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Ref: EPR-SA

ACTION MEMORANDUM

SUBJECT: Request for Time-Critical Removal Action at the Fiat Creek/Iron Mountain Mine and Mill (IMM) NPL Site – Residential Operable Unit 1 (OU1) [RV2] located in and around the town of Superior, Mineral County, Montana.

FROM: Due Nguyen, On-Scene Coordinator (OSC) Curtis L. Kimbel for
Response Unit

THROUGH: Curtis Kimbel, Supervisor Curtis L Kimbel
Response Unit

THROUGH: David Ostrander, Director David O'A
Preparedness, Assessment & Response Program

TO: Carol L. Campbell, Assistant Regional Administrator
Office of Ecosystems Protection and Remediation

Site ID#:	08ER
CERCLIS ID#:	MT0012694970
Category of Removal:	Time Critical, Fund-Lead

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of a combined Time-Critical Removal Action (TCRA) and an exemption from the 12-month and $2 million statutory limits for the proposed Time-Critical Removal Action described herein for the Flat Creek/IMM NPL – Residential Operable Unit (OU1) [RV2] (the 'Site') located in and around the Town of Superior, Montana. This TCRA will continue to mitigate the threats to the local population and environment, and will consist of: 1) excavation for on-site treatment and/or off-site disposal of soils containing elevated levels of lead and arsenic from 31 residential/commercial/public properties; and 2) design and construction of a mine waste repository. The conditions at this Site meet the emergency criteria for exemption from the statutory limits for a Removal Action.

In accordance with National Contingency Plan (NCP), Section 300.415(b)(2), this Removal Action will address: 1) actual or potential exposure of human populations to hazardous substances, pollutants, or contaminants; and 2) high levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface, that may migrate.

Between 08/03/09 – 09/25/09, Montana Department of Environmental Quality (MDEQ) and EPA conducted Remedial Investigation (RI) Phase I sampling of 300 targeted residential, commercial, and

public Site properties. This proposed TCRA will address the most-immediate threats as identified during that Phase I sampling event. RI Phase II sampling will be conducted on an additional 250 properties in the summer 2010. If additional properties are found to exceed the TCRA threshold, they will be added to the list of properties to be addressed during the course of this Removal action. Documentation of such additions will include, in part, future Amendments to this Action Memorandum. The Removal Action described herein is consistent with any future Remedial Actions which may be taken at the Site.

II. SITE CONDITIONS AND BACKGROUND

The Flat Creek/IMM Site (CERCLIS ID No. MT0012694970) was added to the EPA National Priorities List (NPL) of Superfund Sites on September 23, 2009. Site contamination resulted from historic hard rock mining and milling operations in the area. The IMM operated from 1909-1930 and from 1947-1953 processing silver, gold, lead, copper, and zinc ores. The Site is generally subdivided into three Operable Units ('OU'): OU1 - the residential, commercial, and municipal properties and roadways in and around the Town of Superior; OU2 - the rest of the Site (mine, floodplain, streambed, etc.); and OU3 - a repository (to be constructed) to hold the excavated waste rock and mine tailings associated with OU1 and OU2 (approximately 75,000 cubic yards of waste).

The Flat Creek/IMM NPL Site is located partially on private land and partially on Forest Service Lands within and adjacent to the established boundaries of the Lolo National Forest. In addition, some Site areas are the property of the Town of Superior and some of Mineral County. The Forest Service Lands portion of the Site is administered by the Lolo National Forest, Superior District.

Due to historic mining activities in the area, waste rock and tailings containing hazardous substances came to be located in various Site locations. Some Site areas between the mouth of Flat Creek and the Creek confluence with the Clark Fork River were formerly owned by ASARCO, some areas are currently owned by the Stimson Lumber Company, Lolo National Forest, and the Town of Superior.

Portions of the Site were the subject of ASARCO Bankruptcy Proceedings. Pursuant to those Proceedings, the Montana Environmental Custodial Trust received a settlement of $1.864 Million for clean-up of the former ASARCO-owned properties (along with the title to these properties). In addition, the State of Montana (MDEQ) received approximately $1.9 Million and the Forest Service received approximately $585,000 for the clean-up of the 'unowned' portion of the Site. In general, the Montana Environmental Custody Trust, the MDEQ, and the USFS are responding agencies for the clean-up of OU02.

Neither the Custodial Trust, State, or Forest Service settlements within the ASARCO Bankruptcy Proceedings, nor the work to be performed under those settlements, will address the release or threat of release of hazardous substances within or near the Town of Superior, including response actions that may be needed on any property owned or operated by the State or Forest Service within or near the Town of Superior. Consequently, EPA will be a lead agency for necessary Removal Actions conducted on those Site areas.

Iron Mountain Mine and Mill (IMM) Site (OU2):

The IMM site is located 3.5 miles northeast of the Town of Superior. This mine was opened in 1888 and was a primary producer of silver, zinc, and lead. The IMM operated from 1888 until it was closed in 1897 due to safety violations. In 1905, the IMM operator constructed a new tunnel to reach the lower lodge. From 1909 to 1953, the mine produced 7,535,084 pounds of zinc, 5,385,741 pounds of lead, 5,274 pounds of copper, 389,355 fine ounces of silver, and 19 fine ounces of gold. The mine changed ownership multiple times during this period, finally closing 1954. The property is currently owned by the Montana Environmental Custodial Trust. A large waste rock pile (approximately 6,500 cubic yards) and some waste tailings deposits still exist at the mine site. Over the last century, a majority of the

contaminated Site tailings have been washed downstream onto the Flat Creek floodplain. Residual contamination in the floodplain will be remediated by MDEQ and USFS in the future.

Flat Creek (OU2):

The Flat Creek flows from its' upper drainage area, southwest towards the Town of Superior, a distance of about 9 miles. The IMM mine site is located adjacent to Flat Creek near its confluence with Hall Gulch. Shortly after entering the Superior town limits, Flat Creek enters a culvert leading to the Clark Fork River. The Flat Creek drainage lies mostly within Lolo National Forest. Over the years, IMM tailings were deposited into Flat Creek by repeated sheet flow/flooding events. Most tailings currently in the floodplain are poorly vegetated, and vary in depth between 4 inches and 7 feet. Tailings are observed at various locations from the mouth of Flat Creek (river mile 0.0 - in the Town of Superior) to its confluence with Hall Gulch (river mile 3.7).

Town of Superior (OU1):

The Town of Superior is located in Mineral County, Montana, approximately 3.5 miles down gradient of the IMM, at the confluence of Flat Creek and the Clark Fork River. In the past, the public water supply source for the Town was a spring adjacent to Flat Creek. However, the Town of Superior discontinued use of Flat Creek Spring in 1997 when antimony was detected at concentrations above the EPA's maximum contaminant level (MCL). Currently, the Town of Superior receives drinking water from three production wells located within the town limits and drilled into an underlying confined aquifer (Well 1 - 105.5 feet deep, Well 2 - 118 feet deep, and Well 3 - 214 feet deep).

A. Site Description

The Flat Creek/IMM NPL is a mixed-ownership, hard-rock mining site located on private land, lying partially within and/or surrounded by Lolo National Forest, Superior Ranger District. The Site is generally subdivided into three Operable Units ('OU'): OU1 – consisting of residential, commercial, and municipal properties and roadways in and around the Town of Superior; OU2 - the rest of the Site (mine, floodplain, streambed, etc.); and OU3 - a repository (to be constructed) to hold the excavated waste rock and mine tailings associated with Removal/Remedial actions to be conducted within OU1 and OU2 (approximately 75,000 cubic yards of waste).

1. Physical Location

The IMM Site is located at NE NE Sec 13, T17N, R26W, Mineral County, MT (47° 14' 25" N, - 114° 51' 10" W) (US Geological Survey (USGS) 1985a). The IMM is accessible by driving north from Superior on Flat Creek Road to the junction of Flat Creek Road and Hall Gulch road. Superior is approximately 65 miles northwest of Missoula, Montana.

2. Site Characteristics

The Town of Superior consists mostly of residential properties and service industries. There are approximately 410 homes in Superior. The Clark Fork River flows west-northwest through town, dividing it roughly into the south side, location of most residential homes and 'public areas', and the north side, location of a smaller number of residential homes. According to the 2000 US Census, 61 % of town 'workers' were employed by private industry, 27 % by the government, and 11 % were self-employed. The most commonly-cited employers were: educational, health, and social services (25 %); agriculture, forestry, fishing and hunting, and mining (14 %); arts, entertainment, recreation, accommodation, and food services (11 %); and retail trade (9 %). Many jobs are tourism- and recreation-related. Hunting, camping, and other outdoor activities are common in this region. Superior is located at an elevation of

2,710 feet, has an average annual precipitation of 16.58 inches, and an average temperature range of 33.7°F in December to 86.8°F in August.

According to the 2000 census, approximately 17% of the population was age 65 and older while 9% were children 6 years or younger. The population in July 2008 is estimated to be 873. The estimated median household income in 2008 was $33,902.

3. Removal Site Evaluation:

In 1993, the Montana DEQ (formerly the Department of State Lands) conducted an abandoned mine investigation of IMM area. The investigation found elevated levels of lead, arsenic, copper, mercury, zinc, cadmium, manganese, and antimony at the mine site. Levels were three times higher than background samples. Although the waste rock piles still remain on Site, most of the tailings were washed onto the Flat Creek floodplain (MDSL-AMRB 1993).

In August 2000, a lightning storm ignited several wildfires in the Flat Creek drainage, burning more than 9,000 acres. On September 2, 2000, a precipitation event estimated at 0.6 inches in 24 hours resulted in a debris flow that swept into and down Flat Creek. Scouring marks along the banks after the event indicate that tailings were displaced by the runoff As a result of concem that increased runoff into Flat Creek would mobilize additional tailings, Montana DEQ requested that EPA conduct a Preliminary Assessment (PA), and Site Inspection (SI) at IMM, Flat Creek, and Superior.

During 2001, Region 8 EPA conducted a Focused SI (FSI) at the IMM Site, including portions of the Flat Creek drainage and within the Town of Superior where IMM mill tailings had been used as fill material. During the FSI, the Superfund Technical Assessment and Response Team – 3 (START 3), an EPA contractor, collected 44 environmental samples, including source and surface water and Flat Creek drainage sediments. Anaslysis of the samples indicated elevated concentrations of heavy metals including lead, arsenic, antimony, cadmium, and manganese. Also, elevated concentrations of lead and arsenic were found in soil samples collected from the high school track, various residential properties, and a Superior residential neighborhood right-of-way. Because of these results, Region 8 EPA tasked START 3 to collect additional samples from the Town of Superior as part of a removal assessment. Accordingly, in June 2002, soil samples were collected from 64 residential properties, 20 rights-of-way, and 10 town/county and open space properties in and around Superior.

In August 2002, EPA established health-based risk benchmarks of 3,000 parts per million (ppm) for lead and 400 ppm for arsenic, and subsequently conducted a Removal Action 01 on what has become the NPL site OU1 ('OU01Rv01'), excavating heavily-contaminated soils in selected areas, to a depth of 12 inches, except for vegetable gardens where excavations were to a depth of up to 24 inches. Accordingly, approximately 6,500 cubic yards of lead- and arsenic-contaminated soil was removed from four driveways, three rights-of-way, the high school track, and a portion of the fairgrounds. The excavated soil was transported to the Mineral County Airport repository.

In 2003, USFS conducted a study of the soil and tailings along National Forest portions of the Flat Creek drainage. Analysis for residual lead and arsenic residues in soil samples collected up gradient of the mine showed residual contaminant levels did not exceed the recreational cleanup level recommended by EPA. Analysis of soil samples collected from two areas down gradient of the Site showed residual contaminant levels exceeding the recommended recreational cleanup levels. The USFS estimated the total volume of tailings in the creek as 2,215 cubic yards.

In 2007, shallow soil samples were collected during excavation for a Superior municipal water line and analyzed for arsenic and lead. Samples were collected (mostly from a depth of 0-6 inches below ground

surface) at West Riverside and 6th Avenue, at Diamond Road and Main Avenue, and along Mullan Road. Levels of arsenic ranged from not detected to 81 ppm and lead ranged from not detected to 804 ppm.

On April 9, 2009, EPA proposed the Flat Creek/IMM Site to the NPL. During the subsequent 60-day public comment period, several comments were received, none of which opposed the listing. Following consideration of the public comments, EPA published a notice in the Federal Register on September 23, 2009, thereby formally adding the Site to its National Priorities List of Superfund Sites.

From August 3 to September 25, 2009, EPA Region 8 – Montana Operations Office (MOO) contracted with CDM in Helena, Montana to conduct the environmental sampling needed to support a Remedial Investigation (RI) of OU01. Soil samples were collected from the originally-targeted 300 properties for field analysis using an X-Ray Fluorescence Spectrometer (XRF). An additional 200 properties are to be sampled in summer 2010. During the 2009 sampling activities in Superior, it was START 3 crews noted that a main source of contamination is the 'reddish' mine tailings material which had been brought into town as fill. In general, analysis of samples collected during the RI showed residual lead concentrations in soils ranged from 260 - 12,576 ppm and arsenic concentrations ranging from not detected - 2,841 ppm. Concurrently, lead and arsenic concentrations on 31 identified properties were greater than the health-based risk benchmarks. EPA will address these OU01 properties as part of this proposed TCRA.

Maximum values found during the 2009 sampling event are found below:

Property Number	Lead (mg/kg)	Arsenic (mg/kg)
Background Sample	6.0	3.9
RY030 (404 Pine St.)	9,629	1,712
RY045 (407 Maple St.)	8,257	1,851
RY053 (618 4th Ave. E)	8,405	2,841
RY084 (1312 5th Ave. E)	3,159	595
RY086 (409 Roosevelt)	7,187	1,806
RY091	2,254	501
RY094 (421 Mullan Road)	5,711	469
RY095 (387 Mullan Road West)	3,166	357
RY101 (40 & 48 Mullan Rd. E)	9,705	2,017
RY112 (1003 5th Ave. East and 410 Arizona Ave.)	4,740	655
RY 115 (Mineral County Fairgrounds)	20,400	2,574
RY125 (303 Spruce St.)	3,840	653
RY140 (207 2nd Ave. W)	3,550	908
RY148 (622 4th Ave. E)	6,842	1,710
RY198 (505 Main Ave.)	4,997	759
RY240 (401 Spruce)	5,540	813
RY251 (604 5th Ave. E)	4,219	174
RY271	1,993	415
RY289 (USFS Property – 209 Riverside Ave. W)	7,043	1,547
RY303 (636 5th Ave. E)	6,200	1,750
RY304 (205 Alder)	4,939	501
RY332 (301 Mullan Rd. W)	5,792	887
RY338 (405 Main St.)	6,708	846

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

Arsenic and lead (but particularly lead) have been identified at the Site as the contaminants of concern (COCs); 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. In the past, waste tailings from the mine were used as surface soil fill on public and residential properties. Contaminated areas were driveways, yards, gardens, public drive-of-way (e.g., along roads) and public facilities. At some time in the past, these hazardous substances appear to have been brought into Town by residents for use as fill for driveways, roadways, sidewalks and other foundations. The properties included in this Removal Action Memorandum contain unusually high levels of lead and arsenic of which lead is highly leachable. The threat posed by this Site is the inadvertent ingestion and inhalation of highly contaminated soil and dust as well as the continued migration of contaminants through wind, surface water and leaching into ground water.

