

**ADAPTIVE MANAGEMENT SITE MANAGEMENT PLAN
FOR THE
BONITA PEAK MINING DISTRICT
SAN JUAN COUNTY, COLORADO**



**FINAL
November 2020**

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CERTIFICATION
ADAPTIVE MANAGEMENT SITE MANAGEMENT PLAN
FOR THE
BONITA PEAK MINING DISTRICT
SAN JUAN COUNTY, COLORADO

This Adaptive Management (AM) Site Management Plan (SMP) was prepared collaboratively by the U.S. Environmental Protection Agency, U.S. Forest Service, Bureau of Land Management, Colorado Department of Health and Environment, Silverton Planning Group, and the Community Advisory Group. This AM SMP provides a guiding framework for planning, prioritizing, decision-making, documenting, and knowledge integration of site activities at the Bonita Peak Mining District. This AM SMP is a living document and will be reviewed and updated, as determined necessary as part of the AM site principles management process. This certification provides approval of this AM SMP by the undersigned signatory authorities for the project stakeholders.



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11/23/20

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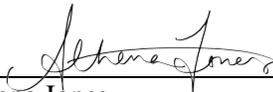
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ACRONYMS

AM	Adaptive Management
BLM	Bureau of Land Management
BPMMD	Bonita Peak Mining District
CAG	Community Advisory Group
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CIP	Community Involvement Plan
CSM	Conceptual Site Model
DMP	Data Management Plan
DOI	Department of Interior
DQO	Data Quality Objective
DRMS	Division of Reclamation, Mining and Safety
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
FSP	Field Sampling Plan
IROD	Interim Record of Decision
IWTP	Interim Water Treatment Plant
LTM	Long-Term Monitoring
MOU	Memorandum of Understanding
NCP	National Oil and Hazardous Substances Pollution Contingency Plan
NHPA	National Historic Preservation Act
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
PRP	Potentially Responsible Party
QAPP	Quality Assurance Project Plan
RA	Remedial Action
RD	Remedial Design
RI	Remedial Investigation
RPM	Remedial Project Manager
SGC	Sunnyside Gold Corporation
SMP	Site Management Plan
SPG	Silverton Planning Group
SUIT	Southern Ute Indian Tribe
TVS	Table Value Standards
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFS	U.S. Forrest Service
WGPP	Workgroup Project Plan
WQX	Water Quality Data System

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1.0 INTRODUCTION

This Adaptive Management (AM) Site Management Plan (SMP) was developed as part of a pilot study conducted by the U.S. Environmental Protection Agency (EPA) to demonstrate how AM can be implemented at a large complex mining site. Specifically, this AM SMP provides a framework for decision making, documentation, planning, and prioritization of activities within the Bonita Peak Mining District (BPMD) Superfund Site, herein referred to as the BPMD Site. Lessons learned from this pilot study will be utilized to broaden the use of AM at the site and at other National Priorities List (NPL) sites across the nation.

1.1 PLAN PURPOSE

The purpose of this BPMD Site AM SMP is to provide an overarching framework and methodology for all planning, decision making, prioritization, scheduling, documentation, and knowledge integration for Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) response activities at the site. This BPMD AM SMP is a living document that is periodically revisited and revised.

1.2 ADAPTIVE MANAGEMENT

AM is an approach often utilized at large and/or complex sites where there is considerable uncertainty, limited resources, and competing priorities among stakeholders. AM requires the development of clear strategies based on site goals and objectives and requires use of measurable decision points and formal decision making grounded in sound understanding of site conditions and uncertainties. Despite uncertainties, data-driven decisions are made to implement actions and remedies while allowing for the ability to adapt if these uncertainties result in fundamental changes to site conditions. The goal of AM is to coordinate among stakeholders to make decisions, considering risk and uncertainty, with the purpose of encouraging continual progress and incorporating lessons learned.

1.2.1 Adaptive Management at Comprehensive Environmental Response, Compensation, and Liability Act Sites

EPA's Superfund program defines AM as a formal and systematic site or project management approach centered on rigorous site planning and a firm understanding of site conditions and uncertainties. This technique, rooted in the sound use of science and technology, encourages continuous re-evaluation and management prioritization of site activities to account for new information and changing site conditions. A structured and continuous planning, implementation, and assessment process allows EPA, states, other federal agencies, or potentially responsible parties (PRPs) to make management and resource decisions with the goal of incrementally reducing site uncertainties while supporting continued site progress.

When applying AM at CERCLA sites, activities and response decisions must be done in accordance with CERCLA regulations, policy, and guidance. Moreover, the application of AM, to the extent practicable, strives to establish site or project strategies that employ existing CERCLA process flexibilities such as the use or application of early and/or interim actions to address immediate risks, to mitigate source migration, and/or to return portions of sites to beneficial use pending more detailed evaluations at other parts of sites.

1.2.2 Adaptive Management Planning and Applications at Bonita Peak Mining District

Critical to the success of AM is the planning and development of an AM SMP and/or an AM Project Management Plan. Once developed, this plan guides implementation of the CERCLA process, ensuring transparent and inclusive decision-making. Both AM planning and execution are conducted in a manner

that ensures stakeholder input throughout the process. The roles and responsibilities of federal agencies, states, and stakeholders are presented in Chapter 2.0.

Two key components of AM planning at CERCLA sites are the development of Site Principles that consist of goals, objectives, and strategies for the site or project, and the documentation of an AM decision-making process.

1.2.2.1 Development of Site Principles

Site Principles are the goals, objectives, and strategies that provide a basis to guide all CERCLA work at a site (in this case, the BPMD Site). Site Principles development is a key component of AM planning, and it is critical that the development of these principles is done collaboratively with key site stakeholders. As such, the prioritization of activities and decision making at the site should be done with the focus on making progress against the Site Principles. Without the development and documentation of Site Principles, a large or complex site can lack direction and transparency on high-level CERCLA process and area priorities.

The current Site Principles for the BPMD Site and a summary of how they were developed are presented in Chapter 3.0.

1.2.2.2 AM Decision Making

AM decision making is the process used by the site team to prioritize, make decisions, and adapt activities to changing site conditions. The AM decision making process is intended to be iterative, such that results of previous actions are incorporated into the planning phase of future actions. The process for AM decision making typically involves four main steps (**Figure 1.1**):

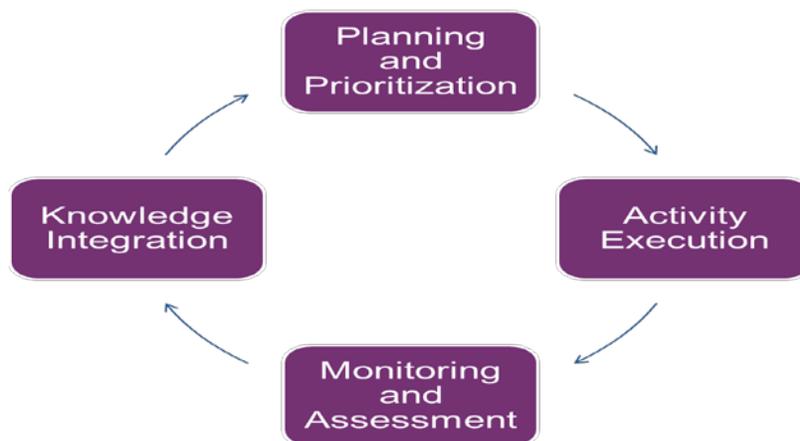


Figure 1.1. AM Decision Making Process

- **Step 1: Planning and Prioritization:** This step uses standardized planning tools to align priorities and resources to make decisions regarding work that will be done at the site.
- **Step 2: Activity Execution:** This is the step when priority activities are executed. Depending on the activity, this step in itself may identify the need for acquisition, activity planning, and completion documentation.
- **Step 3: Monitoring and Assessment:** This step is an ongoing activity that provides the data and information necessary to evaluate the performance of activities at the site in a manner that tests hypotheses, evaluates progress made toward goals and objectives, and evaluates efficacy of

innovative technologies. Additionally, this step provides the information needed to learn, adapt (Step 4), and provide information necessary for future planning and prioritization efforts (Step 1).

- **Step 4: Knowledge Integration:** This step is commonly referred to as the learning phase of AM. Knowledge integration establishes processes for ensuring that the outcomes from previous site activities (monitoring data, task results/outcomes, lessons learned, and feedback) are appropriately incorporated into site tools to ensure that planning and decision making are informed by the most up-to-date information.

The BPMD Site requires multiple levels of AM decision making to provide the site team strategic direction, focus CERCLA process implementation on key milestones and results, and help manage change. Two levels of AM decision making will be used at the BPMD Site:

- **Site Principles Management:** As BPMD Site activities progress, the AM decision making process will establish a process for routine review and, as warranted, update of the Site Principles. This decision-making process is discussed in Chapter 3.0.
- **Strategic Planning and Project Planning:** To make progress towards the Site Principles, the AM decision-making process will be applied to project planning. This will include developing Five-Year Strategic Plans and continuously managing activities and schedules for each component of the Site Strategy. This decision-making process is discussed in Chapter 4.0.

The tools that inform BPMD Site AM decision making and the specific reports that document and communicate BPMD Site team decisions are discussed in Chapter 5.0.

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2.0 STAKEHOLDERS, ROLES, RESPONSIBILITIES, AND COMMUNICATIONS

This chapter presents the project team, roles, and responsibilities, and discusses the framework for communication. Due to the large geographic area impacted with contamination, coupled with current, historic, and future land use, BPMD has a multitude of stakeholders. Stakeholders may vary over time and location, and may also vary with specific actions. The stakeholders listed below are considered stakeholders for the EPA-led CERCLA remediation of the BPMD Site. Stakeholders may have additional roles, responsibilities, and actions beyond the scope of the CERCLA remediation process, but this AM SMP addresses the work conducted at the BPMD NPL Site pursuant to CERCLA.

