

**SKYLARK MINE
PRELIMINARY ASSESSMENT REPORT
CUSTER COUNTY, IDAHO**

**STATE OF IDAHO
DEPARTMENT OF ENVIRONMENTAL QUALITY**

October 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

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DEPARTMENT OF ENVIRONMENTAL QUALITY
BOISE REGIONAL OFFICE

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D.E.Q. STATE WASTE
MANAGEMENT & REMEDIATION DIVISION

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 Skylark Mine site in August, 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



19887

SOWRP
TO: BARBARA BACHMAN/UMONT

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LIST OF ACRONYMS

<u>Acronym</u>	<u>Definition</u>
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 Skylark 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 Skylark Mine 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: Skylark Mine

CERCLIS ID No.:

Location: Custer County, Idaho

Latitude: 44° 24' 53"N

Longitude: 114° 21' 48"W

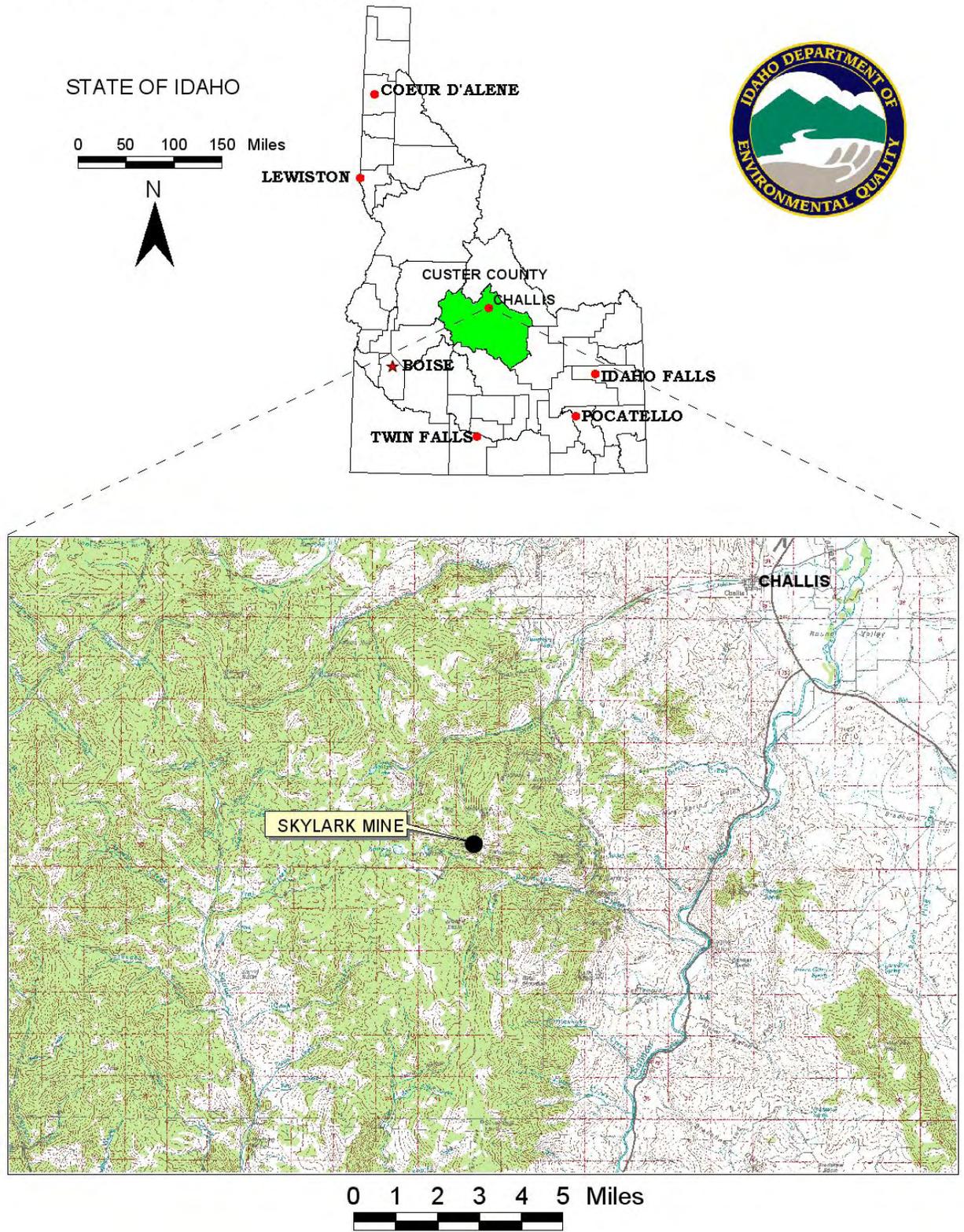
Legal Description: Section 32, Township 13N, Range 18E, Boise Meridian

