

LINCOLN MINE
PRELIMINARY ASSESSMENT REPORT
GEM 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

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

February 27, 2004

Reply To
Attn Of: ECL-115

Western Centennials Inc.
P.O. Box 2183
Grand Junction, CO 81502

To whom it may concern:

The Idaho Department of Environmental Quality (DEQ) has completed a report summarizing the findings of a visit conducted at the Lincoln Mine site in June, 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

<u>Acronym</u>	<u>Definition</u>
amsl	above mean sea level
ATV	All Terrain Vehicle
BLM	United States Bureau of Land Management
DEQ	Department of Environmental Quality
EPA	United States Environmental Protection Agency
gpm	gallons per minute
PPE	Probable Point of Entry
TDL	Target Distance Limit
TMDL	Total Maximum Daily Limit
303 (d)	Section of the Clean Water Act in Idaho

1. INTRODUCTION

The Idaho 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 Lincoln Mine site located near Pearl, Idaho in Gem County. DEQ completed PA activities in accordance with the goals listed below.

The specific goals for the Lincoln Mine PA, identified by 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.

Completion of 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 as Appendix A and sample lab results are included in Appendix B.

2. SITE BACKGROUND

2.1 SITE LOCATION

Site Name:	Lincoln Mine
CERCLIS ID No.:	NA
Location:	Gem County, Idaho
Latitude:	43 50 47N
Longitude:	116 20 13W
Legal Description:	Section 21, Township 6N, Range 1E, Boise Meridian
Congressional District:	Idaho
Site Owner:	Western Centennials Inc. P. O. Box 2183 Grand Junction, CO 81502
Site Contact:	Western Centennials Inc. P. O. Box 2183 Grand Junction, CO 81502

2.2 SITE DESCRIPTION/OWNERSHIP HISTORY

The Lincoln Mine exists on private property approximately 1 mile southwest of the Pearl townsite in Gem County, Idaho and is situated near the southwest end of a gold belt that stretches from Pearl, Idaho to Horseshoe Bend, Idaho in Gem and Boise Counties (Figure 2-1). The mine is located in the headwaters of a small tributary to North Fork Willow Creek at an elevation of approximately 2,920 feet amsl. The mine can be accessed by walking south from Pearl Road 1 mile downstream of the Pearl townsite. Lincoln Mine was developed to access a gold-bearing lode in the granitic country-rock that developed from gold-bearing ore solutions filling fissures caused by recurring movements along zones of weakness during and after dike intrusions.

Mineralized fissures in the Pearl Mining District can be deep, complex, and long. Since the lodes were formed under moderate conditions at perhaps thousands of feet below the surface, the lodes may be quite extensive (Anderson, 1934). The lodes are generally composed of closely spaced parallel slippage planes with broken or fractured rock between them or along their border. Some fissures have been mined over 1000 feet in length, and been measured up to 30 feet wide, although they average 8 to 10 feet (Anderson, 1934). Throughout the district, lodes generally strike northwest and dip in a northerly direction.

Anderson (1934), noted that the Lincoln lode is the longest in the district. He also described it as being near the southern margin of the dike zone and lying in the batholith in the footwall of a small dacite porphyry body. A large granite porphyry dike exists several hundred feet to the south. The northwest striking and north dipping lode ranges from 1 foot thick to 30 feet thick, but averages between 3 feet and 4 feet thick (Anderson, 1934). The lode shows "remarkably persistent mineralization" along the strike with ore matter extending as much as 1,600 feet (Bell, 1907).

The property includes five patented claims and consists of over 8,000 feet of underground workings (Anderson, 1934). The original development in 1897 consisted of a 200-foot long crosscut with some drifting on the vein. Federal land patent records indicate that the Lincoln Mining Company obtained title to 61 acres of the Lookout Lode in June 1904. Alexander Lewis obtained 20 acres of the North Lincoln Lode in October 1931.

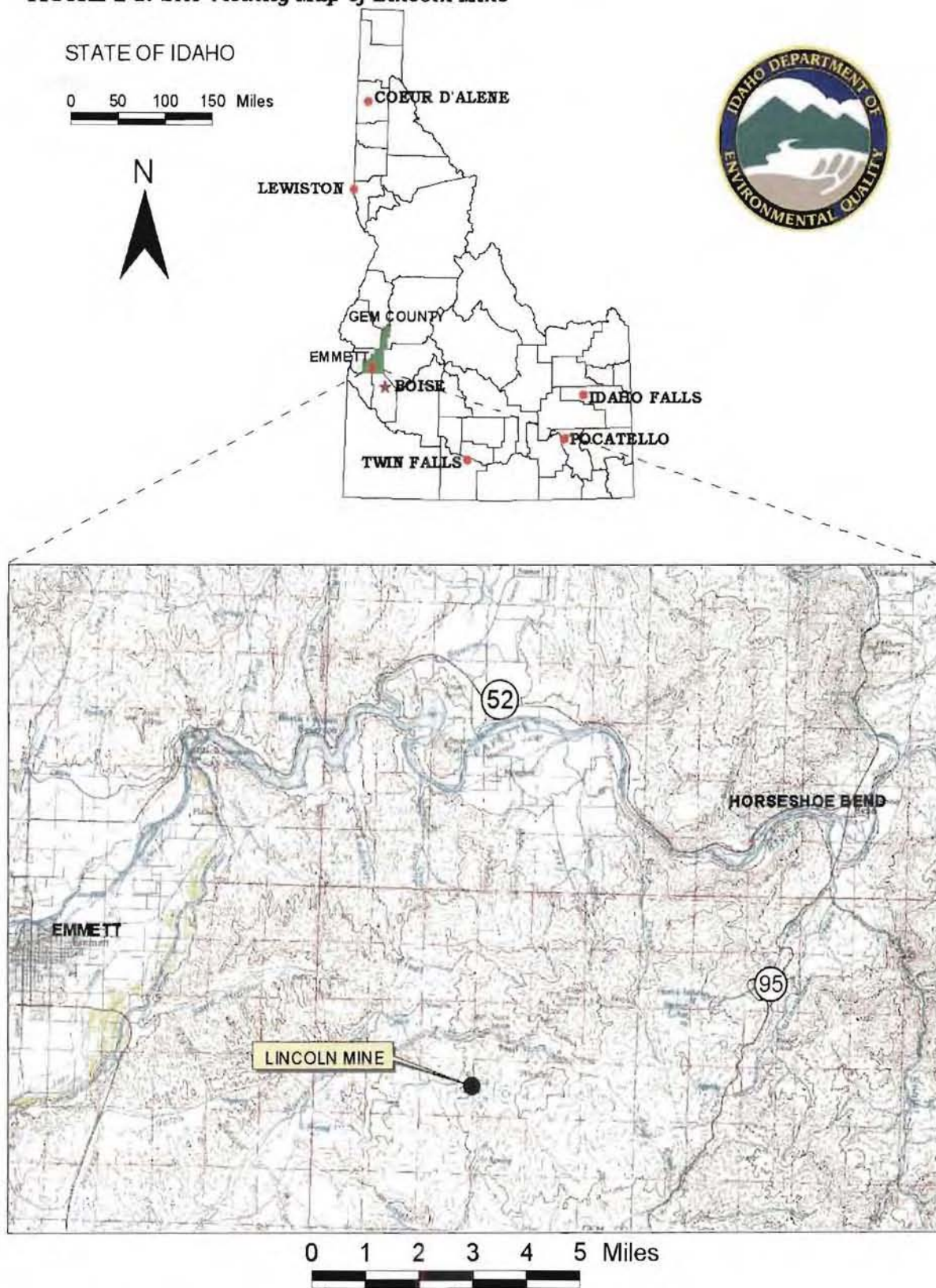
By 1907, an inclined shaft of 300 feet had been sunk and abandoned (Bell, 1907), and a 430-foot deep vertical shaft had been dug. The shaft was deepened to 540 feet by 1919 (Bell, 1919). In 1926, Lincoln Mine Operating Company acquired the mine (Campbell, 1926), reworked some of the earlier mined ore, and did some exploratory work on the intermediate levels after de-watering and repairing the shaft. In 1932, the property was acquired by Ojus Mining Company (Campbell, 1933) who subsequently sank a new inclined shaft, and conducted exploratory work that included searching out ore missed by earlier operations.

