above the EPA action level of 4 pCi/L, analysis for radon was conducted on 84 samples collected across the investigation area, including 79 indoor air samples, 2 crawl space samples, and 3 sub-slab samples.

Of the indoor air samples, 78 were analyzed for radon by Air Chek, Inc., Naples, North Carolina. Six of the samples were analyzed at the University of Southern California. Radon is measured through use of sodium iodide detectors for scintillation counting of the gamma rays produced by the daughters of radon. Sodium iodide detectors are very efficient for the detection of gamma rays, so that they have a very high background from naturally occurring radiation. The difference between the average background and total sample counts is the net or actual sample

counts. Because the background is a statistically varying number, the average is only an estimate of the background at any one time. Air Chek, Inc., uses heavily shielded detectors to minimize the average background and its variation and thereby maximize accuracy.

TABLE S12.1 Samples collected to monitor sample collection and handling activities.

Sample	Medium	Type[a]	Sample Date	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
Field blanks								
HACITY-W-28088	Water	FB	2/3/09	QC	–	2228	2/3/09	City water, collected at city maintenance shop and used during 2009 investigation.
HAWATTRU-W-28289	Water	FB	3/5/09	QC	–	2238	3/6/09	Blank of water used during February-March field effort; public water stored in water truck.
Equipment rinsate								
HAQCRIN-W-28259	Water	RI	2/27/09	QC	–	2231	2/27/09	Rinsate of decontaminated sampling bailer after collection of sample HAMW24-W-28260.
Trip blanks								
HATI05-S-27955	Soil	TB	1/13/09	QC	–	4326	1/13/09	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on chain-of-custody forms (COCs) 4325, 4326, and 4327.
HATB-S-28057	Soil	TB	1/14/09	QC	–	4332	1/14/09	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COCs 4332 and 4320.
HATB-S-28055	Soil	TB	1/14/09	QC	–	4319	1/14/09	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COCs 4319 and 4321.
HATB-S-28056	Soil	TB	1/14/09	QC	–	4331	1/14/09	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COCs 4329, 4330 and 4331.
HATB-S-28060	Soil	TB	1/15/09	QC	–	4328	1/15/09	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COC 4328.
HA-Meohblank-20Jan09	Soil	TB	1/20/09	QC	–	3442	1/20/09	Trip blank sent to TestAmerica for verification organic analysis with soil samples listed on COC 3442.
HAQCTB-S-28121	Soil	TB	1/28/09	QC	–	2223	1/28/09	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COC 2223.

TABLE S12.1 (Cont.)

Sample	Medium	Type[a]	Sample Date	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
Trip blanks (cont.)								
HAQCTB-W-28120	Water	TB	1/28/09	QC	–	2222	1/28/09	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 2222.
HAQCTB-S-28084	Soil	TB	1/29/09	QC	–	3599	1/29/09	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COC 3599.
HAQCTB-W-28122	Water	TB	1/29/09	QC	–	3597	1/29/09	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 3597.
HAQCTB-S-28112	Soil	TB	1/30/09	QC	–	2225	1/30/09	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COCs 2224 and 2225.
HAQCTB-W-28124	Water	TB	1/30/09	QC	–	2227	1/30/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2227.
HAQCTB-W-28078	Water	TB	1/31/09	QC	–	4378	1/31/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 4378.
HAQCTB-S-28079	Soil	TB	1/31/09	QC	–	2226	1/31/09	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COCs 2226 and 4387.
HAQCTB-S-28148	Soil	TB	2/2/09	QC	–	4381	2/2/09	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COCs 4380 and 4381 and to TestAmerica for verification organic analysis with soil samples listed on COCs 4380 and 4381.
HAQCTB-W-28151	Water	TB	2/2/09	QC	–	4382	2/2/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 4382.
HAQCTB-W-28086	Water	TB	2/3/09	QC	–	2228	2/3/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2228.
HAQCTB-W-28181	Water	TB	2/4/09	QC	–	4383	2/4/09	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 4383.

TABLE S12.1 (Cont.)

Sample	Medium	Type[a]	Sample Date	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
Trip blanks (cont.)								
HAQCTB-S-28113	Soil	TB	2/5/09	QC	–	4388	2/5/09	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COC 4388.
HAQCTB-W-28118	Water	TB	2/5/09	QC	–	6140	2/5/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 6140.
HA-Meohblank-10Feb09	Soil	TB	2/10/09	QC	–	3443	2/10/09	Trip blank sent to TestAmerica for verification organic analysis with soil samples listed on COC 3443.
HAQCTB-W-28174	Water	TB	2/10/09	QC	–	6392	2/10/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 6392.
HAQCTB-W-28190	Water	TB	2/23/09	QC	–	4390	2/23/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 4390.
HAQCTB-W-28198	Water	TB	2/24/09	QC	–	2230	2/24/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COCs 2230 and 2229.
HAQCTB-W-28205	Water	TB	2/25/09	QC	–	4391	2/25/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 4391.
HAQCTB-W-28214	Water	TB	2/26/09	QC	–	4392	2/26/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 4392.
HAQCTB-W-28254	Water	TB	2/26/09	QC	–	Pace	2/26/09	Trip blank sent to Pace Analytical Services with waste samples on February 26.
HAQCTB-W-28258	Water	TB	2/27/09	QC	–	2231	2/27/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2231.
HAQCTB-W-28262	Water	TB	2/28/09	QC	–	2236	2/28/09	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 2236.
HAQCTB-S-28263	Soil	TB	2/28/09	QC	–	2232	2/28/09	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COC 2232.

TABLE S12.1 (Cont.)

Sample	Medium	Type[a]	Sample Date	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
Trip blanks (cont.)								
HAQCTB-W-28266	Water	TB	2/28/09	QC	–	2233	3/2/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2233.
HAQCTB-S-28272	Soil	TB	3/2/09	QC	–	2234	3/2/09	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COC 2234.
HAQCTB-S-28280	Soil	TB	3/3/09	QC	–	2237	3/3/09	Trip blank sent to the AGEM Laboratory for organic analysis with soil samples listed on COC 2237.
HAQCTB-W-28279	Water	TB	3/3/09	QC	–	2235	3/3/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2235.
HAQCTB-W-28283	Water	TB	3/4/09	QC	–	2239	3/4/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2239.
HAQCTB-W-28290	Water	TB	3/5/09	QC	–	2238	3/6/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2238.
HAQCTB-W-28306	Water	TB	3/12/09	QC	–	6159	3/12/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 6159.
HAQCTB-W-28308	Water	TB	3/19/09	QC	–	6398	3/19/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 6398.
HATB-W-28227	Water	TB	3/25/09	QC	–	4395	3/25/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 4395.
HAQCTB-S-28820	Soil	TB	3/27/09	QC	–	109	3/27/09	Trip blank sent to the AGEM Laboratory for organic analysis with soil sample listed on COC 109.
HATB-W-28298	Water	TB	3/27/09	QC	–	108	3/27/09	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 108.
HAQCTB-W-28822	Water	TB	3/29/09	QC	–	4394	3/30/09	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 4394.

TABLE S12.1 (Cont.)

Sample	Medium	Type[a]	Sample Date	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
Trip blanks (cont.)								
HAQCTB-W-28830	Water	TB	4/1/09	QC	–	113	4/1/09	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 113.
HAQCTB-W-28832	Water	TB	4/3/09	QC	–	114	4/3/09	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 114.
HAQCTB-W-28834	Water	TB	4/13/09	QC	–	2824	4/13/09	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 2824.
HAQCTB-W-28836	Water	TB	4/22/09	QC	–	2820	4/22/09	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 2820.
HAQCTB-W-28836a	Water	TB	4/24/09	QC	–	2823	4/24/09	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 2823.
HAQCTB-W-28845	Water	TB	6/19/09	QC	–	3076	6/20/09	Trip blank sent to the AGEM Laboratory for organic analysis with private well water samples listed on COC 3076.
HAQCTB-W-28849	Water	TB	8/13/09	QC	–	3095	8/13/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 3095.
HATB-W-30321	Water	TB	9/23/09	QC	–	2641	9/23/09	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 2641.
HAQCTB-W-28310	Water	TB	10/6/09	QC	–	3096	10/16/09	Trip blank sent to the AGEM Laboratory for organic analysis with water sample listed on COC 3096.
HAQCTB-W-28314	Water	TB	10/8/09	QC	–	3097	10/8/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 3097.
HAQCTB-W-30327	Water	TB	10/10/09	QC	–	3098	10/10/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 3098.
HAQCTB-W-30332	Water	TB	10/13/09	QC	–	3173	10/13/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 3173.

TABLE S12.1 (Cont.)

Sample	Medium	Type[a]	Sample Date	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
Trip blanks (cont.)								
HAQCTB-W-28324	Water	TB	10/16/09	QC	–	2598	10/17/09	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2598.
HAQCTB-W-30335	Water	TB	2/25/10	QC	–	2727	2/25/10	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2727.
HAQCTB-W-30339	Water	TB	3/22/10	QC	–	2728	3/22/10	Trip blank sent to the AGEM Laboratory for organic analysis with water samples listed on COC 2728.
Replicate samples								
HATI08-S-27949	Soil	SB	1/13/09	TI08	22	4327	1/13/09	Replicate of sample HATI08-S-27948.
HATI11-S-27972	Soil	SB	1/13/09	TI11	6	4319	1/14/09	Replicate of sample HATI11-S-27971.
HATI11-S-27975	Soil	SB	1/13/09	TI11	14	4319	1/14/09	Replicate of sample HATI11-S-27974.
HATI12-S-27978	Soil	SB	1/14/09	TI12	6	4329	1/14/09	Replicate of sample HATI12-S-27977.
HATI13-S-27981	Soil	SB	1/14/09	TI13	2	4329	1/14/09	Replicate of sample HATI13-S-27980.
HATI13-S-27984	Soil	SB	1/14/09	TI13	10	4329	1/14/09	Replicate of sample HATI13-S-27983.
HATI15-S-27987	Soil	SB	1/14/09	TI15	2	4329	1/14/09	Replicate of sample HATI15-S-27986.
HATI16-S-27993	Soil	SB	1/14/09	TI16	6	4330	1/14/09	Replicate of sample HATI16-S-27992.
HATI16-S-27996	Soil	SB	1/14/09	TI16	14	4330	1/14/09	Replicate of sample HATI16-S-27995.
HATI10-S-27999	Soil	SB	1/14/09	TI10	6	4330	1/14/09	Replicate of sample HATI10-S-27998.
HATI19-S-28004	Soil	SB	1/14/09	TI19	10	4330	1/14/09	Replicate of sample HATI19-S-28003.
HATI20-S-28008	Soil	SB	1/14/09	TI20	6	4331	1/14/09	Replicate of sample HATI20-S-28007.
HATI18-S-28015	Soil	SB	1/14/09	TI18	6	4332	1/14/09	Replicate of sample HATI18-S-28014.
HATI21-S-28023	Soil	SB	1/14/09	TI21	18	4332	1/14/09	Replicate of sample HATI21-S-28022.
HATI24-S-28053	Soil	GEO	1/14/09	TI24	22	4321	1/14/09	Replicate of sample HATI24-S-28052.
HATI17-S-28034	Soil	SB	1/14/09	TI17	10	4320	1/14/09	Replicate of sample HATI17-S-28033.
HATI25-S-28037	Soil	SB	1/14/09	TI25	6	4320	1/14/09	Replicate of sample HATI25-S-28036.
HAMW03-S-28097	Soil	SB	1/30/09	MW03	42	2224	1/30/09	Replicate of sample HAMW03-S-28096.
HAMW04-S-28129	Soil	SB	1/31/09	MW04	33	2226	1/31/09	Replicate of sample HAMW04-S-28128.
HAMW06-W-28134	Water	SB	2/1/09	MW06	24.5-25	4382	2/2/09	Replicate of sample HAMW06-W-28133.
HAMW08-S-28146	Soil	SB	2/2/09	MW08	28	4381	2/2/09	Replicate of sample HAMW08-S-28145.
HATI30-S-28237	Soil	SB	2/28/09	TI30	26	2232	2/28/09	Replicate of sample HATI30-S-28236.
HATI30-S-28247	Soil	SB	2/28/09	TI30	62	2234	3/2/09	Replicate of sample HATI30-S-28246.
HAMW34-S-28222	Soil	SB	3/3/09	MW34	21	2237	3/3/09	Replicate of sample HAMW34-S-28221.

TABLE S12.1 (Cont.)

Sample	Medium	Type[a]	Sample Date	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
Replicate samples (cont.)								
HAMW44-W-28226	Water	SB	3/25/09	MW44	37-39.5	4395	3/25/09	Replicate of sample HAMW44-W-28225.
HAMW44D-W-28835a	Water	MW	4/24/09	MW44Z4	97-107	2823	4/24/09	Replicate of sample HAMW44D-W-28835.
HAMW50DUP-W-30331	Water	MW	10/13/09	MW50Z4	118-128	3173	10/13/09	Replicate of sample HAMW50Z4-W-30330 from Zone 4.
HAMW51Z2DUP-W-28318	Water	MW	10/16/09	MW51Z2	56-66	2598	10/17/09	Replicate of sample HAMW51Z2-W-28315 from Zone 2.
HAMW45Z4DUP-W-28323	Water	MW	10/16/09	MW45Z4	83-93	2598	10/17/09	Replicate of sample HAMW45Z4-W-28322 from Zone 4.
Soil and water samples selected by the AGEM Laboratory for duplicate organic analysis								
HATI01-S-27922	Soil	SB	1/13/09	TI01	10	4325	1/13/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HATI04-S-27933	Soil	SB	1/13/09	TI04	2	4325	1/13/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HATI07-S-27942	Soil	SB	1/13/09	TI07	10	4325	1/13/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HATI14-S-27958	Soil	GEO	1/14/09	TI14	2	4319	1/14/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HATI19-S-28002	Soil	SB	1/14/09	TI19	6	4330	1/14/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HATI22-S-27965	Soil	GEO	1/14/09	TI22	18	4321	1/14/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HATI18-S-28013	Soil	SB	1/14/09	TI18	2	4332	1/14/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HATI21-S-28018	Soil	SB	1/14/09	TI21	2	4319	1/14/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HATI24-S-27967	Soil	GEO	1/14/09	TI24	2	4321	1/14/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW02-W-28083	Water	SB	1/29/09	MW02	33-34	3597	1/29/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW03-S-28092	Soil	SB	1/29/09	MW03	26	2224	1/30/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW03-S-28096	Soil	SB	1/30/09	MW03	42	2224	1/30/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.

TABLE S12.1 (Cont.)

Sample	Medium	Type[a]	Sample Date	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
Soil and water samples selected by the AGEM Laboratory for duplicate organic analysis (cont.)								
HAMW03-S-28103	Soil	SB	1/30/09	MW03	66	2224	1/30/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW03-S-28110	Soil	SB	1/30/09	MW03	94	2225	1/30/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW11-W-28085	Water	MW	2/3/09	MW11	15-20	2228	2/3/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW12-W-28114	Water	SB	2/5/09	MW12	25-35	6140	2/5/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW06-W-28115	Water	MW	2/5/09	MW06	24-29	6140	2/5/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HABSMW9-W-28158	Water	MW	2/23/09	BSMW09	35-45	4390	2/23/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW13-W-28197	Water	MW	2/23/09	MW13	15-20	2230	2/24/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW08-W-28192	Water	MW	2/24/09	MW08	30-35	2229	2/24/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HATKOSS-W-28212	Water	DW	2/25/09	Tim Koss	34-54	4392	2/26/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW18-W-28215	Water	MW	2/26/09	MW18	15-25	4392	2/26/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HATI30-S-28238	Soil	SB	2/28/09	TI30	30	2232	2/28/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW27-W-28269	Water	MW	3/2/09	MW27	20-30	2233	3/2/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW40-W-28301	Water	SB	3/6/09	MW40	20-30	2238	3/6/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW21-W-28304	Water	MW	3/12/09	MW21	15-25	6159	3/12/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW44-W-28225	Water	SB	3/25/09	MW44	37-39.5	4395	3/25/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW45-W-28297	Water	SB	3/27/09	MW45	25-29	108	3/27/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW44-W-28821	Water	MW	3/28/09	MW44Z2	30-40	4394	3/30/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW47-W-28829	Water	MW	4/1/09	MW47	15-30	113	4/1/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.

TABLE S12.1 (Cont.)

Sample	Medium	Type[a]	Sample Date	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
Soil and water samples selected by the AGEM Laboratory for duplicate organic analysis (cont.)								
HAMW33-W-28848	Water	MW	8/13/09	MW33	11-26	3095	8/13/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW50Z3-W-30329	Water	MW	10/13/09	MW50Z3	89-99	3173	10/13/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
HAMW44Z4-W-28320	Water	MW	10/16/09	MW44Z4	97-107	2598	10/17/09	Sample selected by the AGEM Laboratory for duplicate organic analysis.
Field evaluation samples								
HAMW01-W-28123	Water	MW	1/30/09	MW01	30-35	2227	1/30/09	South border of former CCC/USDA property and east side of Goeckel driveway. Depth to water from TOC = 23 ft. Depth of well = 35 ft. Sample collected by using bailer after purging of 15 gal from new well with Waterra pump.
HAMW02-W-28125	Water	MW	1/30/09	MW02	31-36	2227	1/30/09	North central boundary of former CCC/USDA property and south boundary of Poell property. Depth to water = 27.7 ft from TOC. Depth of well = 36 ft. Sample collected by using bailer after purging of 9 gal from new well with Waterra pump.
HAMW07-W-28149	Water	MW	2/2/09	MW07	30-35	4382	2/2/09	Sample from completed well prior to development.
HAMW04-W-28150	Water	MW	2/2/09	MW04	30-35	4382	2/2/09	Sample from completed well prior to development.
HAMW05-W-28152	Water	MW	2/2/09	MW05	24-29	4382	2/2/09	South edge of K. Hynek property. Sample from well. Whether collected prior to development not recorded.
HAMW08-W-28153	Water	MW	2/2/09	MW08	30-35	4382	2/2/09	East side of former CCC/USDA property. Sample collected prior to purging and development.
HAMW10-W-28157	Water	SB	2/3/09	MW10	27-31	2228	2/3/09	South of former CCC/USDA property; southwest corner of Minge property. Sample collected from open borehole.
HAMW11-W-28085	Water	MW	2/3/09	MW11	15-20	2228	2/3/09	North of former CCC/USDA property. Static water level = 18.61 ft. Bottom of hole = 20 ft. Collected prior to well development.
Field evaluation samples (cont.)								

TABLE S12.1 (Cont.)

Sample	Medium	Type[a]	Sample Date	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
HAMW13-W-28180	Water	MW	2/4/09	MW13	15-20	4383	2/4/09	Sampled immediately after well installation, prior to development.
HAMW08-W-28117	Water	MW	2/5/09	MW08	30-35	6140	2/5/09	Depth to water = 25.2 ft. Depth of well = 34.6 ft. Purged dry with bailer after 2.3 gal. Sampled by using bailer after recovery. Resampled after allowing well to stabilize.
HAMW12-W-28114	Water	SB	2/5/09	MW12	25-35	6140	2/5/09	Grab sample from drill pipe. No purge.
HAMW06-W-28115	Water	MW	2/5/09	MW06	24-29	6140	2/5/09	Depth to water = 16.4 ft. Depth of well = 28.7 ft. Purged dry with Waterra pump after 2.5 gal. Sampled with bailer after recovery. Resampled after allowing well to stabilize.
HAMW07-W-28116	Water	MW	2/5/09	MW07	30-35	6140	2/5/09	Depth to water = 24 ft. Depth of well = 34.6 ft. Purged dry with bailer after 1.6 gal. Sampled by using bailer after recovery. Resampled afterallowing well to stabilize.
HAMW12-W-28173	Water	MW	2/10/09	MW12	25-35	6392	2/10/09	Depth to water = 24.6 ft. Depth of well = 34.6 ft. Purged dry with bailer after 3.3 gal. Sampled by using bailer after recovery. Resampled after well stabilization.
HAMW13-W-28172	Water	MW	2/10/09	MW13	15-20	6392	2/10/09	Depth to water = 14.8 ft. Depth of well = 19.6 ft. Sampled by using bailer after purging of 4.8 gal. Resampled after well stabilization.
HAMW11-W-28171	Water	MW	2/10/09	MW11	15-20	6392	2/10/09	Depth to water = 17 ft. Depth of well = 19.6 ft. Sampled by using bailer after purging of 2.6 gal. Resampled after well stabilization.
HAMW09-W-28170	Water	MW	2/10/09	MW09	18-23	6392	2/10/09	Depth to water = 18.1 ft. Depth of well = 22.6 ft. Sampled by using bailer after purging of 4.5 gal. Resampled after allowing well to stabilize.
HAMW10-W-28119	Water	MW	2/10/09	MW10	26-31	6392	2/10/09	Depth to water = 22.1 ft. Depth of well = 30.2 ft. Purged dry with bailer after 2.8 gal. Sampled by using bailer after recovery. Resampled after allowing well to stabilize.

Field evaluation samples (cont.)

TABLE S12.1 (Cont.)

Sample	Medium	Type[a]	Sample Date	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
HAMW16-W-28210	Water	MW	2/25/09	MW16	15-25	4391	2/25/09	Darrel Schlaback property, northwest of former CCC/USDA property. Approximately 1.5 ft of water in well. Sample collected by using bailer without purging.
HAMW17-W-28213	Water	MW	2/26/09	MW17	13-23	4392	2/26/09	D. Wanamaker property. Depth to water = 21.9 ft. Depth of well = 22.7 ft. Sample collected without purging by using bailer, because of limited water.
HAMW18-W-28215	Water	MW	2/26/09	MW18	15-25	4392	2/26/09	W. Johnson property, south of former CCC/USDA property. Depth to water = 20.0 ft. Depth of well = 25 ft. Sample collected without purging by using bailer, because of limited water.
HAMW24-W-28260	Water	MW	2/27/09	MW24	13-18	2231	2/27/09	D. Schlabach property, northwest of former CCC/USDA property. Sample collected without purging. Whether prior to development not recorded. Sample clear.
HAMW28-W-28270	Water	MW	3/2/09	MW28	19-29	2233	3/2/09	R. Hoover property, south of former CCC/USDA property. 400 E. Elm St. Sample collected without purging.
HAMW29-W-28273	Water	MW	3/2/09	MW29	19-29	2233	3/2/09	R. Hoover property, south of CCC/USDA site. 400 East Elm. Sample collected without purging. Silty.
HAMW28-W-28277	Water	MW	3/3/09	MW28	19-29	2235	3/3/09	Robert Hoover property. 400 East Elm St., in back yard. Depth to water = 22.2 ft. Depth of well = 28.4 ft. Sample collected without purging. Silty.
HAMW29-W-28278	Water	MW	3/3/09	MW29	19-29	2235	3/3/09	Robert Hoover property. 400 East Elm St., in front yard. Depth to water = 23.4 ft. Depth of well = 28.2 ft. Sample collected without purging. Silty.
HAMW35-W-28281	Water	MW	3/3/09	MW35	15-25	2235	3/3/09	City property, northeast corner of Elm and Highland. Sample collected without purging. Silty.
HAMW38-W-28300	Water	SB	3/6/09	MW38	18-28	2238	3/6/09	Grab sample from drill pipe. No purge.
HAMW40-W-28301	Water	SB	3/6/09	MW40	20-30	2238	3/6/09	Grab sample from drill pipe. No purge.

Field evaluation samples (cont.)

TABLE S12.1 (Cont.)

Sample	Medium	Type[a]	Sample Date	Location	Depth (ft BGL)	Chain of Custody	Shipping Date	Sample Description
HAMW45D-W-28825	Water	MW	3/29/09	MW45Z4	83-93	4394	3/30/09	Depth to water = 45.3 ft. Zone 4 well sampled after installation and prior to development.
HAMW45M-W-28831	Water	MW	4/3/09	MW45Z3	50-60	114	4/3/09	Zone 3 well.
HAMW45M-W-28833	Water	MW	4/9/09	MW45Z3	50-60	2824	4/13/09	Zone 3 well.
HAMW44D-W-28835	Water	MW	4/22/09	MW44Z4	97-107	2820	4/22/09	Zone 4 well.
Waste characterization samples								
HADECON -W-28087	Water	BT	2/3/09	QC	–	2228	2/3/09	Decontamination water collected from drummed wastewater.
HABARREL1-W-28175	Water	BT	2/10/09	QC	–	6392	2/10/09	Waste purge water in barrel #1.
HABARREL2-W-28176	Water	BT	2/10/09	QC	–	6392	2/10/09	Waste purge water in barrel #2.
HABARREL3-W-28177	Water	BT	2/10/09	QC	–	6392	2/10/09	Waste purge water in barrel #3.
HAWWO1-W-28216	Water	BT	2/26/09	QC	–	Pace	2/26/09	Waste purge water from Argonne monitoring wells.
HAWWO2-W-28217	Water	BT	2/26/09	QC	–	Pace	2/26/09	Waste purge water from Bill's Service Center monitoring wells.
HAWS01-W-28253	Soil	BT	2/26/09	QC	–	Pace	2/26/09	Waste soil cuttings collected during monitoring well drilling.
HADECON-W-28288	Water	BT	3/5/09	QC	–	2238	3/6/09	Waste equipment decontamination water.

[a] Sample types: BT, waste; DW, domestic well; FB, field blank; GEO, Geoprobe; MW, monitoring well; RI, rinsate; SB, soil boring; TB, trip blank.

TABLE S12.2 Results from the AGEM Laboratory for quality control samples collected to monitor sample collection and handling activities.

Sample	Sample Date	Medium	Analytical Method	Analysis Date	Concentration: Carbon Tetrachloride	Concentration: Chloroform	Concentration: Methylene Chloride	Quantitation Limit	Units
Field blanks									
HACITY-W-28088	2/3/09	Water	E524.2	2/5/09	ND[a]	1.1	ND	1.0	µg/L
HAWATTRU-W-28289	3/5/09	Water	E524.2	3/11/09	ND	1.1	ND	1.0	µg/L
Equipment rinsate									
HAQCRIN-W-28259	2/27/09	Water	E524.2	3/2/09	ND	ND	ND	1.0	µg/L
Trip blanks									
HATI05-S-27955	1/13/09	Soil	SW8260B	1/15/09	ND	ND	ND	10	µg/kg
HATB-S-28057	1/14/09	Soil	SW8260B	1/20/09	ND	ND	ND	10	µg/kg
HATB-S-28055	1/14/09	Soil	SW8260B	1/20/09	ND	ND	ND	10	µg/kg
HATB-S-28056	1/14/09	Soil	SW8260B	1/22/09	ND	ND	ND	10	µg/kg
HATB-S-28060	1/15/09	Soil	SW8260B	1/23/09	ND	ND	ND	10	µg/kg
HA-Meohblank-20Jan09	1/20/09	Soil	SW8260B	1/23/09	ND	ND	ND	10	µg/kg
HAQCTB-S-28121	1/28/09	Soil	SW8260B	1/30/09	ND	ND	ND	10	µg/kg
HAQCTB-W-28120	1/28/09	Water	E524.2	1/29/09	ND	ND	ND	1.0	µg/L
HAQCTB-S-28084	1/29/09	Soil	SW8260B	2/2/09	ND	ND	ND	10	µg/kg
HAQCTB-W-28122	1/29/09	Water	E524.2	1/30/09	ND	ND	ND	1.0	µg/L
HAQCTB-S-28112	1/30/09	Soil	SW8260B	2/10/09	ND	ND	ND	10	µg/kg
HAQCTB-W-28124	1/30/09	Water	E524.2	2/2/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28078	1/31/09	Water	E524.2	2/2/09	ND	ND	ND	1.0	µg/L
HAQCTB-S-28079	1/31/09	Soil	SW8260B	2/4/09	ND	ND	ND	10	µg/kg
HAQCTB-S-28148	2/2/09	Soil	SW8260B	2/6/09	ND	ND	ND	10	µg/kg
HAQCTB-W-28151	2/2/09	Water	E524.2	2/3/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28086	2/3/09	Water	E524.2	2/4/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28181	2/4/09	Water	E524.2	2/5/09	ND	ND	ND	1.0	µg/L
HAQCTB-S-28113	2/5/09	Soil	SW8260B	2/10/09	ND	ND	ND	10	µg/kg
HAQCTB-W-28118	2/5/09	Water	E524.2	2/6/09	ND	ND	ND	1.0	µg/L
HA-Meohblank-10Feb09	2/10/09	Soil	SW8260B	2/19/09	ND	ND	ND	10	µg/kg
HAQCTB-W-28174	2/10/09	Water	E524.2	2/11/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28190	2/23/09	Water	E524.2	2/24/09	ND	ND	ND	1.0	µg/L

TABLE S12.2 (Cont.)

Sample	Sample Date	Medium	Analytical Method	Analysis Date	Concentration: Carbon Tetrachloride	Concentration: Chloroform	Concentration: Methylene Chloride	Quantitation Limit	Units
Trip blanks (cont.)									
HAQCTB-W-28198	2/24/09	Water	E524.2	2/25/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28205	2/25/09	Water	E524.2	2/26/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28214	2/26/09	Water	E524.2	2/27/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28254	2/26/09	Water	SW8260	2/28/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28258	2/27/09	Water	E524.2	3/2/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28262	2/28/09	Water	E524.2	3/2/09	ND	ND	ND	1.0	µg/L
HAQCTB-S-28263	2/28/09	Soil	SW8260B	3/4/09	ND	ND	ND	10	µg/kg
HAQCTB-W-28266	2/28/09	Water	E524.2	3/3/09	ND	ND	ND	1.0	µg/L
HAQCTB-S-28272	3/2/09	Soil	SW8260B	3/4/09	ND	ND	ND	10	µg/kg
HAQCTB-S-28280	3/3/09	Soil	SW8260B	3/10/09	ND	ND	ND	10	µg/kg
HAQCTB-W-28279	3/3/09	Water	E524.2	3/4/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28283	3/4/09	Water	E524.2	3/5/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28290	3/5/09	Water	E524.2	3/11/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28306	3/12/09	Water	E524.2	3/13/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28308	3/19/09	Water	E524.2	3/20/09	ND	ND	ND	1.0	µg/L
HATB-W-28227	3/25/09	Water	E524.2	3/26/09	ND	ND	ND	1.0	µg/L
HAQCTB-S-28820	3/27/09	Soil	SW8260B	4/1/09	ND	ND	ND	10	µg/kg
HATB-W-28298	3/27/09	Water	E524.2	3/30/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28822	3/29/09	Water	E524.2	3/31/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28830	4/1/09	Water	E524.2	4/2/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28832	4/3/09	Water	E524.2	4/6/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28834	4/13/09	Water	E524.2	4/14/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28836	4/22/09	Water	E524.2	4/23/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28836A	4/24/09	Water	E524.2	4/30/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28845	6/19/09	Water	E524.2	6/22/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28849	8/13/09	Water	E524.2	8/17/09	ND	ND	ND	1.0	µg/L
HATB-W-30321	9/23/09	Water	E524.2	9/24/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28310	10/6/09	Water	E524.2	10/8/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28314	10/8/09	Water	E524.2	10/10/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-30327	10/10/09	Water	E524.2	10/12/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-30332	10/13/09	Water	E524.2	10/14/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-28324	10/16/09	Water	E524.2	10/20/09	ND	ND	ND	1.0	µg/L
HAQCTB-W-30335	2/25/10	Water	E524.2	2/26/10	ND	ND	ND	1.0	µg/L
HAQCTB-W-30339	3/22/10	Water	E524.2	3/24/10	ND	ND	ND	1.0	µg/L

TABLE S12.2 (Cont.)

