
**Interim
Record of Decision (ROD) Amendment,
Upper Basin of the Coeur d'Alene River**

**Bunker Hill Mining
and Metallurgical Complex
Superfund Site**



United States
Environmental Protection
Agency Region 10

August 2012

Part 1—Declaration

1.0 Site Name and Location

The Bunker Hill Mining and Metallurgical Complex Superfund Site ("the Bunker Hill Superfund Site", or "the Site") is located primarily in northern Idaho. The Site includes mining-contaminated areas in the Coeur d'Alene River corridor, adjacent floodplains, downstream water bodies,¹ tributaries, and fill areas, as well as the 21-square-mile Bunker Hill "Box" where historical ore-processing and smelting operations occurred. The Site was listed on the National Priorities List (NPL) in 1983 and, under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), is assigned CERCLIS identification number IDD048340921.

The U.S. Environmental Protection Agency (EPA) has divided the Bunker Hill Superfund Site into three Operable Units (OUs):

- OU 1 includes the populated areas of the Bunker Hill Box.
- OU 2 comprises the non-populated areas of the Bunker Hill Box.
- OU 3 includes all areas of the Coeur d'Alene Basin outside the Bunker Hill Box where mining-related contamination is located. OU 3 extends from the Idaho-Montana border into the State of Washington and contains floodplains, populated areas, lakes, rivers, and tributaries. OU 3 includes areas surrounding and including the South Fork of the Coeur d'Alene River (SFCDR) and its tributaries, and areas surrounding and including the main stem of the Coeur d'Alene River down to the depositional areas of the Spokane River, which flows from Coeur d'Alene Lake into Washington State.²

This Interim Record of Decision (ROD) Amendment is focused on the Upper Basin of the Coeur d'Alene River, which is the main area of historical mining and industrial activities and the primary source of downstream metals contamination. The Upper Basin is mostly located in Shoshone County, Idaho, and contains OUs 1 and 2 (the Bunker Hill Box) and the eastern portion of OU 3 (Figure 1-1). The 300-square-mile Upper Basin includes areas of mining-related contamination along the SFCDR and its tributaries downstream to the confluence of the South and North Forks of the Coeur d'Alene River. The Selected Remedy for the Upper Basin is an interim remedy that includes actions within the Upper Basin and extending downstream one mile to the west to include the town of Kingston. The Selected Remedy includes remedial actions in portions of OU 1, OU 2, and OU 3.

RODs were issued for OU 1 in 1991, OU 2 in 1992, and OU 3 in 2002. This Upper Basin ROD Amendment amends portions of all three RODs (see Section 4.0 of the Decision Summary in Part 2 of this ROD Amendment). The 2002 ROD for OU 3 also selected limited actions in the Lower Basin. Those actions are not being amended by this ROD Amendment. Work in the

¹ Downstream water bodies extend to portions of the Spokane River, located in eastern Washington.

² Note that the river corridor portions of the SFCDR and Pine Creek located within the Bunker Hill Box are considered to be part of OU 3.