Peak mining activity occurred between 1900 and 1907, and during that time the Lincoln Mine was one of the Pearl mining district's largest and most successful operations, employing up to 60 men. Ore resource values were estimated to be more than \$1 million in gross value (1907 gold prices) (Bell, 1907). During that time, the minerals were extracted by free milling oxidized ores. When depths reached 400-500 feet and oxide ores were replaced by primary material, the mill could not handle the material; and the mine temporarily shut down.

According to Vincent (1989), in 1933, the owners took the property back and it laid idle until the Sunshine Mining Company optioned the Lincoln Mine in 1980 to do some exploratory work. Their work indicated that economic potential did not meet current corporate objectives.

Western Centennials Inc. acquired the property from the Sunshine Mining Company in 1987. According to the Gem County Tax Assessor's Office, Western Centennials Inc. is the owner of record of the patented claims encompassing the Lincoln Mine.

FIGURE 2-1. Site Vicinity Map of Lincoln Mine



2.3 SITE OPERATIONS AND WASTE CHARACTERISTICS

The mine deposits of the Pearl-Horseshoe Bend gold belt consist predominantly of sulfides. Arsenopyrite and pyrite are the main constituents; however, sphalerite and galena, as well as traces of chalcopyrite and tetrahedrite are also present (Anderson, 1934). The ore at Lincoln Mine was reported to be rich in iron-pyrite and arsenopyrite, with minor amounts of lead and zinc.

The ore was originally extracted by a 300-foot deep inclined shaft and another shallow shaft 200 feet to the east; however, most production came from a vertical shaft that eventually reached 540 feet deep, with most of the work occurring at the 300 and 400-foot levels.

Despite being the largest and most productive mine of the Pearl District, with total production estimated at approximately \$1 million, Bell (1907) was critical of the Lincoln Mine, describing its operations as suffering from “lack of capital, gouging, and poor management from its inception.” He also suggested that if mining drifts had been run in the footwall granite rather than the talcy porphyritic and granitic vein matter, they would not close in, allowing for more effective stoping.

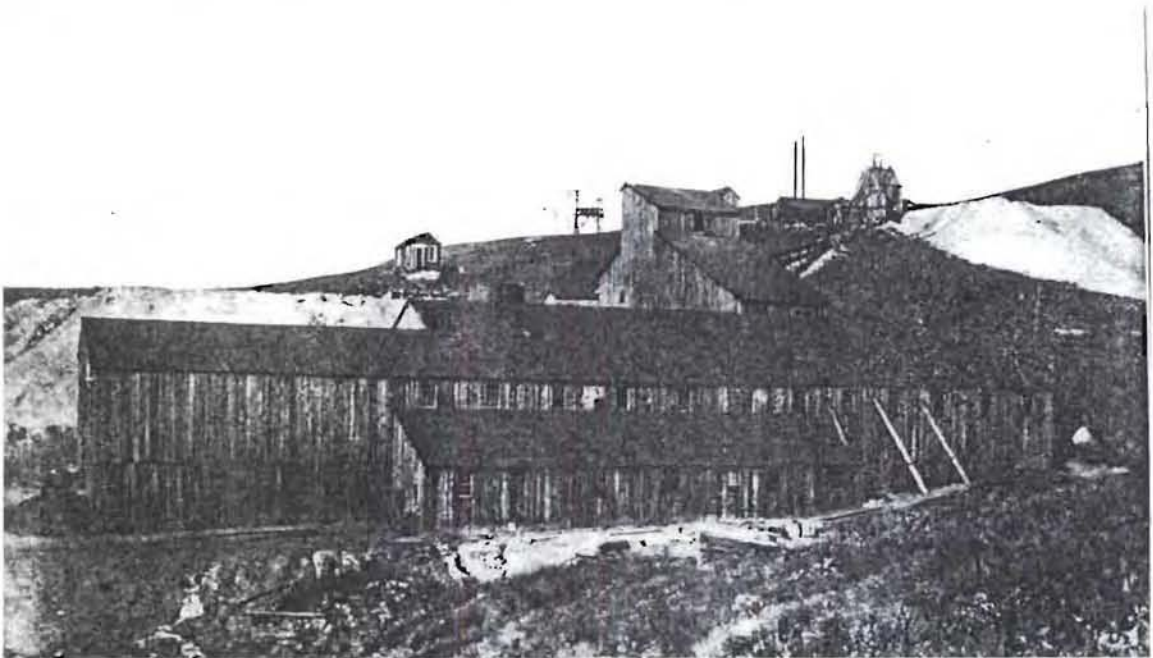
A milling plant and flotation concentrator of 100 tons per day capacity was located at the Lincoln Mine (Bell, 1919). Mined ore was amalgamated and the concentrates shipped by wagon to Emmett, Idaho then by rail to Salt Lake City, Utah for smelting. On-site ore processing with cyanide was attempted in an effort to save shipping costs; however, only 40% were recovered so the operators reverted back to previous methods.

