

**Work Plan**  
Camp Bird Removal Action  
Revised 08/22/2017

**Site Name:** Camp Bird Mine  
**Site ID:** A8H9

**Purpose**

This Work Plan is in support of the Administrative Settlement Agreement and Order on Consent for Removal Action (AOC) between the Bankruptcy Estate of Camp Bird Colorado, Inc. (Respondent), Caldera Mineral Resources, LLC (Purchaser), and the United States Environmental Protection Agency (EPA). Once this AOC has been ratified, the purchaser will have acquired certain surface and mineral rights associated with the Camp Bird Mine through a bankruptcy settlement with Respondent. In connection with the purchase, Purchaser is required to complete certain tasks at the mine as described herein.

**Site Description**

The Camp Bird Mine is an underground mine located 6 miles south of Ouray, Colorado. The Site subject to this Work Plan consists of three cells of tailings that are located near the entrance to the 14-Level of the mine. These tailings rest in direct proximity to Sneffels, Imogene and Canyon Creeks. Sneffels and Imogene Creeks enter the Site upstream and combine near the center of the tailings to form Canyon Creek. Canyon Creek flows downstream to Ouray.

*Aerial View of the Camp Bird Mine at the Entrance to Level 14 in 2002<sup>1</sup>*



<sup>1</sup> Source: Mining History Association, <http://www.mininghistoryassociation.org/CampBird.htm>.

The two tailings cells located on the south side of Canyon Creek are referred to as the “historic tailings” and are associated with milling activities believed to date back to the early 1900s. The third and largest tailings cell located on the north side of Canyon Creek is referred to as the “modern tailings” and was last used for disposal in the late 1990s. The modern tailings occur within the boundary of an active mining permit that is administered by the Colorado Division of Reclamation, Mining and Safety (DRMS).

The Site also includes a large rock slide that is located below United States Mountain, approximately 0.5-miles above the Camp Bird 14-level along County Road 361 (which is a rough dirt 4-wheel drive road). The rock slide may be used as a source of rip rap and cover material.

**Site Evaluation**

The historic tailings cell that is furthest downstream is being actively eroded by a side drainage that flows into Canyon Creek. The slopes of both the historic and modern tailings are susceptible to erosion and instability from storm water runoff and flood events in the perennial drainages. The historic tailings are also largely uncovered making them susceptible to wind erosion.

Circumstances at the Site meet the requirements for a removal action under Section 300.415(b)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP).

**Objectives**

1. Prevent erosion of tailings from 100-year flood events in the adjacent perennial streams.
2. Prevent erosion of tailings from wind, storm water runoff, and side drainages that flow into the adjacent perennial streams.

**Required Tasks**

The tasks required by this Work Plan are divided into two phases. Phase 1 addresses erosion and erosion potential at the historic tailings. Phase 2 addresses erosion and erosion potential at the modern tailings. Most deliverable dates are scheduled as the number of calendar days from the date of ratification of the AOC by Purchaser, pursuant to the Section XXXI of the AOC. Other timeline references herein are estimates and may vary depending on adverse weather conditions (e.g. high stream flows and snow cover), availability of suitable capping, rip-rap and topsoil materials, and/or delayed access from third parties.

**A. GENERAL PROJECT MANAGEMENT**

**Description:** Perform project management duties and general support functions.

Deliverables	Due Dates
DRAFT Health and Safety and Emergency Notification Plans	15 days after ratification
DRAFT Monthly Status Update Template	15 days after ratification
DRAFT project schedule and proposed equipment / personnel.	15 days after ratification
FINAL Health and Safety and Emergency Notification Plans	30 days after ratification
FINAL Monthly Status Update Template	30 days after ratification
FINAL project schedule and proposed equipment / personnel.	May 1, 2018
Monthly Status Update	Last day of each month
Final Report Template	February 1, 2019
Final Report	March 1, 2019

## B. PHASE 1: PREVENT EROSION OF HISTORIC TAILINGS

**Phase 1 Task 1:** Obtain restoration materials.

**Description:** Estimate the type, quantity and source of restoration materials required by the project. These materials include but may not be limited to: topsoil, hydro mulch, rip-rap, cover material and road improvement media (if necessary). Some rip-rap may be obtained from the United States Mountain rock slide area along County Road 361. If the United States Mountain source is to be used, improve the approximately 0.5-mile-long, 4-wheel drive road between the tailings cells (~9,800 ft. elev.) and the rock slide (~10,500 ft. elev.) and use the road to transport a limited amount of rip-rap from the rock slide down to the removal area using off road haul trucks. Maintain traffic control and public safety on the road during construction and use. Public traffic may be diverted to the nearby logging road during the road improvement and use. County Road 361 will not be improved nor used if suitable alternative source(s) of rip rap and cover material are identified.

**Access:** Portions of County Road 361 pass through United States Forest Service (USFS) lands. Input and/or access from both Ouray County and USFS will be required prior to initiating road improvements.

**Timeline:** The road improvements, if necessary, may be initiated during spring and early summer of 2018 ideally before the road to Imogene Pass is re-opened. Use of the road for transport of rip-rap materials, if necessary, would continue into the 2018 construction season.

