



## REGION 8

DENVER, CO 80202

### **ACTION MEMORANDUM**

SUBJECT: Approval and Funding for a Removal Action at the Saints John Mine Site in Montezuma, Summit County, Colorado

FROM: Martin McComb, On Scene Coordinator  
Assessment and Removal Section

THRU: David Fronczak, Supervisor  
Assessment and Removal Section  
  
Deirdre Rothery, Manager  
Emergency Management Branch

TO: Aaron Urdiales, Director  
Superfund and Emergency Management Division

Site ID # B8L6

#### **I. PURPOSE**

The purpose of this Action Memorandum is to request and document approval of the removal action described herein for the Saints John Mine Site (Site) outside the town of Montezuma, Summit County, Colorado. This time-critical removal action involves creating a surface water channel to contain adit discharge and establishing stormwater drainage controls at a large, abandoned mine. 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 nor 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: Saints John Mine Site  
Removal Category: Time Critical  
Site Spill ID (SSID): B8L6  
NRC Case Number: N/A  
CERCLIS Number: CON000802706  
Site Location: County Road 273, Montezuma, Summit County, CO, 80435  
Lat/Long: +39.570154, -105.878586  
Potentially Responsible Party (PRP):  
NPL Status: non-NPL  
Removal Start Date: September 11, 2024

## **A. Site Description**

### **1. Removal Site Evaluation**

The Site is an abandoned hard rock mine on private property. It includes several large waste piles. Soil lead concentrations at the surface of the waste pile ranged up to 11,400 mg/kg and arsenic in the surface soil ranged up to 35.7 mg/kg. Discharge from a draining adit flows across this contaminated material and drains into Saints John Creek. Saints John Creek drains to the Snake River a short distance downstream, which ultimately discharges into Dillon Reservoir. Adit mine drainage includes elevated levels of cadmium and zinc concentrations which flow into Saints John Creek. These concentrations are well above acute and chronic aquatic life water quality standards. Metals concentrations in Saints John Creek upstream of the adit discharge are below water quality standards.

The adit discharge is perennial but fluctuates seasonally and reaches a peak during spring snowmelt. Flow measured on June 19, 2018, was measured at 62 gallons per minute. The Colorado Division of Reclamation, Mining and Safety (DRMS) reports that much larger flows from the adit are possible due to changes in conditions underground such as ice dams which can cause surging conditions from the mine and exasperate erosion on the waste pile.

The adit discharge is largely uncontrolled and cascades down the east flanks of the mine waste deposits as sheetflow in several locations. This discharge continuously erodes the waste pile and washes contamination downstream.

The pile of mine waste at the Site is without vegetation and visibly eroded. The erosion appears to be episodic during stormwater events. Some efforts were made to control stormwater while the mine was active. Contaminated mine waste was used to create a large run-on control berm along the south, uphill perimeter of the mine. This historic drainage control has been overwhelmed by natural mud and debris flows from the mountains above.

The general lack of drainage controls at the Site has led to inadequate stormwater runoff management and exacerbated erosion issues. There is a section of access road at the transition between natural terrain and the mine waste as the road climbs onto the waste pile which is difficult to keep open as evidenced by recent road repairs at that location and downslope deposition of mine waste.

### **2. Physical location**

The Site is on private property at an elevation of 10,479 feet. It is located on the western side of the continental divide and is surrounded by USFS lands of the White River National Forest. There are few residential properties within ½ mile of the Site and none appear to be permanently occupied. The town of Montezuma is approximately two miles from the Site and had a population of 74 during the 2020 census.

The Site is accessed from Montezuma, CO by following Saints John Road (USFS/CR 275) for 1½ miles, and then following CR 273 for an additional ½ mile. Both roads are rough one-lane 4x4 roads with few pull outs.

The climate is subarctic with heavy winter snow. The roads are not plowed. The construction season at the Site is roughly July 1 – October 1.

### **3. Site characteristics**

The Site dates to 1865 when John Cullom discovered the Saints John Lode. The mine became one of the first silver producers in Colorado. In 1867, the mine was sold to the Boston Silver Mining Company who developed it and built an ore mill. The town of Coleyville (later to become Saints John) settled nearby and reported a population of 71 in 1870 which made it the largest unincorporated town in Summit County at the time. The mine closed in 1928, and significant historical structures, debris, and mine waste piles still remain at the Site.<sup>1</sup>

Water from the mine adit discharges into Saints John Creek after leaving the Site. Saints John Creek flows through the Saints John Fluvial Tailings Site ½ mile downstream of this confluence. After the fluvial tailings, the creek joins the Snake River near Keystone, CO and then Dillion Reservoir, a drinking water resource.

The terrain above the Site is steep and sparsely wooded, with large erosion gulleys. Stormwater flows readily onto the Site and existing run-on controls have been overwhelmed.

According to EPA's Environmental Justice (EJ) Screening and Mapping Tool for this Site, the data does not indicate potential areas of EJ concern at or near the Site.

#### **4. Release or threatened release into the environment of a hazardous substance, or pollutant or contaminant.**

Lead and arsenic are listed as hazardous substances as defined by section 101(14) of CERCLA. Sampling data collected by the EPA in 2018 indicated that elevated concentrations of lead, arsenic, and other analytes are present in mine tailings at the Site which could result in acute or chronic exposures to site visitors. Acute exposures to aquatic species can occur during larger, episodic releases such as during thunderstorms, spring run-off and changes in adit flow, potentially leading to reductions in the number and diversity of the aquatic species and communities.

Lead: Lead is a naturally occurring element but the Agency for Toxic Substances and Disease Registry (ATSDR) states that it is not considered an essential nutrient to humans or wildlife species. It is classified as a B2 carcinogen by the EPA. Lead can enter the body via ingestion and inhalation. Once exposed, lead is widely distributed throughout the body and toxic effects of lead have been observed in every organ system that has been studied. Health effects include neurological, renal, cardiovascular, hematological, immunological, reproductive, and developmental effects.

Neurological effects of lead are of greatest concern because effects are observed in infants and children and may result in life-long decrements in neurological function. Neurological effects include decreased cognitive function; memory, altered mood and behaviors that may contribute to learning deficits; altered neuromotor and neurosensory function, peripheral neuropathy, and encephalopathy. Many other severe effects to animals are associated with lead poisoning including behavioral changes, rapid and labored breathing, anorexia, weight

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<sup>1</sup> <https://westernmininghistory.com/towns/colorado/saints-john/>

loss, decreased milk production, dehydration, emaciation, fetal death, paraplegia, impaired postnatal growth, reduced pregnancy rate, and interference with resistance to infectious disease.

Arsenic: Arsenic is a naturally occurring ubiquitous element with concentrations in soils reflecting the geology of the region. Arsenic is a hazardous substance as defined by Section 101 (14) of CERCLA. The toxicity of arsenic is related to its chemical form, with inorganic forms being considered more toxic than the organic form. According to the ATSDR, ingestion of lower levels of inorganic arsenic causes irritation of the stomach and intestines with symptoms such as nausea, vomiting and diarrhea. Other effects include decreased production of red and white blood cells which may cause fatigue, abnormal heart rhythm, blood-vessel damage resulting in bruising, and impaired nerve function. Long-term ingestion of inorganic arsenic causes a pattern of skin changes including patches of darkened skin and small warts. Skin cancer may also develop. Swallowing arsenic has also been reported to increase the risk of cancer in the liver, bladder, and lungs.

An Eisler wildlife publication indicates that arsenic poses potent ecological dangers and oral doses of elevated arsenic are fatal to birds and animals. Chronic exposure to arsenic via diet and other sources have been associated with liver, kidney, and heart damage. A comprehensive review in Ecotoxicology and Environmental Safety indicates that wildlife toxicity resulting from arsenic exposure is linked to an imbalance between pro-oxidant and antioxidant homeostasis that results in oxidative stress.

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.

## **5. NPL Status**

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

## **6. Maps, pictures and other graphic representations**

See the attached Pre-CERCLA Screening Form.

## **B. Other Actions to Date**

### **1. Previous actions**

The EPA Site Assessment section referred the Site to the Removal Program on June 19, 2018, due to elevated soil lead and arsenic concentrations in mine waste piles, and contaminated runoff visibly entering the downstream water body.

The Pre-CERCLA Screening Checklist/Decision Document served as the Removal Preliminary Assessment. The Removal Site Inspection occurred on July 24, 2024.

## **2. Current actions**

None.

### **C. State and Local Authorities' Roles**

#### **1. State and local actions to date**

Colorado DRMS previously consolidated and capped mine waste closer to Saints John Creek below the main waste pile. Colorado DRMS also has worked to keep the adit drainage flowing to the east, away from the interior of the waste pile.

#### **2. Potential for continued State/local response**

None.

### **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 Site.

*“(iv) High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate.”*

Sampling data reported by Site Assessment documented soil lead concentrations in the waste pile as high as 11,400 mg/kg and arsenic in soil as high as 35.7 mg/kg. Other heavy metals are also present.

