UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

MEMORANDUM

DATE: SEP 3 0 2010

SUBJECT: Request for a Time-Critical Removal Action at the Plumas Eureka State Historic Park Site, in Plumas County, California

FROM: Bret Moxley, On-Scene Coordinator
Emergency Response Section (SFD-9-2)

TO: Debbie Schechter, Assistant Director
Response, Planning & Assessment Branch (SFD-9)

THROUGH: Harry Allen, Chief
Emergency Response Section (SFD-9-2)

I. PURPOSE

The purpose of this memorandum is to request and document approval of and $1,551,000 in direct extramural costs for the proposed removal action described herein to mitigate threats posed to human health and the environment by the presence of lead, arsenic and mercury in soils and mill tailings, located at Plumas Eureka State Historic Park (Site) in Plumas County, California. The proposed removal of hazardous substances will be undertaken pursuant to Section 104(a)(1) of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 42 U.S.C. § 9604(a)(1), and Section 300.415 of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. § 300.415.

II. SITE CONDITIONS AND BACKGROUND

Site Status: Non-NPL
Category of Removal: Time-Critical
CERCLIS ID: CAN000908832
SITE ID: 09WE
Latitude: N 39º 45' 30.55" Longitude: W -120º 41' 51.43"

A. Site Description

1. Physical Location

The Site is located in the eastern Sierra Nevada mountain range in Plumas County, California, and is 62 miles northwest of Reno, Nevada, and 57 miles north of Truckee, California. The Site can be reached from U.S. Highway 89 by traveling five miles west from Graeagle on Johnsville Road (County Road A-14). The 4,500-acre park is located at the foot of Eureka Peak. The Plumas Eureka Mine is now owned and administered by the State of California Department of Parks and Recreation (DPR) as a State Historic Park. The elevation at the park office is 5,168' above sea level and the highest point in the park is Eureka Peak at 7,447'.

2. Site Characteristics

Site History

Currently the park has approximately 20 structures including: a demonstration blacksmith shop; a restored assay building; a museum; residential units for seasonal park employees; a restored stamp mill; and maintenance and storage buildings. The park receives approximately 75,000 visitors per year over a four to five month visiting season when snow does not prevent public access. At any given time there are several resident rangers and park employees living at the Site.

Overall visitor attendance peaks during the month of July and is the lowest during the month of December. Approximately 70% of the campers are families. The average age of an adult visitor is 37 years old and the average youth age is 9 years old.

There are several historic areas located within the boundaries of the park. The section of the park west of Johnsville, north of Jamison Creek, and south of Eureka Peak, is the original mine discovery site. In addition, there are the Mammoth Mine, Seventy-Six, Rough and Ready and Plumas Eureka Mine sites.

Gold was first discovered on Eureka Peak in May of 1851 by a group of miners who found a rich ledge in an outcropping of quartz. The outcrop was the exposed top of the Eureka Chimney. The Chimney was a subsurface deposit of gold-bearing quartz that wasn't worked out until 1865. The Eureka Company of 36 men was formed on June 5, 1851. In just a few weeks the rush commenced. Claims were quickly filed for the Rough and Ready mine, about 1/2 mile south, the Mammoth Mine to the north and the Seventy-Six Mine. Work began within days of the Eureka strike. After a few years only the Eureka and Mammoth mines were still in operation.

At the beginning of the operations, ore from the Eureka and Mammoth mines was hauled to Eureka Lake to be worked in arrastras - crude mills utilizing dragged stones. The Eureka Company built its first stamp mill in 1855 at Eureka Lake and another mill two years later. The Mammoth Company built a 12-stamp mill on the flat at

Jamison Creek in 1856. Throughout the 1850s and 1860s, the Eureka Chimney was mined by both companies. The ore body was accessed from both its top shafts and seven different tunnels.

Construction of the Mohawk mill began in 1878. An extensive flume and ditch system was designed to carry water to and from the mill site. The first 20 stamps of the mill began operation in December of 1878. The second set of 20 stamps was running by January of 1879. The 40 stamp mill was powered by an 8-foot diameter water wheel and supplemented by a 75 horse power steam engine. By the end of that year the number of stamps was increased to 60. The Mohawk Mill was located further down the hill from the Mammoth and closer to nearby Johnsville. Ore was delivered to the new mill from the Mammoth, Seventy-Six and Eureka tunnels.

The Plumas-Eureka Mining Company purchased the property in 1909, and declared bankruptcy in 1916, reorganizing as the Plumas Eureka Corporation. It's mill was operated sporadically until 1928 when it became the property of the Phillips Trustees of Boston, Massachusetts. Plumas Eureka Mines, Inc. leased a portion of the operation and hauled slide rock and gravel from above the mill to a screening and washing plant. The company started a new 20-stamp mill operation in 1936. It trucked 40 tons per day from higher elevations to the mill. In 1943 a lessee recovered gold, silver and lead ore from the old tailings in the area. When mining ceased in 1943 miners left approximately 62 miles of tunnels in Eureka Peak.

3. Removal Site Evaluation

3.1 EPA Emergency Response Removal Assessment

During the EPA Site assessment, a DPR archeologist was present and exercised oversight of the sampling activities to ensure that the artifacts present at the Site were not adversely impacted by the investigation. The Site assessment was conducted from July 7 to July 14, 2010. In order to organize the Site assessment and analysis of the resulting data, EPA divided the Site into 15 different areas based either on unique mining activity or differences in visitation intensity or type. The following sections address each of these 15 areas.