2.1 FEDERAL AGENCIES

The BPMD Site is a mixed ownership site consisting of 48 source areas, located on both private lands and lands managed by the Bureau of Land Management (BLM) or the U.S. Forest Service (USFS). Pursuant to Executive Order 12580, as amended by Executive Order 13016, the President delegated authority to conduct various activities under CERCLA to EPA, the Department of Interior (DOI), and the U.S. Department of Agriculture (USDA). EPA, DOI, and USDA recognize that the coordinated use of authorities and available resources is desirable and may often be necessary to conduct response actions at mixed ownership sites. These general principles facilitate a collaborative approach that is intended to assist in expediting assessments, investigations, cleanups, or other response actions at mixed ownership sites.

To ensure continued, coordinated CERCLA efforts between federal agencies at the BPMD Site, existing Memorandums of Understanding (MOUs) between EPA and USFS—who is delegated CERCLA authority from USDA, and between EPA and BLM—who is delegated CERCLA authority from DOI, are being revised and updated.

2.1.1 U.S. Environmental Protection Agency

Consistent with the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) and Executive Order 12580 Section 9(i), EPA, as the sitewide lead agency, will conduct sitewide activities that may require work on lands managed by multiple parties, as well as response actions involving a release or sole source of release on private lands (i.e., not managed by BLM or USFS). In addition, because the site is on the NPL, pursuant to CERCLA and Executive Order 12580 Section 9(i) and Section 2(e)(1), EPA is delegated authority to address emergency removals and to select long-term remedial actions (RAs) with respect to the release on lands under jurisdiction, custody, or control of BLM or USFS.

EPA is responsible for ensuring all work is consistent with CERCLA and EPA regulations, guidance, and policy, and for sharing information and receiving feedback from the stakeholders (as listed in Section 2.4 of this document).

For those private portions of a site where a responsible party is not under an enforceable agreement to conduct response actions, EPA is responsible for implementing all characterization, design, and construction activities. Where a responsible party is under an enforceable agreement to conduct response actions on private lands, EPA is responsible for overseeing the response actions to ensure they are performed consistent with CERCLA and the relevant enforcement agreement. As appropriate and in accordance with the governing MOUs and the NCP, EPA will collaborate with the Colorado Department of Public Health and Environment (CDPHE), BLM, and USFS as needed to ensure all verified, validated data are shared and available and to ensure all relevant documents are reviewed by each agency.

The federal land management agencies have the authority to conduct response actions involving a release or sole source of release on lands under jurisdiction, custody, or control of BLM or USFS. Accordingly, USFS and/or BLM may exercise its authority under Executive Order 12580, as amended by Executive Order 13016, to carry out removal actions. EPA is the delegated CERCLA authority to make long-term RA decisions on these lands. As such, pursuant to the MOUs, EPA will closely coordinate with USFS and BLM when these agencies are planning for and executing response actions to ensure that proposed actions, to the extent practicable, contribute to the efficient performance of any anticipated long-term RA with respect to the release concerned.

In accordance with the NCP, EPA is responsible for overseeing CDPHE work and ensuring operation and maintenance (O&M) is performed consistent with the selected remedy and O&M plans.

To manage this workload and implement the Site Strategy identified in Chapter 2.0, EPA uses a team of Remedial Project Managers (RPMs) supported by engineers, scientists, legal and technical enforcement staff, and specialists for communications, coordination, and outreach. EPA's BPMD team consists of six workgroups, each managed by an RPM, with leadership and cross-workgroup coordination provided by a lead RPM. The six workgroups and their general roles are listed below:

- **Data Management and Access Workgroup:** This workgroup is responsible for managing all field, laboratory, and digital data for the BPMD Site and for managing the process for gaining access to private land for purposes of CERCLA response actions.
- **Cultural Resources Workgroup:** This workgroup is responsible for ensuring compliance with National Historic Preservation Act (NHPA) requirements, as described in EPA's NHPA standard operating procedure (EPA 2019f), and for coordinating cultural resource data sharing with other agency stakeholders.
- **Communications Workgroup:** This workgroup is responsible for routinely engaging and informing stakeholders and the general public of BPMD activities, planning for and coordinating communications with agency partners, coordinating updates to congressional staff and local elected officials, and coordinating responses to media inquiries as needed.
- **Response Action Workgroup:** This workgroup is responsible for planning, implementing, and coordinating Interim Water Treatment Plant (IWTP) operations and remedial design (RD)/RA (e.g., the 2019 Interim Record of Decision [IROD]) activities (EPA 2019a) at the BPMD Site.
- **Characterization Workgroup:** This workgroup is responsible for planning, implementing, and coordinating EPA-led remedial investigation (RI)/feasibility study (FS) work at the BPMD Site (e.g., the Operable Unit [OU] 3 RI/FS). In addition, this workgroup is responsible for developing and coordinating all EPA long-term monitoring (LTM) and conceptual site model (CSM) efforts.
- **OU2 and Repository Workgroup:** This workgroup is responsible for overseeing the current PRP-led Mayflower Tailing Impoundment Facility RI/FS and for completing a CERCLA decision document for the mine waste repository on this property.

In addition to EPA members of the workgroup, EPA has entered into Interagency Agreements with the U.S. Army Corps of Engineers (USACE) and Cooperative Agreements with the State of Colorado for contract and project management support. EPA, USACE, and the State of Colorado will procure and manage contractors to execute the work identified by the EPA workgroups.

2.1.2 Bureau of Land Management

BLM has the authority to conduct response actions involving a release or sole source of release on lands under their jurisdiction, custody, or control. Accordingly, BLM may exercise its authority, under Executive Order 12580, as amended by Executive Order 13016, to carry out removal actions. At the BPMD Site, this includes lands in the both the Upper Animas River and Cement Creek drainages. EPA is delegated CERCLA authority to make long-term RA decisions on these lands. As such, pursuant to the MOU, BLM will coordinate with EPA when planning for and executing response actions to ensure that proposed removal actions, including O&M of these removal actions, to the extent practicable, contribute to the efficient performance of anticipated long-term RA with respect to the release concerned.

For work being conducted by EPA on private portions of the BPMD Site, BLM will be consulted on CERCLA activities in accordance with the MOU. Similarly, BLM will be consulted on CERCLA O&M activities being conducted by CDPHE. BLM will collaborate with EPA, CDPHE, and USFS as needed to ensure all verified, validated data are shared and available and, as appropriate, ensure all relevant documents are reviewed by each agency.

2.1.3 U.S. Forest Service

USFS has the authority to conduct response actions involving a release or sole source of release on lands under their jurisdiction, custody, or control. Accordingly, USFS may exercise its authority, under Executive Order 12580, as amended by Executive Order 13016, to carry out removal actions. At the BPMD Site, this includes lands in the both the Mineral Creek Watershed and Animas River Canyon below the Town of Silverton. EPA is delegated CERCLA authority to make long-term RA decisions on these lands. As such, pursuant to the MOU, USFS will coordinate with EPA when planning for and executing response actions to ensure that proposed removal actions, to the extent practicable, contribute to the efficient performance of anticipated long-term RA with respect to the release concerned.

For work being conducted by EPA on private portions of the site, USFS will be consulted on CERCLA activities in accordance with the MOU. Similarly, USFS will be consulted on CERCLA O&M activities being conducted by CDPHE. USFS will collaborate with EPA, CDPHE, and BLM as needed to ensure all verified, validated data are shared and available and, as appropriate, ensure all relevant documents are reviewed by each agency.

2.2 STATE AGENCIES

2.2.1 Colorado Department of Public Health and Environment

CDPHE will provide input to EPA, BLM, and/or USFS on investigation and cleanup activities, have the opportunity to comment on documents prior to release to the public, and participate in planning meetings.

For private portions of the BPMD Site where work is conducted by EPA, CDPHE will assume responsibility for O&M activities at these portions of the site in accordance with CERCLA. For O&M activities, CDPHE will be responsible for executing the activities and coordinating with EPA when assessing remedy performance.

In addition, pursuant to CERCLA, EPA may enter into cooperative agreements with CDPHE to carry out EPA-financed response actions. It is anticipated that these agreements may be used to implement EPA-selected RAs. In these instances, CDPHE will be considered the lead for those response actions and will be responsible for coordinating with EPA, USFS, and BLM on CERCLA action planning and execution.

2.2.2 Colorado Division of Reclamation, Mining and Safety

The Colorado Division of Reclamation, Mining and Safety (DRMS) provides technical support, field reconnaissance activities, and interim RA support for state-led actions through cooperative agreements with EPA.

2.3 POTENTIALLY RESPONSIBLE PARTIES

EPA operates under an enforcement-first policy at Superfund sites. In accordance with this policy, EPA will seek to have PRPs conduct response actions, where appropriate, pursuant to an enforcement document (i.e., Administrative Order on Consent, Unilateral Administrative Order, or Consent Decree). This policy promotes the polluter-pays principle, in which those who cause contamination at a site are responsible for investigation and cleanup. This preserves taxpayer dollars and agency resources to address truly abandoned and orphaned sites. EPA is conducting PRP searches at the BPMD Site to identify PRPs that may be able to conduct response actions or pay for EPA's costs in conducting response actions at the site.

EPA entered into an Administrative Settlement Agreement and Order on Consent with Sunnyside Gold Corporation (SGC) under which SGC is conducting an RI of the Mayflower Tailings Impoundment Facility. In addition, EPA issued a Unilateral Administrative Order to SGC for an RI of the Bonita Peak groundwater system (OU3). Finally, EPA also entered into an Administrative Settlement Agreement and Order on Consent with Eureka Gulch Properties LLC and Ryan Bennett covering a PRP-led removal action at the Ben Franklin Mine source area (OU4) in the Upper Animas drainage area of the BPMD Site, which was completed in 2019.

As work continues at the BPMD Site, EPA may enter into additional enforcement agreements with the above identified or additional PRPs to execute work at the site.