5. NPL Status

On September 23, 2009, EPA formally added the Flat Creek/IMM Superfund Site to its National Priorities List (NPL) of Superfund Sites.

B. Other Actions to Date

1. Previous Actions

From August to November 2002, EPA conducted a TCRA (OU1) [RV1] in the Town of Superior. Contaminated soil was removed from public and private properties, including the high school track, the fairgrounds, and two residential properties. Using the analytical results, EPA established health-based risk bench marks of 3,000 ppm (mg/Kg) for lead and 400 ppm for arsenic for a TCRA. The soil would be removed to a depth of 12 inches, except for vegetable gardens where the removal would be as much as 24 inches. Based on these benchmarks, removal activities were conducted at the following locations:

- The residential driveway at 106 3rd Avenue West
- The south right-of-way at 400 2nd Avenue West
- The east right-of-way at 400 Spruce Street
- The residential driveway at 407 Iron Mountain Heights
- The residential driveway at 401 Spruce Street
- The Mineral County fairgrounds
- The Superior High School track

Approximately 6,500 cubic yards of the contaminated soil and mine tailings failed the TCLP analysis were treated and placed into a repository cell located near the Mineral County Airport. In the Action Memorandum of August 2, 2002, EPA determined that the treated waste, the contaminated soil and mine tailings failed the TCLP analysis, is exempt from regulation under Subtitle C of RCRA resulting from the beneficiation process.

2. Current Actions

Community Involvement: In addition to the sampling and activities that have already been described, EPA has conducted numerous community involvement activities, including public meetings and briefings for public officials. EPA has also conducted community interviews and is finalizing its Community Involvement Plan. The Town of Superior is considering forming a Community Advisory Group (CAG) and a local group is applying for a Technical Assistance Grant (TAG). These groups will include

representatives from diverse interests in Mineral County, which will help the community understand and comment on EPA's action at the Site and more effectively participate in Site-related decisions. In addition, EPA has entered into a Cooperative Agreement with the Town of Superior.

Public Health Screening: Public health screening will be offered as part of on-going public health activities conducted by EPA and its partners. In July, 2010, ATSDR will offer blood-lead and urinary arsenic testing for area residents in coordination with EPA, Montana Department of Environmental Quality, the Montana Department of Public Health and Human Services, and the Mineral County Health Department.

Mine Waste Joint-Repository (OU3): One of the goals of a long-term cleanup plan is to establish a permanent and Site-wide mine waste joint-repository for disposal of approximately 75,000 cubic yards of mine waste rock and tailings associated with the Flat Creek/IMM NPL Site. A proposal to use a portion of Forest Service Lands, which is being transferred to the State of Montana – Department of Natural Resources and Conservation (DNRC), is located in Wood Gulch and administered by the Lolo National Forest, Superior Ranger District for a mine waste repository. This proposed repository is located in OU2, which is within the boundary of the Flat Creek/IMM NPL Site. EPA in coordination with other leading responding agencies, the USFS and MDEQ, will discuss a proposal with DNRC to use the Wood Gulch land for mine waste disposal generated from the following sources of contamination:

- Soils in residential areas in and around the Town of Superior
- Former drinking water source
- Abandoned mine and milling properties
- Sediments in and near Flat Creek

A Memorandum of Understanding (MOU) will be generated to provide the framework for the Agencies to coordinate response actions at the Flat Creek/IMM Superfund Site, and to provide a process for resolving disputes among the Agencies that may arise during these response actions including post remedial action activities (e.g. Operation and Maintenance, Institutional Controls).

C. State and Local Authorities' Roles

MDEQ, USFS, ATSDR, Mineral County, and the Town of Superior are actively involved at this Site and have agreed with EPA's planned removal activities. MDEQ is actively involved at the Site and has been briefed and supports the planned removal activities. MDEQ has assigned a project manager who is fully engaged in the design and implementation of the investigations and the actions proposed herein.

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

In determining the appropriateness of this removal action, the factors set out in 40 C.F.R. Section 300.415(b)(2) were considered and the partial list of appropriate removal actions as defined in 40 C.F.R. Section 300.415(e) were used as guidance.

A. Threats to Public Health or Welfare

Conditions at the Site meet the criteria for initiating a removal action under 40 C.F.R. Section 300.415 (b) (2) of the National Contingency Plan (NCP). The following factors from Section 300.415 (b) (2) of the NCP form the basis for the EPA's determination of the threat presented and the appropriate action to be taken:

300.415 (b)(2)(i)	Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;
300.415 (b)(2)(iv)	High levels of hazardous substances or pollutants or contaminants in soils/surface water largely at or near the surface that may migrate; and
300.415 (b)(2)(v)	Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.

After reviewing the data, EPA has concluded that there is a significant potential for continued lead and arsenic exposure to human populations at the Site. In its Public Health Evaluation of the Public Health Assessment Report for the Flat Creek/IMM (aka Superior Waste Rock) dated January 6, 2010, ATSDR addresses the question of whether exposure to contaminants at the concentrations detected would result in adverse health effects. It noted that, "*As stated previously, a past, current, and future completed exposure pathway to surface soil, sediment, and waste tailings exists for people engaging in hunting, fishing, wading, hiking, and other recreational activities on the Iron Mountain Mine and Mill site and along the Flat Creek floodplain area. In addition, a past, current, and future completed exposure pathway exists to waste tailings used as fill in the Town of Superior.*"

Arsenic is a hazardous substance as defined by Section 101(14) of CERCLA and 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. Inorganic forms of arsenic, such as those found at the Site, are more toxic than organic forms in both acute and chronic exposures. Large doses of arsenic may be acutely fatal. Symptoms include fever, loss of appetite, enlarged liver, and heart rhythm abnormalities. Sensory loss in the peripheral nervous system may also occur. Chronic exposure to arsenic generally results in skin lesions, liver injury, and peripheral vascular disease. The peripheral vascular disease may progress to endarteritis obliterans and gangrene of the lower extremities (blackfoot disease). Arsenic is a human carcinogen based on observation of increased lung cancer mortality due to inhalation exposure and increased skin cancer in individuals exposed to arsenic in drinking water.

Lead is classified as a **B**2 carcinogen by EPA. This classification is the result of animal studies determining that these compounds are probable human carcinogens. Lead can enter the body via ingestion and inhalation. Children appear to be 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 redisfributes to the bones and teeth where it tends to remain. The most serious effects associated with markedly elevated blood lead levels include neurotoxic effects such as irreversible brain damage. Children have exhibited nerve damage, permanent mental retardation, colic, anemia, brain damage, and death.

B. Threats to the Environment

The primary threat identified is exposure to human populations, particularly children. Pets, and to a lesser degree wildlife, could be affected as they come into direct contact with the contamination within the residential areas.

Wildlife and domesticated animals in adjacent habitats may be exposed to on-site contamination either through direct contact with contaminated soil, flowing and standing water, and sediments, or indirectly through consumption of organisms (algae, aquatic insects, or animals) feeding in the area. Toxic metals-contaminated water with a low pH is present in the surface waters on-site which have a potential to overflow and migrate to wetlands, agricultural land, residences and other recreational areas which are down-gradient from the Site.

The high levels of hazardous substances at or near the surface that may migrate are fully described in Section II, A.3 (Removal Site Evaluation). Arsenic concentration of the soil ranges from 43 to 2,841 mg/kg and lead concentration of the soil ranges from 267 to12,576 mg/kg. The climate of the Iron Mountain Mine and Mill Site in including Flat Creek varies throughout the year. Summer months are usually hot and dry with limited precipitation. The entire area is subject to severe and persistent inversion patterns, and dust storms are common to the area facilitating the migration of contaminated soils throughout the Site.

Only threats posed by human exposure to contaminated soil will be addressed by this Action Memorandum. As part of work to be performed at OU2, threats posed by affected water and sediments will be addressed by USFS and MDEQ in coordination with the EPA Remedial Program.

IV. ENDANGEMENT DETERMINATION

Actual or threatened releases of hazardous substances from this Site, if not addressed by the response action selected 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. Exemption from the 12-month and $2 million statutory limits

This Removal Action will require longer than 12 months and more than $2 million to implement. As stated in Section I, an exemption is sought to extend the performance period beyond 12 months and to expend funds exceeding $2 million to implement this Removal Action.

1. Site conditions meet the criteria set forth in CERCLA §104 (c)(1)(A) [40 CFR 300.415(b)(5)(i) of the NCP]. There is an immediate threat to the local population posed by the lead and arsenic released to the environment. 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/public 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 toxic effects of contaminants because their developing organ systems are intrinsically more sensitive to the effects; their behavior characteristics (e.g. mouthing behavior and pica) increase contact with dust and soil; and because children absorb lead from 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 aduhs living in residential properties on the Site, will continue to be exposed to potentially dangerous levels of lead and arsenic. This Removal is intended to reduce overall exposure to acceptable levels.

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

B. Consistency Exemption

This Removal Action consistent with the remedial action to be taken at the OU, permanently abates the threat of exposure to high concentrations of hazardous substances, and prevents further migration of contaminants. This Removal Action is consistent with the planned remedial action at OU1 and OU2. As such, the Agency does not expect to conduct further physical actions at this OU. Post-Removal site control (for NPL remedy protection), as necessary, will be globally addressed by the final ROD or EE/CA. The Removal Action discussed herein permanently reduces the risk of human exposure to concentrations of hazardous substances that present an unacceptable risk. Also, the added soil cover further mitigates the potential for migration of contaminants.

Removal of soils with high levels of lead and arsenic will prevent leaching of contaminants to groundwater. It will also eliminate runoff to surface water and windblown dispersal that may be impacting other environmental receptors and undeveloped lands. Nothing in this action will prevent or hinder the ability to conduct other necessary response activities at OU1 and OU2.

VI. PROPOSED ACTIONS

A. Proposed Action Description

1. Proposed Action Description

The clean-up action levels and the selected removal activities specified below are consistent with the August 2, 2002 Time-Critical Removal Action Memorandum and future remedial actions. The selected removal for OU1 is excavation of contaminated soils, on-site treatment of TCLP-failed soil including mine tailings, and on-site disposal at the proposed permanent joint-repository (OU3) located within the Site boundary (OU2).

The NCP and Section 121 of CERCLA specify that the selected remedy must be protective of human health and the environment, comply with ARARs to the extent practicable, be cost effective, utilize permanent solutions and alternative treatment technologies to the maximum extent possible, and show a preference for treatment. Therefore, on-site stabilization (TCLP > 5 mg/L) and on-site disposal of approximately 20,000 tons of contaminated soils have been chosen as the selected remedy for this Removal Action. This selected remedy provides a reduction of the mobility and toxicity of contaminants in the excavated soil and is cost-effective.

In coordination with the other response agencies (USFS and MDEQ), EPA is in discussions with the DNRC regarding the proposed permanent joint-repository. This repository is expected to be constructed within OU2 and receive materials beginning in 2011. In the mean time, for this Removal Action, a small (approximately 2-acre) temporary treatment/staging area and access roads will be constructed in June 2010.

The major components of the selected removal include:

- Mine tailings and the contaminated soil at the residential and other affected properties in the Town of Superior including rights-of-way will be excavated and staged in bulk for treatment and disposal. The staging/treatment facility will be constructed for both this Removal Action and potential future Remedial or Removal Actions if the permanent joint-repository is not completed in time to be of use by this removal. EPA will evaluate altemative treatment and disposal options based on the TCLP analytical results and the volume of the hazardous waste before an appropriate treatment/disposal option is selected. As previously stated, the mine tailings are waste resulting from the beneficiation process; therefore, this waste is exempt from regulation under Subtitle C of the Resource Conservation and Recovery Act (RCRA).

- Excavation of surface soil with an average concentration that exceeds 3,000 ppm of lead and 400 ppm of arsenic. The soil will be generally removed to a maximum depth of 12 or more inches, except for vegetable gardens and play areas, which will be removed generally to a maximum depth of 24 inches. Contaminated soils located beneath residential structures, sheds, garages, sidewalks, concrete driveways, capped parking lots, etc. will remain in place.

- Replacement with clean backfill, then four to six inches of topsoil, and landscaping of affected properties. EPA and its contractor will work with property owners to ensure that properties are returned to as close to original condition as possible.

- Property owners will receive an assurance that construction and vegetation are warranties for one year after the construction and landscaping are completed. Existing trees, shrubs, and bushes will be removed and replaced with the same or other locally available species and standard nursery stock. Detailed plan(s) with removal schedule will be developed for each affected property. These will be provided to the property owner.

2. Contribution to Remedial Performance

The Removal Action will mitigate both current and potential health risks to children within residential portions of OU1. The cleanup actions are consistent with past and planned future remedial actions for OU1.

3. Description of Alternative Technologies

As previously discussed in the August 2, 2002 TCRA, a large volume of contaminated soils and mine tailings failed the TCLP analysis, are therefore considered RCRA hazardous wastes. However, the contaminated soils and mine tailings are waste resulting from beneficiation process; as a result, they are exempt from regulation under Subtitle C of RCRA. EPA has adopted a flexible approach for this Removal Action, based on site-specific circumstances and other appropriate disposal of waste. Altemative approaches, such as on-site and/or in-situ treatment prior to final disposal will be considered where appropriate. The decision will be made will be based on whether altemative technologies and techniques are practical, provide less handling-time and/or result in disposal costs effective to achieve the overall Removal Action objectives.

4. Engineering Evaluation/Cost Analysis (EE/CA)

This is a Time-Critical Removal Action; thus, and EE/CA is not required for altemative actions.

5. Applicable or Relevant and Appropriate Requirements (ARARs)

Since this Action is being conducted as a Time Critical Removal Action, all Federal and State ARARs may not have been identified at this time. This Removal Action will attain, to the extent practicable, and considering the exigencies of the situation, all applicable or relevant and appropriate (ARAR) Federal, State or local standards, criteria or regulations. The ARARs identified to date are provided as Attachment 2.

