UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
Denver, CO 80202-1129
Phone 800-227-8917
www.epa.gov/region8

Ref: 8SEM-EMR

ACTION MEMORANDUM

SUBJECT: Approval and Funding for a Removal Action at the Howard Fork Tailings Site within the Iron Springs Mining District, Ophir, San Miguel County, Colorado

FROM: Joni Sandoval
Federal On-Scene Coordinator

THRU: Laura Williams, Chief
Emergency Response Section

Deirdre Rothery, Chief
Emergency Management Branch

TO: Betsy Smidinger, Director
Superfund and Emergency Management Division

Site ID# B801RV00

I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the removal action described herein for the Howard Fork Tailings Site (Site) located within the Iron Springs Mining District in the San Juan mountains of southwestern Colorado. This time-critical removal action involves the cleanup and disposal of lead- and arsenic-contaminated mine tailings located on private property along the San Miguel River within one mile of the Town of Ophir, Colorado. Conditions existing at the Site present a threat to public health or welfare or the environment and meet the criteria for initiating a removal action under 40 CFR 300.415(b)(2) of the National Contingency Plan (NCP).

This removal action involves no nationally significant or precedent-setting issues. This time-critical removal action will not establish any precedent for how future response actions will be taken and will not commit the US Environmental Protection Agency (EPA) to a course of action that could have a significant impact on future responses or resources.

II. SITE CONDITIONS AND BACKGROUND

Site Name:	Howard Fork Tailings
Superfund Site ID (SSID):	B801RV00 NRC
Case Number:	None
CERCLIS Number:	CON000820944
Site Location:	San Miguel County, Colorado
Lat/Long:	37.857542° north, 107.861557° west
Potentially Responsible Party (PRP):	
NPL Status:	Non NPL
Removal Start Date:	09/15/2021

A. Site Description

1. Removal Site Evaluation

The Howard Fork Tailings Site is a mixed ownership site, where a small portion (10% approximately) of the Site is federally managed, and the rest is privately owned. The Site was referred to the EPA by the property owner shortly before completing a Time Critical Removal Action at the neighboring property known as the Carribeau Mill Site in 2019. The Site is located within the larger Iron Springs Mining District Site (EPA SSID 08-QM) which is located in southwestern Colorado in San Miguel County. The Iron Springs Mining District Site includes national forest lands, the Town of Ophir and other privately owned lands, including the North Star Mill, the historic areas of the Old Dominion Mine, Montezuma Mine, Silver Bell Mine and Mill, as well as the Carribeau Mine. EPA and the USFS conducted removal actions at the Carbonero tailings and North Star Mill in 2006 and 2009, respectively.

Ophir was established in 1878 by prospectors exploring the Iron Springs region. Between 1878 and 1897, prospectors began staking claims and developing the various mines throughout the Iron Springs Mining District. The ore from the claims yielded gold, silver, copper, lead, zinc and tungsten. Although several veins were prospected near Ophir, and annual production was generally increasing, no mines produced large quantities of ore until the railroad reached the Ophir area about 1890. By 1947 many of the largest mines and mills in the district had fallen into disrepair.

The Carribeau Mine, in conjunction with the Montezuma Mine, produced ore, mostly silver and lead, almost every year from 1878 to 1936. The underground workings for the Montezuma Mine eventually connected to the Carribeau Mine workings. Peak years of production occurred in the late 1880s and early 1890s, and about 1899 to 1908.

Initially, the Carribeau Mine was worked through a tunnel and shaft above the 13th level. A mill was built near the adit of the 13th level in 1896 or 1897 and was removed in 1917. The main adit of the Carribeau Mine, located at the 13th level, is located on USFS land just a few feet south of the boundary with the Carribeau Mill Site. Through efforts of the USFS, discharge from the adit flows into a riprapped trench approximately three-feet wide along the eastern edge of the waste rock pile and eventually discharges into Howard Fork.

The tailings found at the Site are believed to have originated from the same source as the Carribeau Mill. EPA obtained Site access in Fall of 2019 to perform a Removal Site Evaluation (RSE).

Based on observations, the Site appears to have been used for disposal of tailings during the historic mine operations in the area. It is unclear how long this operation lasted. However, based on the depth and extent of tailings material (estimated at up to 10,000 cubic yards), it is assumed to have lasted for decades. The waste appears to have been brought in by wooden flume from the east and deposited in a low-lying area adjacent to the Howard Fork of the San Miguel River.