Congressional District: Idaho

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

Site Contact: Kirk Hansen
HC 68, Box 300
E. Fork Road
Clayton, Idaho 83447
(208) 838-2383

FIGURE 1 Site Vicinity Map of Skylark Mine



2.2 SITE DESCRIPTION/OWNERSHIP HISTORY

The Skylark Mine (Skylark) is located within the Bayhorse Mining District in Custer County, Idaho, approximately 34 miles northeast of Stanley, Idaho, 11 miles southwest of Challis, Idaho, 2.75 miles west-northwest of the former townsite of Bayhorse, Idaho and approximately 0.25 miles north of the Ramshorn Mine (Figure 2-1). The Skylark, which is comprised of two claims patented in 1881 and 1887 (Mitchell, 1999), consisted of 16 tunnels along the main Skylark vein, one of which extended 2,400 feet, three additional tunnels in the Silver Wing workings, and accounting for 25,000 feet of underground workings (Umpleby, 1913). The upper workings of the Skylark lie at an elevation of 9,450 feet above mean sea level (amsl).



Photo 1

Bunkhouse, tramway loading shed (top center)



Photo 2

View to east, bunkhouse (top 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). Ownership history of the Skylark began with its discovery in 1877 and later purchase by the Omaha Smelting and Mining Company in 1880 (Mitchell, 1999). According to Strahorn (1881, p.51), the Skylark “has a vein of from one to four feet of solid clean ore, which yields from \$150 to \$800 in silver. Its production for the year is about 400 tons, worth in the neighborhood of \$75,000.” The Ramshorn Mining Company briefly optioned the property in 1883, but failed to delineate adequate reserves. Unfortunately for the Ramshorn Mining Co., soon after its option expired, major ore bodies were discovered at the Skylark.

In 1886, the Mint credited the Skylark with a “production of 130,500 ounces of silver and 3,000 pounds of copper, valued at \$168,727” (Ross, 1937, p.123). Since most of the ore was treated at the Clayton smelter, operations ceased in 1902 when the smelter at Clayton closed. Total production through 1902 was estimated at \$2,700,00, which averaged nearly eight-percent copper and 80 ounces of silver per ton (ibid.). Between 1902 and 1912, the Skylark was operated by lessees, though production was minimal. In 1912, the Skylark was acquired by the Idaho Mining and Smelting Company, which continued to operate the property through lessees.

In 1921, the Ramshorn Mining Company purchased the Skylark, though production records following this date are not known. In 1959, Umont Mining, Inc. entered into lease and option agreements and conducted exploration activities until 1962. In 1979, Inspiration Development Company leased the Ramshorn and adjacent Bayhorse properties from Bayhorse Minerals, Inc (?) for exploration but discontinued its option the following year when additional ore reserves were not identified (Mitchell, 1999). According to the Custer County Assessor, Umont Mining 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 ore deposits in the Bayhorse district are elongated lenses or ovoid pipe-like bodies, occurring as veinlets, disseminations, breccia fillings, and massive or discontinuous replacements (Worl, et al, 1989).