The Site is an abandoned hardrock mine with a draining adit, large piles of eroded mine waste, and poor surface water drainage controls especially during stormwater runoff events. The largely uncontrolled surface water drainage from the adit and high runoff during heavy rainfall and snowmelt erode the mine waste deposit and move contamination lower in watershed.

*“(v) Weather conditions that may cause hazardous substances or pollutants or contaminants to migrate or be released.”*

An ice dam developed inside the mine over Winter 2020-21 and caused an unexpected release from the adit while it melted in Spring. This flow exceeded the capacity of the existing surface water channel, causing erosion and migration of the waste pile downstream.

Thunderstorms, annual snowmelt run-off conditions and increased adit flows contribute to the episodic flows, and significant release of the hazardous substances from the unstable deposits into downstream surface water.

*“(vii) The availability of other appropriate federal or state response mechanisms to respond to the release.”*

Colorado DRMS does not have the resources to create the required drainage controls. No other federal, state, or local mechanisms are available to address the threat of uncontrolled and continued erosion of the tailings and mine waste deposit.

#### **IV. PROPOSED ACTIONS AND ESTIMATED COSTS**

##### **A. Proposed Actions**

###### **1. Proposed action description**

- (i) Establish and maintain Site planning and reporting functions. Includes Site maps and website content.
- (ii) Mobilize resources, establish access and harvest rock.
  - a. Perform minor maintenance along CR 275 (Saints John Road) to support transit of an off-road haul truck, dozer, excavator, Command Post, other equipment/materials and daily crews from Montezuma to Saints John Mine Site. Priorities include two sets of switchbacks.
  - b. Improve a stretch of access road on private land that climbs and traverses the waste pile. Remove physical hazards. Mark and avoid historic structures and debris, where possible. To the extent encountered historic structures or objects need to be moved, map where objects are moved from and to document objects that are moved with photographs. Widen the road and install drainage controls along the inside edge of the road.
  - c. Create two open channel road crossings made with rock to handle stormwater runoff on the flat, traversing section of the access road.
  - d. As a driver approaches the mine waste deposit from below, there is a section of road where rough repairs were recently completed. Tie the EPA road improvements into this past repair work with a swale across the road.
  - e. Harvest rock from on-Site and stockpile for use throughout Removal Action.
- (iii) Divert adit drainage around the mine waste.
  - a. Divert the adit discharge several hundred feet below an existing monitoring weir.
  - b. Harvest trees, debris, rock and topsoil from along the north perimeter of the waste pile for revegetation of capped areas. Segregate trees, debris, rock and topsoil for restoration.
  - c. Create new surface channel for the adit discharge along the north perimeter of the mine waste. Utilize a series of lined and rock channels, pools, and

drops to reduce water velocity and direct flow. Lined-channels should be at least 9-foot wide and 3-foot deep.

- d. Create one open channel road crossing made with rock to handle the adit discharge in the new channel as it crosses the road.
- e. Consolidate any mine waste generated during construction of the new stream channel with nearby waste piles. Regrade the slopes of the waste deposits along the north perimeter.

(iv) Improve stormwater drainage controls

- a. Establish run-off control ditches which are unlined but rocked. The ditches will carry stormwater to periphery of the waste deposit and across at least one open channel road crossing.
- b. Consolidate mine waste generated during construction of stormwater channels with nearby waste piles.

(v) Restoration and Demobilization

- a. Cap the areas adjacent to the new discharge channel with the organic material saved for restoration. Revegetate the capped areas with willows, trees and native seeds.
- b. Demobilize all equipment and resources.

## **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 Site-specific ARARs is provided as Attachment 2 to this Action Memorandum.

## **5. Project schedule**

Site activities are expected to begin on September 11, 2024. Approximately 3 weeks will be spent creating safe access to the Site and harvesting rock before winter conditions set in.

Site activities will continue again after snowmelt in 2025 and will be completed by September 11, 2025.

**B. Estimated Costs**

	<b>Estimated Costs</b>
ERRS contractor	\$ 900,000
START contractor	100,000
SUBTOTAL	\$1,000,000
Contingency costs (20% of subtotal)	\$ 200,000
<b>Total Removal Project Ceiling</b>	<b>\$1,200,000</b>

\*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 this Site would increase the actual or potential threats to the public health and/or the environment. Heavy metal contaminants will continue to migrate off-Site from the Saints John Mine.

**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. RECOMMENDATION**

This decision document represents the selected removal action for the Saints John Mine Site, in Montezuma, Summit County, 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) criteria for a removal action and through this document, I am approving the proposed removal actions. The total project ceiling is \$1,200,000. This amount will be funded from the Regional removal allowance.

Approve

\_\_\_\_\_  
Aaron Urdiales, Director  
Superfund and Emergency Management Division

\_\_\_\_\_  
Date

Disapprove



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Aaron Urdiales, Director  
Superfund and Emergency Management Division

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Date

Attachments

Attachment 1: Pre-CERCLA Screening Form

Attachment 2: ARARs

# **Pre-CERCLA Screening Checklist/Decision Document**

**Sts. John Mine, Montezuma, Colorado**

**June 19, 2018**

**EPA Region 8  
Site Assessment Program  
1595 Wynkoop Street  
Denver, CO 80202**

## **Pre-CERCLA Screening – Sts. John Mine**

Pre-CERCLA<sup>1</sup> Screening (PCS) and sampling was conducted at the Sts. John Mine on June 19, 2018 by Region 8 Environmental Protection Agency (EPA) Site Assessment Program and other federal and state members of the Colorado Mixed-Ownership Team. Sampling and analysis were completed in accordance with the EPA-approved Sampling and Analysis Plan/Quality Assurance Project Plan: 2018 Colorado Draining Mines Pre-CERCLA Field Screening, prepared by the Colorado Division of Mine Reclamation and Safety, June 2018.

The PCS Checklist/Decision Document, as required by EPA Pre-CERCLA Guidance (Office of Land and Emergency Management (OLEMJ) Directive# 9200.3-107, is included as Attachment A. A sample location figure and summary of soil and water analytical results as reported by the EPA Contract Laboratory is included in Attachment B.

<sup>1</sup> Comprehensive Environmental Response, Compensation, and Liability Act

**Sts. John Mine  
Montezuma, Colorado**

**Attachment A:  
Pre-CERCLA Screening Checklist Decision Form**

# Pre-CERCLA Screening Checklist/Decision Form

This form is used in conjunction with a site map and any additional information required by the EPA Region to document completion of a Pre-CERCLA Screening (PCS). The form includes a decision on whether a site should be added to the Superfund program's active site inventory for further investigation.

**EPA Region:** 8      **State:** Colorado

**EPA ID No.** (If Available): Not Applicable

Site Category: Draining Mines	Select a Site Name (Primary): Saints John Mine
Site Number: Unknown	
Date of Site Visit: Jun 19, 2018	Time of Site Visit: 10:53

## Checklist Preparer

Title: Liaison to EPA/Ecological Risk Assessor  
Name: Robyn Blackburn

Organization: US Fish and Wildlife Service

Street Address: 1595 Wynkoop Street

City: Denver

State: Colorado Zip Code: 80202

Phone: (303) 312-6663

Email: blackburn.robbyn@epa.gov

## Site Information (Preliminary)

Site Name (Alternate 1): Sts. John Mine

Site Name (Alternate 2): N/A

Region: 8

State: Colorado County: Summit

Congressional District: 02

Township & Range: T5S/R76W

Section: 34

Section (1/4): SE

Section (1/16): SE

## Spatial Location

Latitude: 39.569984

Longitude: -105.87816

Collection Method: GPS (handheld, Smartphone, other device with < 25m accuracy)

Horizontal Accuracy in Meters: <25m

Site Description (of this Spatial Location):

Main portal with draining adit

## Mine Site Contact

Title:

Name: NA

Organization:

Street Address:

City:

State:

Zip Code:

Phone:

Email:

## Preliminary Assessment (Historical Data)

**CERCLA 105d Petition for Preliminary Assessment:** No

**Petition Date:** Not Applicable

**RCRA Subtitle C Site Status: Is site in RCRAInfo?:** No

**RCRAInfo Handler ID #:** Not Applicable

**Additional RCRAInfo ID #:** Not Applicable

**State ID:** Not Applicable

**Other ID:** DRMS-163

**Ownership Type:** Mixed Ownership

**Site Type:** Abandoned Mine Site

**Site Sub-Type:** Hard Rock Mining

**Federal Facility:** No

**Federal Facility Owner:** Not Applicable

**Federal Facility Operator:** Not Applicable

**Formerly Used Defense Site (FUDS):** No

**Federal Facility Docket:** No

**Federal Facility Docket Listing Date:** Not Applicable

**Federal Facility Docket Reporting Mechanism:** Not Applicable

**Native American Interest:** Unknown

**Tribe:** Not Applicable

**Additional Tribe:** N/A

## Site Description - Physical Setting

**Abandoned Mine Site:** Yes

**Buildings:** Buildings Present

**Mill or Milling Equipment or Tailing Present:** Yes

**Steep Waste Piles:** Yes

**Safety Hazards Present:** Yes

**Safety Hazards** Hazardous abandoned equipment or facilities , Miscellaneous Debris , Steep Vertical Inclines

**Accessibility (provide details with regard to ability to access the site)** Moderate Access

**Time it takes to reach this site:** 30 minutes

**Detailed description of how the site was accessed:** Unknown

**Adjacent to Resident(s):** No

**Adjacent Residential Features:** Not Applicable

**Mountainous Steep Terrain:** No

**Vegetation Present:** Yes

**Vegetation Density:** Moderate/Interspersed

**Surface Water Body on or Adjacent to the Site:** Yes

**Open Fields:** Yes

**Waste Pile Erosion Observed:** Yes

**Describe Waste Pile Run Off:** waste material is observed in the surrounding vegetation and is included in adit drainage channel.

