ANL/ES-C1100501

Microorganisms Associated with Hydrocarbon Contaminated Sites and Reservoirs for Microbial Enhanced Oil Recovery (MEOR)

Final CRADA Report

Energy Systems Division

About Argonne National Laboratory

Argonne is a U.S. Department of Energy laboratory managed by UChicago Argonne, LLC under contract DE-AC02-06CH11357. The Laboratory's main facility is outside Chicago, at 9700 South Cass Avenue, Argonne, Illinois 60439. For information about Argonne and its pioneering science and technology programs, see www.anl.gov.

ANL/ES-C1100501

Microorganisms Associated with Hydrocarbon Contaminated Sites and Reservoirs for Microbial Enhanced Oil Recovery (MEOR)

Final CRADA Report

prepared by
M. Cristina Negri
Energy Systems Division, Argonne National Laboratory

October 21, 2013

APT # 78185

NON PROPRIETARY

FINAL CRADA REPORT

Date: 10/21/2013

CRADA Number: 1100501

CRADA Title: Microorganisms associated with hydrocarbon contaminated sites and reservoirs for Microbial Enhanced Oil Recovery (MEOR).

CRADA Start/End Date: Jan 30, 2012 to Jan 31, 2013

Argonne Dollars: $450,000
Participant Dollars: $ 450,000

Argonne PI: M. Cristina Negri

Industrial Partner:
DuPont Company
Experimental Station E402/4256
PO Box 80402

DOE Program Manager: Regina Carter, 202 586-8648, Regina.Carter@nnsa.doe.gov.

Summary of Major Accomplishments:
Russian partner Institutes tested a number of strains from their collection and/or selected at oilfield contamination/extraction sites to determine their ability to create aggregates that could plug oil well reservoirs to enhance oil recovery. Among these tested, five facultative anaerobic organisms that performed the best in the Russian Institutes' trials were shipped to Argonne and evaluated at Argonne for their ability to produce aggregates that plug pores in oil reservoirs formations. These organisms are non-pathogenic, non-toxic, thermotolerant halophiles or thermophilic organisms found in oil reservoirs and related environments. At Argonne, cells were grown aerobically and inoculated in anaerobic growth media each with a different carbon source and silica particles. After 4 days of anaerobic growth, the samples were evaluated for ability to plug oil reservoir formations. Results from the testing show that selected organisms provided encouraging results. Argonne proposed best candidate combinations for future testing using the premise that the test results should be at least 2x better than the control. Results were provided to the Industrial Partner who is interested in receiving the strains for further testing. The Industrial Partner will acquire directly from the Russian Institutes the license to use these strains. During the course of the project, the Industrial Partner coordinated with Argonne and the Russian partner Institutes, provided testing guidance, methods, and test materials and reviewed procedures and results.

Summary of Technology Transfer Benefits to Industry: The Industrial Partner is interested in testing the two best strains in their facility and are interacting with the Russian Institutes to obtain permission.

Other Information/Results: (Papers, Inventions, Software, etc.): Results from the project were considered proprietary and not disseminated through papers.

NON PROPRIETARY

Energy Systems Division
Argonne National Laboratory
9700 South Cass Avenue, Bldg. #362
Argonne, IL 60439

www.anl.gov