In order to determine the background levels of arsenic, lead and mercury, EPA selected 16 locations that were in the vicinity of the park or on park property, but which were beyond or up gradient of any apparent mining activity impact. At each area a square of 50 feet by 50 feet was delineated and a four-point surface soil composite sample was collected. The 95% Upper Confidence Level (95% UCL) of the mean background concentration for each contaminant was; for arsenic 24 mg/kg or 24 parts per million (ppm), and for lead 78.2 ppm; and; for mercury 8.9 ppm. For the purpose of this action, EPA uses the 95% UCL background for arsenic as a screening level for further characterization. For lead, EPA uses 500 ppm as the screening level.

As explained below, for the proposed response action, EPA uses 2,500 ppm for lead and 100 ppm for arsenic as threshold action levels for performing response actions without further evaluation.

3.1.1 Mohawk Mill and Visitor Area North of Johnsville McCrea Road

The Mohawk Mill Site and the adjoining visitor area is the principal tourist and camper visitation venue in the park. This area includes a restored assay laboratory, a working demonstration blacksmith shop, a small example of stamp mill machinery and walking paths. Also included in this area is the partially restored Mohawk Mill.

This area was divided into 27 decision cells, each with approximate dimensions of 75 feet by 75 feet. From within each decision cell, EPA collected a four-point surface composite sample. There were also duplicate four-point composite surface samples collected from three of the 27 cells. In addition, the perimeter of each building from within this area was sampled as a four-point composite, with one composite point from each side. This area also contains a walking trail. The trail was divided into three linear sections and a three-point composite sample from each section was collected and analyzed.

At the Mohawk Mill Site 23 out of 27 cells exceeded the screening level for arsenic, and 20 cells exceeded the screening level for lead. In addition, four cells exceeded the threshold action level for arsenic, and two cells exceeded the threshold action level for lead. The highest arsenic concentration detected was 169 ppm, and for lead was 2,770 ppm.

3.1.2 Sulphurette Mill Facility and Picnic Day Use Area

The Sulpherette Mill facility was used as a day-use picnic area until recent sampling by the Department of Conservation and DTSC, described in Section 3.2 below. Based on the results of this study, DPR closed this area to all visitors. The mill facility and picnic area are bordered on the north and west by the Johnsville Road, and are bordered by Jamison Creek on the south and east. The picnic area includes several picnic benches, disabled visitor access improvements and ADA-compliant bathrooms.

This area was divided into eleven decision cells, each with approximate dimensions of 50 feet by 50 feet. From within each decision cell, EPA collected a four-point surface composite sample. There was also one duplicate composite surface sample collected from one of the eleven cells. In addition, the perimeter of each of three buildings from within this area was sampled as a four-point composite, with one composite point from each side. An arrastra was also sampled as a single discrete soil sample.

At the Sulpherette Mill facility, nine out of eleven cells exceeded the screening level for arsenic, and nine cells exceeded the screening level for lead. In addition, eight

cells exceeded the threshold action level for arsenic, and six cells exceeded the threshold action level for lead. The highest arsenic concentration detected was 1,090 ppm, and for lead was 21,100 ppm.

3.1.3 Tailings Impoundment Areas 1,2,3 and 4 North of Jamison Creek

The largest tailings impoundment in the park is impoundment #1. It is approximately one acre in area and is immediately down-slope from the town of Johnsville and several residences. There is a hiking trail that bisects the tailings, and there is a hand-built rock wall that forms the down-slope border of the impoundment. The structure of this wall has failed and crumbled at one point along its length. Jamison Creek is approximately 150 yards down-slope from the tailings.

Impoundment #1 was divided into sixteen decision cells, each with approximate dimensions of 50 feet by 50 feet. From within each decision cell, EPA collected a four-point surface composite sample. There were also two duplicate surface composite samples collected from two of the sixteen cells. In addition to the four-point surface composite samples from each cell, EPA collected discrete samples from the middle of each cell at a depth of 0.5 feet, three feet, and in some cells at six feet.

Based on the local topography, EPA decided to collect two surface composite samples immediately down-slope from the failure point in the rock wall where tailings are eroding and escaping the impoundment. Each of these two samples was collected from a decision cell with approximate dimensions of sixty feet by forty feet. Also, one duplicate four-point composite sample was collected from one of these cells.

In addition to impoundment #1, there are two much smaller impoundments to the southwest which were sampled. Each of these two areas (#2 and #3) were small enough that one surface four-point composite sample was deemed sufficient to characterize them.

Tailings Impoundment #4 is down slope from the rock wall and was divided into 2 decision cells.

In Tailings Impoundment #1, all sixteen cells exceeded the screening level for arsenic, and fifteen cells exceeded the screening level for lead. In addition twelve cells exceeded the threshold action level for arsenic, and six cells exceeded the threshold action level for lead. The highest arsenic concentration detected was 438 ppm, and for lead was 11,500 ppm.

In Tailings Impoundment #2 the concentration exceeded the threshold action level at 226 ppm arsenic, and exceeded the screening level, but not the threshold action level for lead at 2,320 ppm.

In Tailings Impoundment #3 the concentration exceeded the threshold action level at 170 ppm arsenic, and exceeded the screening level, but not the threshold action level for lead at 824 ppm.

In Tailings Impoundment #4 the concentration only barely exceeded the screening level at 25 ppm arsenic, but at 283 ppm lead, did not exceed the screening level for lead.

