

Topic 2: In Situ Management of Contaminated Sediments

Objective

Demonstration projects are sought for innovative in situ technologies that specifically address the management, risk characterization, remediation, or monitoring of sediments contaminated with polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), heavy metals, or mixtures containing these contaminants. Demonstrations of cost effective techniques for application of innovative amendments in deep water (greater than 20 feet) are of interest. In addition, demonstrations of technologies or tools are sought that address the critical needs for advancing the regulatory acceptance and implementation of measures of bioavailability into contaminated sediments cleanup activities. Contaminated marine, estuarine, brackish, and fresh water sediments are of interest. Proposals addressing sediments contaminated with radionuclides will not be considered.

Background

Marine and fresh water sediments are the ultimate receptors of contaminants in effluent from urban, agricultural, industrial, and recreational activities, both at sea and on shore. The Department of Defense (DoD) is responsible for the management of thousands of sites with organic compounds and metals contamination in sediments. A growing body of evidence suggests that sediment removal as a means of contaminant remediation can at times result in more ecological damage or show no measurable ecological improvement. Therefore, development of cost effective in situ management strategies for contaminated sediments at DoD sites is a critical need.

The current regulatory paradigm for characterizing risks associated with the level of contamination in sediments generally does not include measures of the actual bioavailability of these contaminants to human or ecological receptors. However, there is clear and growing evidence that demonstrates that some of these contaminants are less available to potentially harm humans or ecological receptors than is suggested by simply extrapolating effects based on total concentrations of contaminants in bulk soil or sediment. In August 2008, ESTCP co-sponsored a Workshop on Research and Development Needs for Understanding and Assessing the Bioavailability of Contaminants in Soils and Sediments that identified high priority research and demonstration topics in this area. Results of the workshop highlighted the need to refine, validate, and demonstrate the assessment of contaminant bioavailability. A description of the demonstration issues can be found in the workshop report (http://www.serdp-estcp.org/content/download/8049/99405/version/1/file/Bioavailability_Wkshp_Nov_2008.pdf).

Proposed technologies should have completed all required laboratory work, although site specific treatability work prior to the field demonstration is acceptable. Specific DoD demonstration site(s) may be suggested in the pre-proposal, but are not required. 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 demonstration 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.

ESTCP has supported the demonstration of a number of technologies related to contaminated sediments. Proposers should be familiar with the ESTCP portfolio of technologies and tools in order to avoid duplication of previous efforts. ESTCP sediment project descriptions are available on the ESTCP website ([http://www.serdp-estcp.org/Program-Areas/Environmental-Restoration/Contaminated -Sediments](http://www.serdp-estcp.org/Program-Areas/Environmental-Restoration/Contaminated-Sediments)).

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