

PUBLIC COMMENT DRAFT
RESTORATION PLAN FOR THE
MURRAY SMELTER SITE
SALT LAKE COUNTY, MURRAY CITY, UTAH

September 20, 2018



Prepared by:

**Murray Smelter Natural
Resource Trustees**

U.S. Department of the Interior

U.S. Fish and Wildlife Service

Table of Contents

List of Acronyms	3
List of Figures	3
1.0 INTRODUCTION	4
1.1 Authority	4
1.2 Site History/Description/Natural Resource Injuries	4
1.3 Summary of Settlement	6
1.4 Purpose of Restoration	6
1.5 Environmental Compliance	7
1.6 Coordination and Scoping	7
1.7 Public Review/Participation	7
2.0 PROPOSED RESTORATION ALTERNATIVES	9
2.1 Selection Criteria and Evaluation	9
2.2 Alternatives Considered, But Not Further Evaluated	10
2.3 Restoration Alternatives Considered	10
2.3.1 Alternative A: No Action/Natural Recovery	10
2.3.2 Alternative B: Big Cottonwood Creek Restoration	10
2.3.3 Alternative C: Jordan River Murray Ecosystem Restoration (Preferred Alternative)	11
2.4 Evaluation of Restoration Alternatives	14
2.4.1 Evaluation of Alternative A: No Action/Natural Recovery	14
2.4.2 Evaluation of Alternative B: Big Cottonwood Creek Restoration	14
2.4.3 Evaluation of Alternative C: Jordan River Murray Ecosystem Restoration	15
3.0 PREFERRED RESTORATION ALTERNATIVE	16
3.1 Implementation Budget	16
3.2 Restoration Goals and Performance Criteria	16
4.0 CONCLUSION	17
List of Preparers	17
References	17

List of Acronyms

ASARCO	American Smelting and Refining Company
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
DOI	U.S. Department of the Interior
EPA	U.S. Environmental Protection Agency
NEPA	National Environmental Policy Act
NRDA	Natural Resource Damage Assessment
NRDAR	Natural Resource Damage Assessment and Restoration
PPA	Prospective Purchasers Agreement
RP	Restoration Plan
Service	U.S. Fish & Wildlife Service

List of Figures

Figure 1. Location of the Murray Smelter Site in Murray City, Utah and spatial position to the proposed restoration alternatives within the state of Utah.....	4
Figure 2. Location of the Big Cottonwood Creek Restoration Project alternative between South 300 W and the railroad bridge at South Brick Oven Way in Murray City, Utah.....	10
Figure 3. Location of the Jordan River Ecosystem Restoration Project alternative at the Kennecott Nature Center in Murray City, Utah.....	11

Cover Photos:

Aerial view of the American Smelting and Refining Company facility in Murray Utah, courtesy of the Utah State Historical Society

Photo of Jordan River restoration work near the Kennecott Nature Center in Murray, Utah courtesy Bob Thompson, Salt Lake County Flood Control.

DRAFT RESTORATION PLAN FOR THE MURRAY SMELTER SITE, SALT LAKE COUNTY, MURRAY CITY, UTAH

1.0 INTRODUCTION

The U.S. Fish & Wildlife Service (Service), acting as the natural resource trustee on behalf of the U.S. Department of the Interior (DOI) (the “Trustee”) has prepared this Draft Restoration Plan (Draft RP) pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, (42 U.S.C. § 9601 *et seq.*) and the DOI CERCLA Natural Resource Damage Assessment (NRDA) regulations (43 C.F.R. Part 11).

The Murray Smelter Site (the Site) is a former lead smelter facility which processed lead and silver ores between 1872 and 1949. The smelter produced large amounts of waste slag containing high concentrations of lead, arsenic, cadmium, and other heavy metals that were deposited over an area of 278 acres (EPA 1998). The U.S. Environmental Protection Agency (EPA), Murray City, and American Smelting and Refining Company (ASARCO) entered into a settlement and cleanup agreement for the Site in 1995. Subsequently, a Prospective Purchasers Agreement (PPA) between the EPA, DOI, and development interests provided \$33,000 for the restoration, rehabilitation, or replacement of natural resources that were lost or injured from the release of hazardous substances from the Site as well as DOI’s past costs (FWS 1998). A provision of the settlement was that these funds be spent within the city of Murray, Utah. Presently, the funds available for restoration total approximately \$45,000, due to interest accrual.