Sample	Sample Date	Medium	Analytical Method	Analysis Date	Concentration			Quantitation Limit	Units
					Carbon Tetrachloride	Chloroform	Methylene Chloride		
Waste characterization samples									
HADECON -W-28087	2/3/09	Water	E524.2	2/4/09	ND	0.5 J[b]	ND	1.0	µg/L
HABARREL1-W-28175	2/10/09	Water	E524.2	2/11/09	ND	ND	ND	1.0	µg/L
HABARREL2-W-28176	2/10/09	Water	E524.2	2/11/09	ND	ND	ND	1.0	µg/L
HABARREL3-W-28177	2/10/09	Water	E524.2	2/11/09	ND	ND	ND	1.0	µg/L
HADECON-W-28288	3/5/09	Water	E524.2	3/9/09	ND	ND	ND	1.0	µg/L

[a] ND, not detected at an instrument detection limit of 0.1 µg/L for water or 1.0 µg/kg for soil.

[b] Qualifier J indicates an estimated concentration below the indicated quantitation limit.

TABLE S12.3 Calibration and surrogate recovery during organic analyses of soil and water samples at the AGEM Laboratory.

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
SDG 09-1-15a, analysis date January 15, 2009									
20-ppb standard	100	100	100	22.91	13.6	18.56	7.5	19.81	1.0
Methanol blank	90	90	91						
HATI01-S-27925	110	109	119						
HATI06-S-27937	109	111	110						
HATI08-S-27948	111	108	118						
HATI08-S-27947	107	104	104						
HATI08-S-27949	105	103	104						
HATI05-S-27954	100	95	98						
HATI04-S-27933	95	91	93						
HATI04-S-27933DUP	95	95	98						
HATI01-S-27924	90	86	87						
HATI08-S-27946	91	87	92						
HATI08-S-27943	91	94	93						
HATI03-S-27931	86	86	84						
HATI06-S-27938	86	86	89						
HATI08-S-27944	87	93	99						
Methanol blank 2	95	85	85						
HATI03-S-27932	92	85	91						
HATI04-S-27934	89	88	86						
HATI02-S-27927	89	87	89						
HATI01-S-27923	88	89	89						
HATI07-S-27941	87	82	85						
HATI02-S-27926	86	87	85						
Methanol blank 3	83	84	82						
HATI03-S-27930	86	77[d]	86	Reanalyzed in SDG 09-1-20a with recovery limits met.					

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
SDG 09-1-15b, analysis date January 15, 2009									
20-ppb standard	100	100	100	16.86	17.0	18.91	5.6	18.18	9.5
Methanol blank	100	100	100						
HATI01-S-27921	108	108	107						
HATI07-S-27940	116	129[d]	127[d]	Reanalyzed in SDG 09-1-20a with recovery limits met.					
HATI04-S-27935	104	120	139[d]	Reanalyzed in SDG 09-1-20a with recovery limits met.					
HATI02-S-27929	97	111	114						
HATI01-S-27920	96	101	98						
HATI02-S-27928	97	105	103						
HATI05-S-27955	101	107	104						
HATI08-S-27945	93	98	97						
HATI07-S-27942	95	96	102						
HATI07-S-27942DUP	100	98	111						
HATI06-S-27936	98	94	104						
HATI06-S-27939	92	95	96						
HATI05-S-27950	78[d]	80	82	Reanalyzed in SDG 09-1-20a with recovery limits met.					
SDG 09-1-16, analysis date January 16, 2009									
20-ppb standard	100	100	100	23.33	15.4	23.43	15.8	22.35	11.1
Methanol blank	100	100	100						
HATI05-S-27952	107	118	118						
HATI05-S-27953	98	109	115						
HATI05-S-27951	83	88	87						
HATI01-S-27922	103	106	107						
HATI01-S-27922DUP	111	110	114						
HATI20-S-28008	103	107	103						
HATI19-S-28003	67[d]	55[d]	47[d]	Reanalyzed in SDG 09-1-20a with recovery limits met.					
Methanol blank 2	99	96	89						
HATI10-S-28000	99	101	99						
HATI10-S-27998	96	101	101						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
SDG 09-1-16, analysis date January 16, 2009 (cont.)									
HATI20-S-28009	105	108	106						
HATI20-S-28012	100	97	103						
HATI12-S-27978	100	101	95						
HATI19-S-28001	97	102	101						
HATI20-S-28006	72[d]	83	84	Reanalyzed in SDG 09-1-20a with recovery limits met.					
SDG 09-1-20a, analysis date January 20, 2009									
20-ppb standard	100	100	100	22.68	12.6	18.79	6.2	19.33	3.4
Methanol blank	115	116	117						
HATI07-S-27940	99	97	106						
HATI04-S-27935	105	107	112						
HATI05-S-27950	97	94	98						
HATI19-S-28003	88	94	102						
HATI03-S-27930	85	85	89						
HATI20-S-28006	88	93	98						
HATI20-S-28010	93	90	89						
HATI19-S-28005	91	96	101						
HATI16-S-27996	96	94	95						
HATI15-S-27986	91	91	100						
HATI13-S-27983	82	82	84						
HATI12-S-27976	87	89	95						
HATI10-S-27997	89	93	97						
Methanol blank 2	85	83	83						
HATI16-S-27994	83	83	85						
HATI13-S-27981	88	90	90						
HATI13-S-27985	88	90	85						
HATI16-S-27991	82	88	90						
HATI15-S-27989	86	84	85						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HATI13-S-27984	86	90	86						
SDG 09-1-20a, analysis date January 20, 2009 (cont.)									
HATI16-S-27993	81	83	86						
Methanol blank 3	100	100	100						
HATI16-S-27995	95	100	99						
SDG 09-1-20b, analysis date January 20, 2009									
20-ppb standard	100	100	100	16.9	16.8	18.84	6.0	16.79	17.5
Methanol blank	112	117	119						
HATI19-S-28004	90	98	96						
HATI20-S-28011	94	102	95						
HATI10-S-27999	92	97	95						
HATI16-S-27992	88	91	92						
HATI15-S-27987	82	84	87						
HATI20-S-28007	91	90	94						
HATI12-S-27979	87	90	93						
Methanol blank 2	88	83	83						
HATI15-S-27990	84	87	88						
HATB-S-28055	87	90	87						
HATI13-S-27982	86	91	95						
HATI12-S-27977	94	102	107						
HATI19-S-28002	80	82	82						
HATI19-S-28002DUP	85	85	80						
HATI13-S-27980	97	113	108						
HATI15-S-27988	84	94	93						
HATI23-S-28030	84	91	90						
HATI18-S-28014	85	82	82						
HATB-S-28057	81	83	80						
HATI21-S-28022	86	90	86						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
Methanol blank 3	88	92	87						
SDG 09-1-21a, analysis date January 21, 2009									
20-ppb standard	97	94	90	23.4	15.7	18.73	6.6	18.71	6.7
Methanol blank	100	102	105						
HATI17-S-28032	110	103	98						
HATI25-S-28036	115	117	117						
HATI21-S-28024	115	111	107						
HATI25-S-28037	111	108	104						
HATI18-S-28015	108	107	109						
HATI09-S-27957	100	96	96						
HATI14-S-27960	107	99	97						
HATI24-S-28053	110	99	94						
HATI14-S-27959	108	99	94						
HATI24-S-28050	95	90	89						
HATI05-S-28059	95	92	86						
HATI09-S-27956	101	92	96						
HATI22-S-27965	98	94	96						
HATI22-S-27965DUP	93	88	84						
Methanol blank 2	100	97	95						
SDG 09-1-21b, analysis date January 21, 2009									
20-ppb standard	100	100	100	16.56	18.8	18.67	6.9	16.56	18.8
Methanol blank	100	100	100						
HATI25-S-28035	101	94	93						
HATI17-S-28031	101	95	110						
HATI18-S-28017	106	91	95						
HATI18-S-28016	106	88	89						
HATI23-S-28025	107	86	91						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HATI17-S-28033	102	82	84						
HATI23-S-28026	104	86	92						
HATI23-S-28029	102	83	89						
SDG 09-1-21b, analysis date January 21, 2009 (cont.)									
HATI21-S-28021	102	89	95						
HATI21-S-28019	101	84	92						
HATI21-S-28023	100	85	93						
HATI17-S-28034	101	81	91						
HATI18-S-28013	102	92	94						
HATI18-S-28013DUP	99	91	96						
Methanol blank 2	85	93	91						
SDG 09-1-22a, analysis date January 22, 2009									
20-ppb standard	90	110	107	23.93	17.9	19.93	0.4	18.77	6.3
Methanol blank	111	107	106						
HATI22-S-27966	106	100	102						
HATI11-S-27973	106	94	95						
HATI21-S-28020	107	93	90						
HATI24-S-27969	105	93	94						
HATI23-S-28028	98	86	94						
HATI14-S-27958	99	92	94						
HATI14-S-27958DUP	97	95	97						
HATI24-S-28054	100	96	94						
HATI25-S-28038	101	93	91						
HATI11-S-27970	95	81	81						
HATI22-S-27964	91	84	86						
HATB-S-28056	87	92	85						
HATI23-S-28027	96	86	90						
HATI24-S-28052	90	82	80						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
Methanol blank 2	89	93	94						
HATI21-S-28018	90	82	85						
HATI21-S-28018DUP	90	89	82						
SDG 09-1-22b, analysis date January 22, 2009									
20-ppb standard	100	100	100	16.99	16.3	18.3	8.9	16.76	17.6
Methanol blank	97	102	106						
HATI09-S-28058	118	100	98						
HATI24-S-28051	106	82	97						
HATI22-S-27962	99	87	92						
HATI24-S-27968	101	83	87						
HATI11-S-27975	101	81	85						
HATI11-S-27974	98	72[d]	78[d]	Reanalyzed in SDG 09-1-23 with recovery limits met.					
Methanol blank 2	110	111	115						
HATB-S-28060	123[d]	162[d]	151[d]	Reanalyzed in SDG 09-1-23 with recovery limits met.					
HATI11-S-27972	103	94	94						
HATI22-S-27961	110	87	95						
HATI22-S-27963	119	98	96						
HATI11-S-27971	112	91	88						
HATI24-S-27967	115	85	88						
HATI24-S-27967DUP	117	105	103						
Methanol blank 3	93	86	80						
SDG 09-1-23, analysis date January 23, 2009									
20-ppb standard	93	105	112	23.57	16.4	18.51	7.7	17.46	13.6
Methanol blank	100	100	100						
HATB-S-28060	108	107	106						
HATI11-S-27974	103	106	101						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
SDG 09-1-29, analysis date January 29, 2009									
20-ppb standard	112	106	103	21.94	9.3	17.66	12.4	17.86	11.3
Laboratory blank	100	100	100						
HAQCTB-W-28120	109	111	110						
HAMW01-W-28065	97	90	93						
SDG 09-1-30, analysis date January 30, 2009									
20-ppb standard	92	97	86	23.39	15.6	17.81	11.6	17.37	14.1
Laboratory blank	100	100	100						
HAMW02-W-28083	102	99	113						
HAQCTB-W-28122	100	107	106						
HAMW02-W-28083DUP	99	104	112						
Methanol blank	90	89	90						
HAMW01-S-28061	125[d]	127[d]	122[d]	Reanalyzed in SDG 09-2-2a with recovery limits met.					
HAMW01-S-28062	100	100	102						
HAMW01-S-28063	115	109	107						
HAMW01-S-28064	88	89	90						
HAMW01-S-28066	105	108	110						
HAMW01-S-28067	99	101	103						
HAQCTB-S-28121	101	108	107						
Methanol blank 2	95	102	103						
SDG 09-2-2a, analysis date February 2, 2009									
20-ppb standard	106	106	93	19.8	1.0	16.49	19.2	18.31	8.8
Laboratory blank	100	100	100						
HAMW04-W-28072	97	95	85						
HAMW01-W-28123	97	115	104						
HAMW02-W-28125	93	106	104						
HAQCTB-W-28078	90	102	93						
HAQCTB-W-28124	87	89	90						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HAMW05-W-28077	96	90	91						
Laboratory blank 2	94	98	100						
Methanol blank	111	104	107						
HAMW01-S-28061	97	91	92						
HAQCTB-S-28084	111	105	95						
HAMW03-S-28107	106	115	114						
HAMW03-S-28101	104	102	103						
SDG 09-2-2a, analysis date February 2, 2009 (cont.)									
HAMW03-S-28102	101	101	101						
HAMW03-S-28108	89	92	91						
HAMW03-S-28105	95	100	104						
HAMW03-S-28103	82	90	92						
HAMW03-S-28103DUP	90	92	98						
HAMW03-S-28106	93	93	97						
Methanol blank 2	89	96	93						
SDG 09-2-2b, analysis date February 2, 2009									
20-ppb standard	100	100	100	17.08	15.7	22.78	13.0	19.99	0.1
Methanol blank	116	113	115						
HAMW03-S-28096	95	107	100						
HAMW01-S-28068	101	107	105						
HAMW01-S-28069	96	102	98						
HAMW01-S-28070	89	98	96						
HAMW02-S-28080	95	103	98						
HAMW03-S-28096DUP	98	100	97						
HAMW02-S-28081	98	100	96						
HAMW02-S-28082	101	109	111						
HAMW01-S-28071	94	98	93						
HAMW03-S-28094	88	153[d]	165[d]	Reanalyzed in SDG 09-2-5a with recovery limits met.					
HAMW03-S-28109	100	181[d]	176[d]	Reanalyzed in SDG 09-2-5a with recovery limits met.					

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HAMW03-S-28110	126[d]	248[d]	227[d]	Reanalyzed in SDG 09-2-5a with recovery limits met.					
HAMW03-S-28111	121[d]	223[d]	200[d]	Reanalyzed in SDG 09-2-5a with recovery limits met.					
HAMW03-S-28097	103	128[d]	130[d]	Reanalyzed in SDG 09-2-4b with recovery limits met.					
Methanol blank 2	84	87	85						
SDG 09-2-3a, analysis date February 3, 2009									
20-ppb standard	100	100	100	23.08	14.3	18.84	6.0	17.61	12.7
Laboratory blank	100	100	100						
HAMW07-W-28149	112	118	117						
HAMW08-W-28153	104	103	114						
HAMW04-W-28150	97	108	111						
HAMW05-W-28152	101	99	104						
HAQCTB-W-28151	105	88	95						
HAMW06-W-28134	121[d]	112	119	Reanalyzed in SDG 09-2-4a with recovery limits met.					
HAMW06-W-28133	134[d]	130[d]	135[d]	Reanalyzed in SDG 09-2-4a with recovery limits met.					
HAMW09-W-28156	134[d]	134[d]	130[d]	Reanalyzed in SDG 09-2-4a with recovery limits met.					
Laboratory blank 2	110	101	106						
SDG 09-2-3b, analysis date February 3, 2009									
20-ppb standard	100	100	100	18.64	7.0	21.05	5.1	18.74	6.5
Methanol blank	100	100	100						
HAMW03-S-28099	93	92	97						
HAMW03-S-28098	110	93	104						
HAMW03-S-28100	101	90	96						
HAMW03-S-28095	105	114	139[d]	Reanalyzed in SDG 09-2-4b with recovery limits met.					
HAMW03-S-28104	112	120	127[d]	Reanalyzed in SDG 09-2-4b with recovery limits met.					
HAQCTB-S-28112	143[d]	165[d]	151[d]	Reanalyzed in SDG 09-2-10 with recovery limits met.					

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HAMW03-S-28090	108	93	112						
HAMW04-S-28127	96	83	96						
HAMW05-S-28075	96	85	90						
HAMW04-S-28128	95	86	98						
HAMW03-S-28093	116	114	127[d]	Reanalyzed in SDG 09-2-4b with recovery limits met.					
HAMW04-S-28129	108	98	109						
HAMW05-S-28073	107	114	116						
SDG 09-2-4a, analysis date February 4, 2009									
20-ppb standard	108	117	109	17.19	15.1	16.61	18.5	17.25	14.8
Laboratory blank	100	100	100						
HAMW10-W-28157	92	82	72[d]	Reanalyzed in SDG 09-2-5a with recovery limits met.					
HAQCTB-W-28086	95	94	95						
HADECON -W-28087	115	109	112						
HAMW06-W-28133	89	90	88						
HAMW06-W-28134	90	87	85						
HAMW09-W-28156	94	92	88						
HAMW11-W-28085	88	84	84						
HAMW11-W-28085DUP	91	87	89						
Laboratory blank 2	94	102	111						
Methanol blank	100	100	100						
HAMW05-S-28074	101	101	93						
HAMW04-S-28126	103	98	93						
HAQCTB-S-28079	109	116	109						
HATI26-S-28046	104	105	100						
HAMW08-S-28142	106	106	103						
HAMW07-S-28137	104	108	100						
Methanol blank 2	103	100	92						
SDG 09-2-4b, analysis date February 4, 2009									

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
20-ppb standard	92	101	85	16.53	19.0	16.99	16.3	16.41	19.7
Methanol blank	101	85	85						
HAMW03-S-28094	74[d]	98	106	Reanalyzed in SDG 09-2-5a with recovery limits met.					
HAMW03-S-28109	101	163[d]	143[d]	Reanalyzed in SDG 09-2-5a with recovery limits met.					
HAMW03-S-28110	97	190[d]	155[d]	Reanalyzed in SDG 09-2-5a with recovery limits met.					
HAMW03-S-28111	110	194[d]	164[d]	Reanalyzed in SDG 09-2-5a with recovery limits met.					
HAMW03-S-28097	99	115	115						
HAMW03-S-28095	96	114	113						
Methanol blank 2	85	84	84						
SDG 09-2-4b, analysis date February 4, 2009 (cont.)									
HAMW03-S-28104	88	112	120						
HAMW03-S-28093	111	89	112						
HAQCTB-S-28112	109	136[d]	116	Reanalyzed in SDG 09-2-10 with recovery limits met.					
HAMW05-S-28076	87	86	80						
HAMW03-S-28091	86	80	68[d]	Reanalyzed in SDG 09-2-5b with recovery limits met.					
HAMW03-S-28092	111	115	104						
HAMW03-S-28092DUP	115	119	107						
Methanol blank 3	100	100	100						
SDG 09-2-5a, analysis date February 5, 2009									
20-ppb standard	110	118	110	23.67	16.8	19.42	2.9	20.92	4.5
Laboratory blank	100	100	100						
HAQCTB-W-28181	109	119	119						
HACITY-W-28088	106	113	118						
HAMW10-W-28157	100	106	109						
HAMW13-W-28180	106	105	103						
Laboratory blank 2	105	101	104						
Methanol blank	89	80	80						
HATI26-S-28130	103	89	87						
HATI26-S-28045	102	90	85						
HAMW08-S-28146	99	88	85						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HAMW03-S-28094	100	100	92						
HAMW03-S-28109	105	98	87						
HAMW03-S-28110	99	100	83						
HAMW03-S-28110DUP	101	99	86						
HAMW03-S-28111	97	96	89						
Methanol blank 2	91	87	83						
SDG 09-2-5b, analysis date February 5, 2009									
20-ppb standard	99	120	118	18.44	8.1	21.58	7.6	21.8	8.6
Methanol blank	100	100	100						
HAMW03-S-28091	90	87	89						
HATI26-S-28047	85	82	85						
HAMW08-S-28145	85	84	86						
HAMW07-S-28135	87	92	93						
HATI26-S-28048	81	82	90						
HATI26-S-28049	77[d]	109	132[d]	Reanalyzed in SDG 09-2-10 with recovery limits met.					
Methanol blank 2	84	91	96						
SDG 09-2-6, analysis date February 6, 2009									
20-ppb standard	87	100	106	20.11	0.5	16.54	18.9	19.4	3.0
Laboratory blank	100	100	100						
HAMW12-W-28114	84	77[d]	73[d]	Reanalyzed in SDG 09-2-10 with recovery limits met.					
HAMW08-W-28117	98	95	97						
HAMW07-W-28116	93	96	104						
HAMW06-W-28115	99	98	101						
HAMW06-W-28115DUP	96	94	99						
HAQCTB-W-28118	93	90	90						
Methanol blank	100	100	100						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HAMW08-S-28144	98	100	106						
HAMW08-S-28139	102	107	110						
HAMW08-S-28140	102	105	102						
HAMW08-S-28147	96	99	104						
HAQCTB-S-28148	100	102	100						
HAMW07-S-28136	102	104	106						
HAMW08-S-28143	104	102	102						
Methanol blank 2	102	101	95						
HAMW07-S-28138	97	101	103						
HAMW08-S-28141	99	96	99						
SDG 09-2-10, analysis date February 10, 2009									
20-ppb standard	93	107	109	18.17	9.6	22.43	11.5	23.44	15.8
Laboratory blank	100	100	100						
HAMW12-W-28114	89	88	86						
HAMW12-W-28114DUP	99	100	101						
Methanol blank	118	114	118						
HAQCTB-S-28112	103	101	107						
HATI26-S-28049	100	99	108						
HATI28-S-28162	102	102	101						
HAMW12-S-28164	95	98	99						
HAMW12-S-28166	95	88	97						
HATI28-S-28160	92	93	96						
HATI28-S-28161	82	78[d]	86	Reanalyzed in SDG 09-2-11 with recovery limits met.					
HAMW09-S-28155	91	91	92						
HAMW12-S-28165	90	93	87						
HAMW12-S-28163	88	94	92						
HAMW12-S-28167	87	93	92						
Methanol blank 2	85	89	87						
HAQCTB-S-28113	96	101	99						
SDG 09-2-11, analysis date February 11, 2009									

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
20-ppb standard	111	115	115	17.85	11.4	23.3	15.2	23.16	14.6
Laboratory blank	100	100	100						
HAMW10-W-28119	94	97	94						
HAMW09-W-28170	106	104	103						
HAMW11-W-28171	104	100	101						
HAQCTB-W-28174	101	92	89						
HABARREL1-W-28175	97	98	96						
HABARREL2-W-28176	97	95	97						
HABARREL3-W-28177	98	95	93						
SDG 09-2-11, analysis date February 11, 2009 (cont.)									
Methanol blank	100	100	100						
HATI28-S-28161	115	114	108						
SDG 09-2-12, analysis date February 12, 2009									
20-ppb standard	91	85	87	17.51	13.3	19.1	4.6	18.07	10.1
Laboratory blank	100	100	100						
HAMW13-W-28172	108	102	111						
HAMW12-W-28173	97	99	97						
SDG 09-2-24, analysis date February 24, 2009									
20-ppb standard	91	92	88	17.05	15.9	20.02	0.1	18.46	8.0
Laboratory blank	100	100	100						
HABSMW10-W-28159	81	88	89						
HABSMW14-W-28182	81	89	114						
HABSMW15-W-28183	96	106	98						
HABSMW12-W-28179	94	104	99						
HABSMW9-W-28158	97	103	98						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HABSMW9-W-28158DUP	84	94	87						
HAQCTB-W-28190	91	87	82						
SDG 09-2-25, analysis date February 25, 2009									
20-ppb standard	90	89	84	22.76	12.9	23.88	17.7	22.87	13.4
Laboratory blank	97	86	89						
HAMW01-W-28184	109	118	103						
HAMW02-W-28185	103	114	111						
HAMW04-W-28186	110	110	113						
HAMW05-W-28187	104	102	110						
HAMW06-W-28188	97	93	95						
SDG 09-2-25, analysis date February 25, 2009 (cont.)									
HAMW07-W-28189	97	94	97						
HADMINGE-W-28191	102	99	95						
HAMW08-W-28192	92	90	90						
HAMW09-W-28193	100	97	97						
HAMW10-W-28194	98	93	96						
HAMW11-W-28195	95	91	90						
HAMW12-W-28196	91	88	87						
HAMW13-W-28197	96	84	85						
HAMW13-W-28197DUP	96	88	90						
HAQCTB-W-28198	97	89	90						
SDG 09-2-26, analysis date February 26, 2009									
20-ppb standard	100	100	100	22.31	10.9	23.99	18.1	22.86	13.3
Laboratory blank	100	100	100						
HAJSCHMIDT-W-28202	94	97	91						
HAKPRELL-W-28203	114	118	117						
HAMW14-W-28204	110	119	116						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HARSCHLA(W)-W-28207	97	107	106						
HARSCHLA(E)-W-28208	97	102	102						
HAMW15-W-28209	98	112	105						
HAQCTB-W-28205	99	111	99						
HAMW16-W-28210	100	114	107						
HAFACOOP-W-28199	86	96	93						
HAUSD223-W-28200	86	95	91						
HABRUNA-W-28201	87	97	95						
HAMW08-W-28192DUP	81	85	86						
SDG 09-2-27, analysis date February 27, 2009									
20-ppb standard	107	113	116	19.25	3.8	22.48	11.7	22.96	13.8
Laboratory blank	93	89	83						
HAMW16-W-28251	107	106	101						
HAMW17-W-28213	100	107	108						
HAMW14-W-28252	101	100	99						
HATKOSS-W-28212	98	97	92						
HATKOSS-W-28212DUP	100	92	92						
HAJKRUSE-W-28211	94	94	86						
HAQCTB-W-28214	99	90	89						
HAMW18-W-28215	92	92	93						
HAMW18-W-28215DUP	89	89	86						
SDG 09-3-2, analysis date March 2, 2009									
20-ppb standard	106	110	100	20.84	4.1	21.33	6.4	21.59	7.6
Laboratory blank	100	100	100						
HAMW23-W-28261	98	106	98						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HAQCTB-W-28262	101	102	101						
HAMW24-W-28260	92	93	88						
HATEBRUNA-W-28255	101	101	96						
HATOBRUNA-W-28256	95	95	90						
HARWARREN-W-28257	90	86	83						
HAQCTB-W-28258	87	86	83						
HAQCRIN-W-28259	87	83	81						
SDG 09-3-3, analysis date March 3, 2009									
20-ppb standard	106	107	110	19.6	2.0	23.08	14.3	22.7	12.6
Laboratory blank	100	100	100						
HAMW29-W-28273	98	86	82						
HAMW28-W-28270	112	108	102						
SDG 09-3-3, analysis date March 3, 2009 (cont.)									
HAMW18-W-28268	102	110	102						
HABBRUNA-W-28264	99	102	111						
HAMW24-W-28274	95	98	99						
HAQCTB-W-28266	92	98	102						
HAMW17-W-28271	93	95	102						
HADMARTIN-W-28265	96	98	104						
HAMW20-W-28275	93	99	103						
HAMW27-W-28269	91	88	91						
HAMW27-W-28269DUP	88	93	94						
Laboratory blank 2	87	87	87						
Methanol blank	89	88	86						
HATI30-S-28233	114	116	115						
HATI30-S-28237	104	103	110						
HATI30-S-28231	107	105	108						
HATI30-S-28235	97	95	102						
HATI30-S-28240	100	104	106						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HATI30-S-28242	95	97	101						
HATI30-S-28236	106	112	119						
HATI30-S-28232	112	119	119						
HATI30-S-28238	106	111	114						
HATI30-S-28238DUP	102	96	102						
SDG 09-3-4a, analysis date March 4, 2009									
20-ppb standard	100	100	100	20.32	1.6	21.4	6.8	21.16	5.6
Methanol blank	100	100	100						
HATI30-S-28230	99	104	106						
HATI30-S-28234	113	108	116						
HATI30-S-28239	97	102	108						
HATI30-S-28241	91	101	110						
HAQCTB-S-28263	100	114	117						
SDG 09-3-4a, analysis date March 4, 2009 (cont.)									
HATI30-S-28243	92	105	112						
HATI30-S-28247	94	96	102						
Methanol blank 2	96	96	102						
HATI30-S-28246	89	89	95						
HATI30-S-28244	87	94	101						
HATI30-S-28248	82	88	93						
HATI30-S-28245	81	92	93						
HAQCTB-S-28272	84	91	97						
SDG 09-3-4b, analysis date March 4, 2009									
20-ppb standard	117	115	119	17.48	13.4	18.85	5.9	22.6	12.2
Laboratory blank	100	100	100						
HAMW35-W-28281	111	105	103						
HAMW31-W-28276	128[d]	127[d]	133[d]	Reanalyzed in SDG 09-3-5 with recovery limits met.					

