
**Deadwood Mine
Preliminary Assessment Report
Valley County, Idaho
TDD: 99-02-0007**

Contract: 68-W6-0008
February 2000

Region 10

START

Superfund Technical Assessment and Response Team

Submitted To: Monica Tonel, Task Monitor
U.S. Environmental Protection Agency
1200 Sixth Avenue
Seattle, WA 98101



ecology and environment, inc.

International Specialists in the Environment

1500 First Interstate Center, 999 Third Avenue
Seattle, Washington 98104
Tel: (206) 624-9537, Fax: (206) 621-9832

RECEIVED

FEB 09 2000

MEMORANDUM

Environmental Cleanup Office

DATE: February 8, 2000

TO: Monica, Tonel, Task Monitor, EPA, Region 10, Seattle, WA

FROM: Daniel Weiss, START Project Manager, Ecology and Environment, Inc., Seattle, WA

SUBJ: Site Recommendations
Deadwood Mine
Near Lowman, Idaho

REF: Contract No. 68-W6-0008
Technical Direction Document No. 99-02-0007

CC: Gary Sink, EPA, Region 10, Seattle, WA
David Byers, START Program Manager, E & E, Seattle, WA
Linda Foster, START Project Leader, E & E, Seattle, WA

This recommendation memorandum has been developed for the Deadwood Mine site in Lowman, Idaho as part of a Preliminary Assessment (PA).

Deadwood Mine is an inactive gold and silver mine located in Valley County, Idaho. The site operated from 1924 to approximately the mid-1940s. A former mill, laboratory, bunkhouse, and cabin are present on the site. Tailings piles, several waste rock piles, adits, and seeps were also observed. The START observed water discharging from the adits into an unnamed creek on the site. The START also observed tailings migrating into a suspected wetland adjacent to the Deadwood River. Based on site conditions, further action at the site under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) is recommended.

If you have any questions regarding this memorandum, please call me at (206) 624-9537.



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

Steel West

February 15, 2000

Reply To
Attn Of: ECL-115

REC-115
FEB 17 2000

Robert H. Remaklus
Professional Center Building
P.O. Box 759
Cascade, Idaho 83611

DIVISION OF
ENVIRONMENTAL QUALITY

Dear Mr. Remaklus:

The U.S. Environmental Protection Agency (EPA), through its contractor, Ecology and Environment, Inc. (E&E), has completed the preliminary assessment (PA) of the Deadwood Mine site located approximately 25 miles north of Lowman, Idaho. A copy of the report is enclosed.

Based on this PA and other pertinent information, EPA finds that additional investigation is warranted. EPA or its authorized contractor will be contacting you to arrange for the follow-up investigation.

E&E's recommendation, with which EPA concurs, is presented on the enclosed memorandum. If you have any questions, please feel free to contact me at (206) 553-0323.

Sincerely,

Monica Tonel

Monica Tonel
Site Assessment Manager

Enclosures

cc: Dave Tomten, EPA-IOO
Bruce Schuld, IDHW-DEQ ✓
Maggie Manderbach, USDA-FS, Ogden, UT
Pat Trainor, USDA-FS, McCall, ID

**DEADWOOD MINE
PRELIMINARY ASSESSMENT REPORT
VALLEY COUNTY, IDAHO**

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LIST OF ACRONYMS

<u>Acronym</u>	<u>Definition</u>
AIM	Abandoned and Inactive Mine
cfs	cubic feet per second
E & E	Ecology and Environment, Inc.
EPA	United States Environmental Protection Agency
IDEQ	Idaho Department of Environmental Quality
IDF&G	Idaho Department of Fish and Game
IGS	Idaho Geological Survey
PA	Preliminary Assessment
PPE	probable point of entry
SCS	Soil Conservation Service
START	Superfund Technical Assessment and Response Team
TAL	Target Analyte List
TDL	target distance limit
USFS	United States Forest Service
USGS	United States Geological Survey
WRCC	Western Regional Climate Center

**DEADWOOD MINE
PRELIMINARY ASSESSMENT REPORT
VALLEY COUNTY, IDAHO**

1. INTRODUCTION

Ecology and Environment, Inc., (E & E) has been tasked by the United States Environmental Protection Agency (EPA) to provide technical support for completion of a Preliminary Assessment (PA) at the Deadwood Mine site in Valley County, Idaho. E & E completed PA activities under Technical Direction Document No. 99-02-0007, issued under EPA Region 10 Superfund Technical Assessment and Response Team (START) Contract Number 68-W6-0008.

The specific goals for the Deadwood Mine PA, identified by EPA, 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; and
- 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 background site information (Section 2); a discussion of migration/exposure pathways and potential receptors (targets; Section 3); and a list of pertinent references (Section 4).

2. SITE BACKGROUND

2.1 SITE LOCATION

Site Name: Deadwood Mine
CERCLIS ID No.: IDSFN1002112
Location: Valley County
25 Miles North of Lowman, Idaho 83637
Latitude: 44° 28' 15" North
Longitude: 115° 34' 53" West
Legal Description: Section 11, Township 13 North, Range 7 East

Site Owner: Robert H. Remaklus
P.O. Box 759
Cascade, Idaho 83611

Site Contacts: Robert H. Remaklus
P.O. Box 759
Cascade, Idaho 83611

Bruce A. Schuld
Idaho Division of Environmental Quality (IDEQ)
Boise, Idaho
(208) 373-0554