Of the ten soil samples EPA's contractor collected for laboratory analysis, metals were detected in all samples, including one duplicate sample. Arsenic, lead and cadmium were detected at concentrations exceeding the EPA Regional Screening Level (RSL) for residential soil (most conservative) in one or more of the samples collected for laboratory analysis. Please see the table following this paragraph that displays the sample results highlighting exceedances in yellow.

Soil Sample Laboratory Results

Client Sample ID:	Units	U.S. EPA RSL - Residential Soil - THQ=1.0	HFT-01-SS-06	HFT-91-SS-06	HFT-01-SS-12	HFT-02-SS-12	HFT-04-SS-12	HFT-10-SS-6	HFT-12-SS-6	HFT-16-SS-6	HFT-18-SS-60	HFT-20-SS-30
Date Sampled:			9/4/2019	9/4/2019	9/4/2019	9/4/2019	9/4/2019	9/4/2019	9/4/2019	9/4/2019	9/5/2019	9/5/2019
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
RCRA Metals Analysis												
Arsenic	mg/kg	0.68	**67.4**	**46.5**	**49.2**	**68.9**	**58.4**	**68**	**18.1**	**56.8**	**72.2**	**42.8**
Barium	mg/kg	15000	**1130**	**1150**	**524**	**1180**	**1100**	**721**	**210**	**554**	**261**	**243**
Cadmium	mg/kg	71	<12 [a]	**1.9**	<10 [a]	**39.4**	<11 [a]	<13 [a]	**1.4**	<9.8 [a]	**2.6**	**210**
Chromium	mg/kg	NE	<12 [a]	**4.5**	<10 [a]	<10 [a]	<11 [a]	<13 [a]	**3.8**	<9.8 [a]	**4.5**	**2.2**
Lead	mg/kg	400	**18800**	**18300**	**1910**	**24500**	**14600**	**8040**	**201**	**6410**	**625**	**8680**
Mercury	mg/kg	11	**1**	**1.1**	<0.83	**1.1**	<0.88 [a]	<1.0 [a]	<0.084	**0.54**	**0.29**	**0.93**
Selenium	mg/kg	390	<60 [a]	<6.4	<51 [a]	<52 [a]	<57 [a]	<65 [a]	<4.4	<49 [a]	<5.0	**5.7 J+**
Silver	mg/kg	390	**78.9**	**49.8**	<31 [a]	**94.5**	**54.5**	<39 [a]	<27 [a]	<29 [a]	**8.5**	**38.1**

Footnotes:

Bold	= Analyte detected above method detection limit
Bold	= Analyte detected above RSL Residential Soil limit
U.S. EPA	= United States Environmental Protection Agency
mg/kg	= milligrams per kilogram
NE	= None Established
J+	= Result is an estimated value and may have a potential positive bias
RCRA	= Resource Conservation and Recovery Act
RSL	= Regional Screening Level
a	= Elevated detection limit due to dilution required for possible matrix interference
<	= Analyte not detected above method detection limit

The Site is primarily in a low-lying marshy area that has water present at or near the surface year-round. Groundwater likely follows the topographic gradient and flows into the Howard Fork of the San Miguel River. Exposed tailings are sloughing into the river during precipitation and snowmelt events and increasing metals loading from surface water runoff. Given the proximity of shallow groundwater and natural drainages, metals loading related to groundwater flow is also expected.

There is evidence that trespassers are frequently accessing the Site through the contaminated areas. There are nearby USFS trails and items including beer cans, food wrappers, and toilet paper were found on Site during the assessment. Wildlife are also threatened by the tailings at the Site. All but one of the soil samples contain arsenic at levels above the EPA Ecological Soil Screening levels for mammals and birds. Lead is

present in the highest concentrations and exceeds the mammal and bird screening levels for all samples.

2. Physical Location

The Iron Springs Mining District Site is located in San Miguel County, Colorado. It includes the Town of Ophir, a portion of Howard Fork River, surrounding national forest lands, and other privately owned lands. Per the City-Data.com website, the population of Ophir was 184 in 2019.

The Site is located at 37.857542° north, 107.861557° west within the Iron Springs Mining District and is situated less than one mile west/southwest of Ophir in San Miguel County, Colorado. The Site consists of approximately 3 acres of private property at 626 Ophir Road located approximately 0.5 miles west of the Carribeau Mill Site. A small portion of the property, as mentioned above, on the southwest side of the Primary Tailings Area, is located on Department of Agriculture, Forest Service (USFS)-administered land. A map of the Howard Fork Tailings Site can be found in Attachment 1.