6. Project Schedule

Removal activities are tentatively scheduled to begin in June 2010. Completion of restoration and monitoring of landscape restoration will continue into Spring 2011.

B. ESTIMATED COSTS

EXTRAMURAL COSTS	TASK	Estimated Costs
Regional Removal Allowance Costs:	Total Cleanup Contractor Costs - Emergency and Rapid Response Services (ERRS): • Excavation and Restoration • Preparation of Treatment/Staging Facility • Transportation and Disposal	 $800,000 $100,000 $300,000
	Subtotal	$1,200,000
Other Extramural Costs Not Funded from the Regional Allowance:	Total START, including multiplier costs • Sampling, analytical, design, surveying • Treatability Study • Geotechnical Study (Repository)	 $250,000 $50,000 $100,000
	Subtotal	$400,000
20% Extramural Costs Contingency		$320,000
	Total Extramural Costs	$1,920,000

TOTAL REMOVAL ACTION PROJECT CEILING **$ 1,920,000**

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

The preliminary assessments indicate, based on the concentrations of lead and arsenic measured in the soil, that the contaminated soil at this site may pose an acute health risk to the residents. If no removal action is taken at the Site or if the action is delayed, the residents in the area will continue to be exposed to high levels of lead and arsenic.

VIII. OUTSTANDING POLICY ISSUES

In 2002, EPA conducted a TCRA (OU1)[RV1] in the Town of Superior. At that time the Mineral County Board of Commissioners agreed to let EPA store approximately 6,500 cubic yards of contaminated soil including mine tailings on County property near the Mineral County Airport, in a permanent repository. More recently, the Commissioners have asked EPA to move these contaminated soils from the County property to the permanent mine waste repository (OU3) when it becomes available.

IX. ENFORCEMENT

A separate memorandum has been prepared to provide a confidential summary of current and potential future enforcement actions (Attachment 3).

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

REMOVAL PROJECT CEILING	$1,920,000
EPA's Direct Intramural Costs	$ 200,000
Subtotal	$2,120,000
Regional Indirect Costs, 35% (*)	$ 742,000
Estimated EPA Costs for the Removal Action	$2,862,000

(*) Direct Costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a %age 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 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.

X. RECOMMENDATION

This decision document describes the selected Time-Critical Removal Action for the Residential Operable Unit (OU1) of the Flat Creek/IMM NPL Site located near and in the Town of Superior, Mineral County, Montana, developed in accordance with CERCLA, as amended, and not inconsistent with the NCP. This decision is based on the administrative record for the Site.

Conditions at the Site meet the NCP §300.415 (b) (2) criteria for a removal, and I recommend your approval of the proposed Time Critical Removal Action. The total removal ceiling, if approved, is expected to be $2,862,000.

Approve: Carol L Campbell Date: 6/10/10

Carol L. Campbell
Assistant Regional Administrator
Office of Ecosystems Protection and Remediation

Disapprove: _____ Date: _____

Carol L. Campbell
Assistant Regional Administrator
Office of Ecosystems Protection and Remediation

Attachments:

Attachment 1:	Time-Critical Removal Action Memorandum (August 2, 2002)
Attachment 2:	ARARs
Attachment 3:	Enforcement Addendum
Figure 1:	The Flat Creek/IMM NPL Site Location Map
Figure 2:	Properties of Concern
Exhibit 1:	Sample Results of Affected Properties

SUPPLEMENTAL DOCUMENTS

Support/reference documents that may be helpful to the reader and/or have been cited in the report may be found in the Administrative Record File at the Superfund Records Center for Region VIII EPA – Montana Office, 10 West 15th Street, Suite 3200 in Helena, Montana. EPA has also provided a local source of information on the second floor of the Mineral County Courthouse at 300 River Street in Superior, Montana.

Attachment 1

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
999 18TH STREET - SUITE 300
DENVER, CO 80202-2466
Phone 800-227-8917
http://www.epa.gov/region08

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 altemative 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) tb 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 bought 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. Theses 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 cluronic 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 fissue 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 Spmce 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 altemative 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. Altemative approaches, such as on-site treatment prior to final disposal will be implemented where appropriate. The decision will be made based on whether altemative technologies are practical or cost effective to achieve the Removal Action objectives.

4. EE/CA

This is a Time-Crifical 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 constmction season constraints the project is tentafively planned in two phases:

Phase I:	
Site Mobilizafion:	August, 2002
Tailings/Soils Excavation and Staging and Secured:	August to October, 2002
Backfilling and Restoration Excavated Areas:	September to November, 2002
Altemative 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 Residenfial Removal Plaming and Altemative Treatment Options	$ 50,000
Waste On/Off-Site Treatment and Disposal	$ 100,000
Backfilling and Restoration	$ 120,000
Total Cleanup Contractor Costs	$ 470,000
Other Extramural Costs Not Funded From The Regional Allowance:	
Total START costs	$ 40,000
Total Analytical Contract	$ 15,000
	$ 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 11 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	$ 100,000
Subtotal	$ 730,000
Regional Indirect Cost (27%)	$ 197,100
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 Acdon. 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: _____ Date: 8/2/02
Max H. Dodson, Assistant Regional Administrator
Office of Ecosystems Protection and Remediation

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

Attachments:

Attachment I	-	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 Administradve 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.

DATE: 09/05/01 KEI (NGII) FILENAME: H:/DRAWINGS/IRON MOUNTAIN MILL/FSP/SAMPLMAP.DWG

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
IRON MOUNTAIN, MONTANA
ALL - PROVISIONAL EDITION 1988

2400 0 2400

SCALE: 1" = 2400'

Field Sampling Plan

URS Job No. 75-10105.00

~~Iron Mountain Mill~~

Superior, Mineral County, Montana

Sample Location Map

Figure

September 2001

URS Operating Services

75-10105.00
P:\START2\Iron Mountain\DraftFSP\FSP Text.wpd:rel

ATTACHMENT 2

IM-SO-09	Background sample from park on west side of Superior	<1.0	3.9	<2.0	6.0	<.04
IM-SO-06	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. DM 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

Attachment 2

Identification and Description of Applicable or Relevant and Appropriate Requirements (ARARs)

for

The FLAT CREEK/IMM NPL Site Operable Unit 1

April 21, 2010

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1.0 INTRODUCTION

Under Environmental Protection Agency (EPA) guidance, policy, and the National Oil and Hazardous Substances Pollution Contingency Plan (the NCP), 40 CFR Part 300 (1990), EPA is directed to comply with substantive provisions of applicable or relevant and appropriate standards, requirements, criteria, or limitations (ARARs) as that term is defined under Section 121(d) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. ' 9621(d), to the greatest extent practicable considering the exigencies of the situation at a removal site. Factors to be considered in determining whether removal compliance with ARARs is practicable include: (1) the urgency of the situation, and (2) the scope of the removal action to be conducted, which includes consideration of the statutory limits for removal actions. In this case ARARs include those laws of the State of Montana that are more stringent than federal ARARs. These state and federal requirements are threshold standards that any selected remedy must meet, unless EPA waives the ARAR under section 121 of CERCLA.

This document identifies final ARARs for removal activities to be conducted under the Flat Creek/IMM NPL Site Residential Operable Unit 1 (OU1) [RV2]. The following ARARs or groups of related ARARs are each identified by a statutory or regulatory citation, followed by a brief explanation of the ARAR and how and to what extent the ARAR is expected to apply to the activities to be conducted under this removal action.

Substantive provisions of the requirements listed below are identified as ARARs pursuant to 40 Code of Federal Regulations (CFR) ' 300.415(j). In accordance with Section 121(e) of CERCLA, EPA does not anticipate the need for any state or federal permits for the removal action at the Flat Creek/IMM NPL Site (OU1).

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2.0 TYPES OF ARARs

ARARs are either Aapplicable@ or Arelevant and appropriate.@ Both types of requirements are addressed under CERCLA and the NCP. Applicable requirements are those cleanup standards, standards of control, and other substantive requirements, criteria or limitations promulgated under federal environmental or state environmental and facility siting laws that specifically address a hazardous substance, pollutant, contaminant, removal action, location, or other circumstance found at a CERCLA site. Only those state standards that are identified by a state in a timely manner and that are more stringent than federal requirements may be applicable.[1]

Relevant and appropriate requirements are those cleanup standards, standards of control, and other substantive requirements, criteria or limitations promulgated under federal environmental or state environmental or facility siting laws that, while not Aapplicable@ to hazardous substances, pollutants, contaminants, removal actions, locations, or other circumstances at a CERCLA site, address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is well suited to the particular site. Only those state standards that are identified in a timely manner and are more stringent than federal requirements may be relevant and appropriate.[2]

A requirement is relevant and appropriate if EPA determines that it is both relevant and appropriate. In general, this involves a comparison of a number of site-specific factors, including an examination of the purpose of the requirement and the purpose of the proposed CERCLA action; the medium and substances regulated by the requirement and the proposed requirement; the actions or activities regulated by the requirement and the removal action; and, the potential use of resources addressed in the requirement and the removal action. When the analysis results in a determination that a requirement is both relevant and appropriate, such a requirement will be complied with to the same degree as if it were applicable.[3]

ARARs can be contaminant, location, or action specific. Contaminant specific requirements address chemical or physical characteristics of compounds or substances on sites. These requirements determine the acceptable amounts or concentrations of chemicals that may be found in or discharged into the ambient environment.

Location specific requirements are restrictions placed upon the concentrations of hazardous substances or the conduct of cleanup activities because they are in specific locations. Location specific ARARs relate to the geographical or physical positions of sites, rather than to the nature of contaminants at sites.

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1 40 CFR ' 300.5.

2 40 CFR ' 300.5.

3 CERCLA Compliance with Other Laws Manual, Vol. I, OSWER Directive 9234.1-01, August 8, 1988, p. 1-11.

Action specific requirements are usually technology based or activity based requirements or limitations on actions taken with respect to hazardous substances, pollutants or contaminants. A given cleanup activity may trigger an action specific requirement. Such a requirement would not by itself determine a cleanup alternative, but it may define how a chosen cleanup method should be performed.

Many requirements listed as ARARs are promulgated as identical or near identical requirements in both federal and state law, often because federal environmental programs have been delegated by EPA to the state for implementation. The Preamble to the NCP provides that such where an ARAR arises under a delegated program, the state provision will be cited and treated as a federal requirement.

Policies, guidance and other sources of information are Ato be considered@ in the selection and implementation of the removal action remedy. Although not enforceable requirements, these documents are important sources of information that EPA and the State of Montana Department of Environmental Quality (MDEQ or the department) may consider during selection of the remedy, especially when evaluating risks to public health and the environmental.[4]

This Attachment constitutes EPA's formal identification and detailed description of ARARs for the implementation of the removal action at the Flat Creek/IMM NPL Site (QU1) [RV2]. Final ARARs will be set forth as performance standards for any and all removal action work plans.

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4 40 CFR Section 300.400(g)(3); Preamble to the NCP, 55 Fed. Reg. 8744-8746 (March 8, 1990).

3.0 CONTAMINANT-SPECIFIC ARARs

3.1 Federal

3.1.1 Safe Drinking Water Act

Safe Drinking Water Act, 42 U.S.C. ' 300f, et seq., National Primary and Secondary Drinking Water Regulations, 40 CFR Parts 141 and 142 (relevant and appropriate). The National Primary and Secondary Drinking Water Regulations (40 CFR Parts 141 and 143) establish maximum contaminant levels (MCL) for chemicals in drinking water distributed in public water systems. These are enforceable in Montana under the Public Water Supplies, Distribution, and Treatment Act and corresponding rules, MCA ' 75-6-101, et seq., and ARM ' 17.38.203. Safe Drinking Water Act MCLs are relevant and appropriate to the Flat Creek/IMM Superrfund Site (OU1) remedial action because the water in Flat Creek and nearby tributaries is a potential source of drinking water.

The determination that the drinking water standards are relevant and appropriate for portions of the Flat Creek/IMM NPL Site (OU1) [RV2] removal action is fully supported by the regulations and guidance. The Preamble to the NCP clearly states that the MCLs are relevant and appropriate for ground or surface water that is a current or potential source of drinking water. See 55 Fed. Reg. 8750, March 8, 1990, and 40 CFR ' 300.430(e)(2)(I)(B). MCLs developed under the Safe Drinking Water Act generally are ARARs for current or potential drinking water sources. See, EPA Guidance On Remedial Action For Contaminated Groundwater at Superfund Sites, OSWER Dir. #9283.1-2, December 1988.

In addition, maximum contaminant level goals (MCLG) may also be relevant and appropriate. See 55 Fed. Reg. 8750-8752. MCLGs are health-based goals that are established at levels at which no known or anticipated adverse health effects are expected to result and which allow for an adequate margin of safety. According to the NCP, MCLGs that are set at levels above zero should be attained for ground or surface waters that are current or potential sources of drinking water. Where the MCLG for a contaminant has been set at a level of zero, the MCL promulgated for that contaminant must be attained.

The MCLs and MCLGs for contaminants of concern are:

Contaminant	MCL (mg/L)	MCLG[a] (mg/L)
Antimony	0.006	0.006
Arsenic	0.01	NE
Cadmium	0.005[b]	0.005[b]
Copper	1.3[c]	1.3[c]
Iron	0.3[d]	NE
Lead	0.015[c]	0
Manganese	0.05[b]	NE
Mercury	0.002[b]	0.002[b]
Silver	NE	NE
Thallium	0.002[b]	0.0005
Zinc	5.0[b]	NE

NE - Not Established

[a] 40 CFR ' 141.51(b)

[b] 40 CFR ' 141.62(c)
[c] 40 CFR ' 141.80(c) B No MCL, but specifies BAT to be applied.
[d] 40 CFR ' 143.3 B Secondary MCL

3.1.2 Clean Water Act

Federal Surface Water Quality Requirements, Clean Water Act, 33 USC ' 1251, et seq. (applicable). As required under Section 303 of the Clean Water Act, 33 U.S.C. ' 1313, the State of Montana has promulgated water quality standards. See the discussion below concerning State surface water quality requirements.

3.1.3 National Ambient Air Quality Standards

National Ambient Air Quality Standards, 40 CFR ' 50.6 (PM-10); 40 CFR ' 50.12 (lead) (applicable). These provisions establish standards for PM-10 and lead emissions to air. (Corresponding state standards are found at ARM ' 17.8.222 [lead] and ARM ' 17.8.223 [PM-10].) The PM-10 standard is 150 micrograms per cubic meter (pg/m^3), 24-hour average concentration, and the lead standard is 1.5 $\mu g/m^3$, maximum arithmetic mean averaged over a calendar quarter.