2.2 SITE DESCRIPTION/ OWNERSHIP HISTORY

Deadwood Mine is an inactive underground, gold and silver mine located near the Deadwood River in the Boise National Forest, within Section 11, Township 13 North, Range 7 East (Figure 2-1). The site is located at approximately 5,800 feet above sea level in a remote and mountainous area (United States Geological Survey [USGS] 1988a). The site is located approximately 25 miles north of Lowman, Idaho. The site is not fenced or gated. The site is accessed via a Forest Service road, Landmark Stanley Rd., which is on the west side of the property (Figure 2-2). The parcel is estimated to be approximately 100 acres and is surrounded on all sides by United States Forest Service (USFS) land (USGS 1988a). There are four buildings remaining on the site which are in varying condition (Figure 2-3). The former mill building has been burned and is severely dilapidated. The old crushing machinery remains where a

portion of the mill building once stood. The former office building is a three-story building that is in good condition. It appears that this building may have housed a laboratory. Inside the building is a boiler. Pipes associated with the boiler are insulated with a material resembling asbestos. Adjacent to the office is a former bunkhouse, another three-story building in fairly good condition. It appears that this building has some fire damage. Upslope from the bunkhouse is a small cabin. There are two adits on the site located upslope from the former bunkhouse. There is an unnamed creek on the south end of the site that flows beneath the southern side of the bunkhouse and discharges into the Deadwood River (Figure 2-3).

During the site visit, START observed tire tracks on and adjacent to the mine property; the tracks appeared to be from 4-wheel drive vehicles or motorcycles. In the vicinity of the mine, land is used for recreational fishing, hunting, and backcountry travel. North of the old mill building, the START observed a large tailings pile which has migrated onto USFS land. Access to the tailings pile is unrestricted. The slope of the site to the Forest Service road is approximately 40 degrees. Across the road, to the west is the Deadwood River. Land slopes very gently from the road to the banks of the Deadwood River (USGS 1988a).

The site is currently owned by Robert H. Remaklus. Previous owners include Bunker Hill & Sullivan M. & C. Co., who acquired the mine from small holders in 1923 (Campbell 1931). Additional information regarding previous ownership history is not available.

2.3 SITE OPERATIONS AND WASTE CHARACTERISTICS

The mine, which is currently inactive, operated from October 24, 1924 until the 1940s. The Bunker Hill & Sullivan M. & C. Co. acquired the mine in 1923. At that time, a large, two-story boarding house, shops, barn, and outbuilding were constructed. Additionally, a hydroelectric power plant and compressor were installed and mining equipment was brought into place. The mill, which was located on site, was a crushing mill. Ore was crushed and sent through three processes called circuits: the rougher circuit, lead circuit, and zinc circuit. Substances used in these circuits include: zinc sulfate, cresylic acid, copper sulfate, and a flotation substance called Aerofloat, which is a trademark name for aryl dithiophosphoric acids and acid salts (Campbell 1931). As a result of the crushing, grinding, and floatation processes, mine tailings were created. Tailings are very fine grained sand and silt size particles. These tailings were deposited on the north end of the property in a large pile and do not appear to have any form of containment. The adits on the site have collapsed and there may be physical hazards associated with the collapsed openings. Contaminants of concern at the site include heavy metals and

contaminated mine drainage discharging from the adits and seeps which are located downgradient of the adits. It has been estimated that there is approximately 260,000 cubic yards of tailings and less than 35,000 cubic yards of waste rock at the site (USFS 1994).

2.4 PREVIOUS INVESTIGATIONS

The Idaho Geological Survey (IGS) performed a site inspection at the Deadwood Mine in June 1994 for the USFS during their Abandoned and Inactive Mine (AIM) Site Discovery process. Physical hazards associated with the old structures and the abundance of large dumps of waste rock and debris were noted in the report. Also, a mine shaft that appeared to be partially open and hidden by a pile of boards was noted. IGS inspectors reported that this shaft was too dangerous to approach for closer inspection. The investigation concluded that there were no major physical hazards or immediate chemical hazards present at the site (IGS 1994).

On July 20, 1999, the USFS conducted a site visit of the Deadwood Mine, during which a grab sample of the tailings deposits and waste rock was collected and analyzed for Target Analyte List (TAL) metals (EPA Method 200.7). The location of the sample collection point is not available. Twenty metals were present in the tailings sample above the detection limits including: arsenic (104 mg/kg), barium (3.47 mg/kg), cadmium (30.3 mg/kg), copper (148 mg/kg), lead (859 mg/kg), mercury (1.26 mg/kg), selenium (126 mg/kg), and zinc (3,400 mg/kg) (Analytical Laboratories, Inc. 1999). Twenty metals were present in the waste rock sample above detection limits including: arsenic (30.4 mg/kg), barium (42.6 mg/kg), cadmium (32.2 mg/kg), copper (156 mg/kg), lead (664 mg/kg), mercury (0.53 mg/kg), selenium (22.5 mg/kg) and zinc (3,460 mg/kg) (Analytical Laboratories 1999).

2.5 START ACTIONS

The START conducted a site visit on October 6, 1999. Photographic documentation of the site visit is provided as Appendix A. The START was accompanied by an EPA representative, David Tomten. As mentioned above, the START observed several former buildings and two adits on the site. Additionally, a large waste rock pile was observed on the north end of the site which was estimated to measure 200 yards across the upper length and 75 to 100 yards in height. No liquid was observed discharging from the waste rock pile.