3.1.4 Visitor Center Area South of Johnsville-McCrea Road

The Visitor Center area is divided by the Johnsville-McCrea road. The majority of outdoor features that attract visitor interest are in the area described in Section 3.1.1. In this additional area, to the south of the Johnsville-McCrea Road, there are several picnic tables and a historic water flume/ditch.

This area was divided into twelve decision cells, each with approximate dimensions of 75 feet by 75 feet. From within each decision cell, EPA collected a four-point surface composite sample. There was also one duplicate four-point composite surface sample collected from one of the twelve cells.

In the Visitor Center South of Johnsville-McCrea Road, seven out of twelve cells exceeded the screening level for arsenic, and three cells exceeded the screening level for lead. There were no cells where the threshold action levels for arsenic or lead were exceeded. The highest arsenic concentration detected was 59.6 ppm, and for lead was 911 ppm.

3.1.5 Jamison Mine Site

The Jamison Mine Site area is south across Jamison Creek from the Visitor Center and is on the southern-most portion of the Park. This area includes eight historic structures and is bisected by a popular hiking trail, and also includes a parking area that leads to the Grass Lakes area.

This area was divided into eight decision cells, each with approximate dimensions of 100 feet by 100 feet. From within each decision cell, EPA collected a four-point surface composite sample. In addition, the perimeter of each of the eight buildings from within this area was sampled as a four-point composite, with one composite point from each side. The hiking trail through the mine site area was divided into three 200-foot long sections and a three-point surface soil composite sample was collected from each section. One duplicate surface soil composite sample was collected from one section.

In the Jamison Mill Site, five out of eight cells exceeded the screening level for arsenic, and two cells exceeded the screening level for lead. The threshold action level for arsenic was barely exceeded in one cell. There were no cells where the threshold

action level for lead was exceeded. The highest arsenic concentration detected was 116 ppm, and for lead was 1,670 ppm.

3.1.6 Mammoth Mine Site and Minimal Adjoining Tailings

The Mammoth Mine Site is comprised of a mill site foundation scattered with remnant machine artifacts, cobble piles, intermittent surface deposits of tailings, and waste rock piles.

This area was divided into five decision cells, three with approximate dimensions of 50 feet by 50 feet., and two with dimensions of approximately 20 feet by 20 feet. From within each decision cell, EPA collected a four-point surface composite sample. There was also one duplicate composite surface sample collected from one of the five cells. One discrete surface soil sample was collected from an arrastra.

In the Mammoth Mine Site and minimal Adjoining Tailings, four out of five cells exceeded the screening level for arsenic, and four out of five cells exceeded the screening level for lead. In addition, three cells exceeded the threshold action level for arsenic, and two cells exceeded the threshold action level for lead. The highest arsenic concentration detected was 122 ppm, and for lead was 5,640 ppm.

3.1.7 Eureka Tunnel and Hiking Trail, and Adjoining Waste Rock Pile

The Eureka Tunnel is one of several access points into the underground workings. A small portion of this tunnel has been rehabilitated, with the intent to open it to public tours at some time in the future. There is also a hiking trail leading to the Mohawk Mill Site, and a large waste rock pile adjacent to the tunnel opening.

This area was divided into three decision cells, two with an approximate dimension of 75 feet by 75 feet, and one with an approximate dimension of 25 feet by 25 feet. The trail was sampled with a single three-point composite surface soil sample.

In the Eureka Tunnel and Hiking trail Area, and Adjoining Waste Rock Pile, one of the three cells, and the hiking trail, exceeded the screening level for arsenic. There were no cells that exceeded the screening level for lead. The highest arsenic concentration detected was 32.9 ppm, and for lead was 110 ppm.

3.1.8 Plumas Eureka Main Campground

The Main Campground is comprised of 70 camp sites served by a paved access road. Each camp site has a paved parking space, flat soil area for tents, a fire pit, and a picnic bench. There is a central shower and bathroom facility which serves the Main Campground. EPA selected eleven camp sites (including the Host Campsite) evenly distributed across the overall campground. Each of these camp sites was sampled with a four-point surface soil composite. One camp site was sampled with a duplicate four-point surface soil composite.

In the Main Campground, four of the eleven camp sites exceeded the screening level for arsenic. There was one camp site that exceeded the threshold action level for arsenic. There were no camp sites that exceeded the screening level for lead. The highest arsenic concentration detected was 107 ppm, and for lead was 164 ppm.

3.1.9 Camp Lisa Group Campground for Disabled Visitors

The Camp Lisa Campground is a group campground that serves disabled visitors and is comprised of tent camp sites with a maximum capacity of 50 visitors and is served by a gravel access road. There is a central shower and bathroom facility that serves the group campground.

This area was divided into seven decision cells, each with approximate dimensions of 75 feet by 75 feet. From within each decision cell, EPA collected a four-point surface composite sample. There was also one duplicate surface composite sample collected from one of the seven cells.

In the Camp Lisa Campground, four of the seven cells exceeded the screening level for arsenic, and one cell exceeded the screening level for lead. There were no cells that exceeded the threshold action levels for arsenic or lead. The highest arsenic concentration detected was 75 ppm, and for lead was 503 ppm.

3.1.10 Jamison Creek Tailings Piles

Across Jamison Creek from the Sulpherette Mill site there are several benched tailings impoundments, which in aggregate make up about ¼ of an acre.

The area of the Jamison Creek Tailings Piles was divided into five decision cells, each with approximate dimensions of 50 feet by 50 feet. From within each decision cell, EPA collected a four-point surface composite sample. In addition to the four-point surface composite samples from each cell, EPA collected discrete samples from the middle of three cells at a depth of three feet.

