

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

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*Final CRADA Report*

Energy Systems Division

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prepared by  
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APT # 78185

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## 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.

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