3.2 State

3.2.1 Groundwater Protection

ARM ' 17.30.1005 (applicable) explains the applicability and basis for the groundwater standards in ARM ' 17.30.1006. These standards establish the maximum allowable changes in groundwater quality and may limit discharges to groundwater.

ARM ' 17.30.1006 (applicable) provides that groundwater is classified I through IV based on its present and future most beneficial uses, and states that groundwater is to be classified according to actual quality or use, whichever places the groundwater in a higher class. Class I is the highest quality class; class IV the lowest.

ARM ' 17.30.1006 also sets standards for different classes of groundwater. Concentrations of dissolved substances in Class I or II groundwater may not exceed the human health standards listed in MDEQ Circular WQB-7.[5] These levels are listed below for the primary contaminants of concern. Levels that are equal to or more stringent than the MCL or MCLG identified in the federal portion of the ARARs are set out in boldface type.

Contaminant	WQB-7 Standard (Φg/L)[a]

5 Montana Department of Environmental Quality, Water Quality Division, Circular WQB-7, Montana Numeric Water Quality Standards (January 2002).

Antimony	6
Arsenic	20
Cadmium	5
Copper	1,300
Iron	NE[b]
Lead	15
Manganese	NE[b]
Mercury	2
Silver	100
Thallium	2
Zinc	2,000

NE = Not Established

[a] WQB-7 standards for metals and arsenic in ground water are based on the dissolved portion of the sample (after filtration through a 0.45 Φm membrane filter).

[b] Concentrations of iron and manganese must not reach values that interfere with the uses specified in the surface and groundwater standards (ARM ' 17.30.601 et seq. and ARM ' 17.30.1001 et seq.). The secondary maximum contaminant levels of 300 Φg/L and 50 Φg/L, respectively, may be considered guidance to determine levels that will interfere with the specified uses.

ARM ' 17.30.1006 requires that concentrations of other dissolved or suspended substances must not exceed levels that render the waters harmful, detrimental or injurious to public health. Maximum allowable concentrations of these substances also must not exceed acute or chronic problem levels that would adversely affect existing or designated beneficial uses of groundwater of that classification.

ARM ' 17.30.1011 (applicable)

This section provides that any groundwater whose existing quality is higher than the standard for its classification must be maintained at that high quality in accordance with MCA ' 75-5-303 and ARM Title 17, Chapter 30, Subchapter 7.

An additional concern for groundwater ARARs is the impact of groundwater upon surface water. If any tributaries within the Flat Creek/IMM NPL Site (OU1) [RV2] experience significant loadings of contaminants from groundwater sources and that loading contributes to the inability of the surface water to meet B-1 class standards, then alternatives to alleviate such groundwater loading must be evaluated and, if appropriate, implemented. It may be necessary to remediate groundwater in certain areas to levels more stringent than groundwater classification standards in order to achieve the standards for affected surface water. See Compliance with Federal Water Quality Criteria, OSWER Publication 9234.2-09/FS (June 1990) (AWhere the ground water flows naturally into the surface water, the ground-water remediation should be designed so that the receiving surface-water body will be able to meet any ambient water-quality standards [such as State WQSs or FWQC] that may be ARARs for the surface water.@)

3.2.2 Montana Water Quality Act

State of Montana Surface Water Quality Requirements, Montana Water Quality Act, MCA ' 75-5-101, et seq., and implementing rules (applicable). General. The Clean Water Act, 33 U.S.C. ' 1251, et seq., provides authority for each state to adopt water quality standards (40 CFR Part 131) designed to protect beneficial uses of each water body and requires each state to designate uses for each such water body. The Montana Water Quality Act, MCA ' 75-5-101, et seq., establishes requirements for restoring and maintaining the quality of surface and groundwater. Montana rules classify State waters according to quality, place restrictions on the discharge of pollutants to State waters, and prohibit degradation of State waters. Pursuant to this authority and the criteria established by Montana surface water quality rules, ARM ' 17.30.601, et seq., Montana has established the Water-Use Classification system. Under ARM ' 17.30.610, tributaries to the Missouri River have been classified AB-1@. Ditches and certain other bodies of surface water must also meet these requirements.[6] Certain portions of the B-1 standards, codified at ARM ' 17.30.622 and ARM ' 17.30.623, as well as Montana's nondegradation requirements, are presented below.

ARM ' 17.30.623 (applicable). Waters classified B-1 are, after conventional treatment for removal of naturally present impurities, suitable for drinking, culinary and food processing purposes. These waters are also suitable for bathing, swimming and recreation, growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers, and use for agricultural and industrial purposes. This section also provides that concentrations of carcinogenic, bioconcentrating, toxic or harmful parameters that remain in water after conventional water treatment may not exceed standards set forth in department circular WQB-7. WQB-7 provides that Awhenever both Aquatic Life Standards and Human Health Standards exist for the same analyte, the more restrictive of these values will be used as the numeric Surface Water Quality Standard.@ These numerical standards for the contaminants of concern are listed below.

Montana WQB-7 Surface Water Quality Standards

	Aquatic Life Standards		Human Health Standards
Contaminant	Acute (Φg/L)	Chronic (Φg/L)	(Φg/L)
Aluminum[a]	750	87	NE
Antimony	NE	NE	6
Arsenic	340	150	18
Cadmium	2.1[b]/1.1[c]/0.52[d]	0.27[b]/0.16[c]/0.10[d]	5
Copoer	14[b]/7.3[c]/3.8[d]	9.3[b]/5.2[c]/2.8[d]	1,300
Iron[e]	NE	1,000	NE

[6] As provided under ARM ' 17.30.602(32), A'surface waters' means any waters on the earth's surface, including but not limited to, streams, lakes, ponds, and reservoirs; and irrigation and drainage systems discharging directly into a stream, lake, pond, reservoir or other surface water. Water bodies used solely for treating, transporting or impounding pollutants shall not be considered surface water.@

Lead	82[b]/34[c]/14[d]	3.2[b]/1.3[c]/0.54[d]	15
Manganese[e]	NE	NE	NE
Mercury	1.7	0.91	0.05
Silver	4.1[b]/1.2[b]/0.37[d]	NE	100
Thallium	NE	NE	1.7
Zinc	120[b]/67[c]/37[d]	120[b]/67[c]/37[d]	2,100

NE Not Established

[a] The aluminum standard is based on the dissolved fraction. All other parameters are based on the total recoverable fraction.

[b] The aquatic life standard is based on hardness. Value shown is for a hardness of 100 mg/L as $CaCO_3$.

[c] The aquatic life standard is based on hardness. Value shown is for a hardness of 50 mg/L as $CaCO_3$.

[d] The aquatic life standard is based on hardness. Value shown is for a hardness of 25 mg/L as $CaCO_3$.

[e] Concentrations of iron and manganese must not reach values that interfere with the uses specified in the surface and groundwater standards (ARM ' 17.30.601 et seq. and ARM ' 17.30.1001 et seq.). The secondary maximum contaminant levels of 300 Φg/L and 50 Φg/L, respectively, may be considered guidance to determine levels that will interfere with the specified uses.

The B-1 classification standards at **ARM** ' 17.30.623 also include the following criteria: (1) dissolved oxygen concentration must not be reduced below the levels given in MDEQ circular WQB-7, (2) induced variation of hydrogen ion concentration (pH) within the range of 6.5 to 8.5 must be less than 0.5 pH unit (natural pH outside of this range must be maintained without change, and natural pH above 7.0 must be maintained above 7.0), (3) the maximum allowable increase above naturally occurring turbidity is 5 nephelometric turbidity units except as permitted in **ARM** ' 17.30.637, (4) temperature increases must be kept within prescribed limits, (5) no increases above naturally occurring concentrations of sediment, settleable solids, oils, floating solids, which will or are likely to create a nuisance or render the waters harmful, detrimental, or injurious to public health, recreation, safety, welfare, livestock, wild animals, birds, fish or other wildlife are allowed, and (6) true color must not be increased more than five units above naturally occurring color.

ARM ' 17.30.637 (applicable). Provides that surface waters must be free of substances attributable to industrial practices or other discharges that will: (a) settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines, (b) create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 milligrams per liter) or globules of grease or other floating materials, (c) produce odors, colors or other conditions that create a nuisance or render undesirable tastes to fish flesh or make fish inedible, (d) create concentrations or combinations of materials that are toxic or harmful to human, animal, plant or aquatic life, (e) create conditions that produce undesirable aquatic life.

ARM ' 17.30.637 also states that no waste may be discharged and no activities conducted that, either alone or in combination with other waste activities, will cause violation of surface water quality standards; provided a short term exemption from a surface water quality standard may be authorized by the department for Aemergency remediation activities@ under the conditions specified in ' 75-5-308, **MCA**.

ARM ' 17.30.705 (applicable). Existing and anticipated uses of surface water and water quality necessary to support those uses must be maintained and protected.

3.2.3 Montana Ambient Air Quality Regulations

Montana Ambient Air Quality Regulations, ARM ' ' 17.8.206, -.222, -.220, and -.223 (applicable). The following provisions establish air quality standards.

ARM ' 17.8.206. This provision establishes sampling, data collection, and analytical requirements to ensure compliance with ambient air quality standards.

ARM ' 17.8.222. Lead emissions to ambient air shall not exceed a ninety (90) day average of 1.5 micrograms per cubic liter of air.

ARM ' 17.8.220. Settled particulate matter shall not exceed a thirty (30) day average of 10 grams per square meter.

ARM ' 17.8.223. PM-10 concentrations in ambient air shall not exceed a 24 hour average of 150 micrograms per cubic meter of air and an annual average of 50 micrograms per cubic meter of air.

4.0 LOCATION-SPECIFIC ARARS

The statutes and regulations set forth below concern solid waste, floodplains, floodways, streambeds, and the preservation of certain cultural, historic, natural or other national resources located in areas that may be adversely affected by the Flat Creek/IMM NPL Site (OU1) [RV2] removal action.

4.1 Federal

4.1.1 National Historic Preservation Act

National Historic Preservation Act, 16 USC ' 470, 40 CFR ' 6.301(b), 36 CFR Part 63, Part 65, and Part 800 (NHPA) (applicable). This statute and implementing regulations require Federal agencies to take into account the effect of a response action upon any district, site, building, structure, or object that is included in or eligible for inclusion in the Register of Historic Places. Compliance with NHPA requirements, if any, will be attained through agreements among EPA, the State of Montana, Mineral County, and the Town of Superior during the implementation of the removal action.

4.1.2 Archaeological and Historic Preservation Act

Archaeological and Historic Preservation Act, 16 USC ' 469, 40 CFR 6.301(c) (applicable). This statute and its implementing regulations establish requirements for the evaluation and preservation of historical and archaeological data that may be destroyed through alteration of terrain as a result of a Federal construction project or a federally licensed activity or program. EPA or potentially responsible parties (PRP) are required to survey the site for covered scientific, prehistorical or archaeological artifacts. The results of this survey will be reflected in the Administrative Record. Preservation of appropriate data concerning the artifacts is hereby identified as an ARAR requirement, to be completed during the implementation of the removal action.

4.1.3 Historic Sites Act of 1935

Historic Sites Act of 1935, 16 USC ' 461, et seq., 40 CFR 6.310(a) (applicable). This statute and its implementing regulations require federal agencies to consider the existence and location of landmarks on the National Registry of National Landmarks and to avoid undesirable impacts on such landmarks.

4.1.4 Protection and Enhancement of the Cultural Environment

Executive Order 11593 Protection and Enhancement of the Cultural Environment, 16 USC ' 470 (applicable). This order directs federal agencies to institute procedures to ensure programs contribute to the preservation and enhancement of non-federally owned historic resources. Consultation with the Advisory Council on Historic Preservation is required if removal activities should threaten cultural resources.

4.1.5 The Archaeological Resources Protection Act of 1979

The Archaeological Resources Protection Act of 1979, 16 USC ' ' 470aa-47011 (relevant and appropriate). Requires a permit for any excavation or removal of archeological resources

from public lands or Indian lands. Substantive portions of this act may be relevant and appropriate if archeological resources are encountered during removal action activity.

4.1.6 American Indian Religious Freedom Act

American Indian Religious Freedom Act, 42 U.S.C. ' 1996, et seq. (applicable). This Act establishes federal responsibility for protection and preservation of the rights of Native Americans to believe, express and exercise the traditional religions of American Indians. This right includes, but is not limited to, access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. The Act requires Federal agencies to protect Indian religious freedom by refraining from interfering with access, possession and use of religious objects, and by consulting with Indian organizations regarding proposed actions affecting their religious freedom.

4.1.7 Native American Graves Protection and Repatriation Act

Native American Graves Protection and Repatriation Act, 25 U.S.C. ' 3001, et seq. (applicable). This Act prioritizes ownership or control over Native American cultural items, including human remains, funerary objects and sacred objects, excavated or discovered on Federal or tribal lands. Federal agencies and museums that have possession or control over Native American human remains and associated funerary objects are required under the Act to compile an inventory of such items and, to the extent possible, identify their geographical and cultural affiliation. Once the cultural affiliation of such objects is established, the Federal agency or museum must expeditiously return such items, upon request by a lineal descendent of the individual Native American or tribe identified.

4.1.8 Fish and Wildlife Coordination Act

Fish and Wildlife Coordination Act, 16 USC ' 661, 40 CFR 6.302 (applicable). This statute and its implementing regulations require that Federal agencies or federally funded projects ensure that any modification of any stream or other water body affected by any action authorized or funded by the Federal agency provides for adequate protection of fish and wildlife resources. Compliance with this ARAR requires EPA to consult with the U.S. Fish and Wildlife Service and the Montana Department of Fish, Wildlife, and Parks. Further consultation will occur during the removal action.

4.1.9 Endangered Species Act

Endangered Species Act, 16 USC ' 1531, 50 CFR Parts 17 and 402 (applicable). This statute and its implementing regulations prohibits federal activities from jeopardizing the continued existence of any threatened or endangered species. The remedy selection process, including the Feasibility Study, should identify whether the proposed removal actions will impact threatened and/or endangered species and/or their habitat, and what avoidance or mitigative measures are necessary.

4.1.10 Floodplain Management Regulations

Floodplain Management Regulations ,Executive Order No. 11988 and 40 CFR ' 6.302(b) (applicable). These authorities require that actions be taken to avoid, to the extent possible, adverse effects associated with direct or indirect development of a floodplain, or to minimize adverse impacts if no practicable alternative exists.

