

**Preliminary Close Out Report
Pacific Sound Resources Site
Seattle, King County, Washington**

September 16, 2005

I. INTRODUCTION

This Preliminary Close Out Report documents that the U.S. Environmental Protection Agency (EPA) completed construction activities at the Pacific Sound Resources (PSR) Site in accordance with Close Out Procedures for National Priorities List Sites (OSWER Directive 9320.2-09A-P). EPA conducted several pre-final inspections during August 2005, and determined that the U.S. Army Corps of Engineers (USACE) and their contractors have constructed the remedy in accordance with the Record of Decision (ROD), and no further construction work is anticipated. EPA has initiated the activities necessary to achieve performance standards and site completion.

II. SUMMARY OF SITE CONDITIONS

Background

The PSR Site, formerly known as the Wyckoff West Seattle Wood Treating facility, is located on the south shore of Elliott Bay in Puget Sound at 2801 SW Florida Street, Seattle, King County, Washington. The EPA identification number for the Site is WAD009248287.

The Site was divided into two units for investigation purposes: 1) upland unit; and, 2) marine sediments unit. Several pre-ROD early actions were implemented, focusing on source and risk reduction in the upland unit. These early actions also effectively reduced the flow of hazardous constituents from the upland unit into the marine sediments unit. The ROD, signed by the EPA Region 10 Regional Administrator on September 30, 1999, addresses both the upland and marine sediment units.

The upland property was purchased by the Port of Seattle (Port) during 1994, and this property was included in the Port's larger redevelopment and expansion project in West Seattle to construct a modern intermodal container terminal facility. During this period, the Port implemented several upland early actions, under EPA oversight, to control releases from the Site and to prepare it for reuse. The southern portion of the upland unit is currently being utilized by the Port as part of their intermodal container terminal facility, and the northern portion has been reconstructed as a public waterfront park.

The PSR Site encompasses 83 acres; 58 acres of the Site are intertidal (2 acres) or subtidal lands (56 acres). Residential areas are located within one mile of the Site, but the surrounding areas are primarily commercial and industrial. The local population and industrial users obtain their drinking and production waters from public supplies.

PSR operated the Site as a wood treating facility between 1909 and 1994. Creosote and related hazardous constituents were used in large quantities over many years and were discharged to the ground by a variety of the Site's industrial activities. Creosote discharged onto the ground then seeped into shallow groundwater and was eventually discharged into subtidal sediments immediately to the north. Hazardous constituents were also disposed directly onto the Site's intertidal areas.

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EPA determined that the following contaminants of concern were present in surface soil, subsurface soil, groundwater, and/or sediment:

- Creosote and related constituents (high molecular weight polycyclic aromatic hydrocarbons [HPAHs], including, benzo (a) pyrene, total PCBs, pentachlorophenol, and others); and,
- Metals (arsenic, cadmium, chromium, and others).

The greatest risks to human health and the environment were through direct contact, ingestion and inhalation, through contaminated sediment, and through consumption of fish. Early actions implemented at the Site eliminated human health and environmental risks in the upland area; the ROD included remedial actions to eliminate subtidal and intertidal risks, including risks associated with consumption of contaminated fish. EPA added the Site to the National Priorities List (NPL) in May 1994.

Remedial Construction Activities

While remedial construction activities, both pre-ROD and post-ROD, have included removal of hazardous constituents for off-Site disposal, there remain hazardous constituents on-Site. The potential for these hazardous constituents to present an actual risk to human health and the environment, or to migrate further in the environment, have been sufficiently controlled by the remedial construction activities described below.

Remedial construction activities completed pre-ROD include:

- Construction of an upland slurry wall to prevent continued hazardous constituent migration via groundwater into sediment;
- Construction of a low-permeability upland cap; and,
- Excavation and removal of the most contaminated source materials for off-site disposal.

These pre-ROD activities eliminated direct soil contact exposures. These activities also eliminated the transport of contaminated groundwater, contaminated soil, light non-aqueous phase liquids (LNAPL), and dense non-aqueous phase liquids (DNAPL) into surface water and sediments.

Remedial construction activities selected in the 1999 ROD include:

- Placement of subtidal and intertidal caps over 58-acres to promote development of a new benthic environment, including placement of at least five feet of cap material in the intertidal zone (overall cap placement techniques and thicknesses to be determined during the remedial design phase);
- Dredging and removal of 3,500 cubic yards of contaminated sediment for off-site disposal (10,000 cubic yards were actually removed); and,

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- Removal of marine pilings for off-Site disposal.

The designs for the subtidal and intertidal caps were intended to achieve State of Washington “Sediment Management Standards” (Chapter 173-204 WAC). As already stated, human health and ecological risks from hazardous constituents, contaminated soil, and contaminated groundwater in the upland unit were largely reduced to acceptable levels by pre-ROD early actions.

Before designing the pre-ROD and post-ROD remedial construction activities, EPA sampled and analyzed surface and subsurface soil, groundwater, and sediment throughout the Site. The analytical results indicated that approximately 4,000 cubic yards of highly contaminated soil and debris from the upland unit (removed pre-ROD) and 10,000 cubic yards of contaminated sediment from the marine sediment unit (removed post-ROD) would require excavation, dredging, and off-Site disposal. After these excavation, dredging, and disposal activities, additional analytical samples were collected to determine the required length and depth of the upland slurry wall (installed pre-ROD, 1,200 feet long, 40 feet deep), the required area of upland capping (10-acres, installed pre-ROD), and the required areas and depths of sediment capping (installed post-ROD, 58 acres, 0-300 feet below sea level).