3. Site Characteristics

The topography of the Site consists of a narrow, glacially-eroded valley flanked by steep mountainsides. Elevations in the vicinity of the mine range from about 9,500 to 11,500 feet. Forest Road 640 (Ophir Pass Road) parallels Howard Fork and provides general access to the Ophir Mining District. Howard Fork flows west through the valley and joins the South Fork of the San Miguel River.

The Ophir area receives 25 inches of rain, on average, per year and 153 inches of snow per year. While maximum wind speeds do not exceed 20 miles per hour, the high precipitation events cause erosion into Howard Fork during and after rain and snowmelt events.

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

The presence of lead and arsenic in the tailings presents a release of hazardous substances to the environment well above background levels. Arsenic and lead are listed hazardous substances in 40 CFR §302.4 and Section 101(14) of CERCLA.

Lead: Exposure can occur from spending time in areas where the soil is contaminated with lead. Exposure from lead found in the tailings can occur from inhalation of the dust generated from recreation occurring on top of the tailings. The effects of lead are the same whether it enters the body by breathing it in or eating it. Lead can affect almost every organ and system in your body. The nervous system is the main target for lead poisoning in children and adults. Long-term exposure can result in decreased learning, memory, and attention, and weakness in fingers, wrists, or ankles. Lead exposure can cause anemia (low iron in the blood) and damage to the kidneys. It can also cause increases in blood pressure, particularly in middle-aged and older individuals. Exposure

to high lead levels can severely damage the brain and kidneys and can cause death. In pregnant women, exposure to high levels of lead may cause a miscarriage. In men, it can cause damage to reproductive organs.

Children are more vulnerable to lead poisoning than adults because their nervous system is still developing. Children can be exposed to lead in their environment and before birth from lead in their mother's body. At lower levels of exposure, lead can decrease mental development, especially learning, intelligence, and behavior. Physical growth may also be decreased. A child who swallows large amounts of lead may develop anemia, severe stomachache, muscle weakness, and brain damage. Exposure to lead during pregnancy can also result in premature births. Some effects of lead poisoning in a child may continue into adulthood.

Lead in the river can cause toxicity in the aquatic and benthic populations. Dissolved lead is acutely toxic to aquatic invertebrates and fish, with young stages of fish more susceptible to lead than adults or eggs. Typical signs of lead toxicity include spinal deformity and blacking of the caudal region. The acute toxicity of lead is highly dependent on presence of other ions in solution. This can also cause health effects if humans consume fish with heavy metal concentrations.

Arsenic: Exposure from arsenic found in the tailings can occur from inhalation of the dust generated from recreation occurring on top of the tailings. Several studies have shown that ingestion of inorganic arsenic can increase the risk of skin cancer and cancer in the liver, bladder, and lungs. Inhalation of inorganic arsenic can cause increased risk of lung cancer. The Department of Health and Human Services and the EPA have determined that inorganic arsenic is a known human carcinogen. The International Agency for Research on Cancer has determined that inorganic arsenic is carcinogenic to humans. There is evidence that long-term exposure to arsenic in children may result in lower IQ scores. There is also evidence that exposure to arsenic in the womb and early childhood may increase mortality in young adults. There is also evidence that inhaled or ingested arsenic can injure pregnant women and/or their unborn babies, although the studies are not definitive. Studies in animals show that large doses of arsenic that cause illness in pregnant females, can also cause low birth weight, fetal malformations, and even fetal death. Arsenic can cross the placenta and has been found in fetal tissues. Arsenic is found at low levels in breast milk.

Arsenic in the river can cause toxicity in the aquatic and benthic populations. According to Beyers and Clements, arsenic is a toxic trace element that can induce physiological and biochemical changes in fish that lead to growth inhibition. Arsenic exposure in the aquatic environment causes bioaccumulation in aquatic organisms and can lead to physiological and biochemical disorders such as poisoning, liver lesions, decreased fertility, cell and tissue damage, and cell death. This can also cause health effects if humans consume fish with heavy metal concentrations.

5. NPL Status

This Site is neither on nor currently being considered for inclusion on the NPL.

6. Maps, Pictures, Other Geographic Representations

Relevant photos are available in Attachment 1 of this document. The photos and a Site map are also included in the Site file and in the administrative record.