A picture of the Lincoln Mine, dated 1900 (Wells, 1983), illustrates the historic operations at the Lincoln Mine. In addition to the mine framework and mill site, a loading dock (for preparing loads of ore for smelting), access roads, and other smaller structures were present.



Lincoln Mine, circa 1900 (Reprinted from Wells, 1983)

Another historic photo (below) of the Lincoln Mine from 1907 (Bell, 1907) shows the expanded mill site and waste dumps.



Lincoln Mine, circa 1907 (Reprinted from Bell, 1907)

2.4 DEQ ACTIONS

DEQ conducted a site visit on June 26, 2003, which included a visual inspection of the property and collection of two soil samples and one surface water sample. The site itself is not fenced, although access is limited due to barbed wire fences on property boundaries near the North Fork of Willow Creek. The mine can be reached by walking south 3000 feet from Pearl Road approximately one mile downstream from the former Pearl townsite. The mine is located on private property in the second draw, past the ridge that is visible from the road.

All of the adits appear to be caved in and abandoned, and only the burned remnants of the former buildings are visible (refer to site photographs in Appendix A). The unburned frameworks have toppled. Scrap metal and other inflammable materials (most likely associated with ore flotation processes) are strewn about. Three small buckets containing a hard, chalky white substance were observed near the concrete foundation next to the mine shaft. Concrete foundations of the mill remain (refer to Photo Nos. 2, 6, 7, 8, and 9). Segments of a water pipe network (for steam-driven power tools) protrude from the ground near some of the foundations. An empty, rusted 55-gallon metal drum was observed near the former mill foundation (see Photo No. 7).

Several large waste rock piles are currently present at the Lincoln Mine site. The large waste rock piles, near the former shaft, and the tailings piles, near the former mill, are shown in Photos Nos. 1, 3, 7, 8, and 9. The mill site and foundations of smaller associated structures flank the large waste rock pile. A smaller waste rock pile exists up the draw approximately 200 feet to the east, where more mining activity occurred. The waste rock piles appear stable, and plants have begun growing at their bases and tops. Some mass wasting has occurred, and runoff from the large waste rock pile appears to have collected in a shallow depression. No runoff water was observed during the site visit. Soil Sample No. 1 was collected at the base of the large waste rock pile (refer to Figure 2-2, Site Map and Sampling Locations).

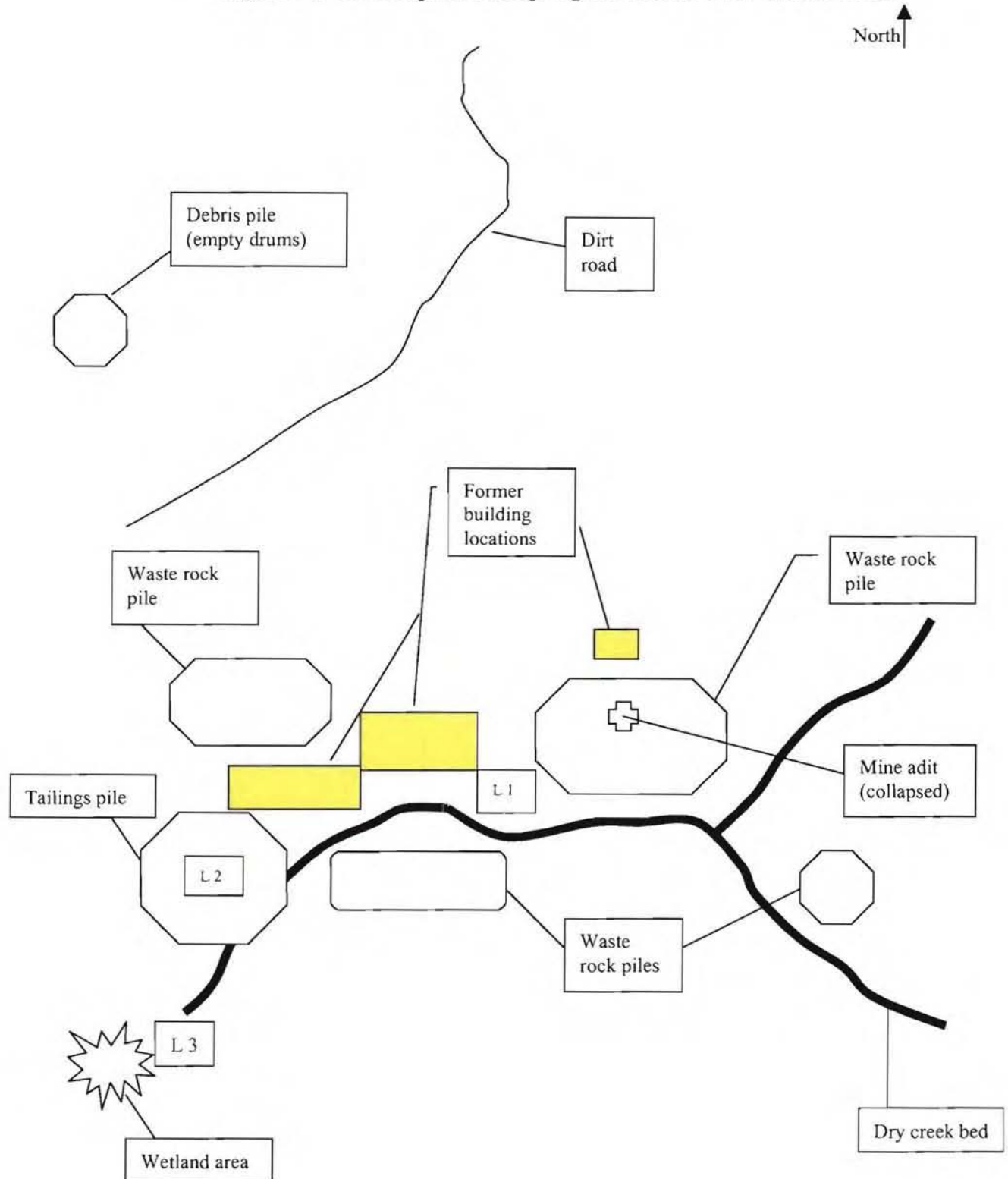
Downslope of the former mill site is a fine-grained tailings pile that has been encrusted to a depth of approximately 0.5 inches (Photo Nos. 8 and 9). The whitish to yellowish clayey material had a strong sulfur-like odor. Soil Sample No. 2 was collected at this tailings pile.