In the Jamison Creek Tailings Piles, five cells exceeded the screening level for arsenic. There were no cells that exceeded the screening level for lead, and no cells exceeded the threshold action level for arsenic or lead. The highest arsenic concentration detected was 81 ppm, and for lead was 333 ppm.

3.1.11 State Park Residential Structures

Three State Park property residential areas near the visitor area were sampled. The park ranger's residence and another nearby residence were sampled as a four-point perimeter composite. The Mohawk Mill (three each) residential area and the Bear Scat Flat (five each) residential areas were divided into decision cells of 40 feet by 40 feet, and 50 feet by 50 feet respectively.

In the State Park Residential Structures, five out of eight cells exceeded the screening level for arsenic. There was one cell that exceeded the residential screening level for lead, and no cells exceeded the threshold action level for arsenic or lead. The highest arsenic concentration detected was 34.5 ppm, and for lead was 405 ppm.

3.1.12 Museum Hiking Trail

The Museum Hiking Trail connects the Main Campground to the Visitor Center. The Museum Trail was divided into five linear sections of 1,200 feet each. A three-point composite surface soil sample was collected from within each section. One duplicate three-point surface composite sample was collected from one section.

In the Museum Hiking Trail, three out of five cells exceeded the screening level for arsenic. There were no cells that exceeded the screening level for lead, and no cells exceeded the threshold action level for arsenic or lead. The highest arsenic concentration detected was 8143.7 ppm, and for lead was 70 ppm.

3.1.13 Hiking Trail to the Grass Lakes beyond the Jamison Mill Facility

Up-slope from the Jamison Mill Site area is the Grass Lakes hiking destination. The hiking trail leading from the Jamison Mill facility up to Grass Lakes was divided into four linear sections of 1,200 feet each. A three-point surface soil composite sample was collected from each section. There were no cells that exceeded the screening levels for arsenic or lead. The highest arsenic concentration detected was 4.6 ppm, and for lead was 28.8 ppm.

3.1.14 Jamison Creek Banks

During EPA's Site assessment sampling, two State Agencies visited the Site. The Agencies were the California Department of conservation and the California State Water Resources Control Board. Based on discussions with these agencies, EPA sampled the left bank of Jamison Creek (viewed looking down river) just above the Sulpherette Mill area. The concern raised by both agencies was that the bank topography suggested the potential for a historic tailings debris dam, which might have left remnant tailings on the current stream banks. In response to this concern, EPA sampled four decision cells of 50 feet by 50 feet. Each cell was sampled with a four-point surface soil composite sample. There were no cells that exceeded the screening levels for arsenic or lead. The highest arsenic concentration detected was 19.1 ppm, and for lead was 42.4 ppm.

3.1.15 76 Mill Facility

The 76 Mill facility is high up on the Eureka Peak slope but is accessible to park visitors willing to explore beyond the easily accessed trails. Two decision cells of 75 feet by 35 feet were sampled, each with a four-point surface soil composite sample.

There were no cells that exceeded the screening levels for arsenic or lead. The highest arsenic concentration detected was 14.4 ppm, and for lead was 38.9 ppm.

3.2 Other State or Federal Investigations

DTSC and the California Department of Conservation conducted preliminary soil and water sampling. This initial effort collected twelve samples from around the park, and was described in their report titled *Inventory and Preliminary Assessment of Abandoned Mines on California Agency-Owned Lands, Department of Conservation, Abandoned Mine Lands Unit (August 2009).* This report established the presence of contaminants from mining activity on the Site.

There are no known previous Federal Investigations of the Site.

4. Release or Threatened Release into the Environment of a Hazardous Substance, or Pollutant or Contaminant

Lead, Arsenic, and Mercury are hazardous substances as defined by Section 101(14) of CERCLA and identified at 40 C.F.R. Table 302.4. A continued release of lead and Arsenic from the Site constitutes a threat to the local human and animal populations. The specific threats from the release are discussed in Section III(1), below.

Lead

Lead is a significant component in the ore body mined at the Site. Historic assay reports suggest that the lead concentration in the ore may have been as high as 3% by weight. Direct human contact with dust containing lead, via inhalation or ingestion, may result in eye, skin, nose and/or lung irritation. Ingestion of lead may cause organ damage and result in weakness and other neurological impairment. As an initial screening level EPA has adopted the DTSC Human Health Screening Criteria of 500 ppm lead based on an exposure scenario involving the Adult Lead Model for a female Ranger of childbearing age. Pursuant to the further Site characterization called for in this action memorandum, additional evaluation of Site-specific exposure and risks attributable to lead, will be conducted to develop a Site-specific clean up level for lead.

Arsenic

Arsenic is also collocated with precious metals in the ore. Direct human contact with dust containing arsenic, via inhalation or ingestion, may result in eye, skin, nose and/or lung irritation. Inhalation of inorganic arsenic can cause throat and lung irritation. In addition, ingestion of arsenic can cause nausea and vomiting, decreased production of red and white blood cells, abnormal heart rhythm, and damage to blood vessels. Direct contact with arsenic may cause redness and swelling of the skin. Prolonged exposure may lead to symptoms such as peripheral neuropathy and hyper-pigmentation of the skin. Arsenic exposure also increases the risk of several types of cancer. EPA

and the state of California have derived screening levels that are fully protective for several exposure scenarios. However, background concentrations of arsenic in California soils commonly exceed these screening levels.