The Skylark was developed entirely within the Ramshorn Slate and the vein “running nearly parallel with the Ramshorn but having a flatter dip, is the same type of a mine with exactly the same class of ore and gangue “ (Bell, 1903, p.51). Ross (1937) identified the Skylark vein as the primary, and the upper and lower Silver Wings veins as secondary ore zones. Umpleby (1913, p.61) suggests the “slates generally present a marked slaty cleavage at a high angle to the bedding, a structure locally so pronounced that the bedding planes are not discernible. The two principal deposits bear a definite relation to these structures; the Skylark vein follows the bedding and the Ramshorn the lines of slaty cleavage.” The slate appears more quartzitic and pyrite occurs more conspicuously as stringers than in the Ramshorn, and small pegmatite dikes crosscut the slate in and adjacent to the workings (Ross, 1937).

The mineral deposits of the Skylark consist chiefly of silver, lead and copper. Oxidized ores formerly comprised a large portion of the district though all appeared to have been exploited during the early years (e.g., 1880-1897). Umpleby (1913) noted that cerargyrite and copper carbonates were common in the oxidized ore and occasionally, argentite, leafy native silver, wire silver, pyrrhite and native copper were found. The principal ore mineral is tetrahedrite though galena was also mined and both are argentiferous. Other minerals include sphalerite, pyrite, arsenopyrite and chalcopyrite while siderite is the primary gangue mineral (Ross, 1937).

Umpleby (1913) estimated the Skylark’s production to be valued at \$2,700,000. The total recorded production between 1881 and 1950 “yielded 0.61 ounces of gold, 155,213 ounces of silver, 6,811 pounds of copper, and 1,873 pounds of lead” (Mitchell, 1999, p.22).

2.4 DEQ ACTIONS

DEQ conducted a site visit on August 12, 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 283 (Little Bayhorse Lake) and from a “motorcycle/ATV” trail, an extension of Forest Road 262 (Keystone Mountain). Neither the adit portals nor the buildings were posted with "Private Property" or no trespassing signage. Site features include the bunkhouse or offices, the tramway head-station and loading shed, three tunnels or “adits” (2 collapsed), at least six shallow adits or “prospects” and three distinct waste rock dumps.

Accessing a narrow “Jeep” road from Forest Road 283, DEQ proceeded northeast to the mine site. The track appeared to parallel the access road to the Upper Ramshorn adit, nearly 2,000 feet below. A collapsed adit, shed debris and a minor waste rock dump, measuring approximately 100 cubic yards, was located below the road on the west side of a gully. This adit is referred to as the “lower adit”. On the opposite side of the gully, approximately 100 feet eastward, an open adit was identified on the road level. This adit is referred to as the “middle adit”. The portal was partially protected by wire strands, appeared in good condition and snow was visible in the tunnel. A strong airflow emanated from the portal and the melting snow appears to infiltrate the soil, rather than discharge from the adit.



Photo 3

View to north, middle adit, wire barrier



Photo 4

Portal interior, open door, remnant snow

The waste rock dump measured at least 1500 cubic yards. At the time of the site visit, three off-road motorcyclists were also inspecting the property. Apparently, they had ridden from Challis, via Keystone Mountain.

Approximately 200 feet east, another collapsed adit was identified. This adit is referred to as the “upper adit”. A waste rock dump, measuring approximately 400 cubic yards, held the remains of a portal shed. The road switched back at this point, continuing uphill where three prospects were identified. Two of the prospects were collapsed while the third was open. The westernmost prospect appeared the largest with a waste rock dump measuring approximately 50 cubic yards. The road continued beyond the prospects toward Keystone Mountain. Although other prospects may be located above these prospects, DEQ did not investigate the upper reaches, further.



Photo 5

Collapsed adit at lower right, shed debris at center, prospects at upper left

Three additional prospects were identified above the upper adit. The prospects were aligned to the northeast and spaced approximately 50 feet apart. Their associated waste rock dumps were quite small.