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HAMW28-W-28277	114	108	116	Outside calibration range. Reanalyzed in SDG 09-3-5 at dilution.					
HAMW29-W-28278	118	116	119						
HAQCTB-W-28279	110	108	111						
SDG 09-3-5, analysis date March 5, 2009									
20-ppb standard	109	112	108	21.02	5.0	22.35	11.1	20.01	0.0
Laboratory blank	100	100	100						
HAMW34-W-28284	93	96	92						
HAMW36-W-28282	110	119	116						
HAMW35-W-28287	103	118	116						
HAMW29-W-28286	108	113	111	Outside calibration range. Reanalyzed in SDG 09-3-11 at dilution.					
HAQCTB-W-28283	109	109	104						
SDG 09-3-5, analysis date March 5, 2009 (cont.)									
HAMW28-W-28285	101	97	99	Outside calibration range. Reanalyzed in SDG 09-3-9 at dilution.					
HAMW31-W-28276	104	102	106						
HAMW28-W-28277	99	103	98						
Methanol blank	85	86	82						
HAMW34-S-28222	102	105	102						
HAMW34-S-28221	106	102	97						
HAMW34-S-28220	106	103	93						
HAMW34-S-28223	102	96	89						
HAMW34-S-28224	99	105	95						
SDG 09-3-9, analysis date March 9, 2009									
20-ppb standard	102	118	118	21.65	7.9	23.25	15.0	23.24	15.0

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
Laboratory blank	100	100	100						
HAMW38-W-28300	100	90	92						
HAMW40-W-28301	97	98	101	Outside calibration range. Reanalyzed in SDG 09-3-10 at dilution.					
HADECON-W-28288	81	80	92						
HAWATTRU-W-28289	73[d]	79[d]	76[d]	Reanalyzed in SDG 09-3-11 with recovery limits met.					
HAQCTB-W-28290	45[d]	44[d]	46[d]	Reanalyzed in SDG 09-3-11 with recovery limits met.					
HAMW28-W-28285	88	84	81						
SDG 09-3-10, analysis date March 10, 2009									
20-ppb standard	88	105	115	23.77	17.2	22.97	13.8	22.08	9.9
Laboratory blank	108	112	110						
HAMW40-W-28301	96	96	99						
HAMW40-W-28301DUP	107	110	115						
Methanol blank	100	100	100						
SDG 09-3-10, analysis date March 10, 2009 (cont.)									
HAMW34-S-28249	95	108	102						
HAQCTB-S-28280	100	107	101						
SDG 09-3-11, analysis date March 11, 2009									
20-ppb standard	90	96	87	22.13	10.1	22.78	13.0	23.64	16.7
Laboratory blank	105	107	108						
HAMW29-W-28286	93	100	105						
HAQCTB-W-28290	101	106	109						
HAWATTRU-W-28289	103	108	116						
SDG 09-3-13, analysis date March 13, 2009									

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
20-ppb standard	90	94	88	22.83	13.2	24.04	18.3	22.4	11.3
Laboratory blank	106	110	106						
HAMW19-W-28305	88	93	97						
HAMW22-W-28302	98	104	105						
HAMW30-W-28303	94	97	105						
HAMW21-W-28304	95	97	93						
HAMW21-W-28304DUP	91	88	94						
HAQCTB-W-28306	91	81	83						
SDG 09-3-20, analysis date March 20, 2009									
20-ppb standard	100	100	100	17.14	15.4	19.02	5.0	20.45	2.2
Laboratory blank	101	95	102						
HAMW37-W-28307	80	91	87						
HAQCTB-W-28308	99	105	98						
SDG 09-3-26, analysis date March 26, 2009									
20-ppb standard	104	111	111	18.29	8.9	20.76	3.7	23.96	18.0
Laboratory blank	93	95	91						
HAMW44-W-28225	97	97	96						
HAMW44-W-28225DUP	100	109	106						
HAMW44-W-28226	91	92	91						
HATB-W-28227	107	105	109						
SDG 09-3-30, analysis date March 30, 2009									
20-ppb standard	106	104	115	19.24	3.9	21.57	7.6	23.89	17.7
Laboratory blank	100	100	100						
HAMW45-W-28297	89	107	107						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HAMW45-W-28297DUP	100	106	107						
HATB-W-28298	96	98	105						
SDG 09-3-31, analysis date March 31, 2009									
20-ppb standard	100	100	100	17.32	14.4	23.25	15.0	20	0.0
Laboratory blank	114	113	110						
HAMW45S-W-28824	88	94	93						
HAMW45D-W-28825	94	101	101						
HAMW44-W-28821	89	93	91						
HAMW44-W-28821DUP	88	86	87						
HAMW46-W-28828	86	87	90						
HAMW46-W-28299	86	85	87						
HAQCTB-W-28822	86	89	85						
SDG 09-4-1, analysis date April 1, 2009									
20-ppb standard	87	86	92	17.83	11.5	22.91	13.6	20	0.0
Methanol blank	100	100	100						
SDG 09-4-1, analysis date April 1, 2009 (cont.)									
HAMW45-S-28292	97	97	103						
HAMW45-S-28295	101	106	110						
HAMW45-S-28228	102	106	106						
HAMW45-S-28294	100	105	110						
HAMW45-S-28229	99	101	108						
HAMW45-S-28296	99	101	105						
HAMW45-S-28293	96	101	103						
HAMW45-S-28291	98	102	102						
HAQCTB-S-28820	99	112	115						
SDG 09-4-2, analysis date April 2, 2009									

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
20-ppb standard	102	93	90	20.69	3.4	21.23	6.0	24.36	19.7
Laboratory blank	100	100	100						
HAMW47-W-28829	86	80	89						
HAMW47-W-28829DUP	95	95	103						
HAQCTB-W-28830	93	92	88						
SDG 09-4-14, analysis date April 14, 2009									
20-ppb standard	95	91	88	20.88	4.3	18.54	7.6	23	14.0
Laboratory blank	100	100	100						
HAMW45M-W-28833	87	97	102						
HAQCTB-W-28834	95	102	99						
SDG 09-4-23, analysis date April 23, 2009									
20-ppb standard	118	118	109	21.87	8.9	22.74	12.8	20.08	0.4
Laboratory blank	117	118	115						
HAMW44D-W-28835	82	88	110						
HAQCTB-W-28836	76[d]	72[d]	74[d]	Accepted.					
SDG 09-4-29, analysis date April 29, 2009									
20-ppb standard	94	108	95	18.37	8.5	19.07	4.8	22.51	11.8
Laboratory blank	103	114	107						
HAMW44D-W-28835a	91	108	104						
SDG 09-4-30, analysis date April 30, 2009									
20-ppb standard	103	107	95	22.11	10.0	20.13	0.6	21.84	8.8
Laboratory blank	104	107	103						
HAQCTB-W-28836a	89	85	87						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
SDG 09-6-22, analysis date June 22, 2009									
20-ppb standard	111	112	110	19.71	1.5	24.04	18.3	24.31	19.5
Laboratory blank	107	112	112						
HAJoeMeier-W-28841	96	100	107						
HAKJueneman-W-28842	93	90	99						
HADBrunaHome-W-28843	92	87	89						
HADBrunaIrr-W-28844	95	86	93						
HAQCTB-W-28845	95	93	90						
SDG 09-8-17, analysis date August 17, 2009									
20-ppb standard	101	111	102	17.31	14.4	21.93	9.2	20	0.0
Laboratory blank	100	100	100						
HAMW33-W-28848	93	91	93						
HAMW33-W-28848DUP	89	84	92						
HAMW32-W-28847	90	91	96						
HAQCTB-W-28849	83	83	88						
SDG 09-9-24, analysis date September 24, 2009									
20-ppb standard	107	115	100	22.51	11.8	23.27	15.1	23.7	16.9
Laboratory blank	100	100	100						
HAMW48-W-30320	104	105	116						
HATB-W-30321	103	95	102						
SDG 09-10-8, analysis date October 8, 2009									
20-ppb standard	106	113	106	19.59	2.1	19.4	3.0	22.03	9.7
Laboratory blank	108	109	106						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HAMW48-W-30322	116	119	101						
HAQCTB-W-28310	113	120	119						
SDG 09-10-9, analysis date October 9, 2009									
20-ppb standard	102	96	88	16.97	16.4	17.35	14.2	17.74	12.0
Laboratory blank	90	94	90						
HAMW48Z4-W-28313	78[d]	72[d]	77[d]	Reanalyzed in SDG 09-10-12 with recovery limits met.					
HAMW48Z3-W-28312	105	100	106						
HAMW48Z2-W-28311	82	76[d]	82	Reanalyzed in SDG 09-10-12 with recovery limits met.					
HAQCTB-W-28314	101	87	89						
SDG 09-10-12, analysis date October 12, 2009									
20-ppb standard	96	95	82	19.68	1.6	18.06	10.2	17.94	10.9
Laboratory blank	102	98	94						
HAMW50-W-30323	97	95	87						
HAMW49Z3-W-30325	98	102	113						
HAMW49Z4-W-30326	97	113	103						
HAMW49Z2-W-30324	96	92	119						
SDG 09-10-12, analysis date October 12, 2009 (cont.)									
HAQCTB-W-30327	90	88	94						
HAMW48Z2-W-28311	91	90	97						
HAMW48Z4-W-28313	93	96	102						
SDG 09-10-14, analysis date October 14, 2009									
20-ppb standard	93	106	88	23.01	14.0	23.62	16.6	23.94	17.9
Laboratory blank	102	94	87						
HAMW50Z2-W-30328	93	97	95						
HAMW50Z3-W-30329	97	105	110						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HAMW50Z3-W-30329DUP	105	101	111						
HAMW50Z4-W-30330	101	101	103						
HAMW50DUP-W-30331	87	90	89						
HAQCTB-W-30332	90	95	92						
SDG 09-10-19, analysis date October 19, 2009									
20-ppb standard	111	103	93	19.35	3.3	17.55	13.0	21.14	5.5
Laboratory blank	100	100	100						
HAMW51Z2-W-28315	94	93	89						
HAMW51Z3-W-28316	100	101	113						
HAMW51Z4-W-28317	89	127[d]	139[d]	Reanalyzed in SDG 09-10-20 with high recovery for one surrogate.					
HAMW51Z2DUP-W-28318	101	104	109						
HAMW44Z3-W-28319	90	102	114						
HAMW44Z4-W-28320	84	84	90						
HAMW44Z4-W-28320DUP	90	87	98						
HAMW45Z4-W-28322	81	82	83						
HAMW45Z3-W-28321	92	87	91						
HAMW45Z4DUP-W-28323	78[d]	82	84	Reanalyzed in SDG 09-10-20 with recovery limits met.					
SDG 09-10-20, analysis date October 20, 2009									
20-ppb standard	98	106	88	23.85	17.6	22.83	13.2	20	0.0
Laboratory blank	100	100	100						
HAMW51Z4-W-28317	97	120	127[d]	Accepted.					
HAQCTB-W-28324	97	106	99						
HAMW45Z4DUP-W-28323	83	103	96						
SDG 10-2-26, analysis date February 26, 2010									
20-ppb standard	105	118	99	19.82	0.9	19.83	0.9	18.77	6.3
Laboratory blank	110	116	114						

TABLE S12.3 (Cont.)

Sample	Recovery of Surrogate Compounds[a] (%)			Measured Concentration and RPD Value for Calibration Check Standard					
				Carbon Tetrachloride		Chloroform		Methylene Chloride	
	Fluorobenzene	Bromo-fluorobenzene	1,4-Dichloro-benzene-d_4	ppb[b]	RPD[c]	ppb[b]	RPD[c]	ppb[b]	RPD[c]
HAMW5PTST1-W-30333	90	97	118						
HAMW5PTST2-W-30334	83	85	87						
HAQCTB-W-30335	90	84	86						
SDG 10-3-24, analysis date March 24, 2010									
20-ppb standard	97	108	98	20.22	1.1	18.97	5.3	20.46	2.3
Laboratory blank	100	100	100						
HAMW44Z2S-W-30336	133[d]	90	87	Reanalyzed in SDG 10-3-25 with recovery limits met.					
HAMW44Z2M-W-30337	88	95	96						
HAQCTB-W-30339	83	87	89						
HAMW44Z2F-W-30338	126[d]	92	92	Reanalyzed in SDG 10-3-25 with recovery limits met.					
SDG 10-3-25, analysis date March 25, 2010									
20-ppb standard	113	118	118	19.08	4.7	18.9	5.7	20.11	0.5
Laboratory blank	104	97	96						
HAMW44Z2S-W-30336	82	84	82						
HAMW44Z2F-W-30338	88	81	83						

[a] Quality control range for recovery = 80-120%.

[b] Concentration in parts per billion (µg/L in water or µg/kg in soil).

[c] Quality control range for RPD = ±20%.

[d] Surrogate recovery outside quality control range.

TABLE S12.4 Analytical results from the AGEM Laboratory for primary samples and for corresponding quality control replicate samples, duplicate anayses, and field evaluation samples.

Location	Depth (ft BGL)	Sample Date	Sample Medium	Sample	Sample Type	Concentration			Units	Quantitation Limit	Analysis Method	Analysis Date
						Carbon Tetrachloride	Chloroform	Methylene Chloride				
BSMW09	35-45	2/23/09	Water	HABSMW9-W-28158	Primary	ND[a]	ND	ND	µg/L	1.0	E524.2	2/24/09
BSMW09	35-45	2/23/09	Water	HABSMW9-W-28158DUP	Duplicate	ND	ND	ND	µg/L	1.0	E524.2	2/24/09
MW01	30-35	1/30/09	Water	HAMW01-W-28123	Field eval	356	7.7	ND	µg/L	1.0	E524.2	2/2/09
MW01	30-35	2/23/09	Water	HAMW01-W-28184	Primary	387	7.6	ND	µg/L	1.0	E524.2	2/25/09
MW02	33-34	1/29/09	Water	HAMW02-W-28083	Primary	425	5.8	ND	µg/L	1.0	E524.2	1/30/09
MW02	33-34	1/29/09	Water	HAMW02-W-28083DUP	Duplicate	403	5.1	ND	µg/L	1.0	E524.2	1/30/09
MW02	31-36	1/30/09	Water	HAMW02-W-28125	Field eval	410	32	ND	µg/L	1.0	E524.2	2/2/09
MW02	31-36	2/23/09	Water	HAMW02-W-28185	Primary	548	11	ND	µg/L	1.0	E524.2	2/25/09
MW03	26	1/29/09	Soil	HAMW03-S-28092	Primary	19	ND	ND	µg/kg	10	SW8260B	2/4/09
MW03	26	1/29/09	Soil	HAMW03-S-28092DUP	Duplicate	17	ND	ND	µg/kg	10	SW8260B	2/4/09
MW03	42	1/30/09	Soil	HAMW03-S-28096	Primary	ND	ND	ND	µg/kg	10	SW8260B	2/2/09
MW03	42	1/30/09	Soil	HAMW03-S-28096DUP	Duplicate	ND	ND	ND	µg/kg	10	SW8260B	2/2/09
MW03	42	1/30/09	Soil	HAMW03-S-28097	Replicate	ND	ND	ND	µg/kg	10	SW8260B	2/4/09
MW03	66	1/30/09	Soil	HAMW03-S-28103	Primary	ND	ND	ND	µg/kg	10	SW8260B	2/2/09
MW03	66	1/30/09	Soil	HAMW03-S-28103DUP	Duplicate	ND	ND	ND	µg/kg	10	SW8260B	2/2/09
MW03	94	1/30/09	Soil	HAMW03-S-28110	Primary	ND	ND	ND	µg/kg	10	SW8260B	2/5/09
MW03	94	1/30/09	Soil	HAMW03-S-28110DUP	Duplicate	ND	ND	ND	µg/kg	10	SW8260B	2/5/09
MW04	33	1/31/09	Soil	HAMW04-S-28128	Primary	ND	ND	ND	µg/kg	10	SW8260B	2/3/09
MW04	33	1/31/09	Soil	HAMW04-S-28129	Replicate	ND	ND	ND	µg/kg	10	SW8260B	2/3/09
MW04	30-35	2/2/09	Water	HAMW04-W-28150	Field eval	11	7.3	ND	µg/L	1.0	E524.2	2/3/09
MW04	30-35	2/23/09	Water	HAMW04-W-28186	Primary	10	6.4	ND	µg/L	1.0	E524.2	2/25/09
MW05	24-29	2/2/09	Water	HAMW05-W-28152	Field eval	483	16	ND	µg/L	1.0	E524.2	2/3/09
MW05	24-29	2/23/09	Water	HAMW05-W-28187	Primary	488	6.1	ND	µg/L	1.0	E524.2	2/25/09
MW06	24.5-25	2/1/09	Water	HAMW06-W-28133	Primary	222	11	ND	µg/L	1.0	E524.2	2/4/09
MW06	24.5-25	2/1/09	Water	HAMW06-W-28134	Replicate	206	11	ND	µg/L	1.0	E524.2	2/4/09
MW06	24-29	2/5/09	Water	HAMW06-W-28115	Field eval	53	8.5	ND	µg/L	1.0	E524.2	2/6/09
MW06	24-29	2/5/09	Water	HAMW06-W-28115DUP	Duplicate	53	8.0	ND	µg/L	1.0	E524.2	2/6/09
MW06	24-29	2/24/09	Water	HAMW06-W-28188	Primary	99	11	ND	µg/L	1.0	E524.2	2/25/09

TABLE S12.4 (Cont.)

Location	Depth (ft BGL)	Sample Date	Sample Medium	Sample	Sample Type	Concentration: Carbon Tetrachloride	Concentration: Chloroform	Concentration: Methylene Chloride	Units	Quantitation Limit	Analysis Method	Analysis Date
MW07	30-35	2/2/09	Water	HAMW07-W-28149	Field eval	3.7	1.2	ND	µg/L	1.0	E524.2	2/3/09
MW07	30-35	2/5/09	Water	HAMW07-W-28116	Field eval	5.2	2.8	ND	µg/L	1.0	E524.2	2/6/09
MW07	30-35	2/24/09	Water	HAMW07-W-28189	Primary	92	6.7	ND	µg/L	1.0	E524.2	2/25/09
MW08	28	2/2/09	Soil	HAMW08-S-28145	Primary	ND	ND	ND	µg/kg	10	SW8260B	2/5/09
MW08	28	2/2/09	Soil	HAMW08-S-28146	Replicate	ND	1.8 J[b]	ND	µg/kg	10	SW8260B	2/5/09
MW08	30-35	2/2/09	Water	HAMW08-W-28153	Field eval	ND	0.5 J	ND	µg/L	1.0	E524.2	2/3/09
MW08	30-35	2/5/09	Water	HAMW08-W-28117	Field eval	ND	0.4 J	ND	µg/L	1.0	E524.2	2/6/09
MW08	30-35	2/24/09	Water	HAMW08-W-28192	Primary	4.2	0.7 J	ND	µg/L	1.0	E524.2	2/25/09
MW08	30-35	2/24/09	Water	HAMW08-W-28192DUP	Duplicate	4.0	0.6 J	ND	µg/L	1.0	E524.2	2/26/09
MW09	18-23	2/10/09	Water	HAMW09-W-28170	Field eval	482	ND	ND	µg/L	1.0	E524.2	2/11/09
MW09	18-23	2/23/09	Water	HAMW09-W-28193	Primary	395	2.9	ND	µg/L	1.0	E524.2	2/25/09
MW10	27-31	2/3/09	Water	HAMW10-W-28157	Field eval	33	5.6	ND	µg/L	1.0	E524.2	2/5/09
MW10	26-31	2/10/09	Water	HAMW10-W-28119	Field eval	38	4.9	ND	µg/L	1.0	E524.2	2/11/09
MW10	26-31	2/23/09	Water	HAMW10-W-28194	Primary	31	3.9	ND	µg/L	1.0	E524.2	2/25/09
MW11	15-20	2/3/09	Water	HAMW11-W-28085	Field eval	960	18	ND	µg/L	1.0	E524.2	2/4/09
MW11	15-20	2/3/09	Water	HAMW11-W-28085DUP	Duplicate	921	16	ND	µg/L	1.0	E524.2	2/4/09
MW11	15-20	2/10/09	Water	HAMW11-W-28171	Field eval	746	11	ND	µg/L	1.0	E524.2	2/11/09
MW11	15-20	2/23/09	Water	HAMW11-W-28195	Primary	617	13	ND	µg/L	1.0	E524.2	2/25/09
MW12	25-35	2/5/09	Water	HAMW12-W-28114	Field eval	64	2.9	ND	µg/L	1.0	E524.2	2/10/09
MW12	25-35	2/5/09	Water	HAMW12-W-28114DUP	Duplicate	62	2.8	ND	µg/L	1.0	E524.2	2/10/09
MW12	25-35	2/10/09	Water	HAMW12-W-28173	Field eval	165	14	ND	µg/L	1.0	E524.2	2/12/09
MW12	25-35	2/24/09	Water	HAMW12-W-28196	Primary	111	18	ND	µg/L	1.0	E524.2	2/25/09
MW13	15-20	2/4/09	Water	HAMW13-W-28180	Field eval	315	8.3	ND	µg/L	1.0	E524.2	2/5/09
MW13	15-20	2/10/09	Water	HAMW13-W-28172	Field eval	270	8.3	ND	µg/L	1.0	E524.2	2/12/09
MW13	15-20	2/23/09	Water	HAMW13-W-28197	Primary	376	8.7	ND	µg/L	1.0	E524.2	2/25/09
MW13	15-20	2/23/09	Water	HAMW13-W-28197DUP	Duplicate	357	7.9	ND	µg/L	1.0	E524.2	2/25/09
MW16	15-25	2/25/09	Water	HAMW16-W-28210	Field eval	ND	ND	ND	µg/L	1.0	E524.2	2/26/09
MW16	15-25	2/26/09	Water	HAMW16-W-28251	Primary	5.8	2.1	ND	µg/L	1.0	E524.2	2/27/09
MW17	13-23	2/26/09	Water	HAMW17-W-28213	Field eval	0.5 J	0.6 J	ND	µg/L	1.0	E524.2	2/27/09
MW17	13-23	3/2/09	Water	HAMW17-W-28271	Primary	11	3.3	ND	µg/L	1.0	E524.2	3/3/09

TABLE S12.4 (Cont.)

Location	Depth (ft BGL)	Sample Date	Sample Medium	Sample	Sample Type	Concentration: Carbon Tetrachloride	Concentration: Chloroform	Concentration: Methylene Chloride	Units	Quantitation Limit	Analysis Method	Analysis Date
MW18	15-25	2/26/09	Water	HAMW18-W-28215	Field eval	39	4.5	ND	µg/L	1.0	E524.2	2/27/09
MW18	15-25	2/26/09	Water	HAMW18-W-28215DUP	Duplicate	37	4.6	ND	µg/L	1.0	E524.2	2/27/09
MW18	15-25	3/2/09	Water	HAMW18-W-28268	Primary	3.4	4.2	ND	µg/L	1.0	E524.2	3/3/09
MW21	15-25	3/12/09	Water	HAMW21-W-28304	Primary	112	8.4	ND	µg/L	1.0	E524.2	3/13/09
MW21	15-25	3/12/09	Water	HAMW21-W-28304DUP	Duplicate	113	8.3	ND	µg/L	1.0	E524.2	3/13/09
MW24	13-18	2/27/09	Water	HAMW24-W-28260	Field eval	0.6 J	11	ND	µg/L	1.0	E524.2	3/2/09
MW24	13-18	3/2/09	Water	HAMW24-W-28274	Primary	0.5 J	9.5	ND	µg/L	1.0	E524.2	3/3/09
MW27	20-30	3/2/09	Water	HAMW27-W-28269	Primary	1.0	15	ND	µg/L	1.0	E524.2	3/3/09
MW27	20-30	3/2/09	Water	HAMW27-W-28269DUP	Duplicate	1.0	16	ND	µg/L	1.0	E524.2	3/3/09
MW28	19-29	3/2/09	Water	HAMW28-W-28270	Field eval	107	10	ND	µg/L	1.0	E524.2	3/3/09
MW28	19-29	3/3/09	Water	HAMW28-W-28277	Field eval	168	9.7	ND	µg/L	1.0	E524.2	3/5/09
MW28	19-29	3/4/09	Water	HAMW28-W-28285	Primary	173	8.8	ND	µg/L	1.0	E524.2	3/9/09
MW29	19-29	3/2/09	Water	HAMW29-W-28273	Field eval	4.1	8.9	ND	µg/L	1.0	E524.2	3/3/09
MW29	19-29	3/3/09	Water	HAMW29-W-28278	Field eval	81	6.7	ND	µg/L	1.0	E524.2	3/4/09
MW29	19-29	3/4/09	Water	HAMW29-W-28286	Primary	179	10	ND	µg/L	1.0	E524.2	3/11/09
MW33	11-26	8/13/09	Water	HAMW33-W-28848	Primary	127	5.7	ND	µg/L	1.0	E524.2	8/17/09
MW33	11-26	8/13/09	Water	HAMW33-W-28848DUP	Duplicate	135	5.9	ND	µg/L	1.0	E524.2	8/17/09
MW34	21	3/3/09	Soil	HAMW34-S-28221	Primary	ND	ND	ND	µg/kg	10	SW8260B	3/5/09
MW34	21	3/3/09	Soil	HAMW34-S-28222	Replicate	ND	ND	ND	µg/kg	10	SW8260B	3/5/09
MW35	15-25	3/3/09	Water	HAMW35-W-28281	Field eval	ND	4.5	ND	µg/L	1.0	E524.2	3/4/09
MW35	15-25	3/4/09	Water	HAMW35-W-28287	Primary	ND	11	ND	µg/L	1.0	E524.2	3/5/09
MW40	20-30	3/6/09	Water	HAMW40-W-28301	Field eval	130	14	ND	µg/L	1.0	E524.2	3/10/09
MW40	20-30	3/6/09	Water	HAMW40-W-28301DUP	Duplicate	123	14	ND	µg/L	1.0	E524.2	3/10/09
MW44	37-39.5	3/25/09	Water	HAMW44-W-28225	Primary	15	1.1	ND	µg/L	1.0	E524.2	3/26/09
MW44	37-39.5	3/25/09	Water	HAMW44-W-28225DUP	Duplicate	14	1.0	ND	µg/L	1.0	E524.2	3/26/09
MW44	37-39.5	3/25/09	Water	HAMW44-W-28226	Field eval	15	1.1	ND	µg/L	1.0	E524.2	3/26/09
MW44Z2	30-40	3/28/09	Water	HAMW44-W-28821	Primary	11	1.0	ND	µg/L	1.0	E524.2	3/31/09
MW44Z2	30-40	3/28/09	Water	HAMW44-W-28821DUP	Duplicate	10	1.0	ND	µg/L	1.0	E524.2	3/31/09
MW44Z4	97-107	4/22/09	Water	HAMW44D-W-28835	Field eval	ND	ND	ND	µg/L	1.0	E524.2	4/23/09

TABLE S12.4 (Cont.)

Location	Depth (ft BGL)	Sample Date	Sample Medium	Sample	Sample Type	Concentration: Carbon Tetrachloride	Concentration: Chloroform	Concentration: Methylene Chloride	Units	Quantitation Limit	Analysis Method	Analysis Date
MW44Z4	97-107	4/24/09	Water	HAMW44D-W-28835A	Replicate	ND	ND	ND	µg/L	1.0	E524.2	4/29/09
MW44Z4	97-107	10/16/09	Water	HAMW44Z4-W-28320	Primary	ND	5.7	ND	µg/L	1.0	E524.2	10/19/09
MW44Z4	97-107	10/16/09	Water	HAMW44Z4-W-28320DUP	Duplicate	ND	5.0	ND	µg/L	1.0	E524.2	10/19/09
MW45	25-29	3/27/09	Water	HAMW45-W-28297	Primary	11	2.1	ND	µg/L	1.0	E524.2	3/30/09
MW45	25-29	3/27/09	Water	HAMW45-W-28297DUP	Duplicate	10	2.0	ND	µg/L	1.0	E524.2	3/30/09
MW45Z3	50-60	4/3/09	Water	HAMW45M-W-28831	Field eval	ND	0.9 J	ND	µg/L	1.0	E524.2	4/6/09
MW45Z3	50-60	4/9/09	Water	HAMW45M-W-28833	Field eval	ND	0.6 J	ND	µg/L	1.0	E524.2	4/14/09
MW45Z3	50-60	10/16/09	Water	HAMW45Z3-W-28321	Primary	ND	ND	ND	µg/L	1.0	E524.2	10/19/09
MW45Z4	83-93	3/29/09	Water	HAMW45D-W-28825	Field eval	3.6	0.8 J	ND	µg/L	1.0	E524.2	3/31/09
MW45Z4	83-93	10/16/09	Water	HAMW45Z4-W-28322	Primary	ND	ND	ND	µg/L	1.0	E524.2	10/19/09
MW45Z4	83-93	10/16/09	Water	HAMW45Z4DUP-W-28323	Replicate	ND	ND	ND	µg/L	1.0	E524.2	10/20/09
MW47	15-30	4/1/09	Water	HAMW47-W-28829	Primary	ND	2.0	ND	µg/L	1.0	E524.2	4/2/09
MW47	15-30	4/1/09	Water	HAMW47-W-28829DUP	Duplicate	ND	1.9	ND	µg/L	1.0	E524.2	4/2/09
MW50Z3	89-99	10/13/09	Water	HAMW50Z3-W-30329	Primary	ND	0.4 J	ND	µg/L	1.0	E524.2	10/14/09
MW50Z3	89-99	10/13/09	Water	HAMW50Z3-W-30329DUP	Duplicate	ND	0.4 J	ND	µg/L	1.0	E524.2	10/14/09
MW50Z4	118-128	10/13/09	Water	HAMW50Z4-W-30330	Primary	0.7 J	0.6 J	ND	µg/L	1.0	E524.2	10/14/09
MW50Z4	118-128	10/13/09	Water	HAMW50DUP-W-30331	Replicate	0.7 J	0.6 J	ND	µg/L	1.0	E524.2	10/14/09
MW51Z2	56-66	10/16/09	Water	HAMW51Z2-W-28315	Primary	0.7 J	0.7 J	ND	µg/L	1.0	E524.2	10/19/09
MW51Z2	56-66	10/16/09	Water	HAMW51Z2DUP-W-28318	Replicate	0.7 J	0.7 J	ND	µg/L	1.0	E524.2	10/19/09
TI01	10	1/13/09	Soil	HATI01-S-27922	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/16/09
TI01	10	1/13/09	Soil	HATI01-S-27922DUP	Duplicate	ND	ND	ND	µg/kg	10	SW8260B	1/16/09
TI04	2	1/13/09	Soil	HATI04-S-27933	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/15/09
TI04	2	1/13/09	Soil	HATI04-S-27933DUP	Duplicate	ND	ND	ND	µg/kg	10	SW8260B	1/15/09
TI07	10	1/13/09	Soil	HATI07-S-27942	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/15/09
TI07	10	1/13/09	Soil	HATI07-S-27942DUP	Duplicate	ND	ND	ND	µg/kg	10	SW8260B	1/15/09
TI08	22	1/13/09	Soil	HATI08-S-27948	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/15/09
TI08	22	1/13/09	Soil	HATI08-S-27949	Replicate	2.5 J	ND	ND	µg/kg	10	SW8260B	1/15/09
TI10	6	1/14/09	Soil	HATI10-S-27998	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/16/09
TI10	6	1/14/09	Soil	HATI10-S-27999	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI11	6	1/13/09	Soil	HATI11-S-27971	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/22/09

TABLE S12.4 (Cont.)

