# PACIFIC MINE
# PRELIMINARY ASSESSMENT REPORT
# CUSTER COUNTY, IDAHO

**STATE OF IDAHO**

**IDEPARTMENT OF ENVIRONMENTAL QUALITY**

December 2003

Submitted To:
U.S. Environmental Protection Agency
Region 10
1200 Sixth Avenue
Seattle, WA 98101

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**
**REGION 10**
1200 Sixth Avenue
Seattle, WA 98101

February 11, 2004

Reply To
Attn Of: ECL-115

Umont Mining Inc.
c/o Barbara Bachman
Seventy Niagara Services
P.O. Box 1335
Williamsville, NY 14231-1335

Dear Ms. Bachman:

The Idaho Department of Environmental Quality (DEQ) has completed a report summarizing the findings of a visit conducted at the Pacific Mine site in July, 2003. A copy of the report, called a Preliminary Assessment, is enclosed.

Based on a review of this assessment, EPA has determined that no further action is warranted at the site. A no further action designation means that no additional steps under the Federal Superfund Program will be taken at the site unless new information warranting further Superfund consideration is discovered. EPA's no further action designation does not relieve your facility from complying with appropriate Idaho state regulations.

In accordance with EPA's decision regarding the tracking of no further action sites, the above named site will be removed from the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) data base and placed in a separate archival data base as a historical record. Archived sites may be returned to the CERCLIS site inventory if new information necessitating further Superfund consideration is discovered.

We appreciate your cooperation during the site visit. If you have any questions, please feel free to contact me at (206)553-2782.

Sincerely,

Ken Marcy
Site Assessment Manager

Enclosure

cc: Bruce Schuld, Idaho Department of Environmental Quality
Monica Lindeman, US EPA, ECL-115
Craig Conant, EPA SF Records Center, ECL-076

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## LIST OF ACRONYMS

| Acronym | Definition |
|---|---|
| amsl | above mean sea level |
| bgs | below ground surface |
| DEQ | Idaho Department of Environmental Quality |
| EPA | United States Environmental Protection Agency |
| gpm | gallons per minute |
| PPE | Probable Point of Entry |
| TDL | Target Distance Limit |

# 1. INTRODUCTION

The Department of Environmental Quality (DEQ) was contracted by Region 10 of the United States Environmental Protection Agency (EPA) to provide technical support for completion of a preliminary assessment (PA) at the Pacific Mine site located near Challis, Idaho, in Custer County. DEQ completed PA activities in accordance with the goals listed below.

The specific goals for the Pacific PA, identified by the DEQ, are to:

- Determine the potential threat to public health or the environment posed by the site.
- Determine the potential for a release of hazardous constituents into the environment.
- Determine the potential for placement of the site on the National Priorities List.