B. Other Actions to Date

1. Previous Actions

EPA conducted a Removal Site Evaluation in Fall of 2019 as described above. Due to covid 19 precautions, the proposal for the TCRA was postponed a year.

2. Current Actions

There are no current activities on the Site.

C. State and Local Authorities' Role

1. State and Local Actions to date

Federal and local authorities have provided assistance wherever possible. Discussions with the USFS, the property owner, and CDPHE indicate their support for this removal action, which improves the safety of the area and will contribute to the improvements of the water quality in the Howard Fork and San Miguel watersheds.

2. Potential for Continued State/Local Response

Federal, State and Local entities do not have the resources or authority to conduct this removal action and are involved in a consultation role only.

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

Conditions at the Site present a threat to public health and the environment and meet the criteria for initiating a removal action under 40 CFR 300.415(b)(2) of the NCP.

EPA has considered all the factors described in 40 CFR 300.415(b)(2) of the NCP and determined that the following factors apply at the Howard Fork Tailings Site.

"(i) Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants;"

The OSC observed evidence of recreators in contact with the tailings and exposure to generated tailings dust. There is also toxicity risk to aquatic populations, and humans by consumption of fish.

"(iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate;"

The tailings containing harmful levels of lead and arsenic above the river are not paved or vegetated and easily disperse into the air with any disturbance. Water is constantly running through tailings that actively drains into Howard Fork and then the San Miguel River. This creates a risk for toxicity to the aquatic population.

> "(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released;"

High seasonal drainage flows continuously erode the tailings surfaces that are carried into the Howard Fork and downstream.

> "(vii) The availability of other appropriate federal or state response mechanisms to respond to the release;"

Local and State governments do not have the resources to conduct the action in a timely manner.

IV. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Actions

1. Proposed Action Description

All mine tailings on the private property will be removed and the bank of tailings remaining on USFS property will be lined with a geotextile liner and armored with riprap to prevent erosion.

a. Reroute drainage channels around the tailings.

b. Place barriers around contaminated areas, until mitigated or cleaned up.

c. Remove tailings (estimated up to 10,000 cubic yards) and stabilize/armor bank areas.

d. Haul excavated contaminated material to designated, CERCLA State approved off-site repository.

e. Restoration, including backfill of excavated areas with clean material and re-vegetation of disturbed areas.

2. Contribution to Remedial Performance

This effort will, to the extent practical, contribute to any future remedial effort at the Site. However, no further federal action is anticipated at this time.

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

An EE/CA is not required for a time-critical removal action.

4. Applicable or Relevant and Appropriate Requirements (ARARs)

Removal actions conducted under CERCLA are required, to the extent practicable considering the exigencies of the situation, to attain ARARs. In determining whether compliance with an ARAR is practicable, the lead agency may consider appropriate factors, including the urgency of the situation and the scope of the removal action to be conducted. A table containing potential Site-specific ARARs is provided as Attachment 2 to this Action Memorandum.

5. Project Schedule

This removal action is proposed to start in Fall of 2021. It is anticipated that soil excavation and repository disposal will take approximately 5 weeks. Stream and vegetative restoration is estimated to take an additional 2 weeks, which may need to be completed in 2022 if weather conditions prevent work completion. If weather permits, completion is expected by November 30, 2021.

B. Estimated Costs*

	Estimated Costs
ERRS contractor	$950,000
START contractor	25,000
Other (ESAT, travel, equipment)	
Other Extramural Costs (Strike Team, other Fed Agencies)	
SUBTOTAL	$975,000
Contingency costs (20% of subtotal)	$ 195,000
Total Removal Project Ceiling	**$1,170,000**

*EPA direct and indirect costs, although cost recoverable, do not count toward the Removal Ceiling for this removal action. Liable parties may be held financially responsible for costs incurred by the EPA as set forth in Section 107 of CERCLA

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

A delay in action or no action at the Howard Fork Tailings Site would increase the actual or potential threats to the public health and/or the environment. The contaminated tailings found above the Howard Fork that leads into the San Miguel river will continue to erode, be a dust inhalation threat, and leach into the watershed.

VI. OUTSTANDING POLICY ISSUES

None

VII. ENFORCEMENT

A separate Enforcement Addendum has been prepared providing a confidential summary of current and potential future enforcement activities.