**Tailings Erosion Observed:** Yes

**Describe Tailings Run Off:** fine, orange, sediment run off from mine piles observed in downstream channel.

**Draining Adits or Seeps Discharge from the Site:** Yes

**Adits Flow Rate from Site:** Significant

**Describe Adit Flow from Site:** There is an incised channel that is approx. 1-2 feet in width and 2-4 inches deep. Adit drainage results in iron precipitate and this appears to be a perennial flowing stream. discharge drains across some of the waste piles.

**Draining Adits or Seeps Discharge Across Waste Piles:** Yes

**Draining Adits or Seeps Discharge to Adjacent Habitat:** Yes

**Adit Flows into what habitat:** Water Body

**Habitat Name:** Not Applicable

**Physical Setting and Access Features:** Accessible and unique recreational area (e.g., tourist/natural attractions, hiking/biking trails, etc.)

**Physical Setting (Field Notes - provide a brief summary of physical setting including notable safety concerns, waste types, human uses/exposures to wastes, runoff/drainage, and notable habitat/ecological use):** The site is readily accessible, no fencing, and is heavily used for recreation including biking, hiking, and ATVs. The local historical society brings visitors and does regular tours to the mine. Heavy vehicle and recreational traffic.

## Site Description - Land Use

**Roads/Trails:** Yes

**Road/Trail Type:** Dirt Road

**Human Activity:** Yes

**Human Activity Type:** Heavy

**Residential:** Yes

**Residential Density:** 1 Residence

**Recreational Use:** No

**Recreational Density:** Not Applicable

**Camping:** Yes

**Camping Frequency:** Minimal

**Fishing:** Yes

**Fishing Frequency:** Minimal

**Hiking:** Yes

**Hiking Frequency:** Heavy

**Biking:** Yes

**Biking Frequency:** Heavy

**Picnicking:** Yes

**Picnicking Frequency:** Minimal

**Ecological Activity:** Yes

**Ecological Activity:** Moderate

**Observed/likely fishing/consumption of fish/aquatic organisms at the mine site or within ¼ miles downstream:** Yes

**Are there other observed sensitive environments on-site or downstream of the waste area(s) within ¼ mile?** Yes

Sensitive Environment (wetland, stream, creek, river, known to be in the vicinity of a National Park, designated federal/state wildlife or scenic area, fish hatchery/spawning area, designated for wildlife or game management, known to be used by or designated critical habitat for Threatened or Endangered Species, or any other sensitive environment critical to supporting wildlife):

Fish Populations

**Other Sensitive Environments:**

**Land Use (Field Notes - provide a brief summary of human/ecological type of use and use level (e.g., heavily used for biking and camping; observed camp fire rings and picnic tables at the site immediately adjacent to the waste runoff; narrow foot trail with difficult steep access to the waste areas and minimal use of the area, etc.):** Heavily used for biking, hiking, and a lot of vehicle and ATV traffic. Easy to access and there is a high level of tourism interest.



## Site Surface Description

**Draining Adit:** Yes                      **Draining Adit Type:** Discharges to Creek, Stream, River, or Wetlands

**Waste Piles:** Yes                      **Number of Waste Piles:** 4

**Airborne Release of Fine Material/Dust:** Yes

**Surface Water on or Immediately Adjacent:** No                      **Water Body Name:** Not Applicable

**Wetlands on or Adjacent to Site:** Yes

**Forested on or Adjacent to the Site:** Yes

**Riparian on or Adjacent to the Site:** No

**Site Surface (Field Notes):** Site is surrounded by forested area, drainage from high flowing adit creates stream that discharges through the waste piles and into the surrounding forested area, ultimately into a forested stream/creek setting.

## Site Description (Other)

**Groundwater Seeps Observed:** Yes

**Primary Drainage Name:** Sts. John Creek

**Groundwater Seeps (Field Notes):** Not Applicable

**Previous Investigations:** Yes

**Investigation Type:** Unknown

**Who Completed Investigations at this Site:** State

**Cleanup Activities:** Yes                      **Cleanup Type:** Historic Evidence of Cleanup

**Site Description Cleanup Field Notes:** State

**Who Completed Cleanup Activities at this Site:** State

**There were no Cleanup Activities at this Site:** No previous cleanups were performed

**Previous Regulatory Actions (Permitting and Enforcement):** No

**Previous Regulatory Type:** Not Applicable

**Site Feature Name(s):** Not Applicable

**Who Completed Regulatory Actions at this Site:** Not Applicable

**Institutional Controls:** No                      **Institutional Control Type:**

**Institutional Controls (indicate name/entity on signs/controls):** No Institutional Controls

**Community Interest:** Yes                      **Community Interest Type:** Watershed Group Activity

**Community Interest (Indicate watershed group or other interest group):** Snake River Task Force

## Survey Form

<b>1. An initial search for the site in EPA's Superfund active, archive and non-site inventories should be performed prior to starting a PCS. Is this a new site that does not already exist in these site inventories?</b>	No
<b>2. Is there evidence of an actual release or a potential to release?</b> <b>Evidence of Potential Release</b> Waste pile material observed in water body or other surrounding environment , Evidence of waste pile runoff/erosion (channels, rills, run off) , Draining mine adit water discharge , Draining mine adit discharging into a stream or water body , Draining mine adit discharging into wetlands or surrounding environment , Draining Mine Adit Water discharging over waste material	Yes
<b>3. Are there possible targets that could be impacted by a release of contamination at the site?</b>	Yes
<b>4. Is there documentation indicating that a target has been exposed to a hazardous substance released from the site?</b>	Yes
<b>5. Is the release of a naturally occurring substance in its unaltered form, or is it altered solely through naturally occurring processes or phenomena, from a location where it is naturally found?</b>	No
<b>6. Is the release from products which are part of the structure of, and result in exposure within, residential buildings or business or community structures?</b>	No
<b>7. If there has been a release into a public or private drinking water supply, is it due to deterioration of the system through ordinary use?</b>	No
<b>8. Are the hazardous substances possibly released at the site, or is the release itself, excluded from being addressed under CERCLA?</b>	No
<b>9. Is the site being addressed under RCRA corrective action or by the Nuclear Regulatory Commission?</b>	No
<b>10. Is another federal, state, tribe or local government environmental cleanup program other than site assessment actively involved with the site (e.g., state voluntary cleanup program)?</b>	No
<b>11. Is there sufficient documentation or evidence that demonstrates there is no likelihood of a significant release that could cause adverse environmental or human health impacts?</b>	No
<b>12. Are there OTHER site-specific situations or factors that warrant further CERCLA remedial/integrated assessment or response?</b>	No

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## Preparer's Recommendation

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**Preparer's Recommendation:** Add site to the Superfund active site inventory.

**Please explain recommendation below:** The site includes several large waste piles and a high flowing draining mine adit. The adit drainage discharges across mine waste piles, a dirt driveway that is used to access an adjacent residence, and mine waste runoff is observed to discharge downstream into Sts. John Creek, a 303d-listed stream. Soil lead concentrations in the waste pile ranged up to 11,400 mg/kg and arsenic in soil ranged up to 35.7 mg/kg. Both lead and arsenic concentrations are well above corresponding local soil background concentrations and above EPA Residential/Industrial RSLs. The downstream Sts. John Creek that receives runoff from the mine confluences with the Snake River a short distance downstream, which ultimately discharges into Dillon Reservoir near Keystone Colorado. Acidic/low pH adit mine drainage including cadmium and zinc concentrations discharges into Sts. John Creek and concentrations are well above acute and chronic aquatic life water quality standards. Metals concentrations in Sts. John creek upstream of the adit discharge are below water quality standards. The site is recommended for further evaluation due to elevated soil lead concentrations, adjacent resident, potential for local recreational use, and highly contaminated, mine waste runoff visibly enters the downstream water body.

**Site Assessor's Name:** David Fronczak

**Site Assessor's Signature:**



**Date:** Feb 27, 2019

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## EPA Regional Review and Pre-CERCLA Screening Decision

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**EPAs Recommendation:** Add site to the Superfund active site inventory.