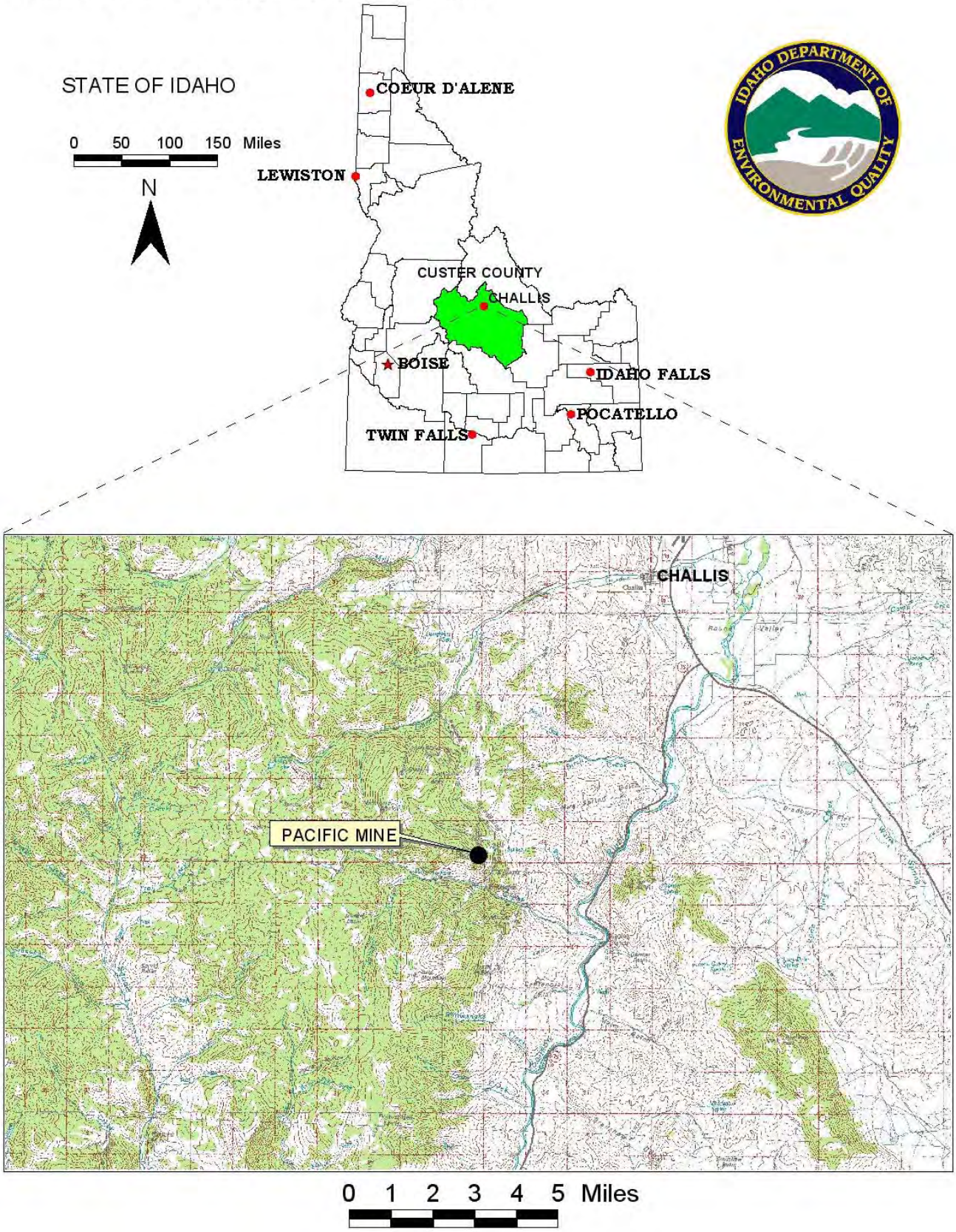
Conducting the PA included reviewing existing site information, collecting receptor information within the site's range of influence, determining regional characteristics, and conducting a site visit. This document includes a discussion of site background information (Section 2), a discussion of migration/exposure pathways and potential targets (Section 3), and a list of pertinent references. Photographic documentation is included in Appendix A and sample analyses are included in Appendix B.

## 2. SITE BACKGROUND

### 2.1 SITE LOCATION

| | |
|---|---|
| Site Name: | Pacific Mine |
| CERCLIS ID No.: | |
| Location: | Custer County, Idaho |
| Latitude: | 44° 24' 34"N |
| Longitude: | 114° 18' 59"W |
| Legal Description: | Section 34, Township 13N, Range 18E, Boise Meridian |
| Congressional District: | Idaho |
| Site Owner: | Umont Mining Inc.<br>c/o Barbara Bachman<br>Seventy Niagara Services<br>P.O. Box 1335<br>Williamsville, NY 14231-1335 |
| Site Contact: | Kirk Hansen<br>HC 68, Box 300<br>E. Fork Road<br>Clayton, Idaho 83447<br>(208) 838-2383 |

***FIGURE 1 Site Vicinity Map of Pacific Mine***



## 2.2 SITE DESCRIPTION/OWNERSHIP HISTORY

The Pacific Mine (Pacific) is located within the Bayhorse Mining District in Custer County, Idaho, approximately 34 miles northeast of Stanley, Idaho, 10 miles southwest of Challis, Idaho, and 1.25 miles north-northwest of the former townsite of Bayhorse, Idaho (Figure 2-1). The Pacific, comprised of fourteen claims, was patented between 1896 and 1921 with more than 5,300 feet of workings (Mitchell, 1999), and follows the flat-lying bedding planes of the Bayhorse Dolomite on Democrat Hill at an elevation of 7,800 feet above mean sea level (amsl).

