

United States
Department of
Agriculture

Forest
Service

Pleasant Grove
Ranger District

P.O. Box 228
Pleasant Grove, UT 84062



October 13, 1994

Mr. Marshall Fischer
Federal Facilities Site Assessment Manager
U.S. Environmental Protection Agency
999 18th Street - Suite 500
Denver, Colorado 80202-2466

Dear Mr. Fischer:

The Preliminary Assessment sent to you regarding the American Fork Mining District Site was a draft. Enclosed is the final form of this document. Please disregard the original Preliminary Assessment.

If you have any questions, feel free to contact me at (801) 785-3563.

Sincerely,

A handwritten signature in black ink, appearing to read "Tim Garcia".

Tim Garcia
Forester

EXECUTIVE SUMMARY

PACIFIC, LOWER BOG, AND MARY ELLEN MINES
AMERICAN FORK CANYON, UTAH

The Pacific, Lower Bog, and Mary Ellen mines are located on National Forest System lands on the Uinta National Forest. Each mine has associated tailings piles with ground water running out of the mine adits. This water has been tested periodically, and is known to contain elevated levels of copper, zinc, lead, and cadmium.

The area near the Pacific mine is used by recreationists. OHV (Off Highway Vehicle) use occurs on the tailings pile of the Pacific mine. The Lower Bog and Mary Ellen mines are less accessible to the public. Water from adits of all three mines eventually enters the North Fork of the American Fork River.

The Uinta National Forest recommends mitigation and reclamation to varying degrees at each site. This Preliminary Assessment makes no effort to recommend specific techniques. Rather, the P.A. is written to give the reader an overview of the situation at each site along with a brief history, ownership, and condition of sites.

GENERAL SITE INFORMATION

CERCLIS ID NUMBER:

UTD 988074951

SITE NAME AND LOCATION:

The site has been identified and will be referred to as the American Fork Mining District Site which is composed of three separate locations which are in close proximity to each other. These sites include the: Mary Ellen Gulch mine and tailings, Lower Bog mine and tailings, and Pacific mine and tailings. General location is in Utah County, in the Upper American Fork Canyon area. The MEG mine is located in Township 3 South, Range 3 East, NW1/4 of SE1/4 Section 20. The Lower Bog Mine is in Township 3 South, Range 3 East, SW1/4 of SE1/4 Section 16. The Pacific Mine and Tailings are located at Township 3 South, Range 3 East, NW1/4 of SE1/4 Section 22. All legal descriptions are Salt Lake Based Meridian (SLBM).

Ground water is present near the surface in all three mines. The water is exposed to mineralized rock, spent ore, and/or tailings changing the chemical composition of the water (Lidstone & Anderson, Inc 1993). In the case of the three mines, the water runs out of the adit across tailings piles and into the North Fork of the American Fork River. In addition to containing trace elements picked up in the mine shafts, except at the Lower Bog Mine, the water picks up more contaminants as it passes through the tailings piles. Precipitation events also contribute to surface run-off from the tailings. At both the Pacific and Lower Bog mines, tailings piles are within 10 feet of the North Fork of American Fork river.

The area surrounding the three sites is used throughout much of the year by outdoor enthusiasts. Recreational opportunities exist throughout the area including camping, fishing, hunting, off road vehicle use, and exploring. The ability for people get close to and travel virtually unrestricted through old mining operations appeals to many people. The area has a rich mining history that attracts people to it.

Public access to the effluent and tailing piles is generally unrestricted particularly at the Pacific mine. Efforts were made to fence the area but were unsuccessful in restricting all publics from being exposed to the area. The tailings pile at the Pacific Mine is used by Off Highway Vehicles (OHV) as a hill climb and OHV play area.

The Lower Bog mine is less accessible, requiring a short hike or four wheel drive to get close enough to make the 200 yard hike to the foot of the tailings pile. The Mary Ellen Gulch mine is on private land and vehicle access requires travel with high clearance vehicles.

Exposure to the sites has not been directly linked to any health problems.

TYPE OF FACILITY:

The three sites are facilities associated with early 20th century hard rock mining claims. Silver, Iron ore, and gold were all mined at these sites (Keech). Along with the mining activities, milling also occurred on site, leaving tailing piles at the Pacific and Lower Bog mines (See Attached Photos). Ground water is flowing out of each of the three mine adits at varying flow rates and contains elevated levels of Zinc, Cadmium, Copper, and Lead (See Appendix A). At the Pacific and Mary Ellen Gulch mines, this adit discharge flows over mine tailings, also with elevated levels of zinc, copper, cadmium, and lead.