A small pile of waste debris is located approximately 200 yards north of the mill. Glass and metallic objects (typewriter, vacuum), as well as several empty 55-gallon drums were observed (refer to Photo Nos. 10 and 11). One of the 55-gallon drums had a wood preservative label indicating that it previously contained pentachlorophenol.

An ephemeral stream exists in the draw directly below the mine site, and is currently down-cutting through some of the tailings. Directly downstream of the mill is a spring which has formed a wetland area (Photo Nos. 12, 13, and 14), approximately 80 yards long. Water Sample No. 1 was collected at the upper (north) end of the wetland area.

All of the workings show evidence of many types of usage around and on them. Evidence of occasional human use includes empty soda cans, empty shotgun shell casings, and ATV tracks. Wildlife witnessed during the visit include big game animals (mule deer tracks), game birds (Hungarian partridge, California quail), predatory birds (a small hawk nesting in close proximity to the large waste rock pile), scavenger birds (magpies), and songbirds. This area is also a deer wintering area, as evidenced by the shed deer antler found at the base of the large waste rock pile within 20 feet of where Soil Sample No. 1 was taken. Free-range cattle traverse the area at least part of the year. Sampling data is included in Appendix B.

Figure 2-2 Site Map and Sampling Locations at the Lincoln Mine



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).

3.1 GROUND WATER MIGRATION PATHWAY

Relating to the ore deposits, Anderson (1934) described the events leading to the present day geology of the Pearl District in the following order: Lodes and dikes were formed along a fracture zone in the Idaho batholith during the middle of the Tertiary Period. Recurring movement created fissures and preferential pathways for ore solutions to enter the country rock. Subsequent erosion leveled the topography to near present day levels by the middle of the Miocene, before it was covered by Columbia River basalts and sediments of the Payette formation during the middle or upper Miocene. Lastly, the lodes and dikes have been exposed by erosion before, during, and after regional warping and normal faulting.

Ground water flow in the country-rock is expected to be limited to the preferential pathways of faults and brecciated zones of the country rock. The overlying fractured basalt and sedimentary deposits are more than likely quite permeable. Some ground water becomes surface water through the spring located approximately 80 yards below the mine's most downstream structure (former loading dock). A granitic outcrop exists in the draw creating a spring and wetland area above it. (Photo Nos. 12 and 13).

Contributions to the aquifer surrounding the Lincoln Mine will predominantly be as a direct result of precipitation, both in the form of rain and snow, although an ephemeral stream exists just to the south of the mine. As the region is semi-arid, it receives only limited annual precipitation, mostly in the winter months. Annual precipitation for Emmett, Idaho, located approximately 10 miles away, is 13.45 inches, with a maximum 24-hour rainfall event of 2.47 inches.

Dry-season rainfall occurs almost exclusively in relatively short bursts, usually related to thunder activity. It is expected that almost all dry-season rainfall events would be completely absorbed by the soils and plants, without much, if any, contributions to the ground water.

According to the Idaho Department of Water Resources July 2002 records, the number of reported drinking water wells, located within the 4-mile Target Distance Limit (TDL), are summarized in the table below. It is estimated that 2.7 people are served by these wells, based on the average number of persons per household in Gem County (DOC, 2000).

Table 1 Domestic Ground Water Wells Within a 4-Mile Radius of the Lincoln Mine, Gem County, Idaho	
Distance	Approximate No. of Wells
0-0.5 miles	0
0.5-1.0	1
1-2	10
2-3	4
3-4	18
Total	33

No irrigation wells were identified within a 4-mile radius of the site, and the site is not located within a wellhead protection area (DEQ, 2003). The closest ground water well used for domestic purposes is located approximately 1 mile north of Lincoln Mine in the North Fork Willow Creek drainage area. Depth to water for this well was reported to be 42 feet. A domestic well is located approximately 1.4 miles downgradient (south-southwest) of the mine. Depth to water for this well was reported to be 300 feet.

3.2 AIR MIGRATION PATHWAY

The nearest individual to the Lincoln Mine lives approximately 1.2 miles east-northeast from the site. It is expected that livestock production occurs within 1 mile of the site, and grazing occurs on and around the mine site.

The site is comprised of unconsolidated sulfide-rich ore and/or waste rock, varying in degree of compaction. The ore and/or waste rock is primarily confined to dumps. The likelihood of aerial dispersal from the dumps and prospects appears remote, except for potential exposures to the occasional visitor to the site. A tailings pile below the former mill consists of fine-grained material, which could be subject to wind dispersal within the immediate area. Soil samples L1 and L2 contained arsenic at 68,000 and 19,000 mg/kg respectively, and lead at 44,500 and 570 mg/kg, respectively. No reclamation or other activities to establish plant growth have occurred.

3.3 SOIL EXPOSURE PATHWAY

Access to the Lincoln Mine is essentially unrestricted although it is located on private land. Former mining roads, blocked only by barbed wire fence gates, create easy access for small vehicles from Pearl Road. There is occasional human use, most likely by people associated with cattle operations. ATV tracks are present on the hillsides; however, none are present on the waste rock piles, indicating a lack of recreational use. Cattle activity surrounding the mine site is quite high, as they utilize water from a small drainage reservoir nearby, seek shade from trees planted near former building sites, and forage in the wetland area.

There are no schools or daycare facilities within 200 feet of the site. There are no private residences or workers (except for the occasional cattleman) within 200 feet of the site.

DEQ collected two soil samples from the tailings pile areas of the mine. Sample analysis of the stained soil indicated elevated levels of arsenic and lead (Appendix B).