Location	Depth (ft BGL)	Sample Date	Sample Medium	Sample	Sample Type	Concentration			Units	Quantitation Limit	Analysis Method	Analysis Date
						Carbon Tetrachloride	Chloroform	Methylene Chloride				
TI11	6	1/13/09	Soil	HATI11-S-27972	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/22/09
TI11	14	1/13/09	Soil	HATI11-S-27974	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/23/09
TI11	14	1/13/09	Soil	HATI11-S-27975	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/22/09
TI12	6	1/14/09	Soil	HATI12-S-27977	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI12	6	1/14/09	Soil	HATI12-S-27978	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/16/09
TI13	2	1/14/09	Soil	HATI13-S-27980	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI13	2	1/14/09	Soil	HATI13-S-27981	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI13	10	1/14/09	Soil	HATI13-S-27983	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI13	10	1/14/09	Soil	HATI13-S-27984	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI14	2	1/14/09	Soil	HATI14-S-27958	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/22/09
TI14	2	1/14/09	Soil	HATI14-S-27958DUP	Duplicate	ND	ND	ND	µg/kg	10	SW8260B	1/22/09
TI15	2	1/14/09	Soil	HATI15-S-27986	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI15	2	1/14/09	Soil	HATI15-S-27987	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI16	6	1/14/09	Soil	HATI16-S-27992	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI16	6	1/14/09	Soil	HATI16-S-27993	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI16	14	1/14/09	Soil	HATI16-S-27995	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/21/09
TI16	14	1/14/09	Soil	HATI16-S-27996	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI17	10	1/14/09	Soil	HATI17-S-28033	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/21/09
TI17	10	1/14/09	Soil	HATI17-S-28034	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/21/09
TI18	2	1/14/09	Soil	HATI18-S-28013	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/21/09
TI18	2	1/14/09	Soil	HATI18-S-28013DUP	Duplicate	ND	ND	ND	µg/kg	10	SW8260B	1/21/09
TI18	6	1/14/09	Soil	HATI18-S-28014	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI18	6	1/14/09	Soil	HATI18-S-28015	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/21/09
TI19	6	1/14/09	Soil	HATI19-S-28002	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI19	6	1/14/09	Soil	HATI19-S-28002DUP	Duplicate	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI19	10	1/14/09	Soil	HATI19-S-28003	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI19	10	1/14/09	Soil	HATI19-S-28004	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI20	6	1/14/09	Soil	HATI20-S-28007	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI20	6	1/14/09	Soil	HATI20-S-28008	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/16/09

TABLE S12.4 (Cont.)

Location	Depth (ft BGL)	Sample Date	Sample Medium	Sample	Sample Type	Concentration			Units	Quantitation Limit	Analysis Method	Analysis Date
						Carbon Tetrachloride	Chloroform	Methylene Chloride				
TI21	2	1/14/09	Soil	HATI21-S-28018	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/22/09
TI21	2	1/14/09	Soil	HATI21-S-28018DUP	Duplicate	ND	ND	ND	µg/kg	10	SW8260B	1/22/09
TI21	18	1/14/09	Soil	HATI21-S-28022	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/20/09
TI21	18	1/14/09	Soil	HATI21-S-28023	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/21/09
TI22	18	1/14/09	Soil	HATI22-S-27965	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/21/09
TI22	18	1/14/09	Soil	HATI22-S-27965DUP	Duplicate	ND	ND	ND	µg/kg	10	SW8260B	1/21/09
TI24	2	1/14/09	Soil	HATI24-S-27967	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/22/09
TI24	2	1/14/09	Soil	HATI24-S-27967DUP	Duplicate	ND	ND	ND	µg/kg	10	SW8260B	1/22/09
TI24	22	1/14/09	Soil	HATI24-S-28052	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/22/09
TI24	22	1/14/09	Soil	HATI24-S-28053	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/21/09
TI25	6	1/14/09	Soil	HATI25-S-28036	Primary	ND	ND	ND	µg/kg	10	SW8260B	1/21/09
TI25	6	1/14/09	Soil	HATI25-S-28037	Replicate	ND	ND	ND	µg/kg	10	SW8260B	1/21/09
TI30	26	2/28/09	Soil	HATI30-S-28236	Primary	ND	ND	ND	µg/kg	10	SW8260B	3/3/09
TI30	26	2/28/09	Soil	HATI30-S-28237	Replicate	ND	ND	ND	µg/kg	10	SW8260B	3/3/09
TI30	30	2/28/09	Soil	HATI30-S-28238	Primary	ND	ND	ND	µg/kg	10	SW8260B	3/3/09
TI30	30	2/28/09	Soil	HATI30-S-28238DUP	Duplicate	ND	ND	ND	µg/kg	10	SW8260B	3/3/09
TI30	62	2/28/09	Soil	HATI30-S-28246	Primary	ND	ND	ND	µg/kg	10	SW8260B	3/4/09
TI30	62	2/28/09	Soil	HATI30-S-28247	Replicate	ND	ND	ND	µg/kg	10	SW8260B	3/4/09
TIM KOSS	34-54	2/25/09	Water	HATKOSS-W-28212	Primary	ND	ND	ND	µg/L	1.0	E524.2	2/27/09
TIM KOSS	34-54	2/25/09	Water	HATKOSS-W-28212DUP	Duplicate	ND	ND	ND	µg/L	1.0	E524.2	2/27/09

[a] ND, not detected at an instrument detection limit of 0.1 µg/L for water or 1.0 µg/kg for soil.

[b] Qualifier J indicates an estimated concentration below the indicated method quantitation limit.

TABLE S12.5 Results for duplicate analyses of vapor intrusion samples.[a]

			On-Site Laboratory		Off-Site Laboratory			
Residence Address	Sample Location	Sample Date	Carbon Tetrachloride (µg/m^3)	SDG	Carbon Tetrachloride (µg/m^3)	Chloroform (µg/m^3)	SDG	Analytical Laboratory[b]
400 N. East St.	Sub-slab	2/4/09	–	–	62,000	140	MC020509-12	H&P
	Sub-slab	2/4/09	–	–	28,500	96	1088914	Pace
413 E. Kensington St.	Basement	2/4/09	–	–	16	ND	09-02-0406	CEL
	Basement	2/4/09	–	–	16	ND	1088914	Pace
297 Westminster St.	Basement	3/13/09	–	–	ND	ND	09-03-1381	CEL
	Basement	3/13/09	–	–	ND	ND	1091136	Pace
298 N. Belgrave St.	Sub-slab	4/9/09	13	Hartman Mar-Apr09	13	ND	MC041309-13	H&P
400 E. Elm	First floor	3/26/09	ND	Hartman Mar-Apr09	1.7	–	MC033109-11	H&P
405 E. Elm	First floor	3/26/09	ND	Hartman Mar-Apr09	2.6	–	MC033109-11	H&P
	First floor DUP	3/26/09	ND	Hartman Mar-Apr09	–	–	–	–
	Basement	3/26/09	22	Hartman Mar-Apr09	–	–	–	–
	Basement DUP	3/26/09	19	Hartman Mar-Apr09	–	–	–	–
406 E. Elm	Basement	1/26/10	–	–	3.9	ND	135746	TA
	Basement DUP	1/26/10	–	–	4.0	ND	135746	TA
408 E. Elm	First floor	3/26/09	2.6	Hartman Mar-Apr09	7.0[b]	–	MC033109-11	H&P
409 E. Elm	First floor	3/26/09	2.4[c]	Hartman Mar-Apr09	1.5	–	MC033109-11	H&P
	First floor DUP	3/26/09	ND	Hartman Mar-Apr09	–	–	–	–
	Basement	3/26/09	6.2[c]	Hartman Mar-Apr09	ND	–	MC033109-11	H&P
	Basement DUP	3/26/09	2.7	Hartman Mar-Apr09	–	–	–	–
504 E. Elm	Sub-slab	4/7/09	100	Hartman Mar-Apr09	91	–	MC041309-13	H&P

TABLE S12.5 (Cont.)

Residence Address	Sample Location	Sample Date	On-Site Laboratory: Carbon Tetrachloride (µg/m^3)	On-Site Laboratory: SDG	Off-Site Laboratory: Carbon Tetrachloride (µg/m^3)	Off-Site Laboratory: Chloroform (µg/m^3)	Off-Site Laboratory: SDG	Off-Site Laboratory: Analytical Laboratory[b]
513 E. Elm	First floor	3/26/09	2.1	Hartman Mar-Apr09	ND	–	MC033109-11	H&P
	Sub-slab	3/27/09	290	Hartman Mar-Apr09	260	–	MC033109-11	H&P
404 E. North	Sub-slab	4/8/09	180	Hartman Mar-Apr09	200	–	MC041309-13	H&P
310 N. Hanover	Sub-slab	4/8/09	64	Hartman Mar-Apr09	68	–	MC041309-13	H&P
	Basement	2/24/10	–	–	ND	ND	136146	TA
	Basement DUP	2/24/10	–	–	ND	ND	136146	TA
Hanover Public School	Kindergarten	2/23/10	ND	Hartman Feb10	ND, ND[d]	2.3, ND[d]	136119	TA
	Math room	2/23/10	ND	Hartman Feb10	ND	1.7	136119	TA
	Band room	2/23/10	ND	Hartman Feb10	ND	1.5	136119	TA
	Office	2/23/10	ND	Hartman Feb10	ND	2.2	136119	TA
	Ambient air	2/23/10	ND	Hartman Feb10	ND	ND	136119	TA
St. John's School	All-purpose room 2	2/23/10	ND	Hartman Feb10	ND, ND[d]	ND, ND[d]	136119	TA
	Kitchen	2/23/10	ND	Hartman Feb10	ND	ND	136119	TA
	Northeast room	2/23/10	ND	Hartman Feb10	ND	ND	136119	TA
	Southeast room	2/23/10	ND	Hartman Feb10	ND	ND	136119	TA
	Ambient air	2/23/10	ND	Hartman Feb10	ND	ND	136119	TA

[a] Analytical reporting limits:
- Carbon tetrachloride (on-site laboratory) 1.5 µg/m^3
- Carbon tetrachloride (off-site laboratory) 1.3 µg/m^3
- Chloroform 0.98 µg/m^3

[b] Analytical laboratory: CEL, Calscience Environmental Laboratories, Inc.; H&P, H&P Mobile Geochemistry; Pace, Pace Analytical Services; TA, TestAmerica.

[c] Laboratory reported interference possibly causing high bias in results.

[d] A 24-hr and an 8-hr cannister were collected.

Supplement 13:

Waste Characterization Data

Supplement 13 Contents

Analytical Data and Disposal of Waste Soil, March 2009 ..... 3 of 97

Analytical Data and Disposal of Wastewater, March 2009 ..... 22 of 97

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Dennis, Clyde B.

From: Lisa Larsen [Lisa@LarsenEnvironmental.com]
Sent: Thursday, March 05, 2009 4:33 PM
To: Dennis, Clyde B.
Cc: surgnier@prodigy.net; LaFreniere, Lorraine M.
Subject: FW: Hanover, Kansas Waste Manifest and Analytical

Clyde:

Attached is the waste manifest that is attached to the roll-off box for disposal at Rolling Meadows landfill in Topeka, Kansas. I have also attached the analytical data that was used for approval of disposal.

Thanks, Lisa

Lisa Larsen, LG
Larsen & Associates, Inc.
1311 E. 25th St., Suite B
Lawrence, Kansas 66046
785-841-8707 (office)
785-331-9162 (cell)
785-865-4282 (fax)

K A N S A S

RODERICK L. BREMBY, SECRETARY

KATHLEEN SEBELIUS, GOVERNOR

DEPARTMENT OF HEALTH AND ENVIRONMENT

March 5, 2009

Ms. Lisa Larson
Larson & Associates, Inc.
1311 E 25th Suite B
Lawrence, KS. 66046

RE: Special Waste Disposal Authorization Number 09-0198

THIS AUTHORIZATION EXPIRES March 5, 2010.

Dear Ms. Larson :

We have considered your request for disposal of twenty (20) cubic yards of soil drillings from monitor well installation at USDA, East St. & Kensington, hanover, KS. (Analysis provided)

Based solely on the analysis provided, the waste is not a characteristic hazardous waste with respect to the constituents tested. As stated in K.A.R.28-31-4(b), it is the responsibility of the generator to determine whether or not a waste is a hazardous waste by either knowledge of process or by proper testing by a KDHE certified lab. If there are questions as to the status of this waste, the department suggests the facility contact the Kansas Department of Health and Environment at telephone 785-842-4600. **If Larson & Associates, Inc. is confident the material for disposal is not a hazardous waste for any characteristic or listed constituent not included in the testing, the following applies.**

Approval is given to dispose of this waste at the Rolling Meadows landfill, operating under Kansas Permit 0342, provided the following conditions are met:

1. Approval to deliver the waste must be obtained from the landfill operator prior to transporting the waste to the landfill. The final decision on whether to accept or reject the waste rests with the landfill operator. Please contact Special Waste Department, telephone 1-800-963-4776, to obtain approval. If the landfill operator refuses to accept this waste, you should contact us to determine alternate disposal options.

2. The waste must be transported separately to the landfill and be identified to the operator upon delivery.

3. Kansas Administrative Regulation 28-29-108(r) (12) and (13) requires solid waste disposal facilities to maintain a log of commercial or industrial wastes received such as sludges, barreled wastes, and special wastes. The log must indicate the source and quantity of waste and the disposal location thereof. The industrial waste authorization number should be used as identification when entering the shipment into the log.

4. This approval is valid for disposal of the waste described and in the amount shown above. If additional shipments are required, you must contact us to receive another disposal authorization.

5. Operating standards as defined by K.A.R. 28-29-108(k) prohibit the disposal of liquid waste. "Liquid waste" means any waste material that is determined to contain "free liquids" as defined by method 9095A, revision 1, paint filter liquids test, as described in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," EPA Pub. No. SW-846 dated December 1996. **For purposes of this disposal authorization, all waste for disposal must be able to pass the "paint filter test".**

6. Any change in the process producing this waste, any change in the materials used in producing this waste or any other change to this waste stream requires that a new Special Waste Disposal Authorization be obtained prior to disposal.

If you have any questions, feel free to contact me at 785-296-1600.

Sincerely,

Tony Guy for
Jim Rudeen, Chief
Bureau of Waste Management
Waste Reduction, Compliance, and Enforcement

ABG

C Special Waste Department
F, Y

Requester phone: 785-841-8707

Rolling Meadows **SPECIAL WASTE MANIFEST DISPOSAL TICKET** 10931

A Waste Management Company

Main Street
Hanover, KS

BILL TO: WM Manhattan

TRANSPORTER: WM Manhattan

GENERATOR: USDS

GENERATORS SIGNATURE: _____ / ____ / ____ Date

WASTE DESCRIPTION: Soil Cuttings

PROFILE # RM09-0198

ACCEPTED BY: _____ / ____ / ____ Date

DRIVERS SIGNATURE: _____ / ____ / ____ Date TRUCK NO. _____ _____ TONS/YARDS

WHITE & YELLOW - GENERATOR COPY / PINK - DISPOSAL SITE COPY / GOLD - TRANSPORTER COPY

DCE-009-8/96

CAMBRIDGE BUSINESS FORMS • (847) 510-1800

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

March 03, 2009

Lisa Larsen
Larsen & Associates, Inc.
1311 E. 25th St.
Suite B
Lawrence, KS 66046

RE: Project: ANL Hanover
Pace Project No.: 6054844

Dear Lisa Larsen:
Enclosed are the analytical results for sample(s) received by the laboratory on February 27, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Trudy Gipson

Trudy Gipson

trudy.gipson@pacelabs.com
Project Manager

Enclosures

cc: Holly Burke, Larsen & Associates, Inc.
Brooke Evans, Larsen & Associates, Inc.

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CERTIFICATIONS

Project: ANL Hanover
Pace Project No.: 6054844

Kansas Certification IDs
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oklahoma Certification #: 9205/9935
Nevada Certification #: KS000212008A
Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
A2LA Certification #: 2456.01

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SAMPLE SUMMARY

Project: ANL Hanover
Pace Project No.: 6054844

Lab ID	Sample ID	Matrix	Date Collected	Date Received
6054763004	HAWS01-S-28253	Solid	02/26/09 15:45	02/27/09 08:35

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SAMPLE ANALYTE COUNT

Project: ANL Hanover
Pace Project No.: 6054844

Lab ID	Sample ID	Method	Analysts	Analytes Reported
6054763004	HAWS01-S-28253	ASTM D2974-87	CMG	1
		EPA 8260	NLM	69

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ANALYTICAL RESULTS

Project: ANL Hanover
Pace Project No.: 6054844

Sample: HAWS01-S-28253 **Lab ID: 6054763004** Collected: 02/26/09 15:45 Received: 02/27/09 08:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Acetone	ND	ug/kg	21.7	1		03/02/09 10:53	67-64-1	
Benzene	ND	ug/kg	5.4	1		03/02/09 10:53	71-43-2	
Bromobenzene	ND	ug/kg	5.4	1		03/02/09 10:53	108-86-1	
Bromochloromethane	ND	ug/kg	5.4	1		03/02/09 10:53	74-97-5	
Bromodichloromethane	ND	ug/kg	5.4	1		03/02/09 10:53	75-27-4	
Bromoform	ND	ug/kg	5.4	1		03/02/09 10:53	75-25-2	
Bromomethane	ND	ug/kg	5.4	1		03/02/09 10:53	74-83-9	
2-Butanone (MEK)	ND	ug/kg	10.8	1		03/02/09 10:53	78-93-3	
n-Butylbenzene	ND	ug/kg	5.4	1		03/02/09 10:53	104-51-8	
sec-Butylbenzene	ND	ug/kg	5.4	1		03/02/09 10:53	135-98-8	
tert-Butylbenzene	ND	ug/kg	5.4	1		03/02/09 10:53	98-06-6	
Carbon disulfide	ND	ug/kg	5.4	1		03/02/09 10:53	75-15-0	
Carbon tetrachloride	ND	ug/kg	5.4	1		03/02/09 10:53	56-23-5	
Chlorobenzene	ND	ug/kg	5.4	1		03/02/09 10:53	108-90-7	
Chloroethane	ND	ug/kg	5.4	1		03/02/09 10:53	75-00-3	
Chloroform	ND	ug/kg	5.4	1		03/02/09 10:53	67-66-3	
Chloromethane	ND	ug/kg	5.4	1		03/02/09 10:53	74-87-3	
2-Chlorotoluene	ND	ug/kg	5.4	1		03/02/09 10:53	95-49-8	
4-Chlorotoluene	ND	ug/kg	5.4	1		03/02/09 10:53	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	10.8	1		03/02/09 10:53	96-12-8	
Dibromochloromethane	ND	ug/kg	5.4	1		03/02/09 10:53	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	5.4	1		03/02/09 10:53	106-93-4	
Dibromomethane	ND	ug/kg	5.4	1		03/02/09 10:53	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	5.4	1		03/02/09 10:53	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	5.4	1		03/02/09 10:53	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	5.4	1		03/02/09 10:53	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	5.4	1		03/02/09 10:53	75-71-8	
1,1-Dichloroethane	ND	ug/kg	5.4	1		03/02/09 10:53	75-34-3	
1,2-Dichloroethane	ND	ug/kg	5.4	1		03/02/09 10:53	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/kg	5.4	1		03/02/09 10:53	540-59-0	
1,1-Dichloroethene	ND	ug/kg	5.4	1		03/02/09 10:53	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	5.4	1		03/02/09 10:53	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	5.4	1		03/02/09 10:53	156-60-5	
1,2-Dichloropropane	ND	ug/kg	5.4	1		03/02/09 10:53	78-87-5	
1,3-Dichloropropane	ND	ug/kg	5.4	1		03/02/09 10:53	142-28-9	
2,2-Dichloropropane	ND	ug/kg	5.4	1		03/02/09 10:53	594-20-7	
1,1-Dichloropropene	ND	ug/kg	5.4	1		03/02/09 10:53	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	5.4	1		03/02/09 10:53	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	5.4	1		03/02/09 10:53	10061-02-6	
Ethylbenzene	ND	ug/kg	5.4	1		03/02/09 10:53	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	5.4	1		03/02/09 10:53	87-68-3	
2-Hexanone	ND	ug/kg	21.7	1		03/02/09 10:53	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/kg	5.4	1		03/02/09 10:53	98-82-8	
p-Isopropyltoluene	ND	ug/kg	5.4	1		03/02/09 10:53	99-87-6	
Methylene chloride	ND	ug/kg	5.4	1		03/02/09 10:53	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	10.8	1		03/02/09 10:53	108-10-1	

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ANALYTICAL RESULTS

Project: ANL Hanover
Pace Project No.: 6054844

Sample: HAWS01-S-28253 **Lab ID: 6054763004** Collected: 02/26/09 15:45 Received: 02/27/09 08:35 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5035A VOA	Analytical Method: EPA 8260							
Methyl-tert-butyl ether	ND	ug/kg	5.4	1		03/02/09 10:53	1634-04-4	
Naphthalene	ND	ug/kg	10.8	1		03/02/09 10:53	91-20-3	
n-Propylbenzene	ND	ug/kg	5.4	1		03/02/09 10:53	103-65-1	
Styrene	ND	ug/kg	5.4	1		03/02/09 10:53	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	5.4	1		03/02/09 10:53	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	5.4	1		03/02/09 10:53	79-34-5	
Tetrachloroethene	ND	ug/kg	5.4	1		03/02/09 10:53	127-18-4	
Toluene	ND	ug/kg	5.4	1		03/02/09 10:53	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	5.4	1		03/02/09 10:53	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	5.4	1		03/02/09 10:53	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	5.4	1		03/02/09 10:53	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	5.4	1		03/02/09 10:53	79-00-5	
Trichloroethene	ND	ug/kg	5.4	1		03/02/09 10:53	79-01-6	
Trichlorofluoromethane	ND	ug/kg	5.4	1		03/02/09 10:53	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	5.4	1		03/02/09 10:53	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/kg	5.4	1		03/02/09 10:53	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	5.4	1		03/02/09 10:53	108-67-8	
Vinyl chloride	ND	ug/kg	5.4	1		03/02/09 10:53	75-01-4	
Xylene (Total)	ND	ug/kg	5.4	1		03/02/09 10:53	1330-20-7	
Dibromofluoromethane (S)	113	%	68-129	1		03/02/09 10:53	1868-53-7	
Toluene-d8 (S)	105	%	81-121	1		03/02/09 10:53	2037-26-5	
4-Bromofluorobenzene (S)	105	%	75-131	1		03/02/09 10:53	460-00-4	
1,2-Dichloroethane-d4 (S)	120	%	77-131	1		03/02/09 10:53	17060-07-0	
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	**8.9**	%	0.10	1		03/02/09 00:00		

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QUALITY CONTROL DATA

Project: ANL Hanover
Pace Project No.: 6054844

QC Batch: MSV/19801
QC Batch Method: EPA 8260
Analysis Method: EPA 8260
Analysis Description: 8260 MSV 5035A Volatile Organics
Associated Lab Samples: 6054763004

METHOD BLANK: 449579
Matrix: Solid
Associated Lab Samples: 6054763004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	5.0	03/02/09 10:21	
1,1,1-Trichloroethane	ug/kg	ND	5.0	03/02/09 10:21	
1,1,2,2-Tetrachloroethane	ug/kg	ND	5.0	03/02/09 10:21	
1,1,2-Trichloroethane	ug/kg	ND	5.0	03/02/09 10:21	
1,1-Dichloroethane	ug/kg	ND	5.0	03/02/09 10:21	
1,1-Dichloroethene	ug/kg	ND	5.0	03/02/09 10:21	
1,1-Dichloropropene	ug/kg	ND	5.0	03/02/09 10:21	
1,2,3-Trichlorobenzene	ug/kg	ND	5.0	03/02/09 10:21	
1,2,3-Trichloropropane	ug/kg	ND	5.0	03/02/09 10:21	
1,2,4-Trichlorobenzene	ug/kg	ND	5.0	03/02/09 10:21	
1,2,4-Trimethylbenzene	ug/kg	ND	5.0	03/02/09 10:21	
1,2-Dibromo-3-chloropropane	ug/kg	ND	10.0	03/02/09 10:21	
1,2-Dibromoethane (EDB)	ug/kg	ND	5.0	03/02/09 10:21	
1,2-Dichlorobenzene	ug/kg	ND	5.0	03/02/09 10:21	
1,2-Dichloroethane	ug/kg	ND	5.0	03/02/09 10:21	
1,2-Dichloroethene (Total)	ug/kg	ND	5.0	03/02/09 10:21	
1,2-Dichloropropane	ug/kg	ND	5.0	03/02/09 10:21	
1,3,5-Trimethylbenzene	ug/kg	ND	5.0	03/02/09 10:21	
1,3-Dichlorobenzene	ug/kg	ND	5.0	03/02/09 10:21	
1,3-Dichloropropane	ug/kg	ND	5.0	03/02/09 10:21	
1,4-Dichlorobenzene	ug/kg	ND	5.0	03/02/09 10:21	
2,2-Dichloropropane	ug/kg	ND	5.0	03/02/09 10:21	
2-Butanone (MEK)	ug/kg	ND	10.0	03/02/09 10:21	
2-Chlorotoluene	ug/kg	ND	5.0	03/02/09 10:21	
2-Hexanone	ug/kg	ND	20.0	03/02/09 10:21	
4-Chlorotoluene	ug/kg	ND	5.0	03/02/09 10:21	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	10.0	03/02/09 10:21	
Acetone	ug/kg	ND	20.0	03/02/09 10:21	
Benzene	ug/kg	ND	5.0	03/02/09 10:21	
Bromobenzene	ug/kg	ND	5.0	03/02/09 10:21	
Bromochloromethane	ug/kg	ND	5.0	03/02/09 10:21	
Bromodichloromethane	ug/kg	ND	5.0	03/02/09 10:21	
Bromoform	ug/kg	ND	5.0	03/02/09 10:21	
Bromomethane	ug/kg	ND	5.0	03/02/09 10:21	
Carbon disulfide	ug/kg	ND	5.0	03/02/09 10:21	
Carbon tetrachloride	ug/kg	ND	5.0	03/02/09 10:21	
Chlorobenzene	ug/kg	ND	5.0	03/02/09 10:21	
Chloroethane	ug/kg	ND	5.0	03/02/09 10:21	
Chloroform	ug/kg	ND	5.0	03/02/09 10:21	
Chloromethane	ug/kg	ND	5.0	03/02/09 10:21	
cis-1,2-Dichloroethene	ug/kg	ND	5.0	03/02/09 10:21	
cis-1,3-Dichloropropene	ug/kg	ND	5.0	03/02/09 10:21	
Dibromochloromethane	ug/kg	ND	5.0	03/02/09 10:21	

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QUALITY CONTROL DATA

Project: ANL Hanover
Pace Project No.: 6054844

METHOD BLANK: 449579 Matrix: Solid

Associated Lab Samples: 6054763004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/kg	ND	5.0	03/02/09 10:21	
Dichlorodifluoromethane	ug/kg	ND	5.0	03/02/09 10:21	
Ethylbenzene	ug/kg	ND	5.0	03/02/09 10:21	
Hexachloro-1,3-butadiene	ug/kg	ND	5.0	03/02/09 10:21	
Isopropylbenzene (Cumene)	ug/kg	ND	5.0	03/02/09 10:21	
Methyl-tert-butyl ether	ug/kg	ND	5.0	03/02/09 10:21	
Methylene chloride	ug/kg	ND	5.0	03/02/09 10:21	
n-Butylbenzene	ug/kg	ND	5.0	03/02/09 10:21	
n-Propylbenzene	ug/kg	ND	5.0	03/02/09 10:21	
Naphthalene	ug/kg	ND	10.0	03/02/09 10:21	
p-Isopropyltoluene	ug/kg	ND	5.0	03/02/09 10:21	
sec-Butylbenzene	ug/kg	ND	5.0	03/02/09 10:21	
Styrene	ug/kg	ND	5.0	03/02/09 10:21	
tert-Butylbenzene	ug/kg	ND	5.0	03/02/09 10:21	
Tetrachloroethene	ug/kg	ND	5.0	03/02/09 10:21	
Toluene	ug/kg	ND	5.0	03/02/09 10:21	
trans-1,2-Dichloroethene	ug/kg	ND	5.0	03/02/09 10:21	
trans-1,3-Dichloropropene	ug/kg	ND	5.0	03/02/09 10:21	
Trichloroethene	ug/kg	ND	5.0	03/02/09 10:21	
Trichlorofluoromethane	ug/kg	ND	5.0	03/02/09 10:21	
Vinyl chloride	ug/kg	ND	5.0	03/02/09 10:21	
Xylene (Total)	ug/kg	ND	5.0	03/02/09 10:21	
1,2-Dichloroethane-d4 (S)	%	110	77-131	03/02/09 10:21	
4-Bromofluorobenzene (S)	%	101	75-131	03/02/09 10:21	
Dibromofluoromethane (S)	%	109	68-129	03/02/09 10:21	
Toluene-d8 (S)	%	107	81-121	03/02/09 10:21	

LABORATORY CONTROL SAMPLE: 449580

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	50	53.8	108	84-122	
1,1,1-Trichloroethane	ug/kg	50	53.7	107	83-124	
1,1,2,2-Tetrachloroethane	ug/kg	50	47.1	94	77-120	
1,1,2-Trichloroethane	ug/kg	50	47.7	95	85-121	
1,1-Dichloroethane	ug/kg	50	52.2	104	79-120	
1,1-Dichloroethene	ug/kg	50	47.9	96	72-128	
1,1-Dichloropropene	ug/kg	50	48.8	98	85-121	
1,2,3-Trichlorobenzene	ug/kg	50	49.5	99	82-130	
1,2,3-Trichloropropane	ug/kg	50	47.6	95	77-127	
1,2,4-Trichlorobenzene	ug/kg	50	49.6	99	82-131	
1,2,4-Trimethylbenzene	ug/kg	50	50.5	101	83-126	
1,2-Dibromo-3-chloropropane	ug/kg	50	43.9	88	70-128	
1,2-Dibromoethane (EDB)	ug/kg	50	47.4	95	85-120	
1,2-Dichlorobenzene	ug/kg	50	50.4	101	84-120	
1,2-Dichloroethane	ug/kg	50	51.9	104	80-122	