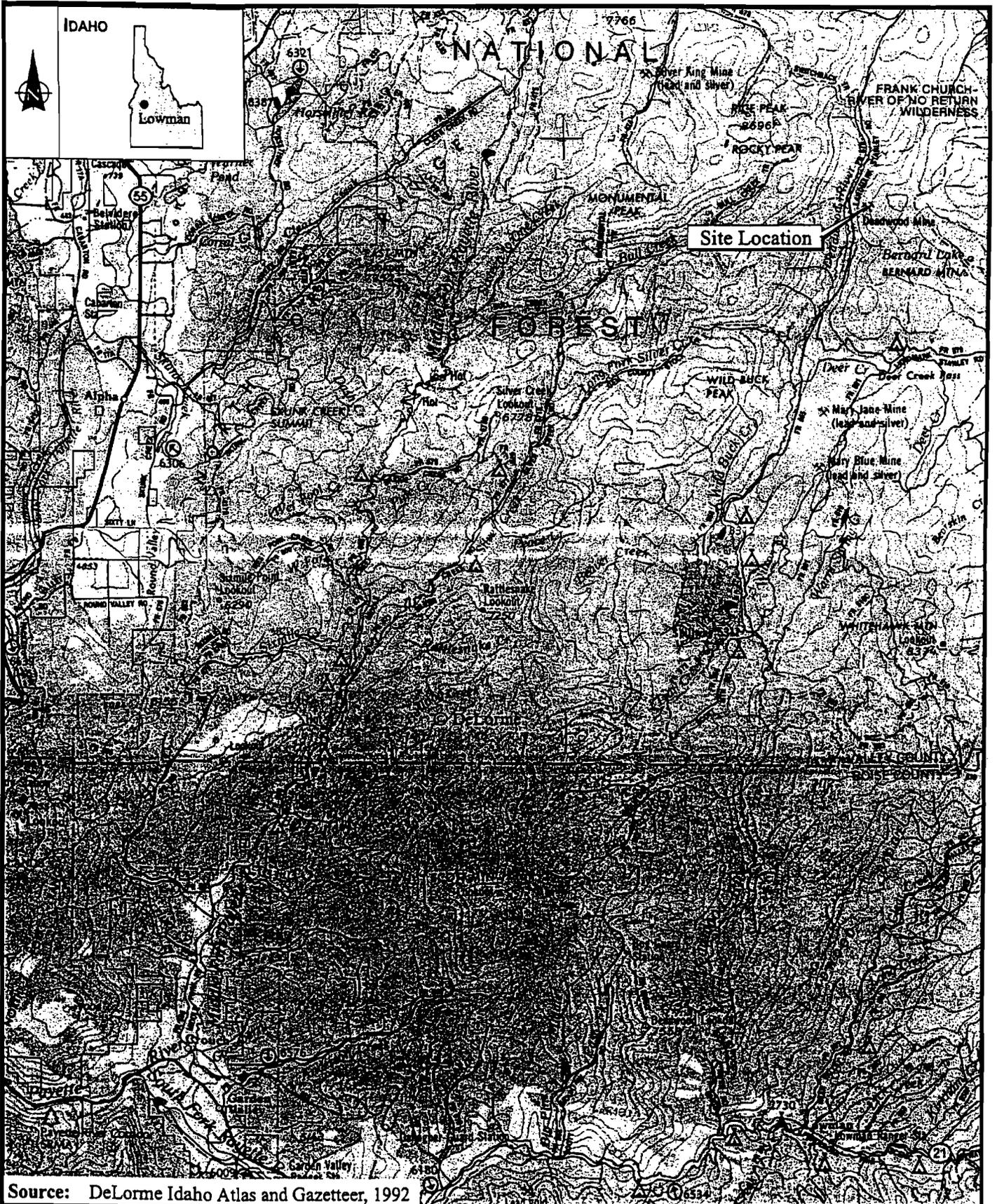
There was a tailings deposit at the far north end of the site that appeared to be eroding onto USFS land to the north and east of the site. The pile was estimated to be 100 yards in diameter and up to 6 feet deep. Surface runoff from the tailings occurs via sheet flow across the USFS road, which is

approximately 1,000 feet upgradient of the Deadwood River. The START observed suspected wetland areas directly across the road from the site; these suspected wetlands showed evidence of tailings deposition. Tailings were not observed within the Deadwood River.

The South adit is directly upgradient of the bunkhouse. The North adit is located approximately 250 feet northeast of the South adit. Running to the north of the North adit is the remains of a light gauge rail that might have been used for transporting waste rock from the adit to the pile. The START observed flowing discharge from both adits. The discharge was fairly clear, although the wetted surfaces were covered with a precipitate that was bright-orange and red in color.

During the site visit, the START observed a seep to the south and downgradient of the South adit. This seep contained orange precipitate which was visible from the seep's discharge point to where the flow converged with the main stem of the unnamed creek (approximately 50 feet). Downgradient of the North adit, which is located approximately 15 feet north of the unnamed creek, the START observed a discharge pipe protruding from the hillside over the unnamed creek. There was no water discharging from this pipe and the purpose of the pipe is not known.

No other environmental concerns were noted by the START during the site visit.



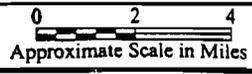
Source: DeLorme Idaho Atlas and Gazetteer, 1992