At the base of the upper adit's waste rock dump, a trail headed eastward to the Skylark's east adit. The trail traversed a steep ravine that appeared fault-controlled. The Ramshorn's upper adit, where the Rock Works' slate excavation operations were being conducted, lay approximately 1,000 feet directly downhill.



Photo 6

View of Ramshorn Mine - upper adit



Photo 7

Close-up view of The Rock Works' operation

Beyond the ravine lay the Skylark's surviving structures: a bunkhouse and/or offices, the tram head-station and the ore loading shed. The buildings appeared to be of substantial construction and remained in fair condition. Beyond these buildings, lay a collapsed structure that appeared to be the remains of another adit as well as multiple prospects. All of the prospects appeared caved while the uppermost prospect was estimated to be at an elevation of 9,450 feet amsl.

The collapsed adit is referred to as the “east adit”. The collapse extended approximately thirty feet beyond the portal. DEQ could not estimate the volume of the waste rock dump, however, due to the steep slope gradient. Waste rock appeared strewn several hundred feet beneath this area.

The bunkhouse and tramway loading shed were constructed on outcrops of Ramshorn Slate and were buttressed by pilings. One room that appears to have been the kitchen is still equipped with a wood-cooking stove.



Photo 8

Close-up of bunkhouse, kitchen on lower level at right

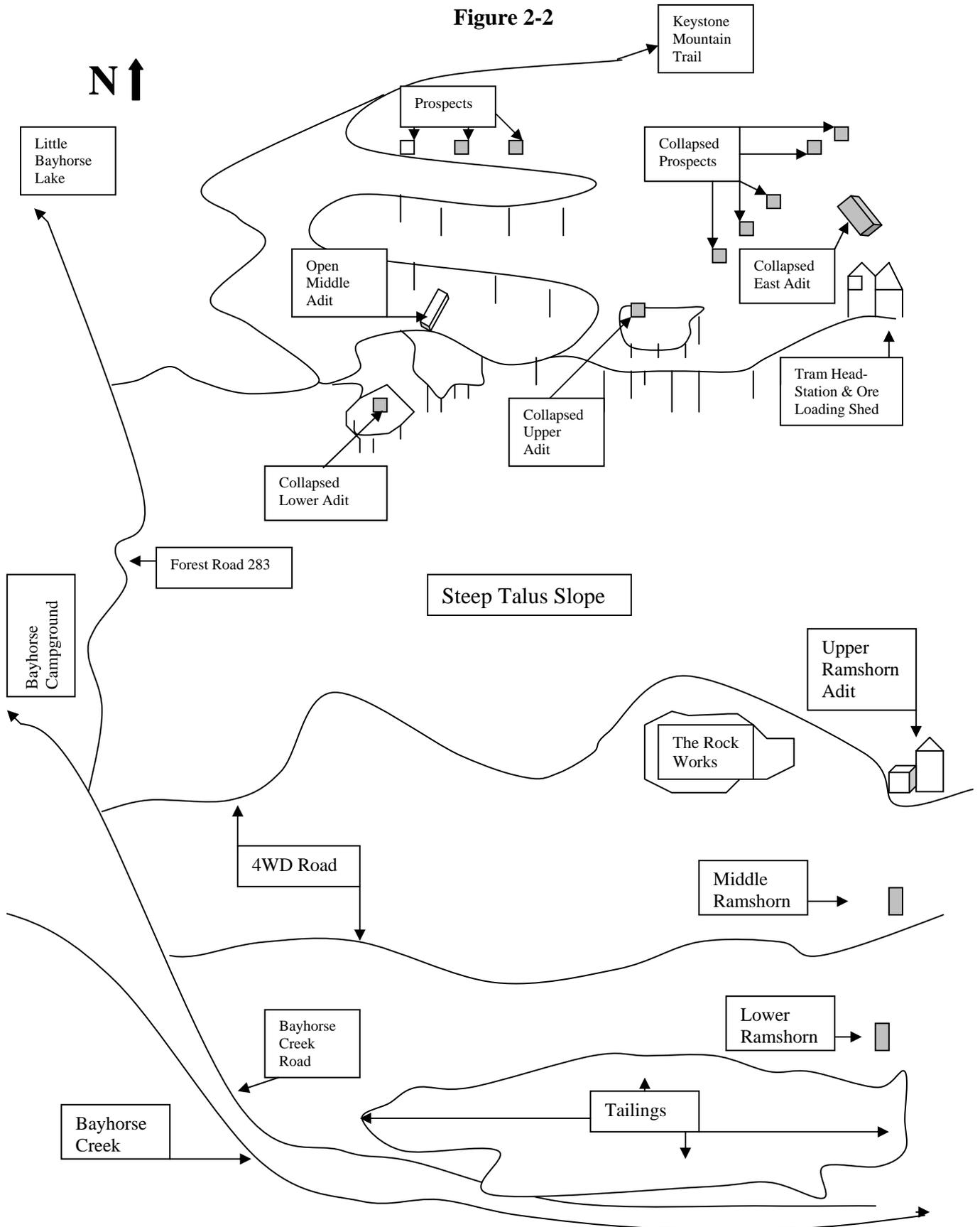
The tram head-station and ore loading shed are located adjacent to the bunkhouse. The tramway, which also connects to the Ramshorn Mine, terminates at the Skylark. The head-station’s gears were visible, though most of the rigging appeared in poor condition.