At the time of the site visit, three tunnels or "adits" were located. One, located approximately 150 feet up slope from the ore bin, is collapsed at the portal but appears to have been the primary producer. The remaining adits, located between 300 and 500 feet to the south, do not have extensive waste rock dumps and could be only prospects, though subsequent road construction could have obliterated the true extent of these workings. Upper workings consist of dozens of bulldozed exploration cuts and core drilling pads.

**Photo 1**
View from adit, ore concentrator at right, mill building and offices at left

Originally located by a prospector traveling with two bay horses in 1864, mining in the Bayhorse area did not commence until W.A. Norton and S. A. Boone located a lode on September 1, 1873 (Wells, 1983). The Pacific's date of discovery could not be determined, but the Salmon River Mining Company operated it and later the Pacific was consolidated into the James McGregor Group (Mitchell, 1999). According to Bell (1901), lessees operated the Pacific from 1901 to 1908, producing lead, copper, silver and gold estimated at $65,000 (Umpleby, 1913). Following an ore shipment by the Salmon River Mining Company in 1911, the Pacific remained inactive until 1942 when it was optioned to W.B. Swigert of Challis. Swigert Mines operated the Pacific until 1950, though American Smelting and Refining Company obtained an exploration lease in

1945. Swigert Mines produced 633 tons of lead-silver ore in 1943; treated 10,365 tons of oxide lead-silver ore by gravity separation in 1944-45, shipping 552 tons of zinc-lead-silver ore to a Utah smelter in 1945; treated 1,200 tons of zinc-lead ore by gravity separation in 1946, shipping 1,136 tons of zinc-lead ore to the Utah smelter in 1946; and produced another 1,262 tons of zinc-lead ore in 1947 (Mitchell, 1999).

**Photo 2**
View to north, ore bin at center, ore concentrator at right, mill at left background

In 1951, Bayhorse Mines, Inc. assumed possession of the Pacific and operated it briefly in 1955 with an 85-ton/day gravity and flotation mill to process ore (ibid.). Production data is not known. The Bunker Hill Company leased the James McGregor Group, including the Pacific, in 1957-58 for exploration, but failed to prove additional sulfide reserves (Chambers, 1966). In 1959, Umont Mining, Inc. entered into lease and option agreements and conducted exploration activities in 1961 and the Salmon River Sheelite Company leased the property in 1964. Later, interest in fluorite reserves prompted exploration by NL Industries in 1972-73 and Inspiration Development, Inc. in 1979-81 (Mitchell, 1999). According to the Custer County Assessor, Umont Mining, Inc. is the owner of record of these patented claims.

## 2.3 SITE OPERATIONS AND WASTE CHARACTERISTICS

The Bayhorse anticline is “one of the largest and longest anticlines in this part of Idaho” (Ross, 1937, p.75). The northern portion of the anticline encompasses the Bayhorse district and includes the Ramshorn Slate (Ordovician), the Bayhorse Dolomite (lower Ordovician-Cambrian) and the Garden Creek Phyllite (Cambrian) formations. The Pacific was developed entirely within the Bayhorse Dolomite (Chambers, 1966). The ore deposits in the Bayhorse district appear as elongated lenses or ovoid pipe-like bodies, occurring as veinlets, disseminations, breccia fillings, and massive or discontinuous replacements (Worl, et al, 1989). Chambers described Pacific’s ore as “breccia-filling deposit traversed by veinlets that have followed small strike-slip faults which

the ore has spread out to fill portions of the breccia zone" (1966, pp.125-26). However, Umpleby (1913, p.39) and Ross (1937, p. 102) suggest the Pacific's ore is best described as a replacement deposit.

