Site Overview
The Eagle Mine Superfund Site is approximately one mile southeast of Minturn in Eagle County, Colorado. The site comprises an inactive mining and milling facility, associated waste rock and former roaster pile areas, a consolidated tailings pile, the abandoned town of Gilman, Belden mill area, Rex Flats, Rock Creek Canyon and the Maloit Park wetlands. The Eagle River, Cross Creek and several other Eagle River tributaries run through the site.

CONTAMINATED MINING WASTE ON-SITE
Roaster Waste: Produced from an inefficient milling process, roaster waste contained a large amount of highly leachable metals and was discarded near the Eagle River and on steep side slopes. Five distinct roaster piles were present when the mine ceased operation. The majority of the roaster wastes were removed during the original state-mandated remediation in the late 1980s.

Mill Tailings: Mill tailings (or mine tailings) are fine-grained wastes from the milling process. Although most heavy metals were removed during milling, tailings contain leachable metals and usually are acidic. The mill tailings at the site were consolidated into the Consolidated Tailings Pile (CTP) and were capped with an engineered cover in 1996.

Waste Rock: Waste rock is excess rock removed when mine tunnels and adits were constructed. Waste rock was not processed to remove metals and usually does not present as severe a leaching hazard as materials such as roaster waste and mill tailings. Waste rock from Eagle Mine was discarded on the hillside overlooking the Eagle River and Rock Creek and is held in place by wooden cribbing in some areas. Waste rock was characterized and tested during remediation and surface water controls were constructed to route run-off away from waste rock piles.

Agencies Consider OU1, OU3 Proposed Plans
The U.S. Environmental Protection Agency (EPA) and the Colorado Department of Public Health and Environment (CDPHE) invite the public to comment on two proposed environmental cleanup plans for the Eagle Mine Superfund Site. Download copies of the plans at: www.colorado.gov/pacific/cdphe/eagle-mine.

CDPHE is responsible for the Operable Unit 1 (OU1) Proposed Plan, focused on protecting surface water by reducing metals loading to the Eagle River. The preferred alternative includes collection and treatment of groundwater from Belden and at the mouth of Rock Creek.

EPA is responsible for the Operable Unit 3 (OU3) Proposed Plan, focused on soil remediation necessary to protect human health should future redevelopment occur. The preferred alternative includes some combination of the following elements as they best apply to areas at OU3 proposed for development: placing a soil exposure barrier, grading the site, placing institutional controls and conducting monitoring, and/or demolishing structures.

Public Meeting Invitation
Tuesday, July 25, 2017, 5:30 p.m. – 8:30 p.m.
Colorado Mountain College
150 Miller Ranch Road, Edwards, CO 81932

Public Comment Period Ends Sept. 10, 2017
Send written comments to:
Wendy Naugle at wendy.naugle@state.co.us
CONTAMINATED WATER ON-SITE

**Mine Pool:** Water within the mine workings is currently removed and treated at the water treatment plant.

**Run-off:** Run-off occurs when areas containing mine waste become full of water (rain or snowmelt) and the excess water flows over the land.

**Groundwater:** Groundwater is water beneath the surface that flows through pores or fractures in rocks or soil. Groundwater beneath the Old Tailings Pile, Consolidated Tailings Pile and Rex Flats is impacted by mining wastes. Groundwater adjacent to the Eagle River in Belden and at the mouth of Rock Creek is also contaminated, most likely from a multitude of waste sources including contaminated fill material beneath the rail lines. Groundwater from the mine pool and the Consolidated Tailings Pile is treated as part of the current remedy.

Groundwater poses a threat to the environment in areas where groundwater discharge impacts surface water quality. Groundwater at the Consolidated Tailings Pile was classified by EPA in the OU1 Record of Decision as "Potentially Usable Quality." The remedial goals identified in the OU1 Record of Decision for groundwater in this area have not yet been achieved by the remedy. Groundwater adjacent to the Eagle River was classified by EPA in the OU1 Record of Decision as "Protection of Surface Water." Remedial goals for groundwater adjacent to the Eagle River in the OU1 Record of Decision are the surface water standards. The OU1 Proposed Plan and record of decision amendment will update the surface water standards to reflect the most recent revisions to the surface water standards and by reference, this change will result in a change to the remedial goals for groundwater adjacent to the Eagle River.