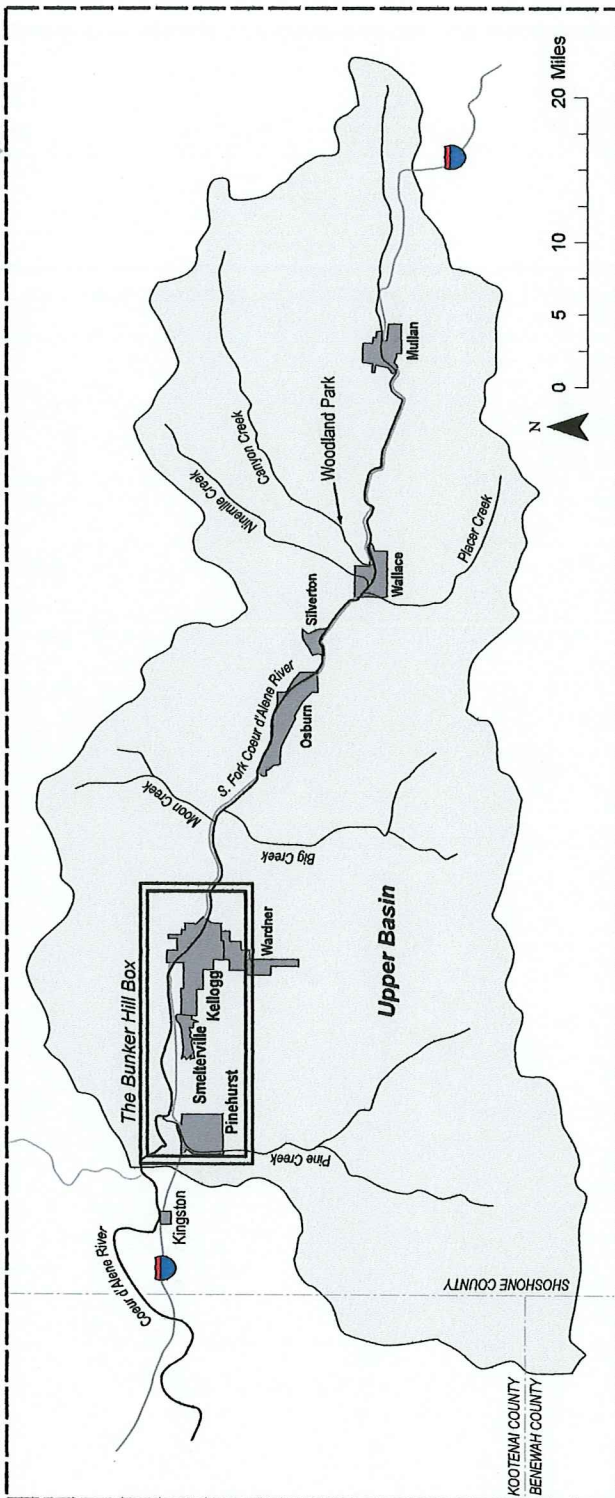
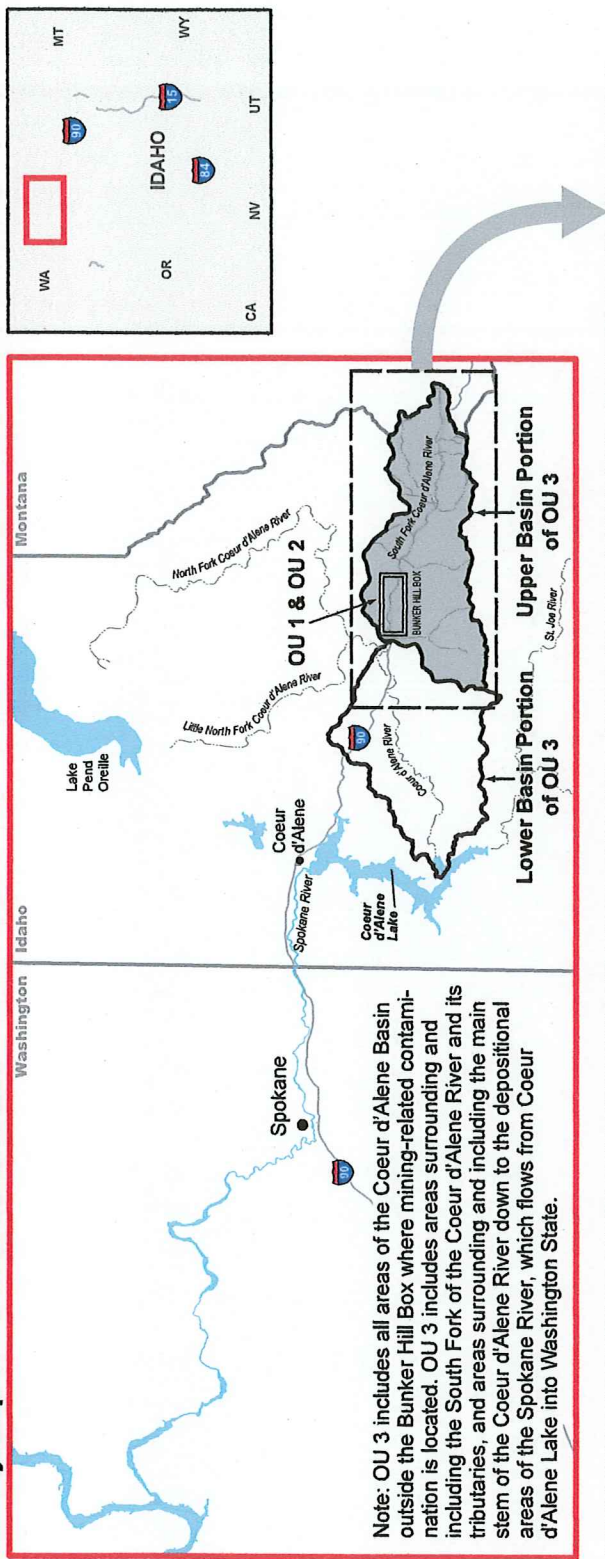
Lower Basin continues with additional characterization and refinement of the conceptual site model and will likely include pilot projects. EPA continues to pursue data collection and analysis efforts in the Lower Basin to support the future development and evaluation of remedial alternatives. After these studies have been completed, EPA expects to select additional cleanup actions, subject to public comment, to address contamination issues in the Lower Basin. Although the Lower Basin is not included in the Selected Remedy documented in this ROD Amendment, actions in the Upper Basin are expected to improve water quality and reduce the movement of contaminated sediments downstream in the Lower Basin. Thus, the Upper Basin cleanup is expected to complement cleanup activities in the Lower Basin by reducing the flow of contaminated materials and minimizing the potential for recontamination from the Upper Basin to the Lower Basin.