Photo 9

View to southwest, tram head-station (lower level), ore sorting and loading areas (upper level), tramway cable supports at lower left

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 recreationists including occasional tourists, hikers, campers, hunters, motorcyclists and snowmobilers. There are not any permanent residents living within four miles of the Skylark.

3.1 GROUND WATER MIGRATION PATHWAY

The Skylark lies within slates that form the western limb of the Bayhorse anticline and are confined by upper quartzite and lower dolomite formations. The country rock is fine grained though often quartzitic, the slaty cleavage is well developed and the ore bodies follow fissures which parallel the bedding planes, nearly obliterating the bedding planes (Umpleby, 1913). The Skylark has extensive underground workings (approximately 4.7 miles) on several levels, though most are completely caved. The property is bisected by an east-west trending fault that displaces the Skylark vein by approximately 50 feet on the north side (ibid.).

Umpleby identified contact metamorphism associated with a granite mass “about a mile across” and located “About 600 feet west of the Skylark mine” (1913, p.62). Due to the extent of metamorphism as well as structure within the Ramshorn slate formation, primary porosity is expected to be very low with groundwater flow controlled by fractures, joints, faults and slaty cleavage surfaces related to folding. 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 Skylark, 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 Skylark. 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 is one drinking water well located within the 4-mile Target Distance Limit (TDL). The USFS installed a very shallow well (e.g., 11 feet bgs) at Bayhorse Campground, approximately 1.65 miles from the mine (IDWR, 2003). However, according to USFS personnel, this well was not operational at the time of DEQ's previous site visit (verbal communication, July 7, 2003).

3.2 AIR MIGRATION PATHWAY

Mr. Kirk Hansen operates a slate mining operation, The Rock Works, at the upper level of the Ramshorn Mine. The Rock Works excavates slate from outcrops located adjacent to the Ramshorn's upper adit. The operation employs three workers, including Mr. Hansen, and lies approximately 0.40 miles from the Skylark. The Bayhorse campground, which lies approximately 1.65 miles west from Skylark adjacent to Bayhorse Lake, includes seven

campsites, though unimproved campsites are available, also. At the time of DEQ's site visit, approximately 25 vacationers were staying at the campground.

