SCOPE OF WORK

Technical Support to EPA Region 10 on the Portland Harbor Superfund Site Feasibility Study

For

EPA Region 10

Prepared By

U.S. Army Engineer Research and Development Center
Environmental Laboratory

April 2010

BACKGROUND: The Portland Harbor Superfund site is located on the Willamette River and stretches from downtown Portland, Oregon to the confluence with the Columbia River. Initial study has focused on a heavily industrialized 6.2-mile river section of within the 11-river-mile Superfund site study area. Sediments at the site are contaminated with metals (such as mercury), pesticides, herbicides, polynuclear aromatic hydrocarbons (PAH), polychlorinated biphenyls (PCB), semi-volatile organics, and dioxin/furans. The site was listed on the National Priorities List (NPL) in 2000 and the remedial investigation and feasibility study (RI/FS) has been underway since 2001. At the same time, a series of early actions have taken place or are being planned at 3 locations within the site (GASCO, Terminal 4, and Arkema). These actions are intended to immediately reduce risk to the public and the environment from uncontrolled hazardous substances.

The RI/FS is being conducted under EPA oversight, by a group of potentially responsible parties (the Lower Willamette Group). EPA is the lead agency for investigating and cleaning up contaminated sediment in the river. The Oregon Department of Environmental Quality (DEQ) is the lead agency for cleaning up upland sites that are sources of contamination to the river. Other state and federal agencies, plus six Indian tribes are also collaborating with EPA to provide oversight and technical expertise for this massive cleanup effort.

The site-wide cleanup is a large, complex project that covers a geographically large area with multiple management areas, sources, contaminants, impacted receptors and simultaneous actions. As the project progresses, a series of technical documents will be produced and decisions reached as site characterization is finalized, the site's conceptual model is refined, cleanup alternatives are screened and evaluated, and cleanup decisions are made. Technical assistance from the U.S. Army Engineer Research and Development Center has been requested by the U.S. EPA Region 10 to support site management and decision making.

OBJECTIVE: Provide technical assistance on the evaluation of remedial technologies and decision making at the Portland Harbor site. Assistance should focus on the effectiveness, implementability and costs associated with each technology.

APPROACH: Over the course of the support period (January 2009 to December 2012), ERDC scientists and engineers will review and advise on technical materials developed by the LWG and provided by US EPA. ERDC personnel will attend meetings, participate in conference calls, provide oral and written comments, and other technical support as requested. Technical support will be provided for the following tasks in the expected time frame:

Task 1. Site Mapping (January - May 2009)**:** During this phase of the project, EPA will be mapping the distribution of contamination to identify areas of potential concern. The LWG will provide GIS mapping tools and preliminary remedial goals (PRGs) for this exercise. PRGs will provided in table format with limited supporting information. PRGs will be based on the expected results of the baseline risk assessment. As currently

envisioned, the GIS tool will focus on the spatial distribution of contamination only. This effort will culminate with a meeting with the PRP group in early May, followed by EPA direction on areas of contamination that will be carried forward for evaluation in the FS.

ERDC role: This represents an opportunity for ERDC staff to develop knowledge of the site, including COCs and potential source areas. Technical support will focus on evaluating the technical basis for establishing the extent of the contamination at the Portland Harbor site. (Principle Actors: Bridges, Gustavson). – **Note: this task has been completed**

Task 2. Alternative Screening and Analysis (January 2009 to December 2012): EPA expects to be working collaboratively with the PRP group to assemble and screen remedial technologies. This will include three LWG deliverables with summary supporting information - a Treatment Techologies Screening Table, a Disposal Site Screening Table, and draft Alternatives Screening matrices. This effort will culminate with a meeting with the PRP group in late August or early September, and will include input for EPA feedback/comment to the LWG. In 2010, the LWG will present EPA with the results of their alternative screening at a check-in meeting in May or June 2010.

ERDC role: Technical support will focus on evaluating the applicability, effectiveness, and technical issues associated with various remedial action technologies. Such evaluations will be based on conditions at the Portland Harbor site and experience at other sediment remediation sites. (Principal Actors: Bridges, Estes, Gustavson, and Schroeder).

Task 3. Decision Analysis Framework Development (January 2009 to December 2012): Once EPA has reached agreement with and/or provided direction to the PRP group on the screening of remedial action technologies, the PRP group will begin the comparative and detailed evaluation of alternatives. This provides an opportunity to scope out methods for decision making (within the framework of the 9 National Contingency Plan [NCP] analysis) at the Portland Harbor Site.

ERDC role: Review and analysis of potential methods for decision making at the site. Upon request, additional technical support on evaluating candidate remedial technologies on the basis of the NCP criteria, focusing on technical aspects of protection of human health and the environment and the five "balancing criteria". Evaluations will build upon analyses conducted per task 2. (Principal Actors: Canis and Linkov; further technology review by Task 2 team upon request).

Task 4: Review draft FS (January 2009 to December 2012): The draft FS is expected in Mid March 2010. This effort will culminate with the development of EPA comments on the draft FS.

ERDC role: Technical support will focus on the evaluating the feasibility study, presentation and comparison of alternatives, identification of advantages and limitations

of candidate technologies, and consideration of risk reduction and generation. (Principal Actors: Bridges, Gustavson, and Schroeder).

Task 5: Support for Environmental Modeling (January 2009 to December 2012): Environmental models are being prepared by LWG to predict the future fate and transport of contaminated sediments under various remedial scenarios. Several meetings will be held to discuss model development through model calibration, validation, and results generation.

ERDC role: Technical support will focus on the evaluating model parameterization, implementation, and verification. Support will be provided through on-site meetings, conference calls, and emails. (Principal Actors: Hayter and Gustavson).

Table 1: Milestone/Product Delivery Schedule.

Task	Meeting	Product	Deadline
Task 1. Site mapping	EPA-PRP Mtg, May 2009	Review Memo and Comments **(Task Completed)**	20 days following meeting
Task 2. Alternative Screening and Analysis	EPA-PRP Mtg, May/June 2010	Review Memo and Comments (Nov 2009 meeting attended and comments submitted)	20 days following meeting
Task 3. Decision Analysis Framework Development		Memo on decision making methods; additional analysis of remedial technologies upon request. (Interim framework submitted October 2009)	Decision making memo: 2 months after request
Task 4: Review draft FS (Mid March - July 2010)		Review Memo and Comments	60 days after receipt of FS
Task 5: Support for Environmental Modeling	May/June 2010	Attend meeting provide written/verbal comments	As requested

COST:

Table 2: Cost estimate broken out by task.

Item	Labor Hours	Total Cost
Task 1		complete
Task 2	236	$32,404
Task 3	112	$15,336
Task 4*	152	$19,896
Task 5	128	$16,728
Travel		$11,347
Total**		**$95,711**

**Cost estimates are based on assumptions given the team's experience at other sites. The costs are subject to change based on direction provided by EPA Region 10, the nature of the documents to be reviewed, the level of review required, and requests for additional support. The listed costs are considered minimum estimates.

PERIOD OF SERVICE:
February 1, 2009 to December 31, 2012

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