The mineral deposits of the Pacific consist chiefly of lead and silver with lesser zinc values. The principal ore mineral is argentiferous galena which occurs in tabular bunches "varying in size from that of a baseball to a mass 10 to 15 feet across" (Upmleby, 1913, p.60). Zinc minerals appear more oxidized than the lead minerals and smithsonite and calamine (cadmium) are more abundant than sphalerite (Chambers, 1966). Shannon (1926) noted calamine crystals in vugs in the Pacific. Quartz, calcite and siderite are the chief gangue minerals with fluorite subordinate and tetrahedrite, sphalerite, pyrite and chalcopyrite quantities are limited (Chambers, 1966).

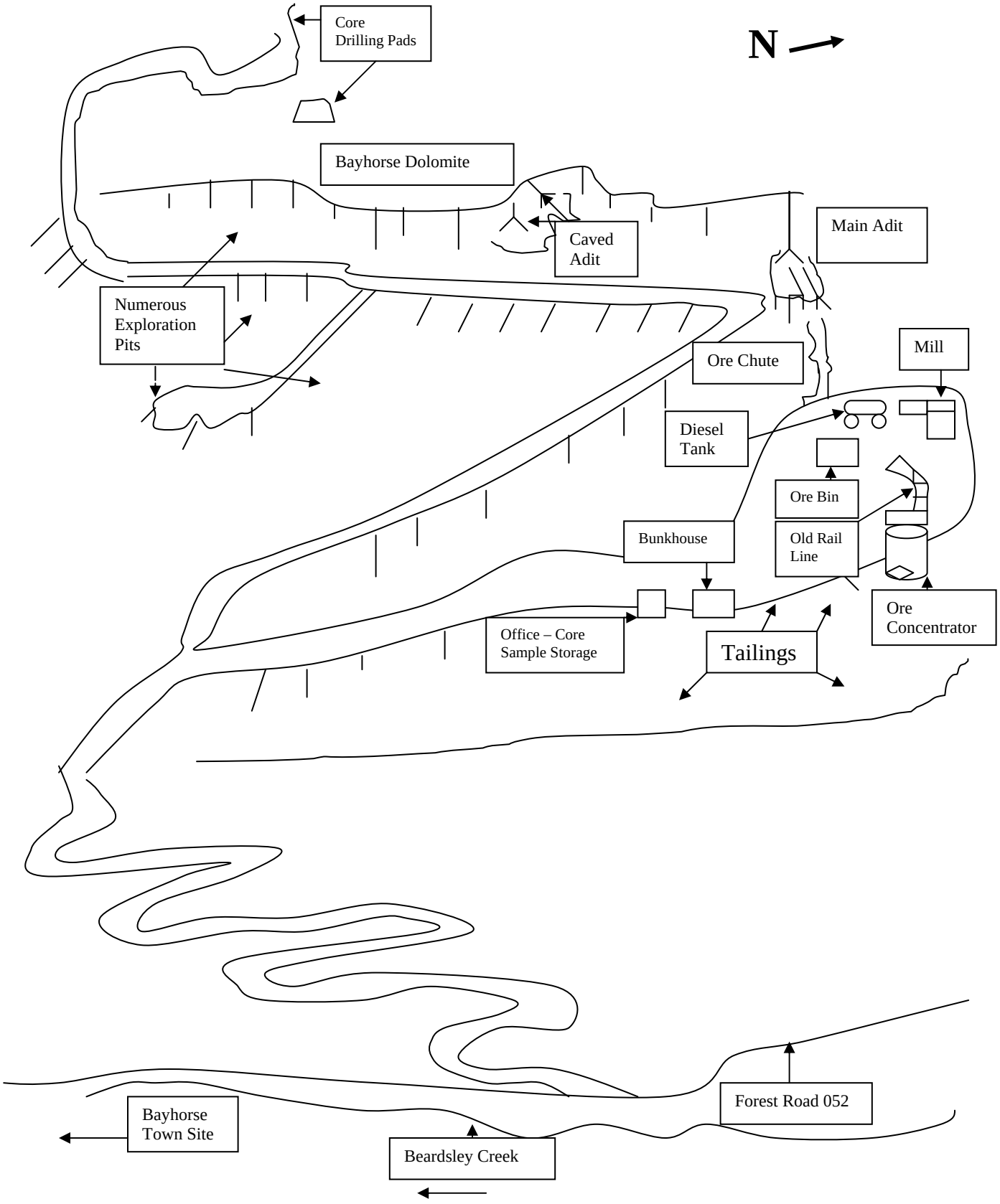
Historical production records are lacking, but Umpleby (1913) estimated that the production prior to 1911 accounted for $65,000. Chambers (1966) suggested that production since 1911 probably equaled that amount.