The CERCLA Natural Resource Damage Assessment (NRDA) regulations require trustees to develop a restoration plan and to solicit public comment on that plan prior to spending settlement or judgment funds for the implementation of restoration actions. This Draft RP describes and analyzes a number of alternatives considered by the Trustee for accomplishing the restoration of injured natural resources and makes this analysis available for public review and comment. In addition, it identifies the Jordan River Murray Ecosystem Restoration project as the preferred alternative and explains the Trustee’s rationale for this preference.

1.1 Authority

This Draft RP was prepared pursuant to the authority and responsibilities of DOI under CERCLA; the Federal Water Pollution Control Act of 1972 as amended by the Clean Water Act of 1977 (33 U.S.C. § 1251 *et seq.*); Subpart G of the National Oil and Hazardous Substances Contingency Plan (40 C.F.R. §§ 300.600 - 300.615); the DOI CERCLA NRDA regulations (43 C.F.R. Part 11), and other applicable federal and state laws.

1.2 Site History/Description/Natural Resource Injuries

The Site is located in Murray City, Utah (Figure 1). The facility began operations in 1872 and continued from 1902 until 1949 under the ownership of ASARCO. The smelter processed



Figure 1. Location of the Murray Smelter Site in Murray City, Utah and proposed restoration alternatives within the state of Utah.

mainly lead and silver ores and produced large amounts of waste slag that contained high concentrations of lead, arsenic, cadmium, and other heavy metals. This waste slag was deposited over an area of 142 acres within the facility. Smelter operations also released metals and other toxic materials into the air, water, and soils via emissions and operational practices which contaminated over 136 acres termed “off facility” by the EPA (EPA 1998).

EPA proposed the site for inclusion in the Superfund National Priorities List in 1994, but the inclusion was never finalized. Instead, EPA and ASARCO entered into voluntary settlement agreements for site investigations and cleanup. EPA and Murray City also entered into an agreement allowing the city a formal role in the Superfund process. Cleanup activities began in 1995 and included demolition of two on-site smoke stacks, removal and replacement of lead-contaminated soils on off-site residential properties, and natural attenuation of groundwater contaminants. Cleanup also included excavation and off-site disposal of soil contaminated with high levels of arsenic; excavation, on-site consolidation and capping of 90,000 cubic yards of soil containing lower levels of arsenic; long-term groundwater monitoring; and institutional controls. ASARCO completed remediation and cleanup of the site in 2001. Currently the site has been redeveloped and contains private and commercial manufacturing facilities, industrial facilities, 2 mobile home parks, a light rail station, a 1.5-million-square-foot hospital facility, a commercial retail warehouse, a police training center, a school, a cement company, and assorted small businesses.

EPA and the Service conducted inspections of the areas affected by the release to document natural resource injuries and recovery. The Service determined that there were potential natural resource injuries to migratory birds, invertebrates, reptiles and amphibians. Injury pathways included contamination of groundwater and surface waters discharging to Little Cottonwood Creek on the north side of the property, emissions to ambient air, reuse of toxic waste products, and disturbance of material during ongoing industrial activities. For this case, the Trustee determined that restoration actions would focus on injuries to migratory birds and aquatic biota.

1.3 Summary of Settlement

A Prospective Purchasers Agreement (PPA) was signed in 1998 between the EPA, DOI, and development interests that provided \$30,000 for the restoration, rehabilitation, or replacement of natural resources that were lost or injured from the release of hazardous substances from the Site, and \$3000 as reimbursement for past assessment costs. In exchange, the United States granted a covenant not to sue. The PPA was limited to existing contamination at the Site and did not release any potential responsible parties (PRP) from liability for contaminating the Site. The PPA required that the \$30,000 for natural resource restoration be allocated to restoration of migratory birds within the jurisdiction of Murray City. The restoration funds have grown to nearly \$45,000 in an interest bearing account since the signing of the PPA.