4.1.11 Protection of Wetlands Regulations

Protection of Wetlands Regulations, 40 CFR Part 6, Appendix A, and Executive Order No. 11990 (applicable). This ARAR requires federal activities to avoid the destruction or loss of wetlands and to avoid construction in wetlands if a practicable alternative exists. Wetlands are defined as those areas that are inundated or saturated by groundwater or surface water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Compliance with this ARAR will be achieved through consultation with the U.S. Fish and Wildlife Service and the U.S. Army Corps of Engineers to determine the existence and category of wetlands present at the site, and any avoidance or mitigation and replacement that may be necessary.

4.1.12 Clean Water Act

Section 404, Clean Water Act, 33 USC ' ' 1251 et seq., 33 CFR Part 330 (applicable). Regulates discharge of dredged or fill materials into waters of the United States.

4.1.13 Migratory Bird Treaty Act

Migratory Bird Treaty Act, 16 USC ' 703, et seq. (applicable). This requirement establishes federal responsibility for the protection of the international migratory bird resource and requires continued consultation with the USFWS during the removal action to ensure that the cleanup of the site does not unnecessarily impact migratory birds. Specific mitigative measures may be identified for compliance with this requirement.

4.1.14 Bald Eagle Protection Act

Bald Eagle Protection Act, 16 USC ' 668, et seq. (applicable). This requirement establishes federal responsibility for protection of bald and golden eagles, and requires continued consultation with the U.S. Fish and Wildlife Service during the removal action to ensure that any cleanup of the site does not unnecessarily adversely affect the bald and golden eagles. Specific mitigative measures may be identified for compliance with this requirement

4.1.15 Resource Conservation and Recovery Act

Resource Conservation and Recovery Act and regulations at 40 CFR ' 264.18 (a) and (b) (relevant and appropriate). These regulations provide seismic and floodplain restrictions on the location of a waste management unit.

4.2 State

4.2.1 Montana Antiquities Act

Montana Antiquities Act, MCA ' 22-3-421, et seq., (relevant and appropriate). The Montana Antiquities Act addresses the responsibilities of State agencies toward historic and prehistoric sites, including buildings, structures, paleontological sites, and archaeological sites on state owned lands. Each State agency is responsible for establishing rules regarding historic resources under their jurisdiction which address National Register eligibility, appropriate permitting procedures and other historic preservation goals. The State Historic Preservation Office maintains information related to the responsibilities of State Agencies under the Antiquities Act.

4.2.2 Montana Human Skeletal Remains and Burial Site Protection Act

Montana Human Skeletal Remains and Burial Site Protection Act (1991), MCA ' 22-3-801(applicable). The Human Skeletal Remains and Burial Site Protection Act is intended to ensure that all graves within the State of Montana are adequately protected. If human skeletal remains or a burial site are encountered during removal activities at the Flat Creek/IMM NPL Site (OU1) [RV2], then these requirements will be applicable.

4.2.3 Montana Floodplain and Floodway Management Act

Montana Floodplain and Floodway Management Act and Regulations, MCA ' 76-5-401, et seq., ARM ' 36.15.601, et seq. (applicable). The Floodplain and Floodway Management Act and regulations specify types of uses and structures that are allowed or prohibited in the designated 100-year floodway[7] and floodplain.[8] Since the Flat Creek/IMM NPL Site (OU1) [RV2] contains several creeks and areas that can flood, these standards are relevant to all actions within floodplain areas.

A. Allowed uses. The law recognizes certain uses in a floodway and a broader range of uses in a floodplain. Residential use is among the uses expressly recognized in both the floodway and floodplain. "Residential uses such as lawns, gardens, parking areas, and play areas," as well as certain agricultural, industrial-commercial, recreational and other uses are permissible within the designated floodway, provided they do not require structures other than portable structures, fill, or permanent storage of materials or equipment. MCA ' 76-5-401; ARM ' 36.15.601 (Applicable). In addition, in the flood fringe (i.e., within the floodplain but outside the floodway), residential, commercial, industrial, and other structures may be permitted subject to certain conditions relating to placement of fill, roads, floodproofing, etc. MCA ' 76-5-402; ARM ' 36.15.701 (Applicable). Domestic water supply wells may be permitted, even within the floodway, provided the well casing is watertight to a depth of 25 feet and the well meets certain conditions for floodproofing, sealing, and positive drainage away from the well head. ARM ' 36.15.602(6).

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7 The "floodway" is the channel of a watercourse or drainway and those portions of the floodplain adjoining the channel that are reasonably required to carry and discharge the floodwater of the watercourse or drainway. ARM ' 36.15.101(13).

8 The "floodplain" is the area adjoining the watercourse or drainway that would be covered by the floodwater of a base (100-year) flood except for sheetflood areas that receive less than one foot of water per occurrence. The floodplain consists of the floodway and flood fringe. ARM ' 36.15.101(11).

B. Prohibited uses. Uses prohibited anywhere in either the floodway or the floodplain include:

- P solid and hazardous waste disposal; and
- P storage of toxic, flammable, hazardous, or explosive materials.

ARM ' ' 36.15.605(2) and 36.15.703 (Applicable); see also ARM ' 36.15.602(5)(b) (Applicable).

In the floodway, additional prohibitions apply, including:

- P a building for living purposes or any place of assembly or permanent use by human beings;
- P any structure or excavation that will cause water to be diverted from the established floodway, cause erosion, obstruct the natural flow of water, or reduce the carrying capacity of the floodway; and
- P any construction or permanent storage of an object subject to flotation or movement during flood level periods.

MCA ' 76-5-402 (Applicable).

C. Applicable considerations for use of floodplain or floodway. Regulations specify factors that must be considered in allowing diversions of a stream, changes in place of diversion of a stream, flood control works, new construction or alteration of artificial obstructions, or any other nonconforming use within a floodplain or floodway. Many of these requirements are set forth as factors that must be considered in determining whether a permit can be issued for certain obstructions or uses. While permit requirements are not directly applicable to removal actions conducted entirely on site, the substantive criteria used to determine whether a proposed obstruction or use is permissible within the floodway or floodplain are applicable standards. Factors that must be considered in addressing any obstruction or use within a floodway or floodplain include:

- P the danger to life and property from backwater or diverted flow caused by an obstruction or use;
- P the danger that an obstruction or use will be swept downstream an injure others;
- P the availability of alternate locations;
- P the construction or alteration of an obstruction or use in such a manner that will lessen any danger;
- P the permanence of an obstruction or use; and
- P any development anticipated in the foreseeable future within the area that may be affected by the obstruction or use.

See MCA ' 76-5-406; ARM ' 36.15.216 (Applicable, substantive provisions only). Conditions or restrictions that generally apply to specific activities within a floodway or floodplain include:

- the proposed activity, construction, or use cannot increase the upstream elevation of the 100-year flood a significant amount (2 foot or as otherwise determined by the permit issuing authority) or significantly increase flood velocities, ARM ' 36.15.604 (Applicable, substantive provisions only); and

- the proposed activity, construction, or use must be designed and constructed to minimize potential erosion.

The following applicable regulations set forth substantive conditions and restrictions applicable to specific obstructions or uses:

Excavation of material from pits or pools - ARM ' 36.15.602(1).

Water diversions or changes in place of diversion - ARM ' 36.15.603.

Flood control works (levees, floodwalls, and riprap must comply with specified safety standards) - ARM ' 36.15.606.

Roads, streets, highways and rail lines (must be designed to minimize increases in flood heights) - ARM ' 36.15.701(3)(c).

Structures and facilities for liquid or solid waste treatment and disposal (must be floodproofed to ensure that no pollutants enter flood waters and may be allowed and approved only in accordance with Montana Department of Environmental Quality (MDEQ) regulations, which include certain additional prohibitions on such disposal) - ARM ' 36.15.701(3)(d).

Residential structures -ARM ' 36.15.702(1).

Commercial or industrial structures - ARM ' 36.15.702(2).

4.2.4 Montana Stream Protection Requirements

Montana Natural Streambed and Land Preservation Act and Regulations, MCA ' 75-7-101, et.seq., and ARM ' ' 36.2.401, et.seq., (applicable). Applicable if this removal action alters or affects a streambed or its banks. The adverse effects of any such action must be minimized.

ARM 36.2.410 (Applicable) establishes minimum standards applicable to a response action that alters or affects a streambed, including any channel change, new diversion, riprap or other streambank protection project, jetty, new dam or reservoir or other commercial, industrial or residential development. Projects must be designed and constructed using methods that minimize adverse impacts to the stream (both upstream and downstream) and future disturbances to the stream. All disturbed areas must be managed during construction and reclaimed after construction to minimize erosion. Temporary structures used during construction must be designed to handle high flows reasonably anticipated during the construction period. Temporary structures must be completely removed from the stream channel at the conclusion of construction, and the area must be restored to a natural or stable condition. Channel alterations must be designed to retain original stream length or otherwise provide hydrologic stability. Streambank vegetation must be protected except where removal of such vegetation is necessary for the completion of the project. When removal of vegetation is necessary, it must be kept to a minimum. Riprap, rock, and other material used in a project must be of adequate size,

shape, and density and must be properly placed to protect the streambank from erosion. The placement of road fill material in a stream, the placement of debris or other materials in a stream where it can erode or float into the stream, projects that permanently prevent fish migration, operation of construction equipment in a stream, and excavation of streambed gravels are prohibited unless specifically authorized by the district. Such projects must also protect the use of water for any useful or beneficial purpose. See ' 75-7-102, MCA.

MCA ' ' 87-5-502 and 504 (Applicable -- substantive provisions only). These statutes provide that a state agency or subdivision shall not construct, modify, operate, maintain or fail to maintain any construction project or hydraulic project that may or will obstruct, damage, diminish, destroy, change, modify, or vary the natural existing shape and form of any stream or its banks or tributaries in a manner that will adversely affect any fish or game habitat. The Natural Streambed and Land Preservation Act of 1975, MCA ' 75-7-101, et seq., (Applicable -- substantive provisions only) includes similar requirements and is applicable to private parties as well as government agencies.

Consultation with the Montana Department of Fish, Wildlife and Parks, and any conservation district or board of Mineral County commissioners (or consolidated city/county government) is encouraged during the designing and implementing of the removal action for the Flat Creek/IMM NPL Site (OU1) [RV2].

4.2.5 Montana Solid Waste Management Act

Montana Solid Waste Management Act and regulations. MCA ' 75-10-201, et seq., ARM ' 17.50.505 (applicable). These authorities set forth requirements governing the location of any solid waste management facility. Among other things, the location must have sufficient acreage, must not be within a 100-year floodplain, must be located in a manner that will prevent pollution of ground, surface, and private and public water supply systems, and must allow for reclamation of the land. These standards apply to any facility for the treatment, storage, or disposal of mine wastes, including, for example, any mine waste repository, tailings deposit, or waste rock pile that is actively managed as part of a response action.

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5.0 ACTION-SPECIFIC ARARS

5.1 Federal and State Water Protection Requirements

5.1.1 Clean Water Act

Clean Water Act, Point Source Discharges requirements, 33 USC ' 1342 (applicable, substantive provisions only). Section 402 of the Clean Water Act, 33 USC ' 1342, et seq., authorizes the issuance of permits for the Adischarge@ of any Apollutant.@ This includes storm water discharges associated with Aindustrial activity.@ See, 40 CFR ' 122.1(b)(2)(iv). Aindustrial activity includes inactive mining operations that discharge storm water contaminated by contact with or that has come into contact with any overburden, raw material, intermediate products, finished products, byproducts or waste products located on the site of such operations, see, 40 CFR ' 122.26(b)(14)(iii); landfills, land application sites, and open dumps that receive or have received any industrial wastes including those subject to regulation under RCRA subtitle D, see, 40 CFR ' 122.26(b)(14)(v); and construction activity including clearing, grading, and excavation activities, see, 40 CFR ' 122.26(b)(14)(x). Because the State of Montana has been delegated the authority to implement this portion of the Clean Water Act, these permit requirements are enforced in Montana through the Montana Pollutant Discharge Elimination System (MPDES), as follows.

5.1.2 Montana Pollutant Discharge Elimination System

Substantive MPDES Permit Requirements, ARM ' ' 17.30.1342-1344 (applicable). These regulations set forth substantive requirements applicable to all MPDES and National Pollutant Discharge Elimination System (NPDES) permits, including the requirement to properly operate and maintain all facilities and systems of treatment and control are applicable to a repository containing mine waste.

Technology-Based Treatment, ARM ' ' 17.30.1203 and 1344 (applicable). These regulatory sections adopt and incorporate the provisions of 40 CFR Part 125 and set out criteria and standards for the imposition of technology-based treatment standards in MDEQ permits. Although this permit requirement would not apply to on-site discharges, the substantive requirements of Part 125 are applicable, i.e., for toxic and nonconventional pollutants treatment must apply the best available technology economically achievable (BAT); for conventional pollutants, application of the best conventional pollutant control technology (BCT) is required. Where effluent limitations are not specified for the particular industry or industrial category at issue, BCT/BAT technology-based treatment requirements are determined on a case by case basis using best professional judgment (BPJ). See CERCLA Compliance with Other Laws Manual, Vol. I, August 1988, p. 3-4 and 3-7.

5.1.3 Water Quality Statutes and Regulations

Causing of Pollution, MCA ' 75-5-605 (applicable). This section of the Montana Water Quality Act prohibits the causing of pollution of any state waters. Pollution is defined as contamination or other alteration of physical, chemical, or biological properties of state waters which exceeds that permitted by the water quality standards. Also, it is unlawful to place or caused to be placed any wastes where they will cause pollution of any state waters. Any permitted placement of waste is not placement if the agency's permitting authority contains

provisions for review of the placement of materials to ensure it will not cause pollution to state waters.

Nondegradation. MCA ' 75-5-303(applicable). This statutory provision states that existing uses of state waters and the level of water quality necessary to protect those uses must be maintained and protected. Section MCA ' 75-5-317 provides an exemption from nondegradation requirements, which allows a change in existing water quality that results from an emergency or removal activity designed to protect the public health or the environment and that is approved, authorized, or required by MDEQ. Degradation meeting these requirements may be considered nonsignificant. In determining that a removal action is protective of human health and the environment and in approving, authorizing, or requiring such removal activities, no significant degradation should be allowed.

ARM ' 17.30.705 (applicable). This rule provides that existing and anticipated uses of surface water must be protected, and the water quality necessary to protect these uses must be maintained and protected unless degradation is allowed under the nondegradation rules at ARM ' 17.30.708.

ARM ' 17.30.1011 (applicable). This rule provides that where the existing quality of groundwater is higher than the standard for its classification, the existing level of water quality must be maintained unless degradation is allowed under MCA ' 75-5-303 and the nondegradation rules at ARM ' 17.30.701, et seq.