It should be noted that sites contaminated as the result of historical mining practices and located along the North Fork of the Coeur d'Alene River and its tributaries are being addressed under CERCLA and other authorities by other (non-EPA) agencies, primarily the U.S. Forest Service and the Idaho Department of Environmental Quality (IDEQ).

Because hazardous substances released upstream have flowed downstream and come to be located in Coeur d'Alene Lake, the Lake is part of the Bunker Hill Superfund Site, and specifically part of OU 3. However, a remedy for lake bed contamination has been deferred contingent on successful contaminant management through the State/Tribal Lake Management Plan (LMP).³ The LMP's goal is to manage metals in contaminated lake bed sediments through a nutrient management plan as well as outreach and education with property owners related to the potential impacts of contaminated sediments on water quality in the Lake. The LMP has been written and adopted by the State of Idaho and the Coeur d'Alene Tribe, but its implementation is in the initial phase. Continued water quality monitoring, especially with the implementation of remedial actions described in this Upper Basin ROD Amendment, will provide EPA, the State, and the Tribe with data to demonstrate the effectiveness of the LMP. EPA may re-evaluate its deferral of a remedy selection for the Lake considering these data and other relevant information. Although the Lake is outside the scope of this Upper Basin ROD Amendment, EPA continues to recognize the importance of protecting Coeur d'Alene Lake and, as such, is committed to working with interested parties to clarify metrics for determining the effectiveness and sufficiency of the LMP. EPA anticipates that these metrics for the LMP will be more fully defined in the context of assessing the overall protectiveness of selected remedies at the Bunker Hill Superfund Site as part of the next CERCLA-required Five-Year Review scheduled for 2015.

³ Coeur d'Alene Lake is being managed by state, Tribal, federal, and local governments outside the Superfund process through revision and implementation of the *Coeur d'Alene Lake Management Plan* (Idaho Department of Environmental Quality [IDEQ] and Coeur d'Alene Tribe, 2009).

Vicinity Map of Coeur d'Alene Basin



OU = Operable Unit

Note:

The river corridor portions of the South Fork of the Coeur d'Alene River and Pine Creek located within the Bunker Hill Box are considered to be part of OU 3.

Figure 1-1
Location Map
 Record of Decision (ROD) Amendment
 Upper Basin of the Coeur d'Alene River
 Bunker Hill Superfund Site



2.0 Statement of Basis and Purpose

This decision document selects an interim remedy for the Upper Basin. As described in Section 4.0 of this Declaration, the Selected Remedy is an interim remedy that will be finalized in the future as additional knowledge is gained about conditions at specific locations within the Upper Basin and the effectiveness of remedial actions. .

The Selected Remedy for the Upper Basin builds upon the remedies identified in the previous RODs for OUs 1, 2, and 3 and incorporates additional information obtained since the ROD for OU 3 was issued in 2002. Remedy implementation at the three OUs has included continued studies, information gathering, monitoring, and assessment of the performance of remedial actions, all of which have provided a greater understanding of conditions and risks in the Upper Basin. The resulting information indicates that it is necessary to augment the established remedies to ensure continued protection of human health and the environment in the Upper Basin and to minimize the transport of contaminated sediments from the Upper Basin to the Lower Basin. The Selected Remedy includes actions that update, modify, and add to the previous cleanup actions for the Upper Basin described in the RODs for OUs 1, 2, and 3 and related decision documents. Amending the previously selected remedies also provides the opportunity to address recommendations made by the National Academy of Sciences (NAS) in 2005.⁴ Actions selected in the previous RODs are not modified and continue to be required by those RODs unless expressly modified in Section 4.0 of the Decision Summary in Part 2 of this ROD Amendment.

This ROD Amendment documents the Selected Remedy for surface water, soil, sediments, and groundwater in the Upper Basin. The Selected Remedy also includes actions to protect portions of the human health remedies selected in previous RODs that have already been implemented. An adaptive management process and implementation approach will be a key component in implementing the Selected Remedy. In accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (known as the NCP), including 40 *Code of Federal Regulations* (CFR) 300.430(b)(7), EPA consulted with the States of Idaho and Washington, the Coeur d'Alene and Spokane Tribes, and federal Natural Resource Trustees during development of the Selected Remedy for the Upper Basin, and sought their concurrence or support for remedial actions selected within their respective jurisdictions. Letters of support and concurrence submitted by these entities are included in this ROD Amendment following this Declaration. EPA also worked extensively with the Coeur d'Alene Basin Environmental Improvement Project Commission ("the Basin Commission") and other community partners to develop the Selected Remedy. The Selected Remedy was developed in accordance with CERCLA, the Superfund Amendments and Reauthorization Act of 1986 (SARA) and, to the extent practicable, the NCP. The decision is based on the Administrative Record supporting the Upper Basin ROD Amendment, which

⁴ NAS, National Research Council of the National Academies, 2005. *Report—Superfund and Mining Megsites— Lessons from the Coeur d'Alene River Basin*. The National Academies Press, Washington, D.C.

incorporates by reference all Administrative Records developed for the Bunker Hill Superfund Site.

