List of Authorities and Responsible Agency Point of Contact

Natural Resource Trustees:
  • U.S. Department of the Interior
    - U.S. Fish and Wildlife Service
    - U.S. Bureau of Land Management
    - U.S. Bureau of Reclamation
  • State of Colorado
    - Department of Natural Resources
    - Department of Public Health and Environment
    - Department of Law

Legal Authority:
  • Federal Water Pollution Control Act (Clean Water Act) (as amended), 33 U.S.C. § 1251, et. seq.
  • Natural Resource Damage Assessment Regulation, 43 C.F.R. Part 11

Lead Federal Agency for Restoration Plan:
  • U.S. Department of the Interior (Region 6, U.S. Fish and Wildlife Service)

Lead Federal Agency for Environmental Assessment:
  • U.S. Department of the Interior (Region 6, U.S. Fish and Wildlife Service)

Participating State Agencies:
  • Colorado Department of Natural Resources
    - Division of Wildlife, Division of Reclamation Mining and Safety
  • Colorado Department of Public Health and Environment
  • Colorado Department of Law

Point of Contact:
  Laura Archuleta
  U.S. Fish and Wildlife Service, Saguache Field Office
  46525 Highway 114
  Saguache, CO 81149
  719-655-6121
## Executive Summary

Chapter 1. Introduction

1.1 Trustee Responsibilities under CERCLA and the National Environmental Policy Act... 
1.2 Summary of Settlement .................................................................
1.3 Coordination and Scoping.............................................................
1.4 Trustee Council Organization and Activities ...................................
1.5 Public Participation ........................................................................
1.6 Responsible Party Involvement ....................................................
1.7 Administrative Record ................................................................
1.8 Document Organization ..............................................................

Chapter 2. Purpose and Need for Restoration .......................................

2.1 Summary of Release History and Resulting Public Losses ..............
  2.1.1 California Gulch .................................................................
  2.1.2 Upper Arkansas River ........................................................
  2.1.3 Terrestrial Resources ...........................................................
2.2 Restoration Goals ........................................................................
2.3 Need for Restoration ....................................................................
2.4 Compliance with other Authorities ..............................................
  2.4.1 Environmental Protection ......................................................
  2.4.2 Cultural Preservation ...........................................................
  2.4.3 Other Laws ...........................................................................

Chapter 3. Restoration Alternatives ..................................................

3.1 Criteria for Identifying and Selecting the Proposed Restoration Projects
3.2 No-action/Natural Recovery Alternative........................................
3.3 Proposed Alternative ....................................................................
  3.3.1 Arkansas River In-stream Habitat Restoration.....................
  3.3.2 Weed Control in Lake and Chaffee Counties ....................
  3.3.3 Dinero Tunnel Water Quality Monitoring .........................
  3.3.4 Erosion Control on Roads .................................................
  3.3.5 Habitat Protection (Easements, Acquisition, or Land Exchange)
  3.3.6 Native Plant Propagation at Hayden Ranch ....................... 
  3.3.7 Development and Implementation of an EE/CA for the Venture Mine and Sugarloaf Mine Dumps
  3.3.8 Hayden Ranch Revegetation .............................................
  3.3.9 Canterbury Tunnel Rehabilitation ....................................
  3.3.10 Habitat Management for Land Protected by Trustees .......
  3.3.11 Colorado Gulch Wetland and Upland Restoration ...........
  3.3.12 Remediation of Acid Mine Drainage in Tributaries to the Arkansas River
  3.3.13 Erosion Control in the Arkansas Headwaters Recreation Area
3.4 Alternatives Considered But Eliminated From Detailed Analysis ...
  3.4.1 Iowa Gulch Wetland Enhancement ....................................
  3.4.2 Lake Fork Watershed-wide Monitoring .........................
  3.4.3 California Gulch Remedial Projects ............................... 

Chapter 4. Affected Environment ......................................................