2.4 PRIMARY STAKEHOLDERS

BPMD has a multitude of stakeholders. Those listed below represent the current stakeholders for the BPMD Site. Stakeholders may have additional roles and responsibilities outside the scope of the CERCLA process, but those roles and responsibilities are not discussed in this document.

2.4.1 Bonita Peak Mining District Silverton Planning Group

The BPMD Silverton Planning Group (SPG) is designated by the Town of Silverton and San Juan County, Colorado, to represent their jurisdiction when interacting with federal and state agencies. SPG is comprised of local officials and other representatives of the community and provides the local community a mechanism for providing project-related input and feedback.

SPG is a long-term advisory group who will attend in-person and teleconference coordination calls with federal and state agencies to discuss planned and current site work and issues specific to San Juan County. In accordance with the decision-making logic in Chapter 4.0 and the Community Involvement Plan (CIP), formal input and feedback from SPG will be requested by EPA in accordance with planning efforts, proposed remedies, five-year reviews, and other key documents.

2.4.2 Community Advisory Group

A Community Advisory Group (CAG) is an independent group that serves as an informational conduit between diverse community interests, EPA, and state and other federal partners. Its purpose is to provide a public forum for community members to present and discuss their needs and concerns related to the Superfund decision-making process. CAGs can assist EPA in making better decisions on how to clean up

a site and offer EPA a unique insight to community preferences for cleanup and remediation. While a CAG is strictly an advisory group, it serves as an official, long-term mechanism for local citizens to engage with EPA and its partnering agencies.

The BPMD CAG was formed at the beginning of 2019 and includes representatives from citizen organizations from the Animas River basin. This group is designed to serve as the focal point for information exchange among the Town of Silverton, local downstream communities, EPA, the State, and other federal agencies involved in the CERCLA process at the BPMD Site. The BPMD CAG focuses on CERCLA activities impacting the Animas River within Colorado. A primary objective of the BPMD CAG is to disseminate information about activities at the BPMD Site to the community and to provide input to EPA, USFS, BLM, and CDPHE on site activities. The BPMD CAG utilizes local expertise in reviewing and commenting on technical documents associated with the BPMD Site. The BPMD CAG maintains a website with additional information at <https://www.bonitapeakcag.org/>.

In accordance with the decision-making logic in Chapter 4.0 and the CIP, format input and feedback will be requested by EPA in accordance with annual and five-year planning efforts, proposed remedies, five-year reviews, and other key documents.

2.4.3 Southern Ute Indian Tribe

The Southern Ute Indian Tribe (SUIT) is a sovereign nation located on the Southern Ute Indian Reservation in Southwest Colorado. The reservation covers 1,059 square miles in three counties (La Plata, Archuleta, and Montezuma). The SUIT are stakeholders for BPMD investigation and cleanup and have historic and contemporary interests and uses in the BPMD area.

EPA is committed to effective consultation with the SUIT. The SUIT is informed and consulted on response actions at the BPMD Site. To support continued information sharing, EPA has developed a Communications Plan to facilitate effective communication, input, feedback, and information sharing (EPA 2019b).

2.4.4 Ute Mountain Ute Tribe

The Ute Mountain Ute Tribe is a sovereign nation located in Colorado, New Mexico, and Utah. The Ute Mountain Ute Reservation comprises 597,288 acres of allotted and deeded lands. In Colorado, the reservation is primarily in Montezuma County, which is adjacent to La Plata County. The Ute Mountain Ute Tribe are stakeholders for BPMD investigation and cleanup and have historic and contemporary interests and uses in the BPMD area.

EPA is committed to effective consultation with the Tribe. The Ute Mountain Ute Tribe is informed and consulted on response actions at the BPMD Site.

2.4.5 Downstream States and Tribes

The Navajo Nation is a sovereign nation and downstream user of the San Juan River, of which the Animas River is a primary tributary. The Navajo Nation comprises over 17 million acres across northeastern Arizona, southeastern Utah, and northwestern New Mexico. The closest downstream border of the Navajo Nation is approximately 110 miles from the BPMD Site. The Navajo Nation is located within the jurisdiction of EPA Region 9, whereas BPMD is located within the jurisdiction of EPA Region 8. Regions 8 and 9 will coordinate engagement with the Navajo Nation in accordance with the Communications Plan that is currently in development.

The State of New Mexico is located approximately 70 miles south of the BPMD Site and is a downstream user of the Animas River. New Mexico is within the jurisdiction of EPA Region 6. Regions 6 and 8 will coordinate regarding the scope and frequency of engagement with New Mexico.

The Animas River flows into the San Juan River near Farmington, New Mexico. The San Juan River eventually flows to the State of Utah approximately 60 miles from Farmington. EPA will coordinate with the State of Utah through annual meetings to update the Utah Department of Environmental Quality on progress made and future plans. The State of Utah is also included in monthly BPMD newsletters and fact sheets.

2.4.6 Community Stakeholders

Residents of the Animas Watershed and interested organizations are stakeholders and may obtain information about the remediation of the BPMD Site via EPA updates and reports, SPG/CAG meetings, or related sources by reviewing the EPA website for these documents. Community input is welcome and encouraged. The CIP provides a list of stakeholder organizations and information regarding how citizens may be involved (CDM Smith 2017).

2.5 COMMUNICATIONS

EPA will be the primary coordinator of communications regarding the CERCLA remediation activities at the BPMD Site. EPA will coordinate meetings and related outreach events. The EPA Community Involvement Coordinator and RPMs will be the primary points of contact.

EPA's primary methods for broad communications will be updates provided to SPG and CAG meetings, EPA's Monthly Updates, EPA Fact Sheets, and EPA's BPMD website—www.epa.gov/superfund/bonita-peak. Communications will be conducted in general accordance with the CIP (CDM Smith 2017).

Communications specific to decision making are outlined in Chapter 4.0.

3.0 SITE PRINCIPLES

Site Principles are defined as the goals, objectives, and strategies that provide a basis to guide all EPA work at the BPMD Site. The site goals express what is to be achieved through cleanup actions. The objectives establish more targeted outcomes for different areas of the site based on area-specific conditions and ensure activities taken in that area demonstrate progress towards the site goals. The term ‘Site Strategy’ at the BPMD Site is defined as the high-level approach to focus EPA CERCLA activities throughout the site.

The Site Principles presented in this document reflect EPA’s goals, objectives, and Site Strategy. The other federal agencies, specifically USFS and BLM, have been delegated CERCLA authority and are addressing source areas on federally managed lands within the BPMD Site. The BPMD interagency team will strive to ensure, to the extent practicable, that actions taken by all agencies are consistent with the NCP and align with EPA’s Site Principles.

This chapter briefly describes the site, presents the current Site Principles, and establishes a process for managing the Site Principles in accordance with the AM decision-making process.

3.1 SITE DESCRIPTION

The BPMD Site is centered in southwestern Colorado in San Juan County. Within the site, there are three main drainages (Mineral Creek, Cement Creek, and Upper Animas River), that flow into the Animas River at Silverton, Colorado. From Silverton, the Animas River flows south to Durango, Colorado, then crosses into New Mexico and joins the San Juan River in Farmington, New Mexico.

The three main drainages (Mineral Creek, Cement Creek, and Upper Animas River) within the BPMD Site cover over 140 square miles and contain over 400 abandoned or inactive mines, where large- to small-scale mining operations occurred. The NPL site listing included 48 mining-related sources that were classified as sources or potential sources for contaminated media affecting the three main drainages (**Figure 3.1**). Each source area contains a combination of one or more of the following: waste rock, tailings, smelter slag, and discharging mine drainage. The site source areas are comprised of 35 mines, 7 tunnels, 4 tailings impoundments, and 2 dispersed campsites (EPA 2016).

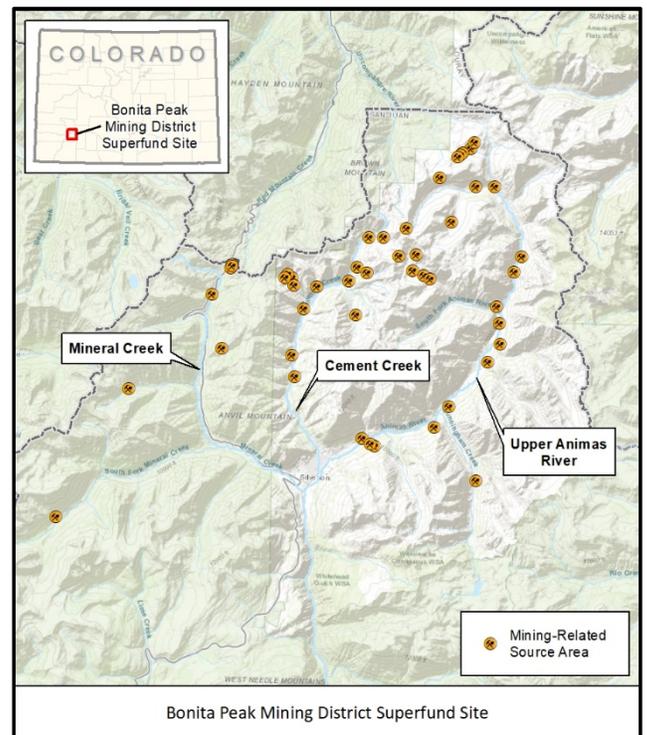


Figure 3.1. BPMD Site Location

The site is currently organized into four OUs:

- **OU1 (Sitewide):** encompasses the entire BPMD Site.
- **OU2 (Mayflower):** includes Mayflower Tailing Impoundments Numbers 1, 2, 3, and 4 and the Mayflower Mill and Tailings Study Area.

