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**Explanation of Significant Difference for the
Record of Decision for the Blackbird Mine
Lemhi County, Idaho**

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Explanation of Significant Difference for the Record of Decision for the Blackbird Mine Lemhi County, Idaho

1. Introduction

This Explanation of Significant Difference (ESD) applies to the remedial actions performed under the Final Record of Decision (ROD) for the Blackbird Mine signed on March 3, 2003.

This ESD is prepared in accordance with Section 117(c) of the "Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA/Superfund)" and Section 300.435(c)(2)(i) of the "National Oil and Hazardous Substances Pollution Contingency Plan" and documents a significant change to a portion of the remedy selected in the ROD for the Blackbird Mine. The remedy change is provided below:

- The risk based surface water cleanup level for dissolved cobalt was 0.038 mg/L in the ROD. Based on additional cobalt toxicity testing that was allowed under the selected remedy in the ROD, the Environmental Protection Agency (EPA) has determined that the data supports selection of a revised risk based surface water cleanup level of 0.086 mg/L dissolved cobalt.

This ESD will become part of the Blackbird Mine administrative record. The Blackbird Mine Administrative Record is available to the public at the following locations:

Salmon Public Library
204 Main Street
Salmon, ID

Hours: Monday through Saturday 10:00 am – 5:30 pm, Thursday 10:00 am – 7:00 pm.

U.S EPA Idaho Operations Office
1435 North Orchard Street
Boise, ID

Hours: Monday through Friday 8:00 am – 5:30 pm

U.S EPA Region 10
1200 Sixth Avenue
Records Center - 7th Floor
Seattle, WA

Hours: Monday through Friday 8:30 am – 4:30 pm

2. Summary of Site History, Contamination, and Selected Remedy

2.1 Summary of Site History

The Blackbird Mine is an inactive mine located in Lemhi County, Idaho approximately 13 miles south of the Salmon River and 25 miles west of Salmon, Idaho. The Blackbird Mine covers approximately 830 acres of private patented mining claims and 10,000 acres of unpatented mining claims within the Salmon-Challis National Forest. Elevations at the mine range from approximately 6,600 feet to 8,000 feet above sea level. Mining operations began in the late 1800s with the most extensive period of extraction and production from 1949 to 1967. The extraction of gold, cobalt and copper ore from both underground and open pit mining operations resulted in approximately 12 acres of unreclaimed Blacktail Pit, at least 14 miles of underground workings, approximately 4.8 million tons of waste rock, and 2 million tons of mill tailings disposed in the West Fork Tailings Impoundment.

A number of cleanup actions (Early Actions) were performed under CERCLA between 1993 and 2001 prior to selection of the final remedial action in the ROD. These actions have primarily focused on collecting contaminated water running off of sources (mainly waste rock) in the mine area for treatment of copper and cobalt at a water treatment plant, stabilizing waste rock piles and the West Fork Tailings Impoundment and removing soil contaminated with arsenic along the banks of Blackbird Creek and Panther Creek. The source control actions were performed by the potentially responsible parties (PRPs) under oversight by EPA, which is the lead agency.

2.2 Contamination as Presented in the 2003 Record of Decision

Waste rock is a result of the historic mining activities, and has been the largest source of contamination to surface water and groundwater at the Blackbird Mine Site. Acid rock drainage from the waste rock piles, the underground workings, the Blacktail Pit, tailings deposited along Blackbird Creek and the West Fork Tailings Impoundment have resulted in the release of elevated levels of hazardous substances to the environment (groundwater, surface water, soils) including, but not limited to, copper, cobalt and arsenic. These releases have contributed to elevated levels of dissolved copper and cobalt in Panther Creek and its tributaries and arsenic in soil along the banks of Blackbird Creek and Panther Creek. The fisheries and aquatic resources downstream of the Blackbird Mine have been impacted by arsenic, copper and cobalt. Dissolved copper concentrations in Panther Creek, Big Deer Creek and its tributaries continue to frequently exceed the copper federal ambient water quality criteria and State of Idaho water quality standard for protection of aquatic life and exceed risk based levels for cobalt in Panther Creek and other creeks as defined in the ROD.

2.3 Selected Remedy in the 2003 Record of Decision

A number of early actions had been implemented at this Site. The selected remedy provided for maintenance of the early action facilities and addressed the remaining

threats posed by the Site. The ROD addressed contaminated soils (i.e. overbank deposits), groundwater, surface water and instream sediments at the Blackbird Mine site. The ROD selected cleanup levels for Arsenic, Cobalt and Copper in surface water and instream sediments and Arsenic in overbank soils. The selected remedy required long-term operation and maintenance and included the following in each drainage basin.

