



COLORADO
Department of Public
Health & Environment



UPDATE FACT SHEET

CENTRAL CITY/CLEAR CREEK SUPERFUND SITE

August 2014

Site Summary

Location

The Central City/Clear Creek Superfund site is located in Clear Creek and Gilpin counties, approximately 30 miles west of Denver. The Superfund study area covers the 400-square mile drainage basin of Clear Creek, which has been affected by a number of inactive precious metal mines. The Superfund investigation has focused on mine drainage tunnels and mine tailings and waste rock piles.

History

Gold was discovered near Idaho Springs and in the Black Hawk/Central City area in 1859. For the next 20 years, the Black Hawk/Central City area was the leading mining center in Colorado with the construction of mills to process the gold and silver found through placer and hard rock mining. The decline of mining in the area began with the silver crash in the 1890s and the rise in mining in Leadville. However, mining continued to be an important industry in Clear Creek and Gilpin counties from the turn of the century until approximately 1950. Since 1950, mining in the area has been limited, with only a handful of mines currently operating.

The site was placed on the list of Superfund sites in September 1983. Since that time, the Colorado Department of Public Health and Environment (CDPHE),

the U.S. Environmental Protection Agency (EPA) and the local community have worked to clean up heavy metal contamination resulting from decades of hard rock mining in the area. CDPHE and EPA have developed clean-up plans to deal with the worst sources of contamination within the Clear Creek watershed.

In 1992, limited stakes gaming began in Central City and Black Hawk, leading to land use changes. While these changes have the potential to increase the direct human exposure to mine wastes, many mine waste clean-up projects were implemented as property developed.

Environmental Concerns

The most significant environmental impacts associated with the site affect the Clear Creek stream system, including a reduced fishery and impacts to other aquatic life and habitat. Acidic water that drains from many mines contains various heavy metals, and tailings and waste rock contribute to the non-point source impacts to the basin. Clear Creek is a drinking water source for more than one-quarter million people living in the Denver area, and is a favored place for kayaking, rafting, fishing, wildlife watching and gold panning. The human health hazard from this site involves potential exposure to heavy metals, primarily lead, arsenic, and cadmium. Soil from the tailings piles and waste rock contains heavy metals.

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North Clear Creek water treatment plant on hold

Due to the uncertainty of ongoing water rights negotiations with the City of Black Hawk and Gilpin County, construction of the North Clear Creek mine water treatment plant is on hold. The U.S. Environmental Protection Agency and the Colorado Department of Public Health and Environment are working to implement a Superfund remedy under the federal Comprehensive Environmental Response, Compensation and Liability Act.

The Operable Unit 4 Record of Decision (ROD) was issued in 2004 to address metals contamination impacting the North Fork of Clear Creek. In April 2010 the agencies amended the ROD to incorporate active treatment of the Gregory Incline discharge, the National Tunnel discharge, and Gregory Gulch flows at a new water treatment plant. Drainage coming from abandoned mines is acidic and carries metals such as zinc, copper and cadmium. These metals are toxic to fish and plants and cause treatment expense to municipal drinking water suppliers. The water treatment plant would remove these contaminants. The plant would be constructed adjacent to North Clear Creek downstream of Black Hawk.

Shortly after the ROD amendment was published, the City of Black Hawk filed for new water rights to allow it to divert water from the North Fork of Clear Creek immediately below the future treatment plant. Later, Gilpin County filed for additional rights that would also divert from the North Fork of Clear Creek. While the City and County will benefit from the clean water the treatment plant will produce, these new water rights could effectively dry up the North Fork of Clear Creek below the water treatment plant. Negotiations between the agencies, Black Hawk and Gilpin County began in early 2011



Rendering of new North Creek water treatment plant

with the goal of reaching an agreement to leave enough water in the stream to allow brown trout to survive while still meeting future municipal needs. Central City participated in some of the negotiations but has withdrawn. A sustainable brown trout fishery in North Clear Creek is a main objective of the OU4 ROD, as described below.