3.0 Assessment of the Site

The remedial actions selected in this ROD Amendment are necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment. Such releases or threats of releases may present an imminent and substantial endangerment to public health, welfare, or the environment. As stated previously, the Selected Remedy documented in this ROD Amendment is an interim remedy. A final remedy will be selected in the future as additional knowledge is gained about conditions at specific locations within the Upper Basin and the effectiveness of remedial actions over time.

4.0 Description of the Selected Remedy

Within its scope as an interim remedy, the Selected Remedy will protect human health and the environment, and includes the following:

- Remedial actions to protect human health and the environment in the Upper Basin, and
- Remedy protection actions to protect the existing Selected Remedies focusing on human health that are potentially vulnerable to erosion and recontamination from stormwater runoff, tributary flooding, and high-precipitation events in the Upper Basin.

In response to comments on the Proposed Plan, EPA has reduced the scope of the Selected Remedy and is not including all of the remedial actions that were identified in its Preferred Alternative in the Proposed Plan. Therefore, the Selected Remedy is not expected to fully address surface water contamination at all locations in the Upper Basin, and thus is an interim remedy for the Upper Basin. The Selected Remedy is also not intended to fully address groundwater contamination. However, the remedial actions included in the Selected Remedy are expected to result in the achievement of cleanup levels for soil and sediments where actions are taken. The Selected Remedy will address the most significant sources of contamination in the Upper Basin and will significantly contribute to meeting remedial action objectives, thus supporting a final protective remedy for the Upper Basin.

Implementation of the Selected Remedy for the Upper Basin will present unique challenges given the nature and extent of the metals contamination in the Upper Basin, the number of remedial actions needed, and the size and complexity of the area. For these reasons, adaptive management will be a critical component of prioritizing and implementing the Selected Remedy actions because it is not possible for physical, biological, and chemical conditions to be fully defined for this large and complex area. An adaptive management framework provides a methodology to carry out the Selected Remedy in a structured, iterative way. Through the adaptive management process, adjustments to remedial actions will be made as needed to maintain efficient progress towards meeting remedial action objectives (RAOs).

EPA will continue to work with the Upper Basin Project Focus Team (PFT), which was instrumental in developing the actions selected in this ROD Amendment. The PFT is a subgroup of the Basin Commission primarily composed of representatives from EPA, the

State of Idaho, Shoshone and Kootenai Counties, the U.S. Department of the Interior Bureau of Land Management, the U.S. Fish and Wildlife Service, the U.S. Forest Service, the Coeur d'Alene and Spokane Tribes, the State of Washington, and interested citizens. The Basin Commission includes federal, state, Tribal, and local governmental involvement. EPA anticipates working as a member of this commission for implementation of the Selected Remedy and development of the priorities and sequencing of cleanup activities.

Land management agencies may elect to implement cleanup actions on properties within their respective management jurisdictions toward achieving the overall goals of the Selected Remedy. During development of the Selected Remedy, EPA worked with the federal Natural Resource Trustees as required by the NCP (40 CFR 300.430(b)(7)) and will continue to work with the Trustees during implementation of the remedy.

4.1 Scope and Role of the Selected Remedy

Geographic Scope. The SFCDR Watershed occupies about 300 square miles of land surface in the Panhandle of northern Idaho, including 45 river miles along the SFCDR. As noted previously, the Upper Basin geographic area addressed by the Selected Remedy includes areas of mining-related contamination along the SFCDR and its tributaries downstream to one mile west of where the South and North Forks of the Coeur d'Alene River merge, to include the town of Kingston. The Upper Basin is mostly located in Shoshone County, Idaho, and contains OUs 1 and 2 (the Bunker Hill Box) and the eastern upstream portion of OU 3. The Lower Coeur d'Alene Basin, Coeur d'Alene Lake, Spokane River, and other areas within the broader Coeur d'Alene Basin are not within the geographic scope of the Selected Remedy.

Technical Scope. The technical scope of the Selected Remedy is focused on remedial actions that are expected to reduce risks to human health and the environment present in the Upper Basin as a result of historical mining-related contamination. The Selected Remedy addresses contaminant sources (such as mine tailings, waste rock, adit drainage, and contaminated floodplain sediments), surface water quality in the SFCDR and its tributaries, and existing human health remedies that could be vulnerable to the erosion and recontamination of existing clean barriers installed within Upper Basin communities.

