



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8

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Ref: 8EPR-ER

AUG - 2 2002

ACTION MEMORANDUM

SUBJECT: Documentation of a Time-Critical Removal Action at Superior Waste Rock Site near and in the town of Superior in Mineral County, Montana.

FROM: Tien Nguyen, On-Scene Coordinator
Emergency Response Team

THROUGH: Steve Hawthorn, Supervisor
Emergency Response Unit

Doug Skie, Director
Office of Preparedness, Assessment, and Emergency Response

TO: Max Dodson, Assistant Regional Administrator
Office of Ecosystems Protection and Remediation

Site ID#: 08ER

Category of Removal: Time-Critical, Fund-Lead

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of an initial Removal Action with an Emergency Exemption from the 12-month statutory limits for the Removal Action described herein for the Superior Waste Rock site (Site) located in and around the town of Superior in Mineral County, Montana. The Removal Action will involve excavation of soils containing elevated levels of lead, arsenic, and other metals from designated properties within the Site that have been contaminated by mining/mill waste.

As discussed further in this Action Memo, the logistical constraints of the short construction season and needed searching for alternative treatment/disposal options dictate that response actions be prioritized and conducted in phases. The Removal Action, described herein, will be consistent with any future Remedial Actions which may be taken.



II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Removal site evaluation

The CERCLIS ID number of the Site is MTD0012694970 and conditions are such that this Removal Action is classified as Time-Critical. The Site includes the town of Superior, Montana, and adjacent lands (See Attachment 1 - Site Location Map).

On October 16-18, 2001, Region VIII EPA conducted a PA/SI at the Site and collected 44 environmental samples from the area, including 11 samples within the Town of Superior. (See Attachment 2 - A summary of samples results [samples IM-SO-09 to IM-SO-14]- Excerpt from Analytical Results Report for Focused Site Inspection, URS Operating Services, 1/24/02). These eleven soil samples were collected from the high school track and residential properties in Superior. Most of the samples had concentrations of several analytes at least three times above the background sample - specifically, antimony had concentrations ranging from 34.4 parts per million (ppm) to 1,050 ppm, arsenic ranging from 79.4 to 1,690 ppm, lead from 423 ppm to 8,500, and mercury from 0.32 to 12.4 ppm. The background soil sample contained arsenic at 3.9 ppm and lead at 6 ppm. During sampling activities at the Town of Superior, it was observed that the main source of contamination is mine tailings, reddish materials, which were brought to the Town of Superior as fill. Therefore, the potential targets for the surface soil contamination are local residents where the elevated metals are located and the Superior High School track where the 383 elementary and high school students attend school in the Superior School District. The thickness of this fill ranges between 2 to 4 inches at the residential areas and 6 to 8 inches at the high school track, and the total volume of tailings and contaminated soils is estimated to be about 5,300 cubic yards.

On January 23, 2002, the Montana Department of Environmental Quality (MDEQ) requested EPA to evaluate the Superior High School track, Superior residential properties, and the Iron Mountain Mine/Mill site for a possible removal action (See Attachment 3 - Letter from MDEQ dated 1/23/02). From the results, a Site Sampling Plan has been developed and from June 4 to 12, 2002 the EPA Region VIII Removal Program tasked START2 Contractor to collect surface and sub-surface soil samples for XRF on-site screening. A total of more than 650 samples were collected from nearly 100 residential properties, who had signed an Access On Consent with EPA, and twelve separate areas, including right-of-ways and Town/County properties within and around Superior, which were identified as potential contaminated areas by the Mineral County Health and the Superior's Public Work personnel.

Preliminary XRF results show that nine residential properties, three Town/County properties (the High School track, the County fairground, and the Town shop) and five right-of-way locations have elevated levels of lead and arsenic contamination. These levels are ranging from 500 ppm to 11,000 ppm for lead or from 100 ppm to 1,700 ppm for arsenic (See Attachment 4 - Superior Waste Rock/ Estimated Volume of Contaminated Material, by URS dated July 2, 2002).

Ten percent of these XRF soil samples had been sent to the labs for analytical confirmation. Four of these samples were also run for Toxicity Characteristics Leaching Procedures (TCLP). On July 9, 2002, the preliminary sampling results indicate that all four samples failed TCLP for lead. These results range from 36 mg/l to 140 mg/l (See Attachment 5); the regulatory standard for lead is 5 mg/l. The four samples were collected from the high school tract, the County fairground, the house at 201 Spruce (along the fence line), and the house at 208 Main street (the forest service house).

2. Physical location and site characteristics

The Site covers the town of Superior, in Mineral County, Montana, where tailings reportedly have been used as a fill surface soil and contamination exists at local residences and the Superior High School track. (A map of the Site area is included in Attachment 1). The Site is located down stream from the Flat Creek drainage, along the banks of the Clark Fork River, and approximately 3.5 miles south of the Iron Mountain Mine and Mill. The waste rock/tailings reportedly are from the Iron Mountain Mine and Mill which is 3.5 miles North of the Town of Superior.

3. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant

Arsenic and lead have been identified as the contaminants posing the greatest risk and hazard; however, other metals, including antimony, cadmium, copper, iron, manganese, mercury, silver, and zinc have levels of concentrations at over three times the level of background samples. These metals are hazardous substances, as defined by Section 101 (14) of CERCLA. The threats posed by this Site include dermal absorption; ingestion of potentially contaminated plants and fish; and the inadvertent ingestion of contaminated soil and surface water.

Below are brief summaries of the toxicological effects of lead and arsenic:

Lead

Lead is classified as a B2 carcinogen by EPA. This classification is the result of adequate animal studies determining that these compounds are probable human

carcinogens. Lead can enter the body via ingestion and inhalation. Children appear to be the segment of the population at greatest risk from toxic effects of lead. Initially, lead travels in the blood to the soft tissues (heart, liver, kidney, brain, etc.), then it gradually redistributes to the bones and teeth where it tends to remain. Children exposed to high levels of lead have exhibited nerve damage, permanent mental retardation, colic, anemia, brain damage, and death.

Arsenic

Arsenic is a confirmed human carcinogen, producing tumors in the liver and renal system. It is also poisonous by subcutaneous, intramuscular, and intraperitoneal routes. At lower doses ingestion will induce adverse systemic skin and gastrointestinal effects. It is also classified as an experimental teratogen. Inorganic forms of arsenic are more toxic than organic forms in both acute and chronic exposures.

4. NPL status

This Site is not an NPL site nor is it proposed to be on the list.

5. Maps and Illustrations

A Site map and sampling analyses are included in Attachments 1, 2, 4 and 5 .

B. Other Actions to Date

1. Previous actions

EPA has not taken other actions at this Site that have not already been discussed in this Action Memorandum.

2. Current actions

After receiving the preliminary XRF and TCLP sampling results, and being aware of the logistical constraints of the short construction season in Montana, the OSC determined that immediate Removal Action should occur, but the work needed to be staged in order of priority. Since the level of readings were especially high at the Superior High School track and since school sessions will be discontinued until September of 2002, it has been determined that cleanup actions at the high school track should be the first priority and begin this summer. The cleanup actions at private properties, right-of-ways, and city/county property authorized by this Action Memorandum will be conducted at a later date.

C. State and Local Authorities' Roles

1. State and local actions to date

As a result of concern expressed by the community, the threats posed at the Superior Waste Rock Site and the inability of the State to fund removal of the potentially hazardous materials, the State requested assistance from EPA in undertaking a Removal Action (See Attachment 2 - 1/23/02 MDEQ Letter). Staff members from MDEQ are working with EPA on a continuing basis, and MDEQ will continue to be informed and involved.

2. Potential for continued State/local response

Neither the State nor local authorities have the resources to conduct a Removal Action at this time. The State and local constituents will continue to be involved in the investigation/assessment of the Site and will be kept apprised of all activities of this Removal Action.

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

A. Threats to Public Health or Welfare

The potential threat of direct exposure exists through the inhalation and ingestion of lead, arsenic, and other metals. The high concentrations of lead, arsenic, and other metals found at the Site may have toxic effects on the exposed human and animal populations. These include neurological effects and chronic liver and kidney disease (see discussion in Section II.A.4).

Due to the high concentrations of metals found in the soils and fill, conditions at the Site present an imminent and substantial endangerment to human health and the environment and meet the criteria for initiating a Removal Action under 40 CFR Section 300.415 (b)(2) of the NCP. The following factors from § 300.415 (b)(2) of the NCP form the basis for EPA's determination of the threat presented and the appropriate action to be taken:

- (i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;
- (iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate;
- (v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released; and,

- (vii) The unavailability of other appropriate federal or state response mechanisms to respond to the release.

B. Threats to the Environment

EPA has not determined at this time whether a threat to the environment exists through the migration of and airborne exposure to the contaminated particles and dust. On dry windy days, the dust and particles may migrate to the surface waters, wetlands, agricultural land, and habitats as they become airborne. The Town of Superior is located along the banks of the Clark Fork River which has a population of rainbow, brook, and cutthroat trout. Additional potential targets within Mineral County include federally listed threatened and endangered species which include the bald eagle, gray wolf, bull trout, and Canadian lynx.

Arsenic may bioaccumulate in aquatic organisms. Arsenic bioaccumulates primarily in algae and lower invertebrates. The embryonic and larval stages of aquatic animals are generally the most sensitive and sediment-feeding organisms will contain higher metal concentration than other organisms.