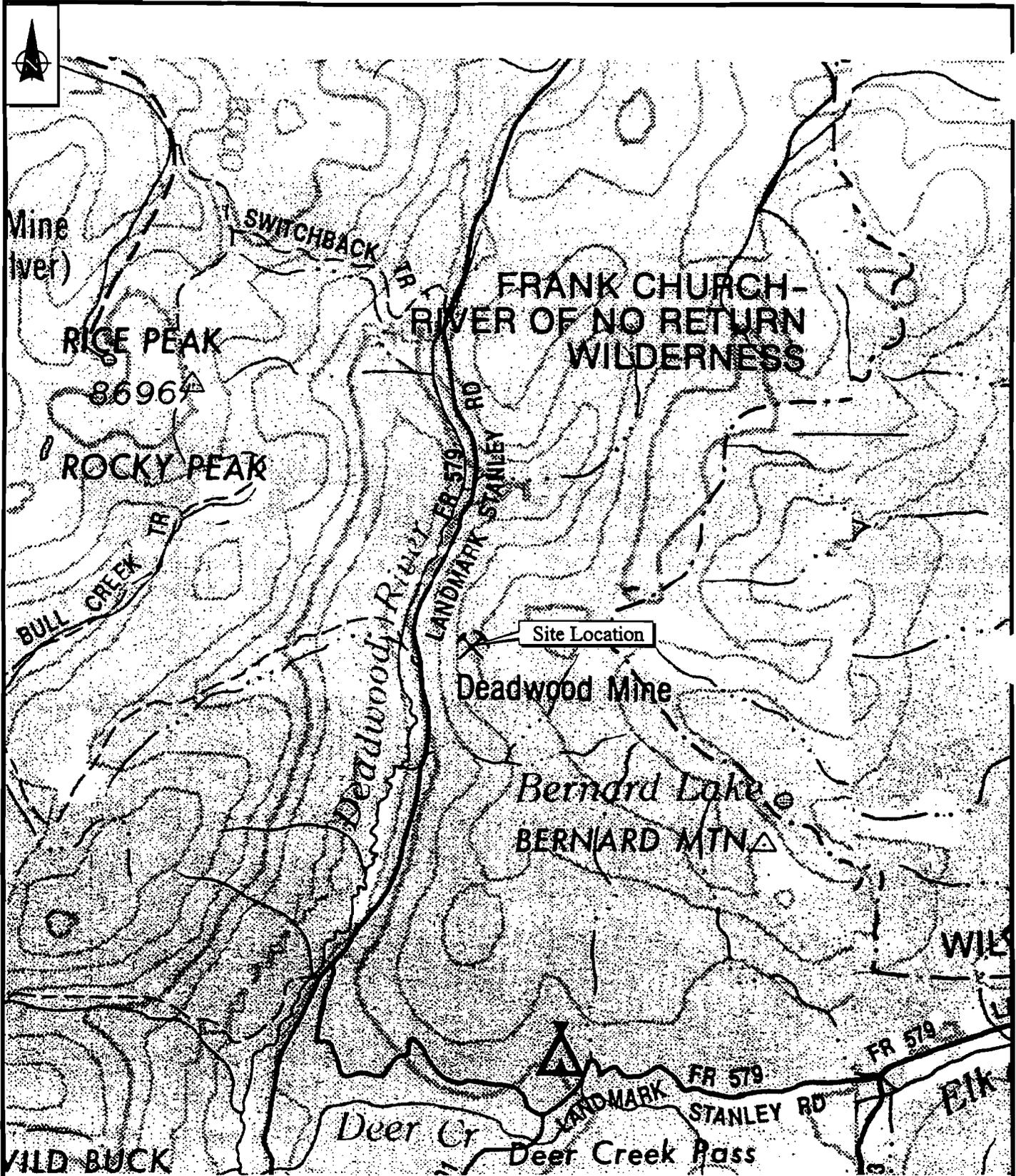
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DEADWOOD MINE PA
 Lowman, Idaho

Figure 2-1
SITE VICINITY MAP



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Source: DeLorme Idaho Atlas and Gazetteer, 1992