The 95% UCL for background arsenic in soils at the Site is 24 mg/kg or 24 ppm. This concentration exceeds the state's more conservative screening levels. It is EPA policy that the agency will not attempt to clean a site past background when background concentration exceeds the derived exposure scenario based clean up levels. Consequently, 24 ppm has been used as the arsenic screening level for this removal action. Pursuant to the further Site characterization called for in the proposed response action, additional evaluation of Site-specific exposure and risks attributable to arsenic will be conducted to develop a Site-specific clean up level for arsenic.

5. National Priorities List (NPL) Status

This Site is not on the NPL.

B. Other Actions to Date

DPR contacted EPA about the Site, and submitted a letter on April 30, 2010, requesting EPA mitigate the threats to public health and the environment posed by the Site. A copy of the letter is in EPA's administrative record for this action.

C. State and Local Authorities' Roles

1. State and Local Actions to Date

Based upon the results on contamination at the Site, published in the *Inventory and Preliminary Assessment of Abandoned Mines on California Agency-Owned Lands, Department of Conservation, Abandoned Mine Lands Unit (August 2009),* the DPR closed all public access to the Sulpherettes Mill Day Use Picnic Area. Also based on these same results, the DPR, in cooperation with DTSC and the California Department of Conservation, applied for three different EPA Brownfield Remediation Grants of $200,000 each. These grant applications were specifically and only for remediation of the Sulpherettes Mill Day Use Picnic Area. Subsequently, DPR withdrew all three grant applications and requested that EPA perform the removal assessment that led to this proposed removal action.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

Conditions at the Site present a release, or potential threat of release, of a CERCLA hazardous substance threatening to public health, or welfare, or the environment based on the factors set forth in the NCP, 40 CFR § 300.415(b)(2). These factors include:

1. **Actual or Potential Exposure to Hazardous Substances or Pollutants or Contaminants by Nearby Populations, Animals, or the Food Chain.**

The presence of elevated levels of lead and arsenic above, and sometimes significantly above, screening levels in surface soils, within the park has been documented in the EPA Site assessment. Annual visitation at the park is greater than 75,000 and is concentrated during the spring and summer months when surface soils are exposed.

2. **High Levels of Hazardous Substances or Pollutants or Contaminants in Soils at or Near the Surface, that May Migrate**

The presence of elevated levels of lead and Arsenic above screening levels in surface soils within the park has been documented in the EPA Site assessment. These surface soils are prone to erosion from surface water and high winds.

Additionally the presence of contamination in the surface soils down-gradient of the largest tailings impoundment containment wall, which eventually leads to Jamison Creek, shows that contaminants have and are continuing to migrate from the Site. Jamison Creek flows into the Feather River, the principal tributary of the Sacramento River.

3. **Weather Conditions that May Cause Hazardous Substances or Pollutants or Contaminants to Migrate or be Released**

Surface erosion due to surface water flow during snow melt and wind erosion of surface soils has been observed at the Site. Wind erosion and dispersion of the contaminated tailings is also likely.

Moreover the presence of extremely high contaminant concentrations in surface soils along the Jamison Creek stream bank immediately adjacent to the Sulpherette Mill indicate the active and ongoing erosion of contaminated material into Jamison Creek and the Feather River. The Day Use and Picnic Area have been rebuilt within the last decade due to damage from storms producing high-stage creek flows that inundate the Sulpherette Mill Site, cause mass wasting of the soils and result in the release of contaminated tailings into Jamison Creek.

4. **Hazardous Substances or Pollutants or Contaminants in Drums, Barrels, Tanks, or other Bulk Storage Containers, that may Pose a Threat of Release**

None

5. **Availability of Other Appropriate Federal or State Response Mechanisms to Respond to the Release**

None.

6. **Actual or Potential Contamination of Drinking Water Supplies or Sensitive Ecosystems**

None.

7. **Threat of Fire or Explosion**

None.

8. **Other situations or factors that may pose threats to public health or welfare or the environment**

None.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed Action Description

The EPA Emergency Response Removal Assessment has documented the presence of contamination at concentrations above the screening levels. In several of these areas, in specific decision cells within these areas, the concentration of contaminants is sufficiently high that no further characterization is necessary to determine the appropriate proposed action. In making this determination EPA has used 2,500 ppm for lead and 100 ppm for arsenic as the threshold action levels for deciding to take action in a particular decision cell with no further evaluation. In decision cells where the concentrations are between the screening levels and the threshold action levels, EPA will conduct further Site characterization and response work in any respective decision cell where action is deemed necessary. In decision cells where concentrations are below the screening levels EPA will not undertake response activities.

The areas containing decision cells where contamination exceeds the threshold action level are: decision cells within the Mohawk Mill and Visitor Area North of Johnsville-McCrea Road; decision cells within the Sulpherette Mill and Picnic Day Use Area; decision cells within the Mammoth Mine area; and, Tailings Impoundment Areas #1, #2 and #3.

In several of these areas there are pre-historic artifacts or other historic or cultural features that preclude the excavation and off-Site disposal of contaminated soil. Moreover the cost of excavation and off-Site disposal of large amounts of contaminated soil will exceed the funding EPA may be able to commit to the Site. Consequently, the proposed action in these areas will be a combination of:

- surface water diversion around contaminated soil where practicable, to prevent or reduce erosive potential of contamination stabilized in place;

- selective excavation and off-site disposal of the most highly contaminated surface soils;

- placement of filter fabric or other suitable indicator material to distinguish between historic Site materials and imported clean backfill or clean cover material;

- placement of irrigation systems where suitable;

- placement of clean backfill soil, organic material or other suitable material to promote revegetation, to protect against exposure and to reduce the potential for erosion and future migration of contaminated soil; and,

- Introduction of native plant seed, seedlings or box trees to provide revegetation and stabilization of the backfill soils, or in selected areas placement of grass sod.