## 2.4 DEQ ACTIONS

DEQ conducted a site visit on July 8, 2003. The owner of the property, Umont Mining Co., was not present during the site visit. The site was not fenced and easily accessible from Forest Road 038, branching from Forest Road 052 approximately 0.75 miles north from the Bayhorse Creek Road. Site features include the mill, maintenance shop, ore bin and concentrator that are rapidly falling into ruin. A second bunkhouse and the office, which contains thousands of feet of core samples, appear to have been constructed within the past 25 years and remain in fair condition.

**Photo 3**
Office building, rooms contain hundreds of boxes of rock cores (circa 1979-81)

**SITE MAP**
**Figure 2-2**



## 3. MIGRATION/EXPOSURE PATHWAYS AND TARGETS

The following sections describe migration/exposure pathways and potential targets within the site's range of influence (Figures 3-1 and 3-2). Receptors in the area have been identified as seasonal miners and recreationists including occasional tourists, hikers, campers, hunters and snowmobilers. The Rock Works employs three miners to excavated slate from rock outcrops on the upper level of the Ramshorn Mine. Based upon the site's elevation and climate, it is likely that Mr. Hansen's operations are limited to June through October timeframes. The Rock Works' operation lies approximately 2.5 miles west from the Pacific.

### 3.1 GROUND WATER MIGRATION PATHWAY

The Pacific ore body is located high on the eastern end of the Bayhorse anticline and is confined by an upper slate formation and interbedded slate member (Chambers, 1966). The country rock is calcareous or dolomitic and contains various amounts of sand or silt. The impervious shale zones now metamorphosed as slates, "trapped ascending ore-forming solutions in the underlying carbonate strata" (Worl, et al, 1989, p.62). Post-mineral silicification cemented the brecciated ore zones, thus limiting subsequent solution movement.

Structurally, shear zones, steep faults and brecciated zones controlled these ore-forming solutions. The Pacific contains a downfaulted ore zone that is controlled by the Swigert fault. Chambers identified the fault's influence: "The vertical displacement on opposite sides of the fault plane is 80 feet, but beyond the area influenced by drag folding, the actual displacement is 130 feet (1966, p. 127).

In the absence of groundwater monitoring wells in the area, ground water is assumed to exist within fractures and joints in the bedrock and within the unconsolidated deposits. In the arid and the semiarid parts of the Basin and Range, which includes the Pacific, most precipitation replenishes soil moisture, evaporates, or is transpired by vegetation. Little is left to maintain streamflow or to recharge aquifers (Whitehead, 1994).

No precipitation data is available for the Pacific. Therefore, precipitation data, maintained from 1931 through 1996, was used from Challis located seven miles northeast and at an elevation of 5,288 feet amsl. The mean annual precipitation is 7.40 inches, and the 100-year, 24-hour event is 1.85 inches (WRCC, 2003).

There are three (3) drinking water wells located within the 4-mile Target Distance Limit (TDL).

| Distance from Site (miles) | Direction | Water Table Depth (feet) |
|---|---|---|
| 3.0 | southeast | 4 |
| 3.2 | southeast | 12 |
| 3.5 | southeast | 10 |

## 3.2 AIR MIGRATION PATHWAY

There are not any permanent residences within the 4-mile TDL.

The site is comprised of mixed coniferous species (i.e., pine, fir) and established brush, talus material assumed to be Bayhorse dolomite, and unconsolidated, medium-grained tailings. The tailings below the mill and ore concentrator areas are at least partially covered with vegetation and "armored" with dolomite talus. The likelihood of aerial dispersal from the former tailing piles appears remote.