While performing this analytical work, both pre- and post-ROD, 1,500 gallons of dense non-aqueous phase liquids (DNAPL) have been collected from groundwater monitoring wells and disposed off-Site. Additionally, the Port has (independently of the ROD) collected and disposed 25 cubic yards of PCB-contaminated soil and sediment from the Longfellow Creek storm-sewer outfall (which runs through the Site). This environmental work does contribute to the effectiveness of the overall Site cleanup.

After the ROD was issued, EPA issued a work assignment to the Remedial Action Contractor (RAC) to develop a workplan for remedial design of the ROD remedial construction elements. The RAC responded with final work plans and designs over several years, and submitted the “Final Design Addendum” on February 17, 2003. EPA then worked with USACE pursuant to the IAG to implement the approved remedial designs during 2003 and 2004, concluding all construction work on February 15, 2005.

The contaminated sediment and marine pilings were dredged and removed off-Site during the 2003 in-water construction season. Additionally, the marine sediment unit was subdivided into five distinct remedial action areas to accommodate varying capping environments (subtidal and intertidal slopes [0 – 40%] and depths [0 – 300 feet] vary considerably in the marine sediment unit). Construction activities in the first three remedial action areas in the marine sediment unit, including installation of the new beach in the intertidal area, were completed during the 2003 in-water construction season. Construction work in the remaining two remedial action areas in the marine sediment unit, the areas with the steepest slopes and greatest depths, were completed during the 2004 in-water construction season, ending on February 15, 2005.

There are no remedial construction activities remaining to be completed at the Site. Remaining non-construction remedial activities include ongoing inspection and maintenance, groundwater

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and DNAPL monitoring, continued five-year reviews (first review completed September 30, 2004), and completion of institutional controls necessary to protect subtidal areas from improper anchorage (draft Federal Register language has been negotiated with USACE and is in the process of being published by the Coast Guard).

The Site is currently being used for operations by the Port, and the public is gradually discovering their new park on the West Seattle waterfront, which had previously been inaccessible for close to 100 years.

III. DEMONSTRATION OF CLEANUP ACTIVITY QUALITY ASSURANCE AND QUALITY CONTROL

EPA reviewed all Port and USACE construction activities for compliance with quality assurance and quality control (QA/QC) protocols. Construction activities at the site were determined to be consistent with the NPL and ROD, consistent with remedial design plans and specifications, and consistent with associated statements of work. The Port and USACE adhered to the approved construction quality control plan. The construction quality assurance plan (CQAP) incorporated all EPA requirements. All confirmatory inspections, independent testing, audits, and evaluations of materials and workmanship were performed in accordance with construction drawings, technical specifications and the CQAP. Construction quality assurance was performed by EPA, which maintained a regular on-site presence.

The EPA project manager visited the site at least once per week during construction activities to review construction progress and to evaluate and review the results of QA/QC activities. Deviations or non-adherence to QA/QC protocols, drawings, or specifications were properly documented and resolved. The Quality Assurance Project Plan (QAPP) incorporated all EPA QA/QC procedures and protocol. EPA analytical methods were used for all confirmation and monitoring samples during remedial action activities.

IV. ACTIVITIES AND SCHEDULE FOR SITE COMPLETION

The following activities remain for PSR Site completion:

- | | |
|--|-----------------------|
| 1) Perform groundwater and DNAPL monitoring | Per approved O&M Plan |
| 2) Inspection and maintenance of caps | Per approved O&M Plan |
| 3) Complete institutional controls | September 30, 2006 |
| 4) Complete final inspection | September 30, 2006 |
| 5) Determine remedy operational & functional | September 30, 2006 |
| 6) Approve remedial action report | December 31, 2006 |
| 7) Approve final close out report | March 31, 2007 |
| 8) Deletion from NPL | September 30, 2007 |
| 9) Next five-year review | September 30, 2009 |

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V. SUMMARY OF REMEDIATION COSTS

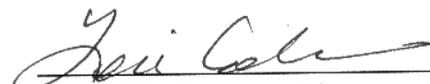
Total design and remediation costs for the PSR Site are approximately as follows:

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|--|---------------------|
| 1) Port upland in-kind remedial activities in return for property purchase | \$9-million |
| 2) Port upland remedial activities reimbursed by PSR Trust | \$11-million |
| 3) Marine sediment unit design costs | \$2-million |
| 4) Marine sediment unit construction costs | \$14-million |
| 5) Future operation & maintenance costs | <u>\$2-million</u> |
| | \$38-million |

All of these costs have been paid either directly or indirectly out of the PSR Trust, created by a 1994 consent decree settling claims between the Wyckoff/PSR principals and the United States. Some of the \$2-million for operating and maintenance costs, such as groundwater monitoring, institutional controls, five-year reviews, etc., has already been spent for these types of activities. However, approximately \$1.5-million remains for this work into the future.

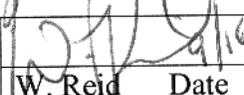
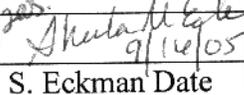
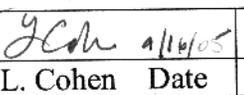
VI. FIVE-YEAR REVIEW

Hazardous substances will remain at the Site above levels that allow unlimited use and unrestricted exposure after the completion of the remedial action. Pursuant to CERCLA section 121(c) and as provided in the current guidance on five year reviews, a statutory five-year review must be conducted. The first Five-Year Review Report was completed on September 30, 2004, and the second Five-Year review will be completed prior to September 30, 2009.


Daniel D. Opalski, Director
 Office of Environmental Cleanup

9/16/05
Date

Concurrence (see attached HQ concurrence email)

	9/16/05		9/16/05		9/16/05		
W. Reid	Date	S. Eckman	Date	L. Cohen	Date		