**Add site to the Superfund active site inventory for completion of a:**

- ☐ Standard/full preliminary assessment (PA)
- ☐ Abbreviated preliminary assessment (APA)
- ☐ Combined Preliminary Assessment/Site Inspection (PA/SI)
- ☐ Integrated Removal Assessment and Preliminary Assessment
- ☐ Integrated Removal Assessment and Combined PA/SI
- ☐ Other Description

**Do not add site to the Superfund active site inventory. Site is:**

- ☐ Not a valid site or incident
- ☒ Refer to/being addressed by EPA's Removal Program
- ☐ Refer to/being addressed by a State cleanup program
- ☐ Refer to/being addressed by Tribal cleanup program
- ☐ Refer to/being addressed under Resource Conservation and Recovery Act (RCRA)
- ☐ Refer to/being addressed by the Nuclear Regulatory Commission (NRC)
- ☐ Other Description

**EPA Region 8 Reviewer's Name:** Jean Wyatt

**EPA Region 8 Reviewer's Signature:**



**Date:** Feb 27, 2019

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## Site Location

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## Photographs

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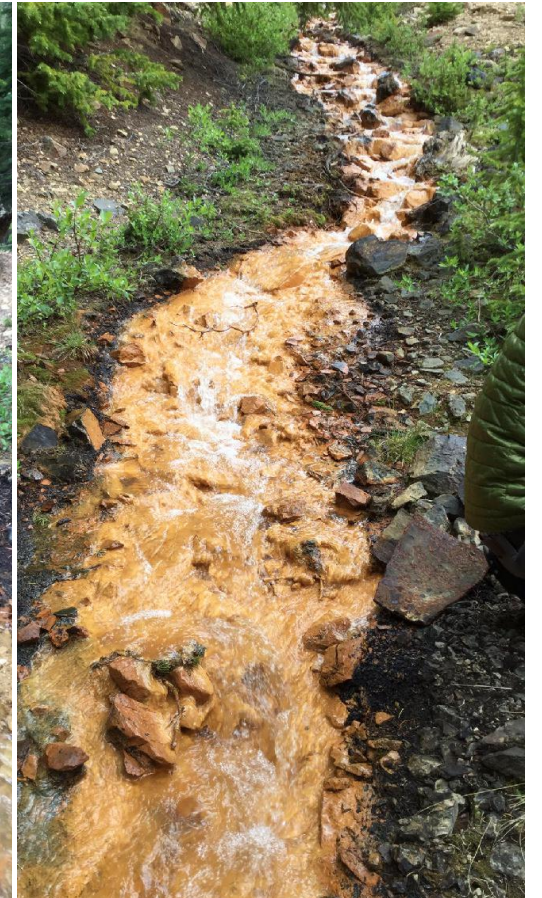
Flume location downstream of STJ-SW-A01-02



**Saints John Mine (DRMS-163) 6/19/2018**



STJ-SW-AO1-01

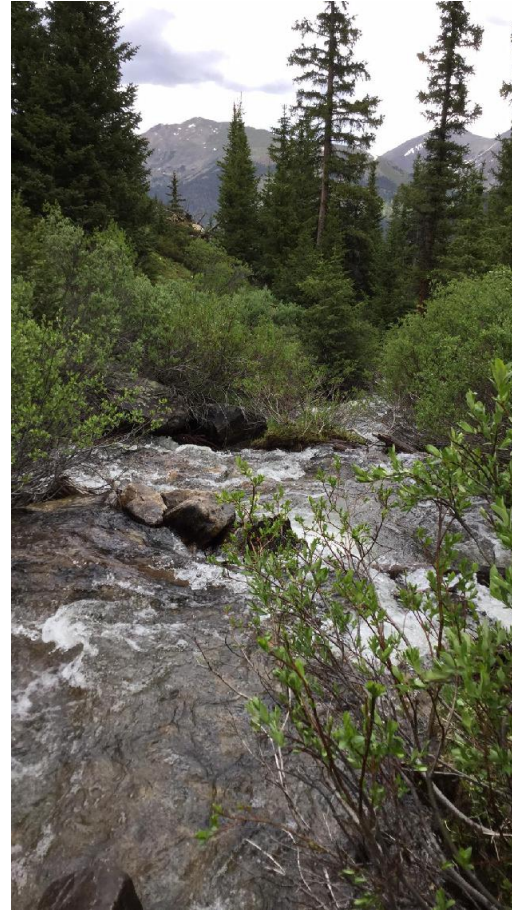


STJ-SW-AO1-02





STJ-SW-DNS-01

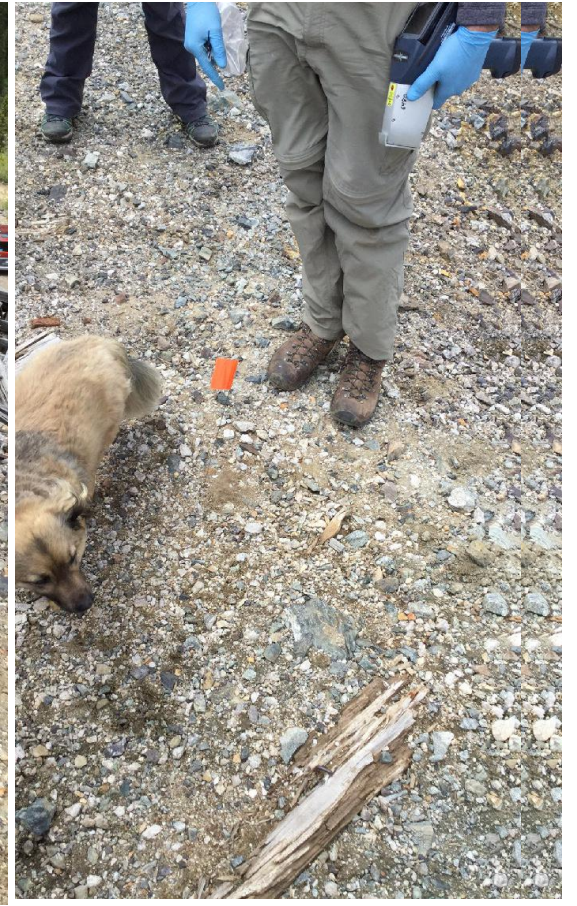
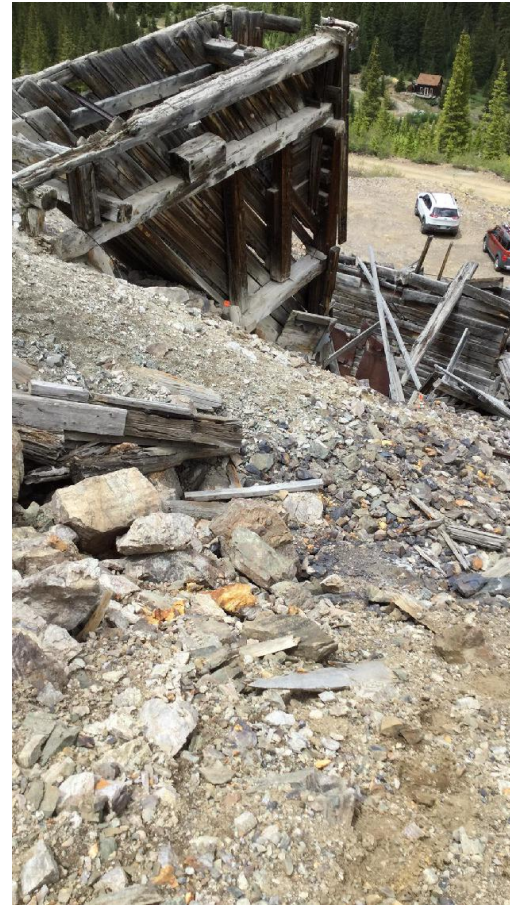