1.4 Purpose of Restoration

The purpose of restoration is to return natural resources and the services provided by those natural resources to baseline condition or the condition that would have existed had the injury

not occurred, and to compensate the public for the loss of those natural resources over time. Restoration actions are often needed because the injured natural resources may not have the capacity to re-establish their functions within an ecosystem in a timely manner without human intervention. In addition to the cost of restoring resources to baseline condition, CERCLA authorizes trustees to recover compensation for the interim lost use of these natural resources between the date of injury and the date when restoration has been completed. Funds recovered for interim losses are used for additional restoration actions, including acquisition, rehabilitation, and/or replacement of natural resources (42 U.S.C. § 9607 (f)(1)).

1.5 Environmental Compliance

Actions undertaken by a federal trustee to restore natural resources or services under CERCLA are subject to the National Environmental Policy Act (NEPA) (42 U.S.C. § 4321 *et seq.*) and other federal laws including the Endangered Species Act, Clean Water Act, and Section 106 of the Historic Preservation Act. NEPA requires an assessment of any federal action that may impact the human environment. NEPA applies to restoration actions undertaken by federal natural resource trustees, and the Trustee will complete its NEPA analysis before finalizing the Draft RP.

As part of the development of this Draft RP, the Trustee coordinated with the Utah Historic Resource Preservation Office, U.S Fish and Wildlife Service, Utah Division of Wildlife Resources, and Utah Division of Water Quality regarding compliance with federal and state environmental laws and regulations as part of this analysis, and will notify these agencies, as necessary, prior to beginning any earthwork or ground disturbance associated with the selected restoration alternative.

1.6 Coordination and Scoping

The Service performed assessments with EPA to evaluate the potential natural resource injuries at the Site. The Service has also coordinated with officials for Murray City and Salt Lake County in developing and evaluating potential restoration alternatives.

1.7 Public Review/Participation

Under the DOI CERCLA NRDA regulations, the Trustee shall notify the public and any federal, state, and local government agencies that may have an interest in the activities analyzed in this Draft RP. The Draft RP will be open for public comment and review for 30 days from the date of publication (September 20, 2018) in the following newspapers:

Salt Lake Tribune
sltrib.com
(801) 204-6100

Deseret News
Deseretnews.com
(801) 237-2135

Notice of availability of the Draft RP will also be published in the October edition of the following monthly periodical:

Murray Journal
Murrayjournal.com
(801) 254-5974

Copies of the Draft RP will be available for viewing by the public at the following locations:

Murray Public Library, 166 East 5300 South, Murray, UT 84107

Murray City Parks & Recreation Department, 296 E. Murray Park Ave., Murray, UT 84107

University of Utah J. Willard Marriott Library Government Documents Collection, Salt Lake City, UT 84112

U.S. Fish and Wildlife Service Utah Ecological Services Field Office
2369 West Orton Circle Suite 50
West Valley City, Utah 84119

An electronic version of the Draft RP will be posted on the DOI NRDAR website (<https://www.doi.gov/restoration/news/>).

The Trustee welcomes input from the public regarding evaluation of the preferred alternative. Comments may be submitted by mail to:

Attn. Chris Cline
U.S. Fish and Wildlife Service Utah Ecological Services Field Office
2369 West Orton Circle Suite 50
West Valley City, Utah 84119

Comments may be submitted by email to chris_cline@fws.gov. Please include “Murray Smelter Draft RP” in the subject line of your email.

The 30-day public comment period for this draft document will run from September 20, 2018 to October 20, 2018. Comments that are received during the 30 day public comment period for this draft document, and Trustee responses to those comments, will be presented in the final version of this report.