Lead is ubiquitous in the environment and although bioaccumulation is known to occur, and lead is found in the tissue of many wild animals, including birds, mammals, fishes, and invertebrates, the most publicized effects of lead have been on the impact of ingestion of lead by waterfowl. Acute and chronic lead toxicity have been demonstrated as a definite threat to bird populations. There is also evidence that lead at high concentrations can eliminate populations of bacteria and fungi on leaf surfaces and in soil. Many of the microorganisms play key roles in the decomposer food chain.

IV. ENDANGERMENT DETERMINATION

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

V. EXEMPTION FROM STATUTORY LIMITS

A. Emergency Exemption:

1. Site conditions meet the criteria set forth in CERCLA Section 104(c)(1)(A). There is an immediate risk to public health, welfare or the environment. Lead and arsenic are the primary contaminants of concern. The potential threat of direct exposure exists through the inhalation and ingestion of airborne particles and dust. The Site includes properties with elevated lead and arsenic concentrations. These properties are readily accessible to all populations, but the population at highest risk on the Site, and the most exposed because of

their activities, are children. High concentrations of lead and arsenic are found in and around the residential properties and play area; and, with the onset of the school year, outdoor activities of children will increase, resulting in increased exposure to high concentrations of contaminated soil on a continuing basis.

Children are also the segment of the population at greatest risk from the toxic effects of contaminants because their developing organ systems are intrinsically more sensitive to the effects; their behavioral characteristics (e.g. mouthing behavior and pica) increase contact with dust and soil; and because children absorb lead from the gastrointestinal tract with greater efficiency than adults.

2. Continued response actions are immediately required to prevent, limit, or mitigate an emergency. If the request for a 12-month statutory exemption is not granted, children, as well as adults living in private properties on the Site, will continue to be exposed to potentially dangerous levels of lead/arsenic. This Removal is intended to reduce overall exposure to acceptable levels.

3. Assistance from other local government agencies is not anticipated on a timely basis. Mineral County, the Town of Superior, and the State of Montana lack the response capabilities to take any actions at the Site. Clearly, the timely completion of this Removal Action can only be accomplished if this statutory exemption request is approved.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed action description

The following proposed actions are based on the need to provide immediate reduction in exposure to lead and arsenic from tailings and contaminated soils:

- a. Mine tailings at the high school track, the county fairground, along the fence line at 201 Spruce Street, and the driveway at 208 Main Street, failed TCLP and will be excavated and staged in bulk for purposes of disposal. EPA will evaluate alternative treatment and disposal options based on the TCLP test results and the volume of the hazardous waste before an appropriate treatment/disposal option is selected. The mine tailings are wastes resulting from the beneficiation process and as a result are exempt from regulation under Subtitle C of the Resource Conservation and Recovery Act (RCRA).
- b. The remaining contaminated soils and mine tailings located in other areas, including residential properties and the right-of-ways will be included in the Removal Action if

the average surface soil concentration exceeds 3,000 mg/kg of lead or 400 mg/kg of arsenic. The soil will be removed to a maximum depth of 12", except for vegetable gardens - which will be removed to a maximum of 24". The excavated soils and mine tailings described in this paragraph will be staged and sampled for TCLP analysis. As was the case with the mine tailings described in paragraph (a), the contaminated soil and mine tailings described in this paragraph are wastes resulting from the beneficiation process and as a result are exempt from regulation under Subtitle C of RCRA.

- c. The excavated areas, including the high school track, the county fairground, and the right-of-ways will be backfilled using materials comparable with existing materials or a combination of cleaned, compacted gravel and 4" of asphalt on the surface.
- d. Individual residences where soil is removed will be backfilled with clean soil and top soil to the original grade and/or landscaped similar to the original condition.
- e. In the areas where a removal is not feasible, capping with 12" gravel or 4" asphalt may be considered if the following conditions are met: (1) a removal is not feasible (e.g., a lot with many large trees that the homeowner does not want removed); (2) there is relative certainty that the land use will not change in the short term (e.g. the cap will not be disturbed); and (3) drainage will not be adversely affected.

This Removal Action also includes the following specific considerations:

- Structures and fencing on the properties will be left in place or returned to their original locations if removal is necessary. If fencing cannot be reused, it will be replaced.
- Existing Shrubs and/or Bushes (defined as low, densely branched plants that impede soil removal): Removal and replacement with the same species, standard nursery stock, and number of plants.
- Existing Perennial Plants: Removal and replacement with the same (to the extent possible) or similar species, approximate size, and number of plants.
- Annual Plants: Removal with no replacement.
- Existing Sprinkler Systems: If the existing system impedes soil removal or will not function after barrier soil is placed, removal and replacement with the same or similar system.
- Existing Concrete, Asphalt, Brick Stone, or Tile Surfacing (sidewalks, driveways, parking, lots, pads): Remain in place and excavate around unless the existing surfacing has been damaged in the past to the extent that soils exceeding the action levels are exposed. If soils exceeding the action levels have been exposed, remove and replace the surfacing with equivalent materials, if necessary to prevent exposure.
- Existing Landscape Covers and Borders: Removal and replacement with equivalent materials in areas requiring removal. The original materials may also be used if soil is removed before replacement and materials are not damaged during removal.