- **OU3 (Bonita Peak groundwater system):** generally includes the saturated and unsaturated workings of the Sunnyside Mine, associated drainage and haulage tunnels, nearby mines not known to be connected to the Sunnyside Mine by workings (e.g., Red and Bonita Mine and Gold King Mine), and the surrounding geographic area that may be hydraulically connected or influenced by current and/or historical releases from or management of these mines.
- **OU4 (Ben Franklin Mine):** located immediately below and east of the confluence of the two headwaters of Eureka Gulch, characterized by rugged, high alpine terrain above timberline. The mine consists of an open adit and an adjacent waste rock pile. In 2019, the landowner and DRMS completed a stope closure project and response action that included buffering adit discharge pH and channeling the discharge to minimize interaction with waste rock.

3.2 CURRENT SITE PRINCIPLES

The following subsections present and discuss EPA’s goals, objectives, and strategy for the BPMD Site.

3.2.1 Goals

In March 2019, EPA developed their initial goals for the site. Development of site goals considered site conditions; data collected by EPA, other federal and state agencies, and other stakeholders; results of ecological and human health risk assessments; and stakeholder input. This analysis indicated the primary issue at the BPMD Site was water quality impacting benthic macroinvertebrate and fish populations throughout various reaches of the watershed. Therefore, EPA established a primary goal for response work at the site of achieving water quality improvement, with a focus on mine drainage. Additionally, to support improvements in water quality throughout the BPMD Site and to address impacts from legacy mining activities, EPA established two additional goals—stabilize source areas, with a focus on solid media; and minimize unplanned releases.

3.2.2 Objectives

For the BPMD Site, improving water quality is EPA’s priority goal and is the focus for establishing measurable objectives.

Water Quality Objectives

EPA established two objectives specific to water quality improvement:

- Identify achievable actions necessary to meet Table Value Standards (TVS) in the Animas River at a location downstream of Elk Creek.
- Improve water quality to meet or exceed State water quality goals in priority reaches.

Priority Reaches

To focus CERCLA response efforts, EPA established priority reaches at the BPMD Site. Priority reaches were established considering habitat, background impacts, human health and ecological risk, and metals loading into the watershed.

The priority reaches include: (1) Canyon Reach, (2) Upper Animas downstream of Eureka (includes the stretch of the Upper Animas River from Minnie Gulch to Cement Creek), (3) South Fork Mineral Creek (extends from its headwaters to its confluence with Mineral Creek), and (4) Upper Mineral Creek (encompasses Mineral Creek from Mill Creek to Middle Fork Mineral Creek) (**Figure 3.2**).

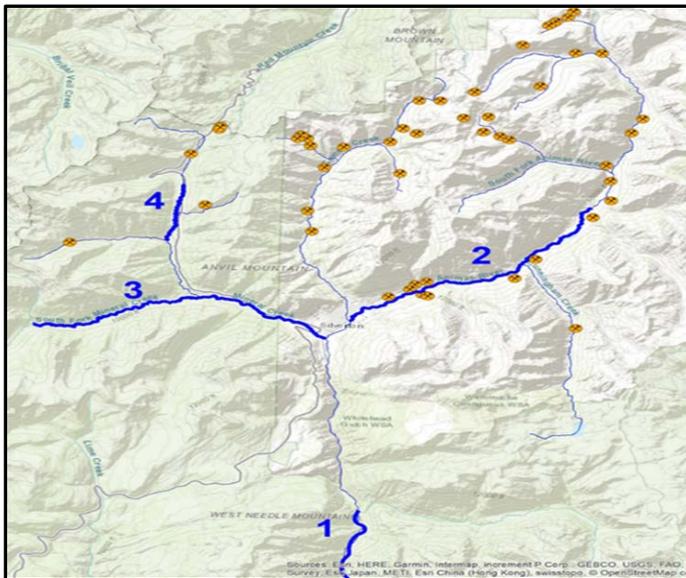


Figure 3.2. BPMD Priority Reaches

Priority reaches 2, 3, and 4 are within the mining district where response actions in these areas would address major metals-loading contributors and improve water quality.

Although not specifically identified as a priority reach, draining adits in Cement Creek are significant contributors to metals loading in the watershed, and Site Strategies will consider this area as a priority or focus for remedial work.

Priority Reach Objectives

EPA further developed objectives unique to the stream reaches within each priority reach:

- **Priority Reach 1 (Canyon Reach):**
 - Undertake activities necessary to meet TVS in the Animas River at a location below Elk Creek (with the possible exception of aluminum due to high background concentrations).
- **Priority Reach 2 (Upper Animas: Minnie Gulch to Cement Creek):**
 - Improve the number and spatial extent of the existing brook trout fishery.
- **Priority Reach 3 (South Fork of Mineral Creek):**
 - Improve the number and diversity of the existing fishery,
 - Improve the benthic macroinvertebrate community, and
 - Protect/enhance the trout corridor to Animas River.
- **Priority Reach 4 (Upper Mineral Creek):**
 - Investigate the potential for expanding and improving the Mineral Creek fishery, and
 - Improve the benthic macroinvertebrate community.

3.2.3 Site Strategy

Recognizing that considerable time and resources are required to meet site goals and objectives, the Site Strategy documents how EPA work will be sequenced throughout the BPMD Site to maximize progress towards the three site goals. The Site Strategy was developed by EPA in collaboration with stakeholders during meetings and workshops such as the March 2019 Community Meeting and Open House (EPA 2019c), the November 2019 AM Community Outreach Meeting (EPA 2019d), and the November 2019 AM Site Strategy Workshop, (EPA 2019e).

Site Strategy Overview

Figure 3.3 presents an overview of the selected Site Strategy for the BPMD Site. The Site Strategy, consistent with EPA site goals and objectives, addresses the site by priority reaches, referred to as the “reach by reach” approach. The Site Strategy continues ongoing work at the site, including continued operation of the IWTP, siting and construction of a sitewide repository, continued enforcement actions, and design and construction of the 2019 IROD actions.

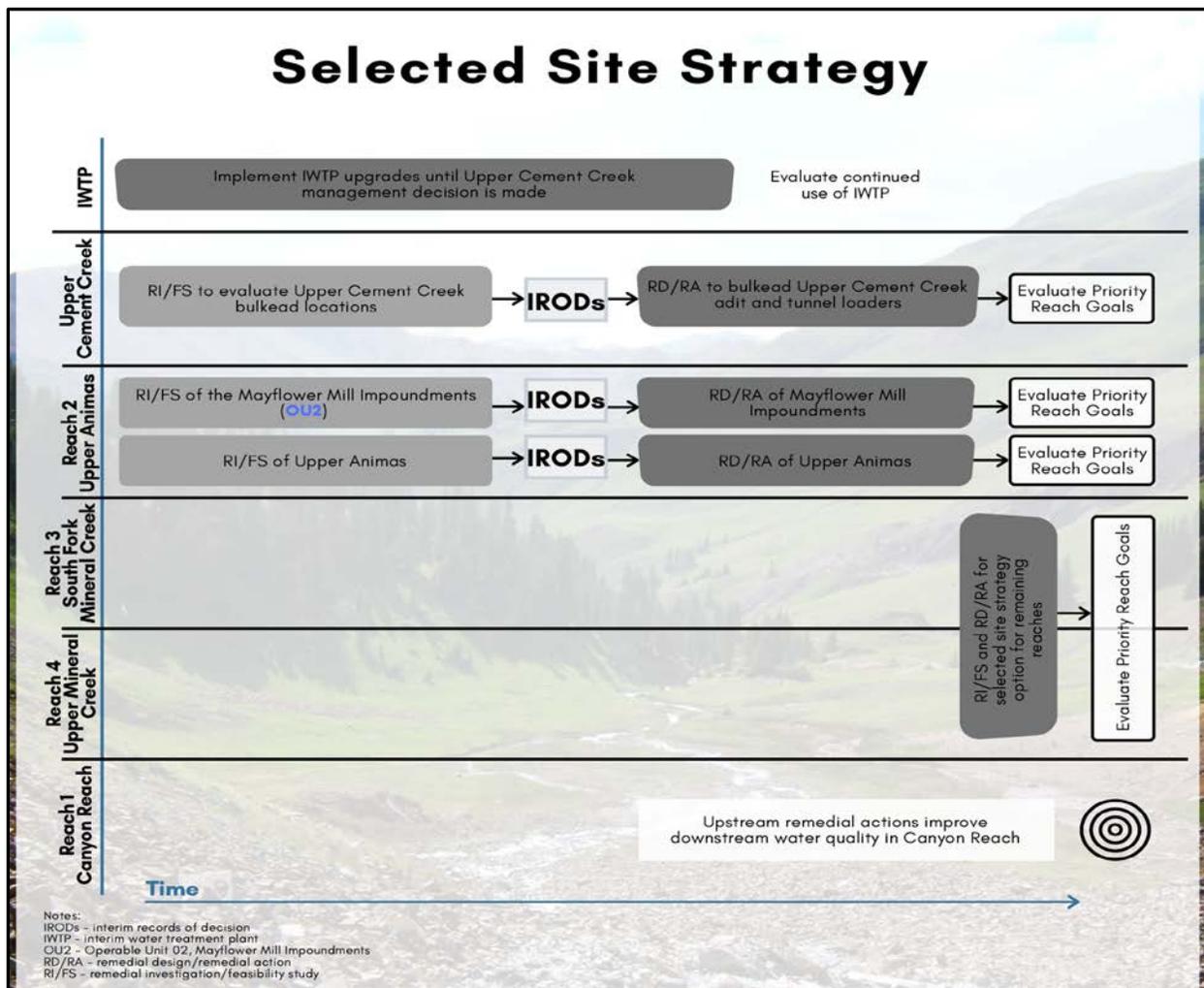


Figure 3.3. Selected Site Strategy for the BPMD Site

For future actions at the site, the Site Strategy focuses EPA activities on draining adits associated with the Bonita Peak groundwater system (OU3) within Upper Cement Creek and source areas within the Upper Animas drainage (priority reach 2). Both the OU3 and the Upper Animas drainage contain draining adits and source areas that contribute significant amounts of metals to the watershed. Focusing activities on the draining adits in OU3 will help address the Canyon Reach (priority reach 1). Near-term efforts will be focused on conducting concurrent RIs/FSs in both reaches with the purpose of selecting CERCLA remedies.

