Colorado Department of Public Health and Environment

UPDATE FACT SHEET

CENTRAL CITY/CLEAR CREEK SUPERFUND SITE

July 2009

Introduction

The Clear Creek/Central City Superfund site is located in Clear Creek and Gilpin counties, approximately 30 miles west of Denver. A 400-square-mile watershed, the study area extends from the Continental Divide east to Golden. The Colorado Department of Public Health and Environment and the U.S. Environmental Protection Agency have assessed potential impacts to human health and the environment from mine waste piles and tunnel discharges. Because mine waste is scattered throughout the watershed, cleanup goals have focused on improving water quality.

The environmental issues addressed by these projects include metals contamination in the waters of Clear Creek, particularly the North Fork, and management of mine tailings, waste rock and tunnel drainage to prevent further contamination of the creek.

Contaminants of Concern (COCs) for aquatic life include zinc, copper, cadmium and manganese. These metals are found in surface water and primarily affect trout and aquatic insects, as well as adjacent habitat.

The COCs for humans are arsenic and lead. Health risks could result from long-term drinking of ground water with high concentrations of these metals, incidental ingestion of tailings and waste rock and inhalation of airborne dust.

History

Gold was discovered near Idaho Springs in 1859, and in the Black Hawk/Central City area in 1860. 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 of mining in Leadville. However, mining continued to be an important industry in Clear Creek and Gilpin counties from the turn of the

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RECOVERY.GOV

Recovery Act to Fund Central City/Clear Creek Cleanup Activities

The Central City/Clear Creek Superfund Site has received up to $5 million in new funding through the American Recovery and Reinvestment Act of 2009. The new money will provide local jobs while accelerating cleanup of the Clear Creek watershed that is impacted by wastes from historic mining activities.

The new money will fund removal, consolidation or capping of mine waste piles, sediment control and water treatment to mitigate heavy metals impacts to Clear Creek. Work at the site also will reduce metals entering the watershed, which supplies water to Denver-area residents.

State, EPA Conduct Five-Year Superfund Review

The Central City/Clear Creek Superfund Site is no stranger to the five-year review process. The Superfund process requires routine checkups at any site where cleanup work still continues after five years, or where wastes that limit site use remain after cleanup is complete.

The Colorado Department of Public Health and Environment (CDPHE) is conducting the fourth five-year review of the Central City/Clear Creek Superfund site in cooperation with the U.S. Environmental Protection Agency (EPA). The purpose of the five-year review is to determine whether or not actions taken at the site remain protective of human health and the environment, and to assure continued protectiveness in the future. Part of the five-year review process involves interviewing people in the community. This is an opportunity for people to tell CDPHE about site conditions and their concerns.

The review will be completed by September 2009. The Colorado Department of Public Health and Environment is responsible for cleanup, applicable laws and site inspections to ensure continued safety. The agencies will conduct the review and write a report on their findings. EPA will review the report before it becomes final, and the final five-year review will be posted on the CDPHE and EPA websites.

Ron Abel leaves health department

Ron Abel will leave the Colorado Department of Public Health and Environment in early July for a new life in Boston. A project manager with the Department since 1989, Abel started on the Central City/Clear Creek project in 1992.

He's seen many changes over those years; the loss of longtime friends such as former Idaho Springs Mayor R.L. Jones, who died last year; the decline of mining as the dominant industry; and the introduction of gaming, which led to additional cleanup.

His proudest accomplishment is the Argo Tunnel Water Treatment Plant, which began construction in 1996 and opened in April 1998. Abel became the unofficial tour guide, explaining to visitors how the facility prevents 1,200 pounds of heavy metals from entering Clear Creek each day.

"It was the first active water treatment plant built in EPA's Rocky Mountain Region by the agencies," he recalls. "It was an all-consuming job at the time, but it was fun."

"Clear Creek has been the model for applying a watershed approach and communicating with the public," he said, acknowledging the work of local community members who make up the Upper Clear Creek Watershed Association and the Clear Creek Watershed Foundation. "The ground work for community involvement was laid before I came on the site by Jeff Deckler and Rick Brown of the state Hazardous Materials and Waste Management Division, and carried further by Carl Norbeck, who is retired from the state Water Quality Control Division."

"The biggest challenge at times has been coordinating administrative things like access, contracting, and figuring out enforcement strategy and Superfund issues between EPA and the state without alienating or isolating the community," he said.

In recent years, Abel has been involved with the North Clear Creek Mitigation Advisory Committee (NCCMAC), a collaboration between the Colorado Department of Transportation, CDPHE and other stakeholders to coordinate improvements to State Highway 119 with other projects and interests.