- Outdoor Animals: Temporary relocation during removal of individual properties located in areas requiring removal.
- Movable Buildings and Sheds: Temporary relocation during removal, if removal is necessary at that location.
- Existing Vegetable Gardens Exceeding Action Levels: Removal of a maximum of 24 inches of soil; replacement with a minimum of, but not necessarily more than, 24 inches of suitable vegetable garden soil with characteristics acceptable to EPA. Suitable vegetable garden soil will consist of clayey or sandy loam soils having a specified minimum percentage of organic matter. Suitable grades and ground cover will be restored.
- Prevention of Indoor Dust: Dust suppression measures will be utilized during Removal. If necessary, other measures, such as sealing of doors and windows with plastic, will be taken during removal of individual properties. If necessary, portable air cooling devices will be offered to residents during this time period.
- Existing Decks: Remain in place and excavate beneath and around as needed unless the existing deck impedes soil removal.

Owners will be asked for permission for the removal at their residential areas. Detailed plans will be developed for the properties which are undergoing removal, and owners will be provided copies and an opportunity to discuss the plans.

2. Contribution to remedial performance

The Removal Action proposed by EPA for this Site is consistent with any potential long-term plans of the Remedial Program.

3. Description of alternative technologies

As previously discussed, a large volume of contaminated soils/tailings failed the TCLP analysis, and are therefore considered as a RCRA hazardous waste. However, the contaminated soils and mine tailings are wastes resulting from the beneficiation process and as a result are exempt from regulation under Subtitle C of RCRA. EPA has adopted a flexible approach for this Removal Action, based on site-specific circumstances. Alternative approaches, such as on-site treatment prior to final disposal will be implemented where appropriate. The decision will be made based on whether alternative technologies are practical or cost effective to achieve the Removal Action objectives.

4. EE/CA

This is a Time-Critical Removal Action; thus, an EE/CA is not required.

5. Applicable or relevant and appropriate requirements (ARARs)

This Removal Action will attain, to the extent practicable, considering the exigencies

of the situation, applicable or relevant and appropriate requirements (ARARs) of Federal environmental or more stringent State environmental or facility-siting laws. Following is a list of ARARs that have been identified to date for this Removal Action:

FEDERAL ARARS

- a. Clean Water Act (33 USC Sections 1341 and 1344).
- b. Clean Water Act (40 CFR Part 230).
- c. Resource Conservation and Recovery Act (RCRA), Subtitle C (capping and placement requirements may be relevant and appropriate), and Subtitle D (solid waste disposal requirements are applicable).
- d. RCRA Standards for CAMUs, and TUs (40 CFR 264.552 & .553) and Staging Piles (40 CFR 264.554) are applicable.
- e. DOT Hazardous Material Transportation Regulations (49 CFR Parts 107, 171-177).

STATE ARARS

- a. Montana Metal Mine Reclamation Act is relevant and appropriate.
- b. Montana Water Quality Standards are relevant and appropriate.
- c. Montana Comprehensive Environmental Cleanup and Responsibility Act is relevant and appropriate.

6. Project schedule

Due to construction season constraints the project is tentatively planned in two phases:

Phase I:

Site Mobilization:	August, 2002
Tailings/Soils Excavation and Staging and Secured:	August to October, 2002
Backfilling and Restoration Excavated Areas:	September to November, 2002
Alternative Treatment Options Proposal:	October to November, 2002

Phase II:

On-Site/Off-Site Treatment and Disposal:	December, 2002 to Spring, 2003
Site Final Restoration:	June, 2003
Demobilization:	June, 2003

B. Estimated Costs

Cost Estimate: A table containing cost estimates for the Removal project ceiling is shown below.

Extramural Costs:

Regional Allowance Costs

Emergency and Rapid Response Services (ERRS) Cost	\$ 100,000
Tailings/Soil Excavation and Staging	\$ 100,000
Detailed Residential Removal Planning and Alternative Treatment Options	\$ 50,000
Waste On/Off-Site Treatment and Disposal	\$ 100,000
Backfilling and Restoration	<u>\$ 120,000</u>

Total Cleanup Contractor Costs \$ 470,000

Other Extramural Costs Not Funded From

The Regional Allowance:

Total START costs	\$ 40,000
Total Analytical Contract	<u>\$ 15,000</u>
	\$ 55,000

Subtotal, Extramural Costs \$ 525,000

20% Extramural Costs Contingency \$ 105,000

TOTAL, EXTRAMURAL COSTS \$ 630,000

The estimated total Extramural Costs for the project is \$630,000. Based on the tasks and project schedule, the Extramural costs for Phase I are estimated to be \$350,000 and Phase II to be \$280,000.