3.4 SURFACE WATER MIGRATION PATHWAY

The site slopes southward towards an unnamed southwesterly flowing ephemeral tributary of North Fork Willow Creek. Evidence exists of ephemeral water downcutting through some of the waste rock and tailings piles. Based on test results of the two soil samples, this is a potential Probable Point of Entry (PPE). Any surface water in the drainage below the Lincoln Mine would appear to merge with North Fork Willow Creek approximately 4.2 miles away. North Fork Willow Creek is listed by EPA as a 1998 addition to the 303(d) list, a court-ordered list of potentially impacted streams.

During DEQ's July 2003 visit, a small spring was observed downstream of the mine within the tributary drainage. The spring created a wetland area below it approximately 80 yards long and 0.5 acres in total size. Analytical results for the Surface Water Sample L3 collected in the wetland indicate elevated levels of arsenic, cadmium, lead, mercury, and zinc (Appendix B).

The maximum 24-hour rainfall event for Emmett, located approximately 10 miles to the west, is 2.47 inches (WRCC, 2003). Although bedrock is relatively shallow, due to the coarseness of the soil and observations at the site, the potential for flooding of the shaft or their associated workings would appear to be low.

Sport, commercial, or subsistence fishing does not occur within the 15-mile TDL, although small juvenile fish were observed near the headwaters of North Fork Willow Creek.

One plant species listed as a species of concern (F&G, 2002), was identified at four locations within a 4-mile radius of the Lincoln Mine (Figure 3-1). Aase's onion was found 3.5 miles west, 2.0 miles east-southeast, 3.3 miles southeast, and 3.8 miles south-southwest of the site.

The use of surface water for watering of livestock and wildlife, as well as crop irrigation, is expected. No water discharges were observed from any of the shafts or tunnels, though an unnamed ephemeral stream appears to seasonally erode the Lincoln Mine's waste rock piles.

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

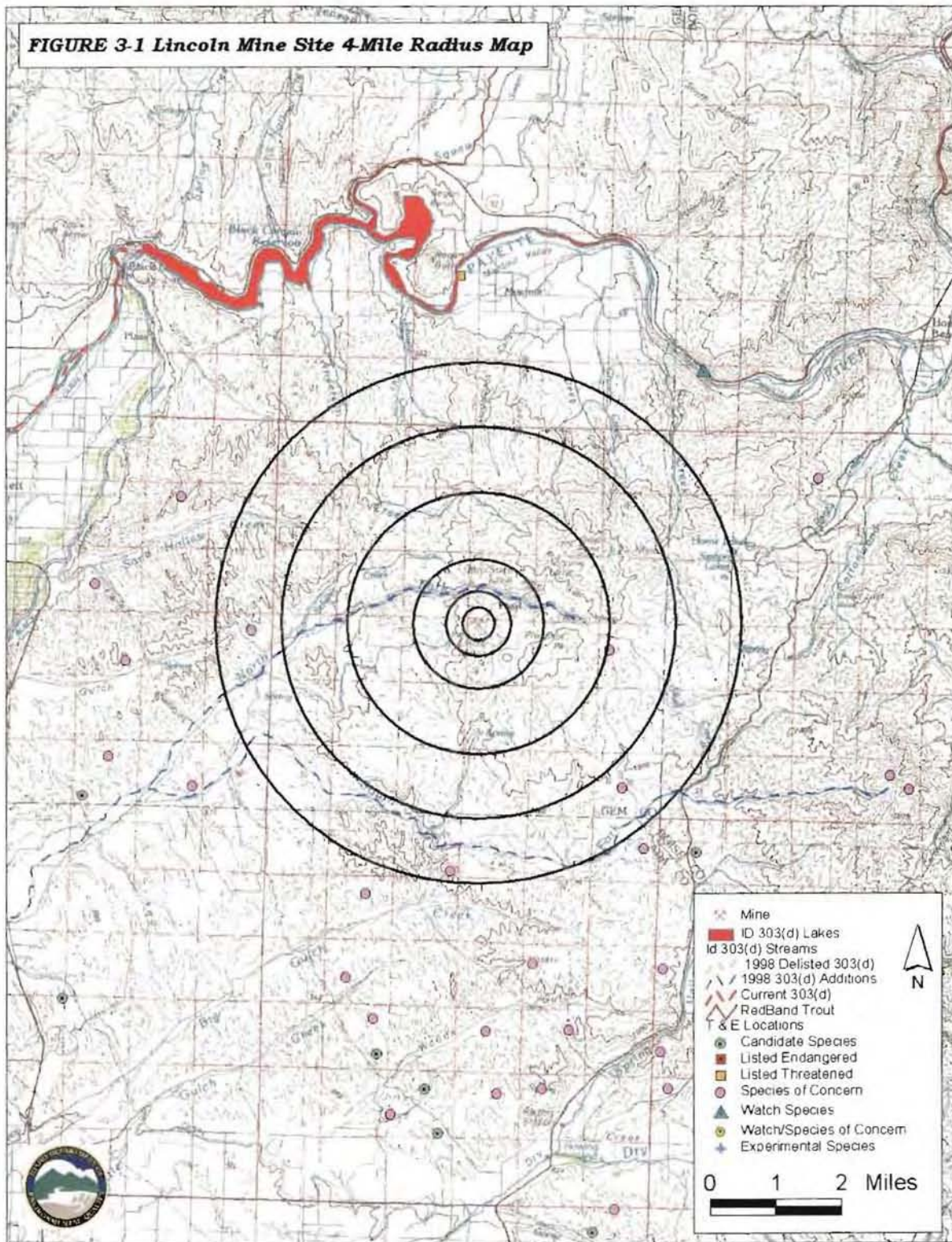
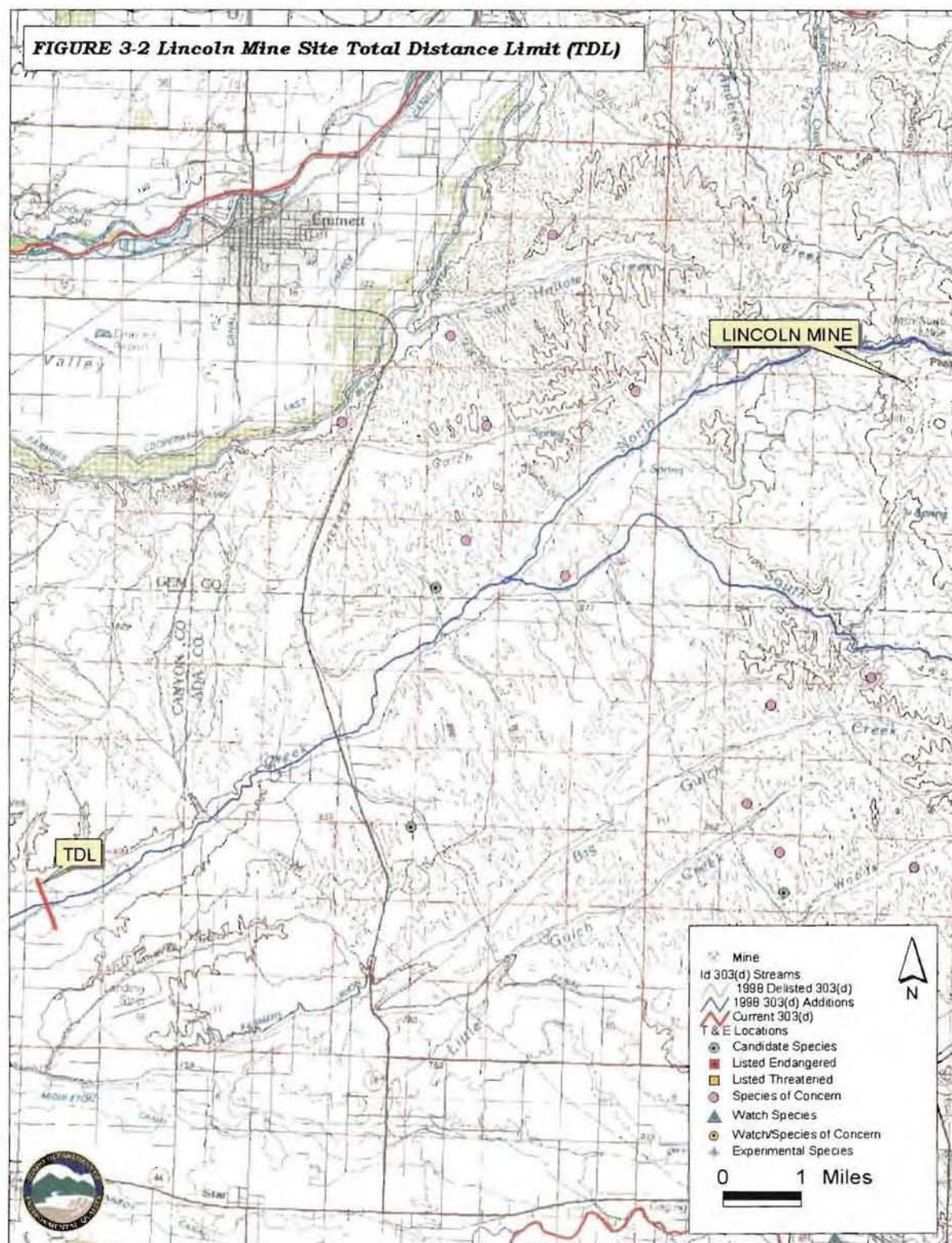