TYPE OF OWNERSHIP:

MARY ELLEN GULCH MINE: (Survey Number L57, Plat Index Number 392) Sold by Mann Enterprises to William D. Schnack on 8/20/1987. This mine is privately owned and currently not in operation. The water that flows out of the mine adit flows across mine tailings directly into the Mary Ellen Gulch tributary of the American Fork River. Shortly after the adit water enters the Mary Ellen Gulch tributary, (within 300 feet) it enters onto National Forest System lands.

PACIFIC MINE: (Survey Number 5361, Plat Index Number 491 originally known as the Blue Rock #2 claim) the Mine is owned by the Euro-Nevada Mining Corporation, Inc. 6121 Lakeside Drive, Suite 240, Reno, Nevada 89511, (702) 825-8890. The majority of the tailings pile and settling pond exist on National Forest System land.

LOWER BOG MINE: (Survey Number 5422, Plat Index Number 451) Originally patent 6/24/1910. Last owner Lorraine B. Jack et al who sold the land to United States of America on 10/14/1966 and is now National Forest System lands.

SITE STATUS:

MARY ELLEN GULCH MINE: The Mary Ellen mine is currently inactive however, the Globe mine which is adjacent (upstream) to the Mary Ellen Mine is active.

PACIFIC MINE: The Pacific mine is currently inactive.

LOWER BOG MINE: The Lower Bog mine is currently inactive.

YEARS OF OPERATION:

Each of the mines have been reviewed by Uinta National Forest Archeologist for cultural and historical significance and are all eligible for National Historic Register status.

MARY ELLEN GULCH: The Mary Ellen gulch mine was located in 1870. A patent was filed for operation in 1876. Activity occurred periodically through 1959.

PACIFIC MINE: Formally known as the Blue Rock #2 was located in 1903. At this time, there was evidence of three tunnels prior to location. Activity at this

mine was at it's height between 1910 and the late 1940's. There has been a resurgence of interest in making further explorations of this mine in the last decade by its current owner; however no significant work has been done since the 1940's.

LOWER BOG: The Bog mine was located in 1895 by Ed Hines. Initial surveys were conducted in 1905 with actual work beginning in 1914. Active mining occurred through the 1940's and finally operations shut down in the late 1940's. Some prospecting occurred later in the 1970's however the majority of activity occurred between 1914 and the late 1940's

OWNER/OPERATOR INFORMATION:

MARY ELLEN GULCH: William D. Schnack c/o Associated Title Co., P.O. Box 478, Salt Lake City, UT, 84110-0478, Attn: Lyle Swenson

PACIFIC MINE: Euro-Nevada Mining Corporation, Inc. 6121 Lakeside Drive, Suite 240, Reno, Nevada 89511, (702) 825-8890 owns the mine and some tailings however, the majority of the tailings pile and settling pond exist on National Forest System land.

LOWER BOG: United States of America, National Forest System Lands.

ENVIRONMENTAL SETTING:

MARY ELLEN GULCH: The Mary Ellen Gulch mine is located at approximately 9,000 feet above sea level. Dominant vegetation types include upper elevation riparian, alpine spruce/fir type and high elevation mountain brush.

PACIFIC MINE: The Pacific Mine is located in the bottom of the North Fork of the American Fork Canyon at approximately 7800 feet AMSL. Vegetation consists of mixed conifer stands to the west and riparian vegetation skirting the east perimeter of the tailings pile and settling pond. The North Fork of the American Fork river runs within 10 feet of the tailings around the east side of the mine tailings area.

LOWER BOG: The Lower Bog is located along a stream corridor consisting of associated high elevation riparian vegetation types. The adit is in a high elevation mountain brush zone.

APPROXIMATE SIZE OF SITE:

MARY ELLEN GULCH

PACIFIC MINE: Operations at the Pacific mine cover an area of approximately 120,000 square feet. The majority of this area is used as a tailings and settling pond. The average depth of the tailings around the area is estimated at approximately five feet. The total volume of the tailings has been estimated at 600,000 cubic feet of tailings containing elevated levels of zinc, cadmium, lead, and copper. There are remains of buildings associated with the Pacific mine operation however; no intact structures are present.

LOWER BOG: Groundwater, tailings, and adit make up the facility at the Lower Bog mine. The area associated with the mine involves about 6900 square feet. The average depth of the tailings is approximately 10 feet, with total volume being approximately 69,000 cubic feet of tailings containing elevated levels of zinc, cadmium, lead, and copper. There are no facilities associated with the Lower Bog mine.