The Selected Remedy is expected to result in significant improvements to surface water quality in the Upper Basin and may achieve ambient water quality criteria (AWQC)⁵ applicable and relevant or appropriate requirements (ARARs) under the Clean Water Act at many locations; however, it may not achieve these AWQC ARARs at all locations. The Selected Remedy is also expected to greatly reduce both groundwater contamination levels and the contribution of contaminated groundwater to surface water. However, given the pervasive nature of the subsurface contamination, the Selected Remedy is not expected to achieve the groundwater ARARs under the Safe Drinking Water Act at all locations. EPA will evaluate future monitoring data to determine whether additional actions are needed or

⁵ The AWQC that apply to the Selected Remedy are a combination of State of Idaho AWQC and site-specific AWQC developed by the State of Idaho for the SFCDR Watershed. For a contaminant of concern (COC) for which a site-specific AWQC exists, the site-specific AWQC is the ARAR. For some COCs, site-specific AWQC were not developed and, in these cases, the AWQC used are the State of Idaho AWQC. The site-specific AWQC were proposed by the State of Idaho and approved by EPA as protective of ecological receptors in the SFCDR.

would be effective in meeting drinking water standards and AWQC. If further actions would not be effective, EPA may evaluate whether a Technical Impracticability (TI) waiver is warranted at specific locations where groundwater and surface water do not achieve drinking water standards and AWQC, respectively.⁶

The actions included in the Selected Remedy will result in the achievement of cleanup levels for soil and sediments where actions are taken.

The Selected Remedy does not include SFCDR and Pine Creek flood control. However, EPA has committed to work with local, state, and federal entities with an interest in SFCDR and Pine Creek flooding issues to help develop solutions. EPA can and will contribute to certain work to understand SFCDR and Pine Creek flooding issues and may select actions, consistent with EPA's authority, that complement broader flood control measures.

The Selected Remedy also does not address contaminated materials beneath paved and unpaved roadways. Because roadways serve as barriers to underlying contamination, EPA and IDEQ are developing an approach under the RODs for OUs 1, 2 and 3 to address this issue collaboratively with local, county, and state entities responsible for providing and maintaining roadways in their communities.

Role of the Selected Remedy within the Overall Site Cleanup Plan. The Selected Remedy is consistent with the overall cleanup strategy for the Bunker Hill Superfund Site. The Selected Remedy is designed to provide significant improvements to soil, sediments, surface water, and groundwater, and to greatly reduce the risks posed to human health and the environment within the Upper Basin. The Selected Remedy represents another essential step in the cleanup of historical mining-related contamination in the broader Bunker Hill Superfund Site.

Although the Lower Basin is not included in the Selected Remedy, actions in the Upper Basin are expected to improve water quality and reduce the movement of contaminated sediments downstream in the Lower Basin. Thus, the Upper Basin cleanup is expected to complement cleanup activities in the Lower Basin by reducing the flow of contaminated materials and minimizing the potential for recontamination from the Upper Basin to the Lower Basin. EPA continues to pursue data collection and analysis efforts in the Lower Basin to support the future development and evaluation of remedial alternatives.

4.2 Remedial Actions

This decision document selects an interim remedy for the Upper Basin. Actions selected in the previous RODs are not modified and continue to be required by those RODs unless expressly modified in Section 4.0 of the Decision Summary in Part 2 of this ROD Amendment. The Selected Remedy includes remedial actions within the Bunker Hill Box and elsewhere along the SFCDR and its primary tributaries. The Selected Remedy defines OU 2 Phase II cleanup actions⁷ to address ongoing water quality issues. The Selected

⁶ Specific ARARs can be waived if appropriately justified [40 CFR 300.430(f)(1)(ii)(C)].

⁷ The OU 2 ROD (EPA, 1992) identified source control actions (referred to in this document as Phase I cleanup actions) for OU 2. This ROD Amendment identifies the Phase II cleanup actions for OU 2, which focus on groundwater collection and treatment.

Remedy replaces the Upper Basin portion of the interim ecological actions selected in the 2002 ROD for OU 3 with a subset of remedial actions from Alternative 3+, as described in this ROD Amendment. As described in more detail in Section 4.0 of the Decision Summary in Part 2, the Selected Remedy does not replace the human health remedy selected in the 2002 ROD for OU 3, nor does it replace previously selected remedial actions for the Lower Basin.

Major components of the remedial actions **within the Bunker Hill Box** (OU 1 and OU 2) are:

- Actions to reduce the flow of contaminated groundwater entering the SFCDR and Government Creek;
- Conveyance of effluent from the Central Treatment Plant (CTP) in Kellogg (i.e., clean, treated water) directly to the SFCDR in a pipeline to prevent recontamination through contact with contaminated subsurface Box soil;
- Collection and treatment of groundwater and water management actions to reduce the flow of contaminated discharges near the Reed and Russell Adits;
- Expansion and upgrade of the CTP to provide treatment of collected water from OU 2, consistently achieve discharge requirements, allow for operation in high-density sludge mode, and reduce the volume of waste sludge generated; and
- Continued implementation of the Institutional Controls Program (ICP, administered by the Panhandle Health District)⁸ for protection of human health.

Major components of the remedial actions in the Upper Basin **outside the Box** (in the eastern portion of OU 3) are:

- Extensive excavation and consolidation of waste rock, tailings, and floodplain sediments;
- Capping, regrading, and revegetation of tailings and waste rock areas;
- Collection and treatment of contaminated adjust it discharges, seeps, and groundwater;
- Stream and riparian stabilization actions in watersheds where sediment removal actions are implemented;
- Additional expansions and upgrades of the CTP to provide treatment of collected water from OU 3, consistently achieve discharge requirements, allow for operation in high-density sludge mode, and reduce the volume of waste sludge generated; and
- Continued implementation of the ICP (administered by the Panhandle Health District) for protection of human health.