FIGURE 3-2 Lincoln Mine Site Total Distance Limit (TDL)



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<http://www.wrcc.dri.edu/htmlfiles/id/id.ppt.ext.html>

APPENDIX A
SITE PHOTOGRAPHS
LINCOLN MINE



Photo No. 1. Looking downhill and west towards the Lincoln Mine. The small and large waste rock piles dominate the landscape.



Photo No. 2. Looking south across the top of the large waste rock pile. All buildings and structures were either burned or toppled. The collapsed shaft is visible to the right of the middle of the picture.



Photo No. 3. View looking north from base of largest waste rock pile. Note shovel in foreground marking the location of Soil Sample No. 1.



Photo No. 4. Location of Soil Sample No. 1. View looking south from base of waste rock pile. A shed mule deer antler was found 20 feet to the left.



Photo No. 5. Close up of Soil Sample No. 1 location. Note discoloration of soil.



Photo No. 6. Looking south and down on the foundation of the former mill. Soil Sample No. 2 taken just downhill of mill foundation.



Photo No. 7. Close up of mill foundation and site of Soil Sample No. 2. Note shovel in the middle of the picture marking the location of Soil Sample No. 2.



Photo No. 8. View looking northeast toward the former mill foundations and tailing piles.



Photo No. 9. View looking north from draw of mill foundation and waste rock piles. A spring and wetland are present in front of the DEQ representative.



Photo No. 10. Old dump site containing miscellaneous debris, located approximately 200 yards north of (above) the Lincoln Mine. All of the 55-gallon drums were empty.



Photo No. 11. Close up of empty wood preservative (pentachlorophenol) barrel found in the dump site.



Photo No. 12. Spring and wetland that exist below (southwest) the Lincoln Mine (looking northeast).



Photo No.13. Spring and wetland. Looking down the draw (towards the southwest).



Photo No.14. Close up of wetland soils and vegetation at location of water sample (L3).

APPENDIX B
ANALYTICAL RESULTS

Table 2 Soil and Surface Water Sample Data for the Lincoln Mine, Gem County, Idaho					
Analyte	Soil Sample L1 - TCLP (mg/L)	Soil Sample L2 – TCLP (mg/L)	Soil Sample L1 – Totals (mg/kg)	Soil Sample L2 – Totals (mg/kg)	Surface Water Sample L3 - Totals (mg/L)
WAD CN	NA	NA	<0.01	<0.01	NA
Arsenic	<0.05	0.3	68,000	19,000	270
Barium	0.1	0.2	31	40	0.95
Cadmium	0.12	0.37	27	<5	0.65
Chromium	<0.1	<0.1	<10	<10	<0.1
Copper	NA	NA	190	17	2.7
Iron	NA	NA	76,000	23,600	860
Lead	100	0.3	44,500	570	11.4
Mercury	<0.005	<0.005	60	3.8	0.02
Nickel	NA	NA	<10	<10	<0.1
Selenium	<0.1	<0.1	<5	<5	<0.01
Silver	<0.1	<0.1	178	17	0.24
Zinc	NA	NA	3,700	400	60
NA = not analyzed					