VIII. RECOMMENDATIONS

This decision document represents the selected removal action for the Howard Fork Tailings Site in Ophir, Colorado, developed in accordance with CERCLA as amended, and is not inconsistent 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 action, and I recommend your approval of the proposed removal action. The total project ceiling, if approved, will be $1,170,000.

APPROVE

BETSY SMIDINGER Digitally signed by BETSY SMIDINGER
Date: 2021.08.26 15:22:16 -06'00'

Betsy Smidinger, Director Date
Superfund and Emergency Management Division

DISAPPROVE

Betsy Smidinger, Director Date
Superfund and Emergency Management Division

Attachments:

Attachment 1: Site Photos
Attachment 2: Applicable or Relevant and Appropriate Requirements (ARARs)

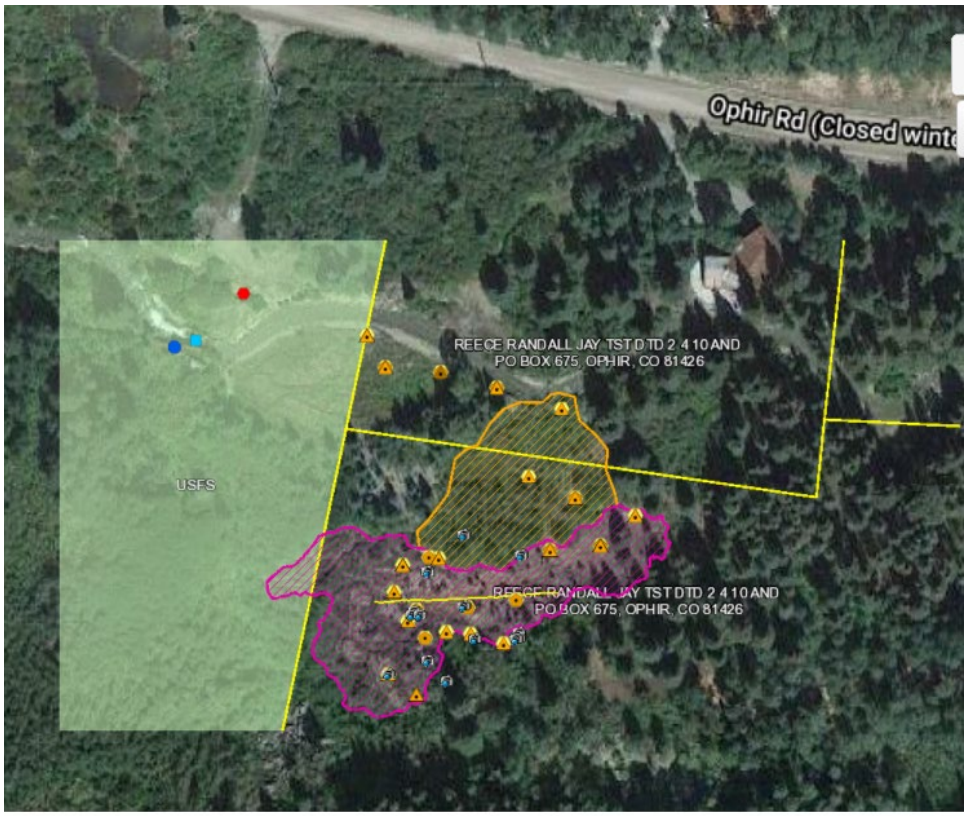
Attachment 1: Site Photos

View of Former Pond Area

Excavation up to 6 ft down to the water table in tailings.

Test Pit

FS land vs private land. Tailings marked in pink and orange.



Attachment 2: Applicable or Relevant and Appropriate Requirements (ARARs)

Attachment 2:

State and Federal Applicable or Relevant and Appropriate Requirements (ARARs)