5.1.4 Stormwater Runoff Control Requirements

ARM ' 17.24.633 (applicable). All surface drainage from a disturbed area must be treated by the best technology currently available.

General Permits (applicable). Under ARM ' 17.30.601, et seq., and ARM ' 17.30.1301, et seq., including ARM ' 17.30.1332, the Water Quality Division has issued general storm water permits for certain activities. The substantive requirements of the following permits are applicable for the following activities: for construction activities B General Permit for Storm Water Discharge Associated with Construction Activity, Permit No. MTR100000 (June 8, 2002); for mining activities B General Discharge Permit for Storm Water Associated with Mining and with Oil and Gas Activities, Permit No. MTR300000 (September 10, 1997);[9] and for industrial activities B General Permit for Storm Water Discharge Associated with Industrial Activity, Permit No. MTR000000 (October 1, 2001).[10]

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9 This permit covers point source discharges of storm water from mining and milling activities (including active, inactive, and abandoned mine and mill sites) including activities with Standard Industrial Code 14 (metal mining).

10 Industrial activities are defined as all industries defined in 40 CFR '' 122, 123, and 124, excluding construction, mining, oil & gas extraction activities and storm water discharges subject to effluent

General permits require the permittee to implement best management practice (BMP) and to take all reasonable steps to minimize or prevent any discharge which has a reasonable likelihood of adversely affecting human health or the environment. However, if there is evidence indicating potential or realized impacts on water quality due to any storm water discharge associated with the activity, an individual MPDES permit or alternative general permit may be required.

Surface Water. ARM ' 17.30.637 (applicable). This rule prohibits discharges containing substances that will: (a) settle to form objectionable sludge deposits or emulsions beneath the surface of the water or upon adjoining shorelines; (b) create floating debris, scum, a visible oil film (or be present in concentrations at or in excess of 10 milligrams per liter) or globules of grease or other floating materials; (c) produce odors, colors or other conditions which create a nuisance or render undesirable tastes to fish flesh or make fish inedible; (d) create concentrations or combinations of materials which are toxic or harmful to human, animal, plant or aquatic life; or (e) create conditions which produce undesirable aquatic life.

5.2 Federal and State RCRA Subtitle C Requirements

Federal and State RCRA Subtitle C Requirements, 42 U.S.C. Section 6921, et seq. (relevant and appropriate for solid wastes, applicable for hazardous wastes). The RCRA Subtitle C requirements set forth in this section assume that there will be solid wastes at the Flat Creek/IMM NPL Site (OU1) [RV2] and that some of these may be left in place in Awaste management areas@ as a result of the removal action. Because of the similarity of these waste management areas to RCRA Awaste management units,@ certain discrete portions of the RCRA Subtitle C implementing regulations will be relevant and appropriate for the Flat Creek/IMM NPL Site (OU1) [RV2] removal action. RCRA Subtitle C and implementing regulations are designated as applicable for any hazardous wastes that are actively Agenerated@ as part of the removal action or that were Aplaced@ or Adisposed@ after 1980. Also, should hazardous wastes be discovered as part of any work done pursuant to the removal action, EPA reserves the right to identify RCRA Subtitle C requirements in more detail at a later date. All federal RCRA Subtitle C requirements set forth below are incorporated by reference as State of Montana requirements as provided for under ARM ' 17.54.112(6) unless mentioned otherwise below.

40 CFR Part 264 Subpart F.

General Facility Standards. These are potentially relevant and appropriate for solid wastes at this site. Any waste management unit or similar area would be required to comply with the following requirements.

> 40 CFR ' 264.92, .93, and .94. These regulations set forth groundwater protection standards.
>
> 40 CFR ' 264.97. This regulation prescribes general groundwater monitoring requirements.
>
> 40 CFR ' 264.98. This regulation prescribes requirements for monitoring and detecting indicator parameters.

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limitations guidelines. This includes wood treatment operations, as well as the production of slag.

Closure requirements.

40 CFR ' 264.111. This regulation provides that the owner or operator of a hazardous waste management facility must close the facility in a way that minimizes the need for further maintenance, and controls or eliminates the leaching or escape of hazardous waste or its constituents, leachate, or runoff to the extent necessary to protect human health and the environment.

40 CFR ' 264.117. This regulation incorporates monitoring requirements in **40 CFR** Part **264**, including those mentioned at Part **264**.97 and Part **264.303**. It governs the length of the post-closure care period, permits a lengthened security period, and prohibits any use of the property which would disturb the integrity of the management facility.

40 CFR ' 264.310. This section specifies requirements for caps, maintenance, and monitoring after closure.

40 CFR ' 264.301. This section prescribes design and operating requirements for landfills.

40 CFR ' 264.301(a). This section provides for a single liner and leachate collection and removal system.

40 CFR ' 264.301(f). This section requires a run-on control system.

40 CFR ' 264.301(g). This section requires a run-off management system.

40 CFR ' 264.301(h). This section requires prudent management of facilities for collection and holding of run-on and run-off.

40 CFR ' 264.301(i). This section requires that wind dispersal of particulate matter be controlled.

5.3 Federal and State RCRA Subtitle D and Solid Waste Management Requirements

40 CFR Part 257 establishes criteria under **Subtitle D** of the **R**esource **C**onservation and **R**ecovery **A**ct for determining which solid waste disposal facilities and practices may pose adverse effects on human health or the environment. See **40 CFR** ' 257.1(a). Part 257 governs a Adisposal@ of any solid or hazardous waste from a Afacility.@ A Adisposal@ is defined as Athe discharge, deposit, injection, dumping, spilling, leaking, or placing of any solid waste or hazardous waste into or on any land or water so that such solid waste or hazardous waste or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including ground waters.@ See **40 CFR** ' 257.2. AFacility@ means Aany land and appurtenances thereto used for the disposal of solid wastes.@ Solid waste requirements are listed herein because mine wastes to be addressed in the removal action are considered solid waste.

5.3.1. Federal Requirements

40 CFR ' 257 (applicable). Criteria for Classification of Solid Waste Disposal Facilities and Practices. The activities to be performed for the Flat Creek/IMM NPL Site (OU1) [RV2] removal action are expected to comply with the following requirements.

40 CFR ' 257.3-1. This section prohibits washout of solid waste in facilities in a floodplain posing a hazard to human life, wildlife, or land or water resources.

40 CFR ' 257.3-2. Facilities shall not contribute to the taking of endangered species or the endangering of critical habitat of endangered species.

40 CFR ' 257.3-3. A facility shall not cause a discharge of pollutants, dredged or fill material, into waters of the United States in violation of Sections **402** and **404** of the Clean Water Act, as amended, and shall not cause non-point source pollution, in violation of applicable legal requirements implementing an area wide or statewide water quality management plan that has been approved by the Administrator under Section **208** of the Clean Water Act, as amended.

40 CFR ' 257.3-4. A facility shall not contaminate an underground source of drinking water beyond the solid waste boundary or beyond an alternative boundary specified in accordance with this section.

40 CFR ' 257.3-8(d). Access to a facility shall be controlled to prevent public exposure to potential health and safety hazards at the site.

5.3.2. State of Montana Solid Waste Requirements.

The Montana Solid Waste Management Act ' **75-10-201** et seq., MCA, and regulations promulgated there under are applicable to the management and disposal of all solid wastes, including mine wastes, at sites that are not currently subject to operating permit requirements.

ARM ' 17.50.505(1) and (2) (applicable). This rule sets forth standards for solid waste disposal sites, including the requirements that: (1) Class II landfills must confine solid waste and leachate to the disposal facility (if there is the potential for leachate migration, it must be demonstrated that leachate will only migrate to underlying formations which have no hydraulic continuity with any state waters); (2) disposal must provide for adequate separation of group II wastes from underlying or adjacent water; and (3) no new disposal units or lateral expansions may be located in wetlands. ARM ' **17.50.505** also sets forth general soil and hydrogeological requirements governing the location of any solid waste management facility.

ARM ' 17.50.506 (applicable). This rule specifies design requirements for landfills. Landfills must be designed to ensure that MCLs are not exceeded, or the landfill must contain a composite liner and leachate collection system that comply with specified criteria.

ARM ' 17.50.510 (applicable). This rule sets forth general operation, maintenance, and design requirements for solid waste facilities using land filling methods. Specific requirements in ARM ' **17.50.510** include run-on and run-off control systems requirements, requirements that sites be fenced to prevent unauthorized access, and prohibition of point source and nonpoint source discharges that violate Clean Water Act requirements.

MCA ' 75-10-212 and ARM ' 17.50.523 (applicable). For solid wastes, MCA ' **75-10-212** prohibits dumping or leaving any debris or refuse upon or within **200** yards of any highway, road, street, or alley of the State or other public property, or on privately owned property where

hunting, fishing, or other recreation is permitted. **ARM** ' 17.50.523 specifies that solid waste must be transported in such a manner as to prevent its discharge, dumping, spilling or leaking from the transport vehicle.

MCA ' 75-10-206 (applicable). This statute provides a variance from certain solid waste requirements where such variance would not result in a danger to public health or safety. Certain solid waste regulations governing landfill design, **ARM** 17.50.506, operation and maintenance requirements, **ARM** 17.50.510, and landfill closure and post-closure requirements, **ARM** 17.50.530-531 may be subject to a variance if the requirements of ' 75-10-206, **MCA**, are met.

ARM ' 17.50.530 (applicable). This rule sets forth closure requirements for landfills. Class II landfills must meet the following criteria: (1) installation of a final cover designed to minimize infiltration and erosion; (2) design and construction of a final cover system to minimize infiltration through the closed unit by the use of an infiltration layer containing a minimum 18 inches of earthen material and which has a permeability less than or equal to the permeability of any bottom liner, barrier layer, or natural subsoils or a permeability no greater than 1 X 10-5 cm/sec, whichever is less; (3) minimization of erosion of the final cover using a seed bed layer that contains a minimum of six inches of earthen material capable of sustaining native plant growth and protecting the infiltration layer from frost effects and rooting damage; (4) re-vegetation of the final cover with native plants within one year of placement of the final cover.

ARM ' 17.50.531 (applicable). This rule sets forth post closure care requirements for Class II landfills. Post closure care must be conducted for a period sufficient to protect human health and the environment. Post closure care requires maintenance of the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the cover and comply with the groundwater monitoring requirements found at **ARM** Title 17, chapter 50, subchapter 7.

5.4 Federal and State Mine Reclamation Requirements

5.4.1 Surface Mining Control and Reclamation Act

Surface Mining Control and Reclamation Act, 30 USC ' ' 1201-1326 (relevant and appropriate). This Act and the implementing regulations found at 30 CFR Parts 784 and 816 establish provisions designed to protect the environment from the effects of surface coal mining operations, and to a lesser extent non-coal mining. These requirements are relevant and appropriate to the covering of discrete areas of contamination. These regulations require re-vegetation to stabilize soil covers over reclaimed areas. They also require that revegetation be done according to a plan that specifies schedules, use of diverse and effective species, planting methods, mulching techniques, irrigation if appropriate, and appropriate soil testing. Reclamation performance standards are currently relevant and appropriate to mining waste sites.

5.4.2 Montana Statutory and Regulatory Requirements

Montana Strip and Underground Mine Reclamation Act, MCA ' 82-4-201, et seq. (relevant and appropriate). Certain portions of the following statutory or regulatory provisions, as identified below, are relevant and appropriate requirements.

MCA ' 82-4-231. This statute requires operators to reclaim and revegetate affected lands using the most modern technology available. Operators must grade, backfill, topsoil, reduce high walls, stabilize subsidence, control water, minimize erosion, subsidence, land slides, and water pollution.

MCA ' 82-4-233. Operators must plant vegetation that will yield a diverse, effective, and permanent cover of the same seasonal variety of plants native to the area and capable of self-regeneration.

Montana Metal Mining Reclamation Act, MCA ' 82-4-301, et seq. (relevant and appropriate). Certain portions of the following statutory or regulatory provisions, as identified below, are relevant and appropriate requirements.

MCA ' 82-4-336. This statute requires that disturbed areas be reclaimed to utility and stability comparable to adjacent areas.

ARM ' 17.24.501. This Rule sets out general backfilling and grading requirements. Backfill must be placed in a way that will minimize sedimentation, erosion, and leaching of acid or toxic materials into waters. Final grading must approximate the original contour of the land and final slopes must prevent slope failure, may not exceed the angle of repose, and must achieve a minimum long term static safety factor of 1:3. The disturbed area must blend with surrounding and undisturbed ground to provide a smooth transition in topography.

ARM ' 17.24.519. This rule requires that regraded areas be monitored for settling, and potential modification of reclamation, spoiling and grading techniques to alleviate uneven settling problems. Pertinent areas of the Flat Creek/IMM NPL Site (OU1) [RV2] where excavation will occur will be regraded to minimize settlement.

ARM ' 17.24.631(1), (2), (3)(a) and (b). This rule requires minimization of disturbances to the prevailing hydrologic balance. Changes in water quality and quantity, in the depth to groundwater and in the location of surface water drainage channels will be minimized to the extent consistent with the selected removal action. Other pollution minimization devices must be used if appropriate, including stabilization of disturbed areas through land shaping, diverting runoff, planting quickly-germinating and growing stands of temporary vegetation, regulating channel velocity of water, lining drainage channels with rock or vegetation, mulching, and control of acid-forming, and toxic-forming waste materials.

ARM ' 17.24.633. This rule requires treatment of surface drainage from a disturbed area by the best technology currently available (BTCA). Treatment must continue until the area is stabilized.

ARM ' 17.24.634. This rule requires restoration of disturbed drainages to the approximate pre-disturbance configuration, to the extent consistent with the selected removal action. A restored drainage must emphasize channel and floodplain dimensions that approximate the pre-mining configuration and that will blend with the undisturbed drainage above and below the area to be reclaimed. The average stream gradient must be maintained with a concave longitudinal profile. This rule requires that reclaimed drainage be designed to: (1) approximate an appropriate geomorphic habit or characteristic pattern; (2) remain in dynamic equilibrium with the system without the use of artificial structural controls; (3) improve unstable premining conditions; (4) provide for floods and for the long-term stability of the landscape; and (5) establish a premining diversity of aquatic habitats and riparian vegetation.

ARM ' 17.24.638. This rule requires implementation of sediment control measures during operations.

ARM ' 17.24.639. This rule sets forth requirements for construction and maintenance of sedimentation ponds.

ARM ' 17.24.640. This rule requires control of discharges from sedimentation ponds, permanent and temporary impoundments, to reduce erosion and enlargement of stream channels, and to minimize disturbance of the hydrologic balance.