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QUALITY CONTROL DATA

Project: ANL Hanover
Pace Project No.: 6054844

LABORATORY CONTROL SAMPLE: 449580

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethene (Total)	ug/kg	100	100	100	81-122	
1,2-Dichloropropane	ug/kg	50	47.9	96	84-119	
1,3,5-Trimethylbenzene	ug/kg	50	50.3	101	82-124	
1,3-Dichlorobenzene	ug/kg	50	49.8	100	83-119	
1,3-Dichloropropane	ug/kg	50	46.2	92	84-119	
1,4-Dichlorobenzene	ug/kg	50	49.9	100	82-117	
2,2-Dichloropropane	ug/kg	50	51.7	103	78-127	
2-Butanone (MEK)	ug/kg	125	95.3	76	59-125	
2-Chlorotoluene	ug/kg	50	51.2	102	84-121	
2-Hexanone	ug/kg	125	103	82	73-120	
4-Chlorotoluene	ug/kg	50	49.2	98	81-119	
4-Methyl-2-pentanone (MIBK)	ug/kg	125	104	83	73-118	
Acetone	ug/kg	125	103	82	59-128	
Benzene	ug/kg	50	46.1	92	79-117	
Bromobenzene	ug/kg	50	50.6	101	85-123	
Bromochloromethane	ug/kg	50	49.1	98	83-119	
Bromodichloromethane	ug/kg	50	54.9	110	86-124	
Bromoform	ug/kg	50	53.6	107	77-126	
Bromomethane	ug/kg	50	52.9	106	67-133	
Carbon disulfide	ug/kg	50	44.8	90	50-153	
Carbon tetrachloride	ug/kg	50	55.0	110	87-125	
Chlorobenzene	ug/kg	50	50.6	101	83-119	
Chloroethane	ug/kg	50	53.5	107	64-123	
Chloroform	ug/kg	50	51.1	102	81-119	
Chloromethane	ug/kg	50	44.9	90	44-123	
cis-1,2-Dichloroethene	ug/kg	50	48.2	96	79-127	
cis-1,3-Dichloropropene	ug/kg	50	53.9	108	83-120	
Dibromochloromethane	ug/kg	50	53.9	108	86-119	
Dibromomethane	ug/kg	50	53.7	107	84-119	
Dichlorodifluoromethane	ug/kg	50	39.6	79	14-170	
Ethylbenzene	ug/kg	50	50.0	100	82-118	
Hexachloro-1,3-butadiene	ug/kg	50	51.5	103	85-134	
Isopropylbenzene (Cumene)	ug/kg	50	44.8	90	72-110	
Methyl-tert-butyl ether	ug/kg	50	55.6	111	70-118	
Methylene chloride	ug/kg	50	50.4	101	60-140	
n-Butylbenzene	ug/kg	50	52.8	106	82-130	
n-Propylbenzene	ug/kg	50	49.9	100	81-125	
Naphthalene	ug/kg	50	47.5	95	74-138	
p-Isopropyltoluene	ug/kg	50	49.8	100	81-123	
sec-Butylbenzene	ug/kg	50	50.9	102	82-125	
Styrene	ug/kg	50	49.9	100	84-119	
tert-Butylbenzene	ug/kg	50	51.4	103	79-123	
Tetrachloroethene	ug/kg	50	49.3	99	86-125	
Toluene	ug/kg	50	49.9	100	78-117	
trans-1,2-Dichloroethene	ug/kg	50	52.2	104	77-125	
trans-1,3-Dichloropropene	ug/kg	50	46.5	93	76-112	
Trichloroethene	ug/kg	50	50.6	101	86-126	
Trichlorofluoromethane	ug/kg	50	59.5	119	74-126	

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QUALITY CONTROL DATA

Project: ANL Hanover
Pace Project No.: 6054844

LABORATORY CONTROL SAMPLE: 449580

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vinyl chloride	ug/kg	50	54.3	109	69-153	
Xylene (Total)	ug/kg	150	147	98	79-119	
1,2-Dichloroethane-d4 (S)	%			110	77-131	
4-Bromofluorobenzene (S)	%			103	75-131	
Dibromofluoromethane (S)	%			110	68-129	
Toluene-d8 (S)	%			104	81-121	

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QUALITY CONTROL DATA

Project: ANL Hanover
Pace Project No.: 6054844

QC Batch: PMST/3921
QC Batch Method: ASTM D2974-87
Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 6054763004

SAMPLE DUPLICATE: 449704

Parameter	Units	6054763004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	8.9	8.8	1	20	

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QUALIFIERS

Project: ANL Hanover
Pace Project No.: 6054844

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: ANL Hanover
Pace Project No.: 6054844

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
6054763004	**HAWS01-S-28253**	EPA 8260	MSV/19801		
6054763004	**HAWS01-S-28253**	ASTM D2974-87	PMST/3921		

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FEDEX # 8558-7682-6701

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

Section A Required Client Information:

Company:	Larsen & Associates, Inc.
Address:	1311 E. 25th St. Suite B
	Lawrence, KS 66046
Email To:	Larsen, Evans, Henderson, Burke
Phone: 785-841-8707	Fax: 785-865-4282
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Lisa Larsen
Copy To:	Brooke Evans, Holly Burke
Purchase Order No.:	
Project Name:	~~Bills Service and~~ ANL Hanover
Project Number:	AJH 3.3.09

Section C Invoice Information:

Attention:	Lisa Larsen
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager:	Trudy Gipson
Pace Profile #:	

REGULATORY AGENCY: ☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER ☐ UST ☐ RCRA ☐ OTHER ____

Site Location STATE: KS

Requested Analysis Filtered (Y/N)

Section D Required Client Information

Valid Matrix Codes

MATRIX	CODE
DRINKING WATER	DW
WATER	WT WW
WASTE WATER	P
PRODUCT	SL
SOIL/SOLID	OL
OIL	WP
WIPE	AR
AIR	OT
OTHER	TS
TISSUE	

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start Date	Composite Start Time	Composite End/Grab Date	Composite End/Grab Time *	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N: VOC Scan	Nitrate	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	HAMW14-W-28204	WT	G			2.25.09	0823		2	2							X			2(VGAU) 001
2	HAWW01-W-28216	WT	G			2.26.09	1530		4	3	1						X	X		3(VGAU) 8P35 002
3	HAWW02-W-28217	WT	G			2.26.09	1530		4	3	1						X	X		↓ ↓ 003
4	HAWS01-W-28253	WT	G			2.26.09	1545		2								X			2(VGFU) 004
5	HAQCTBLOW-W-28254	WT	G			2.26.09	1600		2	2							X			2(VGAU) 005
6																				
7																				
8																				
9																				
10																				
11																				
12																				

~~6054763~~ AJH 3.3.09

6054844

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
3-2-09: Per Lisa Larsen - matrix is soil. AJH		2.26.09			2/27	835	5.0	Y	Y	Y

* 3-2-09: Per Lisa Larsen - these are the correct times collected. AJH

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: LISA LARSEN

SIGNATURE of SAMPLER:

DATE Signed (MM/DD/YY): 2-26-09

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-Feb-2007

6054844

Sample Condition Upon Receipt

Pace Analytical®
www.pacelabs.com

Client Name: LARSEN

Project # ~~6054763~~ SPL 3.3.09

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace Other _____

[redacted] 3/11/09

Tracking #: 8558 7682 6706

Custody Seal on Cooler/Box Present: ☑ yes ☐ no Seals intact: ☑ yes ☐ no

Bill's Service and NL Hanover

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ None ☐ Other _____

Thermometer Used (T-142) T-168 Type of Ice: (Wet) Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature 5.0 Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: 3/27

Temp should be above freezing to 6°C

		Comments:
Chain of Custody Present:	☑Yes ☐No ☐N/A	1.
Chain of Custody Filled Out:	☑Yes ☐No ☐N/A	2.
Chain of Custody Relinquished:	☑Yes ☐No ☐N/A	3.
Sampler Name & Signature on COC:	☑Yes ☐No ☐N/A	4.
Samples Arrived within Hold Time:	☑Yes ☐No ☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes ☑No ☐N/A	6.
Rush Turn Around Time Requested:	☐Yes ☑No ☐N/A	7.
Sufficient Volume:	☑Yes ☐No ☐N/A	8.
Correct Containers Used:	☑Yes ☐No ☐N/A	9.
-Pace Containers Used:	~~☑Yes~~ ☑No ☐N/A	
Containers Intact:	☑Yes ☐No ☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes ☑No ☐N/A	11.
Sample Labels match COC: -Includes date/time/ID/Analysis Matrix: WT/SL	☑Yes ☐No ☐N/A	12. HAWS01-W-28253 READS HAWS01-S-28253 ON LABEL AND IS CLEARLY A SOIL 28217 COLLECTED @ 1530 28253 @ 1545
All containers needing preservation have been checked.	☑Yes ☐No ☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☑Yes ☐No ☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☐Yes ☑No	Initial when completed / Lot # of added preservative
Samples checked for dechlorination:	☐Yes ☐No ☑N/A	14.
Headspace in VOA Vials (>6mm):	☐Yes ☑No ☐N/A	15.
Trip Blank Present:	☐Yes ☑No ☐N/A	16.
Trip Blank Custody Seals Present	☐Yes ☑No ☐N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: Copy COC to Client? Y / (N) Field Data Required? Y / N

Person Contacted: Lisa Larsen Date/Time: 3-2-09

Comments/ Resolution: Per client - soil sample correct ID is "HAWS01-S-28253". Client would like results for "...WW01", "...WW02", & "...WS01" rushed, due either 3-2 or 3-3-09. SPL

3-3-09: Lisa would like waters and soil results reported separately

Project Manager Review: SPL 3-2-09 Date: _____

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

F-KS-C-003-Rev.04, 04February2009

Dennis, Clyde B.

From: Lisa Larsen [Lisa@LarsenEnvironmental.com]
Sent: Monday, March 02, 2009 2:19 PM
To: bfinzer@kdhe.state.ks.us
Cc: LaFreniere, Lorraine M.; Dennis, Clyde B.
Subject: Hanover WW

Beth:

Attached is the analytical data for the wastewater samples collected as part of the monitoring well sampling at Hanover. We would like authorization to dispose of it at the Sabetha wastewater treatment plant. Please let us know if KDHE authorizes disposal. If so, we will contact the city of Sabetha and request their permission.

Thanks, Lisa

Lisa Larsen, LG
Larsen & Associates, Inc.
1311 E. 25th St., Suite B
Lawrence, Kansas 66046
785-841-8707 (office)
785-331-9162 (cell)
785-865-4282 (fax)

Dennis, Clyde B.

From: LaFreniere, Lorraine M.
Sent: Monday, March 02, 2009 3:36 PM
To: Dennis, Clyde B.
Subject: FW: Hanover WW

From: Lisa Larsen [mailto:Lisa@LarsenEnvironmental.com]
Sent: Mon 3/2/2009 3:31 PM
To: LaFreniere, Lorraine M.
Cc: surgnier@prodigy.net
Subject: FW: Hanover WW

FYI

Lisa Larsen, LG
Larsen & Associates, Inc.
1311 E. 25th St., Suite B
Lawrence, Kansas 66046
785-841-8707 (office)
785-331-9162 (cell)
785-865-4282 (fax)

From: Beth Finzer [mailto:BFinzer@kdheks.gov]
Sent: Monday, March 02, 2009 2:29 PM
To: Lisa Larsen
Cc: Chris Carey
Subject: RE: Hanover WW

Lisa,
Please coordinate with the city of Sabetha's public wastewater treatment facility regarding the disposal of the wastewater.
Thanks,
Beth

From: Lisa Larsen [mailto:Lisa@LarsenEnvironmental.com]
Sent: Monday, March 02, 2009 2:19 PM
To: Beth Finzer
Cc: LaFreniere, Lorraine M.; Dennis, Clyde B.
Subject: Hanover WW

Beth:

Attached is the analytical data for the wastewater samples collected as part of the monitoring well sampling at Hanover. We would like authorization to dispose of it at the Sabetha wastewater treatment plant. Please let us know if KDHE authorizes disposal. If so, we will contact the city of Sabetha and request their permission.

Thanks, Lisa

Lisa Larsen, LG
Larsen & Associates, Inc.
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Lawrence, Kansas 66046
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785-331-9162 (cell)
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Lenexa, KS 66219
(913)599-5665

March 02, 2009

Lisa Larsen
Larsen & Associates, Inc.
1311 E. 25th St.
Suite B
Lawrence, KS 66046

RE: Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

Dear Lisa Larsen:
Enclosed are the analytical results for sample(s) received by the laboratory on February 27, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Trudy Gipson

trudy.gipson@pacelabs.com
Project Manager

Enclosures

cc: Holly Burke, Larsen & Associates, Inc.
Brooke Evans, Larsen & Associates, Inc.

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CERTIFICATIONS

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

Kansas Certification IDs
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oklahoma Certification #: 9205/9935
Nevada Certification #: KS000212008A
Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
A2LA Certification #: 2456.01

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SAMPLE SUMMARY

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

Lab ID	Sample ID	Matrix	Date Collected	Date Received
6054763001	HAMW14-W-28204	Water	02/25/09 08:23	02/27/09 08:35
6054763002	HAWW01-W-28216	Water	02/26/09 15:30	02/27/09 08:35
6054763003	HAWW02-W-28217	Water	02/26/09 15:30	02/27/09 08:35
6054763005	HAQCTBWW-W-28254	Water	02/26/09 16:00	02/27/09 08:35

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SAMPLE ANALYTE COUNT

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

Lab ID	Sample ID	Method	Analysts	Analytes Reported
6054763001	HAMW14-W-28204	EPA 5030B/8260	AJA	71
6054763002	HAWW01-W-28216	EPA 353.2	HMW	1
		EPA 5030B/8260	AJA	71
6054763003	HAWW02-W-28217	EPA 353.2	HMW	1
		EPA 5030B/8260	AJA	71
6054763005	HAQCTBWW-W-28254	EPA 5030B/8260	AJA	71

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ANALYTICAL RESULTS

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

Sample: HAMW14-W-28204 **Lab ID: 6054763001** Collected: 02/25/09 08:23 Received: 02/27/09 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		03/02/09 12:25	67-64-1	
Benzene	ND	ug/L	1.0	1		03/02/09 12:25	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		03/02/09 12:25	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		03/02/09 12:25	74-97-5	
Bromodichloromethane	**3.3**	ug/L	1.0	1		03/02/09 12:25	75-27-4	
Bromoform	ND	ug/L	1.0	1		03/02/09 12:25	75-25-2	
Bromomethane	ND	ug/L	1.0	1		03/02/09 12:25	74-83-9	
TOTAL BTEX	ND	ug/L	1.0	1		03/02/09 12:25		
2-Butanone (MEK)	ND	ug/L	10.0	1		03/02/09 12:25	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		03/02/09 12:25	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		03/02/09 12:25	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		03/02/09 12:25	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		03/02/09 12:25	75-15-0	
Carbon tetrachloride	**32.7**	ug/L	1.0	1		03/02/09 12:25	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		03/02/09 12:25	108-90-7	
Chloroethane	ND	ug/L	1.0	1		03/02/09 12:25	75-00-3	
Chloroform	**7.8**	ug/L	1.0	1		03/02/09 12:25	67-66-3	
Chloromethane	ND	ug/L	1.0	1		03/02/09 12:25	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		03/02/09 12:25	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		03/02/09 12:25	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		03/02/09 12:25	96-12-8	
Dibromochloromethane	**1.5**	ug/L	1.0	1		03/02/09 12:25	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		03/02/09 12:25	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		03/02/09 12:25	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		03/02/09 12:25	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		03/02/09 12:25	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		03/02/09 12:25	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		03/02/09 12:25	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		03/02/09 12:25	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		03/02/09 12:25	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		03/02/09 12:25	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		03/02/09 12:25	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		03/02/09 12:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		03/02/09 12:25	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		03/02/09 12:25	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		03/02/09 12:25	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		03/02/09 12:25	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		03/02/09 12:25	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		03/02/09 12:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		03/02/09 12:25	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		03/02/09 12:25	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		03/02/09 12:25	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		03/02/09 12:25	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		03/02/09 12:25	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		03/02/09 12:25	99-87-6	
Methylene chloride	ND	ug/L	1.0	1		03/02/09 12:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		03/02/09 12:25	108-10-1	

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ANALYTICAL RESULTS

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

Sample: HAMW14-W-28204 **Lab ID: 6054763001** Collected: 02/25/09 08:23 Received: 02/27/09 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Methyl-tert-butyl ether	ND	ug/L	1.0	1		03/02/09 12:25	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		03/02/09 12:25	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		03/02/09 12:25	103-65-1	
Styrene	ND	ug/L	1.0	1		03/02/09 12:25	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		03/02/09 12:25	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		03/02/09 12:25	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		03/02/09 12:25	127-18-4	
Toluene	ND	ug/L	1.0	1		03/02/09 12:25	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		03/02/09 12:25	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		03/02/09 12:25	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		03/02/09 12:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		03/02/09 12:25	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		03/02/09 12:25	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		03/02/09 12:25	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		03/02/09 12:25	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		03/02/09 12:25	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		03/02/09 12:25	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		03/02/09 12:25	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		03/02/09 12:25	1330-20-7	
4-Bromofluorobenzene (S)	105	%	87-115	1		03/02/09 12:25	460-00-4	
Dibromofluoromethane (S)	98	%	87-113	1		03/02/09 12:25	1868-53-7	
1,2-Dichloroethane-d4 (S)	97	%	81-121	1		03/02/09 12:25	17060-07-0	
Toluene-d8 (S)	100	%	89-111	1		03/02/09 12:25	2037-26-5	
Preservation pH	**6.0**		0.10	1		03/02/09 12:25		

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ANALYTICAL RESULTS

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

Sample: HAWW01-W-28216 **Lab ID: 6054763002** Collected: 02/26/09 15:30 Received: 02/27/09 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	**28.9**	ug/L	10.0	1		03/02/09 11:54	67-64-1	
Benzene	ND	ug/L	1.0	1		03/02/09 11:54	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		03/02/09 11:54	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		03/02/09 11:54	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		03/02/09 11:54	75-27-4	
Bromoform	ND	ug/L	1.0	1		03/02/09 11:54	75-25-2	
Bromomethane	ND	ug/L	1.0	1		03/02/09 11:54	74-83-9	
TOTAL BTEX	**14.0**	ug/L	1.0	1		03/02/09 11:54		
2-Butanone (MEK)	ND	ug/L	10.0	1		03/02/09 11:54	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		03/02/09 11:54	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		03/02/09 11:54	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		03/02/09 11:54	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		03/02/09 11:54	75-15-0	
Carbon tetrachloride	**36.0**	ug/L	1.0	1		03/02/09 11:54	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		03/02/09 11:54	108-90-7	
Chloroethane	ND	ug/L	1.0	1		03/02/09 11:54	75-00-3	
Chloroform	**5.2**	ug/L	1.0	1		03/02/09 11:54	67-66-3	
Chloromethane	ND	ug/L	1.0	1		03/02/09 11:54	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		03/02/09 11:54	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		03/02/09 11:54	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		03/02/09 11:54	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		03/02/09 11:54	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		03/02/09 11:54	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		03/02/09 11:54	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		03/02/09 11:54	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		03/02/09 11:54	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		03/02/09 11:54	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		03/02/09 11:54	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		03/02/09 11:54	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		03/02/09 11:54	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		03/02/09 11:54	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		03/02/09 11:54	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		03/02/09 11:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		03/02/09 11:54	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		03/02/09 11:54	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		03/02/09 11:54	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		03/02/09 11:54	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		03/02/09 11:54	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		03/02/09 11:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		03/02/09 11:54	10061-02-6	
Ethylbenzene	**1.7**	ug/L	1.0	1		03/02/09 11:54	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		03/02/09 11:54	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		03/02/09 11:54	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		03/02/09 11:54	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		03/02/09 11:54	99-87-6	
Methylene chloride	ND	ug/L	1.0	1		03/02/09 11:54	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		03/02/09 11:54	108-10-1	

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ANALYTICAL RESULTS

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

Sample: HAWW01-W-28216 **Lab ID: 6054763002** Collected: 02/26/09 15:30 Received: 02/27/09 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Methyl-tert-butyl ether	ND	ug/L	1.0	1		03/02/09 11:54	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		03/02/09 11:54	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		03/02/09 11:54	103-65-1	
Styrene	ND	ug/L	1.0	1		03/02/09 11:54	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		03/02/09 11:54	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		03/02/09 11:54	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		03/02/09 11:54	127-18-4	
Toluene	**6.5**	ug/L	1.0	1		03/02/09 11:54	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		03/02/09 11:54	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		03/02/09 11:54	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		03/02/09 11:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		03/02/09 11:54	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		03/02/09 11:54	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		03/02/09 11:54	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		03/02/09 11:54	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		03/02/09 11:54	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		03/02/09 11:54	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		03/02/09 11:54	75-01-4	
Xylene (Total)	**5.9**	ug/L	3.0	1		03/02/09 11:54	1330-20-7	
4-Bromofluorobenzene (S)	104	%	87-115	1		03/02/09 11:54	460-00-4	
Dibromofluoromethane (S)	95	%	87-113	1		03/02/09 11:54	1868-53-7	
1,2-Dichloroethane-d4 (S)	97	%	81-121	1		03/02/09 11:54	17060-07-0	
Toluene-d8 (S)	101	%	89-111	1		03/02/09 11:54	2037-26-5	
Preservation pH	**6.0**		0.10	1		03/02/09 11:54		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	**4.8**	mg/L	0.10	1		03/02/09 09:51		

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ANALYTICAL RESULTS

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

Sample: HAWW02-W-28217 **Lab ID: 6054763003** Collected: 02/26/09 15:30 Received: 02/27/09 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	100	10		03/02/09 12:10	67-64-1	
Benzene	**72.2**	ug/L	10.0	10		03/02/09 12:10	71-43-2	
Bromobenzene	ND	ug/L	10.0	10		03/02/09 12:10	108-86-1	
Bromochloromethane	ND	ug/L	10.0	10		03/02/09 12:10	74-97-5	
Bromodichloromethane	ND	ug/L	10.0	10		03/02/09 12:10	75-27-4	
Bromoform	ND	ug/L	10.0	10		03/02/09 12:10	75-25-2	
Bromomethane	ND	ug/L	10.0	10		03/02/09 12:10	74-83-9	
TOTAL BTEX	**447**	ug/L	10.0	10		03/02/09 12:10		
2-Butanone (MEK)	ND	ug/L	100	10		03/02/09 12:10	78-93-3	
n-Butylbenzene	**26.4**	ug/L	10.0	10		03/02/09 12:10	104-51-8	
sec-Butylbenzene	ND	ug/L	10.0	10		03/02/09 12:10	135-98-8	
tert-Butylbenzene	ND	ug/L	10.0	10		03/02/09 12:10	98-06-6	
Carbon disulfide	ND	ug/L	50.0	10		03/02/09 12:10	75-15-0	
Carbon tetrachloride	ND	ug/L	10.0	10		03/02/09 12:10	56-23-5	
Chlorobenzene	ND	ug/L	10.0	10		03/02/09 12:10	108-90-7	
Chloroethane	ND	ug/L	10.0	10		03/02/09 12:10	75-00-3	
Chloroform	ND	ug/L	10.0	10		03/02/09 12:10	67-66-3	
Chloromethane	ND	ug/L	10.0	10		03/02/09 12:10	74-87-3	
2-Chlorotoluene	ND	ug/L	10.0	10		03/02/09 12:10	95-49-8	
4-Chlorotoluene	ND	ug/L	10.0	10		03/02/09 12:10	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	25.0	10		03/02/09 12:10	96-12-8	
Dibromochloromethane	ND	ug/L	10.0	10		03/02/09 12:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	10.0	10		03/02/09 12:10	106-93-4	
Dibromomethane	ND	ug/L	10.0	10		03/02/09 12:10	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	10.0	10		03/02/09 12:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	10.0	10		03/02/09 12:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.0	10		03/02/09 12:10	106-46-7	
Dichlorodifluoromethane	ND	ug/L	10.0	10		03/02/09 12:10	75-71-8	
1,1-Dichloroethane	ND	ug/L	10.0	10		03/02/09 12:10	75-34-3	
1,2-Dichloroethane	ND	ug/L	10.0	10		03/02/09 12:10	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	10.0	10		03/02/09 12:10	540-59-0	
1,1-Dichloroethene	ND	ug/L	10.0	10		03/02/09 12:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	10.0	10		03/02/09 12:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	10.0	10		03/02/09 12:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	10.0	10		03/02/09 12:10	78-87-5	
1,3-Dichloropropane	ND	ug/L	10.0	10		03/02/09 12:10	142-28-9	
2,2-Dichloropropane	ND	ug/L	10.0	10		03/02/09 12:10	594-20-7	
1,1-Dichloropropene	ND	ug/L	10.0	10		03/02/09 12:10	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	10.0	10		03/02/09 12:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	10.0	10		03/02/09 12:10	10061-02-6	
Ethylbenzene	ND	ug/L	10.0	10		03/02/09 12:10	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	10		03/02/09 12:10	87-68-3	
2-Hexanone	ND	ug/L	100	10		03/02/09 12:10	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	10.0	10		03/02/09 12:10	98-82-8	
p-Isopropyltoluene	ND	ug/L	10.0	10		03/02/09 12:10	99-87-6	
Methylene chloride	ND	ug/L	10.0	10		03/02/09 12:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	100	10		03/02/09 12:10	108-10-1	

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

Sample: HAWW02-W-28217 **Lab ID: 6054763003** Collected: 02/26/09 15:30 Received: 02/27/09 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Methyl-tert-butyl ether	ND	ug/L	10.0	10		03/02/09 12:10	1634-04-4	
Naphthalene	ND	ug/L	100	10		03/02/09 12:10	91-20-3	
n-Propylbenzene	ND	ug/L	10.0	10		03/02/09 12:10	103-65-1	
Styrene	ND	ug/L	10.0	10		03/02/09 12:10	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	10.0	10		03/02/09 12:10	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	10.0	10		03/02/09 12:10	79-34-5	
Tetrachloroethene	ND	ug/L	10.0	10		03/02/09 12:10	127-18-4	
Toluene	**73.9**	ug/L	10.0	10		03/02/09 12:10	108-88-3	
1,2,3-Trichlorobenzene	**13.3**	ug/L	10.0	10		03/02/09 12:10	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	10.0	10		03/02/09 12:10	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	10.0	10		03/02/09 12:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	10.0	10		03/02/09 12:10	79-00-5	
Trichloroethene	ND	ug/L	10.0	10		03/02/09 12:10	79-01-6	
Trichlorofluoromethane	ND	ug/L	10.0	10		03/02/09 12:10	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	25.0	10		03/02/09 12:10	96-18-4	
1,2,4-Trimethylbenzene	**174**	ug/L	10.0	10		03/02/09 12:10	95-63-6	
1,3,5-Trimethylbenzene	**92.1**	ug/L	10.0	10		03/02/09 12:10	108-67-8	
Vinyl chloride	ND	ug/L	10.0	10		03/02/09 12:10	75-01-4	
Xylene (Total)	**301**	ug/L	30.0	10		03/02/09 12:10	1330-20-7	
4-Bromofluorobenzene (S)	104	%	87-115	10		03/02/09 12:10	460-00-4	D3
Dibromofluoromethane (S)	98	%	87-113	10		03/02/09 12:10	1868-53-7	
1,2-Dichloroethane-d4 (S)	100	%	81-121	10		03/02/09 12:10	17060-07-0	
Toluene-d8 (S)	101	%	89-111	10		03/02/09 12:10	2037-26-5	
Preservation pH	**6.0**		0.10	10		03/02/09 12:10		
353.2 Nitrogen, NO2/NO3 pres.	Analytical Method: EPA 353.2							
Nitrogen, NO2 plus NO3	**0.19**	mg/L	0.10	1		03/02/09 09:54		

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ANALYTICAL RESULTS

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

Sample: HAQCTBWW-W-28254 **Lab ID: 6054763005** Collected: 02/26/09 16:00 Received: 02/27/09 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		03/02/09 12:40	67-64-1	
Benzene	ND	ug/L	1.0	1		03/02/09 12:40	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		03/02/09 12:40	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		03/02/09 12:40	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		03/02/09 12:40	75-27-4	
Bromoform	ND	ug/L	1.0	1		03/02/09 12:40	75-25-2	
Bromomethane	ND	ug/L	1.0	1		03/02/09 12:40	74-83-9	
TOTAL BTEX	ND	ug/L	1.0	1		03/02/09 12:40		
2-Butanone (MEK)	ND	ug/L	10.0	1		03/02/09 12:40	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		03/02/09 12:40	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		03/02/09 12:40	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		03/02/09 12:40	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		03/02/09 12:40	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	1		03/02/09 12:40	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		03/02/09 12:40	108-90-7	
Chloroethane	ND	ug/L	1.0	1		03/02/09 12:40	75-00-3	
Chloroform	ND	ug/L	1.0	1		03/02/09 12:40	67-66-3	
Chloromethane	ND	ug/L	1.0	1		03/02/09 12:40	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		03/02/09 12:40	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		03/02/09 12:40	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		03/02/09 12:40	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		03/02/09 12:40	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		03/02/09 12:40	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		03/02/09 12:40	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		03/02/09 12:40	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		03/02/09 12:40	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		03/02/09 12:40	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		03/02/09 12:40	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		03/02/09 12:40	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		03/02/09 12:40	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		03/02/09 12:40	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		03/02/09 12:40	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		03/02/09 12:40	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		03/02/09 12:40	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		03/02/09 12:40	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		03/02/09 12:40	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		03/02/09 12:40	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		03/02/09 12:40	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		03/02/09 12:40	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		03/02/09 12:40	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		03/02/09 12:40	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		03/02/09 12:40	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		03/02/09 12:40	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		03/02/09 12:40	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		03/02/09 12:40	99-87-6	
Methylene chloride	ND	ug/L	1.0	1		03/02/09 12:40	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		03/02/09 12:40	108-10-1	