2.0 PROPOSED RESTORATION ALTERNATIVES

2.1 Selection Criteria and Evaluation

DOI CERCLA NRDA regulations provide ten factors for trustees to consider when evaluating restoration alternatives (43 C.F.R. § 11.82(d)).

1. ***Technical Feasibility:*** Whether the alternative is feasibly possible utilizing accepted engineering design standards and construction methods, and existing technology.
2. ***Costs Benefit Comparison:*** Whether the expected benefits of the alternative equals or preferably exceeds monetary and environmental costs.
3. ***Cost Effectiveness:*** Whether project costs, including design, implementation, and long-term maintenance and monitoring, effectively benefit and/or restore the injured natural resources and services lost.
4. ***Results of Any Actual or Planned Response Actions:*** The contribution of any action to restoring the injured resource will be considered including direct, indirect, and cumulative results.
5. ***Potential Adverse Impacts:*** Whether a restoration alternative may harm natural resources and the environment during planning, implementation, or the project's life span including long-term and indirect impacts to the injured resources or other resources will be evaluated. Alternatives that avoid or minimize adverse impacts to the environment and natural resources are preferred.
6. ***Natural Recovery Period:*** Consideration of the time required for injured resources to recover if no action is taken.
7. ***Ability of Resources to Recovery With or Without Alternatives:*** Whether taking no action would be more successful and beneficial to restoring injured resources than an alternative requiring an undertaking. The ability of a restoration project to provide resources and services of the same type and quality that were lost. Projects that restore, rehabilitate, replace, or acquire the equivalent of the same type of resources and services injured by the contamination are preferred to projects that benefit similar, but different resources or services.
8. ***Adverse Effects to Public Health and Safety:*** Whether an alternative will pose unacceptable risks to public health and safety.
9. ***Consistency with relevant Federal, State, and tribal policies.***
10. ***Compliance with applicable Federal, State, and tribal laws.***

The Trustee considered these ten factors from the NRDA regulations in screening and evaluating potential restoration projects. Based on these factors, the particular requirements of this case, and the Trustee's goals for restoration, the Trustee developed six evaluation criteria for the proposed alternatives in this plan. The criteria are not ranked in order of priority:

1. ***Relation to Injury:*** The extent to which an alternative will compensate for the injured resources and resource service losses, in this case migratory birds and aquatic biota. Whether a restoration alternative will provide benefits that address multiple resource injuries or service losses, or that provide ancillary benefits to other resources or resource uses will also be evaluated. An alternative that provides multiple resource and service benefits is favored.
2. ***Cost Effectiveness:*** Whether the project costs effectively leverage available funds.

3. **Adverse Impacts:** The potential for adverse impacts to the environment, public health, and safety.
4. **Public Engagement:** Whether an alternative will provide opportunities for public engagement, education, and use.
5. **Location:** The geographic proximity of the alternative to Murray City, Utah. The PPA requires alternative to be within the municipal limits of Murray City.
6. **Stewardship:** The existence of a responsible entity (e.g., local agency or conservation group) with the willingness and capacity to perform long-term management of a restored site.

2.2 Alternatives Considered, But Not Further Evaluated

Alternatives considered and eliminated from further study included, 1) the purchase of mitigation bank credits and 2) habitat restoration at the Murray Smelter site. These alternatives were rejected for multiple reasons with the primary being inconsistency with many of the Trustee's key criteria. Mitigation bank credits are not available within Murray City; the Site has since been repurposed as high density mixed use development and public transportation hub, and both alternatives would be financially infeasible and provide little benefit or uplift in injured resources.

2.3 Restoration Alternatives Considered

The following subsections present restoration alternatives with a description of work to be performed, costs and expected outcomes.

2.3.1 Alternative A: No Action/Natural Recovery

Pursuant to 43 C.F.R. § 11.73(a)(1), an alternative considering natural recovery with minimal management actions, shall be considered. If the Trustee selected this alternative, the Site would be allowed to recover, or to be developed, without any interference by the Trustee. The Trustee would do no additional restoration to compensate for the losses in natural resources and services caused by Murray Smelter contamination.