Howard Fork Tailings Removal Action

Statute and Regulatory Citation	ARAR Determination	Description	Comment	Chemical-Specific	Location-Specific	Action-Specific
Federal ARARs						
Statement of Procedures on Floodplain Management and Wetlands Protection 40 CFR Part 6, Appendix A	Relevant and Appropriate	40 CFR Part 6, Appendix A contains EPA's statement of procedures for carrying out the provisions of Executive Order 11988 (Floodplain Management) and 11990 (Protection of Wetlands).	If the removal involves activities that affect identified floodplains or wetlands, activities will be carried out in a manner to avoid adversely affecting them or mitigating the impact.		✓	
Floodplain Management Regulations; Executive Order No. 11988 as amended by 13690	To Be Considered	This Executive Order requires 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.	If floodplains are delineated within areas designated for the removal activities, actions will be carried out in a manner to avoid adversely affecting them.		✓	
Protection of Wetlands Regulations Executive Order No. 11990	To Be Considered	This Executive Order requires federal agencies to avoid, to the extent possible, the adverse impacts associated with the destruction or loss of wetlands and to avoid support of new construction in wetlands if a practicable alternative exists.	If jurisdictional wetlands are delineated within areas designated for the removal, activities will be carried out in a manner to avoid adversely affecting such wetlands.		✓	
Endangered Species Act 16 U.S.C. § 1536, and Implementing Regulations 50 CFR §§ 17.21, 17.31, 17.61, 17.71 and 17.82.	Applicable	Substantive compliance with the ESA means that the lead agency must identify whether a threatened or endangered species, or its critical habitat, will be affected by a proposed response action. If so, the agency must avoid the action or take appropriate mitigation measures so that the action does not affect the species or its critical habitat. If, at any point, the conclusion is reached that endangered species are not present or will not be affected, no further action is required.	If threatened or endangered species are identified at the site, activities must be modified and conducted to conserve the species and their habitat.		✓	
Migratory Bird Treaty Act 16 U.S.C. § 703(a)	Applicable	This statute makes it unlawful for anyone to, among other prohibited acts, take any migratory bird, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to these regulations.	If migratory birds are identified at the site, activities must be modified and conducted to conserve the species and their habitat.		✓	

Statute and Regulatory Citation	ARAR Determination	Description	Comment	Chemical-Specific	Location-Specific	Action-Specific
State ARARs						
Colorado Fugitive Dust Control Plan/Opacity, Regulation No. 1., 5 CCR § 1001-3(III)(D)(2)(b) (Particulate Matter – Construction Activities), pursuant to Colorado Air Pollution Prevention and Control Act, CRS §§ 25-7-101, *et. seq.*	Applicable	If more than 5 acres of land are cleared in attainment areas, or more than one acre of land is cleared in nonattainment areas, then any owner or operator engaged in clearing land, or owners or operators of land that has been cleared, shall "use all available and practical methods which are technologically feasible and economically reasonable" in order to minimize fugitive emissions. Construction activities shall not result in fugitive emissions that exceed 20% opacity or result in off-property transport of emissions. Control measures or operational procedures to be employed may include, but are not necessarily limited to, planting vegetation cover, providing synthetic cover, watering, chemical stabilization, furrows, compacting, minimizing disturbed area in the winter, wind breaks and other methods or techniques approved by CDPHE's Air Quality Control Division.	Applicable to all construction activities generating dust.			✓
Colorado Fugitive Dust Control Plan/Opacity, Regulation No. 1, 5 CCR § 1001-3(III)(D)(2)(f) (Particulate Matter – Haul Trucks), pursuant to Colorado Air Pollution Prevention and Control Act, CRS §§ 25-7-101, *et. seq.*	Applicable	Use of "all available practical methods which are technologically feasible and economically reasonable" to minimize emissions. Emissions shall not be allowed to go off-property. Control measures or operation procedures to be employed may include, but are not limited to, covering the materials, washing or otherwise treated loaded haul trucks to remove materials from the exterior of the vehicle prior to transporting materials, limiting load size, wetting the load and other methods or techniques approved by CDPHE's Air Quality Control Division.	Use of haul trucks generating fugitive dust during response action.			✓
Colorado Noise Abatement Statute, CRS §§ 25-12-103 (Maximum Permissible Noise Levels)	Applicable	Activities must be conducted in a manner so that any noise produced is not objectionable due to intermittence, beat frequency, or shrillness. For construction projects, maximum noise levels will be those specified for industrial zones for the time period within which construction is to be completed.	Applicable to construction, transport, and backfilling activities			✓