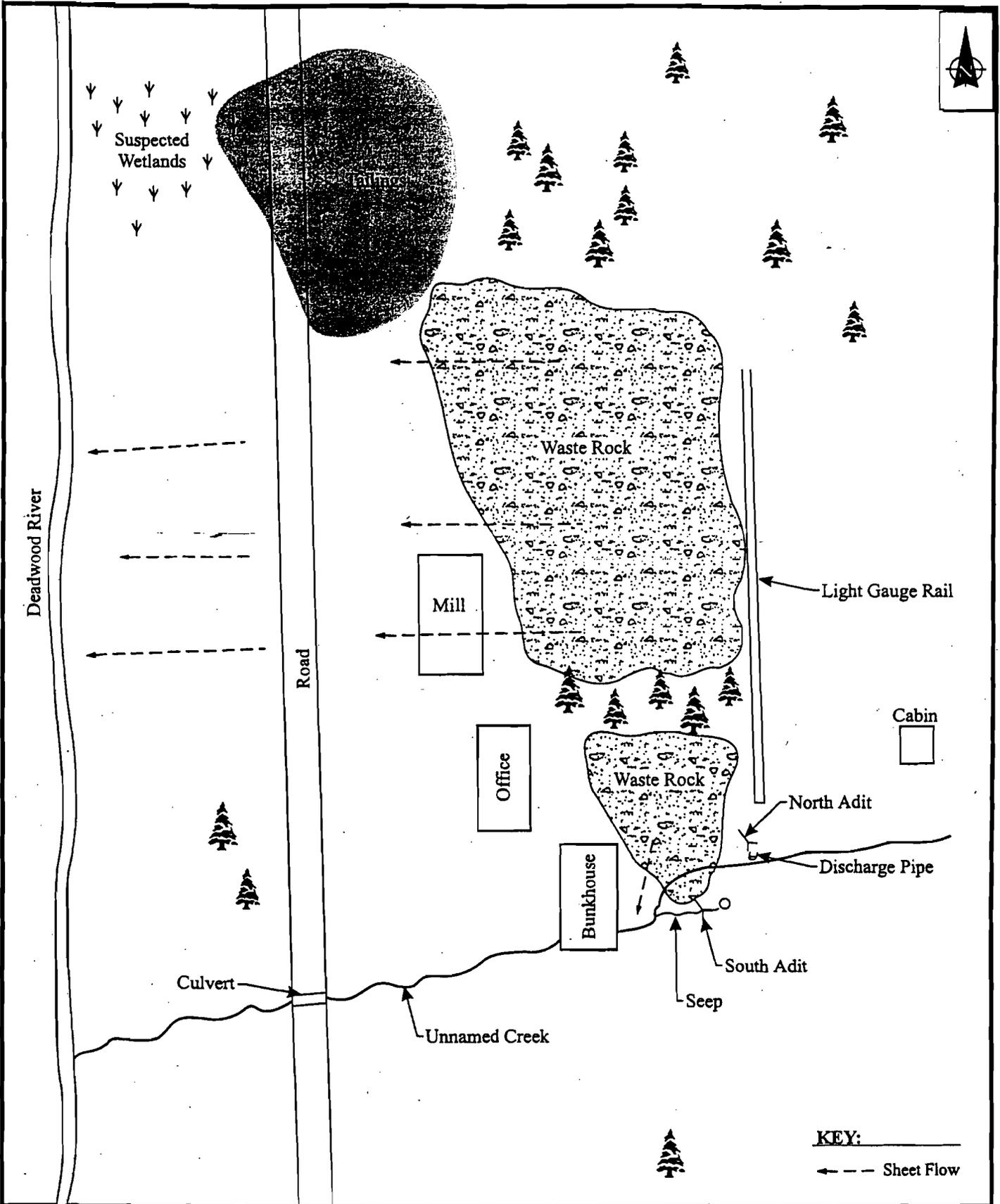


DEADWOOD MINE PA
Lowman, Idaho

Figure 2-2
SITE LOCATION MAP



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KEY:
 - - - Sheet Flow

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DEADWOOD MINE PA
 Lowman, Idaho

Figure 2-3
SITE MAP

Not to Scale

Drawn: AES
 DATE: 12/7/99

JOB NO.
 DB0701SAT0

Dwg.No.
 DB0701 2-3

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 GROUNDWATER MIGRATION PATHWAY

Surficial deposits in the Deadwood Mine were determined using the closest available soil survey located 4 miles east of the site in an area with similar topography. Surface soils in the area consist of Koppes-Coski types which are moderately coarse and coarse-textured soils on dissected crests and the sides of ridges. This is a well-drained soil, which can range from sandy loam to containing more gravel and cobble (Soil Conservation Service [SCS] 1976). Bedrock in the site vicinity is from the Idaho batholith which comprises Cretaceous Intrusive Biotite Granodiorite (USGS 1992).

The aquifer beneath Deadwood Mine consists of undifferentiated volcanic rocks, undifferentiated consolidated sedimentary rocks, and undifferentiated igneous and metamorphic rocks that are distributed throughout the region. Groundwater is present primarily in solution cavities and joints in carbonate rocks (USGS 1994).

Information regarding net precipitation in the immediate area of Deadwood Mine is not available. The annual net precipitation factor value reported for the Deadwood Mine site is between 15 and 30 inches (EPA 1990).

No drinking water wells are known to exist within a 4-mile radius of the site. The Deadwood Outfitters, a business with an office located 0.5 mile to the south, uses a spring upgradient of the site for drinking water purposes (Carter 1999). Groundwater in the area is usable for drinking water purposes. Additionally, the site does not lie within a wellhead protection area (EPA 1999).

3.2 SURFACE WATER MIGRATION PATHWAY

Surface water from the north adit and the southern portion of waste rock drains overland downslope via sheet flow and small channels approximately 1,000 feet to the east into an unnamed creek (probable point of entry [PPE] 1). This creek discharges into the Deadwood River approximately 0.5 mile southwest of the site. The discharge rate of the adits has been estimated at two gallons per minute.

The unnamed creek also flows through the south end of the waste rock pile and is expected to be perennially flowing, because during low flow conditions in early fall it was flowing (Figure 3-3). Water from the south adit and a seep flows downgradient via a small channel into the unnamed creek approximately 50 feet from its discharge point (PPE 2). Surface water runoff from the tailings and northern portion of the waste rock also may drain by sheet flow into potential wetlands adjacent to the Deadwood River approximately 12 miles from its discharge point into the Deadwood Reservoir (PPE 3). The 15-mile target distance limit (TDL) extends from PPEs 1 and 2 on the unnamed creek to the Deadwood River, from PPE 3 in the wetland adjacent to the Deadwood River for 12 miles to its discharge point in the Deadwood Reservoir, and then for 3 miles in the Reservoir.

The mean annual precipitation for 1998 at Lowman was 26.42 inches (Western Regional Climate Center [WRCC] 1999a). The two year, 24-hour rainfall event for the site is 2.0 inches (WRCC 1999b). Flood frequency data are not available for this area, although it appears possible that the Deadwood River can flood its banks to and across the adjacent USFS road during high flow based on the river's shallow banks (approximately 5 feet in height) and the relatively flat terrain between the river and the road. As stated previously, the area consists of Koppes-Coski type soils, which are moderately coarse and coarse-textured soils on dissected crests and the sides of ridges. This is a well-drained soil, which can range from sandy loam to containing more gravel and cobble (SCS 1976). The upland drainage area of the site is estimated from a topographic map to be 320 acres (USGS 1988a).

Flow rate data for the Deadwood River are not available; however, based on visual observations the flow was estimated during low flow, to be greater than 100 cubic feet per second (cfs) and less than 1,000 cfs. The flow rate of the unnamed creek is estimated from visual observations to be less than 10 cfs. There are no surface water intakes for drinking water or irrigation purposes within the 15-mile TDL.

No known commercial or subsistence fisheries exist within the unnamed creek, the Deadwood River, or the Deadwood Reservoir within the 15-mile TDL (Idaho Department of Fish and Game [IDF&G] 1999). There is sport fishing on both the Deadwood River and the Deadwood Reservoir (Grunder 1999); however, fish catch data are not available.