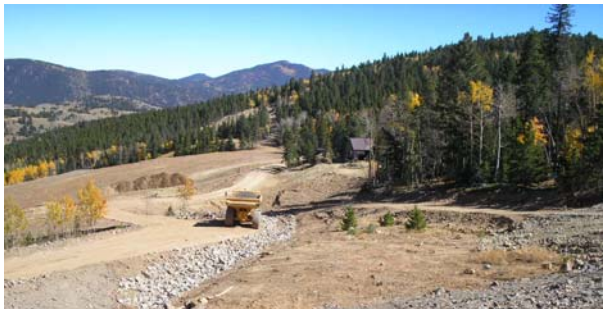
"It's an opportunity to improve the stream channel despite taking up a lot of real estate with a road," he said. "It can be done in a way that's an improvement, and it will help get the Superfund remedy done."

Church Placer Purchase a Milestone for 2008

August through November 2008 found crews hard at work on the sediment-control projects planned for last year's construction season.

The state's acquisition of the Church Placer property was a major milestone for completing Phase II work for Operable Unit 4 (OU4). Construction of the on-site mine waste repository began once the new access road was completed. The property needed some erosion-control work before sediment and mine waste rock can be deposited there beginning this summer. This work included constructing sediment retention ponds to control surface water run-off and trap sediment. Run-on control ditches and culverts also were constructed.

Other sediment-control work focused on projects in Nevada Gulch, Russell Gulch and South Willis Gulch. In most of these locations channels or ditches were reconstructed; rock check dams, rock drop structures and run-on control ditches were built to help control sediment and to slow the flow of water.



Construction of Church Placer repository began in 2008. Mine waste will be hauled to the repository this summer.

To reduce sediment reaching the North Fork of Clear Creek, eroded tailings were removed from the Russell Gulch channel and placed on a more stable site with existing mine waste piles. Other mine waste piles were regraded and covered with rock. Where sediment was adjacent to the channel, rip rap was placed along the bottom of the pile. This work occurred at the Keystone and American Flag waste rock piles, the Baltimore and Alva Adams tailings piles, and at the Pittsburg and Mattie Mae mines.

2009 Construction Season Begins

Shaft Closures, Waste Excavation Planned

In mid-May Barry Excavating, under contract to the Division of Reclamation, Mining and Safety, began closing four historic mine shafts associated with the Hampton, Iroquois, Hazeltine and Anchor waste rock piles.

Work on Operable Unit 4, Phase III will kick off in July with emphasis on relocating and consolidating various waste rock piles at the Church Placer Repository site near South Willis Gulch. McCollum's Excavating, LLC of Black Hawk submitted the $1,138,277 winning bid for the project, which will entail moving approximately 26,200 cubic yards of mine waste rock to the repository, and implementing erosion-control measures at mile waste piles. The project will help improve water quality in the north fork of Clear Creek by reducing the volume of sediment released to South Willis Gulch, Russell Gulch and Nevada Gulch.

The work is being funded by stimulus money made available by the American Recovery and Reinvestment Act of 2009.

Here's a summary of the work to be performed during the 2009 construction season:

South Willis Gulch:

Church Placer Repository: In addition to placing more than 26,000 cubic yards of waste rock in the repository, crews will import approximately 25,650 cubic yards of clean soil to cover and revegetate the site.

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This summer's projects will include additional work in Nevada Gulch. Care will be taken to protect historic mining structures throughout the Study Area.

2009 CONSTRUCTION SEASON

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Hazeltine Waste Rock Pile: Approximately 2,100 cubic yards of material will be excavated from the eastern pile and hauled to the repository. The western pile will be regraded and capped in place. Other construction includes a run-on control ditch and dispersion apron, plus riprap toe protection along the western and eastern piles.

Kokomo Waste Rock Pile: Approximately 4,600 cubic yards of material will be removed for consolidation at the Church Placer Repository. The area will be regraded and revegetated.

Old Jordan Waste Rock Pile: The approximately 2,000-cubic-yard pile will be removed and consolidated at the Church Placer Repository. A rock cover will be placed over the disturbed area.

Anchor Waste Rock Pile: A portion of a run-on control ditch will be modified and the access road will be regraded to provide future access,

Willis Gulch:

Willis Gulch Check Dam: A rock check dam will be built upstream from the Iroquois Pile.

Russell Gulch:

Argo Waste Rock Pile: The approximately 2,750-cubic-yard pile will be removed and consolidated at the Church Placer Repository.

Aurora Waste Rock Pile: Approximately 2,200 cubic yards of the pile will be removed and consolidated at the Church Placer. The remaining waste rock will be capped. Riprap toe protection will be installed along the remaining pile.

Centennial East Waste Rock Pile: A run-on control ditch will be installed above the pile. Riprap structures designed to disperse water also will be constructed.

Centennial West Waste Rock Pile: Approximately 840 cubic yards of waste rock will be removed to the Church Placer Repository. The remaining material will be revegetated in place.

Iroquois Waste Rock Pile: The approximately 3,550-cubic-yard pile will be removed and consolidated at the Church Placer Repository. The disturbed area will be regraded and revegetated.