STJ-SW-UPS-01





STJ-SO-BKG-01

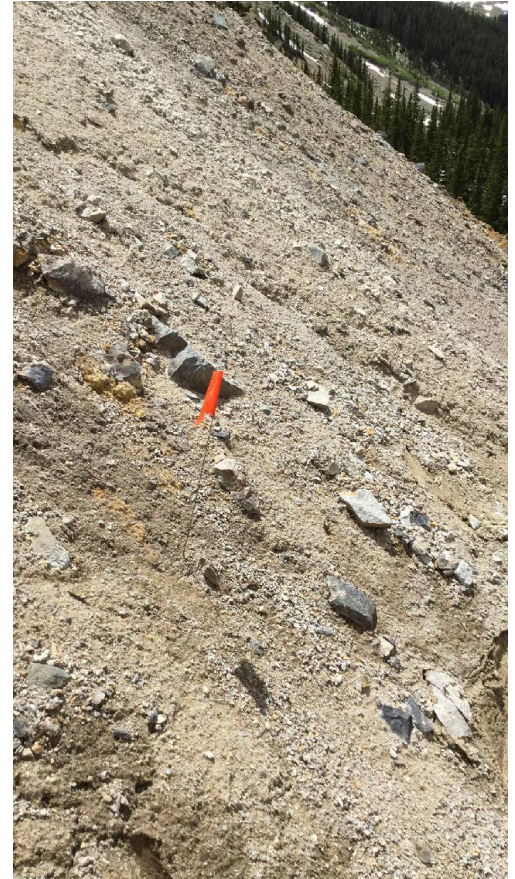


STJ-SO-MP01-01





STJ-SO-MP01-01



STJ-SO-MP02-01





STJ-SO-MP02-01



STJ waste pile area





## Sts. John Mine - Overview Aerial View

**Sts. John Mine  
Montezuma, Colorado**

**Attachment B:  
Pre-CERCLA Sampling and Analysis Summary**

2018 Draining Mines Pre-CERCLA Screening - Surface Water, Soil, and SPL Results for Saints John Mine, Summit County, Colorado*																											
STATION_ID	ANALYSIS	MATRIX	SAMPLE DATE	SAMPLE TIME	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Vanadium	Zinc	Hardness
					ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L	
STJ-SW-A01-01	Dissolved Metals	Surface Water	6/19/2018	12:57	61.6 J-	2 R	1 R	15.2 J-	0.2 J-	16.1 J-	141000 J-	0.13 U	14.4 J-	1.1 J-	1990 J-	0.019 U	24100 J-	9650 J-	32.6 J-	1450 J-	5 R	1 R	5790 J-	0.029 J-	5 R	3510 J-	451
STJ-SW-A01-01.D	Dissolved Metals	Surface Water	6/19/2018	12:57	74.8 J-	2 R	1 R	14.4 J-	0.2 J-	15.4 J-	142000 J-	0.13 U	13.9 J-	0.9 J-	1930 J-	0.019 U	23800 J-	9330 J-	30.9 J-	1420 J-	5 R	1 R	5640 J-	0.027 J-	5 R	3520 J-	453
STJ-SW-A01-02	Dissolved Metals	Surface Water	6/19/2018	12:16	31.4 J-	2 R	1 R	14.5 J-	1 R	14.5 J-	148000 J-	0.13 U	14 J-	0.95 J-	1110 J-	0.019 U	24600 J-	9680 J-	30.1 J-	1470 J-	5 R	1 R	5890 J-	0.028 J-	5 R	3180 J-	471
STJ-SW-DNS-01	Dissolved Metals	Surface Water	6/19/2018	10:03	23.1 J-	2 R	1 R	9.5 J-	1 R	0.36 J-	13600 J-	0.13 U	0.2 J-	0.57 J-	41 J-	0.019 U	2700 J-	146 J-	0.77 J-	711 J-	5 R	1 R	3460 J-	1 R	5 R	111 J-	45
STJ-SW-UPS-01	Dissolved Metals	Surface Water	6/19/2018	11:18	21.8	0.13 U	0.47 U	0.17 U	0.17 U	0.06 U	8260	0.13 U	0.024 U	0.078 U	3.8 U	0.019 U	1390	7.6	1.1	626	1.2 U	0.032 U	1190	0.018 U	0.36 U	12.4	26

STATION_ID	ANALYSIS	MATRIX	SAMPLE DATE	SAMPLE TIME	Aluminum mg/kg	Antimony mg/kg	Arsenic mg/kg	Barium mg/kg	Beryllium mg/kg	Cadmium mg/kg	Calcium mg/kg	Chromium mg/kg	Cobalt mg/kg	Copper mg/kg	Iron mg/kg	Lead mg/kg	Magnesium mg/kg	Manganese mg/kg	Mercury mg/kg	Nickel mg/kg	Potassium mg/kg	Selenium mg/kg	Silver mg/kg	Sodium mg/kg	Thallium mg/kg	Vanadium mg/kg	Zinc mg/kg
STJ-SO-RWG-01	Total Recoverable Metals	Soil	6/19/2018	10:30	11200	1.8 J-	91.1 J-	149 J-	0.18 J-	12.1 J-	1590	13.9 J-	4 J-	63.1 J-	30100	796 J-	3010	681 J-	0.0064 U	6 J-	2550	2.9 R	4.9 J-	102 U	0.62 J-	21.2 J-	2940 J-
STJ-SO-MP01-01	Total Recoverable Metals	Soil	6/19/2018	11:04	9360	19.2 J-	17.3 J-	178 J-	0.56 J-	18.2 J-	9210	8.6 J-	10.5 J-	145 J-	44800	10500 J-	3780	7460 J-	0.15	13.9 J-	2780	0.82 J-	46.1 J-	89.4 U	0.54 J-	15.8 J-	3950 J-
STJ-SO-MP02-01	Total Recoverable Metals	Soil	6/19/2018	13:12	8840	10.7 J-	33.5 J-	122 J-	0.54 J-	18.1 J-	8840	12.8 J-	13.8 J-	221 J-	40900	8360 J-	3400	6480 J-	0.5	17.3 J-	3240	0.82 J-	44.3 J-	90.1 U	0.79 J-	18.7 J-	4780 J-
STJ-SO-MP02-01	Total Recoverable Metals	Soil	6/19/2018	13:12	8530	16.5 J-	25.5 J-	157 J-	0.47 J-	42.1 J-	7560	22.3 J-	14.2 J-	211 J-	43600	11400 J-	3340	7410 J-	0.32	20.1 J-	2870	1.7 J-	44 J-	82.3 U	1.1 J-	25.4 J-	14800 J-

Sts. John Mine - Field Measurements								
Location	Date	Time	pH	Temp °C	Dissolved Oxygen (mg/L)	Specific Conductivity (µS/cm)	Flow (cfs)	Flow Measurement Equipment
STJ-SW-A01-01	6/19/2018	12:57	7.18	3	7.1	992	0.14	4" Cutthroat Flume
STJ-SW-A01-02	6/19/2018	12:16	7.66	5.5	7.76	983	0.13	4" Cutthroat Flume
STJ-SW-DNS-01	6/19/2018	10:03	7.47	5.3	7.34	110	11.14	Flow Tracker
STJ-SW-UPS-01	6/19/2018	11:18	7.73	6.7	7.64	62	7.2	Flow Tracker

Soil Synthetic Precipitation Leaching Procedure Leachate and Corresponding Composite Soil Sample Metals Analytical Results for Soil Samples Collected During the 2018 Colorado Draining Mines Field Season

STATION_ID	ANALYSIS	MATRIX	SAMPLE DATE	SAMPLE TIME	Aluminum	Antimony	Arsenic	Barium	Beryllium	Cadmium	Calcium	Chromium	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	olybdenu	Nickel	Potassium	Selenium	Silver	Sodium	Thallium	Uranium	Vanadium
STJ-SO-MP01-01	SPLP	Leachate	6/19/2018	11:04	191 J	15.6 U	3.3 U	56.5 U	1.4 U	1.3 U	25500	2.1 U	12.9 U	6.3 U	54.4 J	28.3	2500 J	12.3 J	N/A	10.6 U	3240 J	9.5 U	1.1 U	15900	6 U	N/A	14.4 U