Statute and Regulatory Citation	ARAR Determination	Description	Comment	Chemical-Specific	Location-Specific	Action-Specific
State ARARs						
MLRB Regulations, Rule 3.1.5(5), (10), (11)[1]	Relevant and Appropriate	Acid forming or toxic producing mined materials must be handled and disposed in a manner that will control unsightliness and protect the surface and groundwater drainage system from pollution.				✓
MLRB Regulations Rule 3.1.6	Relevant and Appropriate	Reclamation activities must minimize disturbances to the prevailing hydrologic balance of the mined land and surrounding area by complying with all laws pertaining to water rights, water quality and dredge and fill activities. Minimizing measures also include removing temporary or large siltation structures from drainageways after stabilization and rehabilitation.				✓
MLRB Regulations Rule 3.1.7	Relevant and Appropriate	Reclamation activities that may affect the quality of any groundwater must comply with all state-wide groundwater quality standards and standards for classified areas. For unclassified areas, reclamation activities must protect the existing and reasonably potential future uses of such groundwater.				✓
MRLB Regulations Rule 3.1.8	Relevant and Appropriate	Reclamation activities must take into account the safety and protection of wildlife on the mined site and along access roads with special attention given to critical periods in the life cycle of species requiring special consideration (elk calving, migration routes, peregrine falcon nesting, grouse strutting grounds).				✓
MLRB Regulations Rule 3.1.5(1), (3)	Relevant and Appropriate	Any grading shall be done in a manner to control erosion and siltation and protect from slides and other damage. High walls shall be stabilized or eliminated. Grading shall create a final topography appropriate to the future land use. Slopes and slope combinations shall be compatible with the configuration of surrounding conditions and future land use.				✓
MLRB Regulations Rule 3.1.5(2)	Relevant and Appropriate	Backfilling shall ensure adequate compaction for stability and prevent leaching of toxic or acid forming materials				✓
MLRB Regulations Rule 3.1.5(7)	Relevant and Appropriate	Lakes or ponds shall be constructed with slopes no steeper than a ratio of 3:1 for slopes between 5 feet above to 10 feet below the expected waterline. All other slopes shall be no steeper than a ratio of 2:1.				✓

Statute and Regulatory Citation	ARAR Determination	Description	Comment	Chemical-Specific	Location-Specific	Action-Specific
State ARARs						
Colorado Discharge Permit System (CDPS) Regulations 5 C.C.R. 1002-61.3(2)(a) and (f)(ii), and CDPS general permit No. COR400000 (Stormwater discharges associated with construction activity), pursuant to CRS § 25-8-501 Permit available (as of June 9, 2021) at: https://drive.google.com/file/d/1CsnfVYo-sTVmStX9pwtnpKoN7DYmumYP/view	Applicable or Relevant and Appropriate	The Colorado Discharge Permit System general permit COR40000 includes the following substantive requirements: 1. Control measures must be installed before the commencement of activities at the site that could contribute pollutants to stormwater discharges. Such control measures should minimize the discharge of pollutants at the site. The control measures must meet the following requirements: a. Where vehicle tracking occurs, vehicle tracking controls that minimize vehicle tracking of sediment from disturbed areas. b. Containment or filtration of stormwater flows from disturbed areas and soil storage areas, such that flows from such areas must go to at least one control measure. c. Where there are discharges from basins and impoundments, outlets that withdraw water from or near the surface (unless infeasible). d. Maintenance of pre-existing vegetation or equivalent control measures for areas within 50 horizontal feet from receiving waters. e. Minimization of soil compaction where there are infiltration control measures, or final stabilization, from vegetative cover. e. In areas where vegetative final stabilization is utilized, preservation of topsoil (unless infeasible). f. Minimization of soil exposed during construction activity. g. Where there is bulk storage of liquid chemicals (including petroleum products), secondary containment or	If greater than one acre but less than five acres are disturbed from the response action, the substantive requirements are applicable to the response action pursuant to 5 CCR § 1002-61.3(2)(a) and (f)(ii). If less than one acre is disturbed from the response action, the substantive requirements are relevant and appropriate.			✓

[1] Pursuant to the Solid Wastes Disposal Sites and Facilities Act, C.R.S. § 30-20-102(4), mining operations including reclamation activities with approved reclamation plans under a Colorado Mined Land Reclamation Board (MLRB) permit may dispose of solid wastes generated by such operations within the permitted area without obtaining a Certificate of Designation. CDPHE interprets this provision to allow CERCLA response actions performed consistently with the MLRB regulation 2 CCR 407-1 Rule 3 (Reclamation Performance Standards) to be compliant with Colorado's regulations pertaining to solid waste disposal.