## 3.3 SOIL EXPOSURE PATHWAY

The Pacific is accessible from Forest Road 052 (Old Challis Wagon Road), though its location is partially obscured by vegetation. The road climbs steeply up the canyon while vegetation increases with elevation. Conifer trees and dense brush were abundant at the mine site. Owing to steep terrain, limited access and an inability to view the workings or structures from the Forest Road, public access to the site would be substantially minimized. There are no workers or residences within 200 feet from the site. No schools or day-care facilities are located within 200 feet from the site.

## 3.4 SURFACE WATER MIRGRATION PATHWAY

DEQ did not identify any surface water expressions on or near the mine site. The nearest surface water is located approximately 1200 vertical feet downslope to the east. It is identified as Beardsley Gulch, an intermittent stream that courses south through the townsite of Bayhorse into Bayhorse Creek. At the time of the site visit, DEQ approximated its flow within Beardsley Gulch at 200 gallons per minute. The stream is partially obscured when it flows under dolomite and/or slate talus, but emerges at times to support aspen trees and grasses. Cattle were observed grazing through these areas.

Commercial and subsistence fishing are not conducted within the surface water Target Distance Limit (TDL). Sport fishing occurs within beaver ponds along Bayhorse Creek and down stream on the Salmon River. Fish catch data, however, could not be determined.

Known to populate the Salmon River, the bull trout (*Salvelinus confluentus*) are listed as a threatened species, while sockeye (*Oncorhynchus (=Salmo) nerka*) and chinook salmon (*Oncorhynchus (=Salmo) tshawytscha*) are listed as both threatened and endangered species (NWS, 2002).

The gray Wolf (*canis lupus)* is listed as a threatened species and known to populate 98 percent of the area within a 4-mile radius of the mine. The North American Wolverine (*Gulo gulo luscus*) is listed as a watch specie and known to populate the area 2.75 miles west from the mine (ibid.). Botanical species of concern include the Wavy-Leaf Thelypody (*Thelypodium repandum*), located at 2.8 and 3.3 miles east, 2.39, 2.57 and 3.39 miles southeast, and the Challis Milkvetch (*Astragalus amblytropis*), located at 2.8 miles east from the mine (IDF&G, 2003).

Bayhorse Creek and the Salmon River are located within the site's TDL. Approximately two miles downstream from the confluence of Beardsley Gulch and Bayhorse Creek, numerous beaver ponds were identified. DEQ estimated the wetlands associated with the ponds encompass

4.5 acres. Despite direct observation of numerous beaver dams along Bayhorse Creek, beaver population could not be verified.

Surface water is primarily used for watering of livestock and field irrigation. Elk, deer and raptors were noted by direct observation and wolves were audible during the evening hours.

There are no drinking water intakes within the TDL. The surface water pathway (Beardsley Gulch) traverses southward and merges with Bayhorse Creek at 1.26 miles, and several unnamed creeks before Bayhorse Creek merges with the Salmon River at 4.6 miles. Traversing north-northeast, the Salmon River continues within the TDL where it is enjoined by Wood Creek at 6.6 miles and by Birch Creek at 10.5 miles from the site.

The lower 5.5 miles of the Salmon River within the TDL has been designated by DEQ under the Total Maximum Daily Load (TMDL) program as a 303(d) listed stream. The TMDL pollutants of concern are sediment and temperature.