K-Ray Fluorescence (XRF) Spectrometry Soil Survey Results





Mine Name	XRF Sample ID	Latitude	Longitude	Date	Time	Units	Ti	Ti +/-	Cr	Cr +/-	Mn	Mn +/-	Fe	Fe +/-	Co	Co +/-	Ni	Ni +/-	Cu	Cu +/-	Zn	Zn +/-	As	As +/-	Se	Se +/-	Rb	Rb +/-	Sr	Sr +/-	Zr	Zr +/-	Mo	Mo +/-	Ag	Ag +/-	Cd	Cd +/-	Sn	Sn +/-	Sb	Sb +/-	Ba	Ba +/-	Hg	Hg +/-	Pb	Pb +/-		
Saints John Mine	STJ-SO-MP01-X001	39.57018	-105.87852	19-06-18	11:11	PPM	2355	603	<LOD	207	14791	310	54422	740	<LOD	299	<LOD	70	178	17	5155	81	<LOD	110	<LOD	12	175	5	61	3	80	4	12	4	<LOD	44	<LOD	49	<LOD	51	<LOD	82	<LOD	89	1472	294	<LOD	30	6729	95
Saints John Mine	STJ-SO-MP01-X002	N/A	N/A	19-06-18	11:27	PPM	1953	590	<LOD	183	9161	227	35402	499	<LOD	239	<LOD	70	162	17	3891	64	2.2	45	<LOD	14	133	5	151	5	84	4	19	4	<LOD	43	<LOD	51	<LOD	81	133	30	2048	293	<LOD	33	10432	138		
Saints John Mine	STJ-SO-MP01-X003	N/A	N/A	19-06-18	11:33	PPM	2150	408	<LOD	133	4442	134	32480	405	<LOD	203	<LOD	53	46	10	1096	24	<LOD	33	<LOD	5	81	3	88	3	76	3	<LOD	9	<LOD	37	<LOD	45	<LOD	72	<LOD	79	<LOD	568	<LOD	14	772	16		
Saints John Mine	STJ-SO-MP01-X004	N/A	N/A	19-06-18	11:38	PPM	5086	513	<LOD	156	4106	137	50069	610	<LOD	261	<LOD	61	41	11	904	22	<LOD	20	<LOD	4	159	4	69	3	185	4	<LOD	10	<LOD	38	<LOD	46	<LOD	74	<LOD	82	<LOD	663	<LOD	15	245	9		
Saints John Mine	STJ-SO-MP01-X005	N/A	N/A	19-06-18	11:42	PPM	<LOD	883	<LOD	112	2231	88	11998	174	<LOD	120	<LOD	43	30	9	877	20	<LOD	30	<LOD	4	117	3	58	2	62	3	11	3	<LOD	35	<LOD	42	<LOD	68	<LOD	74	<LOD	421	<LOD	13	726	15		
Saints John Mine	STJ-SO-MP01-X006	N/A	N/A	19-06-18	11:45	PPM	3732	596	<LOD	216	24158	441	44752	638	<LOD	268	<LOD	68	132	16	4842	79	262	39	<LOD	13	153	5	64	3	102	4	<LOD	11	<LOD	44	<LOD	52	<LOD	82	<LOD	92	<LOD	821	<LOD	31	7083	102		
Saints John Mine	STJ-SO-MP01-X007	N/A	N/A	19-06-18	11:47	PPM	3002	462	<LOD	161	15699	285	32797	425	<LOD	206	<LOD	55	67	11	1849	34	58	17	<LOD	6	188	5	60	3	102	3	10	3	<LOD	39	<LOD	46	<LOD	73	<LOD	80	<LOD	636	<LOD	19	1810	30		
Saints John Mine	STJ-SO-MP01-X008	N/A	N/A	19-06-18	11:49	PPM	1386	396	<LOD	125	4983	136	37493	240	<LOD	148	<LOD	49	104	12	2550	51	<LOD	59	<LOD	8	130	4	72	3	67	3	13	3	<LOD	37	<LOD	42	<LOD	69	<LOD	99	194	<LOD	18	2721	38			
Saints John Mine	STJ-SO-MP01-X009	N/A	N/A	19-06-18	11:51	PPM	1559	369	<LOD	136	1668	88	25985	339	<LOD	184	<LOD	52	<LOD	28	556	16	<LOD	31	<LOD	5	102	3	74	3	137	4	12	3	<LOD	38	<LOD	44	<LOD	71	<LOD	79	<LOD	514	<LOD	14	676	15		
Saints John Mine	STJ-SO-MP01-X010	N/A	N/A	19-06-18	11:54	PPM	2603	528	<LOD	177	11419	247	35153	477	<LOD	226	<LOD	62	113	14	3985	63	<LOD	81	<LOD	9	158	4	85	3	80	3	12	3	<LOD	41	<LOD	49	<LOD	77	<LOD	85	1285	254	<LOD	24	4082	59		
Saints John Mine	STJ-SO-MP01-X011	N/A	N/A	19-06-18	11:56	PPM	3350	524	<LOD	173	12201	253	40130	524	<LOD	239	<LOD	60	92	13	4025	62	169	29	<LOD	10	142	4	52	3	83	3	<LOD	10	<LOD	40	<LOD	47	<LOD	76	<LOD	84	796	243	<LOD	26	4854	67		
Saints John Mine	STJ-SO-MP01-X012	N/A	N/A	19-06-18	11:58	PPM	1586	394	<LOD	131	1276	129	24082	314	<LOD	177	<LOD	53	95	12	1427	28	176	19	<LOD	7	94	3	68	3	95	3	<LOD	9	39	13	<LOD	45	<LOD	74	<LOD	82	630	187	<LOD	18	2161	33		
Saints John Mine	STJ-SO-MP01-X013	N/A	N/A	19-06-18	12:00	PPM	<LOD	1728	<LOD	189	9183	232	31468	463	<LOD	233	<LOD	65	260	18	3708	64	<LOD	122	<LOD	13	171	5	159	5	90	4	23	4	140	15	<LOD	51	<LOD	82	307	32	2010	291	<LOD	31	8345	116		
Saints John Mine	STJ-SO-MP01-X014	N/A	N/A	19-06-18	12:02	PPM	3199	502	<LOD	167	8905	201	36020	457	<LOD	221	<LOD	60	98	13	2761	45	87	23	<LOD	8	158	4	82	3	89	3	15	3	<LOD	39	<LOD	45	<LOD	73	<LOD	81	1168	236	<LOD	21	3349	47		
Saints John Mine	STJ-SO-MP02-X001	39.56997	-105.87895	19-06-18	12:31	PPM	3580	595	<LOD	217	14703	307	52605	716	<LOD	294	83	26	175	17	10754	150	<LOD	82	<LOD	9	175	5	123	4	128	4	13	4	<LOD	44	<LOD	51	<LOD	89	<LOD	89	<LOD	841	<LOD	28	3733	58		
Saints John Mine	STJ-SO-MP02-X002	N/A	N/A	19-06-18	12:33	PPM	1488	458	<LOD	162	11059	235	33908	450	<LOD	219	<LOD	59	91	13	5319	77	92	23	<LOD	8	200	5	53	3	83	3	12	3	<LOD	40	<LOD	47	<LOD	74	<LOD	81	767	224	<LOD	24	2969	44		
Saints John Mine	STJ-SO-MP02-X003	N/A	N/A	19-06-18	12:35	PPM	2424	505	<LOD	186	9365	222	64071	803	<LOD	300	<LOD	70	523	22	1115	26	116	20	<LOD	7	168	4	65	3	110	4	<LOD	10	<LOD	40	<LOD	47	<LOD	77	<LOD	84	<LOD	705	<LOD	18	2257	37		
Saints John Mine	STJ-SO-MP02-X004	N/A	N/A	19-06-18	12:37	PPM	2475	484	<LOD	168	10765	228	34585	463	<LOD	223	<LOD	62	72	13	3334	54	<LOD	68	<LOD	7	180	5	69	3	181	4	<LOD	10	<LOD	40	<LOD	48	<LOD	78	<LOD	85	703	228	<LOD	22	2945	45		
Saints John Mine	STJ-SO-MP02-X005	N/A	N/A	19-06-18	12:39	PPM	2191	427	<LOD	153	10611	137	37821	457	<LOD	219	<LOD	54	53	10	1588	30	<LOD	38	<LOD	5	177	4	73	3	141	4	<LOD	9	<LOD	37	<LOD	40	<LOD	70	<LOD	77	680	201	<LOD	16	1025	19		
Saints John Mine	STJ-SO-MP02-X006	N/A	N/A	19-06-18	12:41	PPM	1249	372	<LOD	127	4295	131	21767	294	<LOD	171	<LOD	51	<LOD	28	1090	24	<LOD	20	<LOD	4	110	3	71	3	99	3	<LOD	9	<LOD	38	<LOD	45	<LOD	73	<LOD	80	<LOD	535	<LOD	13	337	10		
Saints John Mine	STJ-SO-MP02-X007	N/A	N/A	19-06-18	12:44	PPM	2113	492	<LOD	177	11491	249	32436	449	<LOD	221	<LOD	58	95	13	3718	60	156	25	<LOD	8	155	4	58	3	110	4	<LOD	10	<LOD	41	<LOD	49	<LOD	86	861	236	<LOD	24	3321	50				
Saints John Mine	STJ-SO-MP02-X008	N/A	N/A	19-06-18	12:46	PPM	2145	424	<LOD	178	11495	249	32438	449	<LOD	221	<LOD	58	95	13	3718	60	156	25	<LOD	8	155	4	58	3	110	4	<LOD	10	<LOD	41	<LOD	49	<LOD	86	861	236	<LOD	24	3321	50				
Saints John Mine	STJ-SO-MP02-X009	N/A	N/A	19-06-18	12:48	PPM	1534	486	<LOD	180	15334	304	33612	471	<LOD	232	<LOD	62	112	14	3747	61	254	35	<LOD	11	191	5	54	3	60	3	16	3	<LOD	42	<LOD	49	<LOD	87	<LOD	70	<LOD	740	<LOD	27	6420	88		
Saints John Mine	STJ-SO-MP02-X010	N/A	N/A	19-06-18	12:50	PPM	2006	437	<LOD	160	15354	287	37536	487	<LOD	228	<LOD	59	100	13	3941	61	254	35	<LOD	8	157	4	54	3	64	3	116	4	10	3	<LOD	39	49	15	<LOD	74	<LOD	82	<LOD	609	<LOD	22	3303	48
Saints John Mine	STJ-SO-MP02-X011	N/A	N/A	19-06-18	12:52	PPM	2509	403	<LOD	130	8632	189	27352	351	<LOD	182	<LOD	51	85	12	4223	38	87	19	<LOD	7	158	3	56	3	83	3	13	3	<LOD	47	<LOD	54	<LOD	70	<LOD	77	<LOD	546	<LOD	17	2390	35		
Saints John Mine	STJ-SO-MP02-X012	N/A	N/A	19-06-18	12:54	PPM	2205	492	<LOD	178	10519	236	38130	511	<LOD	242	<LOD	55	112	14	3271	54	<LOD	20	<LOD	4	110	3	96	3	105	4	13	3	<LOD	41	<LOD	48	<LOD	77	<LOD	84	<LOD	598	<LOD	25	5675	77		
Saints John Mine	STJ-SO-MP02-X013	N/A	N/A	19-06-18	12:55	PPM	2113	424	<LOD	178	11495	249	32438	449	<LOD	221	<LOD	58	95	13	3718	60	156	25	<LOD	8	155	4	58	3	110	4	<LOD	10	<LOD	41	<LOD	49	<LOD	86	861	236	<LOD	24	3321	50				
Saints John Mine	STJ-SO-MP02-X014	N/A	N/A	19-06-18	12:57	PPM	3894	611	<LOD	186	9192	229	40056	559	<LOD	269	<LOD	69	182	17	4174	68	<LOD	107	<LOD	11	158	5	216	5	119	4	11	4	<LOD	46	<LOD	51	<LOD	82	<LOD	89	1526	288	<LOD	29	6403	90		
Saints John Mine	STJ-SO-MP02-X015	N/A	N/A	19-06-18	12:59	PPM	2540	597	<LOD	162	14543	339	55420	803	<LOD	325	<LOD	79	415	24	18331	259	<LOD	92	<LOD	10	146	5	89	4	98	4	13	4	<LOD	46	<LOD	54	<LOD	85	<LOD	92	<LOD	861	<LOD	33	4116	67		