The total EPA costs for this removal action based on full-cost accounting practices that will be eligible for cost recovery are estimated at:

Total Removal Ceiling	\$ 630,000
EPA's Direct Intramural Costs	<u>\$ 100,000</u>
Subtotal	\$ 730,000
Regional Indirect Cost (27%)	<u>\$ 197,100</u>

Estimated Total EPA Costs \$ 927,100

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-judgement interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of the 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 total costs estimates nor deviation of actual costs from this estimate will affect the United States' right to cost recovery.

VII. ENFORCEMENT

See Enforcement Addendum (Attachment 6).

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

Delayed or no action will increase public health risks and threats to the environment because the hazardous substances on-site pose a health risk to children or adults who live near the Site, as well as the wildlife in the area.

IX. OUTSTANDING POLICY ISSUES

None.

X. RECOMMENDATION

This decision document represents the selected Removal Action for the Superior Waste Rock Site near and in the town of Superior in Mineral County, Montana, developed in accordance with CERCLA, as amended, and consistent with the NCP. This decision is based on the Administrative Record for the Site.

Conditions at the Site meet the NCP Section 300.415(b)(2) criteria for a Removal, and I recommend your approval of the proposed Removal Action. The total project ceiling if approved will be \$927,100. Of the total ceiling, an estimated \$630,000 (Phase I: \$350,000 and Phase II: \$280,000) comes from the Regional removal allowance.

Approve: 
Max H. Dodson, Assistant Regional Administrator
Office of Ecosystems Protection and Remediation

Date: 8/2/02

Disapprove: _____
Max H. Dodson, Assistant Regional Administrator
Office of Ecosystems Protection and Remediation

Date: _____

Attachments:

- Attachment 1 - Site Location Map
- Attachment 2 - Sample Results Summary, Analytical Results Report for Focused Site Inspection, URS Operating Services, 1/24/02
- Attachment 3 - Letters from MO and MDEQ dated 1/23/02
- Attachment 4 - XRF Sample Results and Estimated Volume of Contaminated Soil
- Attachment 5 - TCLP Test Results
- Attachment 6 - Enforcement Addendum

SUPPLEMENTAL DOCUMENTS

Support/reference documents which may be helpful to the reader and/or have been cited in the report may be found in the Administrative Record at the Superfund Records Center for Region VIII EPA, 999 18th Street, Suite 300, Denver, Colorado 80202.

Poor Quality Source Document

The following document images have been scanned from the best available source copy.

To view the actual hard copy, contact the Superfund Records Center at (303) 312-6473.

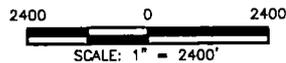
URS Operating Services
START2, EPA Region VIII
Contract No. 68-W-00-118

ATTACHMENT 1

SUPERIOR WASTE ROCK SITE
LOCATION MAP



SOURCE: USGS QUADRANGLES
KEYSTONE PEAK, MONTANA
QUINNS HOT SPRINGS, MONTANA
SUPERIOR, MONTANA
IDAHO GULCH, MONTANA
ALL - PROVISIONAL EDITION 1985



Field Sampling Plan

UOS Job No. 75-10105.00

Iron Mountain Mill
Superior, Mineral County, Montana

Sample Location Map
Figure

September 2001

URS
OPERATING SERVICES

ATTACHMENT 2

Sample ID	Sample Description	Asst. Pb	Asst. Zn	Asst. Cu	Asst. Mn	Asst. Ni
IM-SO-09	Background sample from park on west side of Superior	<1.0	3.9	<2.0	6.0	<.04
IM-SO-08	Surface sample (0-3") from high school track	46.9	101	3.6	562	0.35
IM-SO-15	Surface sample (0-3") from high school track	559	1,340	20	5,150	3.4
IM-SO-16	Surface sample (0-3") from high school track	587	1,690	28.5	4,950	1.3
IM-SO-17	Surface sample (0-3") from high school track	221	438	16	1,910	1.0
IM-SO-18	Surface sample (0-3") from high school track	132	279	5.5	1,550	.52
IM-SO-18	Surface sample (0-3") from high school track	847	1,200	18.1	6,820	4.9
IM-SO-21	Sample from 12-24" from sample location IM-SO-16	196	464	9.6	1,890	1.0
IM-SO-22	Sample from 12-24" from sample location IM-SO-18	1,050	1,360	43.9	8,500	12.4
IM-SO-13	Residential FS property at 208 Main Material would not maintain vegetative growth and was slightly discolored with a reddish tint. Did not readily appear to be tailings.	1,250	1,570	42	11,300	9.9
Im-SO-14	Right-of-way at corner of Third Ave and Spruce St. Material orange in color and 6" above grade.	972	1,540	10.8	7,930	5.7