⁸ Idaho Administrative Procedures Act (IDAPA) 41.01.01, Rules of Panhandle Health District 1, is the promulgated rule establishing the ICP. It describes the Panhandle Health District's authority and the ICP's scope and intent.

Key benefits of these remedial actions are expected to include:

- Greater protection of human health and the environment by reducing the risk of exposure through direct contact with contaminated soil and sediments and potential contact with contaminated surface water;
- Significant reduction of the transport of dissolved metals into the Coeur d'Alene River system from the Upper Basin; and
- As the result of cleanup actions at upstream contaminant source areas, the downstream transport of metals-containing sediments will be reduced. This will reduce downstream exposures and minimize the potential for recontamination.
- Implementation of the Selected Remedy is also expected to improve socio-economic conditions in the Upper Basin. These additional benefits are expected to include the following:
 - The elements of the remedy focusing on water quality improvements and the subsequent increase in fish populations and diversity will not only improve environmental conditions, but will also expand the recreational use of rivers and streams in the Coeur d'Alene Basin.
 - Stabilization of the riverbanks at locations where floodplain and sediment removal actions are conducted will slow erosion and improve the riparian corridor for greater recreational use.
 - Cleanup of accessible abandoned mine sites will allow redevelopment of these properties and increase future tax revenues.
 - Significant spending will continue on the cleanup actions in the Upper Basin. EPA encourages the hiring of local businesses and workforce for the cleanup work. The relatively long duration of the work should encourage investment in training and development of the local labor force to establish the necessary skills and expertise that can benefit workers and contractors for many years. This should result in growth of the tax base for local economic benefit. The work should also provide opportunities for local supply contractors. Additionally, remediation dollars spent in the Silver Valley are expected to create other opportunities for local businesses, such as new redevelopment possibilities and tourism.

The Selected Remedy includes significant excavation and consolidation of non-Principal-Threat-Waste⁹ contaminated materials in either engineered repositories or local waste consolidation areas.¹⁰ Repositories will be large, centrally located areas within the Upper

⁹ Includes all wastes not defined as Principal Threat Wastes (PTWs) per the definition provided in Section 11.0 of the Decision Summary in Part 2 of this ROD Amendment.

¹⁰ Waste consolidation areas will serve for consolidation or placement of wastes from specifically identified sources such as mine and mill site remedial actions. The local waste consolidation areas will be located adjacent to or near the waste source areas, which will generally necessitate that they are sited high in the side drainages, away from the SFCDR valley. The local waste consolidation areas will be designed to reliably contain waste materials, prevent releases of contaminants to the air, surface water, and groundwater, and be compliant with ARARs.

Basin where contaminated soil excavated during cleanup actions is transported to, managed, and secured. Repositories constructed under the Selected Remedy will be engineered and constructed to reliably contain waste materials, and will prevent contaminants from being released to surface water, groundwater, or air in concentrations above state and/or federal standards. Waste consolidation areas will be located within tributary watersheds (e.g., Ninemile and Canyon Creeks) at locations where significant volumes of waste are present from historical mine and mill site operations.

EPA, IDEQ, and the Basin Commission have been working and will continue to work together with the local community to identify locations for new repositories in the Upper Basin.

4.3 Remedy Protection Actions

The Selected Remedy includes stormwater control actions to protect the existing human health remedies for OUs 1 and 2 (within the Bunker Hill Box) and the Upper Basin portion of OU 3 against stormwater runoff, tributary flooding, and heavy rain and snowfall. EPA has selected remedy protection actions to reduce the potential for erosion and recontamination of existing clean barriers installed within community areas in the Upper Basin. Major components of the remedy protection actions include:

- Specific remedy protection actions, such as culvert replacements, channel improvements, small diversion structures, and asphalt ditches, identified in the eight primary Upper Basin communities (Pinehurst, Smelterville, Kellogg, Wardner, Osburn, Silverton, Wallace, and Mullan) (see Figure 1-1), and
- Identification of generalized remedy protection actions that are expected to be needed in Upper Basin side gulches.¹¹

Key benefits of these remedy protection actions will include:

- Greater long-term protection of human health and the environment in community areas in the Upper Basin, achieved through improvements to existing water conveyance systems (i.e., culvert replacements, asphalt ditches, etc.), and
- A proactive approach to addressing recontamination issues associated with the potential erosion and/or recontamination of existing clean barriers. This is preferred over cleaning up contaminated areas following a storm event because it decreases risks of exposure to contaminated materials.