The site is comprised of unconsolidated talus material generated from mining activity and normal weathering of the friable host rock. Waste rock dumps appear hardened, though the steep gradient of the slope causes sliding. The likelihood of aerial dispersal from the former waste rock dumps, therefore, appears remote.

3.3 SOIL EXPOSURE PATHWAY

The Skylark is accessible from the adjacent Little Bayhorse Lake Road, via a jeep trail, and from a motorcycle/ATV trail via Keystone Mountain. Though the Skylark's buildings are visible from the Bayhorse Creek Road, nearly 3,000 feet below the site, the steep canyon terrain could discourage access. However, at the time of the site visit, three off-road motorcyclists were touring the property. Apparently, they had ridden from Challis, via Keystone Mountain.

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.

Numerous waste rock dumps, an open adit (middle adit), an open prospect and ore handling areas (tram head-station and ore loading shed) present sites of exploration by the occasional tourist. However, as no milling operations were conducted at the Skylark, the absence of mill tailings appears to lessen the likelihood of soil exposure.

3.4 SURFACE WATER MIGRATION PATHWAY

Soil survey data was compiled by the USGS for the site is unavailable, but direct observation indicates medium to fine-grained silty-sand exists in shallow horizons across the slopes. The slopes are otherwise covered with slate rock talus. Based upon direct observation of snowmelt within the middle adit and the absence of adit drainage, a moderate to high infiltration rate is expected.

Bayhorse Creek is a V-shaped, steep gradient stream littered with boulders in its upper reaches, while its lower reaches traverse grazing and agricultural fields and feature beaver dammed ponds. Though direct observation failed to identify a beaver population, the ponds appeared fresh and encompassed approximately 2.5 acres.

Commercial and subsistence fishing are not conducted within the surface water Target Distance Limit (TDL). Sport fishing occurs on 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, 2003).

The gray Wolf (*canis lupus*) is listed as a threatened species and known to populate 100 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 0.5 miles west from the Skylark (ibid.).

Bayhorse Creek and the Salmon River are located within the site's TDL. There are no drinking water intakes within the TDL.

The Skylark lies near the head of an unnamed intermittent stream, which appears to be the source of the surface water pathway. This stream flows south until its merger with Bayhorse Creek at approximately 0.5 miles. Flowing east-southeast, Bayhorse Creek is enjoined by Juliette Creek at 1.5 miles, by Beardsley Gulch 3.25 miles, and several unnamed creeks before Bayhorse Creek merges with the Salmon River at 6.6 miles. Traversing north-northeast, the Salmon River continues within the TDL where it is enjoined by Wood Creek at 8.6 miles and by Birch Creek at 12.6 miles from the site before passing beyond the TDL.

The lower 2.75 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.

The moderate to high infiltration rate of precipitation suggests insignificant overland flow across the site, except during periodic summer thunderstorm activity. The absence of mill tailings and the “armoring” of the waste rock dumps infer that the likelihood of surface water exposure appears minor.