SOURCE AND WASTE CHARACTERISTICS:

SOURCE TYPES AND LOCATIONS:

MARY ELLEN GULCH: Groundwater discharge is the primary source of contamination in the Mary Ellen Gulch location. Groundwater surfacing from the adit contains elevated levels of zinc, iron, copper, lead, and cadmium. The Mary Ellen Gulch Mine is located along a south east flowing tributary drainage to the North Fork of the American Fork River at an elevation of 9,100 feet. The site has several portals, tailings and waste rock piles. The North portal has a pH of 5.95, while the south portal has a 7.2 pH. The North Portal discharges 70 GPM (Gallon Per Minute) with the south portal discharging only 2.5 GPM (Lidstone & Anderson 1993).

PACIFIC MINE: There are two major waste sources involved at the Pacific mine site. The first is the extensive tailings pile and settling pond associated with past mining activities. Dust transported by wind and precipitation run-off are both causes for the spread of these tailings from the site. Tailings and the settling pond are both within a distance of 10 to 50 feet from the American Fork river. The second source of pollution is ground water discharge from the Pacific mine adit itself. 144 GPM discharge with a pH of 6.5 was measured from the Pacific mine portal with elevated levels of lead, zinc, copper, and cadmium (Lidstone & Anderson 1993).

LOWER BOG: The Lower Bog mine has an elevation of about 8500 feet. The site consists of a single bedrock opening, tailings dump, and miscellaneous spoil piles. Discharge from the adit is approximately 44 GPM with "yellow boy" or hydrous iron oxide deposits around the area of discharge. pH levels were measured at 5.1 with total dissolved solids at 80 parts per million (PPM). 1992 samples indicate elevated levels of iron, cadmium, zinc, copper, and lead. Discharge from the mine adit flow boths around both sides of the tailings located below the mine opening (Lidstone and Anderson 1993).

HAZARDOUS SUBSTANCES PRESENT:

The following elements identified exceed aquatic standards:

MARY ELLEN GULCH: Elevated levels of zinc and iron are present (Mangum, 1988).

PACIFIC MINE: Elevated levels of lead, cadmium, zinc, and copper are present (Mangum, 1988).

LOWER BOG: Elevated levels of lead, cadmium, zinc, copper, and iron are present (Mangum, 1988).

Testing of each site has ocured on several occasions. Results of these tests can be seen in section IV of this text.

GROUND WATER USE AND CHARACTERISTICS

General Narrative:

Sources of contamination are not contained. The tailings are not encapsulated, allowing precipitation to infiltrate through. Ground water that is discharged from the mine adit is contaminated (Mangum, 1988).

Annual precipitation for all three areas is approximately 40 inches annually. Much of the precipitation comes in the form of snow between the months of November and April. Infiltration rates at all three areas would not be considered exceptionally high; but rather should be considered average with none of the areas having evidence of karst terrain.

PRIVATE WELLS WITHIN 4 MILES: There are no known private wells within four miles of any of the three mines sites identified. The areas downstream from the Pacific mine particularly is a popular site for camping and fishing.

SURFACE WATER USE AND CHARACTERISTICS

DISTANCE TO NEAREST SURFACE WATER:

MARY ELLEN GULCH: The closest surface water to the Mary Ellen adit is within 30 feet. The effluent from the adit flows down across mine waste and directly into the Mary Ellen Gulch tributary of the American Fork River.

PACIFIC MINE: The tailings pile and settling pond is within 10 feet of the American Fork River. During precipitation events, run off will flow directly across the tailings and into the river. The effluent from the Pacific mine adit flows into a wetland area created by beaver activity. This beaver pond captures some of the contaminants preventing a strong solution from entering the American Fork stream channel (Lidstone & Anderson, 1993). However there is evidence that some elements enter the stream. (Lidstone & Anderson, 1993)

LOWER BOG MINE: Tailings from the Lower Bog mine are within 3 feet of the main channel of the American Fork River. In addition to the exposure of surface water, adit discharge runs over and around the tailings. Either adit discharge or springflow flows beneath the tailings pile and enters the stream from beneath the mine tailings.

SURFACE WATER BODY TYPES WITHIN 15 DOWNSTREAM MILES

Tibble Fork Reservoir is approximately 7 downstream miles from the lowest site (Mary Ellen Gulch). It is used as a flood control structure. Water collected there is also used for agricultural irrigation in the Utah County area. No evidence has been collected indicating the contamination of Tibble Fork Reservoir as a result of these sites. Evidence in fact shows little effects of the contaminants less than a mile down stream from the lowest source.