¹¹ Side gulches are defined as tributaries of the SFCDR where lower densities of residential populations reside in the Upper Basin and, therefore, fewer of the existing Selected Remedies have been implemented. Section 9.0 of the FFS Report (EPA, 2012) provides a list of the Upper Basin side gulches. Detailed remedy protection projects were not identified for the side gulches because less information is currently available about the side gulch drainage areas. Selection of site-specific remedy protection actions for the side gulches will be accomplished through future Explanations of Significant Differences (ESDs) or other decision documents.

4.4 Principal Threat Wastes

Principal Threat Wastes (PTWs) are those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur.¹² The concentrations used to define PTWs in the RODs for OU 2 (EPA, 1992) and OU 3 (EPA, 2002), summarized in Section 11.0 of the Decision Summary in Part 2 of this ROD Amendment, will continue to be used to help delineate PTWs for the Upper Basin.

The 1996 ROD Amendment for OU 2 (EPA, 1996) required that all PTWs from OU 2 be placed in a high-density polyethylene (HDPE) bottom-lined and three-ply copolymer top-lined monocell located in the Smelter Closure Area. Complete containment was selected, rather than treatment, for non-mercury-contaminated PTWs in the 1996 ROD Amendment because containment was significantly (90 percent) less costly than treatment via cement stabilization (the treatment method identified in the 1992 ROD for OU 2); complied with all ARARs; and provided long-term protectiveness and overall protection of human health and the environment. In addition to substantial cost savings, containment was noted to have other advantages over treatment including faster implementation, fewer onsite worker exposures, and preservation of reprocessing potential for the contained materials as technology develops. Mercury-contaminated PTWs were required to be subjected to cement-based stabilization, as previously required in the 1992 ROD, prior to being contained with the non-mercury-contaminated PTWs.

A review of these PTW definitions and the methods chosen to address them indicates that they are still relevant for use in this ROD Amendment. Non-smelter areas addressed since the 2002 ROD for OU 3 have generally been found to be contaminated with large volumes of materials with much lower levels of contaminants of concern (COCs) that pose low-level long-term threats and for which engineering controls such as containment have been protective. For the non-smelter areas addressed by this ROD Amendment, no soil or sediments have been found to contain COCs at PTW levels, and it is not expected that additional PTWs will be encountered when Upper Basin remedial actions are conducted. This is because the smelting and associated processes located in the Bunker Hill Box were designed to concentrate the metals coming from the Upper Basin mills, creating high-concentration wastes. (Smelting activities were not conducted in the Upper Basin outside the Bunker Hill Box.) Tailings from the mills, on the other hand, were less concentrated.

However, if mining concentrates or other materials that meet the site-specific definition of PTWs are encountered during remedy implementation, these materials will be remediated in accordance with the remedies for PTWs selected in earlier RODs, including treatment of mercury PTWs prior to containment. If EPA determines that stabilization and placement of mercury PTWs and/or placement of non-mercury PTWs in a monocell, as required by the 1996 ROD Amendment, is not practicable and they must be disposed of in another manner that is protective of human health and the environment, complies with CERCLA, and is consistent with the NCP, that decision will be documented in an appropriate decision document, such as an ESD.

¹² Additional information for defining PTWs is provided in EPA, 1991, *A Guide to Principal Threat and Low Level Threat Wastes*.

4.5 Implementation Approach

Given the large geographic area and scope of the required work, the implementation of the Selected Remedy is expected to take about 30 years. EPA will implement the Selected Remedy through an adaptive management approach, which will involve prioritizing activities and identifying and evaluating remedy modifications where necessary based on information gained as this interim remedy is implemented. Remedy modifications may include changes in the priority of certain actions, design modifications, adjustments to the implementation schedule, and/or possibly remedy changes which would be documented in ESDs or additional ROD Amendments, as appropriate. Remedy implementation will be conducted in a prioritized manner to ensure that the actions taken first are the most effective in achieving the overall goals of protection of human health and the environment, and EPA will seek input from stakeholders and community representatives. EPA has already begun the process of planning and prioritizing actions included in the Selected Remedy.

The public will have continuing opportunities to provide input on how the cleanup is being implemented. EPA has committed to implementing remedial actions in the Upper Basin through the Basin Commission process. This includes implementation planning for specific remedial actions associated with the Selected Remedy. EPA will work with the Basin Commission to develop the Implementation Plan, and the public will have opportunities to provide input on this plan. EPA will also work closely with the federal land management agencies during project planning and implementation when remedial activities are to be conducted on federal lands. Modifications to the Selected Remedy implementation schedule, priorities, and/or sequencing will be documented through updates to the Implementation Plan. These modifications are expected to be generally defined as non-significant or minor changes. Implementation of the adaptive management process may reveal the need to make changes to the Selected Remedy that will be defined as significant or fundamental changes. Similarly, an aggregate of non-significant or minor changes could result in a significant or fundamental change. For significant and fundamental changes, EPA will develop an appropriate decision document, such as an ESD or another ROD Amendment, and will solicit public input as required by the decision document.