Prioritizing work in these areas will expedite progress towards improving water quality—the priority site goal, and meeting water quality objectives by reducing metals loading into the Animas River and improving water quality downstream within priority reach 1. In addition, source control actions in both areas will promote long-term remedial solutions to stabilize sources of metals loading (e.g., waste rock and tailings) and to minimize unplanned releases. Finally, prioritizing work in the Upper Animas drainage will promote expansion and improvement of existing trout fisheries, an objective for priority reach 2.

After remedies are selected and implemented in these reaches, working with the State, federal land management agencies, and other stakeholders, as appropriate, EPA will address remaining priority reaches (e.g., priority reaches 3 and 4 within Mineral Creek), mine drainages, and solid media sources at the BPMD Site.

Project Components

IWTP: EPA will continue to operate the IWTP to collect and treat mine discharge from the Gold King Mine while OU3 RI/FS activities are conducted. A final decision on the use of water treatment in OU3 will be made as part of the OU3 proposed remedies.

Bonita Peak Groundwater System (OU3) RI/FS and RD/RA (Upper Cement Creek): EPA will conduct a comprehensive RI/FS of the Bonita Peak groundwater system within Upper Cement Creek, with a focus on determining the feasibility of bulkheading draining adits that contribute the greatest metals load to the watershed. Bulkheads may be used when they are practical and effective for improving water quality and minimizing unplanned releases. EPA may also propose the use of other remedial technologies with or instead of bulkheading depending on site conditions and feasibility. RI/FS activities in OU3 are expected to include: characterization of the Bonita Peak groundwater system, analysis of potential bulkhead location(s), treatability studies, analysis of remedy alternatives, public and agency review and comment on the proposed remedies, and EPA remedy selection. Following the RI/FS and remedy selection process, remedies will be designed and constructed. Once operational, remedies will be monitored and assessed to evaluate progress towards site goals and priority reach objectives, and to evaluate technology performance to support potential use at other parts of the BPMD Site.

Upper Animas RI/FS (Priority Reach 2): EPA will conduct a comprehensive RI/FS of Upper Animas upstream of the Mayflower Tailing Impoundments Facility (excluding those sources associated with OU3). The RI/FS will focus on selecting remediation approaches that align with site goals and priority reach 2 objectives. RI/FS activities are expected to include: characterization to determine significant contributors to the metals load in the area; treatability studies; analysis of alternatives for significant loading contributors; public, agency, and responsible party review and comment on the proposed remedies; and EPA remedy selection. Following the RI/FS and remedy selection process, remedies will be designed and constructed. Once operational, remedies will be monitored and assessed to evaluate progress towards site goals and priority reach objectives, and to evaluate technology performance to support potential use at other parts of the BPMD Site.

Mayflower Tailing Impoundment Facility RI/FS (Priority Reach 2): Concurrent with the EPA Upper Animas RI/FS, EPA will continue oversight of responsible party RI/FS activities at the Mayflower Tailings Impoundment Facility (OU2). RI/FS activities are expected to include: characterization of source areas and

groundwater at the facility; risk assessment; treatability studies; analysis of remedial technologies and alternatives necessary to address contamination at the facility; public, agency, and responsible party review and comment on the proposed remedy; and EPA remedy selection. Following the RI/FS and remedy selection process, remedies will be designed and constructed. Once operational, remedies will be monitored and assessed to evaluate progress towards site goals and priority reach objectives, and to evaluate technology performance to support potential use at other parts of the BPMD Site.

Waste Repository: The proposed sitewide repository is undergoing agency review and comment. Once the sitewide repository remedy selection process is complete, the repository will be designed, constructed, and used for managing waste derived from sitewide remedial activities.

2019 IROD RD/RA: Remedies selected in the 2019 IROD (EPA 2019a) will be designed and constructed throughout the BPMD Site. Once operational, remedies will be monitored and assessed to evaluate water quality improvements and technology performance to support potential use at other parts of the BPMD Site.

Prioritize Sites with Potential for Unplanned Releases: EPA will coordinate with DRMS to complete an inventory of draining mines and source areas in BPMD. EPA will prioritize sites with the greatest need for stabilization or potential for unplanned releases. This inventory will inform the need and timing of future actions.

3.3 ADAPTIVE MANAGEMENT DECISION MAKING: SITE PRINCIPLES MANAGEMENT

Specific to Site Principles management, the AM decision-making process is streamlined and focuses on the process under which future Site Principles are developed (Step 1), and how EPA will conduct knowledge integration and document lessons learned to inform future Site Principle development efforts (Step 4).

3.3.1 Step 1: Planning and Prioritization: Site Principles Development

Future development of Site Principles will be led by EPA and performed in accordance with the process outlined in **Figure 3.4**. Under this process, federal and state agencies will develop a Site Principles straw-man proposal outlining potential modifications to site goals and objectives and Site Strategy options. This straw-man will be used to facilitate a discussion with agencies, SPG, CAG, and other stakeholders similar to the process that was used to develop the initial Site Principles in November 2019. Discussion of the straw-man proposal will include identifying the pros and cons for information in the proposal as well as identifying potential modifications (including omissions and additions) to its contents. EPA will review the results of these discussions, presented in an updated Site Principles Proposal, to inform its selection of the Site Principles. This process will be used until the site remediation work is complete.

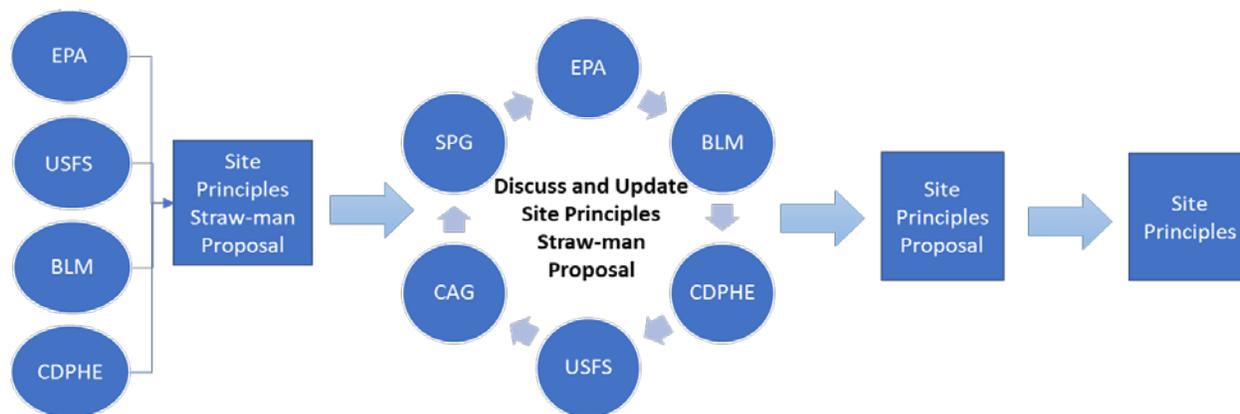


Figure 3.4. Site Principles Development

3.3.2 Step 2 and Step 3: Site Strategy Execution, Monitoring, and Assessment

The Site Strategy will be executed in accordance with the project AM decision-making process, which is identified in Chapter 4.0. Results and impacts of site activities are anticipated to require several years to several decades to observe and confirm; therefore, as part of the agency planning process, EPA, in consultation with other agencies, the State, and stakeholders, will evaluate the need for and timing of a Site Principles review and update.

3.3.3 Step 4: Knowledge Integration

When monitoring and assessment efforts indicate the Site Principles require modification or update, EPA will initiate efforts to develop the next iteration of Site Principles (the process discussed in Step 1). To prepare for this effort, EPA will comprehensively review the existing goals and determine if each goal is still relevant, requires modification, or if site information indicates the need for a new goal. Additionally, EPA will review the status of the current Site Strategy with meeting or making progress towards the water quality and priority reach objectives. EPA will comprehensively examine the site and determine if identified reaches are still priorities, if additional reaches need to be included, and if the objectives are realistic or require modification. This analysis and knowledge integration will support development of the straw-man proposal identified in Step 1.

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4.0 ADAPTIVE MANAGEMENT DECISION MAKING: STRATEGIC PLANNING AND PROJECT PLANNING

Due to the size and complexity of the BPMD Site, multiple, concurrent projects are required to implement the Site Strategy, which is identified in Chapter 3.0. Significant project planning and resource prioritization will be required to achieve site goals. To ensure project progress and resources are placed in the area of highest need, AM decision making at the site will include annual and five-year strategic planning in accordance with the iterative, AM decision-making process, which is described in Chapter 1.0. These planning processes, including the process for incorporating stakeholder input, are presented in **Figure 4.1** and discussed below.