ARM ' 17.24.641. Establishes practices to avoid drainage from acid or toxic forming spoil material into ground and surface water that may be detrimental to vegetation or adversely affect water quality.

ARM ' ' 17.24.643 through 17.24.646. This rule provides for groundwater protection, groundwater recharge protection, and groundwater and surface water monitoring.

ARM ' ' 17.24.701 and 702. This rule sets out requirements for redistributing and stockpiling of soil for reclamation. It also outlines practices to prevent compaction, slippage, erosion, and deterioration of biological properties of soil will be employed.

ARM ' 17.24.703. When using materials other than, or along with, soil for final surfacing in reclamation, the operator must demonstrate that the material: (1) is able to support the approved vegetation and subsequent land use at least as well the soil removed, and (2) must be the best available in the area to support vegetation. Such substitutes must be consistent with the requirements for redistribution of soil in **ARM ' 17.24.701** and **702**.

ARM ' 17.24.711. This rule requires establishment of a diverse, effective and permanent vegetative cover of the same seasonal variety and utility as the vegetation native to the area of land affected. This provision would not be relevant and appropriate in certain instances, for example, where there is dedicated development.

ARM ' 17.24.713. Seeding and planting of disturbed areas must be conducted during the first appropriate period favorable for planting after final seedbed preparation, but seeding and planting may not occur more than **90** days after soil has been replaced.

ARM ' 17.24.714. Mulch or cover crop or both must be used until adequate permanent cover can be established.

ARM ' 17.24.716. This rule establishes methods of revegetation.

ARM ' 17.24.717. This rule governs the planting of trees and other woody species, if necessary, as provided in ' **82-4-233**, **MCA**, to establish a diverse, effective, and permanent vegetative cover of the same seasonal variety of plants native to the affected area and capable of self-regeneration and succession equal to the natural vegetation of the area, except that introduced species may be used in the revegetation process where desirable and necessary to achieve an approved land use plan.

ARM ' 17.24.718. This rule requires soil amendments, irrigation, management, fencing, or other measures, if necessary, to establish a diverse and permanent vegetative cover.

ARM ' 17.24.721. This rule specifies that rills or gullies in reclaimed areas must be filled, graded or otherwise stabilized and the area reseeded or replanted if the rills and gullies are disrupting the reestablishment of the vegetative cover or causing or contributing to a violation of water quality standards for a receiving stream.

ARM ' 17.24.723. This rule requires that operators conduct approved periodic measurements of vegetation, soils, water, and wildlife during the period of liability.

ARM ' 17.24.724. This rule specifies that revegetation success must be measured against approved unmined reference areas or by comparison with technical standards from historic data. More than one reference area or historic record must be established for vegetation types with significant variation due to certain factors. This rule also sets for required management for these reference areas.

ARM ' 17.24.726. This rule requires standard and consistent field and laboratory methods to obtain vegetation production, cover, diversity, density and utility data, and sets out the methods for measuring and documenting productivity.

ARM ' 17.24.728. This rule establishes performance standards for native species and introduced species in revegetated areas.

ARM ' ' 17.24.730 and 17.24.731. This rule provides that the revegetated area must furnish palatable forage in comparable quantity and quality during the same grazing period as the reference area or as compared to a technical standard derived from historic records. If toxicity to plants or animals on the revegetated area or the reference area is suspected due to the effects of the disturbance, comparative chemical analyses may be required.

ARM ' 17.24.733. This rule provides performance standards for composition and stocking of trees, shrubs and half-shrubs on the revegetated area and for measurement of revegetation success.

ARM ' 17.24.751. This rule sets forth requirements for protection and enhancement of fish and wildlife habitat, including species-specific measures to protect listed threatened or endangered species, or critical habitat.

ARM ' 17.24.824. If the land is to be use for other than grazing or fish and wildlife habitat, areas of land affected by mining must be restored in a timely manner to higher or better uses achievable under criteria and procedures set forth in this rule.

5.5 Air Requirements

Removal activities must comply with the following requirements to ensure that existing air quality will not be adversely affected by the Flat Creek/IMM NPL Site (OU1) [RV2] removal action.

ARM ' 17.8.220 (applicable). Settled particulate matter shall not exceed a 30 day average of 10 grams per square meter.

ARM ' 17.8.222 (applicable). The concentration of lead in ambient air shall not exceed a 90 day average of 1.5 micrograms per cubic meter of air.

ARM ' 17.8.223 (applicable). The concentration of PM-10 in ambient air shall not exceed a 24 hour average of 150 micrograms per cubic meter of air and an annual average of 50 micrograms per cubic meter of air.

ARM ' 17.8.308 (applicable). Airborne particulate matter. There shall be no production, handling, transportation, or storage of any material, use of any street, road, or parking lot, or operation of a construction site or demolition project unless reasonable precautions are taken to control emissions of airborne particles. Emissions shall not exhibit an opacity exceeding 20% or greater averaged over 6 consecutive minutes.

ARM ' 17.8.304(2) (applicable). Visible Air Contaminants. Emissions into the outdoor atmosphere shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes.

ARM ' 17.8.604(2) (applicable). This rule provides lists material that may not be disposed of by open burning except as approved by MDEQ.

ARM ' 17.24.761(2)(a). (e). (h). (i). and (k) (applicable). Fugitive dust control measures such as (1) watering, stabilization, or paving of roads, (2) vehicle speed restrictions, (3) stabilization of surface areas adjoining roads, (4) restriction of travel on other than authorized roads, (5) enclosing, covering, watering, or otherwise treating loaded haul truck, (6) minimizing area of disturbed land, and (7) revegetation must be planned and implemented, if any such measures are appropriate for this removal action.

5.6 Noxious Weeds

Noxious Weeds, MCA ' 7-22-2101(8)(a) and ARM ' 4.5.201, et seq. MCA ' 7-22-2101(8)(a) defines "noxious weeds" as any exotic plant species established or that may be introduced in the state which may render land unfit for agriculture, forestry, livestock, wildlife, or other beneficial uses or that may harm native plant communities and that is designated: (i) as a statewide noxious weed by rule of the department; or (ii) as a district noxious weed by a board, following public notice of intent and a public hearing. Designated noxious weeds are listed in ARM ' 4.5.201 through 4.5.204 and must be managed consistent with weed management criteria developed under MCA ' 7-22-2109(2)(b).

6.0 TO BE CONSIDERED (TBC) DOCUMENTS

A list of TBC documents is included in the Preamble to the NCP, 55 Fed. Reg. 8765 (March 8, 1990). These documents, plus any additional similar or related documents issued since that time, were considered by EPA and MDEQ during development of the removal action, and will be further considered during remedy implementation.

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7.0 OTHER LAWS (NON-EXCLUSIVE LIST)

CERCLA defines as ARARs only federal environmental and state environmental and siting laws. The removal action must nevertheless comply with all other applicable laws, both state and federal, if the remediation work is done by parties other than the federal government or its contractors.

The following Aother laws@ are included here to provide a reminder of other legally applicable requirements for actions being conducted at the Flat Creek/IMM NPL Site (QU1) [RV2]. They are not intended to be an exhaustive list of such legal requirements, but are included because they set out related concerns that must be addressed and, in some cases, may require some advance planning. They are not included as ARARs because they are not Aenvironmental or facility siting laws.@ As applicable laws other than ARARs, they are not subject to ARAR waiver provisions.

Federal, state or local permits are not required under CERCLA for removal actions conducted entirely on-site. This exemption is not limited to environmental or facility siting laws, but applies to other permit requirements as well.

7.1 Other Federal Laws

Occupational Safety and Health Regulations. The federal Occupational Safety and Health Act regulations found at 29 CFR ' 1910 are applicable to worker protection during conduct of removal activities.

7.2 Other State Laws

Montana Groundwater Act. MCA ' 85-2-505 precludes the wasting of groundwater. Any well producing waters that contaminate other waters must be plugged or capped, and wells must be constructed and maintained so as to prevent waste, contamination, or pollution of groundwater.

Controlled Ground Water Areas. MCA '85-2-506 provides that designation or modification of an area of controlled ground water use may be proposed to MDEQ on its own motion, by petition of a state or local public health agency for identified public health risks, or by petition signed by users of ground water in a ground water area in which there are alleged to be facts that include (but not limited to):

(e) that excessive ground water withdrawals would cause contaminant migration;

(f) that ground water withdrawals adversely affecting ground water quality within the ground water area are occurring or are likely to occur; or

(g) that water quality within the ground water area is not suited for a specific beneficial use defined by 85-2-102(2)(a).

MCA ' 85-2-506 also provides that when a proposal is made, MDEQ shall fix a time and place for a hearing and publish a notice of the hearing.

Limiting Withdrawals. MCA 85-2-507 provides that at the time set for the hearing, MDEQ shall proceed to hear oral and written evidence relevant to the designation or modification of the controlled ground water area presented by the bureau, the department, and any other interested party. A full record must be kept of all evidence taken at the hearing. The procedure must secure a full, fair, and orderly proceeding and permit all relevant evidence to be received. The common-law and statutory rules of evidence apply only upon stipulation of all parties. Further,

after the conclusion of the hearing, the department shall make written findings and an order. The department shall by order declare the area in question to be a controlled ground water area if specific criteria are met.

Public Water Supply Regulations. If removal action at the site requires any reconstruction or modification of any public water supply line or sewer line, the construction standards specified in ARM ' 17.38.101(4) must be observed.

Groundwater Act. MCA ' 85-2-516 states that within 60 days after any well is completed a well log report must be filed by the driller with the DNRC and the appropriate county clerk and recorder.

Water Rights. MCA ' 85-2-101 declares that all waters within the state are the state's property, and may be appropriated for beneficial uses. The wise use of water resources is encouraged for the maximum benefit to the people and with minimum degradation of natural aquatic ecosystems.

Parts 3 and 4 of Title 85, MCA, set out requirements for obtaining water rights and appropriating and utilizing water. All requirements of these parts are laws which must be complied with in any action using or affecting waters of the state. Some of the specific requirements are set forth below.

MCA ' 85-2-301 provides that a person may only appropriate water for a beneficial use.

MCA ' 85-2-302 specifies that a person may not appropriate water or commence construction of diversion, impoundment, withdrawal or distribution works therefore except by applying for and receiving a permit from the Montana Department of Natural Resources and Conservation. While the permit itself may not be required under federal law, appropriate notification and submission of an application should be performed and a permit should be applied for in order to establish a priority date in the prior appropriation system.

MCA ' 85-2-306 specifies the conditions on which groundwater may be appropriated, and, at a minimum, requires notice of completion and appropriation within 60 days of well completion.

MCA ' 85-2-311 specifies the criteria which must be met in order to appropriate water and includes requirements that:

1. there are unappropriated waters in the source of supply;

2. the proposed use of water is a beneficial use; and

3. the proposed use will not interfere unreasonably with other planned uses or developments.

MCA ' 85-2-402 specifies that an appropriator may not change an appropriated right except as provided in this section with the approval of the DNRC.

MCA ' 85-2-412 provides that where a person has diverted all of the water of a stream by virtue of prior appropriation and there is a surplus of water, over and above what is actually and necessarily used, such surplus must be returned to the stream.

Occupational Health Act, MCA ' 50-70-101, et seq. ARM ' 17.74.101 addresses occupational noise. In accordance with this section, no worker shall be exposed to noise levels in excess of the levels specified in this rule. This rule is applicable only to limited categories of workers and for most workers the similar federal standard in 29 CFR ' 1910.95 applies.

ARM ' 17.74.102 addresses occupational air contaminants. The purpose of this rule is to establish maximum threshold limit values for air contaminants under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse health effects. In accordance with this rule, no worker shall be exposed to air contaminant levels in excess of the threshold limit values listed in the regulation.

This rule is applicable only to limited categories of workers and for most workers the similar federal standard in 29 CFR ' 1910.1000 applies.

Montana Safety Act. MCA ' ' 50-71-201, 202 and 203 state that every employer must provide and maintain a safe place of employment, provide and require use of safety devices and safeguards, and ensure that operations and processes are reasonably adequate to render the place of employment safe. The employer must also do every other thing reasonably necessary to protect the life and safety of its employees. Employees are prohibited from refusing to use or interfering with the use of safety devices.

Employee and Community Hazardous Chemical Information Act. MCA ' ' 50-78-201, 202, and 204 state that each employer must post notice of employee rights, maintain at the work place a list of chemical names of each chemical in the work place, and indicate the work area where the chemical is stored or used. Employees must be informed of the chemicals at the work place and trained in the proper handling of the chemicals.