2.3.2 Alternative B: Big Cottonwood Creek Restoration

This alternative includes instream and riparian buffer restoration over a continuous reach totaling 420 linear feet of Big Cottonwood Creek between South 300 W and the railroad bridge at South Brick Oven Way in Murray City, Utah (Figure 2). The purpose of the project is to provide and improve habitat for native fish and migratory birds. The work plan, currently being developed by Salt Lake County, involves establishing 3 cross vanes for grade control, creation of floodplain benches, establishing native vegetation, and invasive plant removal and control. The project cost is estimated at \$50,000 and includes \$20,000 of in-kind match from Salt Lake County (Utah) for surveys, design, monitoring and administrative work. This project is in an early stage of planning and right of way agreements among five separate private landowners would have to be acquired prior to beginning work.

2.3.3 Alternative C: Jordan River Murray Ecosystem Restoration (Preferred Alternative)

This alternative includes instream and riparian buffer restoration work on a continuous reach totaling 770 linear feet of the Jordan River at the Kennecott Nature Center of Murray City (Center), an environmental education facility operated by the Murray City School District and Murray Education Foundation (Figure 3). The project's purpose is to enhance and restore aquatic and riparian habitat for native fish and migratory birds, and to protect the existing educational center building from encroachment by bank erosion. Work would be completed under existing environmental permits and include floodplain stabilization, installation of toe-wood stabilization structures, bank grading, and establishment of native grasses and shrubs. Plans specify the planting of 1,000 riparian trees and shrubs. Project cost is estimated at \$45,000



Figure 2. Location of the Big Cottonwood Creek Restoration Project alternative between South 300 W and the railroad bridge at South Brick Oven Way in Murray City, Utah.



Figure 3. Location of the Jordan River Ecosystem Restoration Project alternative at the Kennecott Nature Center in Murray City, Utah.

and an additional \$6,000 in-kind match from Salt Lake County will be provided for design and construction supervision (R. Thompson, per. comm.). Supplemental components of the project include engaging youth volunteers in planting native vegetation, interpretive signs and public/citizen science involvement via time lapse photo monitoring crowd source stations, and grades 4-9 field interpretative tours by the Murray City School District. The project would be a continuation of, but separate effort from, previous restoration work completed at the Center and is part of a multiphase restoration effort by stakeholders lead by Salt Lake County and others.

2.4 Evaluation of Restoration Alternatives

The following subsections discuss the evaluations of each alternative relative to the selection criteria in section 2.1.

2.4.1 Evaluation of Alternative A: No Action/Natural Recovery

Relation to Injury: Under this alternative, some natural resources at the Murray Smelter Site may recover naturally. But, the Trustee would do no additional work to ensure that the natural resources recovered to baseline or to compensate the public for lost resource services.

Cost Effectiveness: No funds would be expended under this alternative.

Adverse Impacts: There would be no adverse impacts from this alternative.

Public Engagement: There would be no public engagement under this alternative.

Location: Any natural recovery would occur at the Murray Smelter Site.

Stewardship: There would be no stewardship under this alternative.

2.4.2 Evaluation of Alternative B: Big Cottonwood Creek Restoration

Relation to Injury: The Big Cottonwood Creek Restoration meets the Trustee's criteria for relation to injured resources. Riparian vegetation establishment and instream work will create or enhance habitat for migratory birds and aquatic biota.

Cost Effectiveness: This alternative appears cost effective due to the in-kind match from the state of Utah. However, actual costs cannot be determined until design and monitoring plans are completed.

Adverse Impacts: Big Cottonwood Creek has been heavily impacted for over 100 years by dredging, filling, clearing, and channel relocation for industrial, commercial, agricultural, and residential development. Aquatic life and the ecological and natural functions and values of this aquatic ecosystem have also been significantly altered by mining, logging, placement of fill in wetlands, dredging for flood control, increase in impervious surfaces, and the introduction of non-native fish. The majority of the original riparian and aquatic habitat that existed prior to European settlement has been highly altered and is found only in small pockets of fragmented habitat. These relict sites are highly impacted and would benefit from restoration or management to improve their function and value as natural resources.