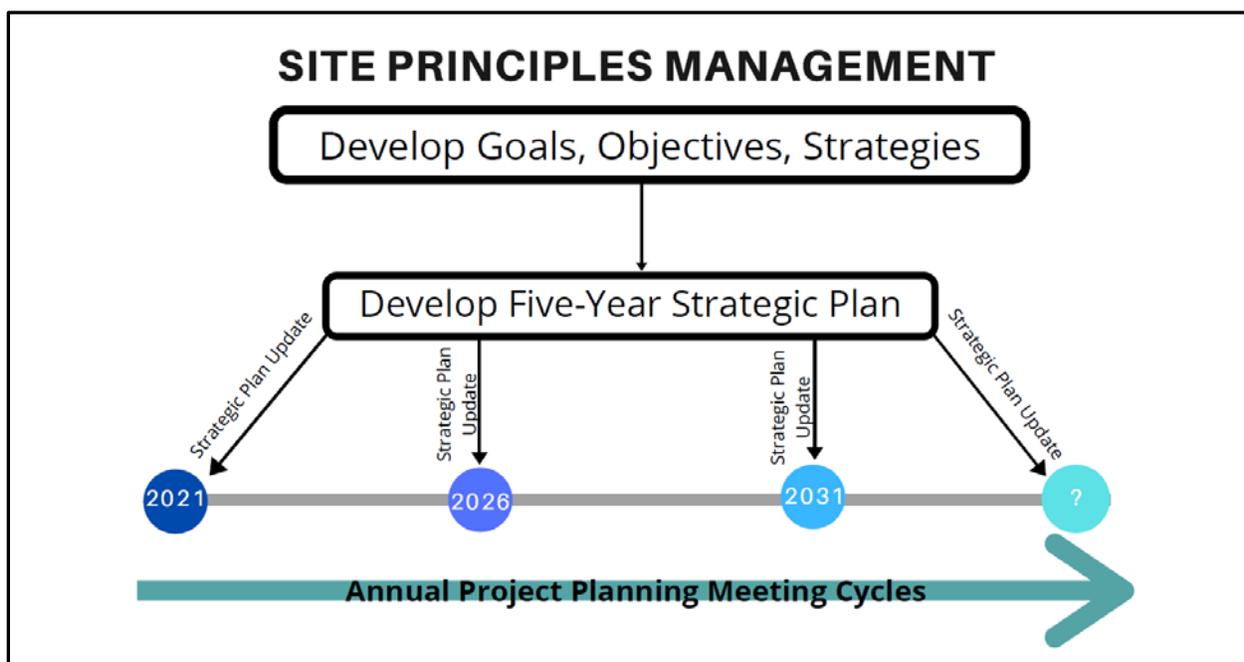


Figure 4.1. Site Principles Management

4.1 STRATEGIC PLANNING

The Site Principles identified in Chapter 3.0 include high-level goals and objectives and a Site Strategy that identified a number of priority projects. The purpose of strategic planning is to develop interim milestones with specific timeframes and measurement to guide project planning and to demonstrate progress in advancing the Site Strategy and achieving the objectives and goals for the site. At the BPMD Site, EPA has elected to conduct strategic planning on a five-year basis, referred to as five-year BPMD strategic planning.

Five-year BPMD strategic planning is not an iterative process; rather, it is a comprehensive planning process led by EPA once every 5 years. EPA, in coordination with other federal agencies, the State, and primary stakeholders, will conduct and document strategic planning beginning in fiscal year 2021. The purpose of the strategic plan is to:

- Establish 5-year milestones (e.g., water quality; biological improvements; or CERCLA process milestones, such as deletions), and describe how those milestones will make progress towards site goals and priority reach objectives.

- Identify the types of work the agencies intend to complete during the 5-year timeframe for each component of the Site Strategy (e.g., OU3 RI/FS, IWTP operation, and repository work), and describe how each type of activity will support achieving the 5-year milestone(s).

Each Five-Year BPMD Strategic Plan will include:

- A summary of results from work executed under the previous 5-Year BPMD Strategic Plan, as applicable;
- Established milestone(s) for each site goal and objective;
- Priority actions for each component of the Site Strategy to achieve the milestones; and
- A sequence of activities and a general timeline for completion.

Five-Year BPMD Strategic Plan Development

To develop each Five-Year BPMD Strategic Plan, an EPA lead RPM will consult with EPA workgroups to develop a high-level list of activities, schedules, and milestones for each major component of the Site Strategy. EPA will request similar information from other federal agencies and the State specific to their projects. Once the information is assembled, EPA, other federal agencies, and the State will evaluate potential opportunities to leverage resources, align work priorities, and ensure milestones are realistic given agency budgets.

The draft Five-Year BPMD Strategic Plan will be sent to SPG, CAG, and other stakeholders for review and feedback. After feedback is received, the plan will be finalized and shared publicly on the BPMD website.

To prepare for the development of subsequent Five-Year BPMD Strategic Plans, EPA will comprehensively assess the successes and challenges with meeting milestones and adhering to schedules in the previous Five-Year BPMD Strategic Plan. This analysis will be documented in the next iteration of the Five-Year BPMD Strategic Plan to help develop milestones and schedules that are realistic, measurable, and can be reasonably met.

Strategic Plan Utilization in Project Planning

During the Autumn Annual Agency Planning Meeting, as discussed in Section 5.1.1, EPA and the other agencies will conduct a review of the Five-Year BPMD Strategic Plan. If this review indicates that delays in project-specific activities may impact high-level schedules or impact the ability to achieve milestones, the current Five-Year BPMD Strategic Plan will not be updated. Instead, based on this analysis, EPA will identify actions or resources needed to address delays and include this information in Step 1 for future actions.

Project Planning

BPMD project planning is a continuous and iterative process that follows the four steps of the AM process outlined in Chapter 1.0. **Figure 4.2** summarizes the annual project planning cycle, including stakeholder input, and each step is discussed in more detail below.

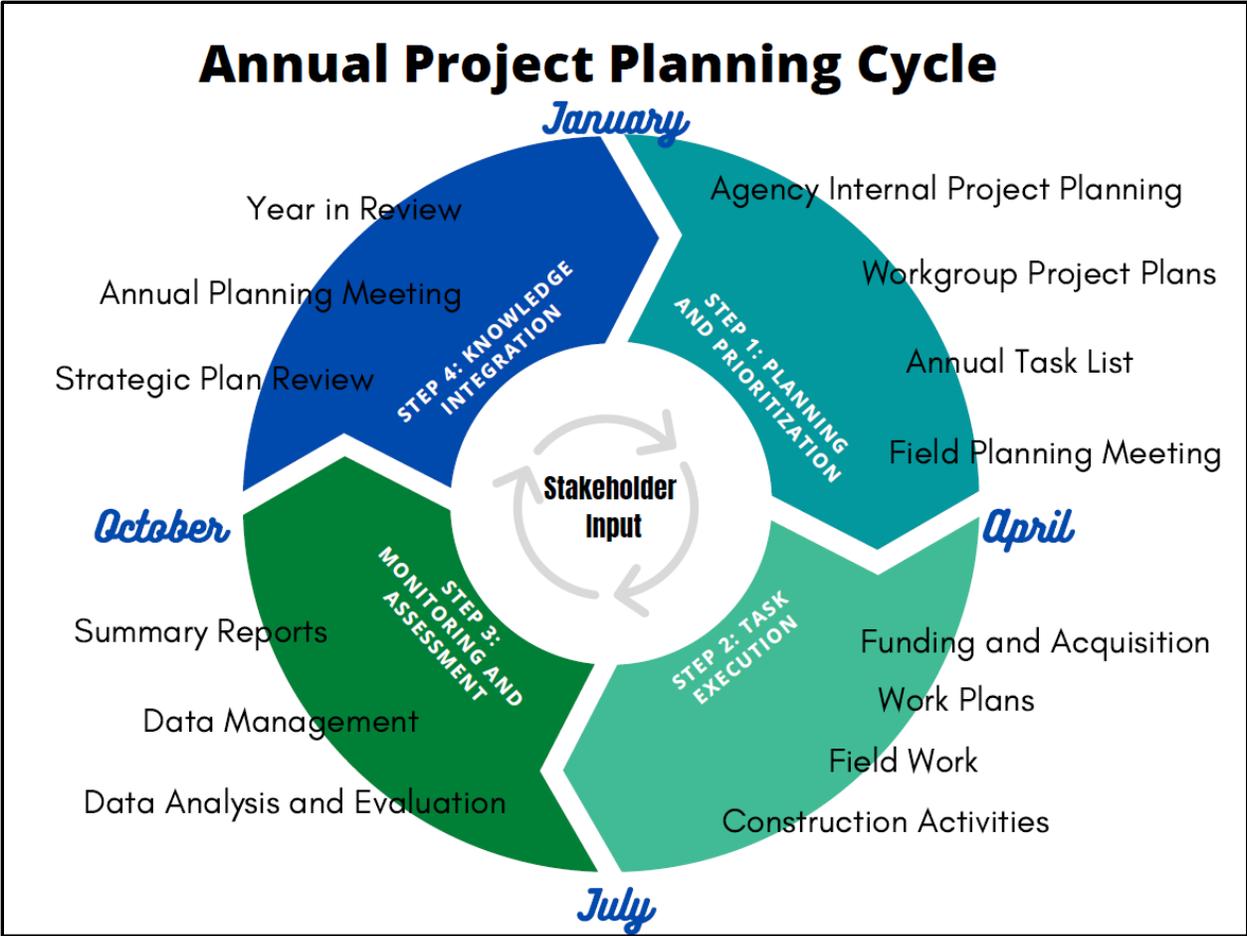


Figure 4.2. BPMD Annual Project Planning Cycle

4.1.1 Step 1: Project Planning and Activity Prioritization

The Site Strategy includes a set of key, high-level CERCLA activities that will be implemented to progress towards site goals. For each of these CERCLA activities, EPA will define a project or set of projects necessary to complete the work. For CERCLA activities conducted by BLM, USFS, or the State of Colorado, they will define a project or set of projects depending on the scope of activities they are implementing. Project planning will be conducted by state and federal agencies on a continuous basis for their lead-project efforts, will be documented in the Annual BPMD Task List, and will be presented in the BPMD site calendar.

Agency Internal Project Planning Process

Each agency will conduct project planning using their respective defined project-planning process. For each component of the EPA Site Strategy, each EPA workgroup (identified in Chapter 2.0) will develop Workgroup Project Plans (WGPPs) in accordance with the Site Principles and the Five-Year BPMD Strategic Plan.

WGPPs

EPA WGPPs define the activities, milestones, and schedules for each component of the Five-Year BPMD Strategic Plan. For WGPPs that include sitewide activities, EPA will coordinate, as appropriate, with the other agencies on these sitewide activities. Each EPA WGPP will identify:

- Applicable site goals and priority reach objectives;
- Project definition (scope and measurement of completion);
- Key milestones (including milestones from the Five-Year BPMD Strategic Plan and out-year milestones to support project completion);
- Response activities and planned schedule focused on the next 5 years;
- Contracting and budget information and needs;
- Ongoing or planned enforcement actions; and
- Key project needs specific to data management, access, cultural resources, and communications, which will be captured in consultation with the other BPMD EPA workgroups.