FIGURE 3-1 Skylark Mine Site 4-Mile Radius Map

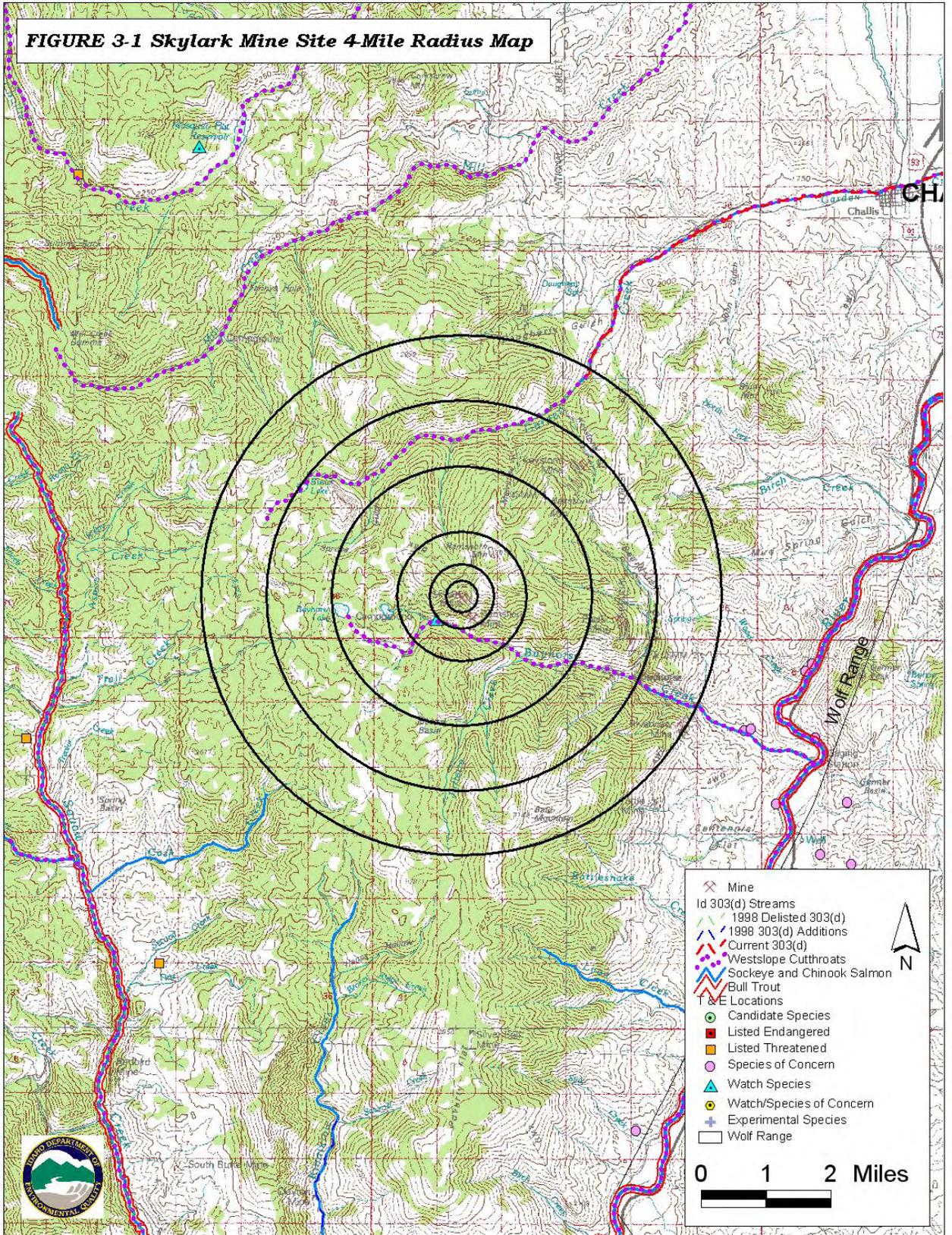
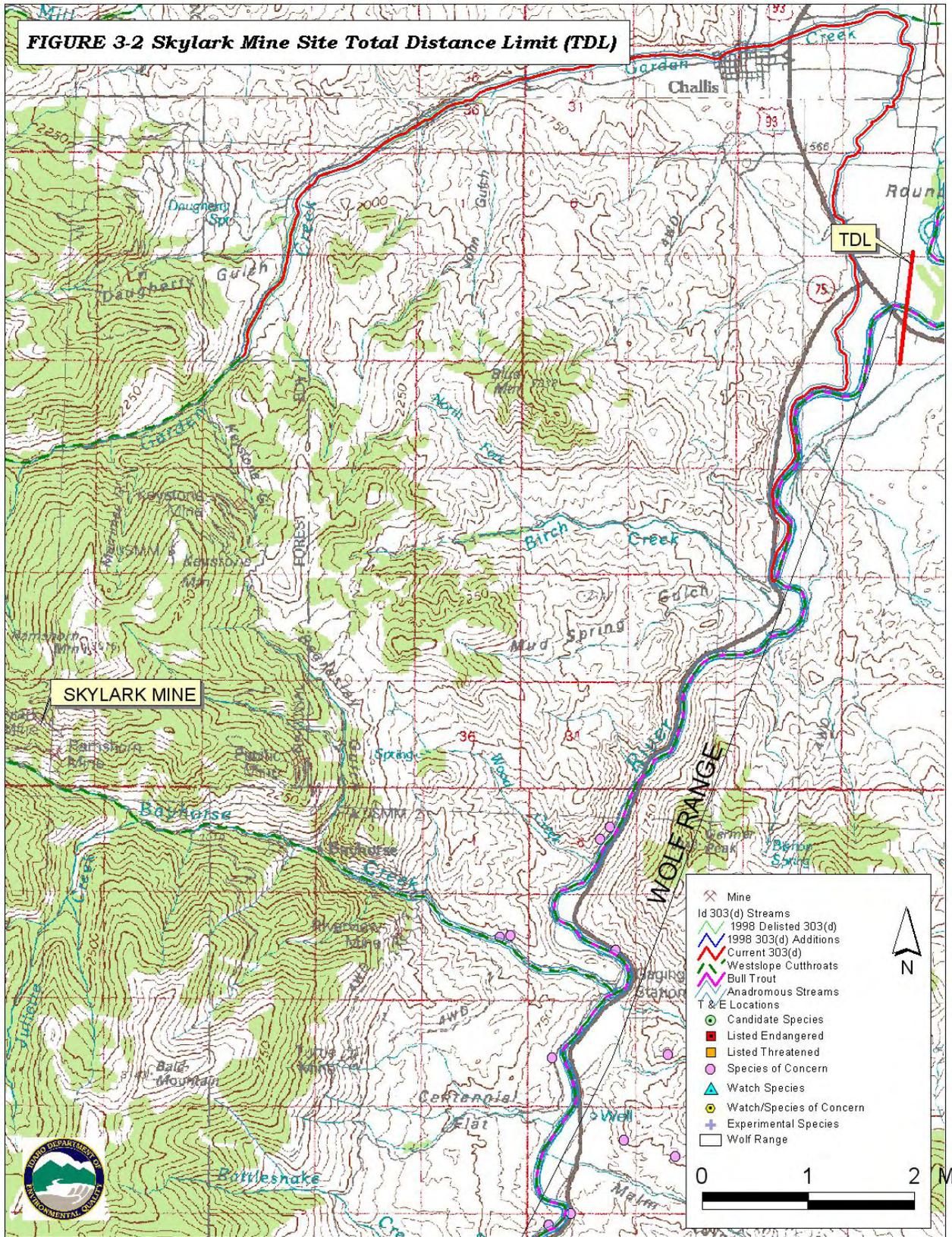


FIGURE 3-2 Skylark Mine Site Total Distance Limit (TDL)



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APPENDIX A

PHOTO LOG

SKYLARK MINE

- Photo 1 View to north uphill from Ramshorn Mine, bunkhouse, tram head-station and loading shed (top center).
- Photo 2 View to east, Skylark structures (top left). Note: steep slope.
- Photo 3 View to north, middle adit portal, wire barrier.
- Photo 4 View to north, portal interior, open door to tunnel, remnant snow (center).
- Photo 5 View to northwest from upper adit's waste rock dump, shed debris (foreground), collapsed adit (lower left), prospects and minor waste rock dumps (upper left near trees).
- Photo 6 View to south, from middle adit's waste rock dump, upper adit of Ramshorn Mine.
- Photo 7 View to south, close-up of The Rock Works' slate excavation operation.
- Photo 8 View to east-southeast, close-up of bunkhouse, kitchen on lower level.
- Photo 9 View to southwest, tram head-station (lower level), ore sorting and loading shed (upper level), tramway cable supports (lower left), collapsed adit debris (right foreground).