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TECHNICAL SERVICES OFFICE

DIRK KEMPTHORNE - Governor
KARL B. KURTZ - Director

BUREAU OF LABORATORIES
RICHARD F. HUDSON, Ph.D., Chief
2220 Old Penitentiary Road
Boise, ID 83712
PHONE 208-334-2235
FAX 208-334-2382

Attention: Richard Lee
Dept. of Env. Quality - State Office
1410 N. Hilton Street
Boise, ID 83706-1255

Date Collected: 6/26/2003
Time Collected: 12:00 PM
Date/Time Received: 6/27/2003 8:40:11 AM

Lab Sample ID Number

0306 634

(Please refer to this number when contacting the lab)

DEQ / 4814

Site: Unspecified

Collected By: Richard Lee

Matrix: Soil

Sample ID: L2

Type / Source:

Test	Method	Result	Units	Date Completed	Analyst
Arsenic, Leachate	EPA 7060A	0.3	mg/L	8/20/2003	stranskyj
Barium, Leachate	SM 3111D	0.2	mg/L	8/19/2003	stranskyj
Cadmium, Leachate	EPA 7130	0.37	mg/L	8/19/2003	stranskyj
Chromium, Leachate	SM 3111D	<0.1	mg/L	8/19/2003	stranskyj
Cyanide, Weak Acid Dissociable	SM4500-CNI	<0.01	mg/kg	8/14/2003	bartlettI
Interferences from extremely high iron.					
Lead, Leachate	EPA 7420	0.3	mg/L	8/19/2003	stranskyj
Mercury, Leachate	EPA 7471A	<0.005	mg/L	8/20/2003	stranskyj
Selenium, Leachate	EPA 7740	<0.1	mg/L	8/20/2003	stranskyj
Silver, Leachate	SM 3111B	<0.1	mg/L	8/19/2003	stranskyj

Memo: Metal analyses were done on wet weight. Solids = 80 %. Sample - not homogenous.
Cyanide analysis requested after sample holding time expired.

Reported: Thursday, August 21, 2003

EPA Laboratory ID: ID00018

Laboratory Supervisor



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BUREAU OF LABORATORIES
RICHARD F. HUDSON, Ph.D., Chief
2220 Old Penitentiary Road
Boise, ID 83712
PHONE 208-334-2235
FAX 208-334-2382

Attention: Richard Lee
Dept. of Env. Quality - State Office
1410 N. Hilton Street
Boise, ID 83706-1255

Date Collected: 6/26/2003
Time Collected: 12:00 PM
Date/Time Received: 6/27/2003 8:40:11 AM

Lab Sample ID Number

0306 634

(Please refer to this number when contacting the lab)

DEQ / 4814

Site: Unspecified

Collected By: Richard Lee

Matrix: Soil

Sample ID: L2

Type / Source:

Test	Method	Result	Units	Date Completed	Analyst
Arsenic, Total	EPA 7060A	19000	mg/kg	7/28/2003	stranskyj
Duplicate sample = 18 000 mg/kg = 1.8 %					
Barium, Total	SM 3111D	40	mg/kg	7/21/2003	stranskyj
Duplicate sample = 45 mg/kg					
Cadmium, Total	EPA 7130	<5	mg/kg	7/22/2003	stranskyj
Duplicate sample = <5 mg/kg					
Chromium, Total	SM 3111D	<10	mg/kg	7/21/2003	stranskyj
Duplicate sample <10 mg/kg					
Copper, Total	SM 3111B	17	mg/kg	7/22/2003	stranskyj
Duplicate sample =11 mg/kg					
Digestion	EPA 3005A	Done	N/A	7/16/2003	stranskyj
Iron, Total	SM 3111B	23600	mg/kg	7/21/2003	stranskyj
Duplicate sample = 24000 mg/kg = 2.4 %.					
Lead, Total	EPA 7420	570	mg/kg	7/22/2003	stranskyj
Duplicate sample = 470 mg/kg					
Mercury, Total	EPA 7471A	3.8	mg/kg	7/25/2003	stranskyj
Duplicate sample = 4.5 mg/kg					
Nickel, Total	SM 3111B	<10	mg/kg	7/31/2003	stranskyj
Duplicate sample <10 mg/kg.					

Memo: Metal analyses were done on wet weight. Solids = 80 %. Sample - not homogenous.

Reported: Monday, August 04, 2003

EPA Laboratory ID: ID00018

Laboratory Supervisor



IDAHO DEPARTMENT OF
HEALTH & WELFARE

RECEIVE

AUG 06 2003

DEPT. OF ENVIRONMENTAL QUALITY
TECHNICAL SERVICES OFFICE

DIRK KEMPTHORNE - Governor
KARL B. KURTZ - Director

BUREAU OF LABORATORIES
RICHARD F. HUDSON, Ph.D., Chief
2220 Old Penitentiary Road
Boise, ID 83712
PHONE 208-334-2235
FAX 208-334-2382

Attention: Richard Lee
Dept. of Env. Quality - State Office
1410 N. Hilton Street
Boise, ID 83706-1255

Date Collected: 6/26/2003
Time Collected: 12:00 PM
Date/Time Received: 6/27/2003 8:40:11 AM

Lab Sample ID Number

0306 634

(Please refer to this number when contacting the lab)

Site: Unspecified

Collected By: Richard Lee

Matrix: Soil

Sample ID: L2

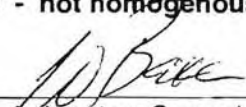
Type / Source:

Test	Method	Result	Units	Date Completed	Analyst
Selenium, Total	EPA 7740	<5	mg/kg	7/30/2003	stranskyj
Duplicate sample		<5 mg/kg.			
Silver, Total	SM 3111B	17	mg/kg	7/22/2003	stranskyj
Duplicate sample		= 17 mg/kg.			
Zinc, Total	SM 3111B	400	mg/kg	7/2/2003	stranskyj
Duplicate sample		= 280 mg/kg			

Memo: Metal analyses were done on wet weight. Solids = 80 %. Sample - not homogenous.