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ANALYTICAL RESULTS

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

Sample: HAQCTBWW-W-28254 **Lab ID: 6054763005** Collected: 02/26/09 16:00 Received: 02/27/09 08:35 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Methyl-tert-butyl ether	ND	ug/L	1.0	1		03/02/09 12:40	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		03/02/09 12:40	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		03/02/09 12:40	103-65-1	
Styrene	ND	ug/L	1.0	1		03/02/09 12:40	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		03/02/09 12:40	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		03/02/09 12:40	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		03/02/09 12:40	127-18-4	
Toluene	ND	ug/L	1.0	1		03/02/09 12:40	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		03/02/09 12:40	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		03/02/09 12:40	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		03/02/09 12:40	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		03/02/09 12:40	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		03/02/09 12:40	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		03/02/09 12:40	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		03/02/09 12:40	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		03/02/09 12:40	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		03/02/09 12:40	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		03/02/09 12:40	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		03/02/09 12:40	1330-20-7	
4-Bromofluorobenzene (S)	107	%	87-115	1		03/02/09 12:40	460-00-4	
Dibromofluoromethane (S)	96	%	87-113	1		03/02/09 12:40	1868-53-7	
1,2-Dichloroethane-d4 (S)	96	%	81-121	1		03/02/09 12:40	17060-07-0	
Toluene-d8 (S)	99	%	89-111	1		03/02/09 12:40	2037-26-5	
Preservation pH	**6.0**		0.10	1		03/02/09 12:40		

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QUALITY CONTROL DATA

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

QC Batch: WETA/9175
QC Batch Method: EPA 353.2
Analysis Method: EPA 353.2
Analysis Description: 353.2 Nitrate + Nitrite, preserved
Associated Lab Samples: 6054763002, 6054763003

METHOD BLANK: 449520
Matrix: Water
Associated Lab Samples: 6054763002, 6054763003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	ND	0.10	03/02/09 09:48	

LABORATORY CONTROL SAMPLE: 449521

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	2	1.9	97	90-110	

MATRIX SPIKE SAMPLE: 449522

Parameter	Units	6054763002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	4.8	2	6.3	75	90-110	1e

SAMPLE DUPLICATE: 449523

Parameter	Units	6054711001 Result	Dup Result	RPD	Max RPD	Qualifiers
Nitrogen, NO2 plus NO3	mg/L	3.8	3.9	1	12	

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QUALITY CONTROL DATA

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

QC Batch: MSV/19800 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 7 day
Associated Lab Samples: 6054763001, 6054763002, 6054763003, 6054763005

METHOD BLANK: 449577 Matrix: Water
Associated Lab Samples: 6054763001, 6054763002, 6054763003, 6054763005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	03/02/09 11:39	
1,1,1-Trichloroethane	ug/L	ND	1.0	03/02/09 11:39	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	03/02/09 11:39	
1,1,2-Trichloroethane	ug/L	ND	1.0	03/02/09 11:39	
1,1-Dichloroethane	ug/L	ND	1.0	03/02/09 11:39	
1,1-Dichloroethene	ug/L	ND	1.0	03/02/09 11:39	
1,1-Dichloropropene	ug/L	ND	1.0	03/02/09 11:39	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	03/02/09 11:39	
1,2,3-Trichloropropane	ug/L	ND	2.5	03/02/09 11:39	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	03/02/09 11:39	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	03/02/09 11:39	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.5	03/02/09 11:39	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	03/02/09 11:39	
1,2-Dichlorobenzene	ug/L	ND	1.0	03/02/09 11:39	
1,2-Dichloroethane	ug/L	ND	1.0	03/02/09 11:39	
1,2-Dichloroethene (Total)	ug/L	ND	1.0	03/02/09 11:39	
1,2-Dichloropropane	ug/L	ND	1.0	03/02/09 11:39	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	03/02/09 11:39	
1,3-Dichlorobenzene	ug/L	ND	1.0	03/02/09 11:39	
1,3-Dichloropropane	ug/L	ND	1.0	03/02/09 11:39	
1,4-Dichlorobenzene	ug/L	ND	1.0	03/02/09 11:39	
2,2-Dichloropropane	ug/L	ND	1.0	03/02/09 11:39	
2-Butanone (MEK)	ug/L	ND	10.0	03/02/09 11:39	
2-Chlorotoluene	ug/L	ND	1.0	03/02/09 11:39	
2-Hexanone	ug/L	ND	10.0	03/02/09 11:39	
4-Chlorotoluene	ug/L	ND	1.0	03/02/09 11:39	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	03/02/09 11:39	
Acetone	ug/L	ND	10.0	03/02/09 11:39	
Benzene	ug/L	ND	1.0	03/02/09 11:39	
Bromobenzene	ug/L	ND	1.0	03/02/09 11:39	
Bromochloromethane	ug/L	ND	1.0	03/02/09 11:39	
Bromodichloromethane	ug/L	ND	1.0	03/02/09 11:39	
Bromoform	ug/L	ND	1.0	03/02/09 11:39	
Bromomethane	ug/L	ND	1.0	03/02/09 11:39	
Carbon disulfide	ug/L	ND	5.0	03/02/09 11:39	
Carbon tetrachloride	ug/L	ND	1.0	03/02/09 11:39	
Chlorobenzene	ug/L	ND	1.0	03/02/09 11:39	
Chloroethane	ug/L	ND	1.0	03/02/09 11:39	
Chloroform	ug/L	ND	1.0	03/02/09 11:39	
Chloromethane	ug/L	ND	1.0	03/02/09 11:39	
cis-1,2-Dichloroethene	ug/L	ND	1.0	03/02/09 11:39	
cis-1,3-Dichloropropene	ug/L	ND	1.0	03/02/09 11:39	
Dibromochloromethane	ug/L	ND	1.0	03/02/09 11:39	

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QUALITY CONTROL DATA

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

METHOD BLANK: 449577 Matrix: Water

Associated Lab Samples: 6054763001, 6054763002, 6054763003, 6054763005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/L	ND	1.0	03/02/09 11:39	
Dichlorodifluoromethane	ug/L	ND	1.0	03/02/09 11:39	
Ethylbenzene	ug/L	ND	1.0	03/02/09 11:39	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	03/02/09 11:39	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	03/02/09 11:39	
Methyl-tert-butyl ether	ug/L	ND	1.0	03/02/09 11:39	
Methylene chloride	ug/L	ND	1.0	03/02/09 11:39	
n-Butylbenzene	ug/L	ND	1.0	03/02/09 11:39	
n-Propylbenzene	ug/L	ND	1.0	03/02/09 11:39	
Naphthalene	ug/L	ND	10.0	03/02/09 11:39	
p-Isopropyltoluene	ug/L	ND	1.0	03/02/09 11:39	
sec-Butylbenzene	ug/L	ND	1.0	03/02/09 11:39	
Styrene	ug/L	ND	1.0	03/02/09 11:39	
tert-Butylbenzene	ug/L	ND	1.0	03/02/09 11:39	
Tetrachloroethene	ug/L	ND	1.0	03/02/09 11:39	
Toluene	ug/L	ND	1.0	03/02/09 11:39	
TOTAL BTEX	ug/L	ND	1.0	03/02/09 11:39	
trans-1,2-Dichloroethene	ug/L	ND	1.0	03/02/09 11:39	
trans-1,3-Dichloropropene	ug/L	ND	1.0	03/02/09 11:39	
Trichloroethene	ug/L	ND	1.0	03/02/09 11:39	
Trichlorofluoromethane	ug/L	ND	1.0	03/02/09 11:39	
Vinyl chloride	ug/L	ND	1.0	03/02/09 11:39	
Xylene (Total)	ug/L	ND	3.0	03/02/09 11:39	
1,2-Dichloroethane-d4 (S)	%	94	81-121	03/02/09 11:39	
4-Bromofluorobenzene (S)	%	104	87-115	03/02/09 11:39	
Dibromofluoromethane (S)	%	96	87-113	03/02/09 11:39	
Toluene-d8 (S)	%	99	89-111	03/02/09 11:39	

PRELIMINARY

LABORATORY CONTROL SAMPLE: 449578

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	10.1	101	75-121	
1,1,1-Trichloroethane	ug/L	10	9.1	91	73-120	
1,1,2,2-Tetrachloroethane	ug/L	10	8.3	83	73-128	
1,1,2-Trichloroethane	ug/L	10	9.5	95	83-125	
1,1-Dichloroethane	ug/L	10	8.9	89	79-115	
1,1-Dichloroethene	ug/L	10	7.8	78	76-122	
1,1-Dichloropropene	ug/L	10	8.7	87	80-119	
1,2,3-Trichlorobenzene	ug/L	10	9.4	94	70-138	
1,2,3-Trichloropropane	ug/L	10	8.6	86	74-129	
1,2,4-Trichlorobenzene	ug/L	10	8.3	83	72-131	
1,2,4-Trimethylbenzene	ug/L	10	8.9	89	78-123	
1,2-Dibromo-3-chloropropane	ug/L	10	9.6	96	61-139	
1,2-Dibromoethane (EDB)	ug/L	10	9.7	97	80-124	
1,2-Dichlorobenzene	ug/L	10	8.9	89	82-113	

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QUALITY CONTROL DATA

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

LABORATORY CONTROL SAMPLE: 449578

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethane	ug/L	10	8.4	84	78-118	
1,2-Dichloroethene (Total)	ug/L	20	17.8	89	79-120	
1,2-Dichloropropane	ug/L	10	9.0	90	83-117	
1,3,5-Trimethylbenzene	ug/L	10	8.8	88	79-116	
1,3-Dichlorobenzene	ug/L	10	8.8	88	82-112	
1,3-Dichloropropane	ug/L	10	9.4	94	82-121	
1,4-Dichlorobenzene	ug/L	10	9.0	90	81-111	
2,2-Dichloropropane	ug/L	10	10.6	106	55-139	
2-Butanone (MEK)	ug/L	25	19.1	76	61-136	
2-Chlorotoluene	ug/L	10	9.9	99	81-115	
2-Hexanone	ug/L	25	20.6	82	65-137	
4-Chlorotoluene	ug/L	10	9.1	91	81-111	
4-Methyl-2-pentanone (MIBK)	ug/L	25	17.8	71	65-133	
Acetone	ug/L	25	19.6	78	58-126	
Benzene	ug/L	10	8.7	87	81-114	
Bromobenzene	ug/L	10	8.9	89	84-113	
Bromochloromethane	ug/L	10	9.0	90	79-120	
Bromodichloromethane	ug/L	10	8.6	86	75-119	
Bromoform	ug/L	10	10.1	101	66-132	
Bromomethane	ug/L	10	10.3	103	58-151	
Carbon disulfide	ug/L	10	7.7	77	49-148	
Carbon tetrachloride	ug/L	10	11.0	110	62-137	
Chlorobenzene	ug/L	10	9.5	95	81-113	
Chloroethane	ug/L	10	14.5	145	65-119	L3
Chloroform	ug/L	10	8.8	88	76-118	
Chloromethane	ug/L	10	8.3	83	40-132	
cis-1,2-Dichloroethene	ug/L	10	8.6	86	80-119	
cis-1,3-Dichloropropene	ug/L	10	9.4	94	75-122	
Dibromochloromethane	ug/L	10	10	100	72-124	
Dibromomethane	ug/L	10	8.4	84	79-121	
Dichlorodifluoromethane	ug/L	10	3.0	30	11-156	
Ethylbenzene	ug/L	10	9.4	94	82-115	
Hexachloro-1,3-butadiene	ug/L	10	8.6	86	72-139	
Isopropylbenzene (Cumene)	ug/L	10	8.0	80	69-103	
Methyl-tert-butyl ether	ug/L	10	8.1	81	65-113	
Methylene chloride	ug/L	10	8.3	83	76-124	
n-Butylbenzene	ug/L	10	8.9	89	77-121	
n-Propylbenzene	ug/L	10	9.2	92	79-116	
Naphthalene	ug/L	10	9.6J	96	66-132	
p-Isopropyltoluene	ug/L	10	8.7	87	77-114	
sec-Butylbenzene	ug/L	10	9.2	92	80-119	
Styrene	ug/L	10	9.1	91	81-115	
tert-Butylbenzene	ug/L	10	9.3	93	77-121	
Tetrachloroethene	ug/L	10	9.7	97	73-122	
Toluene	ug/L	10	9.3	93	82-114	
TOTAL BTEX	ug/L		54.6			
trans-1,2-Dichloroethene	ug/L	10	9.1	91	75-122	
trans-1,3-Dichloropropene	ug/L	10	8.8	88	66-114	

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QUALITY CONTROL DATA

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

LABORATORY CONTROL SAMPLE: 449578

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Trichloroethene	ug/L	10	8.9	89	78-119	
Trichlorofluoromethane	ug/L	10	9.3	93	71-120	
Vinyl chloride	ug/L	10	9.7	97	67-139	
Xylene (Total)	ug/L	30	27.1	90	81-116	
1,2-Dichloroethane-d4 (S)	%			93	81-121	
4-Bromofluorobenzene (S)	%			104	87-115	
Dibromofluoromethane (S)	%			98	87-113	
Toluene-d8 (S)	%			100	89-111	

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QUALIFIERS

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

BATCH QUALIFIERS

Batch: MSV/19800

[1] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

1e Matrix spike recovery was outside the QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Bills Service and ANL Hanover
Pace Project No.: 6054763

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
6054763002	HAWW01-W-28216	EPA 353.2	WETA/9175		
6054763003	HAWW02-W-28217	EPA 353.2	WETA/9175		
6054763001	HAMW14-W-28204	EPA 5030B/8260	MSV/19800		
6054763002	HAWW01-W-28216	EPA 5030B/8260	MSV/19800		
6054763003	HAWW02-W-28217	EPA 5030B/8260	MSV/19800		
6054763005	HAQCTBWW-W-28254	EPA 5030B/8260	MSV/19800		

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From: Beth Finzer [mailto:BFinzer@kdheks.gov]
Sent: Thursday, October 29, 2009 9:55 AM
To: 'Roe, Caroline - Washington, DC'
Cc: Chris Carey; LaFreniere , Lorraine M.; 'surgnier@prodigy.net'
Subject: Investigation Derived Waste

Caroline,

This e-mail is in response to David Surgnier's e-mail regarding disposal of liquid investigation derived waste (IDW). In general, IDW should be managed in accord with EPA's *Guide to Management of Investigation-Derived Waste* (Publication: 9345.3-03FS); a copy of which is attached. All IDW should be containerized and characterized prior to disposal. All materials determined to be hazardous wastes must be managed in accord with applicable federal and state laws and regulations.

Non-hazardous liquid IDW with contaminant concentrations above respective maximum contaminant levels (MCLs) or Tier 2 Levels should be disposed off-site (e.g., at a Publicly Owned Treatment Works (POTW)). Please note that this also applies to contaminants detected that are not associated with former CCC/USDA facilities (e.g., nitrate). Liquid IDW with contaminant concentrations below respective threshold levels may be disposed on-site. The waste should not be discharged near surface water bodies or drainage areas or near groundwater wells. All field activity/monitoring reports should include information on the characterization and management of IDW. It is not necessary for CCC/USDA or its contractors to contact KDHE-BER for approval each time IDW is disposed.

Please contact me if you have any questions.

Thanks,
Beth

Beth Finzer
Environmental Scientist
Kansas Department of Health and Environment
Bureau of Remediation

Phone:785-2961936

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October 30, 2009

Mr. Travis Kamler
TCW Construction Inc
141 M Street
Lincoln, NE 68508

RE: Project: Kansas Waste Water
Pace Project No.: 6068053

Dear Mr. Kamler:
Enclosed are the analytical results for sample(s) received by the laboratory on October 20, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Trudy Gipson

Trudy Gipson

trudy.gipson@pacelabs.com
Project Manager

Enclosures

cc: Mr. David Surgnier

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CERTIFICATIONS

Project: Kansas Waste Water
Pace Project No.: 6068053

Kansas Certification IDs

Washington Certification #: C2069
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oregon Certification #: KS200001
Oklahoma Certification #: 9205/9935
Nevada Certification #: KS000212008A
Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
A2LA Certification #: 2456.01

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SAMPLE SUMMARY

Project: Kansas Waste Water
Pace Project No.: 6068053

Lab ID	Sample ID	Matrix	Date Collected	Date Received
6068053001	CNPURGE-W-1019091	Water	10/19/09 11:00	10/20/09 09:05
6068053002	BAPURGE-W-1019092	Water	10/19/09 12:28	10/20/09 09:05
6068053003	HAPURGE-W-1019093	Water	10/19/09 13:52	10/20/09 09:05
6068053004	QCTB-W-1019094	Water	10/19/09 17:40	10/20/09 09:05

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SAMPLE ANALYTE COUNT

Project: Kansas Waste Water
Pace Project No.: 6068053

Lab ID	Sample ID	Method	Analysts	Analytes Reported
6068053001	CNPURGE-W-1019091	EPA 300.0	RAB	1
		EPA 5030B/8260	AJA	70
		EPA 504.1	NAW	1
6068053002	BAPURGE-W-1019092	EPA 300.0	RAB	1
		EPA 5030B/8260	AJA	70
		EPA 504.1	NAW	1
6068053003	HAPURGE-W-1019093	EPA 300.0	RAB	1
		EPA 5030B/8260	AJA	70
		EPA 504.1	NAW	1
6068053004	QCTB-W-1019094	EPA 5030B/8260	AJA	70

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6068053

Sample: CNPURGE-W-1019091 **Lab ID: 6068053001** Collected: 10/19/09 11:00 Received: 10/20/09 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
504 GCS EDB and DBCP	Analytical Method: EPA 504.1 Preparation Method: EPA 504.1							
1,2-Dibromoethane (EDB)	ND	ug/L	0.028	1	10/27/09 00:00	10/27/09 17:43	106-93-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		10/24/09 19:10	67-64-1	
Benzene	ND	ug/L	1.0	1		10/24/09 19:10	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		10/24/09 19:10	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		10/24/09 19:10	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		10/24/09 19:10	75-27-4	
Bromoform	ND	ug/L	1.0	1		10/24/09 19:10	75-25-2	
Bromomethane	ND	ug/L	1.0	1		10/24/09 19:10	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		10/24/09 19:10	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:10	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:10	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:10	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		10/24/09 19:10	75-15-0	
Carbon tetrachloride	**2.3**	ug/L	1.0	1		10/24/09 19:10	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		10/24/09 19:10	108-90-7	
Chloroethane	ND	ug/L	1.0	1		10/24/09 19:10	75-00-3	
Chloroform	ND	ug/L	1.0	1		10/24/09 19:10	67-66-3	
Chloromethane	ND	ug/L	1.0	1		10/24/09 19:10	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		10/24/09 19:10	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		10/24/09 19:10	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		10/24/09 19:10	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		10/24/09 19:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		10/24/09 19:10	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		10/24/09 19:10	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:10	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		10/24/09 19:10	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		10/24/09 19:10	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		10/24/09 19:10	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		10/24/09 19:10	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:10	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:10	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:10	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:10	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:10	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:10	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		10/24/09 19:10	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		10/24/09 19:10	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		10/24/09 19:10	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		10/24/09 19:10	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		10/24/09 19:10	99-87-6	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6068053

Sample: CNPURGE-W-1019091 **Lab ID: 6068053001** Collected: 10/19/09 11:00 Received: 10/20/09 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Methylene chloride	ND	ug/L	1.0	1		10/24/09 19:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		10/24/09 19:10	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/24/09 19:10	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		10/24/09 19:10	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		10/24/09 19:10	103-65-1	
Styrene	ND	ug/L	1.0	1		10/24/09 19:10	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		10/24/09 19:10	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		10/24/09 19:10	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		10/24/09 19:10	127-18-4	
Toluene	ND	ug/L	1.0	1		10/24/09 19:10	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:10	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:10	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		10/24/09 19:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		10/24/09 19:10	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		10/24/09 19:10	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		10/24/09 19:10	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		10/24/09 19:10	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		10/24/09 19:10	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		10/24/09 19:10	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		10/24/09 19:10	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		10/24/09 19:10	1330-20-7	
4-Bromofluorobenzene (S)	103	%	87-115	1		10/24/09 19:10	460-00-4	
Dibromofluoromethane (S)	99	%	87-113	1		10/24/09 19:10	1868-53-7	
1,2-Dichloroethane-d4 (S)	101	%	81-121	1		10/24/09 19:10	17060-07-0	
Toluene-d8 (S)	101	%	89-111	1		10/24/09 19:10	2037-26-5	
Preservation pH	**6.0**		0.10	1		10/24/09 19:10		
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**2.1**	mg/L	0.10	1		10/20/09 18:55	14797-55-8	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6068053

Sample: BAPURGE-W-1019092 **Lab ID: 6068053002** Collected: 10/19/09 12:28 Received: 10/20/09 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
504 GCS EDB and DBCP	Analytical Method: EPA 504.1 Preparation Method: EPA 504.1							
1,2-Dibromoethane (EDB)	ND	ug/L	0.027	1	10/27/09 00:00	10/27/09 18:12	106-93-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		10/24/09 19:26	67-64-1	
Benzene	ND	ug/L	1.0	1		10/24/09 19:26	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		10/24/09 19:26	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		10/24/09 19:26	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		10/24/09 19:26	75-27-4	
Bromoform	ND	ug/L	1.0	1		10/24/09 19:26	75-25-2	
Bromomethane	ND	ug/L	1.0	1		10/24/09 19:26	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		10/24/09 19:26	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:26	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:26	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:26	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		10/24/09 19:26	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	1		10/24/09 19:26	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		10/24/09 19:26	108-90-7	
Chloroethane	ND	ug/L	1.0	1		10/24/09 19:26	75-00-3	
Chloroform	ND	ug/L	1.0	1		10/24/09 19:26	67-66-3	
Chloromethane	ND	ug/L	1.0	1		10/24/09 19:26	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		10/24/09 19:26	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		10/24/09 19:26	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		10/24/09 19:26	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		10/24/09 19:26	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		10/24/09 19:26	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		10/24/09 19:26	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:26	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:26	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:26	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		10/24/09 19:26	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		10/24/09 19:26	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		10/24/09 19:26	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		10/24/09 19:26	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:26	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:26	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:26	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:26	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:26	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:26	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:26	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:26	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:26	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		10/24/09 19:26	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		10/24/09 19:26	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		10/24/09 19:26	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		10/24/09 19:26	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		10/24/09 19:26	99-87-6	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6068053

Sample: BAPURGE-W-1019092 **Lab ID: 6068053002** Collected: 10/19/09 12:28 Received: 10/20/09 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Methylene chloride	ND	ug/L	1.0	1		10/24/09 19:26	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		10/24/09 19:26	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/24/09 19:26	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		10/24/09 19:26	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		10/24/09 19:26	103-65-1	
Styrene	ND	ug/L	1.0	1		10/24/09 19:26	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		10/24/09 19:26	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		10/24/09 19:26	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		10/24/09 19:26	127-18-4	
Toluene	ND	ug/L	1.0	1		10/24/09 19:26	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:26	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:26	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		10/24/09 19:26	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		10/24/09 19:26	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		10/24/09 19:26	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		10/24/09 19:26	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		10/24/09 19:26	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		10/24/09 19:26	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		10/24/09 19:26	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		10/24/09 19:26	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		10/24/09 19:26	1330-20-7	
4-Bromofluorobenzene (S)	102	%	87-115	1		10/24/09 19:26	460-00-4	
Dibromofluoromethane (S)	96	%	87-113	1		10/24/09 19:26	1868-53-7	
1,2-Dichloroethane-d4 (S)	101	%	81-121	1		10/24/09 19:26	17060-07-0	
Toluene-d8 (S)	101	%	89-111	1		10/24/09 19:26	2037-26-5	
Preservation pH	**6.0**		0.10	1		10/24/09 19:26		
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**6.6**	mg/L	0.10	1		10/20/09 19:47	14797-55-8	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6068053

Sample: HAPURGE-W-1019093 **Lab ID: 6068053003** Collected: 10/19/09 13:52 Received: 10/20/09 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
504 GCS EDB and DBCP	Analytical Method: EPA 504.1 Preparation Method: EPA 504.1							
1,2-Dibromoethane (EDB)	ND	ug/L	0.028	1	10/27/09 00:00	10/27/09 00:00	106-93-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		10/24/09 19:42	67-64-1	
Benzene	ND	ug/L	1.0	1		10/24/09 19:42	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		10/24/09 19:42	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		10/24/09 19:42	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		10/24/09 19:42	75-27-4	
Bromoform	**1.4**	ug/L	1.0	1		10/24/09 19:42	75-25-2	
Bromomethane	ND	ug/L	1.0	1		10/24/09 19:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		10/24/09 19:42	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:42	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:42	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:42	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		10/24/09 19:42	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	1		10/24/09 19:42	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		10/24/09 19:42	108-90-7	
Chloroethane	ND	ug/L	1.0	1		10/24/09 19:42	75-00-3	
Chloroform	ND	ug/L	1.0	1		10/24/09 19:42	67-66-3	
Chloromethane	ND	ug/L	1.0	1		10/24/09 19:42	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		10/24/09 19:42	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		10/24/09 19:42	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		10/24/09 19:42	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		10/24/09 19:42	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		10/24/09 19:42	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		10/24/09 19:42	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:42	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:42	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:42	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		10/24/09 19:42	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		10/24/09 19:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		10/24/09 19:42	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		10/24/09 19:42	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:42	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:42	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:42	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:42	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:42	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		10/24/09 19:42	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		10/24/09 19:42	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		10/24/09 19:42	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		10/24/09 19:42	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		10/24/09 19:42	99-87-6	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6068053

Sample: HAPURGE-W-1019093 **Lab ID: 6068053003** Collected: 10/19/09 13:52 Received: 10/20/09 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Methylene chloride	ND	ug/L	1.0	1		10/24/09 19:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		10/24/09 19:42	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/24/09 19:42	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		10/24/09 19:42	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		10/24/09 19:42	103-65-1	
Styrene	ND	ug/L	1.0	1		10/24/09 19:42	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		10/24/09 19:42	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		10/24/09 19:42	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		10/24/09 19:42	127-18-4	
Toluene	ND	ug/L	1.0	1		10/24/09 19:42	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:42	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:42	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		10/24/09 19:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		10/24/09 19:42	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		10/24/09 19:42	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		10/24/09 19:42	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		10/24/09 19:42	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		10/24/09 19:42	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		10/24/09 19:42	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		10/24/09 19:42	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		10/24/09 19:42	1330-20-7	
4-Bromofluorobenzene (S)	101	%	87-115	1		10/24/09 19:42	460-00-4	
Dibromofluoromethane (S)	87	%	87-113	1		10/24/09 19:42	1868-53-7	
1,2-Dichloroethane-d4 (S)	100	%	81-121	1		10/24/09 19:42	17060-07-0	
Toluene-d8 (S)	101	%	89-111	1		10/24/09 19:42	2037-26-5	
Preservation pH	**6.0**		0.10	1		10/24/09 19:42		
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**1.5**	mg/L	0.10	1		10/20/09 20:05	14797-55-8	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6068053

Sample: QCTB-W-1019094 **Lab ID: 6068053004** Collected: 10/19/09 17:40 Received: 10/20/09 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		10/24/09 19:59	67-64-1	
Benzene	ND	ug/L	1.0	1		10/24/09 19:59	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		10/24/09 19:59	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		10/24/09 19:59	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		10/24/09 19:59	75-27-4	
Bromoform	ND	ug/L	1.0	1		10/24/09 19:59	75-25-2	
Bromomethane	ND	ug/L	1.0	1		10/24/09 19:59	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		10/24/09 19:59	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:59	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:59	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		10/24/09 19:59	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		10/24/09 19:59	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	1		10/24/09 19:59	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		10/24/09 19:59	108-90-7	
Chloroethane	ND	ug/L	1.0	1		10/24/09 19:59	75-00-3	
Chloroform	ND	ug/L	1.0	1		10/24/09 19:59	67-66-3	
Chloromethane	ND	ug/L	1.0	1		10/24/09 19:59	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		10/24/09 19:59	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		10/24/09 19:59	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		10/24/09 19:59	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		10/24/09 19:59	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		10/24/09 19:59	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		10/24/09 19:59	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:59	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:59	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:59	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		10/24/09 19:59	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		10/24/09 19:59	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		10/24/09 19:59	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		10/24/09 19:59	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:59	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:59	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		10/24/09 19:59	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:59	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:59	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		10/24/09 19:59	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:59	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:59	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		10/24/09 19:59	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		10/24/09 19:59	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		10/24/09 19:59	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		10/24/09 19:59	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		10/24/09 19:59	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		10/24/09 19:59	99-87-6	
Methylene chloride	ND	ug/L	1.0	1		10/24/09 19:59	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		10/24/09 19:59	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		10/24/09 19:59	1634-04-4	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6068053

Sample: QCTB-W-1019094 **Lab ID: 6068053004** Collected: 10/19/09 17:40 Received: 10/20/09 09:05 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Naphthalene	ND	ug/L	10.0	1		10/24/09 19:59	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		10/24/09 19:59	103-65-1	
Styrene	ND	ug/L	1.0	1		10/24/09 19:59	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		10/24/09 19:59	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		10/24/09 19:59	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		10/24/09 19:59	127-18-4	
Toluene	ND	ug/L	1.0	1		10/24/09 19:59	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:59	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		10/24/09 19:59	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		10/24/09 19:59	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		10/24/09 19:59	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		10/24/09 19:59	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		10/24/09 19:59	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		10/24/09 19:59	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		10/24/09 19:59	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		10/24/09 19:59	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		10/24/09 19:59	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		10/24/09 19:59	1330-20-7	
4-Bromofluorobenzene (S)	102	%	87-115	1		10/24/09 19:59	460-00-4	
Dibromofluoromethane (S)	98	%	87-113	1		10/24/09 19:59	1868-53-7	
1,2-Dichloroethane-d4 (S)	101	%	81-121	1		10/24/09 19:59	17060-07-0	
Toluene-d8 (S)	102	%	89-111	1		10/24/09 19:59	2037-26-5	
Preservation pH	**6.0**		0.10	1		10/24/09 19:59		

