APPENDIX A
Topic Areas

Topic 1: Management of Contaminated Groundwater

Objective

Demonstration projects are sought for tools, methodologies, or technologies that can reduce the cost of managing the Department of Defense's (DoD) long term liability associated with contaminated groundwater. Groundwater contaminants of concern include chlorinated solvents, energetic compounds, metals, emerging contaminants of interest to DoD, or mixtures of these contaminants. The primary focus of this topic area is innovative technologies and approaches for managing sites and the associated risks where contamination will persist for a significant period of time after an initial remedy is selected. Cost-effective management tools or technologies to specifically address dense, non-aqueous phase liquid (DNAPL) source zones that cause persistent groundwater plumes are of interest. Proposed technologies also may address the risk characterization or remediation of vapors that emanate from contaminated groundwater. Optimization, assessment, and/or long-term monitoring tools related to remediation of contaminated groundwater will be considered.

Background

The DoD's Installation Restoration Program has set goals to achieve Remedy in Place (RIP) at all active installations and Base Realignment and Closure (BRAC) sites by FY 2014 and RIP at all Formerly Used Defense Sites (FUDS) by FY 2020. The Cost to Complete (CTC) at these sites was calculated at $12.1 billion in FY 2009. Of these sites, groundwater contaminated with chlorinated solvents is often the most intractable problem. Substantial progress has been made in the past 20 years in the development of technologies for remediation of contaminated groundwater; however, challenges remain. Remedial costs are particularly high at sites, where (1) contamination is extensive, but concentrations are low, (2) DNAPL is present in the subsurface, (3) site hydrogeology is complex (e.g., fractured bedrock), or (4) site conditions require extensive long-term monitoring.

A recent area of interest is green and sustainable remediation related to Executive Order 13514. Specifically, DoD goals are focused on increased energy efficiency; measurement and reduction of greenhouse gas emissions from direct and indirect activities; conservation and protection of water resources through efficiency, reuse, and stormwater management; elimination of waste, increased recycling, and pollution prevention; and fostering markets for sustainable technologies and environmentally preferable materials, products, and services. When applicable, proposers should consider how such issues may be addressed within the context of in situ remediation of contaminated groundwater.

Proposed technologies should have completed all required laboratory work, although site-specific treatability work prior to the field demonstration is acceptable. Technologies and methods are sought that have well-defined demonstration/validation questions to address. ESTCP demonstrations should address technical and/or regulatory issues that inhibit the widespread use of the proposed approach across DoD. ESTCP supports demonstrations at a scale sufficient to determine the operational performance of the remediation technology and to estimate its expected full-scale costs. Full-scale cleanup of specific sites is not performed under

ESTCP. Specific DoD demonstration site(s) may be suggested in the pre-proposal, but are not required.

ESTCP has supported the demonstration of a number of technologies designed for protection and remediation of contaminated groundwater. Proposers should be familiar with the ESTCP portfolio of technologies and tools in order to avoid duplication of previous efforts. ESTCP groundwater project descriptions are available on the ESTCP web site (http://serdp-estcp.org/Program-Areas/Environmental-Restoration/Contaminated-Groundwater).

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