**DISSOLVED METALS IN THE EAGLE RIVER**

During snowmelt periods in March and April, higher dissolved metals concentrations are observed in the Eagle River. During years with higher snowpack, metals contamination in the Eagle River is worse. By May of each year, warm temperatures generate snowmelt in the upper Eagle River basin and a large increase in stream flow occurs, with peak flows typically occurring in late May or early June. Increased stream flow results in lower metals concentrations. For the remainder of the year, dissolved metals concentrations in the Eagle River are typically below the water quality standards.

WHERE ARE WE NOW?

- The original cleanup required by the state and EPA is complete.
- More cleanup is needed to meet water quality standards.
- CBS has prepared a focused feasibility study (FFS) and addendum for arsenic that examine different remedy options and compares options using EPA criteria.
- A proposed cleanup plan for OU1 was issued June 28, 2017 for public review and comment. The proposed plan describes the remedy alternatives. After considering all public comment, EPA and the state will then amend the record of decision to include the preferred remedy alternative.
- CBS’ obligation to conduct long-term operation, maintenance and monitoring at the site is ongoing and does not end once water quality standards are attained.
- On June 28, 2017 EPA issued a proposed plan for the north part of the site describing cleanup alternatives to allow for residential use.
Late 1870s: Gold and silver mining begin. Ore processing used roasting and magnetic separation.

Mid-1890s: Gold and silver mining decline.

1905: Lead and zinc mining begin.

1912: The Empire Zinc Company begins consolidating mining claims into what is now the Eagle Mine.

1917: The New Jersey Zinc Company acquires Empire Zinc.

1929: A lead and zinc mill is constructed inside the mine.

1966: Gulf + Western Industries acquires New Jersey Zinc Company.

December 1977: Gulf + Western closes the mill and most mining.

1983: The mine is sold to Glenn Miller (Battle Mountain Corp.). The state of Colorado files a lawsuit against the mine owners and former owners/operators.

1984: The property is abandoned, the electricity is shut off and the mine workings begin to flood.

1986: The Eagle Mine becomes a Superfund site. CBS Operations Inc., formerly known as Viacom International, Inc., is undertaking the cleanup at the site.

1988: Cleanup of mine waste begins under a settlement agreement.

1996: EPA requires more cleanup.

2001: EPA declares “construction complete.”

2005: The agencies and Ginn Battle North, LLC, owner of the northern part of the site, begin discussions about redeveloping the North Property into a residential and recreational community called Battle Mountain.

2008: The Water Quality Control Commission sets new standards for the Eagle River, requiring more cleanup. The change requires a new focused feasibility study.


Fall 2009: Battle North, LLC assumes responsibility for the Battle Mountain development.

May 2010: CBS names Environ International Corp. to operate the Eagle Mine Water Treatment Plant.

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...Eagle Mine History, continued

**July 2013:** CBS completes a focused feasibility study to evaluate additional remediation alternatives to further reduce metals loading in the Eagle River during March and April snowmelt period.

**March 2014:** A new emergency response/contingency plan is put in place with specific requirements for notification and monitoring in the event of accidental spills or releases at the site.

**June 2014:** Remedy selection (proposed plan) is put on hold until additional arsenic data could be collected in response to stakeholder concerns.

**June 2015:** CBS provides additional arsenic data to the agencies.

**April 2016:** Approval received from EPA headquarters to waive arsenic standard in the river.

**February 2017:** Arsenic addendum completed.

**June 2017:** Proposed plans for OU1 and OU3 released for public review and comment.

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**EAGLE MINE WATER TREATMENT PLANT**

The Eagle Mine Water Treatment Plant manipulates pH levels to remove dissolved metals that can harm aquatic organisms. Lime is added to contaminated water, raising its alkalinity (pH) and causing dissolved metal hydroxides to solidify and fall to the bottom of a clarifier tank. A synthetic chemical, called a polymer, is added to promote settling of metals. The metal sludge is pressed in a filter to remove as much water as possible and the resulting filter cake is disposed of in a lined area onsite. Added acid reduces the treated water’s pH to allowable discharge limits.

- Gallons treated per minute: 221
- Gallons treated per year: 116 million
- Pounds of metals removed per day: 178

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**FOR MORE INFORMATION:**

**CDPHE**

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**On the Web:**

www.epa.gov/superfund/eagle-mine
www.colorado.gov/pacific/cdphe/eagle-mine

**View Documents at:**

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P.O. Box 309
Minturn, CO 81645
(970) 827-5645

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