Idaho Fish and Game indicated that bull trout (*Salvelinus confluentus*; a federal-listed threatened species) and both Inland Columbia Basin redband trout (*Oncorhynchus mykiss gairdneri*) and the westslope cutthroat trout (*Oncorhynchus clarki lewisi*), both state and federal species of concern, reside in the Deadwood River and Reservoir within the 15-mile TDL (IDF&G 1999). Additionally, there is a reported nesting area for a bald eagle (*Haliaeetus leucocephalus*), a federal-listed threatened species, in the southern end of the Deadwood Reservoir (Grunder 1999). There are no anadromous fish residing or migrating in reaches of the Deadwood River and Reservoir within the 15-mile TDL (IDF&G 1999). The

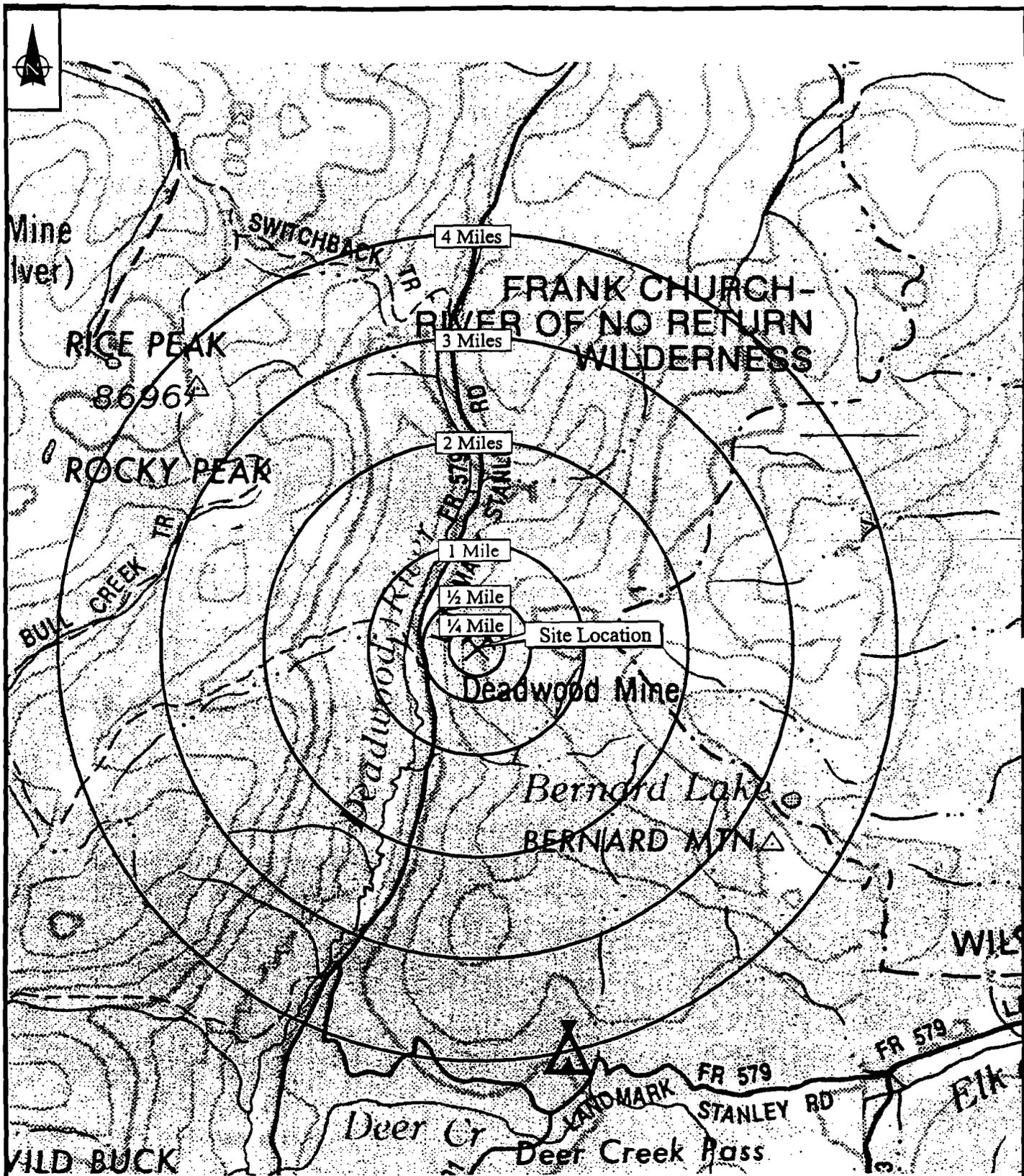
Spotted frog which is a USFS sensitive species resides in the wetland and river areas near the site (Zurstadt 1999). There is a boat ramp at the Deadwood Reservoir, indicating that the reservoir is used for recreational boating (DeLorme 1998). Deadwood Outfitters operates a boat out of the Deadwood Reservoir for fishing charters and indicated that their clients practice catch and release techniques (Rotthoff 1999). There are no wetlands maps available within the 15-mile TDL; however, an area of suspected wetland exists along the Deadwood River at PPE 3. It is estimated from field observations and a topographic map that this wetland has a circumference of 0.2 mile.

3.3 SOIL EXPOSURE PATHWAY

Access to the Deadwood Mine is unrestricted and areas on the tailings piles contained tire tracks indicative of 4-wheel drive vehicle and/or motorcycle use. The tailings are poorly vegetated, and because of their fine-grained nature, they are easily transported by wind and water. There are no permanent residences within 200 feet of a potential source. Deadwood Outfitters operates a hunting and fishing guide service approximately 0.5 mile south of the site. Up to eight seasonal staff reside on their premises from approximately June through November and up to two staff reside there during the remaining months (Carter 1999). There are no known schools or day care facilities within 200 feet of the site. No commercial agriculture, silviculture, or livestock production or grazing occurs within an area of potential contamination (Wilson 1999). Also, there are no terrestrially sensitive environments located on a potential source (IDF&G 1999).