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 8, MONTANA OFFICE
FEDERAL BUILDING, 301 S. PARK, DRAWER 10096
HELENA, MONTANA 59626-0096

Ref: 8MO

February 1, 2002

TO: Doug Skie, 8EPR-ER
FROM: Bob Fox, 8MO *Rosemary Rowe for Bob Fox*
SUBJECT: Request for Emergency Removal Evaluation

Attached is a letter from the Montana Department of Environmental Quality requesting EPA's emergency removal program evaluate the Iron Mountain Mill site, which includes the town of Superior, for possible removal action. EPA conducted a Preliminary Assessment/ Site Inspection at the site and found elevated levels of metals at the Superior high school track and in a residential area.

Please coordinate future actions with Rosemary Rowe of this office (406-457-5020) and Denise Martin at DEQ (406-444-0488). If you need additional information about the site, please contact Rosemary.

Enclosure

cc: Denise Martin, DEQ
Rosemary Rowe, 8MO





Montana Department of
ENVIRONMENTAL QUALITY

ENVIRONMENTAL
PROTECTION AGENCY

JAN 29 2002

MONTANA OFFICE

Judy Martz, Governor

P.O. Box 200901 • Helena, MT 59620-0901 • (406) 444-2544 • www.deq.state.mt.us

January 23, 2002

Bob Fox
EPA Montana Office
Federal Building
301 S. Park – Drawer 10096
Helena, MT 59626-0096

Subject: Iron Mountain Mill – Request for Emergency Removal Assistance

Dear Bob:

The Montana Department of Environmental Quality (DEQ) is requesting EPA's emergency removal program evaluate Iron Mountain Mill for possible removal action. Preliminary soil sample results from EPA's CERCLA site inspection for Iron Mountain Mill indicate elevated levels of metals at the Superior high school track and in a residential area.

Surface soil samples collected from the Superior high school track contained: arsenic ranging from 101 to 1690 parts per million (ppm) and lead ranging from 562 to 6,820 ppm. The background soil sample contained: arsenic at 3.9 ppm and lead at 6 ppm. Other metals were also detected. Soil samples collected at 12-24 inches below ground surface from the Superior high school track contained: arsenic ranging from 464 to 1,360 ppm and lead ranging from 1,890 to 8,500 ppm.

A surface soil sample collected from a residential property contained: arsenic at 1,570 ppm and lead at 11,300 ppm. These levels exceed EPA Region IX preliminary remediation goals for residential soils and typical EPA action levels for Montana.

Please provide me with a written response identifying what additional actions the EPA emergency removal program will take and a schedule for any future actions. I am also requesting that the emergency removal program coordinate any future activities with Denise Martin (406-444-0488) at DEQ and Rosemary Rowe (406-441-1150, Ext 224) of your office.

Sincerely,

Sandi Olsen
Remediation Division Administrator

cc: Steve Hawthorn – EPA, Denver
Rosemary Rowe – EPA, Montana Office
Denise Martin - DEQ

Superior Waste Rock
Estimated Volume of Contaminated Material

Location	XRF Sample Results	Size/Volume Estimates	Comments
Residential Properties			
43 Mullan Road	Pb = 780 ppm As = 78 U ppm Sb = 120 J ppm	50' x 25' x 3" 11.5 cu.yds.	Area behind house has large rocks (waste rock) which are mixed with the soil. Appears to be slope stabilization (slope to the Clark Fork River). Removal of material would be difficult because of slope/stabilization.
106 3 rd Avenue West	Pb = 4,000 ppm As = 400 U ppm Sb = 510 ppm	75' x 15' x 6" 21 cu. yds.	Driveway appears to have coarse grained tailings. Approximately 2" of topsoil covering tailings 4"-6" thick.
201 Spruce	Pb = 1,700 ppm As = 180 ppm Sb = 560 ppm	50' x 6" x 2" 0.15 cu.yds.	Very fine, powdery tailings material under the back fence line only. Homeowner specified tailings are 4-6" in width and approximately 2" in depth for grass suppression under the fence.
206 1 st Street West	Pb = 510 ppm As = 45 U ppm Sb = 45 U ppm	NA	Side yard composite sample was initially 510 ppm for lead. Return trip did not locate any tailings. Depth sample collected was low for lead (43 J ppm) and arsenic (34 U ppm). Side yard is 4' x 25'.
208 Main Street	Pb = 11,000 ppm Pb = 820 ppm As = 1,400 ppm As = 81 U ppm Sb = 2,500 ppm Sb = 79 J ppm	NA	Forest Service house. Two locations on surface had high concentrations. Depth samples and volume estimates were not collected because the Forest Service will complete this location.
225 Flat Creek Road	Pb = 1,600 ppm As = 300 ppm Sb = 160 J ppm	10' x 10' x ?	Sample was located between the house and a shed. The tailings are covered by approximately 5" of topsoil. The depth of the tailings was never determined. The area of tailings is at most 10' by 10' and probably smaller.
403 2 nd Avenue West	Pb = 8,000 ppm As = 1,200 ppm Sb = 1,500 ppm	75' x 15' x 6" 21 cu.yds.	Right of Way / Parking area in front of residence. The previous owner placed approximately 1 pick up load of tailings in a low spot to bring the parking area to grade.
407 Iron Mountain Height	Surface Depth Pb = 1,700 ppm Pb = 820 ppm As = 170 U ppm As = 110 J ppm Sb = 160 J ppm Sb = 85 J ppm	30' x 6' x 1.5' 10 cu.yds.	Tailings are located on a benched area behind the house. Tailings are covered by approximately 4" of topsoil. Visible tailings are approximately 2" thick; however, a sample collected at 1 foot bgs (depth results) are still elevated.
500 West Main Street	Surface Depth Pb = 1,000 ppm Pb = 38 J ppm As = 100 U ppm As = 34 U ppm Sb = 110 J ppm Sb = 62 U ppm	50' x 10' x 1' 19 cu.yds.	Tailings are mixed in with the soil in the side yard. Tailings were originally part of the driveway. Owner excavated the parking area and placed material on the side yard. Later roto tilled into the existing soil. Tailings are not readily visible. Depth sample at 1' is clean.