Blackbird Creek Drainage Basin

The remedial actions in the Blackbird Creek basin include:

- Collection and treatment of upper Meadow Creek seeps
- Continued operation of the water treatment plant
- Construction of a soil cover over the West Fork Tailings Impoundment
- Collection and treatment of seepage from the West Fork Tailings Impoundment
- Removal of overbank deposits with armoring of selected deposits
- Removal of in-stream sediments and overbank deposits in the vicinity of the Panther Creek Inn (PCI)
- Establishing institutional controls and physical restrictions
- Natural recovery of Blackbird Creek sediments
- Operation and maintenance of all facilities
- Five year reviews

Bucktail Creek Drainage Basin

The remedial actions in the Bucktail Creek basin include:

- Collection and treatment of Bucktail Creek groundwater seeps
- Continued operation of the Water Treatment Plant
- Diversion of Bucktail Creek
- Establishing institutional controls and access restrictions
- Natural recovery of Bucktail Creek, South Fork of Big Deer Creek and Big Deer Creek sediments
- Operation and maintenance of all facilities
- Five year reviews

Panther Creek Drainage Area

The remedial actions in the Panther Creek drainage include:

- Selective removal of overbank deposits
- Establishing institutional controls
- Natural recovery of Panther Creek sediments
- Operation and maintenance of all facilities
- Five year reviews

3. Description and Basis of the Significant Difference

The ROD selected a risk based cleanup level for dissolved cobalt in surface water (Panther Creek, South Fork of Big Deer Creek, and Big Deer Creek) because there was not an existing Federal national ambient water quality criterion (AWQC) nor an Idaho Water Quality Standard (WQS) for cobalt. In the absence of an established State WQS and AWQC, a weight of evidence approach was used to select an appropriate toxicity reference value (TRV) that was used to establish the cleanup level for cobalt. Available literature data, site-specific testing data, and screening criteria were all considered. The selected cleanup level was 0.038 mg/L. Panther Creek and South Fork of Big Deer Creek were the only creeks that had a numeric cleanup level that exceeded 0.038 mg/L cobalt (see below for Bucktail and Blackbird Creeks). The source of cobalt in Panther Creek is from the West Fork Tailings Impoundment located in the Blackbird Creek drainage basin. EPA selected collection and treatment of seepage from the West Fork Tailings Impoundment to reduce the concentration of cobalt in Panther Creek to a level that is protective. The ROD considered a staged implementation approach that allowed for performance of further cobalt toxicity analysis and biological testing to determine if another cleanup level for cobalt would be protective before requiring treatment of seepage from the Tailings Impoundment. The ROD anticipated that the exceedance of cobalt in South Fork of Big Deer Creek would be addressed through collection and treatment of Bucktail Creek groundwater seeps, the diversion of Bucktail Creek, natural recovery of Bucktail Creek and South Fork of Big Deer Creek sediments and possible implementation of contingent actions. Therefore, the ESD is focused on the remedy change at the West Fork Tailings Impoundment only.

A toxicity study was performed in 2004 by the PRPs under EPA oversight. The toxicity study was performed in a laboratory and was comprised of a series of aquatic toxicity tests on cobalt in Panther Creek water to assess site-specific toxicity to resident anadromous salmonids and their prey. The fish species tested were rainbow trout and mottled sculpin. The aquatic invertebrate species tested were three resident invertebrates, consisting of two mayflies and one caddisfly (*Seratella tibialis*, *Centroptilum conturbatum* and *Chironomus tentans*). All tests, with the exception of the sculpin tests, were completed in cobalt solutions prepared in Panther Creek dilution water at a laboratory. Based on the results of the toxicity study, EPA has determined that the data supports a cleanup level of 0.086 mg/L dissolved cobalt as being protective.

Panther Creek does not exceed the revised cleanup level. Therefore, collection and treatment of seepage from the West Fork Tailings Impoundment is no longer required. This change will reduce the cost of the cleanup by \$ 2 – 5 Million. The range in reduction of cost is due to different options for treatment presented in the ROD. South Fork of Big Deer Creek and Big Deer Creek do not exceed 0.086 mg/L. The State of Idaho performed a Use Attainability Analysis (UAA) that removed the beneficial use designation for aquatic life in Bucktail Creek and Blackbird Creek. The ROD had a non-numeric narrative cleanup goal for Bucktail Creek and Blackbird Creek that is still met

with the change in the cobalt cleanup level. Therefore, no other elements of the remedy are changed by this ESD.

4. Agency Comments

The support agency Idaho Department of Environmental Quality (IDEQ) supports the changes to the selected remedy. In addition, the Natural Resource Trustees for the Blackbird Mine Site, which include the US Forest Service, National Oceanic and Atmospheric Administration (NOAA) and IDEQ, support the changes to the selected remedy.

5. Public Participation

The EPA will send out a postcard and publish a notice in the newspaper in accordance with requirements set out in NCP §300.435(c)(2)(i).

6. Affirmation of Statutory Determinations

The EPA believes the remedy for the Blackbird Mine Site, as modified by the ESD, satisfies CERCLA § 121 and remains protective of human health and the environment, complies with federal and state requirements identified in the ROD as applicable or relevant and appropriate to the remedial action at the time of the final ROD, is cost-effective, and utilizes permanent solutions and alternative treatment technologies to the maximum extent practicable.

Authorizing Signature



Daniel D. Opalski, Director
Environmental Cleanup Office, Region 10
U.S. Environmental Protection Agency

7/27/2007
Date