Figure A.1  
2018 Colorado Draining Mines  
Pre-CERCLA Screening  
Surface Water and  
Soil Sampling Locations

DRMS Mine #163  
Saints John Mine, Montezuma, CO  
Snake River Watershed  
Summit County

- 

2018 Screening Event  
Mines  
  
Surface Water  
Grab Sample  
Locations  
  
Center of Soil  
Composite  
Sample  
Locations
- 

Major Streams  
  
Wetlands  
  
Private  
  
US Forest Service

Map Date: December 12, 2018

Data Sources:  
Sample Locations: U.S. EPA (2018).  
Mine Locations: CDPHE and DNR (2018).  
Streams: CDOW (2004).  
Wetlands: U.S. Fish and Wildlife Service (2017).  
Ownership: BLM (2018).  
World Imagery Web Service: ESRI (2018).

Map Projection: UTM Zone 13N, WGS84, Meters



Area of Interest



Media/Location/Action	Requirements	Prerequisite	Citation(s)
<b>Federal Location-Specific ARARs</b>			
Presence of cultural resources within work areas	<p>This statute and implementing regulations require federal agencies to take into account the effect of this response action upon any district, site, building, structure, or object that is included in or eligible for the National Register of Historic Places (generally, 50 years old or older).</p> <p>Federal agencies are required to take into account their undertakings on historic properties and must determine whether there will be an adverse effect, and if so, how the effect may be minimized or mitigated in coordination with the appropriate state historic preservation office.</p>	Identification of cultural resources on or eligible for the National Register	National Historic Preservation Act (NHPA) 16 United States Code (U.S.C.) § 470 and Implementing Regulations 36 Code of Federal Regulations (CFR) § 63.1-63.3; 800.4, 800.5. Substantive provisions only; not procedural.
Potential for removal work in habitat for bald and or golden eagles	<p>This statute makes it unlawful for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any bald or golden eagle, or the parts, nests, or eggs of such a bird except under the terms of a valid permit issued pursuant to federal regulations. In addition to immediate impacts, this requirement also covers impacts that result from human-induced alterations initiated around a previously used nest site during a time when eagles are not present, if, upon the eagle's return, such alterations agitate or bother an eagle to a degree that interferes with or interrupts normal breeding, feeding, or sheltering habits, and causes injury, death or nest abandonment.</p> <p>If bald or golden eagles are identified during the response action, activities must be modified and conducted to conserve the species and their habitat.</p>	<p>Identification of bald or golden eagles and actions that could impair the species and their habitat – <b>potentially applicable</b></p> <p>It is not anticipated that bald or golden eagles will be observed at the mine waste piles, however, there is potential for bald or golden eagles and their habitat within the Site.</p>	Bald and Golden Eagle Protection Act 16 U.S.C. § 668(a) and 50 CFR 22.6



Media/Location/Action	Requirements	Prerequisite	Citation(s)
<b>Federal Location-Specific ARARs</b>			
Potential for removal work in habitat for federally endangered or threatened species	<p>This statute and implementing regulations provide that federal activities not jeopardize the continued existence of any threatened or endangered species. 16 U.S.C. 1536(a) of the Endangered Species Act (ESA) requires consultation with the U.S. Fish and Wildlife Service to identify the possible presence of protected species and mitigate potential impacts on such species. 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.</p> <p>If threatened or endangered species, listed in 50 CFR 17, are identified during the response action, activities must be modified and conducted to conserve the species and their habitat, following the substantive applicable requirements outlined in 15 USC 1536 and 50 CFR 17.21, 17.31, 17.61, 17.71 and 17.82.</p>	Actions that may negatively impact federal protected species and their habitat – <b>potentially applicable</b>	Endangered Species Act 16 U.S.C. § 1536(a)(2), and Implementing Regulations with listings of threatened species and endangered species at 50 CFR 17.11 and 17.12, or designation of critical habitat at 50 CFR 17.95 and 50 CFR 402
Potential for removal work in habitat for migratory birds	<p>This statute and implementing regulations makes it unlawful for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale, purchase, or barter, any migratory bird, or the parts, nests, or eggs of such a bird.</p> <p>If migratory birds, listed in 50 CFR 10.13, are identified during the response action, activities must be modified and conducted to conserve the species and their habitat.</p>	Actions that may negatively impact the migratory birds and their habitat – <b>potentially applicable</b>	Migratory Bird Treaty Act 16 U.S.C. § 703(a) and Implementing Regulations 50 CFR 10.13 (List of Migratory Birds)

Location or Action	Requirements	Prerequisite	Citation(s)
<b>State Location-Specific ARARs</b>			
Relevant wildlife habitat	Prohibits willfully damaging or destroying any wildlife den or nest, or their eggs, or harassing any wildlife. "Harass" means to unlawfully endanger, worry, impede, annoy, pursue, disturb, molest, rally, concentrate, harry, chase, drive, herd, or torment wildlife. See C.R.S. § 33-1-102(24) (Definitions)	Performing response activities in relevant wildlife habitat.	Colorado Wildlife Enforcement and Penalties Act, Colorado Revised Statutes (C.R.S.) § 33-6-128(1)  Contact: Colorado Division of Parks and Wildlife (DNR)
Relevant wildlife habitat	Prohibits harassment, taking or possession of nongame species and subspecies, including threatened or endangered wildlife, with limited exceptions. The designations of species as endangered, threatened, or a nongame species, are made pursuant to 2 C.C.R. 406-10:1002-4. This regulation incorporates definitions of terms found in the Colorado Wildlife Enforcement and Penalties Act, C.R.S. § 33-1-102.	Performing response activities in relevant wildlife habitat.	Colorado Non-game, Endangered, or Threatened Species Act, C.R.S. §§ 33-2-104(3) and Colorado Wildlife Commission Regulations, 2 Code of Colorado Regulations (C.C.R.) 406-10:1002-1004 4(Protected Species)  Contact: Colorado Division of Parks and Wildlife (DNR)
Noxious weeds area	<p>This statute and its implementing regulations require 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)).</p> <p>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.")</p> <p>Prescribed management techniques must be applied to every population of List A noxious weeds including:</p> <ul style="list-style-type: none"> <li>• Elimination of plants of every population of List A prior to seed development.</li> <li>• Once all mature plants are eliminated, appropriate efforts must be made to detect and eliminate new plants arising from seed, reproductive propagule, or root stock for the duration of the seed longevity for the particular species.</li> <li>• Any plant with flowers, seeds, or other reproductive propagules must be placed in sealed plastic bags and disposed of by: <ul style="list-style-type: none"> <li>○ High intensity burning in a controlled environment that completely destroys seed viability</li> <li>○ Removal of plant materials to a solid waste landfill which covers refuse daily with six inches of soil or alternative material; or</li> <li>○ Any other method approved by the Colorado Department of Agriculture Commissioner.</li> </ul> </li> </ul>	Performing response activities in an area with "List A" noxious weeds.	<p>Colorado Noxious Weed Act, C.R.S. § 35-5.5-104 (Duty to Manage Noxious Weeds); Rules Pertaining to the Administration and Enforcement of the Colorado Noxious Weed Act, 8 C.C.R. 1206-2, Sections 3.1, 3.3, and 3.4</p> <p>Contact: Colorado Hazardous Materials and Waste Management Division (CDPHE)</p>

Location or Action	Requirements	Prerequisite	Citation(s)
<b>State Location-Specific ARARs</b>			
Noxious weeds area	<p>This statute and its implementing regulations require 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)).</p> <p>Prohibits allowing any plant of any population on “List B” to produce seed or develop other reproductive propagules after the time specified in the Summit County Elimination Plan. (Section 4.1 sets forth “List B.”)</p> <p>Prescribed management techniques for species on List B include:</p> <ul style="list-style-type: none"> <li>• Elimination prior to seed development in the year specified in the county management plan.</li> <li>• In order to ensure that seeds or other reproductive propagules are not produced or spread, any plant with flowers, seeds, or other reproductive propagules must be placed in sealed plastic bags and disposed of by: <ul style="list-style-type: none"> <li>○ High intensity burning in a controlled environment that completely destroys seed viability;</li> <li>○ Removal of plant materials to a solid waste landfill which covers refuse daily with six inches of soil or alternative material; or</li> <li>○ Any other method approved by the Colorado Department of Agriculture Commissioner.</li> </ul> </li> </ul> <p>Additional species-specific techniques for specified areas in Summit County detailed in 8 C.C.R. 1206-2-4.8</p>	Performing response activities in an area with noxious weeds.	<p>Colorado Noxious Weed Act and Summit County Noxious Weed regulations, C.R.S. § 35-5.5- 104 (Duty to Manage Noxious Weeds); 8 C.C.R. 1206-2, Sections 4.1, 4.4.</p> <p>Contact: Colorado Hazardous Materials and Waste Management Division (CDPHE)</p>