3.4 AIR MIGRATION PATHWAY

As described above, there are no permanent residences located within 4 miles of the site (EPA 1999). The tailings are poorly vegetated, and because of their fine-grained nature they are easily transported by wind and water. Deadwood Outfitters is located approximately 0.5 mile south of the mine site. Up to eight seasonal workers reside at their facility during different times of the year. It appears that the site is moderately used for recreation. No anadromous fish use the watershed for habitat or migration within the TDL. As mentioned above, the bull trout (*Salvelinus confluentus*), which is a federal-listed threatened species, is known to exist in the Deadwood River which runs within 0.5 mile of the site (IDF&G 1999). The Frank Church-River of No Return Federal Wilderness Area is located within 2 miles east of the site (USGS 1988a). There is no agriculture or silviculture within 0.5 mile of the site (Wilson 1999). Wetland inventory maps were not available within 4 miles of the site; however, the suspected wetland adjacent to the site along the Deadwood River is estimated from field observations and topographic map to be 4 acres.



Source: DeLorme Idaho Atlas and Gazetteer, 1992

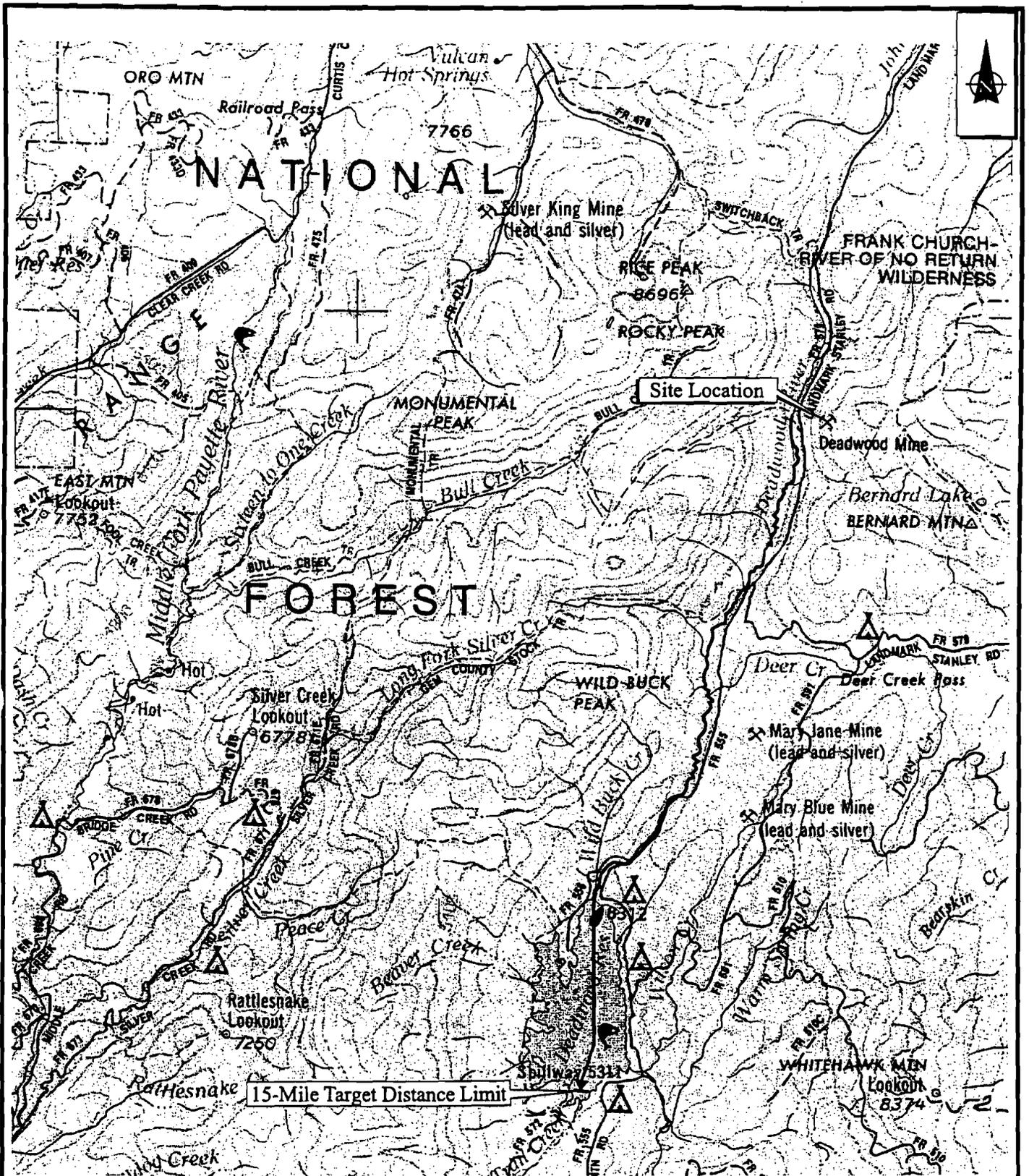


DEADWOOD MINE PA
Lowman, Idaho

Figure 3-1
4-MILE MAP

0 5 1
Approximate Scale in Miles

Drawn: AES	DATE: 11/16/99	JOB NO. DB0701SAT0	Dwg.No. DB0701 3-1
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Source: DeLorme Idaho Atlas and Gazetteer, 1992