Surface Water Remedial Objectives:

- Reduce in-stream metals concentrations and sediment transport to minimize water quality and habitat impacts and to maximize reasonably attainable water uses of the North Fork of Clear Creek. These actions also will support the survival of a brown trout population in the North Fork of Clear Creek.
- Reduce in-stream metals concentrations and sediment transport in North Clear Creek with the purpose of reducing adverse water quality and habitat impacts on the main stem of Clear Creek, to protect aquatic life and to support a reproducing brown trout population in the main stem of Clear Creek.
- Ensure that in-stream metals concentrations do not degrade drinking water supplies diverted from the main stem of Clear Creek.
- Reduce the toxicity to benthic aquatic organisms living at the surface water/sediment interface or in sediment to levels that are protective of aquatic life.

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The agencies are firmly committed to the Remedial Action Objectives stated in the 2010 ROD Amendment. Design of the water treatment plant is complete and approximately \$19 million of EPA and state funding has been set aside for construction. Selection of a contractor to build the plant was put on hold in March when negotiations stalled. Construction was initially planned to begin later this summer.

Quartz Hill project nears completion

The Colorado Department of Public Health and Environment project to stabilize the Quartz Hill Tailings Pile in Central City is expected to end during the second week of August 2014. Hammerlund Construction, LLC of Sedalia, Colo., began work on the site March 31, 2014. Pinyon Environmental is responsible for air quality monitoring to verify dust control efforts are effective. To date, all measurements have met health-protective limits.

The Quartz Hill Tailings Pile erodes tailings to Gregory Gulch and Central City's storm sewer system. Grading the pile to a stable slope and capping with inert rock and an underlying geotextile will prevent erosion. These actions will ultimately improve water quality in the North Fork of Clear Creek. In addition, 1,000 feet of deteriorated storm sewer beneath the pile will be replaced.

All of the cover rock came from a stockpile along the Central City Parkway about a mile and a half from the site, re-using what otherwise would be considered waste material. Because the stockpile contained native rock from the area, once capped, the appearance of the Quartz Hill pile will be more appropriate than if an off-site source of rock had been used. CDPHE worked closely with Central City to minimize traffic impacts to local residents and businesses and address city concerns.

All construction materials and equipment are transported on the Central City Parkway and Nevada Street. All lanes on Nevada Street will remain open throughout the project. The State Historic Preservation Officer (SHPO) and local historic preservation officials were consulted before the project began. Existing cultural resources were documented, and an archaeologist is present during critical construction phases to protect historic structures that might be revealed during excavation. The yellow house at the top of the site was relocated to allow construction. Remnants of a historic load-out structure on top of the pile were removed, with approval by the SHPO and local authorities.

The completion of Quartz Hill leaves just two major remedial projects to be completed for the Central City/Clear Creek Superfund Site – building a water treatment plant to capture and treat contaminated water flowing into North Clear Creek and constructing a flow-through bulkhead in the Argo Tunnel. The water treatment project is on hold due to the uncertainty of ongoing water rights negotiations with the city of Black Hawk and Gilpin County.



Quartz Hill in Central City



Argo Tunnel

Agencies to issue ESD on Argo Tunnel bulkhead

The Colorado Department of Public Health and Environment and the U.S. Environmental Protection Agency will issue an explanation of significant differences (ESD) for the Argo Tunnel Discharge – Flow Control Bulkhead. The document explains differences between the 1991 selected remedy to address Argo Tunnel discharge and the modification to build a flow-through bulkhead in the tunnel this fall.

The Argo Tunnel has a history of surge events that released acidic metals-laden mine water to the environment. The first recorded event occurred in 1943 when miners intercepted and released a large volume of naturally impounded water, killing four miners. A second event occurred in 1980 as a result of a rock collapse in one or more areas of the tunnel. An unknown volume of water that had been stored during mining operations was released and the water entered Clear Creek from the tunnel portal. The surge event forced the closure of six drinking water intakes located within the Golden area. It is unclear when another event will occur, but over time, the potential is very real.

The Argo Tunnel discharges acidic mine water containing dissolved metals that exceed both surface water quality and drinking water standards. Before the Argo Tunnel Water Treatment Facility began operating in 1998, the Argo discharge

flowed directly to the main stem of Clear Creek, killing or harming fish from the entry point to the city of Golden.

The bulkhead will not change the performance of the existing treatment technology or function of the Argo Tunnel Water Treatment Plant in Idaho Springs. The bulkhead will prevent future surge events from impacting Clear Creek and control flow volume to the plant, resulting in reduced treatment costs.