The restoration of the natural resources located in the areas described in this alternative will result in unknown impacts which are suspected to be minimal and of a temporary nature biologically. Construction will produce a temporary increase in sediment and turbidity to the channel from the disturbance of soil and placement of fill. Haul trucks and construction equipment may produce dust. Access to this

project site and the creek channel by construction equipment will most likely produce temporary disruptions in traffic flow and temporary impacts to private property. These impacts will require the use of erosion and sediment control measures detailed in an approved erosion and sediment control plan by the county and state water quality regulators. Long term consequences of the actions will be increased native vegetation and reduced bank erosion leading to improved water quality, diversity of aquatic habitat, and restored riparian habitat for migratory birds. The Trustee determined that this restoration alternative would result in negligible change in public use of the affected areas and would not individually or cumulatively have a significant permanent impact on the human environment.

Public Engagement: Barriers to meaningful public engagement are significant. The project site is in private ownership and located in a heavily industrialized section of Salt Lake City isolated from pedestrian access by a railroad to the east and the Interstate-15 freeway to the west. The public might be engaged during a planting event or clean-up activities to kick start the project, however, ongoing educational and public use opportunities are limited.

Location: The project site is located within Murray City, Utah.

Stewardship: Easements and environmental management agreements would have to be obtained with private property owners affected by the project. A public or non-profit entity would have to be found to perform periodic inspections and easement enforcement.

2.4.3 Evaluation of Alternative C: Jordan River Murray Ecosystem Restoration

Relation to Injury: The Jordan River Murray Ecosystem Restoration meets the Trustees criteria for relation to injured resources. Riparian vegetation establishment and instream work will create or enhance habitat for migratory birds and aquatic biota.

Cost Effectiveness: The alternative appears cost effective due to the in-kind match from the state of Utah and already implemented restoration work that is complementary with the alternative.

Adverse Impacts: The majority of streams and rivers in the Salt Lake City region have been impacted by development. The Jordan River is no exception, having been heavily altered by channelization, dredging, filling, clearing, and channel relocation. Aquatic life and the ecological and natural functions and values of this aquatic ecosystem have also been significantly altered by development associated with the placement of fill in wetlands, dredging for flood control, increase in impervious surfaces, and the introduction of non-native fish. Relict sites of functional riparian and aquatic habitat are highly impacted and would benefit from restoration or management to improve their function and value as natural resources. This project site hosts the second largest wetland on the Jordan River which provides habitat for migratory birds and aquatic biota for which the project is expected to provide additional uplift in habitat quality and availability of those resources.

The restoration of the natural resources located in the areas described in this alternative will result in minimal impacts of a temporary nature. Construction will produce a temporary increase in sediment and turbidity to the channel from the

disturbance of soil and placement of fill. Haul trucks and construction equipment may produce dust and interrupt public use of the site until construction is complete. These impacts will be minimized by the use of erosion and sediment control measures detailed in an approved erosion and sediment control plan by the county and state water quality regulators. Long term consequences of the actions will be increased native vegetation and associated shade, reduced bank erosion leading to improved water quality and lower temperatures, diversity of aquatic habitat, and restored riparian habitat for migratory birds. The Trustee determined that this restoration alternative would result in negligible change in public use of the affected areas and would not individually or cumulatively have a significant impact on the human environment.

Public Engagement: Public engagement and education is well represented as the site is owned by the Murray City School District, includes a 1,600 square foot classroom providing opportunities to thousands of school children, and the public will be engaged for planting events as they have been previously at this project site.

Location: The project site is located within Murray City, Utah

Stewardship: The Kennecott Nature Center of Murray City, an environmental education facility operated by the Murray City School District and Murray Education Foundation own the property and would assume stewardship responsibilities.