Location or Action	Requirements	Prerequisite	Citation(s)
<b>State Location-Specific ARARs</b>			
Relevant land use zone	<p>Sound levels that exceed the limits at a distance of 25 feet from the property line or greater are prima facie evidence of a public nuisance. Activities must be conducted in a manner so that any noise produced is not objectionable due to intermittence, beat frequency, or shrillness.</p> <p>For construction projects, maximum noise levels will be those specified for industrial zones for the time period within which construction is to be completed. For industrial zones, the maximum permissible sound level from 7:00 am to the next 7:00 pm is 80 A-weighted decibels (db[A]) and from 7:00 pm to the next 7:00 am is 75 db(A).</p>	Location of response activities is within a designated land use zone subject to noise regulation	Colorado Noise Abatement Statute, C.R.S. § 25-12-103 (Maximum Permissible Noise Levels) Contact: Colorado Hazardous Materials and Waste Management Division (CDPHE)
Relevant land use zone	<p>Sets forth maximum permissible noise levels specific to off-highway vehicles defined in 25-12-102 (5.6) as a self-propelled vehicle with wheels or tracks in contact with the ground that is designed primarily for use off the public highways:</p> <p>(a) If manufactured before January 1, 1998; 99 db(A);</p> <p>(b) If manufactured on or after January 1, 1998; 96 db(A).</p> <p>(c) Measurements should be conducted using SAE J1287.</p>	Use of off-highway vehicles in response activities	Colorado Noise Abatement Statute, CRS § 25-12-103(1) (Maximum Permissible Noise Levels) Contact: Colorado Hazardous Materials and Waste Management Division (CDPHE)

Location or Action	Requirements	Prerequisite	Citation(s)
<b>State Location-Specific ARARs</b>			
Area where waste left in place above unrestricted use standards or where engineered features are incorporated into the removal action	Requires environmental covenants (ECs) or notice of environmental use restrictions (RNs) whenever residual contamination not safe for all uses is left in place or an engineered feature or structure that requires monitoring, maintenance, or operation is included in the remedy. <sup>1</sup>	Performing response activities in locations leaving waste in place above standards for unrestricted use or incorporating engineered features or structures	Colorado Environmental Covenants Statute C.R.S. § 25-15-317 <i>et seq.</i> Contact: Colorado Hazardous Materials and Waste Management Division (CDPHE)

<sup>1</sup> The waste rock pile will be an area where waste will be left in place above standards for unrestricted use and is therefore subject to the Environmental Covenants (EC) Statute, as is any other area where waste is left in place above unrestricted use standards. The constructed diversion channels will be “engineered features” of the removal action, and likewise trigger the EC Statute. Pursuant to C.R.S. § 25-15-320(2), an EC or RN is required to serve as an institutional control and should be identified as such in EPA’s final decision document.

Location or Action	Requirements	Prerequisite	Citation(s)
<b>State Action-Specific ARARs</b>			
Constructing channels and recontouring/revegetating the mine waste pile	Establishes requirements and procedures for land disposal of solid wastes. 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 C.C.R. 407-1 Rule 3 (Reclamation Performance Standards) to be compliant with Colorado's regulation pertaining to solid waste disposal.	Disposing solid waste	Colorado Solid Waste Disposal Sites and Facilities Regulations, 6 C.C.R. 1007-2, pursuant to C.R.S. §§ 30-20-100.5, <i>et seq.</i>  Contact: Colorado Hazardous Materials and Waste Management Division (CDPHE)
Constructing channels and recontouring/revegetating the mine waste pile	The MLRB Regulations require reclamation of permitted mined lands, defined as "employment of procedures reasonably designed to minimize as much as practicable the disruption from mining operations and to provide for the establishment of plant cover, stabilization of soil, the protection of water resources, or other measures appropriate to the subsequent beneficial use of such affected lands." Reclamation must be conducted in accordance with the performance standards in Rule 3 of the Regulations.  Substantive requirements are relevant and appropriate to mine reclamation activities including constructing the lined drainage tunnel, consolidating waste rock and other mine related materials and vegetating the engineered cover.	Reclaiming mined lands	Colorado Mined Land Reclamation Board Regulations ("MLRB Regulations"), Reclamation Performance Standards, 2 C.C.R. § 407-1, Rule 1.1 (definitions) and Rules 3.1.5 (1)-(3), (5), (10), (11), 3.1.8, 3.1.9, 3.1.10 (Reclamation Performance Standards), pursuant to the Co. Mined Land Reclamation Act, C.R.S. § 34-32-101, <i>et seq.</i>  Contact: Colorado Hazardous Materials and Waste Management Division (CDPHE)
Constructing channels and recontouring/revegetating the mine waste pile	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.	Reclaiming mined lands	MLRB Regulations, Rule 3.1.5(5), (10), (11)  Contact: Colorado Hazardous Materials and Waste Management Division (CDPHE)

Location or Action	Requirements	Prerequisite	Citation(s)
<b>State Action-Specific ARARs</b>			
Constructing channels and recontouring/revegetating the mine waste pile	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).	Reclaiming mined lands.	MRLB Regulations Rule 3.1.8  Contact: Colorado Hazardous Materials and Waste Management Division (CDPHE)
Constructing channels and recontouring/revegetating the mine waste pile	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.	Reclaiming mined lands.	MLRB Regulations Rule 3.1.5(1), (3)  Contact: Colorado Hazardous Materials and Waste Management Division (CDPHE)
Constructing channels and recontouring/revegetating the mine waste pile	Backfilling shall ensure adequate compaction for stability and prevent leaching of toxic or acid forming materials.	Reclaiming mined lands.	MLRB Regulations Rule 3.1.5(2)  Contact: Colorado Hazardous Materials and Waste Management Division (CDPHE)

Location or Action	Requirements	Prerequisite	Citation(s)
<b>State Action-Specific ARARs</b>			
Conducting activities generating dust.	Establishes regulations concerning fugitive emissions from construction activities, storage and stockpiling activities, haul trucks, and tailings ponds	Conducting activities generating dust.	<p>Colorado Fugitive Dust Control Plan/Opacity, Regulation No. 1, 5 C.C.R. 1001-3(III)(D)(2)(b),(h) (Particulate Matter – Construction Activities), pursuant to Colorado Air Pollution Prevention and Control Act, C.R.S. § 25-7-101 et seq.</p> <p>Contact: Colorado Hazardous Materials and Waste Management Division (CDPHE)</p>



Location or Action	Requirements	Prerequisite	Citation(s)
<b>State Action-Specific ARARs</b>			
Managing storm water runoff during response action activities.	<p>The Colorado Discharge Permit System general permit COR40000 includes the following substantive requirements:</p> <ol style="list-style-type: none"> <li>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: <ol style="list-style-type: none"> <li>Where vehicle tracking occurs, vehicle tracking controls that minimize vehicle tracking of sediment from disturbed areas.</li> <li>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.</li> <li>Maintenance of pre-existing vegetation or equivalent control measures for areas within 50 horizontal feet from receiving waters.</li> <li>Minimization of soil compaction where there are infiltration control measures, or final stabilization, from vegetative cover.</li> <li>In areas where vegetative final stabilization is utilized, preservation of topsoil (unless infeasible).</li> <li>Minimization of soil exposed during construction activity.</li> <li>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.</li> <li>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.</li> </ol> </li> <li>All control measures must remain in effective operating condition and be protected from activities that would make them less effective.</li> <li>The adequacy of control measures must be monitored, and corrective action must be taken when a measure becomes inadequate.</li> <li>Discharges may not cause, have the reasonable potential to cause, or measurably contribute to an exceedance of any applicable water quality standard.</li> <li>Site inspections with one of the following minimum frequencies: <ol style="list-style-type: none"> <li>One per every 7 calendar days</li> <li>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.</li> <li>If the two options above are impractical, an alternate schedule.</li> <li>If the site is temporarily idle or completed, less frequent inspections depending on the circumstances.</li> </ol> </li> </ol>	Discharging storm water from a construction activity.	<p>Colorado Discharge Permit System (CDPS) Regulations 5 C.C.R. 1002-61.3(2)(a), (b), (d), (e), (f), (g), (j), (k), and CDPS general permit No. COR400000 (Stormwater discharges associated with construction activity), pursuant to C.R.S. § 25-8-501</p> <p>Substantive provisions of permit available (as of June 28, 2024) at:</p> <p><a href="https://drive.google.com/file/d/1Cs_nfVYo-sTVmStX9pwtnpKoN7DYmumYP/view">https://drive.google.com/file/d/1Cs_nfVYo-sTVmStX9pwtnpKoN7DYmumYP/view</a></p> <p>Contact: Colorado Water Quality Control Division (CDPHE)</p>