Once completed, copies of the ESD will be available at the Gilpin County Court House in Central City, at the Clear Creek Watershed Foundation, 2060 Miner Street in Idaho Springs, as well as in the Colorado Department of Public Health Records Center and the EPA Superfund Records Center in Denver. The ESD will be posted on the CDPHE website at <https://www.colorado.gov/pacific/cdphe/central-city-clear-creek>. For more information, contact Warren Smith, (CDPHE) or Jasmin Guerra (EPA).

Five-year review under way

The Colorado Department of Public Health and Environment and the U.S. Environmental Protection Agency are conducting a five-year review of cleanup actions performed under the Superfund program for the Central City/Clear Creek Superfund Site. The review evaluates whether clean up alternatives are still protective of human health and the environment.

With impacts from mine waste piles and tunnel discharges throughout the watershed, cleanup goals focus on improving water quality. The environmental issues include metals contamination in the surface waters of Clear Creek, particularly the North Fork, and the management of mine tailings, waste rock and tunnel drainage to prevent further contamination of the creek.

This is the fifth five-year review for the site, and is scheduled to be completed by the end of September 2014. For more

information about the five-year review, please contact Warren Smith, Community Involvement Manager with the Colorado Department of Public Health and Environment at warren.smith@state.co.us.

Further information about the site is available at: <http://tinyurl.com/centralcityclearcreek> or www2.epa.gov/region8/central-cityclear-creek.

Meet the EPA team



Les Sims, Remedial Project Manager

Les has over 20 years of work-related experience involving Superfund cleanup projects. He has been with the Agency for over 13 years and currently is the Federal Remedial Project Manager

(RPM) for Lowry Landfill, Eagle Mine and Central City/Clear Creek Superfund Sites. Prior to working in the Remedial Program, he served as an On-scene Coordinator for several years in EPA's Emergency Response and Removal Program.

Les holds Bachelor of Science degrees in Environmental Science and Business Management as well as a Master of Science degree in Environmental Health and Management. Prior to joining the Agency, he served as Senior Project Manager for a recognized fortune 500 engineering firm that provided technical support and consultation to EPA's Superfund Program. In his leisure time, Les enjoys spending time with family and friends and occasional overseas travel.

Jasmin Guerra, Community Involvement Coordinator

Jasmin has been with the EPA for four years and currently works as the community involvement coordinator for eight Superfund sites. Previously, she



was an EPA grants specialist working closely with tribes, states and local governments. She served as Region 8's Hispanic Employment Program (HEP) manager and National HEP Council outreach chair for two years.

She has a bachelor's degree in international studies and a master's degree in public administration. Before coming to EPA she worked as a residential program coordinator for the Englewood Meridian Retirement Community, was an interviewer/recruiter for the Oregon State University's Latino Health Project and a promise intern for the state of Oregon. While attending the University of Oregon she was a global feminist issues coordinator for the Women's Center, women's coordinator for the Latino Student Union, a union researcher and a bilingual math tutor.

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Please telephone, e-mail or mail your response and any address changes to:

Warren Smith
Community Involvement Manager
(303) 692-3373

warren.smith@state.co.us
Colorado Department of Public Health and Environment
4300 Cherry Creek Drive South
HMWMD-B2
Denver, CO 80246-1530

FOR MORE INFORMATION:

**Colorado Department of
Public Health and Environment**

Overall Coordination/Project Manager

Steve Laudeman, State Buildings Program Delegee

(303) 692-3381

E-mail: steve.laudeman@state.co.us

Argo Tunnel Water Treatment Plant & OU 4 Water Treatment Plant

Mary Boardman, Plant Manager

(303) 692-3413

E-mail: mary.boardman@state.co.us

Operable Unit 4

Jim Lewis, Clear Creek Site Manager

(303) 692-3390

E-mail: james.lewis@state.co.us

Community Involvement

Warren Smith, Community Involvement Manager

(303) 692-3373

E-mail: warren.smith@state.co.us

U.S. Environmental Protection Agency

Les Sims, Remedial Project Manager

(303) 312-6224

E-Mail: sims.leslie@epa.gov

Jasmin Guerra, Community Involvement Coordinator

(303) 312-6508

Mail: guerra.jasmin@epa.gov



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