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6068053

QC Batch: WETA/11239 — Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 — Analysis Description: 300.0 IC Anions
Associated Lab Samples: 6068053001, 6068053002, 6068053003

METHOD BLANK: 554827 — Matrix: Water
Associated Lab Samples: 6068053001, 6068053002, 6068053003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	10/20/09 18:20	

LABORATORY CONTROL SAMPLE: 554828

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	5	4.7	94	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 554829 554830

Parameter	Units	6068053001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	2.1	5	5	7.2	7.3	104	104	68-120	1	16	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6068053

QC Batch: MSV/24399 Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 Analysis Description: 8260 MSV Water 7 day
Associated Lab Samples: 6068053001, 6068053002, 6068053003, 6068053004

METHOD BLANK: 557805 Matrix: Water
Associated Lab Samples: 6068053001, 6068053002, 6068053003, 6068053004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	10/24/09 18:38	
1,1,1-Trichloroethane	ug/L	ND	1.0	10/24/09 18:38	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	10/24/09 18:38	
1,1,2-Trichloroethane	ug/L	ND	1.0	10/24/09 18:38	
1,1-Dichloroethane	ug/L	ND	1.0	10/24/09 18:38	
1,1-Dichloroethene	ug/L	ND	1.0	10/24/09 18:38	
1,1-Dichloropropene	ug/L	ND	1.0	10/24/09 18:38	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	10/24/09 18:38	
1,2,3-Trichloropropane	ug/L	ND	2.5	10/24/09 18:38	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	10/24/09 18:38	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	10/24/09 18:38	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.5	10/24/09 18:38	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	10/24/09 18:38	
1,2-Dichlorobenzene	ug/L	ND	1.0	10/24/09 18:38	
1,2-Dichloroethane	ug/L	ND	1.0	10/24/09 18:38	
1,2-Dichloroethene (Total)	ug/L	ND	1.0	10/24/09 18:38	
1,2-Dichloropropane	ug/L	ND	1.0	10/24/09 18:38	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	10/24/09 18:38	
1,3-Dichlorobenzene	ug/L	ND	1.0	10/24/09 18:38	
1,3-Dichloropropane	ug/L	ND	1.0	10/24/09 18:38	
1,4-Dichlorobenzene	ug/L	ND	1.0	10/24/09 18:38	
2,2-Dichloropropane	ug/L	ND	1.0	10/24/09 18:38	
2-Butanone (MEK)	ug/L	ND	10.0	10/24/09 18:38	
2-Chlorotoluene	ug/L	ND	1.0	10/24/09 18:38	
2-Hexanone	ug/L	ND	10.0	10/24/09 18:38	
4-Chlorotoluene	ug/L	ND	1.0	10/24/09 18:38	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	10/24/09 18:38	
Acetone	ug/L	ND	10.0	10/24/09 18:38	
Benzene	ug/L	ND	1.0	10/24/09 18:38	
Bromobenzene	ug/L	ND	1.0	10/24/09 18:38	
Bromochloromethane	ug/L	ND	1.0	10/24/09 18:38	
Bromodichloromethane	ug/L	ND	1.0	10/24/09 18:38	
Bromoform	ug/L	ND	1.0	10/24/09 18:38	
Bromomethane	ug/L	ND	1.0	10/24/09 18:38	
Carbon disulfide	ug/L	ND	5.0	10/24/09 18:38	
Carbon tetrachloride	ug/L	ND	1.0	10/24/09 18:38	
Chlorobenzene	ug/L	ND	1.0	10/24/09 18:38	
Chloroethane	ug/L	ND	1.0	10/24/09 18:38	
Chloroform	ug/L	ND	1.0	10/24/09 18:38	
Chloromethane	ug/L	ND	1.0	10/24/09 18:38	
cis-1,2-Dichloroethene	ug/L	ND	1.0	10/24/09 18:38	
cis-1,3-Dichloropropene	ug/L	ND	1.0	10/24/09 18:38	
Dibromochloromethane	ug/L	ND	1.0	10/24/09 18:38	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6068053

METHOD BLANK: 557805 Matrix: Water

Associated Lab Samples: 6068053001, 6068053002, 6068053003, 6068053004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/L	ND	1.0	10/24/09 18:38	
Dichlorodifluoromethane	ug/L	ND	1.0	10/24/09 18:38	
Ethylbenzene	ug/L	ND	1.0	10/24/09 18:38	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	10/24/09 18:38	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	10/24/09 18:38	
Methyl-tert-butyl ether	ug/L	ND	1.0	10/24/09 18:38	
Methylene chloride	ug/L	ND	1.0	10/24/09 18:38	
n-Butylbenzene	ug/L	ND	1.0	10/24/09 18:38	
n-Propylbenzene	ug/L	ND	1.0	10/24/09 18:38	
Naphthalene	ug/L	ND	10.0	10/24/09 18:38	
p-Isopropyltoluene	ug/L	ND	1.0	10/24/09 18:38	
sec-Butylbenzene	ug/L	ND	1.0	10/24/09 18:38	
Styrene	ug/L	ND	1.0	10/24/09 18:38	
tert-Butylbenzene	ug/L	ND	1.0	10/24/09 18:38	
Tetrachloroethene	ug/L	ND	1.0	10/24/09 18:38	
Toluene	ug/L	ND	1.0	10/24/09 18:38	
trans-1,2-Dichloroethene	ug/L	ND	1.0	10/24/09 18:38	
trans-1,3-Dichloropropene	ug/L	ND	1.0	10/24/09 18:38	
Trichloroethene	ug/L	ND	1.0	10/24/09 18:38	
Trichlorofluoromethane	ug/L	ND	1.0	10/24/09 18:38	
Vinyl chloride	ug/L	ND	1.0	10/24/09 18:38	
Xylene (Total)	ug/L	ND	3.0	10/24/09 18:38	
1,2-Dichloroethane-d4 (S)	%	99	81-121	10/24/09 18:38	
4-Bromofluorobenzene (S)	%	101	87-115	10/24/09 18:38	
Dibromofluoromethane (S)	%	95	87-113	10/24/09 18:38	
Toluene-d8 (S)	%	102	89-111	10/24/09 18:38	

LABORATORY CONTROL SAMPLE: 557806

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	10.1	101	75-121	
1,1,1-Trichloroethane	ug/L	10	9.6	96	73-120	
1,1,2,2-Tetrachloroethane	ug/L	10	10.8	108	73-128	
1,1,2-Trichloroethane	ug/L	10	10.1	101	83-125	
1,1-Dichloroethane	ug/L	10	9.7	97	79-115	
1,1-Dichloroethene	ug/L	10	9.5	95	76-122	
1,1-Dichloropropene	ug/L	10	10.0	100	80-119	
1,2,3-Trichlorobenzene	ug/L	10	11.6	116	70-138	
1,2,3-Trichloropropane	ug/L	10	11.5	115	74-129	
1,2,4-Trichlorobenzene	ug/L	10	10.7	107	72-131	
1,2,4-Trimethylbenzene	ug/L	10	10.0	100	78-123	
1,2-Dibromo-3-chloropropane	ug/L	10	11.3	113	61-139	
1,2-Dibromoethane (EDB)	ug/L	10	10.2	102	80-124	
1,2-Dichlorobenzene	ug/L	10	10	100	82-113	
1,2-Dichloroethane	ug/L	10	9.6	96	78-118	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6068053

LABORATORY CONTROL SAMPLE: 557806

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethene (Total)	ug/L	20	19.4	97	79-120	
1,2-Dichloropropane	ug/L	10	10.9	109	83-117	
1,3,5-Trimethylbenzene	ug/L	10	8.5	85	79-116	
1,3-Dichlorobenzene	ug/L	10	10.1	101	82-112	
1,3-Dichloropropane	ug/L	10	10.2	102	82-121	
1,4-Dichlorobenzene	ug/L	10	9.9	99	81-111	
2,2-Dichloropropane	ug/L	10	9.2	92	55-139	
2-Butanone (MEK)	ug/L	25	26.7	107	61-136	
2-Chlorotoluene	ug/L	10	10.0	100	81-115	
2-Hexanone	ug/L	25	25.6	102	65-137	
4-Chlorotoluene	ug/L	10	9.9	99	81-111	
4-Methyl-2-pentanone (MIBK)	ug/L	25	22.9	92	65-133	
Acetone	ug/L	25	28.8	115	58-126	
Benzene	ug/L	10	9.6	96	81-114	
Bromobenzene	ug/L	10	10.0	100	84-113	
Bromochloromethane	ug/L	10	9.3	93	79-120	
Bromodichloromethane	ug/L	10	9.4	94	75-119	
Bromoform	ug/L	10	9.7	97	66-132	
Bromomethane	ug/L	10	13.0	130	58-151	
Carbon disulfide	ug/L	10	11.1	111	49-148	
Carbon tetrachloride	ug/L	10	9.8	98	62-137	
Chlorobenzene	ug/L	10	9.2	92	81-113	
Chloroethane	ug/L	10	10	100	65-119	
Chloroform	ug/L	10	9.9	99	76-118	
Chloromethane	ug/L	10	10.2	102	40-132	
cis-1,2-Dichloroethene	ug/L	10	9.4	94	80-119	
cis-1,3-Dichloropropene	ug/L	10	10.1	101	75-122	
Dibromochloromethane	ug/L	10	9.5	95	72-124	
Dibromomethane	ug/L	10	9.8	98	79-121	
Dichlorodifluoromethane	ug/L	10	10.0	100	11-156	
Ethylbenzene	ug/L	10	9.2	92	82-115	
Hexachloro-1,3-butadiene	ug/L	10	11.8	118	72-139	
Isopropylbenzene (Cumene)	ug/L	10	8.3	83	69-103	
Methyl-tert-butyl ether	ug/L	10	10.4	104	65-113	
Methylene chloride	ug/L	10	10.6	106	76-124	
n-Butylbenzene	ug/L	10	10.4	104	77-121	
n-Propylbenzene	ug/L	10	10.0	100	79-116	
Naphthalene	ug/L	10	11.2	112	66-132	
p-Isopropyltoluene	ug/L	10	9.8	98	77-114	
sec-Butylbenzene	ug/L	10	10.4	104	80-119	
Styrene	ug/L	10	9.6	96	81-115	
tert-Butylbenzene	ug/L	10	10.2	102	77-121	
Tetrachloroethene	ug/L	10	9.1	91	73-122	
Toluene	ug/L	10	9.5	95	82-114	
trans-1,2-Dichloroethene	ug/L	10	9.9	99	75-122	
trans-1,3-Dichloropropene	ug/L	10	9.1	91	66-114	
Trichloroethene	ug/L	10	10.1	101	78-119	
Trichlorofluoromethane	ug/L	10	9.7	97	71-120	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6068053

LABORATORY CONTROL SAMPLE: 557806

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vinyl chloride	ug/L	10	11.2	112	67-139	
Xylene (Total)	ug/L	30	28.3	94	81-116	
1,2-Dichloroethane-d4 (S)	%			99	81-121	
4-Bromofluorobenzene (S)	%			103	87-115	
Dibromofluoromethane (S)	%			98	87-113	
Toluene-d8 (S)	%			102	89-111	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6068053

QC Batch: OEXT/20399 — Analysis Method: EPA 504.1
QC Batch Method: EPA 504.1 — Analysis Description: GCS 504 EDB DBCP
Associated Lab Samples: 6068053001, 6068053002, 6068053003

METHOD BLANK: 558502 — Matrix: Water
Associated Lab Samples: 6068053001, 6068053002, 6068053003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.030	10/27/09 00:00	

LABORATORY CONTROL SAMPLE & LCSD: 558503 558504

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	.25	0.24	0.24	97	94	70-130	3	20	

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QUALIFIERS

Project: Kansas Waste Water
Pace Project No.: 6068053

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

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U - Indicates the compound was analyzed for, but not detected.

BATCH QUALIFIERS

Batch: MSV/24399

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

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Dennis, Clyde B.

From: David Surgnier [surgnier@prodigy.net]
Sent: Wednesday, December 02, 2009 8:05 PM
To: Dennis, Clyde B.
Subject: Fw: Kansas Purge Water
Sent via BlackBerry by AT&T

From: "Travis Kamler" <tkamler@tcwconstruction.com>
Date: Wed, 2 Dec 2009 18:31:53 -0600
To: Dave Surgnier<surgnier@prodigy.net>
Subject: Kansas Purge Water

Dave,

The purge water stored at the following Kansas sites:

Agra

Barnes

Centralia

Everest

Hanover

Morrill

Was transported and disposed of at the Sabetha Waste Water Treatment Plant on November 18th, 2009.

Attached is the receipt from the City of Sabetha.

Thanks

Travis Kamler
Field Coordinator

TCW Construction - Environmental Services
141 M Street, Lincoln, NE 68508
Office (402) 475-5030 Cell (402) 416-7255

AGEM 40 L

GENERAL RECEIPT

Office of City Clerk

037934

City of Sabetha, Kansas, 11-18, 20 09

Received of Matt 4 TCW Const. $ 50.00

Fifty + 00/100 DOLLARS

For Purged Water

Distribution:

_____ Fund

_____ Fund

_____ Fund

SC by KO

City Clerk

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
(913)599-5665

March 09, 2010

Mr. Travis Kamler
TCW Construction Inc
141 M Street
Lincoln, NE 68508

RE: Project: Kansas Waste Water
Pace Project No.: 6074415

Dear Mr. Kamler:
Enclosed are the analytical results for sample(s) received by the laboratory on February 25, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Trudy Gipson

Trudy Gipson

trudy.gipson@pacelabs.com
Project Manager

Enclosures

cc: Mr. David Surgnier

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CERTIFICATIONS

Project: Kansas Waste Water
Pace Project No.: 6074415

Kansas Certification IDs
9608 Loiret Boulevard Lenexa, KS 66219
Washington Certification #: C2069
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oregon Certification #: KS200001
Oklahoma Certification #: 9205/9935
Nevada Certification #: KS000212008A
Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
A2LA Certification #: 2456.01

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SAMPLE SUMMARY

Project: Kansas Waste Water
Pace Project No.: 6074415

Lab ID	Sample ID	Matrix	Date Collected	Date Received
6074415001	**HAPURGE-W-224101**	Water	02/23/10 19:00	02/25/10 09:20
6074415002	**QCTB-W-224102**	Water	02/24/10 15:45	02/25/10 09:20

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SAMPLE ANALYTE COUNT

Project: Kansas Waste Water
Pace Project No.: 6074415

Lab ID	Sample ID	Method	Analysts	Analytes Reported
6074415001	**HAPURGE-W-224101**	EPA 504.1	NAW	1
		EPA 5030B/8260	NLM	70
		EPA 300.0	SAH	1
6074415002	**QCTB-W-224102**	EPA 5030B/8260	NLM	70

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6074415

Sample: HAPURGE-W-224101 **Lab ID: 6074415001** Collected: 02/23/10 19:00 Received: 02/25/10 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
504 GCS EDB and DBCP	Analytical Method: EPA 504.1 Preparation Method: EPA 504.1							
1,2-Dibromoethane (EDB)	ND	ug/L	0.028	1	03/01/10 00:00	03/01/10 00:00	106-93-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		02/26/10 23:42	67-64-1	
Benzene	ND	ug/L	1.0	1		02/26/10 23:42	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		02/26/10 23:42	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		02/26/10 23:42	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		02/26/10 23:42	75-27-4	
Bromoform	ND	ug/L	1.0	1		02/26/10 23:42	75-25-2	
Bromomethane	ND	ug/L	1.0	1		02/26/10 23:42	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		02/26/10 23:42	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		02/26/10 23:42	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		02/26/10 23:42	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		02/26/10 23:42	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		02/26/10 23:42	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	1		02/26/10 23:42	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		02/26/10 23:42	108-90-7	
Chloroethane	ND	ug/L	1.0	1		02/26/10 23:42	75-00-3	
Chloroform	ND	ug/L	1.0	1		02/26/10 23:42	67-66-3	
Chloromethane	ND	ug/L	1.0	1		02/26/10 23:42	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		02/26/10 23:42	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		02/26/10 23:42	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		02/26/10 23:42	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		02/26/10 23:42	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		02/26/10 23:42	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		02/26/10 23:42	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		02/26/10 23:42	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		02/26/10 23:42	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		02/26/10 23:42	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		02/26/10 23:42	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		02/26/10 23:42	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		02/26/10 23:42	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		02/26/10 23:42	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		02/26/10 23:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		02/26/10 23:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		02/26/10 23:42	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		02/26/10 23:42	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		02/26/10 23:42	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		02/26/10 23:42	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		02/26/10 23:42	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		02/26/10 23:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		02/26/10 23:42	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		02/26/10 23:42	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		02/26/10 23:42	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		02/26/10 23:42	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		02/26/10 23:42	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		02/26/10 23:42	99-87-6	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6074415

Sample: HAPURGE-W-224101 **Lab ID: 6074415001** Collected: 02/23/10 19:00 Received: 02/25/10 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Methylene chloride	ND	ug/L	1.0	1		02/26/10 23:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		02/26/10 23:42	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		02/26/10 23:42	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		02/26/10 23:42	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		02/26/10 23:42	103-65-1	
Styrene	ND	ug/L	1.0	1		02/26/10 23:42	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		02/26/10 23:42	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		02/26/10 23:42	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		02/26/10 23:42	127-18-4	
Toluene	ND	ug/L	1.0	1		02/26/10 23:42	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		02/26/10 23:42	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		02/26/10 23:42	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		02/26/10 23:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		02/26/10 23:42	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		02/26/10 23:42	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		02/26/10 23:42	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		02/26/10 23:42	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		02/26/10 23:42	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		02/26/10 23:42	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		02/26/10 23:42	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		02/26/10 23:42	1330-20-7	
4-Bromofluorobenzene (S)	93	%	87-115	1		02/26/10 23:42	460-00-4	
Dibromofluoromethane (S)	101	%	87-113	1		02/26/10 23:42	1868-53-7	
1,2-Dichloroethane-d4 (S)	98	%	81-121	1		02/26/10 23:42	17060-07-0	
Toluene-d8 (S)	100	%	89-111	1		02/26/10 23:42	2037-26-5	
Preservation pH	**7.0**		0.10	1		02/26/10 23:42		
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**6.9**	mg/L	0.10	1		02/25/10 17:42	14797-55-8	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6074415

Sample: QCTB-W-224102 **Lab ID: 6074415002** Collected: 02/24/10 15:45 Received: 02/25/10 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		02/26/10 23:58	67-64-1	
Benzene	ND	ug/L	1.0	1		02/26/10 23:58	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		02/26/10 23:58	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		02/26/10 23:58	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		02/26/10 23:58	75-27-4	
Bromoform	ND	ug/L	1.0	1		02/26/10 23:58	75-25-2	
Bromomethane	ND	ug/L	1.0	1		02/26/10 23:58	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		02/26/10 23:58	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		02/26/10 23:58	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		02/26/10 23:58	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		02/26/10 23:58	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		02/26/10 23:58	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	1		02/26/10 23:58	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		02/26/10 23:58	108-90-7	
Chloroethane	ND	ug/L	1.0	1		02/26/10 23:58	75-00-3	
Chloroform	ND	ug/L	1.0	1		02/26/10 23:58	67-66-3	
Chloromethane	ND	ug/L	1.0	1		02/26/10 23:58	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		02/26/10 23:58	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		02/26/10 23:58	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		02/26/10 23:58	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		02/26/10 23:58	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		02/26/10 23:58	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		02/26/10 23:58	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		02/26/10 23:58	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		02/26/10 23:58	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		02/26/10 23:58	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		02/26/10 23:58	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		02/26/10 23:58	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		02/26/10 23:58	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		02/26/10 23:58	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		02/26/10 23:58	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		02/26/10 23:58	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		02/26/10 23:58	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		02/26/10 23:58	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		02/26/10 23:58	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		02/26/10 23:58	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		02/26/10 23:58	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		02/26/10 23:58	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		02/26/10 23:58	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		02/26/10 23:58	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		02/26/10 23:58	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		02/26/10 23:58	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		02/26/10 23:58	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		02/26/10 23:58	99-87-6	
Methylene chloride	ND	ug/L	1.0	1		02/26/10 23:58	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		02/26/10 23:58	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		02/26/10 23:58	1634-04-4	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6074415

Sample: QCTB-W-224102 **Lab ID: 6074415002** Collected: 02/24/10 15:45 Received: 02/25/10 09:20 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Naphthalene	ND	ug/L	10.0	1		02/26/10 23:58	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		02/26/10 23:58	103-65-1	
Styrene	ND	ug/L	1.0	1		02/26/10 23:58	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		02/26/10 23:58	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		02/26/10 23:58	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		02/26/10 23:58	127-18-4	
Toluene	ND	ug/L	1.0	1		02/26/10 23:58	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		02/26/10 23:58	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		02/26/10 23:58	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		02/26/10 23:58	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		02/26/10 23:58	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		02/26/10 23:58	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		02/26/10 23:58	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		02/26/10 23:58	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		02/26/10 23:58	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		02/26/10 23:58	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		02/26/10 23:58	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		02/26/10 23:58	1330-20-7	
4-Bromofluorobenzene (S)	93	%	87-115	1		02/26/10 23:58	460-00-4	
Dibromofluoromethane (S)	100	%	87-113	1		02/26/10 23:58	1868-53-7	
1,2-Dichloroethane-d4 (S)	97	%	81-121	1		02/26/10 23:58	17060-07-0	
Toluene-d8 (S)	101	%	89-111	1		02/26/10 23:58	2037-26-5	
Preservation pH	7.0		0.10	1		02/26/10 23:58		

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6074415

QC Batch: OEXT/22152
QC Batch Method: EPA 504.1
Associated Lab Samples: 6074415001

Analysis Method: EPA 504.1
Analysis Description: GCS 504 EDB DBCP

METHOD BLANK: 608761
Matrix: Water
Associated Lab Samples: 6074415001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.030	03/01/10 00:00	

LABORATORY CONTROL SAMPLE & LCSD: 608762 608763

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	.25	0.31	0.31	124	125	70-130	1	20	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6074415

QC Batch: MSV/27117 | Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260 | Analysis Description: 8260 MSV Water 7 day
Associated Lab Samples: 6074415001, 6074415002

METHOD BLANK: 608369 | Matrix: Water
Associated Lab Samples: 6074415001, 6074415002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	02/26/10 23:25	
1,1,1-Trichloroethane	ug/L	ND	1.0	02/26/10 23:25	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	02/26/10 23:25	
1,1,2-Trichloroethane	ug/L	ND	1.0	02/26/10 23:25	
1,1-Dichloroethane	ug/L	ND	1.0	02/26/10 23:25	
1,1-Dichloroethene	ug/L	ND	1.0	02/26/10 23:25	
1,1-Dichloropropene	ug/L	ND	1.0	02/26/10 23:25	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	02/26/10 23:25	
1,2,3-Trichloropropane	ug/L	ND	2.5	02/26/10 23:25	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	02/26/10 23:25	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	02/26/10 23:25	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.5	02/26/10 23:25	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	02/26/10 23:25	
1,2-Dichlorobenzene	ug/L	ND	1.0	02/26/10 23:25	
1,2-Dichloroethane	ug/L	ND	1.0	02/26/10 23:25	
1,2-Dichloroethene (Total)	ug/L	ND	1.0	02/26/10 23:25	
1,2-Dichloropropane	ug/L	ND	1.0	02/26/10 23:25	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	02/26/10 23:25	
1,3-Dichlorobenzene	ug/L	ND	1.0	02/26/10 23:25	
1,3-Dichloropropane	ug/L	ND	1.0	02/26/10 23:25	
1,4-Dichlorobenzene	ug/L	ND	1.0	02/26/10 23:25	
2,2-Dichloropropane	ug/L	ND	1.0	02/26/10 23:25	
2-Butanone (MEK)	ug/L	ND	10.0	02/26/10 23:25	
2-Chlorotoluene	ug/L	ND	1.0	02/26/10 23:25	
2-Hexanone	ug/L	ND	10.0	02/26/10 23:25	
4-Chlorotoluene	ug/L	ND	1.0	02/26/10 23:25	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	02/26/10 23:25	
Acetone	ug/L	ND	10.0	02/26/10 23:25	
Benzene	ug/L	ND	1.0	02/26/10 23:25	
Bromobenzene	ug/L	ND	1.0	02/26/10 23:25	
Bromochloromethane	ug/L	ND	1.0	02/26/10 23:25	
Bromodichloromethane	ug/L	ND	1.0	02/26/10 23:25	
Bromoform	ug/L	ND	1.0	02/26/10 23:25	
Bromomethane	ug/L	ND	1.0	02/26/10 23:25	
Carbon disulfide	ug/L	ND	5.0	02/26/10 23:25	
Carbon tetrachloride	ug/L	ND	1.0	02/26/10 23:25	
Chlorobenzene	ug/L	ND	1.0	02/26/10 23:25	
Chloroethane	ug/L	ND	1.0	02/26/10 23:25	
Chloroform	ug/L	ND	1.0	02/26/10 23:25	
Chloromethane	ug/L	ND	1.0	02/26/10 23:25	
cis-1,2-Dichloroethene	ug/L	ND	1.0	02/26/10 23:25	
cis-1,3-Dichloropropene	ug/L	ND	1.0	02/26/10 23:25	
Dibromochloromethane	ug/L	ND	1.0	02/26/10 23:25	

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6074415

METHOD BLANK: 608369 Matrix: Water

Associated Lab Samples: 6074415001, 6074415002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/L	ND	1.0	02/26/10 23:25	
Dichlorodifluoromethane	ug/L	ND	1.0	02/26/10 23:25	
Ethylbenzene	ug/L	ND	1.0	02/26/10 23:25	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	02/26/10 23:25	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	02/26/10 23:25	
Methyl-tert-butyl ether	ug/L	ND	1.0	02/26/10 23:25	
Methylene chloride	ug/L	ND	1.0	02/26/10 23:25	
n-Butylbenzene	ug/L	ND	1.0	02/26/10 23:25	
n-Propylbenzene	ug/L	ND	1.0	02/26/10 23:25	
Naphthalene	ug/L	ND	10.0	02/26/10 23:25	
p-Isopropyltoluene	ug/L	ND	1.0	02/26/10 23:25	
sec-Butylbenzene	ug/L	ND	1.0	02/26/10 23:25	
Styrene	ug/L	ND	1.0	02/26/10 23:25	
tert-Butylbenzene	ug/L	ND	1.0	02/26/10 23:25	
Tetrachloroethene	ug/L	ND	1.0	02/26/10 23:25	
Toluene	ug/L	ND	1.0	02/26/10 23:25	
trans-1,2-Dichloroethene	ug/L	ND	1.0	02/26/10 23:25	
trans-1,3-Dichloropropene	ug/L	ND	1.0	02/26/10 23:25	
Trichloroethene	ug/L	ND	1.0	02/26/10 23:25	
Trichlorofluoromethane	ug/L	ND	1.0	02/26/10 23:25	
Vinyl chloride	ug/L	ND	1.0	02/26/10 23:25	
Xylene (Total)	ug/L	ND	3.0	02/26/10 23:25	
1,2-Dichloroethane-d4 (S)	%	99	81-121	02/26/10 23:25	
4-Bromofluorobenzene (S)	%	94	87-115	02/26/10 23:25	
Dibromofluoromethane (S)	%	97	87-113	02/26/10 23:25	
Toluene-d8 (S)	%	100	89-111	02/26/10 23:25	

LABORATORY CONTROL SAMPLE: 608370

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	10	10.4	104	75-121	
1,1,1-Trichloroethane	ug/L	10	8.5	85	73-120	
1,1,2,2-Tetrachloroethane	ug/L	10	9.3	93	73-128	
1,1,2-Trichloroethane	ug/L	10	10.1	101	83-125	
1,1-Dichloroethane	ug/L	10	8.8	88	79-115	
1,1-Dichloroethene	ug/L	10	8.2	82	76-122	
1,1-Dichloropropene	ug/L	10	8.6	86	80-119	
1,2,3-Trichlorobenzene	ug/L	10	8.9	89	70-138	
1,2,3-Trichloropropane	ug/L	10	11.2	112	74-129	
1,2,4-Trichlorobenzene	ug/L	10	8.5	85	72-131	
1,2,4-Trimethylbenzene	ug/L	10	10.1	101	78-123	
1,2-Dibromo-3-chloropropane	ug/L	10	8.7	87	61-139	
1,2-Dibromoethane (EDB)	ug/L	10	9.9	99	80-124	
1,2-Dichlorobenzene	ug/L	10	9.5	95	82-113	
1,2-Dichloroethane	ug/L	10	9.2	92	78-118	

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(913)599-5665

QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6074415

LABORATORY CONTROL SAMPLE: 608370

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethene (Total)	ug/L	20	17.5	88	79-120	
1,2-Dichloropropane	ug/L	10	9.4	94	83-117	
1,3,5-Trimethylbenzene	ug/L	10	9.7	97	79-116	
1,3-Dichlorobenzene	ug/L	10	8.9	89	82-112	
1,3-Dichloropropane	ug/L	10	9.8	98	82-121	
1,4-Dichlorobenzene	ug/L	10	9.3	93	81-111	
2,2-Dichloropropane	ug/L	10	7.2	72	55-139	
2-Butanone (MEK)	ug/L	25	25.6	102	61-136	
2-Chlorotoluene	ug/L	10	9.1	91	81-115	
2-Hexanone	ug/L	25	25.6	103	65-137	
4-Chlorotoluene	ug/L	10	9.6	96	81-111	
4-Methyl-2-pentanone (MIBK)	ug/L	25	22.0	88	65-133	
Acetone	ug/L	25	29.4	118	58-126	
Benzene	ug/L	10	8.9	89	81-114	
Bromobenzene	ug/L	10	9.5	95	84-113	
Bromochloromethane	ug/L	10	9.0	90	79-120	
Bromodichloromethane	ug/L	10	9.5	95	75-119	
Bromoform	ug/L	10	9.7	97	66-132	
Bromomethane	ug/L	10	5.9	59	58-151	
Carbon disulfide	ug/L	10	5.7	57	49-148	
Carbon tetrachloride	ug/L	10	9.1	91	62-137	
Chlorobenzene	ug/L	10	9.7	97	81-113	
Chloroethane	ug/L	10	10.2	102	65-119	
Chloroform	ug/L	10	8.8	88	76-118	
Chloromethane	ug/L	10	8.9	89	40-132	
cis-1,2-Dichloroethene	ug/L	10	8.8	88	80-119	
cis-1,3-Dichloropropene	ug/L	10	9.3	93	75-122	
Dibromochloromethane	ug/L	10	9.9	99	72-124	
Dibromomethane	ug/L	10	9.3	93	79-121	
Dichlorodifluoromethane	ug/L	10	8.5	85	11-156	
Ethylbenzene	ug/L	10	10.3	103	82-115	
Hexachloro-1,3-butadiene	ug/L	10	8.6	86	72-139	
Isopropylbenzene (Cumene)	ug/L	10	8.0	80	69-103	
Methyl-tert-butyl ether	ug/L	10	8.4	84	65-113	
Methylene chloride	ug/L	10	9.2	92	76-124	
n-Butylbenzene	ug/L	10	8.9	89	77-121	
n-Propylbenzene	ug/L	10	8.8	88	79-116	
Naphthalene	ug/L	10	9.2J	92	66-132	
p-Isopropyltoluene	ug/L	10	8.8	88	77-114	
sec-Butylbenzene	ug/L	10	8.8	88	80-119	
Styrene	ug/L	10	9.3	93	81-115	
tert-Butylbenzene	ug/L	10	9.2	92	77-121	
Tetrachloroethene	ug/L	10	9.6	96	73-122	
Toluene	ug/L	10	10.1	101	82-114	
trans-1,2-Dichloroethene	ug/L	10	8.7	87	75-122	
trans-1,3-Dichloropropene	ug/L	10	8.1	81	66-114	
Trichloroethene	ug/L	10	9.5	95	78-119	
Trichlorofluoromethane	ug/L	10	8.5	85	71-120	

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(913)599-5665

QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6074415

LABORATORY CONTROL SAMPLE: 608370

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vinyl chloride	ug/L	10	7.7	77	67-139	
Xylene (Total)	ug/L	30	35.2	117	81-116	L3
1,2-Dichloroethane-d4 (S)	%			97	81-121	
4-Bromofluorobenzene (S)	%			94	87-115	
Dibromofluoromethane (S)	%			97	87-113	
Toluene-d8 (S)	%			101	89-111	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6074415

QC Batch: WETA/12202
QC Batch Method: EPA 300.0
Analysis Method: EPA 300.0
Analysis Description: 300.0 IC Anions
Associated Lab Samples: 6074415001

METHOD BLANK: 607313
Matrix: Water
Associated Lab Samples: 6074415001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	02/25/10 20:18	

LABORATORY CONTROL SAMPLE: 607314

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	5	4.8	96	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 607315 607316

Parameter	Units	6074400001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	3.0	5	5	7.7	8.8	94	116	68-120	14	16	

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QUALIFIERS

Project: Kansas Waste Water
Pace Project No.: 6074415

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.
ND - Not Detected at or above adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
S - Surrogate
1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.
U - Indicates the compound was analyzed for, but not detected.