**Superior Waste Rock
Estimated Volume of Contaminated Material**

Location	XRF Sample Results	Size/Volume Estimates	Comments								
City/County Properties											
High School Track	Pb = 423 ppm - 9,000 ppm As = 79 ppm - 1,700 ppm Sb = 35 ppm - 1,700 ppm	1400' x 40' x 1.5' 3,111 cu.yds.	Results are from this sampling event and last years sampling event. The surface collected west of the track had elevated concentrations All other samples in the vicinity of the track (and on the football field) were below 100ppm arsenic and 500 ppm lead. Volume of track material is based on the size of the track to a depth of 18 inches.								
Fairground	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Surface</td> <td style="width: 50%;">Depth</td> </tr> <tr> <td>Pb = 7,700 ppm</td> <td>Pb = 4,000 ppm</td> </tr> <tr> <td>As = 1,500 ppm</td> <td>As = 790 ppm</td> </tr> <tr> <td>Sb = 1,100 ppm</td> <td>Sb = 720 ppm</td> </tr> </table>	Surface	Depth	Pb = 7,700 ppm	Pb = 4,000 ppm	As = 1,500 ppm	As = 790 ppm	Sb = 1,100 ppm	Sb = 720 ppm	25' x 25' x 1.5' 150' x 50' x 6" Total: 175 cu.yds.	The fairground was split into two areas with elevated metals conc. These include the base of the stairs leading to the corals and the coral area. The coral area contained red material under the fence; however, the total area was used for volume estimates.
Surface	Depth										
Pb = 7,700 ppm	Pb = 4,000 ppm										
As = 1,500 ppm	As = 790 ppm										
Sb = 1,100 ppm	Sb = 720 ppm										
City Shop	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Surface 1</td> <td style="width: 50%;">Surface 2</td> </tr> <tr> <td>Pb = 500 ppm</td> <td>Pb = 670 ppm</td> </tr> <tr> <td>As = 50 U ppm</td> <td>As = 67 U ppm</td> </tr> <tr> <td>Sb = 77 J ppm</td> <td>Sb = 130 J ppm</td> </tr> </table>	Surface 1	Surface 2	Pb = 500 ppm	Pb = 670 ppm	As = 50 U ppm	As = 67 U ppm	Sb = 77 J ppm	Sb = 130 J ppm	8" x 250' x 15' 8" x 75' x 15' Total: 120 cu.yds.	Road base from both roads at the city shop had elevated results. Material appeared to be 6-8" thick. A depth sample collected from the road base had low conc.
Surface 1	Surface 2										
Pb = 500 ppm	Pb = 670 ppm										
As = 50 U ppm	As = 67 U ppm										
Sb = 77 J ppm	Sb = 130 J ppm										
Right of Way Locations											
200 block of Main Street	Pb = 540 ppm As = 54 U ppm Sb = 51 U ppm	15' x 5' x 2" 0.5 cu.yds	Tailings were localized and covered by approximately 4" of topsoil. The tailings were approximately 2" thick.								
400 block of 2 nd Avenue West	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%;">Surface</td> <td style="width: 50%;">Depth</td> </tr> <tr> <td>Pb = 8,000 ppm</td> <td>Pb = 770 ppm</td> </tr> <tr> <td>As = 1,200 ppm</td> <td>As = 100 J ppm</td> </tr> <tr> <td>Sb = 1,500 ppm</td> <td>Sb = 130 J ppm</td> </tr> </table>	Surface	Depth	Pb = 8,000 ppm	Pb = 770 ppm	As = 1,200 ppm	As = 100 J ppm	Sb = 1,500 ppm	Sb = 130 J ppm	25' x 25' x 1.5' 35 cu.yds.	Tailings were used to fill a low spot in the right of way (parking area).
Surface	Depth										
Pb = 8,000 ppm	Pb = 770 ppm										
As = 1,200 ppm	As = 100 J ppm										
Sb = 1,500 ppm	Sb = 130 J ppm										
400 block of 3 rd Avenue East	Pb = 2,200 ppm As = 220 U ppm Sb = 250 ppm	25' x 5' x 3" 1.2 cu.yds.	Tailings were residual from fill used on right of way. Majority of the tailings have been removed since sampling that occurred last year.								
400 block of Spruce Street	Pb = 270ppm - 1,800 ppm As = 67 U ppm - 400 ppm Sb = 60 U ppm - 280 ppm	200' x 5' x 2" 6 cu.yds.	Tailings were visible closer to the sidewalk than the road. The tailings appear to be a thin lense under a couple inches of clean fill.								
Pine Street Alley	Pb = 230 ppm As = 110 J ppm Sb = 60 U ppm	NA	Although the arsenic is slightly elevated, the lead concentration is low and addition samples were not collected.								
Total Volume Estimate:		3,530 cu.yds. in place									