5.0 Statutory Determinations

The Selected Remedy described in this ROD Amendment will, commensurate with its scope:

- Protect human health and the environment;
- Attain federal, state, and Tribal requirements that are applicable or relevant and appropriate to the remedial actions;
- Be cost-effective;
- Use permanent solutions and alternative treatment or resource recovery technologies to the maximum extent practicable; and
- Satisfy the statutory preference for treatment as a principal element of the remedy (i.e., reduce the toxicity, mobility, and volume of hazardous substances, pollutants, or contaminants as a principal element through treatment).

The Selected Remedy is expected to result in significant improvements to surface water quality in the Upper Basin and may achieve AWQC ARARs under the Clean Water Act at many locations; however, the remedy may not achieve these ARARs at all locations. The actions included in the Selected Remedy are expected to result in the achievement of cleanup levels for soil and sediments where actions are taken. However, although the Selected Remedy is expected to result in significant improvements to groundwater quality, it is not intended to achieve groundwater maximum contaminant level (MCL) ARARs under the Safe Drinking Water Act throughout the Upper Basin. Similarly, although the Selected Remedy is expected to provide additional safe habitat for special status species and is intended to achieve ARARs under the Migratory Bird Treaty Act and the Endangered Species Act where remedial actions are taken, it will not achieve these ARARs at all locations.

Although this interim remedy is not intended to address fully the statutory mandate for permanence and treatment to the maximum extent practicable, the Selected Remedy satisfies the statutory preference within its scope by utilizing treatment in part to address any PTWs that are found and as a principal element for removal of contaminants in groundwater, adit discharges, and seeps. While groundwater is by definition not a PTW, the contaminants in groundwater are causing significant environmental harm and ecological risk such that they are principal threats in the context of the Upper Basin. The final decision document(s) for the Upper Basin will fully address the statutory preference for treatment.

Consistent with 40 CFR 300.430(a)(ii)(B) and 40 CFR 300.430(f)(1)(ii)(C)(1), this Selected Remedy, an interim remedy, is neither inconsistent with nor precludes implementation of a final remedy that will attain ARARs. The final remedy will be identified in subsequent decision documents.

Because hazardous substances, pollutants, or contaminants will remain in the Upper Basin above levels that allow for unlimited use and unrestricted exposure before completion of the Selected Remedy, statutory CERCLA reviews will continue to be conducted at least every five years after the initiation of remedial actions¹³ to ensure that the Selected Remedy is, or will be, protective of human health and the environment.

6.0 Data Certification Checklist

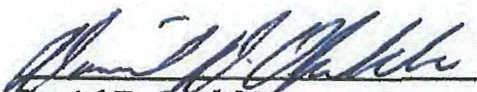
The following information is included in the Decision Summary in Part 2 of this Upper Basin ROD Amendment. Additional information is provided in the Administrative Record supporting this ROD Amendment, which incorporates by reference all Administrative Records developed for the Bunker Hill Superfund Site.

- Chemicals of concern and their respective concentrations (see Section 5.0 and Figures 5-3 through 5-10).
- Baseline risks represented by the chemicals of concern (see Section 7.0 and Tables 7-1 through 7-4).

¹³ Cleanup actions are ongoing at the Bunker Hill Superfund Site to implement previous RODs, and several Five-Year Reviews have been completed (EPA, 2000a, 2000b, 2005, and 2010b). The next Five-Year Review for the Site is planned to be completed in 2015.

- Cleanup levels established for the chemicals of concern and the basis for these cleanup levels (see Section 8.0 and Tables 8-1 and 8-2).
- A discussion of source materials constituting principal threats (see Section 11.0).
- Current and reasonably anticipated future land use assumptions and current and potential future beneficial uses of groundwater and surface water used in the baseline risk assessment and this ROD Amendment (see Section 6.0).
- Potential land, surface water, and groundwater use that will be available in the Upper Basin as a result of the Selected Remedy (see Sections 12.1.4 and 12.2.4).
- Remedial actions in previously Selected Remedies that are modified by this ROD Amendment (see Tables 4-2, 4-3, and 4-4).
- Estimated capital costs, annual operation and maintenance (O&M) costs, and total present worth costs; the discount rate; and the number of years over which the remedy cost estimates are projected (see Sections 12.1.3 and 12.2.3, Tables 12-1 through 12-9, and Tables 12-11 through 12-14).
- Key factors that led to selecting the remedy (i.e., how the Selected Remedy provides the best balance of tradeoffs with respect to the CERCLA primary balancing and modifying criteria, with an emphasis on those evaluation criteria that were key to the decision) (see Section 10.3).
- Changes to the Selected Remedy from the Preferred Alternative described in the Proposed Plan for the Upper Basin¹⁴ (see Section 14.0).

Authorizing Signature



Daniel D. Opalski

Director, Office of Environmental Cleanup
U.S. Environmental Protection Agency, Region 10

8/27/2012
Date

¹⁴ EPA, July 12, 2010. *Proposed Plan, Upper Basin of the Coeur d'Alene River, Bunker Hill Mining and Metallurgical Complex Superfund Site.*