Particular removal actions proposed for each of the identified areas of the park are described in more detail below.

1.1 Mohawk Mill and Visitor Area-North of Johnsville McCrea Road

Visitation in this area is extremely high. Some light grading may be necessary to allow for the placement of an irrigation system to provide for vigorous revegetation. EPA will import clean cover, organic material or other soil amendments to promote plant growth and prevent exposure to contaminated soils. If it is acceptable in terms of preserving the historic nature of this area, EPA may import and plant sod to provide a tight vegetative cover on the backfill material. Some limited excavation and off-Site disposal of highly contaminated soil may be included in the action in this area.

1.2 Sulphurette Mill Site and Picnic Day Use Area

DPR personnel will remove and store any artifacts on the ground surface. EPA will then excavate and dispose off-Site lead and arsenic-contaminated soils. Excavation will not be done where it may adversely affect mature trees that cannot be replaced with affordable box trees. The vertical extent of contaminated soil removal will be down to a depth of one foot below existing ground surface. Then EPA will place filter fabric or other material in the bottom of the excavation to serve as an indicator of the horizon between contaminated soil remaining in place and the clean backfill. This fabric will also serve as a warning indicator of excessive soil erosion in the future. After placement of the indicator fabric, the excavation will then be backfilled with clean imported soil, moisture conditioned for optimal compaction and compacted with hand operated vibratory equipment. DPR curators will then replace any artifacts. The area will be seeded or allowed to revegetate by native volunteer growth rather than by replanting the area with mature plants which will then require irrigation. The outboard edge of the Sulpherette Mill river side bench will be armored with greater than or equal to 36-inch boulders, keyed into competent existing bed rock or a constructed rock foundation.

1.3 Tailings Impoundment Areas 1,2,3 and 4 North of Jamison Creek

1) Based on the surrounding topography, EPA will attempt to construct a surface water diversion channel to separate the upslope area from the mine tailings. This will reduce the amount of water entering and leaving the tailings impoundments.

2) Approximately 30 percent of the tailings area is currently vegetated. If vegetation is established over the bare areas, sediment loss reduction will be proportional to the vegetative cover. Based on the soil fertility results from similar tailings, it is likely that low organic matter (OM) content is the main factor differentiating the tailings from the native soil. EPA will apply and incorporate four inches of compost over the 70 percent of bare tailings to improve OM content. This will require approximately 1,100 cubic yards of appropriate organic material. At similar tailings revegetation sites mushroom compost has been successful in promoting the growth of native species. Mushroom compost has the added benefit of having been steam pasteurized twice. Consequently the potential for import of non-native seeds or non-native micro organisms is minimized. The absence of significant quantities of non-native microorganisms may facilitate the colonization of the revegetated areas by native micro-organisms.

3) The portion of the stone retaining wall which provides the structural impoundment of the tailings is failing in one location. EPA will place filter fabric

or some other suitable indicator material, to distinguish the location and type of material that comprised the original wall, and then place additional rip rap to create a stabilizing gravity buttress, which will reduce or stop the current failure process that is leading to release of tailings from the impoundment.

In the remaining areas described below further Site characterization is warranted and in each area will include some combination of:

- activity based sampling;
- bioavailability analysis;
- further soil sampling to specify and possibly reduce the area requiring removal;
- further analysis of background concentrations of contaminants in order to discern whether contaminant levels in any given decision cell are attributable to historic Site activities or are attributable to naturally occurring undisturbed occurrences of metals in the site soils;
- Analysis of contaminant mineralogy
- Site-specific risk assessment.

Based on this further Site characterization in each area, a decision will be made to implement some combination of the response actions described in the bullets in the beginning of the "Proposed Action" section above.

1.4 Visitor Center Area-South of Johnsville McCrea Road

Based on further Site characterization in this area, a decision will be made regarding the need to implement some combination of the response actions described in the bullets in the beginning of the "Proposed Action" section above.

1.5 Jamison Mine Site

Based on further Site characterization in this area, a decision will be made regarding the need to implement some combination of the response actions described in the bullets in the beginning of the "Proposed Action" section above.

1.6 Mammoth Mine Site and Minimal Adjoining Tailings

In decision cells exceeding the threshold action levels in this area, EPA will place organic material to promote revegetation, to protect against exposure and to reduce the potential for erosion, followed by hand broadcast of native plant seed,

1.7 Eureka Tunnel and Hiking Trail, and Adjoining Waste Rock Pile

Based on further Site characterization in this area, a decision will be made regarding the need to implement some combination of the response actions described in the bullets in the beginning of the "Proposed Action" section above.

1.8 Plumas Eureka Main Campground

Based on further Site characterization in this area, a decision will be made regarding the need to implement some combination of the response actions described in the bullets in the beginning of the "Proposed Action" section above.

1.9 Camp Lisa Group Campground for Disabled Visitors

Based on further Site characterization in this area, a decision will be made regarding the need to implement some combination of the response actions described in the bullets in the beginning of the "Proposed Action" section above.

1.10 Jamison Creek Tailings Piles

Based on further Site characterization in this area, a decision will be made regarding the need to implement some combination of the response actions described in the bullets in the beginning of the "Proposed Action" section above.

