FY 2019 Federal Outside DoD Call for Proposals: Topic B3 **January 9, 2018**

Environmental Security Technology Certification Program (ESTCP)

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's) long term liability associated with contaminated groundwater. Groundwater contaminants of concern include chlorinated solvents, energetic compounds, 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. The following areas are of interest:

- Cost-effective management tools or technologies to specifically address contaminant source zones in complex geological environments that cause persistent groundwater plumes.
- Cost-effective management tools or technologies to address groundwater contaminated with emerging contaminants, such as the per- and polyfluoroalkyl substances (PFASs). Such technologies also must address common co-contaminants with these emerging contaminants.
- Assessment of how to better combine existing or new technologies to address complex contaminated sites and make informed decisions on transitions from active remediation to passive technologies.
- Optimization, assessment, and/or long-term monitoring tools related to remediation of contaminated groundwater.
- Tools to collect more site data of better quality at lower cost. Site data on groundwater quality, including contaminants and biogeochemical conditions is of particular interest.

BACKGROUND

The DoD's Installation Restoration Program has set goals to achieve Response Complete (RC) at 95% of Installation Restoration Program (IRP) sites at active installations, and IRP sites at Formerly Used Defense Sites (FUDS) by the end of FY 2021. 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. The National Research Council study, "Alternatives for Managing the Nation's Complex Contaminated Groundwater Sites" reviews and highlights the technical challenges DoD faces in managing these sites.

Also of concern are issues associated with emerging contaminants in groundwater. Contaminants

such as PFASs or 1,4-dioxane often occur with co-contaminants, yet treatment options that are effective for one class of compounds may not be for others. More cost effective treatment technologies are needed for these emerging chemicals of concern. In situ or ex situ treatment options are of interest, but proposers must be clear on the need for and advantages of ex situ treatment.

Technologies and methods are sought that have well-defined demonstration/validation questions to address. Proposed technologies should have completed all required laboratory work, although site-specific treatability work prior to the field demonstration is acceptable. 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 website.

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