Stratus Consulting  SC11902
## Contents

4.1 Physical Environment .......................................................................................................................... 64

4.2 Biological Environment.......................................................................................................................... 65
  4.2.1 Aquatic Habitat ............................................................................................................................... 66
  4.2.2 Riparian Habitat ............................................................................................................................... 66
  4.2.3 Upland Habitat ............................................................................................................................... 67

4.3 Threatened and Endangered Species ................................................................................................. 67

4.4 Cultural and Socioeconomic Environment......................................................................................... 68

4.5 Native American Religious Concerns ................................................................................................. 68

**Chapter 5. Environmental and Socioeconomic Impacts of Restoration Alternatives** ........................................... 69

5.1 Environmental Impacts of the Proposed Alternative ........................................................................ 69
  5.1.1 Water Resources ............................................................................................................................ 69
  5.1.2 Vegetation Resources ..................................................................................................................... 70
  5.1.3 Fish and Wildlife Resources .......................................................................................................... 70
  5.1.4 Special Status Species .................................................................................................................... 70
  5.1.5 Air and Noise ................................................................................................................................. 71
  5.1.6 Geology and Minerals ................................................................................................................... 71
  5.1.7 Soils ................................................................................................................................................ 71

5.2 Cultural and Socioeconomic Impacts of the Proposed Alternative .................................................... 71
  5.2.1 Lands and Access ............................................................................................................................ 71
  5.2.2 Air, Noise, and Visual Resources .................................................................................................... 72
  5.2.3 Cultural and Paleontological Resources and Native American Religious Concerns .................. 72
  5.2.4 Socioeconomic Impacts ................................................................................................................ 73
  5.2.5 Environmental Justice .................................................................................................................. 73

5.3 Impacts of the No-action Alternative .................................................................................................... 73

5.4 Cumulative Impacts of the Proposed Alternative and the No-action Alternative ............................ 74

**Chapter 6. List of Preparers** .................................................................................................................. 76

**Chapter 7. List of Agencies, Organizations, and Parties Consulted** .......................................................... 77

**Appendix A. Detailed Information on In-Stream Restoration Activities** .................................................. 78

**Appendix B. Upper Arkansas River Basin Natural Resource Trustee Council – Land Transaction Policy** .... 97

**Appendix C. Public Comments and Trustee Responses** ........................................................................ 99

**References** ............................................................................................................................................. 103
Figures

Figure 2.1. Overview map of the site in the context of the upper Arkansas River basin ........................................ 10

Figure 3.1. Overview map of the upper Arkansas River watershed which identifies geographic features mentioned in the restoration project descriptions ...................................................... 20

Figure 3.2. Arkansas River in-stream habitat restoration – logic model ............................................................ 21

Figure 3.3. Weed control in Lake and Chaffee counties .................................................................................... 27

Figure 3.4. Dinero Tunnel water quality monitoring – logic model ................................................................. 30

Figure 3.5. Map of Dinero Tunnel area showing 45 sampling sites for the years 2010–2013 study, plus eight additional sites that were monitored during the baseline water quality assessment ........................................ 31

Figure 3.6. Erosion control on roads – logic model .......................................................................................... 34

Figure 3.7. Example of user-created “non-system” route on the Leadville Ranger District ............................. 35

Figure 3.8. Habitat protection – logic model .................................................................................................. 38

Figure 3.9. Native plant propagation at Hayden Ranch – logic model .......................................................... 41

Figure 3.10. Development and Implementation of an EE/CA for the Venture Mine and Sugarloaf Mine Dumps – logic model .............................................................................................................. 44

Figure 3.11. Hayden Ranch revegetation – logic model .................................................................................. 47

Figure 3.12. Map showing the location of the Hayden Ranch seeding project in relation to federal and private land holdings ........................................................................................................ 48

Figure 3.13. Canterbury tunnel rehabilitation – simplified logic model ......................................................... 50

Figure 3.14. Habitat management for land protected by trustees – logic model ................................................ 53

Figure 3.15. Colorado Gulch wetland and upland restoration – logic model .................................................. 55

Figure 3.16. Remediation of acid mine drainage in tributaries to the Arkansas River – logic model ............ 57

Figure 3.17. Erosion control in the Arkansas headwaters recreation area – logic model ........................................ 59

Figure 4.1. River rafting on the Arkansas River .............................................................................................. 64

Figure 4.2. Abandoned mine waste in California Gulch .................................................................................. 65
Tables