Although not required for USFS and BLM projects, it is encouraged that these federal agencies develop similar plans for their projects.

As the WGPP is a new tool, EPA will focus fiscal year 2020 efforts on completing and populating the initial versions of these plans. The WGPPs will be living documents and will be updated periodically to ensure milestones are realistic and that the planned actions are optimal options for progress towards site goals.

Annual Task List

In February of each year, EPA will issue an Annual Task List that specifies the tasks planned for that year (the first Task List will be completed in February 2021). A task is a discrete action that will be conducted to make progress on or to assess performance of those CERCLA projects being conducted at a site. For example, a sitewide task may include annual monitoring at targeted locations at the BPMD Site to assess water quality improvements. An example of a project-specific task may be the Red and Bonita head test being conducted at OU3. The Annual BPMD Task List will include:

- A list of tasks and the implementation timeframe for each state, federal agency, and sitewide project or component of the Site Strategy; and
- A summary of any anticipated coordination or outreach activities that will be conducted during that year.

These tasks will be compiled in a tabular format, including the information presented in **Table 4.1**.

Table 4.1. Example Annual BPMD Task List Entry

Project	Task	Lead Agency	Anticipated Implementation Timeframe	Outreach Activities
OU3 – RI/FS	Red and Bonita Head Test	EPA	Summer 2020	<ul style="list-style-type: none"> • Discuss initial scope and objectives with CAG and SPG • Provide monthly status updates to CAG and SPG • Share monitoring data via the WQX database

CAG = Community Advisory Group. RI = Remedial investigation.
 EPA = U.S. Environmental Protection Agency. SPG = Silverton Planning Group.
 FS = Feasibility study. WQX = Water Quality Data System.
 OU = Operable unit.

EPA will lead development of each Annual BPMD Task List. For EPA-led projects, the EPA lead RPM will review each WGPP and, in consultation with the project team, generate a prioritized list of tasks, proposed timeframes, and anticipated outreach activities for the given calendar year. USFS, BLM, and CDPHE, using their own planning processes, will generate a prioritized list of tasks, proposed timeframes, and anticipated outreach activities for each of their projects.

The draft Annual BPMD Task List will be sent to SPG, CAG, and other stakeholders for review and feedback. After feedback is received, the Annual BPMD Task List will be finalized and shared publicly on the BMPD website. In addition, EPA will utilize the web-based BPMD Site Calendar to share information regarding the status of tasks on the Annual BPMD Task List, specifically when activities are planned, in progress, or completed, as well as public participation opportunities at the BPMD Site.

4.2 STEP 2: TASK EXECUTION

After the Annual BPMD Task List has been completed and shared, EPA and the other agencies will implement and execute the tasks. The lead agency is required to secure funding and complete any necessary acquisition activities to begin the work. Funding and acquisition activities will be conducted concurrently with finalizing the task list to complete fieldwork during the summer season. Once these administrative activities have been completed, planning efforts (e.g., work plans, quality management plans, etc.) will be completed before fieldwork can begin. Once fieldwork has been completed, the appropriate reports will be developed, submitted for agency review, and finalized before planning activities begin for the following year. Throughout task planning, execution, and reporting activities, EPA, CDPHE, and other federal agencies will conduct all necessary federal, state, and/or local coordination to implement the task in accordance with the NCP, MOUs, CIP, and the Annual BPMD Task List-planned outreach activities.

4.3 STEP 3: MONITOR AND ASSESS

A key element of AM is monitoring and assessing project tasks against Annual Five-Year Strategic Plan interim milestones, which ultimately inform progress towards objectives and site goals.

As discussed in Step 4, the agencies will use monitoring and assessment information to determine progress towards the 5-year milestones. This will also ensure the most current information is used to select and prioritize future tasks. To ensure success in Step 4, EPA will develop an LTM plan, described in Section 5.4.3, and project-specific monitoring plans that present a comprehensive approach to sampling and monitoring at the BPMD Site. For specific projects, the lead agency will develop data quality objectives (DQOs) for any environmental data to be collected during a CERCLA response action and will document

the DQOs in a Field Sampling Plan (FSP), as discussed in Section 5.4.4. The monitoring activities for each project will be included in the WGPP and identified as specific tasks in the Annual BPMD Task List.

EPA will regularly coordinate with state, other federal agencies, and local community groups, as identified in Chapter 2.0, to provide routine updates on monitoring and assessment activities. In addition, to increase transparency, EPA, the State, and other federal agencies will upload site data into EPA databases (discussed in Chapter 5.0), which will provide platforms for public access and review.

4.4 STEP 4: KNOWLEDGE INTEGRATION

The foundation of knowledge integration is the update of site tools, including the CSM, loading tool, and risk register, to assist in the process of re-evaluating and reprioritizing future actions. Updating the site tools requires the analysis and evaluation of previous site activities. In preparation of the annual planning meeting, after the field season has been completed and in advance of Annual BPMD Task List development (winter timeframe), EPA, in consultation with CDPHE, USFS, and BLM, will assemble data collected and documents generated during the year and will conduct a preliminary evaluation and analysis of the results. These preliminary results will be incorporated into the year-in-review materials (refer to Section 5.2.5) and will be discussed at meetings to seek feedback from CAG, SPG, and other stakeholders, as deemed appropriate, on the preliminary results and to solicit feedback on the previous year's planning and execution processes to seek opportunities for improvement. Discussing preliminary analysis, evaluating results of previous year actions, and seeking feedback from site stakeholders will help ensure stakeholders understand the basis for any updates to the empirical tools and that community interests are integrated into the next planning cycle.

After the year-in-review activities are completed, EPA will update the empirical tools and the risk register (see Section 5.1.2). The agencies will use the results of the year-in-review analysis and stakeholder feedback to identify project risks that are impacting schedule, scope, and budget; to analyze the root cause of these risks; and to discuss mitigation strategies to address these risks, updating the risk register accordingly.

After these site tools have been updated, each agency will review their project plans and provide the necessary updates. For EPA, this will involve updating each WGPP. At a minimum, updates will include out-year planning to ensure the WGPP has activities and schedules for the next 5 years of work. In addition, EPA will assess the planned activities and determine if and how timing of activities needs to be modified, scope or budget for specific activities needs to be modified, or if additional activities need to be added.

5.0 SITE MANAGEMENT TOOLS AND REPORTING

The AM process relies on a variety of tools to support data-driven decisions to implement actions and remedies. The following sections present and discuss the tools that will be employed to manage work at the BPMD Site.

5.1 PLANNING AND MANAGEMENT TOOLS

This section presents the tools that will be used at the BPMD Site to aid in project planning and management.

5.1.1 Meetings

EPA utilizes a series of standing meetings to plan and manage work at the BPMD Site. Each meeting is discussed below.

Annual Agency Planning Meetings

Annual Agency Planning Meetings are held each autumn. These meetings include EPA, USACE, BLM, USFS, CDPHE, DRMS, and agency contractors as needed. The purposes of the meeting are to:

- review data from current year activities, discuss lessons learned, and update relevant site tools (knowledge integration);
- review the current Five-Year BPMD Strategic Plan and document any major deviations from the plan (strategic planning);
- initiate next year's project planning by discussing each agency's plans for the next year's activities and ensure they align with the Site Principles (Chapter 1.0) and the Five-Year BPMD Strategic Plan (Section 5.1); and
- promote communication among the agencies.

Typical outcomes of this meeting are the preparation of materials for the Year-in-Review Information Forum (Section 5.25), as well as the generation of initial draft tasks for inclusion in the Annual BPMD Task List (Section 4.1.1) for the following year.

Annual Agency Field Planning Meetings

Annual Agency Field Planning Meetings are held each spring. These meetings include EPA, USACE, BLM, USFS, CDPHE, and agency contractors as needed. The purposes of the meeting are to:

- discuss upcoming field activities identified in the Annual BPMD Task List (Section 4.1.1);
- coordinate access needs, document review, data collection activities, and quality assurance requirements, and discuss work schedules and outreach needed; and
- promote communication among the agencies.

Monthly Agency Meetings

Monthly agency meetings include EPA, BLM, USFS, CDPHE, and agency contractors as needed. The purposes of these meetings are to:

- promote communication within the team,
- provide opportunity for workgroups to provide updates on Annual BPMD Task List activities,
- review community concerns, and
- discuss and coordinate materials for upcoming community outreach (e.g., monthly meetings and public meetings).

Monthly Interagency Leadership Team Meetings

Monthly interagency leadership team meetings provide a forum for agency project managers to:

- discuss project progress, and
- discuss site or management issues with a focus on timely resolution.

Monthly Interagency Management Meetings

Monthly calls are held between middle managers at BLM, USFS, EPA, and CDPHE to:

- discuss ongoing site challenges,
- resolve issues, and
- encourage interagency coordination at management and staff levels.

5.1.2 Risk Register

EPA, with input from other federal agencies and the State, has developed a sitewide risk register to document key project risks at the BPMD Site and to identify potential actions to manage each risk. Risk registers are a common project management tool used to identify potential project risks and mitigation strategies. Project risks may include events that delay schedule, denied access to private property to conduct fieldwork, lack of resources, or insufficient data for decision-making purposes. Typical risk registers include a description of the risk; probability of occurrence; potential impacts to project scope, schedule, or budget; and mitigation strategies. . EPA manages the risk register on its SharePoint site. The risk register will evolve as the Site Strategy progresses and will be updated and revised as risks are identified and addressed. The risk register is a project tool that will be updated as part of knowledge integration efforts that will be conducted at the Annual Agency Planning Meetings.

5.2 COMMUNICATION TOOLS

This section presents the tools that will be used at the BPMD Site to facilitate communication among the project teams and stakeholders.