BATCH QUALIFIERS

Batch: MSV/27117

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

L3 Analyte recovery in the laboratory control sample (LCS) exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias.

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1

1272140

Section A Required Client Information:

Company: TCW Construction
Address: 141 M Street
Lincoln NE 68508
Email To: tkamler@tcwconstruction.com
Phone: 402 616 7255 Fax:
Requested Due Date/TAT:

Section B Required Project Information:

Report To: tkamler@tcwconstruction.com
Copy To: surgnier@prodigy.net
Purchase Order No.:
Project Name: Kansas Waste Water
Project Number:

Section C Invoice Information:

Attention: Travis Kamler
Company Name: TCW Construction
Address: 141 M St Lincoln NE
Pace Quote Reference:
Pace Project Manager: Tracy Gipson
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: _____

Section D Required Client Information

Matrix Codes (MATRIX / CODE): Drinking Water DW; Water WT; Waste Water WW; Product P; Soil/Solid SL; Oil OL; Wipe WP; Air AR; Tissue TS; Other OT

SAMPLE ID (A-Z, 0-9 / ,-) Sample IDs MUST BE UNIQUE

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED Composite Start DATE	COLLECTED Composite Start TIME	COLLECTED Composite End/Grab DATE	COLLECTED Composite End/Grab TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test: VOC	EDB	NITRATES	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	HAPURGE-W-414101	WW	C	3-17	1500	4-14	11:30	60	5	3					2			2	2	1		2(DLAH) 2(DLAT) BP2U
2	HAQCTB-W-414102	WT	G			4-14	15:45	60	2	2								2				
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						
11																						
12																						

Gen Model

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
Composite sample collected	/ TCW	4-14-10	17:00		4/15	900	5.4	Y	Y	Y
from 3000 gallons of										
pump test purge water										
Stored in poly tanks										

Temp in °C | Received on Ice (Y/N) | Custody Sealed Cooler (Y/N) | Samples Intact (Y/N)

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Travis Kamler
SIGNATURE of SAMPLER:
DATE Signed (MM/DD/YY): 04/14/10

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

Sample Condition Upon Receipt

Pace Analytical®
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Client Name: TCW Project # 60072061

Courier: ☑ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other _____

Tracking #: 8558 7682 9819 Pace Shipping Label Used? ☐ Yes ☑ No

Custody Seal on Cooler/Box Present: ☑ Yes ☐ No Seals intact: ☑ Yes ☐ No

Optional	
Proj. Due Date:	4/27
Proj. Name:	KSWW

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☐ Foam ☑ None ☐ Other _____

Thermometer Used: T-191 / T-194 **Type of Ice:** Wet Blue None ☐ Samples on ice, cooling process has begun

Cooler Temperature: 5.4

Temperature should be above freezing to 6°C

Date and Initials of person examining contents: BM 4/15

		Comments:
Chain of Custody present:	☑ Yes ☐ No ☐ N/A	1.
Chain of Custody filled out:	☑ Yes ☐ No ☐ N/A	2.
Chain of Custody relinquished:	☑ Yes ☐ No ☐ N/A	3.
Sampler name & signature on COC:	☑ Yes ☐ No ☐ N/A	4.
Samples arrived within holding time:	☑ Yes ☐ No ☐ N/A	5.
Short Hold Time analyses (<72hr):	☑ Yes ☐ No ☐ N/A	6. NO3
Rush Turn Around Time requested:	☐ Yes ☑ No ☐ N/A	7.
Sufficient volume:	☑ Yes ☐ No ☐ N/A	8.
Correct containers used:	☑ Yes ☐ No ☐ N/A	9.
-Pace containers used:	☐ Yes ☑ No ☐ N/A	
Containers intact:	☑ Yes ☐ No ☐ N/A	10.
Unpreserved 5035A soils frozen w/in 48hrs?	☐ Yes ☐ No ☑ N/A	11.
Filtered volume received for dissolved tests	☐ Yes ☑ No ☐ N/A	12.
Sample labels match COC:	☑ Yes ☐ No ☐ N/A	13.
-Includes date/time/ID/analyses Matrix: WT		
All containers needing preservation have been checked.	☐ Yes ☐ No ☑ N/A	14.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐ Yes ☐ No ☑ N/A	
Exceptions: VOA, coliform, TOC, O&G, WI-DRO (water), Phenolics	☑ Yes ☐ No	Initial when completed _____ Lot # of added preservative _____
Trip Blank present:	☑ Yes ☐ No ☐ N/A	15.
Pace Trip Blank lot # (if purchased): _____		
Headspace in VOA vials (>6mm):	☐ Yes ☑ No ☐ N/A	16.
Project sampled in USDA Regulated Area:	☐ Yes ☐ No ☑ N/A	17. List State: _____

Client Notification/ Resolution: Copy COC to Client? Y / (N) Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: _____ Date: 4-15-10

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)

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(913)599-5665

April 26, 2010

Mr. Travis Kamler
TCW Construction Inc
141 M Street
Lincoln, NE 68508

RE: Project: Kansas Waste Water
Pace Project No.: 6077061

Dear Mr. Kamler:
Enclosed are the analytical results for sample(s) received by the laboratory on April 15, 2010. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Trudy Gipson

trudy.gipson@pacelabs.com
Project Manager

Enclosures

cc: Mr. David Surgnier

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CERTIFICATIONS

Project:	Kansas Waste Water
Pace Project No.:	6077061

Kansas Certification IDs

9608 Loiret Boulevard Lenexa, KS 66219
Washington Certification #: C2069
Utah Certification #: 9135995665
Texas Certification #: T104704407-08-TX
Oregon Certification #: KS200001
Oklahoma Certification #: 9205/9935
Nevada Certification #: KS000212008A
Louisiana Certification #: 03055
Kansas/NELAP Certification #: E-10116
Iowa Certification #: 118
Illinois Certification #: 001191
Arkansas Certification #: 05-008-0
A2LA Certification #: 2456.01

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SAMPLE SUMMARY

Project: Kansas Waste Water
Pace Project No.: 6077061

Lab ID	Sample ID	Matrix	Date Collected	Date Received
6077061001	**HAPURGE-W-414101**	Water	04/14/10 11:30	04/15/10 09:00
6077061002	**HAQTB-W-414102**	Water	04/14/10 15:45	04/15/10 09:00

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SAMPLE ANALYTE COUNT

Project: Kansas Waste Water
Pace Project No.: 6077061

Lab ID	Sample ID	Method	Analysts	Analytes Reported
6077061001	**HAPURGE-W-414101**	EPA 504.1	NAW	1
		EPA 5030B/8260	NLM	70
		EPA 300.0	CCT	1
6077061002	**HAQTB-W-414102**	EPA 5030B/8260	NLM	70

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6077061

Sample: HAPURGE-W-414101 **Lab ID: 6077061001** Collected: 04/14/10 11:30 Received: 04/15/10 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
504 GCS EDB and DBCP	Analytical Method: EPA 504.1 Preparation Method: EPA 504.1							
1,2-Dibromoethane (EDB)	ND	ug/L	0.028	1	04/16/10 00:00	04/16/10 00:00	106-93-4	
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		04/20/10 19:22	67-64-1	
Benzene	ND	ug/L	1.0	1		04/20/10 19:22	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		04/20/10 19:22	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		04/20/10 19:22	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		04/20/10 19:22	75-27-4	
Bromoform	ND	ug/L	1.0	1		04/20/10 19:22	75-25-2	
Bromomethane	ND	ug/L	1.0	1		04/20/10 19:22	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		04/20/10 19:22	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		04/20/10 19:22	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		04/20/10 19:22	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		04/20/10 19:22	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		04/20/10 19:22	75-15-0	
Carbon tetrachloride	**5.3**	ug/L	1.0	1		04/20/10 19:22	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		04/20/10 19:22	108-90-7	
Chloroethane	ND	ug/L	1.0	1		04/20/10 19:22	75-00-3	
Chloroform	ND	ug/L	5.0	1		04/20/10 19:22	67-66-3	
Chloromethane	**5.6**	ug/L	1.0	1		04/20/10 19:22	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		04/20/10 19:22	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		04/20/10 19:22	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		04/20/10 19:22	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		04/20/10 19:22	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		04/20/10 19:22	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		04/20/10 19:22	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		04/20/10 19:22	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		04/20/10 19:22	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		04/20/10 19:22	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		04/20/10 19:22	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		04/20/10 19:22	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		04/20/10 19:22	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		04/20/10 19:22	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		04/20/10 19:22	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		04/20/10 19:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		04/20/10 19:22	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		04/20/10 19:22	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		04/20/10 19:22	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		04/20/10 19:22	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		04/20/10 19:22	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		04/20/10 19:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		04/20/10 19:22	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		04/20/10 19:22	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		04/20/10 19:22	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		04/20/10 19:22	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		04/20/10 19:22	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		04/20/10 19:22	99-87-6	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6077061

Sample: HAPURGE-W-414101 **Lab ID: 6077061001** Collected: 04/14/10 11:30 Received: 04/15/10 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Methylene chloride	ND	ug/L	1.0	1		04/20/10 19:22	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		04/20/10 19:22	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		04/20/10 19:22	1634-04-4	
Naphthalene	ND	ug/L	10.0	1		04/20/10 19:22	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		04/20/10 19:22	103-65-1	
Styrene	ND	ug/L	1.0	1		04/20/10 19:22	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		04/20/10 19:22	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		04/20/10 19:22	79-34-5	
Tetrachloroethene	**5.6**	ug/L	1.0	1		04/20/10 19:22	127-18-4	
Toluene	ND	ug/L	1.0	1		04/20/10 19:22	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		04/20/10 19:22	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		04/20/10 19:22	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		04/20/10 19:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		04/20/10 19:22	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		04/20/10 19:22	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		04/20/10 19:22	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		04/20/10 19:22	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		04/20/10 19:22	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		04/20/10 19:22	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		04/20/10 19:22	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		04/20/10 19:22	1330-20-7	
4-Bromofluorobenzene (S)	102	%	87-113	1		04/20/10 19:22	460-00-4	
Dibromofluoromethane (S)	110	%	86-112	1		04/20/10 19:22	1868-53-7	
1,2-Dichloroethane-d4 (S)	106	%	82-119	1		04/20/10 19:22	17060-07-0	
Toluene-d8 (S)	100	%	90-110	1		04/20/10 19:22	2037-26-5	
Preservation pH	**7.0**		0.10	1		04/20/10 19:22		
300.0 IC Anions	Analytical Method: EPA 300.0							
Nitrate as N	**5.0**	mg/L	0.10	1		04/15/10 18:11	14797-55-8	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6077061

Sample: HAQTB-W-414102 **Lab ID: 6077061002** Collected: 04/14/10 15:45 Received: 04/15/10 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Acetone	ND	ug/L	10.0	1		04/20/10 19:38	67-64-1	
Benzene	ND	ug/L	1.0	1		04/20/10 19:38	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		04/20/10 19:38	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		04/20/10 19:38	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		04/20/10 19:38	75-27-4	
Bromoform	ND	ug/L	1.0	1		04/20/10 19:38	75-25-2	
Bromomethane	ND	ug/L	1.0	1		04/20/10 19:38	74-83-9	
2-Butanone (MEK)	ND	ug/L	10.0	1		04/20/10 19:38	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		04/20/10 19:38	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		04/20/10 19:38	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		04/20/10 19:38	98-06-6	
Carbon disulfide	ND	ug/L	5.0	1		04/20/10 19:38	75-15-0	
Carbon tetrachloride	ND	ug/L	1.0	1		04/20/10 19:38	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		04/20/10 19:38	108-90-7	
Chloroethane	ND	ug/L	1.0	1		04/20/10 19:38	75-00-3	
Chloroform	ND	ug/L	5.0	1		04/20/10 19:38	67-66-3	
Chloromethane	ND	ug/L	1.0	1		04/20/10 19:38	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		04/20/10 19:38	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		04/20/10 19:38	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	2.5	1		04/20/10 19:38	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		04/20/10 19:38	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		04/20/10 19:38	106-93-4	
Dibromomethane	ND	ug/L	1.0	1		04/20/10 19:38	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		04/20/10 19:38	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		04/20/10 19:38	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		04/20/10 19:38	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		04/20/10 19:38	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		04/20/10 19:38	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		04/20/10 19:38	107-06-2	
1,2-Dichloroethene (Total)	ND	ug/L	1.0	1		04/20/10 19:38	540-59-0	
1,1-Dichloroethene	ND	ug/L	1.0	1		04/20/10 19:38	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		04/20/10 19:38	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		04/20/10 19:38	156-60-5	
1,2-Dichloropropane	ND	ug/L	1.0	1		04/20/10 19:38	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		04/20/10 19:38	142-28-9	
2,2-Dichloropropane	ND	ug/L	1.0	1		04/20/10 19:38	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		04/20/10 19:38	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	1.0	1		04/20/10 19:38	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	1.0	1		04/20/10 19:38	10061-02-6	
Ethylbenzene	ND	ug/L	1.0	1		04/20/10 19:38	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		04/20/10 19:38	87-68-3	
2-Hexanone	ND	ug/L	10.0	1		04/20/10 19:38	591-78-6	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		04/20/10 19:38	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		04/20/10 19:38	99-87-6	
Methylene chloride	ND	ug/L	1.0	1		04/20/10 19:38	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	1		04/20/10 19:38	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		04/20/10 19:38	1634-04-4	

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ANALYTICAL RESULTS

Project: Kansas Waste Water
Pace Project No.: 6077061

Sample: HAQTB-W-414102 **Lab ID: 6077061002** Collected: 04/14/10 15:45 Received: 04/15/10 09:00 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV	Analytical Method: EPA 5030B/8260							
Naphthalene	ND	ug/L	10.0	1		04/20/10 19:38	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		04/20/10 19:38	103-65-1	
Styrene	ND	ug/L	1.0	1		04/20/10 19:38	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		04/20/10 19:38	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		04/20/10 19:38	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		04/20/10 19:38	127-18-4	
Toluene	ND	ug/L	1.0	1		04/20/10 19:38	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		04/20/10 19:38	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		04/20/10 19:38	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		04/20/10 19:38	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		04/20/10 19:38	79-00-5	
Trichloroethene	ND	ug/L	1.0	1		04/20/10 19:38	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		04/20/10 19:38	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	2.5	1		04/20/10 19:38	96-18-4	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		04/20/10 19:38	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		04/20/10 19:38	108-67-8	
Vinyl chloride	ND	ug/L	1.0	1		04/20/10 19:38	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		04/20/10 19:38	1330-20-7	
4-Bromofluorobenzene (S)	102	%	87-113	1		04/20/10 19:38	460-00-4	
Dibromofluoromethane (S)	111	%	86-112	1		04/20/10 19:38	1868-53-7	
1,2-Dichloroethane-d4 (S)	105	%	82-119	1		04/20/10 19:38	17060-07-0	
Toluene-d8 (S)	100	%	90-110	1		04/20/10 19:38	2037-26-5	
Preservation pH	**7.0**		0.10	1		04/20/10 19:38		

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6077061

QC Batch: OEXT/22948 | Analysis Method: EPA 504.1
QC Batch Method: EPA 504.1 | Analysis Description: GCS 504 EDB DBCP
Associated Lab Samples: 6077061001

METHOD BLANK: 629866 | Matrix: Water
Associated Lab Samples: 6077061001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	0.030	04/16/10 00:00	

LABORATORY CONTROL SAMPLE & LCSD: 629867 629868

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	.25	0.30	0.29	119	115	70-130	3	20	

MATRIX SPIKE SAMPLE: 629869

Parameter	Units	6076963016 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,2-Dibromoethane (EDB)	ug/L	ND	.24	0.25	108	65-135	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6077061

QC Batch: MSV/28216
Analysis Method: EPA 5030B/8260
QC Batch Method: EPA 5030B/8260
Analysis Description: 8260 MSV Water 7 day
Associated Lab Samples: 6077061001, 6077061002

METHOD BLANK: 631505
Matrix: Water
Associated Lab Samples: 6077061001, 6077061002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	04/20/10 19:05	
1,1,1-Trichloroethane	ug/L	ND	1.0	04/20/10 19:05	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	04/20/10 19:05	
1,1,2-Trichloroethane	ug/L	ND	1.0	04/20/10 19:05	
1,1-Dichloroethane	ug/L	ND	1.0	04/20/10 19:05	
1,1-Dichloroethene	ug/L	ND	1.0	04/20/10 19:05	
1,1-Dichloropropene	ug/L	ND	1.0	04/20/10 19:05	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	04/20/10 19:05	
1,2,3-Trichloropropane	ug/L	ND	2.5	04/20/10 19:05	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	04/20/10 19:05	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	04/20/10 19:05	
1,2-Dibromo-3-chloropropane	ug/L	ND	2.5	04/20/10 19:05	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	04/20/10 19:05	
1,2-Dichlorobenzene	ug/L	ND	1.0	04/20/10 19:05	
1,2-Dichloroethane	ug/L	ND	1.0	04/20/10 19:05	
1,2-Dichloroethene (Total)	ug/L	ND	1.0	04/20/10 19:05	
1,2-Dichloropropane	ug/L	ND	1.0	04/20/10 19:05	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	04/20/10 19:05	
1,3-Dichlorobenzene	ug/L	ND	1.0	04/20/10 19:05	
1,3-Dichloropropane	ug/L	ND	1.0	04/20/10 19:05	
1,4-Dichlorobenzene	ug/L	ND	1.0	04/20/10 19:05	
2,2-Dichloropropane	ug/L	ND	1.0	04/20/10 19:05	
2-Butanone (MEK)	ug/L	ND	10.0	04/20/10 19:05	
2-Chlorotoluene	ug/L	ND	1.0	04/20/10 19:05	
2-Hexanone	ug/L	ND	10.0	04/20/10 19:05	
4-Chlorotoluene	ug/L	ND	1.0	04/20/10 19:05	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	10.0	04/20/10 19:05	
Acetone	ug/L	ND	10.0	04/20/10 19:05	
Benzene	ug/L	ND	1.0	04/20/10 19:05	
Bromobenzene	ug/L	ND	1.0	04/20/10 19:05	
Bromochloromethane	ug/L	ND	1.0	04/20/10 19:05	
Bromodichloromethane	ug/L	ND	1.0	04/20/10 19:05	
Bromoform	ug/L	ND	1.0	04/20/10 19:05	
Bromomethane	ug/L	ND	1.0	04/20/10 19:05	
Carbon disulfide	ug/L	ND	5.0	04/20/10 19:05	
Carbon tetrachloride	ug/L	ND	1.0	04/20/10 19:05	
Chlorobenzene	ug/L	ND	1.0	04/20/10 19:05	
Chloroethane	ug/L	ND	1.0	04/20/10 19:05	
Chloroform	ug/L	ND	5.0	04/20/10 19:05	
Chloromethane	ug/L	ND	1.0	04/20/10 19:05	
cis-1,2-Dichloroethene	ug/L	ND	1.0	04/20/10 19:05	
cis-1,3-Dichloropropene	ug/L	ND	1.0	04/20/10 19:05	
Dibromochloromethane	ug/L	ND	1.0	04/20/10 19:05	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6077061

METHOD BLANK: 631505 Matrix: Water

Associated Lab Samples: 6077061001, 6077061002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromomethane	ug/L	ND	1.0	04/20/10 19:05	
Dichlorodifluoromethane	ug/L	ND	1.0	04/20/10 19:05	
Ethylbenzene	ug/L	ND	1.0	04/20/10 19:05	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	04/20/10 19:05	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	04/20/10 19:05	
Methyl-tert-butyl ether	ug/L	ND	1.0	04/20/10 19:05	
Methylene chloride	ug/L	ND	1.0	04/20/10 19:05	
n-Butylbenzene	ug/L	ND	1.0	04/20/10 19:05	
n-Propylbenzene	ug/L	ND	1.0	04/20/10 19:05	
Naphthalene	ug/L	ND	10.0	04/20/10 19:05	
p-Isopropyltoluene	ug/L	ND	1.0	04/20/10 19:05	
sec-Butylbenzene	ug/L	ND	1.0	04/20/10 19:05	
Styrene	ug/L	ND	1.0	04/20/10 19:05	
tert-Butylbenzene	ug/L	ND	1.0	04/20/10 19:05	
Tetrachloroethene	ug/L	ND	1.0	04/20/10 19:05	
Toluene	ug/L	ND	1.0	04/20/10 19:05	
trans-1,2-Dichloroethene	ug/L	ND	1.0	04/20/10 19:05	
trans-1,3-Dichloropropene	ug/L	ND	1.0	04/20/10 19:05	
Trichloroethene	ug/L	ND	1.0	04/20/10 19:05	
Trichlorofluoromethane	ug/L	ND	1.0	04/20/10 19:05	
Vinyl chloride	ug/L	ND	1.0	04/20/10 19:05	
Xylene (Total)	ug/L	ND	3.0	04/20/10 19:05	
1,2-Dichloroethane-d4 (S)	%	102	82-119	04/20/10 19:05	
4-Bromofluorobenzene (S)	%	100	87-113	04/20/10 19:05	
Dibromofluoromethane (S)	%	107	86-112	04/20/10 19:05	
Toluene-d8 (S)	%	98	90-110	04/20/10 19:05	

LABORATORY CONTROL SAMPLE: 631506

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	20.1	101	79-116	
1,1,1-Trichloroethane	ug/L	20	19.5	98	77-113	
1,1,2,2-Tetrachloroethane	ug/L	20	18.4	92	68-122	
1,1,2-Trichloroethane	ug/L	20	21.2	106	82-117	
1,1-Dichloroethane	ug/L	20	18.9	94	67-122	
1,1-Dichloroethene	ug/L	20	17.4	87	70-119	
1,1-Dichloropropene	ug/L	20	19.3	96	81-115	
1,2,3-Trichlorobenzene	ug/L	20	15.4	77	66-135	
1,2,3-Trichloropropane	ug/L	20	21.4	107	76-126	
1,2,4-Trichlorobenzene	ug/L	20	15.4	77	66-126	
1,2,4-Trimethylbenzene	ug/L	20	17.7	89	78-115	
1,2-Dibromo-3-chloropropane	ug/L	20	18.8	94	58-147	
1,2-Dibromoethane (EDB)	ug/L	20	21.4	107	84-121	
1,2-Dichlorobenzene	ug/L	20	18.7	94	79-116	
1,2-Dichloroethane	ug/L	20	21.0	105	74-119	

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Lenexa, KS 66219
(913)599-5665

QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6077061

LABORATORY CONTROL SAMPLE: 631506

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichloroethene (Total)	ug/L	40	38.9	97	78-117	
1,2-Dichloropropane	ug/L	20	20.2	101	77-115	
1,3,5-Trimethylbenzene	ug/L	20	18.5	92	83-117	
1,3-Dichlorobenzene	ug/L	20	18.1	91	79-112	
1,3-Dichloropropane	ug/L	20	20.0	100	82-119	
1,4-Dichlorobenzene	ug/L	20	17.8	89	78-111	
2,2-Dichloropropane	ug/L	20	16.6	83	57-130	
2-Butanone (MEK)	ug/L	100	105	105	41-157	
2-Chlorotoluene	ug/L	20	18.6	93	82-118	
2-Hexanone	ug/L	100	99.6	100	57-137	
4-Chlorotoluene	ug/L	20	18.6	93	83-114	
4-Methyl-2-pentanone (MIBK)	ug/L	100	104	104	62-118	
Acetone	ug/L	100	95.4	95	38-174	
Benzene	ug/L	20	19.4	97	79-116	
Bromobenzene	ug/L	20	19.5	98	81-115	
Bromochloromethane	ug/L	20	20.3	101	72-123	
Bromodichloromethane	ug/L	20	20.9	104	76-113	
Bromoform	ug/L	20	19.4	97	62-129	
Bromomethane	ug/L	20	14.4	72	24-168	
Carbon disulfide	ug/L	20	16.6	83	45-129	
Carbon tetrachloride	ug/L	20	19.2	96	67-124	
Chlorobenzene	ug/L	20	19.7	98	79-113	
Chloroethane	ug/L	20	17.1	85	57-153	
Chloroform	ug/L	20	19.7	99	74-116	
Chloromethane	ug/L	20	11.4	57	51-138	
cis-1,2-Dichloroethene	ug/L	20	19.4	97	77-120	
cis-1,3-Dichloropropene	ug/L	20	20.5	103	76-116	
Dibromochloromethane	ug/L	20	20.2	101	73-115	
Dibromomethane	ug/L	20	20.9	104	75-115	
Dichlorodifluoromethane	ug/L	20	7.1	36	6-181	
Ethylbenzene	ug/L	20	19.2	96	76-122	
Hexachloro-1,3-butadiene	ug/L	20	17.3	86	68-129	
Isopropylbenzene (Cumene)	ug/L	20	15.8	79	71-104	
Methyl-tert-butyl ether	ug/L	20	19.0	95	62-131	
Methylene chloride	ug/L	20	18.0	90	61-137	
n-Butylbenzene	ug/L	20	17.8	89	75-124	
n-Propylbenzene	ug/L	20	18.4	92	79-116	
Naphthalene	ug/L	20	14.7	74	60-145	
p-Isopropyltoluene	ug/L	20	17.4	87	79-114	
sec-Butylbenzene	ug/L	20	18.6	93	83-119	
Styrene	ug/L	20	19.1	95	70-125	
tert-Butylbenzene	ug/L	20	18.2	91	81-118	
Tetrachloroethene	ug/L	20	19.1	95	77-117	
Toluene	ug/L	20	19.9	100	75-120	
trans-1,2-Dichloroethene	ug/L	20	19.6	98	76-119	
trans-1,3-Dichloropropene	ug/L	20	17.2	86	64-105	
Trichloroethene	ug/L	20	20.9	105	78-118	
Trichlorofluoromethane	ug/L	20	17.7	88	73-118	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6077061

LABORATORY CONTROL SAMPLE: 631506

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Vinyl chloride	ug/L	20	14.2	71	60-122	
Xylene (Total)	ug/L	60	57.4	96	74-124	
1,2-Dichloroethane-d4 (S)	%			106	82-119	
4-Bromofluorobenzene (S)	%			94	87-113	
Dibromofluoromethane (S)	%			104	86-112	
Toluene-d8 (S)	%			99	90-110	

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QUALITY CONTROL DATA

Project: Kansas Waste Water
Pace Project No.: 6077061

QC Batch: WETA/12638 | Analysis Method: EPA 300.0
QC Batch Method: EPA 300.0 | Analysis Description: 300.0 IC Anions
Associated Lab Samples: 6077061001

METHOD BLANK: 629330 | Matrix: Water
Associated Lab Samples: 6077061001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Nitrate as N	mg/L	ND	0.10	04/15/10 12:29	

LABORATORY CONTROL SAMPLE: 629331

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	5	5.1	102	90-110	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 629332 629333

Parameter	Units	6077031002 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Nitrate as N	mg/L	ND	5	5	5.0	5.0	99	100	68-120	0	16	

MATRIX SPIKE SAMPLE: 629334

Parameter	Units	6077041002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Nitrate as N	mg/L	1.4	5	6.6	103	68-120	

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QUALIFIERS

Project: Kansas Waste Water
Pace Project No.: 6077061

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

Pace Analytical is NELAP accredited. Contact your Pace PM for the current list of accredited analytes.

U - Indicates the compound was analyzed for, but not detected.

BATCH QUALIFIERS

Batch: MSV/28216

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

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