Lessons Learned from Surfactant-Enhanced Aquifer Remediation of Light and Dense NAPLs

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Background/Objectives. Surfactants, solvents and polymers have been used as aggressive NAPL removal methods. Published work on thoroughly monitored projects shows that over 90% of the NAPL contaminant mass can be removed. How have more commercial remediation projects following these methods perform?

Approach/Activities. Technology developed at the University of Oklahoma, originally focused for enhanced oil recovery at petroleum reservoirs and subsequently adapted to the environmental arena, can lower the IFT sufficiently to allow physical mobilization of residual LNAPL with the limited production of thermodynamically stable emulsions. Part of this talk will focus on market acceptance and lessons learned from the use of artfully formulated surfactant blends that reduce solubilization and simply allow LNAPLs in saturated soils to become mobile. Lessons learned from other Department of Defense surfactant flood projects addressing DNAPL will be used to highlight similarities and differences to LNAPL recovery projects.

Results/Lessons Learned. The presentation will review surfactant flood design methods and highlight results and lessons learned from various projects.