**FIGURE 3-1**

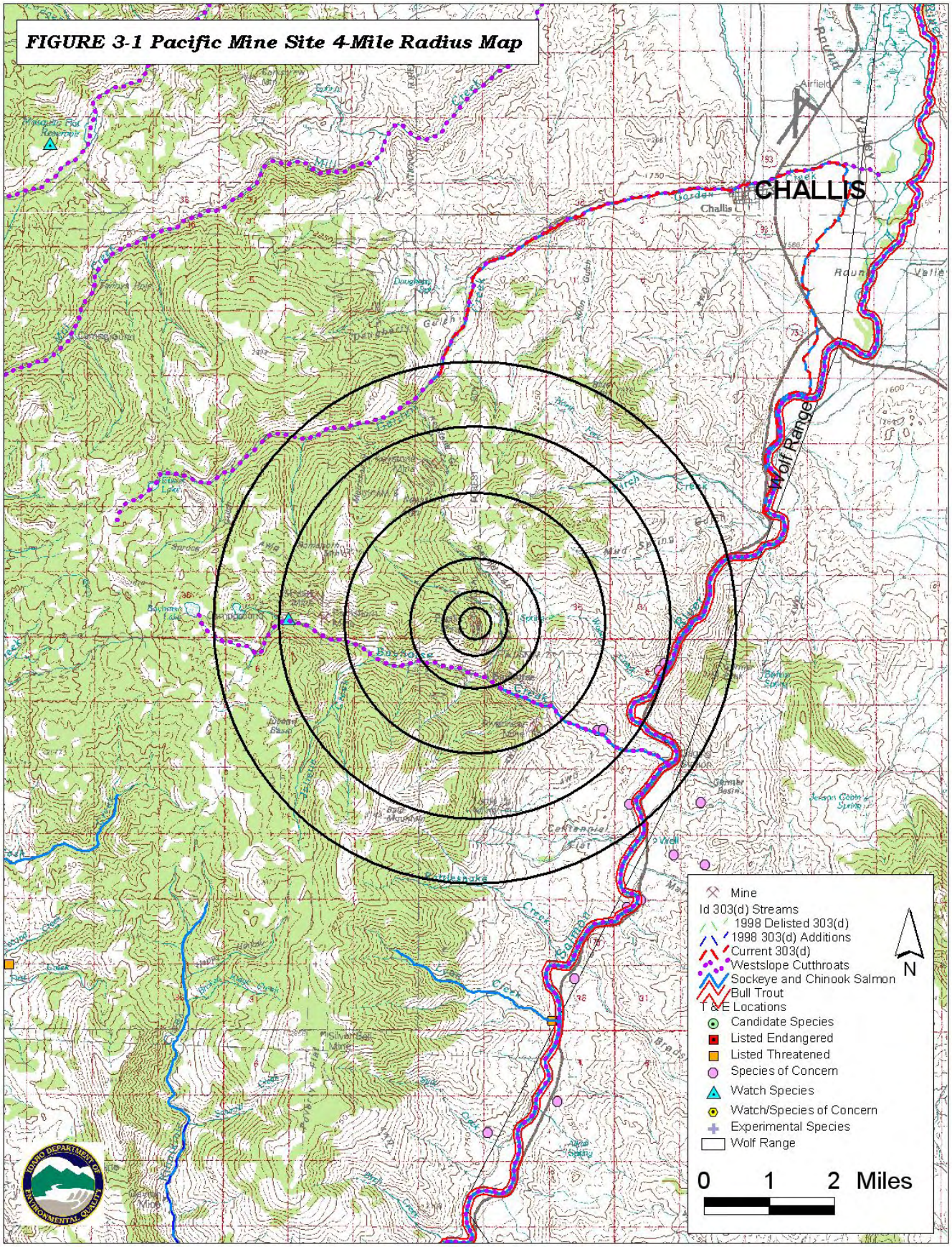


FIGURE 3-1 Pacific Mine Site 4-Mile Radius Map
CHALLIS
Wolf Range
Mine
Id 303(d) Streams
1998 Delisted 303(d)
1998 303(d) Additions
Current 303(d)
Westslope Cutthroats
Sockeye and Chinook Salmon
Bull Trout
T & E Locations
Candidate Species
Listed Endangered
Listed Threatened
Species of Concern
Watch Species
Watch/Species of Concern
Experimental Species
Wolf Range
N
0 1 2 Miles