1.11 State Park Residential Structures

Based on further Site characterization in this area, a decision will be made regarding the need to implement some combination of the response actions described in the bullets in the beginning of the "Proposed Action" section above.

1.12 Museum Hiking Trail

Because this area does not contain known Site-related contaminants above the screening levels, EPA will not undertake removal activity in this area.

1.13 Hiking Trail to The Grass Lakes Beyond the Jamison Mill Site

Because this area does not contain known Site-related contaminants above the screening levels, EPA will not undertake removal activity in this area.

1.14 Jamison Creek Banks

Because this area does not contain known Site-related contaminants above the screening levels, EPA will not undertake removal activity in this area.

1.15 76 Mill Site

Because this area does not contain known Site-related contaminants above the screening levels, EPA will not undertake removal activity in this area.

2. Contribution to Remedial Performance

The long-term cleanup plan for the Site:

There is no current plan for any additional Site clean up.

Threats that will require attention prior to the start of a long-term cleanup:

There is no long-term cleanup currently planned for this Site.

The extent to which the removal will ensure that threats are adequately abated:

This removal will adequately address the known threats at the Site.

Consistency with the long-term remedy:

There is currently no plan to implement any additional response work at the Site. All elements of this removal action should be consistent with any future work that may be required if additional contamination is discovered. Because the Site will remain in the jurisdiction, care and custody of DPR, any long term or post-removal maintenance such as restoring eroded cover material, will be addressed by DPR.

3. Description of Alternative Technologies

Alternative technologies are not considered for the proposed response action.

4. Applicable or Relevant and Appropriate Requirements (ARARs)

Section 300.415(j) of the NCP provides that removal actions must attain ARARs to the extent practicable, considering the exigencies of the situation.

Section 300.5 of the NCP defines applicable requirements as cleanup standards, standards of control, and other substantive environmental protection requirements, criteria, or limitations promulgated under federal environmental, state environmental, or facility siting laws that specifically address a hazardous substance, pollutant, contaminant, remedial action, location, or other circumstances at a CERCLA site.

Section 300.5 of the NCP defines relevant and appropriate requirements as cleanup standards, standards of control, and other substantive requirements, criteria, or limitations promulgated under federal environmental, state environmental, or facility siting laws that, while not "applicable" to a hazardous substance, pollutant, or contaminant, remedial action, location, or other circumstances at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site and are well-suited to the particular site.

Only substantive requirements of the environmental or facility siting laws can be ARARs. Administrative requirements such as consultation with administrative agencies, securing of permits, reporting, and record keeping are not ARARs. The following ARARs have been identified for the proposed response action.

This removal action will, to the extent practicable considering the exigencies of the situation, attain ARARs under federal environmental, state environmental, or facility siting laws.

State of California ARAR's

California Health & Safety Code, Division 20, Chapter 6.5, Section 25100 et seq.
California "Hazardous Waste Control Laws"
Statutes governing hazardous waste control; management and control of hazardous waste facilities; transportation; laboratories; classification of extremely hazardous, hazardous and nonhazardous waste.

As California is authorized to implement hazardous waste statutes and regulations, this code may apply to storage, handling or shipping of a hazardous waste.

California Health & Safety Code, Division 20, Chapter 6.5, Section 25143.1
California "Hazardous Waste Control Laws"
Wastes from the extraction, beneficiation, and processing of ores and minerals that are not subject under Subchapter III (commencing with Section 6921) of Chapter 82 of Title 42 of the United States Code are exempt from the requirements of Chapter 6.5, except the requirements of Article 9.5 (commencing with Section 25208) (the Bevill exclusion). The wastes subject to this subdivision are subject to Chapter 6.8 (commencing with

Section 25300) if the waste would otherwise be classified as a hazardous waste pursuant to Section 25117 and the regulations adopted pursuant to Section 25141.

Applicable for off-Site disposal. Mining waste at the Site is exempt from California's Hazardous Waste Control statutes and regulations and RCRA Subtitle C under the Bevill exclusion. However, if disposal involves the use of a waste management unit sufficiently similar to a hazardous waste regulated unit, and the unit is to receive wastes sufficiently similar to a hazardous waste, the RCRA Subtitle C requirement pertaining to that type of waste management unit would be relevant and appropriate (55 FR 8763).

Title 22, CCR, Div. 4, Chapter 30, Article 11 et. seq.
Promulgated criteria to determine if a material is hazardous. Includes Soluble Threshold Limit Concentration (STLCs) and Total Threshold Limit Concentration (TTLCs). Applicable for hazardous waste taken off-Site. Determination of whether a material is hazardous but does not establish a concentration that the material should be cleaned up to. Metals with values include arsenic STLC 5.0 mg/l, TTLC 500 mg/kg, lead STLC 5.0 mg/l, TTLC 1000 mg/kg, and mercury STLC 0.2 mg/l, TTLC 20 mg/kg.

Title 22, CCR, 22 CCR, Section 66268 et seq.
Land Disposal Restrictions establishing specific treatment standards of hazardous waste prior to disposal to land. Applicable to off-Site disposal.

Title 22, CCR Section 66261 et. seq.
Generator requirements, hauler registration, hazardous waste facility permits, enforcement and inspections. Applicable to off-Site disposal.

Public Resources Code 5024 and 5024.5:
Public Resources Code 5024 is the state law that mandates state agencies such as DPR to preserve and maintain all state-owned historical resources.