Table 3.1. Summary of Trustee criteria for evaluating restoration projects .......................................................... 16
Table 3.2. Proposed restoration projects for the proposed alternative divided by funding tier ....................... 19
Table 5.1. Comparison of impacts by alternative .................................................................................................. 75
<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AHRA</td>
<td>Arkansas Headwaters Recreation Area</td>
<td>FONSI</td>
<td>Finding of No Significant Impact</td>
</tr>
<tr>
<td>ALAD</td>
<td>delta-aminolevulinic acid dehydratase</td>
<td>GPS</td>
<td>global positioning system</td>
</tr>
<tr>
<td>AO</td>
<td>authorized official</td>
<td>LCCD</td>
<td>Lake County Conservation District</td>
</tr>
<tr>
<td>BLM</td>
<td>U.S. Bureau of Land Management</td>
<td>LCOSI</td>
<td>Lake County Open Space Initiative</td>
</tr>
<tr>
<td>BMP</td>
<td>best management practice</td>
<td>MOU</td>
<td>Memorandum of Understanding</td>
</tr>
<tr>
<td>BOR</td>
<td>U.S. Bureau of Reclamation</td>
<td>NEPA</td>
<td>National Environmental Policy Act</td>
</tr>
<tr>
<td>CDPHE</td>
<td>Colorado Department of Public Health and Environment</td>
<td>NHPA</td>
<td>National Historic Preservation Act</td>
</tr>
<tr>
<td>CERCLA</td>
<td>Comprehensive Environmental Response, Compensation, and Liability Act</td>
<td>NRCS</td>
<td>Natural Resource Conservation Service</td>
</tr>
<tr>
<td>CMC</td>
<td>Colorado Mountain College</td>
<td>NRDA</td>
<td>Natural Resource Damage Assessment</td>
</tr>
<tr>
<td>CWA</td>
<td>Clean Water Act</td>
<td>O&amp;M</td>
<td>operation and maintenance</td>
</tr>
<tr>
<td>DNR</td>
<td>Department of Natural Resources</td>
<td>OSHA</td>
<td>Occupational Safety and Health Act</td>
</tr>
<tr>
<td>DOI</td>
<td>U.S. Department of the Interior</td>
<td>RP</td>
<td>Restoration Plan</td>
</tr>
<tr>
<td>DOL</td>
<td>Department of Law</td>
<td>SHPO</td>
<td>State Historic Preservation Office</td>
</tr>
<tr>
<td>DOW</td>
<td>Division of Wildlife</td>
<td>T&amp;E</td>
<td>threatened and endangered</td>
</tr>
<tr>
<td>DRMS</td>
<td>Division of Reclamation, Mining, and Safety</td>
<td>Trustees</td>
<td>Collectively, the U.S. Department of the Interior represented by the U.S. Fish and Wildlife Service; the U.S. Bureau of Land Management and the Bureau of Reclamation; and the State of Colorado represented by the Colorado Department of Natural Resources, Colorado Department of Public Health and Environment, and Colorado Department of Law</td>
</tr>
<tr>
<td>EA</td>
<td>Environmental Assessment</td>
<td>USDA</td>
<td>U.S. Department of Agriculture</td>
</tr>
<tr>
<td>EDRR</td>
<td>early detection/rapid response</td>
<td>USFS</td>
<td>USDA Forest Service</td>
</tr>
<tr>
<td>EE/CA</td>
<td>Engineering Evaluation and Cost Analysis</td>
<td>USFWS</td>
<td>U.S. Fish and Wildlife Service</td>
</tr>
<tr>
<td>EIS</td>
<td>Environmental Impact Statement</td>
<td>USGS</td>
<td>U.S. Geological Survey</td>
</tr>
<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Upper Arkansas River Watershed Restoration Plan and Environmental Assessment
Executive Summary

Overview of the California Gulch Superfund Site
The California Gulch Superfund Site (the “Site”) encompasses more than 15 square miles, including the town of Leadville, Colorado, and surrounding areas where historic mining activities took place. The Site contains more than 2,000 mine waste piles, as well as the Yak Tunnel which discharges drainage from numerous underground mines into California Gulch. Heavy metals and acid released at or from the Site as a result of historic mining activities are hazardous substances that have caused injuries to natural resources. Because of this extensive contamination, the Site was placed on the National Priorities List in September 1983. Emergency response actions and remediation by the U.S. Environmental Protection Agency began in 1986 and continue to this day. The Natural Resource Trustees (the “Trustees”), including agencies of the U.S. Department of the Interior and the State of Colorado, prepared a preliminary estimate of natural resource damages for the Site (Industrial Economics, 2006). In that document, the Trustees determined that releases of hazardous substances from the Site have resulted in injuries to surface water, terrestrial, and groundwater resources, including injuries to brown trout and other aquatic and riparian resources in the upper Arkansas River.