3.0 PREFERRED RESTORATION ALTERNATIVE

The Trustee chose Alternative C: Jordan River Murray Ecosystem Restoration as the proposed restoration alternative. This alternative meets all of the selection criteria and best meets the Trustee's goals and objectives to bring migratory birds and aquatic biota closer to baseline conditions.

3.1 Implementation Budget

Alternative C: Jordan River Murray Ecosystem Restoration has a budget of \$51,000. This includes \$30,000 of PPA settlement funds, \$15,000 accrued interest, and \$6,000 from Salt Lake County, Utah. This does not include the site use contribution and commitment to long-term conservation and stewardship by the Murray City School District and Salt Lake County.

3.2 Restoration Goals and Performance Criteria

Monitoring is necessary to assess whether riparian habitat is sufficiently restored to meet restoration goals and objectives for migratory birds and if species of interest are occupying habitat enhancement areas. A project-specific monitoring plan, or regional-based plan, may be developed to evaluate the long-term impacts of planned restoration actions along the Jordan River. A monitoring plan would include project specific performance standards and criteria, some of which have already been identified (below), appropriate to proposed restoration actions, guidelines for implementing corrective actions, a sampling and analysis plan, and a schedule for the frequency and duration of monitoring. Restoration goals will be guided by performance criteria, or measures that assess the progress of restoration sites. In this way, the Trustee will be able to determine which project attributes are not on target, and what actions and course corrections are needed to achieve restoration goals. Monitoring information may also be used by the Trustee as an outreach tool to illustrate to the public continued progress over time

(quantitatively and qualitatively). Although the Trustee is currently completing final restoration planning actions, preliminary ideas for monitoring approaches and restoration goals have been developed and are described below.

Annual monitoring will begin approximately one year following completion of the project in 2018, and continue for a period of 5 years. Monitoring will consist of morphological surveys of the channel, bank, stability structures and floodplain features; and quantitative monitoring of plant survival, presence of invasive plants, and migratory bird utilization. Qualitative photo monitoring will also be conducted regularly at fixed photo station locations. Restoration goals for the 5 year monitoring period include: no significant deviation in channel morphology from reference conditions recorded for a similar hydrogeologic setting or physiographic province; no less than 80% plant survival achieved; and no more than 20% non-native vegetation established. Other monitoring might include sediment and dissolved oxygen water quality parameters as part of the baseline water quality impairment documentation collected by Salt Lake County and the Utah Department of Water Quality in the Jordan River.

4.0 CONCLUSION

Contamination at the Site resulted in potential injuries to migratory birds and other natural resources on 278 acres on and off the facility. The objective of any restoration action under CERCLA is to restore or replace natural resources and the services such resources provide to the benefit of the American public. To meet that objective, the benefits of a restoration project must be associated with the natural resource injured and/or lost as a result of hazardous substance releases from smelter operations.

The proposed restoration alternative chosen by the Trustee in this Draft RP is instream and riparian buffer restoration work on the Jordan River at the Kennecott Nature Center of Murray City, an environmental education facility operated by the Murray City School District and Murray Education Foundation. The project is expected to be beneficial to aquatic wildlife, provide ecological benefits to migratory birds, improve water quality and reduce documented water quality impairments, and enhance educational content and opportunities for the public.

List of Preparers

U.S. Fish and Wildlife Service, Utah Ecological Services Field Office. West Valley City, UT

Office of the Solicitor, U.S. Department of the Interior. Washington, DC

U.S. Department of the Interior Office of Restoration and Damage Assessment, Restoration Support Unit, Denver, CO

References

EPA 1998. EPA Superfund Record of Decision: Murray Smelter Murray City, Utah. EPA 541-R98-078, October 1998.

Robert Thompson, per. comm. Salt Lake County Watershed Planning and Restoration Program, Salt Lake City, Utah.

U.S. Fish and Wildlife Service, 1998. Memorandum to Field Supervisor from Regional NRDA Coordinator dated May 12, 1998. Prospective Purchasers Agreement for Murray Smelter Site, Murray, Utah.