**FIGURE 3-2**

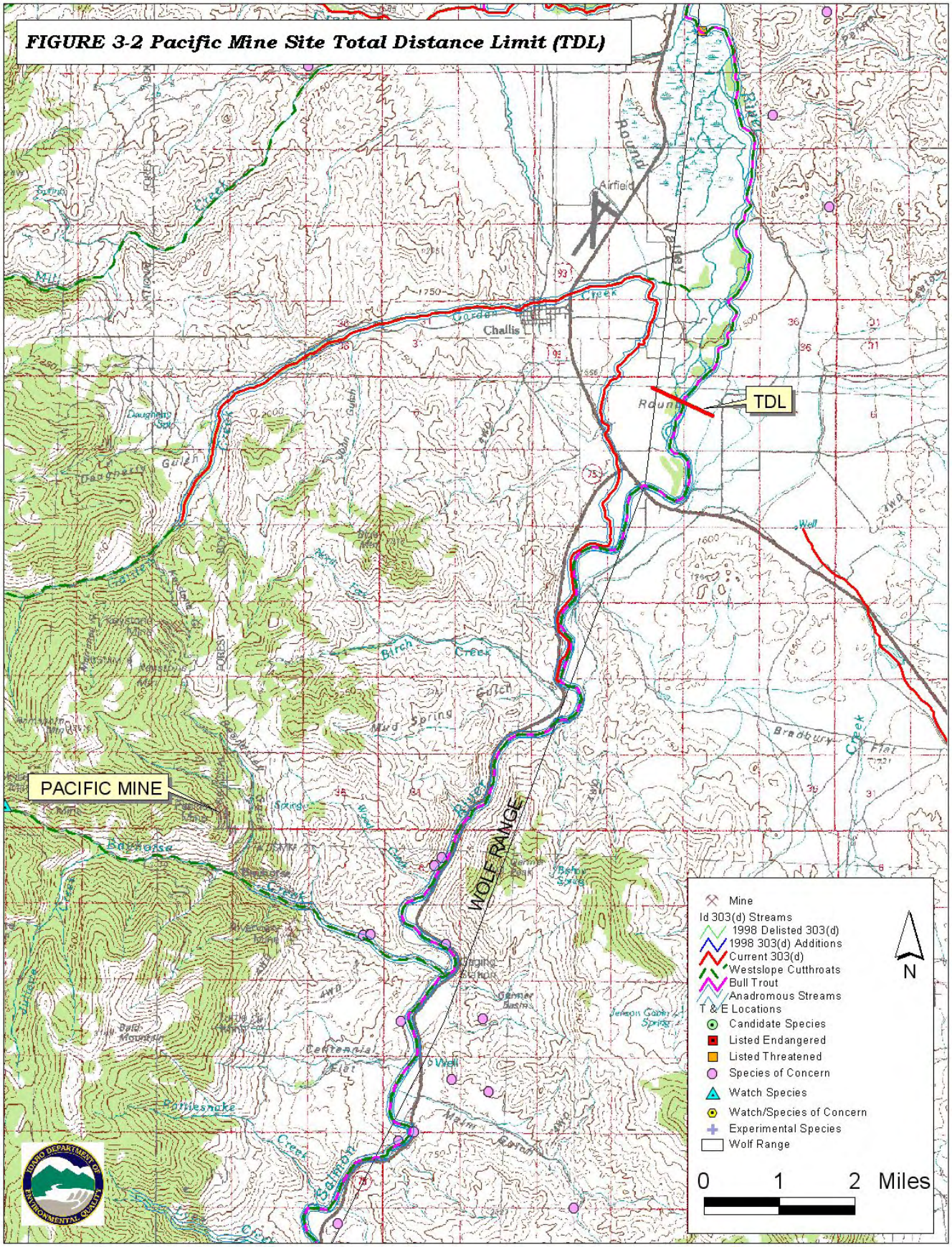


FIGURE 3-2 Pacific Mine Site Total Distance Limit (TDL)
TDL
PACIFIC MINE
WOLF RANGE
Challis
Airfield
Mine
Id 303(d) Streams
1998 Delisted 303(d)
1998 303(d) Additions
Current 303(d)
Westslope Cutthroats
Bull Trout
Anadromous Streams
T & E Locations
Candidate Species
Listed Endangered
Listed Threatened
Species of Concern
Watch Species
Watch/Species of Concern
Experimental Species
Wolf Range
N
0 1 2 Miles

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## APPENDIX A

PHOTO LOG

PACIFIC MINE AND MILL

Photo 1 View to north-northeast, ore concentrator at right, mill building and offices at left, 5,000-gallon tanker trailer (volume unknown) parked at lower left.

Photo 2 View to north, ore bin at center, ore concentrator at right, mill at left background.

Photo 3 View to north-northwest, office building, rooms contain hundreds of boxes of rock cores (circa 1979-81).

## APPENDIX B

ANALYTICAL DATA