Niagara Waste Rock Pile: The approximately 1,300-cubic-yard pile will be removed and consolidated at the Church Placer Repository.

Section 19 Waste Rock Pile: The approximately 4,600-cubic-yard pile will be removed and consolidated at the Church Placer Repository.

Nevada Gulch:

Nevada Gulch: Approximately 2,250 cubic yards of mine waste will be excavated from areas near the Keystone Waste Rock Pile, American Flag Waste Rock Pile and Nevadaville for consolidation at the Church Placer Repository.

Big Five Tunnel Release Discolors Clear Creek

People, fish were unharmed by dissolved metals in the water.

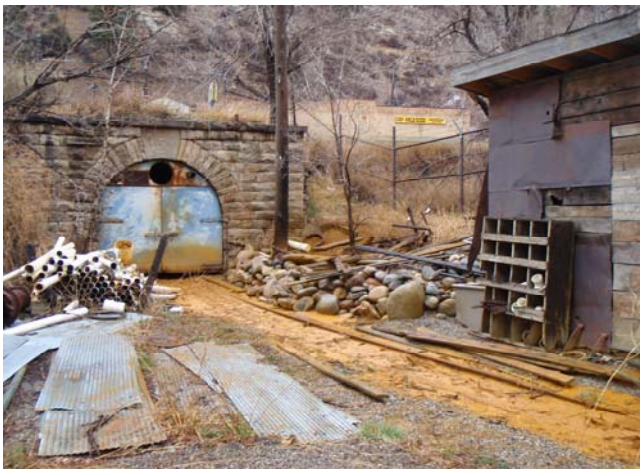
An uncontrolled release of contaminated water from the Big Five Mine in Idaho Springs on April 15 stained Clear Creek orange, but did not threaten human health, fish or other aquatic organisms.

The release began around 4:30 p.m. when miners working in the Big Five Mine punctured a blockage that had created a pool of metals-contaminated water about a foot deep. Water gushed from the tunnel at more than 130 gallons per minute (gpm), overwhelming a collection system that diverts the water to the Argo Tunnel Water Treatment Plant for metals removal before it is discharged to Clear Creek. The collection system overflowed, allowing untreated, acidic water containing iron and other dissolved metals to enter the creek. By 10 p.m., the flow from the tunnel had decreased to the point where the collection system was again able to deliver all the water to the treatment plant and the release to Clear Creek ended.

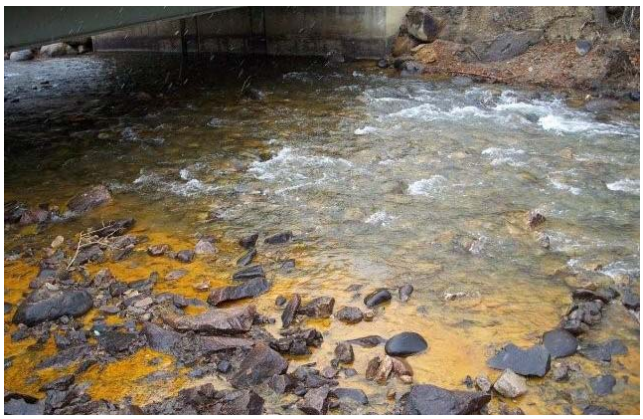
Under normal conditions, 20 to 30 gallons of contaminated water flow from the mine into the collection system each minute. When a storage tank fills, water is pumped to the treatment plant at approximately 70 gpm. For a brief period during the April 15 incident, the flow from the mine was estimated to exceed 150 gpm.

The Clear Creek County Sheriff's Department and Idaho Springs Police Department responded to the release, along with a contractor working for the Colorado Department of Public Health and Environment. Downstream water users, including the Golden Water Plant, were notified so they could close intake valves as the contaminated water flowed past. The state's Environmental Release and Incident Reporting System also was notified. At this point, no penalties have been imposed upon the mine owner.

The Big Five Tunnel is located on the west end of Idaho Springs. Normally, mine drainage flows into the trench to the left of the door at 20-30 gallons per minute.



Rushing water also stained soil outside the mine entrance.



Despite noticeable contamination, no evidence of a fish kill was found following the release. Human health was not affected.

History

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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 Department, EPA and the local community have worked to clean up heavy metal contamination resulting from decades of hard rock mining in the area. The Department and EPA have developed cleanup 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. Introduction of gambling has led to some land use changes. While these changes have the potential to increase the direct human exposure to mine wastes, many mine waste cleanup projects were implemented as property developed.

We Value Your Feedback

1. How clear and understandable are our fact sheets and other mailings?
2. Are we providing the information you needed and in a timely manner?
3. What other information can we provide that would help you?

Please take a few minutes to telephone, e-mail or mail your response and any address changes to:

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On the Web:
www.cdphe.state.co.us/hm/ClearCreek/index.htm
www.epa.gov/region08/superfund/co/ccclearcreek

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Colorado Department of Public Health and Environment