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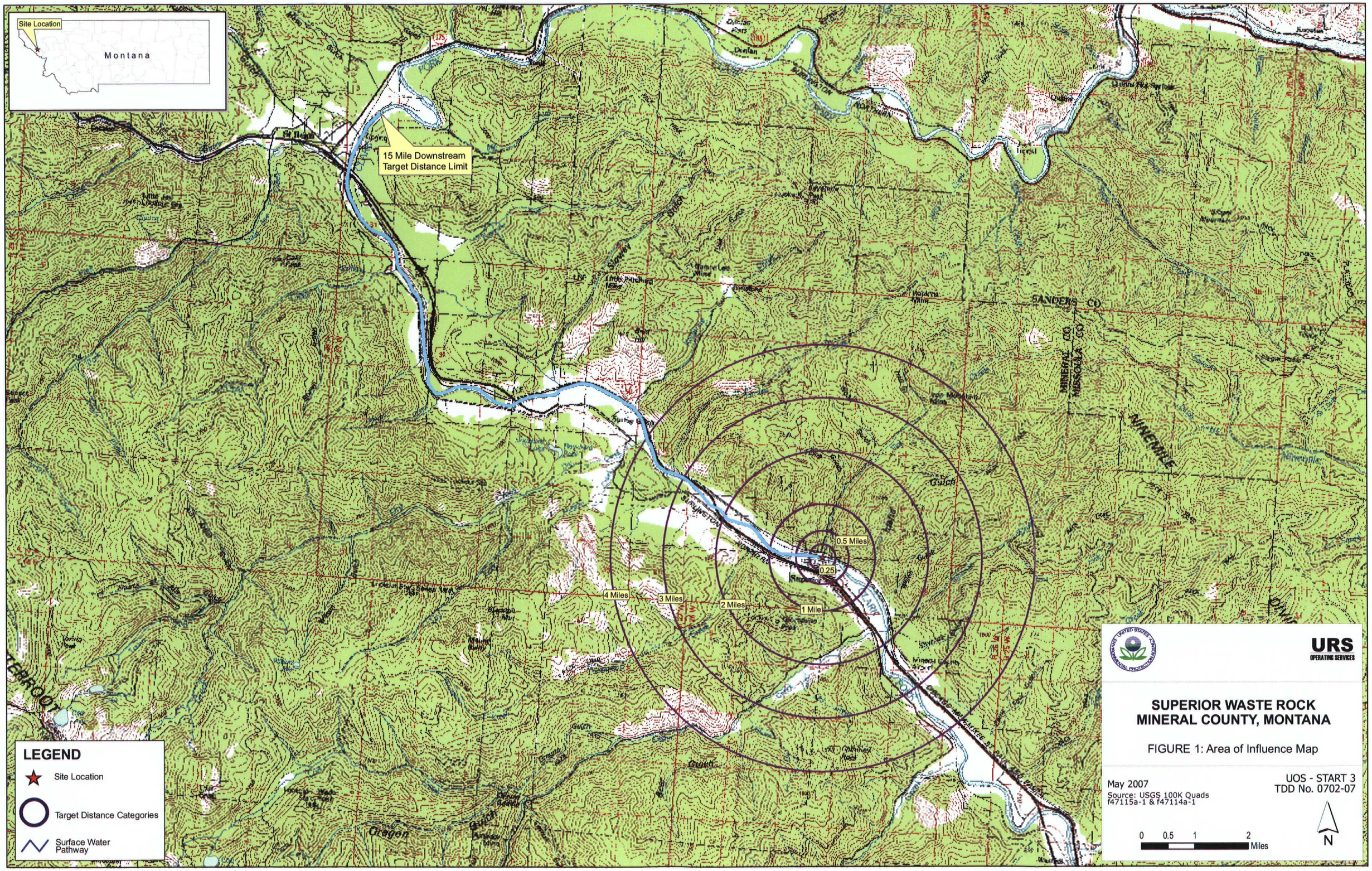
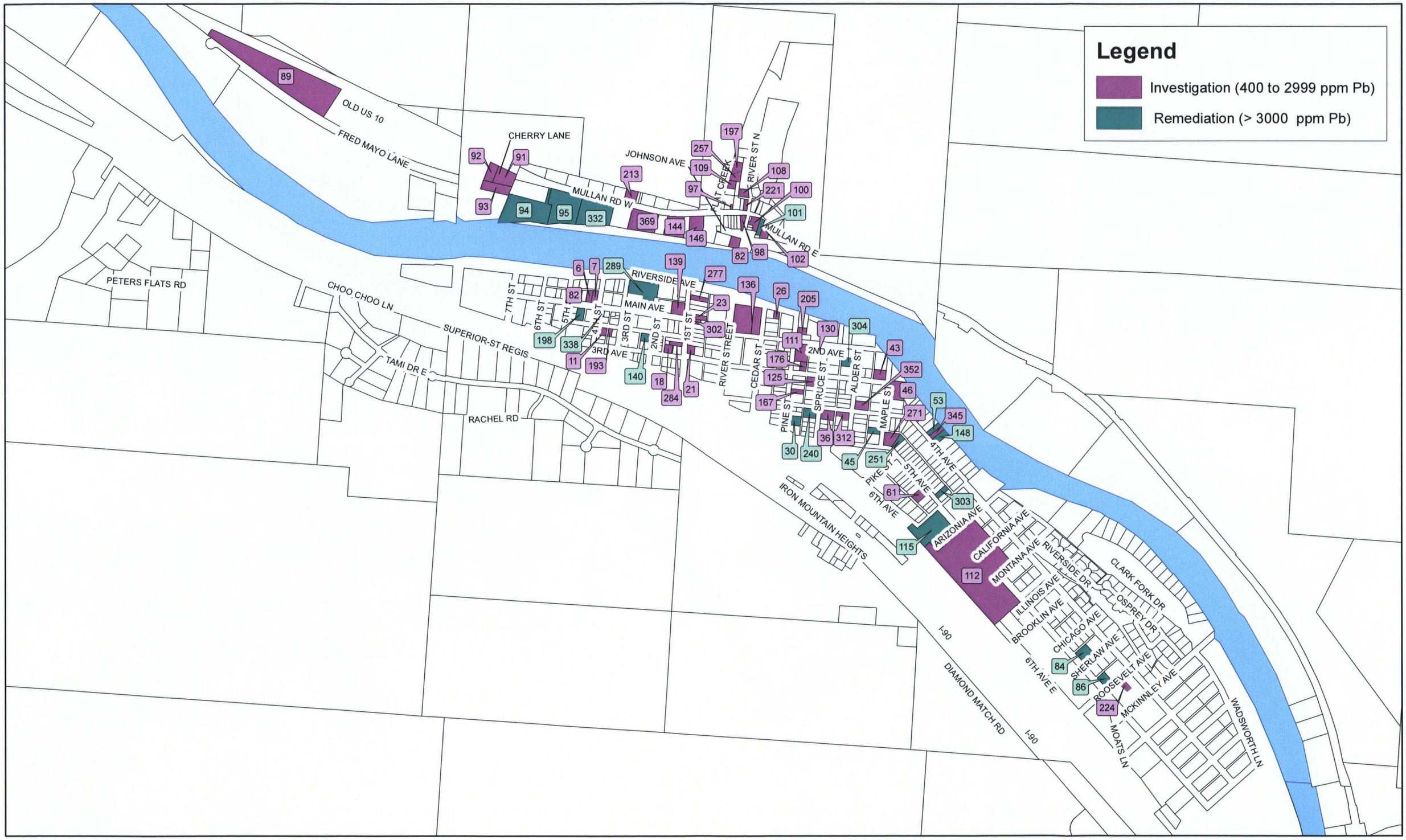
Is this page needed?


Site Location
Montana
15 Mile Downstream
Target Distance Limit
0.5 Miles
0.25
4 Miles
3 Miles
2 Miles
1 Mile
SANDERS CO
MINERAL CO
MISSOULA CO
LEGEND
Site Location
Target Distance Categories
Surface Water Pathway
URS
OPERATING SERVICES
SUPERIOR WASTE ROCK
MINERAL COUNTY, MONTANA
FIGURE 1: Area of Influence Map
May 2007
Source: USGS 100K Quads
f47115a-1 & f47114a-1
UOS - START 3
TDD No. 0702-07
0 0.5 1 2
Miles
N


Legend
Investigation (400 to 2999 ppm Pb)
Remediation (> 3000 ppm Pb)
OLD US 10
FRED MAYO LANE
CHERRY LANE
MULLAN RD W
MULLAN RD E
JOHNSON AVE
FLAT CREEK
RIVER ST N
PETERS FLATS RD
CHOO CHOO LN
SUPERIOR-ST REGIS
TAMI DR E
RACHEL RD
RIVERSIDE AVE
MAIN AVE
3RD AVE
2ND AVE
4TH AVE
5TH AVE
6TH AVE
7TH ST
6TH ST
5TH ST
4TH ST
3RD ST
2ND ST
1ST ST
RIVER STREET
CEDAR ST
SPRUCE ST
ALDER ST
MAPLE ST
PINE ST
PIKE ST
IRON MOUNTAIN HEIGHTS
ARIZONIA AVE
CALIFORNIA AVE
MONTANA AVE
RIVERSIDE DR
ILLINOIS AVE
BROOKLIN AVE
CHICAGO AVE
SHERLAW AVE
ROOSEVELT AVE
MCKINNLEY AVE
CLARK FORK DR
OSPREY DR
WADSWORTH LN
MOATS LN
6TH AVE E
I-90
DIAMOND MATCH RD
89
92
91
93
94
95
332
213
369
144
146
257
109
197
97
108
221
100
101
82
98
102
6
7
289
139
277
136
26
205
23
302
82
198
338
11
193
140
18
284
21
111
130
304
43
176
125
167
352
46
53
271
345
148
36
312
30
240
45
251
61
303
115
112
84
86
224
Potential Property Status Based on XRF Results
Operable Unit 1, Flat Creek 1mm Site
Superior, Montana
0
500
1,000
2,000
3,000
Feet
N
FIGURE 2
CDM
Z:\gis\Public\Superior\MXD\Inv_Rem_09.mxd

Flat Creek IMM Remedial Investigation XRF Results
Fall 2009
Properties with XRF and CLP Sample Results Greater than 3000 ppm Pb

	Yard Number	Quad	Depth	Location	Description	Pb	As	CLP ICP-AES Result - Pb	CLP ICP-AES Result - As
1	RY030	D	2-6	DRIVEWAY		9,629	1712	7,910	1,200
1	RY030	E	2-6	YARD	SOUTH EAST	5,393	1086	1,880	345
2	RY045	D	0-2	QUAD A GRAB	GRAB	8,257	1851	5,470	1,190
2	RY045	C	2-6	DRIVEWAY		463	108	114	17
3	RY053	C	2-6	DRIVEWAY		8,405	2841	7,910	1,680
3	RY053	C	6-12	DRIVEWAY		2,344	603	2,940	520
3	RY053	C	0-2	DRIVEWAY		470	129	455	160
4	RY086	A	0-2	YARD	FRONT	1,474	493	1,300	240
4	RY086	A	2-6	YARD	FRONT	2,875	748	2,050	234
4	RY086	D	0-2	DRIVEWAY	SOUTH	5,887	1193	7,530	1,400
4	RY086	D	2-6	DRIVEWAY	SOUTH	6,830	1423	5,740	1,090
4	RY086	D	6-12	DRIVEWAY	SOUTH	7,187	1806	4,700	1,440
4	RY086	A	6-12	YARD	FRONT	835	174	221	46
4	RY086	A	2-6	YARD	FRONT	779	159	657	112
5	RY094	F	0-2	BEHIND SHOP		5,711	469	7,240	391
5	RY094	F	2-6	BEHIND SHOP		3,218	265	5,690	311
5	RY094	F	6-12	BEHIND SHOP		1,640	91	2,160	134
6	RY101	A	6-12	YARD	FRONT & SIDE	9,705	2017	3,800	552
6	RY101	C	0-2	YARD	MIDDLE	5,230	1242	3,090	451
6	RY101	C	2-6	YARD	MIDDLE	4,290	1188	2,980	539
6	RY101	C	6-12	YARD	MIDDLE	1,638	361	1,020	264
6	RY101	D	0-2	DRIVEWAY		1,963	464	2,600	524
6	RY101	E	6-12	BUILDING PERIMETER		631	159	1,120	208
6	RY101	D	2-6	DRIVEWAY		578	110	683	91
6	RY101	E	0-2	BUILDING PERIMETER		403	89	216	23
7	RY115	A	0-2	MAIN PENS		12,576	2698	13,300	1,380
7	RY115	A	2-6	MAIN PENS		7,065	1705	6,690	1,210
7	RY115	A	6-12	MAIN PENS		9,675	2574	20,400	754
7	RY115	E	2-6	NORTH OF POLE BARN		3,435	786	2,930	465

Flat Creek IMM Remedial Investigation XRF Results
Fall 2009

	Yard Number	Quad	Depth	Location	Description	Pb	As	CLP ICP-AES Result - Pb	CLP ICP-AES Result - As
7	RY115	E	0-2	NORTH OF POLE BARN		734	189	706	129
7	RY115	E	6-12	NORTH OF POLE BARN		710	135	873	287
8	RY148	B	0-2	YARD	BACK	5,297	1045	4,030	1,710
8	RY148	B	2-6	YARD	BACK	6,842	897	3,420	695
8	RY148	B	6-12	YARD	BACK	2,891	408	2,730	377
9	RY338	C	0-2	DRIVEWAY		6,708	846	5,050	579
9	RY338	C	2-6	DRIVEWAY		5,787	767	4,350	468
9	RY338	C	6-12	DRIVEWAY		3,199	376	3,190	327
10	RY198	D	0-2	DRIVEWAY		4,997	759	4,320	584
10	RY198	D	2-6	DRIVEWAY		2,073	255	3,940	302
11	RY251	D	0-2	DRIVEWAY		1,147	< LOD	143	16
11	RY251	D	2-6	DRIVEWAY		4,219	1050	158	174
12	RY289	G	0-2	LUNCH AREA		2,103	338	2,750	1,340
12	RY289	G	2-6	LUNCH AREA		7,043	1547	7,080	1,500
12	RY289	F	2-6	UPPER PARKING LOT		499	115	763	287
12	RY289	F	0-2	UPPER PARKING LOT		425	< LOD	677	65
13	RY303	D	0-2	DRIVEWAY		5,300	953	6,200	1,750
13	RY303	D	6-12	DRIVEWAY		2,881	487	4,090	570
13	RY303	D	2-6	DRIVEWAY		518	95	490	122
14	RY304	C	2-6	YARD	SIDE	4,939	656	4,290	474
14	RY304	C	6-12	YARD	SIDE	4,698	501	3,810	373
14	RY304	C	0-2	YARD	SIDE	570	73	155	16
15	RY332	B	2-6	WEST CENTRAL LOT		1,396	227	633	64
15	RY332	B	6-12	WEST CENTRAL LOT		5,792	887	4,150	350
15	RY332	D	6-12	EAST LOT		1,244	69	755	58
15	RY332	A	0-2	WEST LOT		755	83	406	25
15	RY332	D	2-6	EAST LOT		562	< LOD	258	24
15	RY332	D	0-2	EAST LOT		475	< LOD	311	23
16	RY140	B	6-12	YARD	BACK	3,480	908	2,080	354
16	RY140	C	2-6	YARD	NORTH PERIMETER	3,132	550	3,550	613
16	RY140	B	2-6	YARD	BACK	588	61	2,880	815

Flat Creek IMM Remedial Investigation XRF Results
Fall 2009

	Yard Number	Quad	Depth	Location	Description	Pb	As	CLP ICP-AES Result - Pb	CLP ICP-AES Result - As
17	RY095	C	6-12	YARD	SIDE	3,166	357	673	45
17	RY095	C	2-6	YARD	SIDE	1,781	186	268	21
17	RY095	B	6-12	YARD	BACK	717	< LOD	311	26
17	RY095	B	0-2	YARD	BACK	625	< LOD	592	36
17	RY095	B	2-6	YARD	BACK	452	35	856	61
18	RY240	B	2-6			2,999	357	4,340	434
18	RY240	D	6-12			1,200	193	5,540	813
18	RY240	D	2-6			392	< LOD	922	212
19	RY084	C	0-2	YARD	EAST SIDE	3,159	595	4,630	450
19	RY084	C	2-6	YARD	EAST SIDE	1,332	150	1,220	116
19	RY084	C	6-12	YARD	EAST SIDE	377	44	441	273

Lead concentration by XRF

- >3000
- 1000-2999
- 400-999

Properties where CLP samples do NOT confirm lead concentrations greater than 3000 ppm