5.2.1 Bonita Peak Mining District Calendar

EPA uses a web-based BPMD Site Calendar to share information regarding the status of tasks on the Annual BPMD Task List, specifically when activities are planned, in progress, or completed, as well as public participation opportunities at the BPMD Site. This communication and planning tool is available to the public on the EPA BPMD website. The BPMD Site Calendar will be regularly updated by EPA, USFS, BLM, and CDPHE to maintain relevant current information.

5.2.2 Community Involvement Plan

In 2017, EPA released a CIP (CDM Smith 2017) that details how EPA and stakeholder agencies engage and inform community members, environmental groups, government officials, the media, and other interested parties in the investigation and cleanup activities at the BPMD Site. The CIP was crafted with input and ideas from residents, local groups, and community organizations. EPA is committed to working in a positive way with local communities and residents, and the CIP is a tool used to encourage community stakeholder engagement. In general, most community involvement activities are carried out in partnership with agency stakeholders.

The CIP serves as a reference document for the community and details where current information may be found, lists points of contact, discusses how to provide input, and discusses the various partnerships involved with cleanup activities. The CIP will be used as a tool to educate, inform, and collaborate with community stakeholders. The CIP is produced by EPA and will be updated as needed or required by CERCLA and the NCP.

5.2.3 Southern Ute Indian Tribe Communication Plan

In 2016, EPA finalized a Communications Plan with the SUIT to facilitate communications. The plan was subsequently revised three times, and the most recent version was finalized in July 2019 (EPA 2019b). The plan recognizes that the BPMD Site contains areas in which the SUIT has had historic and contemporary interests and uses. EPA desires to conduct investigative and response activities in a manner that is sensitive to the needs and customs of the SUIT. The plan describes the types of activities EPA anticipates performing, as well as communication methods and contacts for the parties involved. EPA will consult the plan as it conducts its work at the BPMD Site. EPA intends to review the plan on an annual basis and to ask the SUIT for its input on the effectiveness of the plan and any changes Tribal representatives might like to see.

5.2.4 Navajo Nation Communication Plan

The Navajo Nation Communication Plan is currently in development and includes details and procedures for facilitating communication with the Navajo Nation. The plan will describe the types of activities EPA anticipates performing, as well as communication methods and contacts for the parties involved. EPA will consult the plan as it conducts its work at the BPMD Site. EPA intends to review the plan on an annual basis and to ask the Navajo Nation for its input on the effectiveness of the plan and any changes they might like to see.

5.2.5 Year-in-Review Information Forum

EPA, CDPHE, USFS, and BLM will participate in a year-in-review public meeting in the Town of Silverton to discuss what was accomplished, preliminary results (if available), and lessons learned. EPA will solicit feedback on the previous year's planning and execution processes to seek opportunities for improvement.

The year-in-review presentation will be prepared in Microsoft PowerPoint (or similar) and presented at a public meeting with hardcopy printouts. In addition, the presentation will be posted on the BPMD website for public access.

5.2.6 Monthly Newsletter and Fact Sheets

Each month, EPA prepares newsletters to summarize ongoing, completed, and planned activities and to provide general updates. Newsletters are provided directly to select stakeholders and are available to the public via the BPMD website. In addition, EPA periodically prepares fact sheets to present information regarding current activities. For example, in July 2020, EPA released a fact sheet for the BPMD Sitewide Repository Proposed Plan to provide information regarding proposed actions and opportunities for public comment. EPA will continue to produce and distribute fact sheets, as needed, to disseminate pertinent information.

5.3 DATA MANAGEMENT TOOLS

This section presents the tools used at the BPMD Site to aid in data management, data evaluation, and data presentation.

5.3.1 U.S. Environmental Protection Agency SharePoint Site

EPA maintains an internal, web-based SharePoint site as a repository for draft documents, final documents, references, and working files. The site is used to promote internal collaboration and to enable a single access point for project documents.

5.3.2 Scribe

EPA uses Scribe as a repository for all project analytical data. The Scribe database is updated by EPA with input from other agencies as needed. The database is available to EPA, federal agencies, and limited external stakeholders for access to project data. Data queries from Scribe are typically used for communications, meetings, and related project planning. The Scribe database is used by EPA in conjunction with a Geographic Information System Viewer to review sample locations and results. In addition, a program called Qlik is used to sort, group, tag, and manage the database and to produce outputs for internal and external end-users.

5.3.3 Water Quality Data System and StoryMaps

EPA is currently in the process of updating the Water Quality Data System (WQX) with select data sets maintained in Scribe. WQX is a data-sharing platform currently being used by the removal program and is accessible to the public. ArcGIS StoryMaps is another data-sharing platform that is being evaluated by EPA as an additional avenue to enable public access and evaluation of analytical data. EPA will provide updates to stakeholders and the public regarding the use of WQX and/or StoryMaps as more information is collected and evaluated.

5.4 CHARACTERIZATION TOOLS

This section presents the tools used at the BPMD Site to aid and facilitate technical site characterization and RD/RA.

5.4.1 Quality Assurance Project Plan

EPA has developed a sitewide Quality Assurance Project Plan (QAPP) for all investigative sampling activities at the site. The QAPP was developed in accordance with the *Uniform Federal Policy for Quality Assurance Project Plans, Evaluating, Assessing, and Documenting Environmental Data Collection and Use Programs, Part 1: UFP-QAPP Manual* (EPA 2005); is compliant with the *EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5* (EPA 2001); and is intended for use by all agencies, under which FSPs will be prepared for individual sampling events.

The sitewide QAPP describes the necessary quality assurance, quality control, and other technical activities that must be implemented to ensure that the results of the work performed will satisfy the stated performance criteria. The sitewide QAPP is maintained on the EPA SharePoint site and is updated annually as needed.

5.4.2 Data Management Plan

EPA has developed a Data Management Plan (DMP) that provides guidance and project requirements and responsibilities needed to manage and use environmental information.

The DMP includes details on the data management team organization, types of data that may be collected at the site, and how field and laboratory data will be managed. The DMP is maintained on the EPA SharePoint site and is updated annually as needed.

5.4.3 Sitewide Long-Term Monitoring Plan

EPA is in the process of developing an LTM Plan. The goals of the LTM Plan are to collect data to support ongoing evaluation of site goals, to document progress towards site goals over time, and to provide data relative to the following objectives:

- Assess long-term status and trends of contaminants in site media.
- Evaluate the performance and effectiveness of pilot projects and interim and final RAs.
- Evaluate progress toward RA objectives and cleanup benchmarks.
- Provide data for CERCLA-required five-year reviews of the progress on remedy implementation.
- Improve understanding of the BPMD Site processes and variability to optimize subsequent RA implementation.

5.4.4 Field Sampling Plans

Prior to conducting field sampling events, the lead agency will develop an FSP. These FSPs will reference, and be consistent with, the QAPP and DMP. These plans will document the objective of data collection, what questions the data are expected to answer, what data will be collected, a schedule for collection, expected outcomes of any performance data, and what project tool(s) will be updated by the data collected during this project.

5.4.5 Conceptual Site Model

EPA is developing a CSM to represent the evolving understanding of the BPMD Site based on current knowledge. CSMs may be developed for individual source areas, source areas within portions of drainages or across entire drainages, or for the entire site as needed to facilitate understanding and decision making. In general, the CSM:

- Identifies potential exposure pathways, including relationships between sources, source areas, transport mechanisms, exposure routes, and receptors.
- Helps determine the necessity and scope of any further investigations.
- Aids in evaluating exposure pathway completeness.
- Provides a concise description of contaminant transport and deposition mechanisms, including key sources and sinks.

The CSM will be a living tool to aid decision-makers in designing, implementing, and assessing RAs to address human health and ecological risks with a high level of certainty and success. Updates to the CSM will be made as pertinent studies and activities are completed and will continue throughout the project.

5.4.6 Loading Tool

EPA developed and continues to update a method to calculate and evaluate metals loading across the BPMD Site. The loading tool compiles both reach and adit metals loads in a single mathematical summation tool, with a graphical front-end interface that is easy for end-users to use, and predicts metals reduction from various actions taken at the BPMD Site. Currently, the loading tool includes several contaminants of concern including zinc, cadmium, copper, aluminum, manganese, and lead. The loading tool is updated annually, assists the project team with identifying reaches and source areas with significant metals contributions, and is useful for RI/FS, RD, and RA planning.

5.5 REPORTING

This section briefly summarizes the types of reporting that EPA and the project team will conduct at the BPMD Site. Several reports are prepared throughout the year to update stakeholders, summarize findings of field investigation activities, and provide routine updates of ongoing activities and documents that are required as part of the Superfund process. Reporting may include, but not be limited to:

- monthly newsletters and fact sheets,
- investigation sampling and analyses reports,
- RI and treatability study reports, and
- RA completion reports.

6.0 REFERENCES

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EPA 2016. *National Priorities List: Bonita Peak Mining District, San Juan County, Colorado*. September.

EPA 2019a. *Interim Record of Decision for Bonita Peak Mining District Superfund Site, Operable Unit 1, San Juan County, Colorado*. May.

EPA 2019b. *Southern Ute Indian Tribe Communications Plan: For facilitating communication between the U.S. Environmental Protection Agency and the Southern Ute Indian Tribe at the Bonita Peak Mining District Site, Colorado*. July.

EPA 2019c. *Community Outreach Meeting, Bonita Peak Mining District, Adaptive Management Pilot Program*. July.

EPA 2019d. *Community Outreach Meeting, Bonita Peak Mining District, Adaptive Management Pilot Program*. November.

EPA 2019e. *Bonita Peak Mining District Adaptive Management Site Strategy Workshop*. November.

EPA 2019f. *Site-Wide Operating Procedure: Compliance with the National Historic Preservation Act at the Bonita Peak Mining District Superfund Site. Region 8*. Available at: <https://semspub.epa.gov/work/08/100006709.pdf>.

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