FISHERIES WITHIN 15 DOWNSTREAM MILES:

All three mines are located in the American Fork drainage. The American Fork river, including Tibble Fork Reservoir is a put and take fishery managed primarily for rainbow trout. Secondary management is for brown and cutthroat trout. The Utah Division of Wildlife Resources (DWR) stocks approximately 35,500 fish a year in the stream reach from Mary Ellen Gulch to the mouth of American Fork Canyon, which is a distance of approximately 11.6 stream miles.

No studies have monitored fish downstream of the mines for contaminants. Many of the planted fish do not overwinter and spawn. A small, but important native cutthroat trout population does overwinter and spawn in this drainage. The majority of fish caught in the American Fork river have been in the drainage less than one year. Fishers commonly keep and eat the fish they catch.

Quantifying the actual number of recreation fishing hours on the American Fork river is difficult, but the DWR manages the American Fork river as a "heavy use" area and has a goal of 500 angler-hours/acre/year.

Numerous log structures designed to enhance fish habitat have been installed along the upper reaches of the American Fork River. Rainbow trout congregate in the pools below these structures and encourage fishing below the discharge of the three mines. Tibble Fork Reservoir was built as a sediment trap and traps sediment associated with the discharge from the sites.

SENSITIVE ENVIRONMENTS AND WETLANDS WITHIN 15 DOWNSTREAM MILES:

SOIL EXPOSURE CHARACTERISTICS:

General Narrative

Soil effects are localized and restricted to immediately around each of the three sites. Little evidence has been gathered indicating effects to the soil resources.

AIR PATHWAY CHARACTERISTICS:

General Narrative

Effect of the air pathway is localized at all three sites. Localized wind at each site has the potential to transport contaminated tailing dust within a close proximity of each site. The threat of air pathway contamination is not fully known. Dust from these areas has been witnessed by individuals and seems to be the only threat to the air pathway.

LOCATIONS OF SENSITIVE ENVIRONMENTS WITHIN 4 MILES:

ACREAGE OF WETLANDS WITHIN 4 MILES:

Wetlands

The entire watershed within a radius of 1/4 and 1/2 miles of the Pacific mine drains into the North Fork of American Fork Creek. A wetland approximately 2 acres in size is associated with a beaver pond in the stream. The beaver pond is within 1/4 mile of the Pacific Mine. Approximately 4 acres of sensitive environments (riparian areas) exist along the stream channel. Two acres in the 1/4 mile radius and 2 acres within the 1/2 mile radius. No other wetlands or sensitive environments occur within 1/2 mile of the Pacific Mine.

	ONSITE	1/4 mi.	1/2 mi.
Wetlands	0.1 acres	2 acres	0 acres
Sensitive Env.	0.2 acres	2 acres	2 acres
Total	2.1 acres	4 acres	2 acres

EPA ID NO.	NPL/ NON-NPL	SITE NAME STREET CITY	STATE	ZIP	OPERABLE UNIT	EVENT TYPE	EVENT QUALIFIER	ACTUAL START DATE	ACTUAL COMPLETE DATE	CURRENT EVENT LEAD
UT0988074951 4032300 11135500	NON-NPL NFA	AMERICAN FORK CANYON/WINPA-NATIONAL PLEASANT GROVE PLEASANT GROVE 049 UTAH		UT 84601						

THE SITE CONSISTS OF THREE KNOWN MINES INCLUDING PACIFIC MINE, THE MARY ELLEN MINE, AND THE LOWER BOG MINE. THERE IS ALLEGED CONTAMINATION OF SURFACE WATER IN A HEAVILY USED FISHERY DUE TO MINING ACTIVITY.

00	DS1		01/24/92	FEDERAL FACILITY
00	PA1	NO FURTHER REMEDIAL ACTION PLANNED	09/12/95	FEDERAL FACILITY

UT1141193002 4017300 11216300	NON-NPL NFA	BLM - MERCUR CANON OUTMASH HIGHWAY 75, EAST OF TOOELE ARMY DEPOT TOOELE 045 TOOELE		UT 84074						
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00	DS1		09/27/91	FEDERAL FACILITY
00	PA1	NO FURTHER REMEDIAL ACTION PLANNED	09/21/93	FEDERAL FACILITY
00	S11	NO FURTHER REMEDIAL ACTION PLANNED	09/21/93	FEDERAL FACILITY

UT0141193003 4157480 11242420	NON-NPL NFA	BLM - SNOWVILLE LANDFILL T14N, R9W, SEC 32 SNOWVILLE 003 BOX ELDER		UT 84336						
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00	DS1		12/15/89	FEDERAL FACILITY
00	PA1	NO FURTHER REMEDIAL ACTION PLANNED	09/27/93	FEDERAL FACILITY

America Fork
Canyon
(Old site) NFA