What is the plan to restore injured natural resources?
The purpose of the restoration activities described in this Restoration Plan/Environmental Assessment (RP/EA) is to compensate the public by implementing restoration actions that restore, replace, or acquire the equivalent of the injured natural resources. Federal and state natural resource trustees prepared this RP/EA to plan their restoration actions and obtain public input. The Trustees seek input from the public on the proposed restoration plan contained in this RP/EA and will respond to written comments.


Where has funding for these restoration activities come from?
Resurrection Mining Company\(^1\) and Newmont USA Limited have agreed to pay $10.5 million to settle allegations that the companies injured natural resources (under the natural resource damage assessment provisions of the Comprehensive Environmental Response, Compensation, and Liability Act) as a result of discharges of hazardous substances from historical mining operations at the Site. In addition, the Trustees have received a $10 million settlement plus interest from ASARCO LLC in bankruptcy proceedings. The proposed restoration projects will be funded from the settlement funds received from these responsible parties.

How were restoration alternatives developed and evaluated?
The Trustees solicited a broad range of potential restoration projects from agencies and the public. The Trustees evaluated the projects against their stated selection criteria to screen out projects that did not meet minimum acceptability standards and to determine which projects best provided cost-

\(^1\) Resurrection Mining Company is wholly owned by Newmont USA Limited.
effective, appropriate compensation for injured natural resources. The Trustees grouped the projects into three funding tiers based on their evaluation.

The Trustees expect to fund projects in the first tier in 2010 using available settlement funding. Projects in the second tier will be funded by the Trustees with funding that remains after the projects in the first tier have been funded. The Trustees may choose to wait to fund second tier projects until they have greater certainty regarding costs for the first tier projects.

Projects in the third tier meet minimum Trustee acceptability criteria but information about these projects currently is insufficient either to complete the required National Environmental Policy Act (NEPA) analysis or to allow the Trustees to make a final determination regarding whether the projects meet selection criteria. These projects may be reconsidered by the Trustees at a later date, with appropriate NEPA analysis occurring at that time where necessary. The Trustees also may issue a supplemental RP/EA in the future to fund additional restoration projects, depending on the amount of restoration funding remaining after funding first tier and second tier projects.

ARKANSAS RIVER
TIER ONE
RESTORATION PROJECTS

- Improve control of noxious weeds
- Habitat protection
- Upland habitat improvement
- In-stream and riparian habitat restoration
- Water quality monitoring

ARKANSAS RIVER
TIER ONE
RESTORATION PROJECTS

- Assess whether the installation of the bulkhead in the Dinero Tunnel in 2009 has resulted in any impacts to water quality in the surrounding area.
- Restore in-stream habitat along the upper Arkansas River and in the Lake Fork.
- Reduce erosion from roads to protect habitat and water quality in the new Paddock State Wildlife Area and other locations.
- Create an early detection/rapid response program in Lake and Chaffee counties. Acquire new equipment for better targeted spraying.
- Protect valuable habitat through conservation easements, land acquisition, or land exchange arrangements.
What is the proposed restoration alternative?

The proposed restoration alternative involves a suite of restoration projects that cumulatively will benefit surface water, terrestrial, and groundwater resources. Tier one projects that are proposed for immediate funding with settlement funds include:

- Restoration of in-stream and riparian habitat along the upper Arkansas River on public and private lands, from the confluence with California Gulch to the confluence with Twobit Gulch, and on public and private lands along approximately four miles of the Lake Fork, all in Lake County, Colorado.
- Reduce erosion to protect habitat by closing and rehabilitating informal jeep trails and old mining roads on the Paddock State Wildlife Area and in the Sugarloaf mining district and other areas.
- Habitat protection through obtaining conservation easements, land acquisition, or land exchange arrangements with willing parties for parcels with high natural resource values and that are at risk from development.
- Improved control of noxious weeds in Lake and Chaffee counties through acquisition of improved equipment for targeted spraying and implementation of an early detection/rapid response program for newly emerging threats.
- Implementation of water quality monitoring for the Dinero Tunnel area, to assess whether the installation of the bulkhead in the Dinero Tunnel in 2009 (funded in part with Trustee settlement funds and described in Stratus Consulting, 2009) has resulted in any impacts to water quality in the surrounding area through the emergence of seeps or springs.

Tier two and tier three projects are described in Chapter 3 in the report.

Each project will include appropriate monitoring designed to determine if the project is meeting Trustee objectives and whether any additional work may be necessary to meet objectives.

References