Reported: Monday, August 04, 2003

EPA Laboratory ID: ID00018


Laboratory Supervisor



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1410 N. Hilton Street
Boise, ID 83706-1255

Date Collected: 6/26/2003
Time Collected: 11:30 AM
Date/Time Received: 6/27/2003 8:40:11 AM

Lab Sample ID Number

0306 635

(Please refer to this number when contacting the lab)

DEQ / 4814

Site: Unspecified

Collected By: Richard Lee

Matrix: Soil

Sample ID: L1

Type / Source:

Test	Method	Result	Units	Date Completed	Analyst
Arsenic, Leachate	EPA 7060A	<0.05	mg/L	8/20/2003	stranskyj
Barium, Leachate	SM 3111D	0.1	mg/L	8/19/2003	stranskyj
Cadmium, Leachate	EPA 7130	0.12	mg/L	8/19/2003	stranskyj
Chromium, Leachate	SM 3111D	<0.1	mg/L	8/19/2003	stranskyj
Cyanide, Weak Acid Dissociable	SM4500-CNI	<0.01	mg/kg	8/14/2003	bartlett1
Interferences from extremely high iron.					
Lead, Leachate	EPA 7420	100	mg/L	8/19/2003	stranskyj
Mercury, Leachate	EPA 7471A	<0.005	mg/L	8/20/2003	stranskyj
Selenium, Leachate	EPA 7740	<0.1	mg/L	8/20/2003	stranskyj
Silver, Leachate	SM 3111B	<0.1	mg/L	8/19/2003	stranskyj

Memo: Metal analyses were done on wet weight. Solids = 87 %.
Cyanide analysis requested after sample holding time expired.

Sample - not homogenous.



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Time Collected: 11:30 AM
Date/Time Received: 6/27/2003 8:40:11 AM

Lab Sample ID Number

0306 635

(Please refer to this number when contacting the lab)

DEQ / 4814

Site: Unspecified

Collected By: Richard Lee

Matrix: Soil

Sample ID: L1

Type / Source:

Test	Method	Result	Units	Date Completed	Analyst
Arsenic, Total	EPA 7060A	68000	mg/kg	7/28/2003	stranskyj
Duplicate sample = 71 400 mg/kg = 7.1 %					
Barium, Total	SM 3111D	31	mg/kg	7/21/2003	stranskyj
Duplicate sample = 22 mg/kg					
Cadmium, Total	EPA 7130	27	mg/kg	7/22/2003	stranskyj
Duplicate sample = 17 mg/kg					
Chromium, Total	SM 3111D	<10	mg/kg	7/21/2003	stranskyj
Duplicate sample <10 mg/kg					
Copper, Total	SM 3111B	190	mg/kg	7/22/2003	stranskyj
Duplicate sample = 170 mg/kg					
Digestion	EPA 3005A	Done	N/A	7/16/2003	stranskyj
Iron, Total	SM 3111B	76000	mg/kg	7/21/2003	stranskyj
Duplicate sample = 66000 mg/kg = 6.6 %.					
Lead, Total	EPA 7420	44500	mg/kg	7/22/2003	stranskyj
Duplicate sample = 38500 mg/kg = 3.8 %.					
Mercury, Total	EPA 7471A	60	mg/kg	7/25/2003	stranskyj
Duplicate sample = 53 mg/kg					
Nickel, Total	SM 3111B	<10	mg/kg	7/31/2003	stranskyj
Duplicate sample <10 mg/kg					

Memo: Metal analyses were done on wet weight.

Solids = 87 %.

Sample - not homogenous.

Reported: Monday, August 04, 2003

EPA Laboratory ID: ID00018

Laboratory Supervisor



IDAHO DEPARTMENT OF HEALTH & WELFARE

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Date Collected: 6/26/2003
Time Collected: 11:30 AM
Date/Time Received: 6/27/2003 8:40:11 AM

Lab Sample ID Number

0306 635

(Please refer to this number when contacting the lab)

DEQ / 4814

Site: Unspecified

Collected By: Richard Lee

Matrix: Soil

Sample ID: L1

Type / Source:

Test	Method	Result	Units	Date Completed	Analyst
Selenium, Total	EPA 7740	<5	mg/kg	7/30/2003	stranskyj
Duplicate sample < 5 mg/kg.					
Silver, Total	SM 3111B	178	mg/kg	7/22/2003	stranskyj
Duplicate sample = 121 mg/kg.					
Zinc, Total	SM 3111B	3700	mg/kg	7/2/2003	stranskyj
Duplicate sample = 2200 mg/kg					

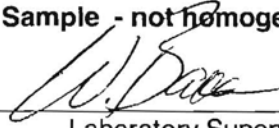
Memo: Metal analyses were done on wet weight.

Solids = 87 %.

Sample - not homogenous.

Reported: Monday, August 04, 2003

EPA Laboratory ID: ID00018


Laboratory Supervisor



IDAHO DEPARTMENT OF
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Date Collected: 6/26/2003
Time Collected: 12:15 PM
Date/Time Received: 6/27/2003 8:40:11 AM

Lab Sample ID Number

0306 641

(Please refer to this number when contacting the lab)

DEQ / 4814

Site: Unspecified

Collected By: Richard Lee

Matrix: Surface Water

Sample ID: L3

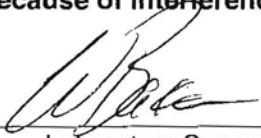
Type / Source:

Test	Method	Result	Units	Date Completed	Analyst
Arsenic, Total	EPA 200.9	270	mg/L	7/28/2003	stranskyj
Barium, Total	SM 3111D	0.95	mg/L	7/21/2003	stranskyj
Cadmium, Total	EPA 200.9	0.65	mg/L	7/9/2003	stranskyj
Chromium, Total	EPA 200.7	<0.1	mg/L	7/21/2003	stranskyj
Copper, Total	SM 3111B	2.7	mg/L	7/22/2003	stranskyj
Iron, Total	SM 3111B	860	mg/L	7/21/2003	stranskyj
Lead, Total	EPA 200.9	11.4	mg/L	7/9/2003	stranskyj
Mercury, Total	EPA 245.1	0.02	mg/L	7/2/2003	stranskyj
Nickel, Total	EPA 200.7	<0.1	mg/L	4/29/2003	stranskyj
Selenium, Total	EPA 200.9	<0.01	mg/L	7/30/2003	stranskyj
Silver, Total	EPA 200.9	0.24	mg/L	7/24/2003	stranskyj
Zinc, Total	SM 3111B	60	mg/L	7/2/2003	stranskyj

Memo: Soil sediment in the sample. Some detection limits are higher (because of interferences or used flame analyses).

Reported: Monday, August 04, 2003

EPA Laboratory ID: ID00018


Laboratory Supervisor