Little Bear Mine Reclamation
Final Construction Report

Introduction

The Little Bear Reclamation Project was a Cooperative Project between the Arapaho & Roosevelt National Forests Abandoned Mine Lands Program and the Clear Creek Watershed Foundation. This Final Construction Report describes the reclamation work done at the Little Bear Mine located on National Forest System land in Clear Creek County, Colorado on the Clear Creek Ranger District. The primary objectives of this project were to facilitate proper drainage of effluent from the Little Bear Mine adit and restrict vehicle recreational use on the site.

Project Area

Little Bear Mine is located within the Clear Creek/Central City NPL Site approximately 30 miles west of Denver. To reach the site take I-70 west, exit onto CO-103 at exit 240. Turn right onto 13th Ave. / CO-103, and continue to Miner St. Turn right at Miner St; continue east on Miner St to Soda Creek Rd (Co Rd 140). Turn right (south) on Soda Creek Rd; continue south to Little Bear Creek Rd (Co Rd 151). Turn left on Little Bear Creek Rd. Continue south on to the intersection of Little Bear Creek Rd and Co Rd 155. Turn left on Co Rd 155; Little Bear Mine is immediately to the left. The site is found on the Forest Service map of the Arapaho & Roosevelt National Forests near the center of section 12, T4S, R73W. Elevation is approximately 8,200 feet.

Site Description

The Little Bear Site is located near Idaho springs, Colorado in the Little Bear Creek drainage and contains a draining adit. In 1999, the site was selected for a removal action of a mine tunnel waste pile and cribbing structure used for loading ore. The State of Colorado, Division of Reclamation and Mining Safety (DRMS) secured open shafts and adits. The runoff from the adit was addressed by installing a drainage pipe, however; the pipe was crushed due to recreational vehicle use of the area. Though the drainage from the adit is low, less than 5 gallons per minute, slow erosion has been occurring. Recreatonal use of the area was evident through trash and fire rings that border the creek.

Preconstruction Activities

Two site visits were conducted prior to commencement of construction including one visit on 10-3-11. These included representatives of Frontier Environmental Services, Clear Creek Watershed Foundation and USFS.
Consent for entry to the project areas was obtained in conjunction with the earlier reclamation efforts at the West Gold site. These written agreements covered post reclamation maintenance. All landowners in the immediate vicinity of the West Gold Project were notified of the impending maintenance work.

Due to the proximity of the site to county roads, the county was contacted about upcoming work near the road. No prow permit was required. The County Lands Department and Road and Bridge Department were notified prior to the project start, as was the County Sheriffs Dispatch Officer.

A site-specific Site Health and Safety Plan was submitted by the Foundation to the Forest Service representative for approval on 9-29-11 prior to beginning work.

**Project Construction Schedule and Timing**

Reclamation activities at the Little Bear Mine (see tasks 1-3, below) were initiated on October 3, 2011 and concluded on 10-5-11. Demobilization of heavy equipment from the Little Bear Site occurred on 10-5-11. Seeding and mulching activities at the Little Bear Mine were completed on 10-12-11. Maintenance work at the West Gold site was undertaken on 10-5-11 and completed on 10-7-11.

**Construction Activities**

**Task 1: Removal of nonfunctional drainage pipe**
The existing crushed pipe was removed from the base of the bedrock where the effluent flows to the bank of Little Bear Creek. Erosion control features were used to reduce soil and sediment from eroding into Little Bear Creek.

**Task 2: Construction of drainage ditch**
A drainage ditch was created to facilitate runoff from the adit to Little Bear Creek. The ditch is approximately 6 feet wide by 3 foot deep and lined with cobble-sized rock. All rock was hauled to the site. The ditch extends from the base of the bedrock and continues to Little Bear Creek, upstream of the culvert under Co. Rd. 155.

**Task 3: Placement of rock barriers**
Rock barriers will be used to remove access of vehicles on the site. Large boulders were placed along Co. Road 155 at the culvert crossing to Co. Road 140 near the vertical bedrock. Rocks were hauled to the site; however, some existing rocks were arranged to remove access, as well.

**Task 4: Revegetation of degraded areas**
The ground surface from bedrock to Co. Road 155 was rendered into an uneven and hummocky condition to deter any recreational camping around the site. Extra rock and slash was scattered across this area to provide micro-communities to assist in revegetation. Seed was broadcast across all disturbed areas and raked in to the surface soil. The Forest Service Project Manager approved the native seed mix used for revegetation. Certified weed free straw was crimped into the site to provide protection from predators and the environment allowing vegetation to establish.

**Project Oversight**
The Foundation staff engineer provided contractor oversight along with the Forest Service Project Manager. Site inspections were performed by CCWF on 10-3, 10-4, 10-5, 10-6 and 10-20. The USFS Project Manager performed site Inspections on 10-3, 10-5 and 10-20.
Pre and Post Project Photographs

Pre – Project

View of Little Bear Mine Drainage from Little Bear Creek Rd (Co Rd 151)

Post-Project

Confluence of Little Bear Mine Drainage with Little Bear Creek
View toward Little Bear Mine from Little Bear Creek Rd (Co Rd 151)

Mine drainage @ Little Bear Ck
Little Bear Ck just below the mine drainage, 2 hours after construction on 10-4-11.
West Gold Mine Maintenance
Pre and Post Project Photographs

Pre – Project

Post-Project