SW846 METALS

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INORGANIC ANALYSES DATA SHEET

Attachment 5

Lab Name: COMPUCHEM Contract: _____
 Lab Code: LIBRTY Case No.: _____ SAS No.: _____ S
 Matrix (soil/water): WATER Lab Sample ID: Q2589-4
 Level (low/med): LOW Date Received: 6/19/02
 % Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	39.1	B		P
7440-39-3	Barium	367	B		P
7440-43-9	Cadmium	33.9	B		P
7440-47-3	Chromium	6.0	B		P
7439-92-1	Lead	140000			P
7439-97-6	Mercury	1.8	B		CV
7782-49-2	Selenium	9.5	B		P
7440-22-4	Silver	5.9	B		P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____
 Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments:

SW846 METALS

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

S0208MN

Lab Name: COMPUCHEM Contract: _____

Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: Q2589

Matrix (soil/water): WATER Lab Sample ID: Q2589-2

Level (low/med): LOW Date Received: 6/19/02

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	2.3	B		P
7440-39-3	Barium	301	B		P
7440-43-9	Cadmium	253	B		P
7440-47-3	Chromium	125	B		P
7439-92-1	Lead	107000			P
7439-97-6	Mercury	1.1	B		CV
7782-49-2	Selenium	10.9	B		P
7440-22-4	Silver	0.50	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

SW846 METALS

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

S0400HT

Lab Name: COMPUCHEM Contract: _____
 Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: Q2589
 Matrix (soil/water): WATER Lab Sample ID: Q2589-1
 Level (low/med): LOW Date Received: 6/19/02
 % Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	23.0	B		P
7440-39-3	Barium	471	B		P
7440-43-9	Cadmium	440	B		P
7440-47-3	Chromium	3.0	B		P
7439-92-1	Lead	36700			P
7439-97-6	Mercury	0.10	U		CV
7782-49-2	Selenium	12.4	B		P
7440-22-4	Silver	0.50	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

SW846 METALS

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INORGANIC ANALYSES DATA SHEET

EPA SAMPLE NO.

S0700FG

Lab Name: COMPUCHEM Contract: _____
 Lab Code: LIBERTY Case No.: _____ SAS No.: _____ SDG No.: Q2589
 Matrix (soil/water): WATER Lab Sample ID: Q2589-3
 Level (low/med): LOW Date Received: 6/19/02
 % Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	126	B		P
7440-39-3	Barium	161	B		P
7440-43-9	Cadmium	377	B		P
7440-47-3	Chromium	4.0	B		P
7439-92-1	Lead	48300			P
7439-97-6	Mercury	0.22	B		CV
7782-49-2	Selenium	11.9	B		P
7440-22-4	Silver	0.50	U		P

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____

Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

July 12, 2002

VII. Enforcement

Enforcement Addendum Superior Waste Rock Time-Critical Removal Action

As this cleanup is being conducted as a time-critical removal action, limited time and resources have been expended on researching potentially responsible parties (PRPs). A search conducted by the assigned Civil Investigator identified past owners and operators of the site. Among these are ASARCO. A General Notice has been prepared for ASARCO and is routing for signature as of the date of this writing. Other PRPs include the city of Superior, the school district responsible for decisions involving the High School running track and football field, and the U.S. Forest Service. The Agency is in contact with each of these entities and will make a determination as to the appropriateness of issuing a General Notice letter to each of them in the next 90 days.