

FINAL
Design Analysis Report

Washington Recreation Sites—Starr Road Site
Bunker Hill Mining and Metallurgical Complex OU 3

Spokane River, Washington

E-18-5-01

Prepared for:

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EXECUTIVE SUMMARY

The Environmental Protection Agency (EPA), with assistance from the Seattle District, U.S. Army Corps of Engineers (USACE), and in coordination with the Washington State Department of Ecology (Ecology), is performing the remediation of metals contamination at various recreational sites located on the Spokane River. The Starr Road Recreation Area is located on the river's northern shoreline, approximately 2.5 miles west of the Washington and Idaho state line. The Starr Road Recreation Area (Starr Road) is one of the ten shoreline areas identified for potential cleanup in the Record of Decision (ROD) for the Bunker Hill Mining and Metallurgical Complex, Operable Unit 3 (USEPA, 2002).

The contaminants present at Starr Road are associated with historic mining operations in the Coeur d'Alene Basin. The metals of principal concern for protection of human health are lead and arsenic. The project goal is to reduce the risk of human exposure to identified contaminants of concern (COCs), specifically lead and arsenic, in accordance with the ROD for the Bunker Hill Mining and Metallurgical Complex, Operable Unit 3 (the Bunker Hill OU3 ROD).

This final (100%) design analysis document was prepared by USACE to support EPA's conceptualization of the remedy, document its discussions with identified stakeholders, and the bidding and contracting of the remediation work. This document describes the design objectives, approach and methods that established the nature and extent of the remedial actions, the design of the remedy, and the contract documents for bidding and awarding the remedial action contract for the Starr Road site.

EPA's remedial action addresses 3.5-acres of land at the approximately 85-acre Starr Road Recreation Area, including approximately 2.5-acres located along the north side of the Spokane River where historic deposition and accumulation of metals-contaminated soil and sediment pose a human health risk to recreational users of the property. Approximately 1.95 acres of the work is located below the ordinary high water elevation of the Spokane River. Portions of the work will be performed in seasonally inundated portions of the shoreline, and the majority of the remediation activities are occurring within the 100-year floodplain.

The remedy concept includes work above and below the ordinary high water elevation in the Spokane River. The key elements of the remediation are as follow:

- Excavate 1,600 cubic yards of metals-contaminated soil and sediment from approximately 1.0-acre of a gravel bar (seasonally exposed during the summer's dam-controlled low water event) and replacing it with an equivalent quantity of clean, similarly graded gravels in the Spokane River. The fill consists of two gravel gradations selected for restoration of rainbow trout spawning habitat disturbed by the excavation work. The contaminated soil excavated from the bar will be disposed of at an offsite commercial landfill.
- Place 3,000 cubic yards of fill over a 1.77-acre nearshore area to create a barrier-type soil cap over contaminated sediment and soils that are not spawning habitat. Approximately 0.95-acres of the cap is located below the ordinary high water (OHW) elevation; 0.82-acres of the cap is above the OHW elevation. The fill includes approximately 2,550 cubic yards of clean capping material and 450 cubic yards of topsoil for revegetation of cap areas located above the OHW elevation.

Other activities occurring above the OHW elevation, in upland portions of the recreation area, include the construction of a new access point near the intersection of Starr Road and River Road, consisting of a paved turn-out along River Road (0.06 acres); a permanent pathway (0.09 acres) leading from the turn-out to the capped areas located along the Spokane River; and the use of various landscaping techniques to revegetate unwanted paths (0.43 acres) and modify foot traffic routes. Plantings of “hostile vegetation” (0.16 acres of thorny, dense-growing plants) will occur in a steeper, limited access area of the site in lieu of capping.

This final design analysis document, approved by EPA and distributed to project stakeholders for review and comment, contains the design drawings and contract documents completed by USACE on 19 August 2005. EPA authorized USACE to prepare the final (100%) design analysis document on January 5 2006. The remediation contract was bid under USACE’s Multiple Award Remediation Contract and awarded on February 22, 2006. EPA and USACE anticipate that the Starr Road construction period will extend from 4 August 2006 (mobilization and temporary facilities) through 30 September 2006 (demobilization). The remediation includes excavation/fill and capping activities in the seasonally exposed nearshore areas of the Spokane River, requiring that the remedy construction be completed during the river’s low flow period, which is controlled by upstream dams. The next window of opportunity for completing these construction activities is expected to occur during the period of 1 August to 15 September, 2006.