Statute and Regulatory Citation	ARAR Determination	Description	Comment	Chemical-Specific	Location-Specific	Action-Specific
State ARARs						
		equivalent protection. h. Concrete washout control measures sufficient to ensure the washing activities do not add pollutants to stormwater runoff or receiving waters. Discharges to the ground of concrete washout waste must go through soil with buffering capacity, and cannot occur in areas near natural drainages, shallow groundwater, springs, or wetlands. h. For earth disturbing activities, temporary stabilization measures such as tarps, soil tackifier, and hydroseed, which must be implemented wherever construction activity disturbed the ground and has ceased for fourteen days or is permanently ceased. i. For all construction sites after all ground surface disturbing activities have ceased, final stabilization that achieves vegetative cover with plant density at least 70% of pre-disturbance levels, or an equivalent stabilization measure. 2. All control measures must remain in effective operating condition and be protected from activities that would make them less effective. 3. The adequacy of control measures must be monitored, and corrective action must be taken when a measure becomes inadequate. 4. Discharges may not cause, have the reasonable potential to cause, or measurably contribute to an exceedance of any applicable water quality standard. 5. Site inspections with one of the following minimum frequencies: a. One per every 7 calendar days. b. One per every 14 calendar days, and post storm event inspections within 24 hours after the end of any precipitation or snowmelt event that causes surface erosion. c. If the two options above are impractical, an alternate schedule.				

Statute and Regulatory Citation	ARAR Determination	Description	Comment	Chemical-Specific	Location-Specific	Action-Specific
State ARARs						
		If the site is temporarily idle or completed, less frequent inspections depending on the circumstances.				
Colorado Noxious Weed Act CRS § 35-5.5-104 (Duty to Manage Noxious Weeds)	Applicable	Requires use of integrated methods to manage noxious weeds if noxious weeds are likely to be materially damaging to the land of neighboring landowners. Integrated methods include: biological management, chemical management, cultural management, and mechanical management (as defined in C.R.S. § 35-5.5-103(9)(a-d)).	Applicable to response activities in an area with noxious weeds.		✓	
Rules Pertaining to the Administration and Enforcement of the Colorado Noxious Weed Act, 8 C.C.R. 1206-2, Sections 3.3, and 3.4	Applicable	Prohibits allowing any plant of any population on "List A" to produce seed or develop other reproductive propagules. (Section 3.1 sets forth "List A.")	Applicable to response activities in an area with "List A" noxious weeds. Prescribed management techniques for individual noxious weed species on "List A" provided at 8 C.C.R. 1206-2, Section 3.6			✓
Rules Pertaining to the Administration and Enforcement of the Colorado Noxious Weed Act, 8 CCR 1206-2, Sections.4.4 and 4.5.	Applicable	Prohibits allowing any plant of any population on "List B" to produce seed or develop other reproductive propagules after the time specified in the San Miguel County elimination Plan. (Section 4.1 sets forth "List B.")	Applicable to response activities in an area with "List B" noxious weeds. Prescribed management techniques for individual noxious weed species on "List B" provided at 8 C.C.R. 1206-2, Section 4.8. San Miguel County Plan B Species elimination plan, available on June 9, 2021 at: https://docs.google.com/spreadsheets/d/1fHXmYI_VY0MGNqe0ZZzJ8NwXON-Lr3Rs8i_KvBY0Vug/edit?pref=2&pli=1#gid=955255347		✓	
Colorado Wildlife Enforcement and Penalties Act, CRS § 33-6-128	Applicable	Prohibits willfully damaging or destroying any wildlife den or nest, or their eggs, or harassing any wildlife.	Performing response activities in relevant wildlife habitat.		✓	
Colorado Non-game, Endangered, or Threatened Species Act, CRS § 33-2-104(3) and CCR 406-10:1002-1004 (Protected Species)	Applicable	Prohibits harassment, taking or possession of nongame species and subspecies, includes threatened or endangered wildlife, with limited exceptions.	Performing response activities in relevant wildlife habitat.		✓	

Statute and Regulatory Citation	ARAR Determination	Description	Comment	Chemical-Specific	Location-Specific	Action-Specific
Colorado Environmental Covenant Statute, C.R.S. § 25-15-317, *et seq*.	Applicable	Requires environmental covenants (ECs) or notices of environmental use restrictions (RNs) for environmental remediation projects resulting in: residual contamination at levels that have been determined to be safe for one or more specific uses, but not all uses; or incorporation of engineered features or structures requiring monitoring, maintenance, or operation, or that will not function as intended if disturbed.	The substantive requirements of the Colorado Environmental Covenant Statute are applicable to components of the removal action.			✓