Section 5024.5 outlines the process of meeting this mandate. Based on this law, state agencies are required to work with the Office of Historic Preservation (OHP) to show that they are protecting and maintaining their historic resources and that no development or maintenance projects will adversely impact those resources. However, since DPR has qualified cultural resource management staff the department instituted a Memorandum of Understanding (MOU) with the State Historic Preservation Officer (SHPO). The MOU allows DPR to complete "in-house" 5024 Reviews of projects.

In DPR, the 5024 Review process for a specific project is initiated through Project Review procedures for compliance with the California Environmental Quality Act (CEQA). The Project Review process is the DPR procedure for meeting the legal mandates of CEQA and for eliminating or minimizing significant environmental impacts from any DPR project.

A PRC 5024 review accomplishes the following:

1) Defines the proposed project.
2) Determines whether historic resources are affected.
3) Determines whether the project meets preservation standards.

If the project fails to meet the Secretary of the Interior's Standards, the review may recommend modification so that it does meet them.

The 5024.5 Process:
When a cultural resource specialist performs a 5024 review of a project, that specialist is mandated to assess any potential adverse impacts to historical resources, and "identify prudent and feasible measures that will eliminate or mitigate those adverse effects." The measures used to weigh those impacts are the Secretary of the Interior's Standards.

California Endangered Species Act (CESA)

Section 2080 of the Fish and Game Code prohibits "take" of any species that the Fish and Game Commission determines to be an endangered species or a threatened species. Take is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill."

CESA allows for take incidental to otherwise lawful development projects. CESA emphasizes early consultation with the California Department of Fish and Game to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate mitigation planning to offset project caused losses of listed species populations and their essential habitats.

Federal ARARs

Comprehensive Environmental Response, Compensation & Liability Act
42 U.S.C. 9621(d)(3), CERCLA Off-Site Disposal Rule, 40 CFR 300.440, OSWER Directive 9347.3-8FS;
CERCLA waste transferred off-site may only be placed in a facility that operates in compliance with RCRA. The facility to which excavated soil and any other hazardous wastes will be sent must be among the list of approved receiving facilities pursuant to RCRA.

U.S, Department of Transportation Hazardous Material Transportation Rules, 22 CCR 66262.20, 66262.22, and 66262.23; 22 CCR 66262.30 through 262.33;
Off-site transportation of hazardous materials will be governed by the U.S. Department of Transportation regulations. The substantive provisions of the regulations apply to management of hazardous materials onsite.

5. Project Schedule

The removal action will require as much as 113 days of on-Site work to complete, assuming that no work elements are performed simultaneously. The work will be completed substantially sooner if several elements are conducted concurrently. Consequently, because on-Site removal activities will require less that 120 days to complete EPA will not undertake the community involvement activities required in 300.415 (n)(3) of the NCP.

B. Estimated Costs

This removal action is expected to be undertaken by EPA because DPR asserts not to possess the financial resources necessary to conduct the response action. The following are the projected response costs based on response actions using existing site assessment data and not accounting for any changes in scope based on further Site characterization:

Regional Removal Allowance Costs	
Cleanup Contractor	$ 1,200,000
Extramural Costs Not Funded from the Regional Allowance	
Extramural Interagency Agreement Costs –	
U.S. Coast Guard	$ 30,000
START Contractor	$ 180,000
Extramural Subtotal	$ 1,410,000
Extramural Contingency (10%)	$ 141,000
TOTAL, Removal Action Project Ceiling	$ 1,551,000

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Given the Site conditions, the nature of the hazardous substances documented on Site, and the potential exposure pathways to on-Site and visiting populations described in Sections III and IV above, actual or threatened releases of hazardous substances from the Site, if not addressed by implementing the response actions selected in this memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

VII. OUTSTANDING POLICY ISSUES

There are no outstanding policy issues with the Site identified at this time. The issue of post-removal site control is adequately addressed by the continual presence of resident State Parks rangers and other State Parks employees at the Site.

VIII. ENFORCEMENT

Please see the attached Confidential Enforcement Addendum for a discussion regarding potentially responsible parties. If the removal action is conducted by the potentially responsible parties, an enforcement cost recovery action may recover oversight costs and currently incurred Site assessment costs. In the event that EPA conducts the removal action, an enforcement cost recovery action may recover the extramural response costs plus the intramural costs.

Intramural Costs[1]

U.S. EPA Direct Costs	$ 100,000
U.S. EPA Indirect Costs (45.07%)	$ 744,105
TOTAL Intramural Costs	$ 844,105

Consequently, if EPA conducts the removal action, the total EPA extramural and intramural costs for this removal action, based on full-cost accounting practices that will be eligible for cost recovery are estimated to be $ 2,395,105.

IX. RECOMMENDATION

This decision document represents the selected removal action for Plumas Eureka State Historic Park, in Plumas County, California. The proposed response action was developed in accordance with CERCLA, and is not inconsistent with the NCP. This decision is based on the Administrative Record for the Site. The removal project ceiling of $1,551,000 is being requested at this time to allow EPA to implement the selected actions.

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[1] Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the United States' right to cost recovery.

Because conditions at the Site meet the NCP criteria for a time-critical removal, I recommend that you concur on the removal action proposed in this memorandum. You may indicate your decision by signing below.

Approve: _____
Debbie Schechter, Assistant Director
Response, Planning and Assessment Branch
Date 9/30/10

Disapprove: _____
Debbie Schechter, Assistant Director
Response, Planning and Assessment Branch
Date

Attachments:

1. Enforcement Addendum
2. Index to the Administrative Record

cc:
bcc: Site File
OSC, SFD-9-2
Andrew Helmlinger, ORC-3
Celeste Temple, SFD-9-2