Deliverables	Due Dates
DRAFT estimation of type, quantity and source of restoration materials.	15 days after ratification
FINAL estimation of type, quantity and source of restoration materials.	May 1, 2018
DRAFT map of proposed road improvements (if necessary).	May 1, 2018
DRAFT Traffic Control and Safety Plan (if necessary).	May 1, 2018
FINAL map of proposed road improvements (if necessary).	June 1, 2018
FINAL Traffic Control and Safety Plan (if necessary).	June 1, 2018

**Phase 1 Task 2:** Stabilize the downstream historic tailings cell.

**Description:** The downstream tailings cell is located on the southeast side of Canyon Creek, is uncapped and is bisected by a north-south trending side channel (“bisecting channel”) that flows into Canyon Creek. Construct a new drainage channel along the southern perimeter of the tailings cell to capture and divert runoff and sheet flow above the tailings cell. Excavate the upper portion (approximately one-fourth) of the tailings east of the bisecting channel, and place into the void of the bisecting channel. Continue the constructed channel down gradient onto the newly exposed native slope, and around the newly formed southeast slope of the tailings cell. Direct flows of the constructed channel into the natural perennial drainage east of the tailings cell. Regrade oversteepened portions of the remaining slopes and fill any remaining void of the bisecting channel with waste materials generated from the Site. Armor the constructed channel, and design and construct erosion control features across the entire disturbed and uncapped areas. Cover the entire disturbed and uncovered areas on either side of side channel with hydro mulch, topsoil and/or compost. Establish vegetation as needed to stabilize all exposed areas.

**Timeline:** The excavation, grading, erosion control, capping and revegetation is anticipated to begin in 2017 and to be completed during the 2018 construction season.

**Notes:** A portion of this area is on USFS property. Input and/or access from USFS will be required prior to initiating task.

Deliverables	Due Dates
DRAFT design of excavation, grading, erosion control and restoration features.	15 days after ratification
FINAL design of excavation, grading, erosion control and restoration features.	30 days after ratification
Construction completion.	October 1, 2018

**Phase 1 Task 3:** Stabilize the upstream historic tailings cell.

**Description:** The upstream tailings cell is uncapped and located east and adjacent to Imogene Creek, and southeast and adjacent to Canyon Creek. Regrade and stabilize slopes of the tailings in accordance with an engineered, geotechnical stability analysis. Construct appropriate erosion control features and cap all areas with inert cap rock, hydro mulch, topsoil and/or compost. Establish vegetation as needed to stabilize areas where the matrix of the cover material is prone to erosion from storm water runoff.

**Timeline:** Geotechnical analysis is anticipated to be completed during 2017 construction season. Grading, capping and revegetation is anticipated to be initiated during the 2017 construction season and completed during the 2018 construction season.

**Notes:** A portion of this area underlies active powerlines operated by San Miguel Power Association, Inc. (SMPA). Depending on the design criteria for this task, the powerlines may need to be reconfigured, which may need to be completed by SMPA before and during this task.

Deliverables	Due Dates
DRAFT design of excavation, grading, erosion control and restoration features.	30 days after ratification
FINAL design of excavation, grading, erosion control and restoration features.	45 days after ratification
Construction completion.	October 1, 2018

**Phase 1 Task 4:** Enhance and reinforce streams adjacent to historic tailings.

**Description:** The toes of the tailings cells are susceptible to erosion from Imogene, Sneffels, and Canyon Creeks during flood events. Establish stream restoration segments along all 3 creeks. In tandem with the regrading in Task 3, excavate, widen, and armor select portions of the banks of each Imogene Creek stream segment from the pipe bridge downstream to the confluence with Sneffels Creek. And in tandem with Tasks 2 and 3 and Phase 2, excavate, widen, and armor select portions of each Sneffels Creek and Canyon Creek stream segment from the County Road 361 bridge through the confluence of Sneffels and Imogene Creeks, and downstream to the disturbed area in Task 2. Excavation, widening, and armoring of the streambanks shall be completed to the extent necessary to prevent erosion of tailings from 100-year flood events. Remove the large block of San Juan Tuff resting in/near the floodplain below the historic tailings. Amend uncovered areas of the streambanks and stream channel with a combination of rip-rap, erosion control features, hydro mulch, topsoil and/or compost. Establish vegetation as needed to stabilize amendments.

**Timeline:** By proximity, this task will begin coincident with Tasks 2 and 3 during the 2017 construction season and the segments in Sneffels Creek will begin coincident with Phase 2 during the 2018 construction season. This task is anticipated to be completed during the 2018 construction season.

Deliverables	Due Dates
DRAFT map of stream segments and design guidelines for excavation, grading, erosion control and stream restoration features.	30 days after ratification
FINAL map of stream segments and design guidelines for excavation, grading, erosion control and stream restoration features.	45 days after ratification
Construction completion.	October 1, 2018

**C. PHASE 2: PREVENT EROSION OF MODERN TAILINGS**

**Description:** As delineated in the AOC, the design and implementation of this phase may be completed under the authority and oversight of DRMS. The work will include regrading and stabilizing the slopes of the modern tailings in accordance with an engineered, geotechnical stability analysis, and further enhancing the left banks of Sneffels and Canyon Creeks to prevent erosion of the modern tailings from 100-year flood events.

**Timeline:** The Permit will be amended by within 210 days after ratification and the implementation of the task will begin during the 2018 construction season.

**Notes:** If the Permit is not amended by within 210 days after ratification, unless this date is extended by DRMS, this Work Plan shall be amended to include the design and implementation of this task under EPA authority and oversight.

Deliverables	Due Dates
Apply for Succession of Operator with DRMS	30 days after ratification
Submit amendment to Active Mining Permit including design of proposed erosion control features on the modern tailings.	120 days after ratification
DRMS approval of amended Active Mining Permit to include components of a work plan.	210 days after ratification
Initiate construction of erosion control features on the modern tailings.	July 1, 2018