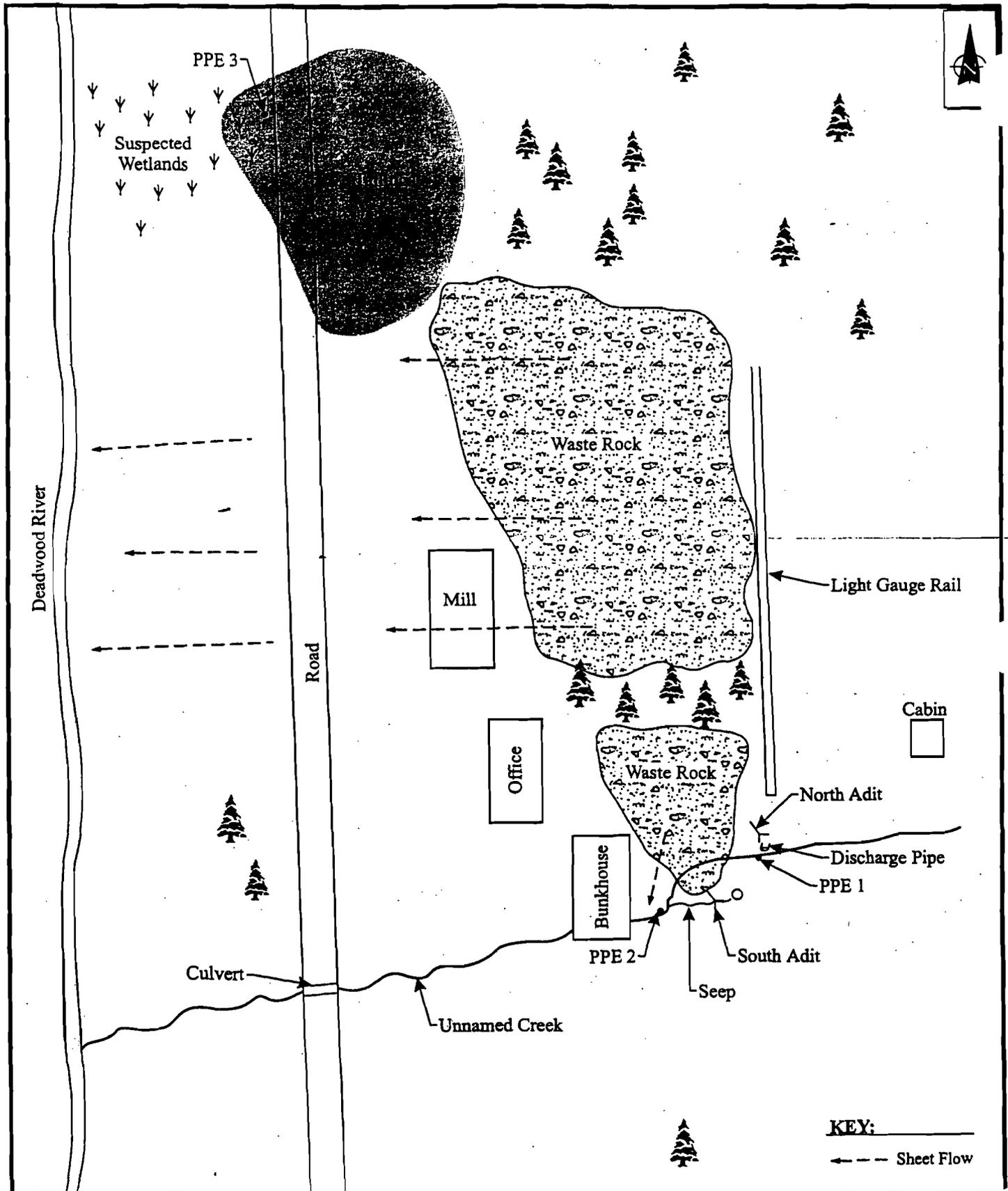
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DEADWOOD MINE PA
Lowman, Idaho

Figure 3-2
15-MILE MAP



Drawn: AES	DATE: 11/16/99	JOB NO. DB0701SAT0	Dwg.No. DB0701 3-2
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DEADWOOD MINE PA
 Lowman, Idaho

Figure 3-3
 SITE MAP

Not to Scale

Drawn:
 AES

DATE:
 12/7/99

JOB NO.
 DB0701SAT0

Dwg.No.
 DB0701 3-3

4. REFERENCE LIST

- Analytical Laboratories, 1999, *Laboratory Analysis Report*, Sample Number 9920393.
- Campbell, Stewart, 1931, *Thirty-second Annual Report of The Mining Industry of Idaho For the Year 1930*, Boise, Idaho, pp. 32-40.
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- DeLorme, 1998, *Idaho Atlas and Gazetteer*, Delorme, Yarmouth, Maine.
- Grunder, Scott, July 29, 1999, personal communication, Natural Resources Biologist, IDF&G, telephone conversation with Dan Weiss, Ecology and Environment, Inc., Seattle, Washington, regarding recreation in the Deadwood area and the presence of a Bald Eagle nesting area.
- Idaho Department of Fish and Game (IDF&G), 1999, fax from Desiree Scarlett of IDF&G, sent to Dan Weiss, Ecology and Environment, Inc., Seattle, Washington, regarding resident fish species and habitat of concern in Deadwood River watershed and target areas.
- Idaho Geological Survey (IGS), 1994, *Site Inspection Report For Abandoned and Inactive Mines In Idaho On U.S. Forest Service Lands; Properties in the Deadwood Mining District, Valley County, Idaho*.
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- Soil Conservation Service (SCS), June 1976, *Soil Survey of Middle Fork Payette River Area*, Idaho.
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- , May 6, 1999, Geographic Information Query System, Deadwood Mine, Valley County, Idaho.
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- U.S. Geological Survey (USGS), 1988a, 7.5-minute series topographic maps, Bernard Mountain quadrangles, Idaho.
- , 1988b, 7.5-minute series topographic maps, Whitehawk Mountain Quadrangle, Idaho.
- , 1988c, 7.5-minute series topographic maps, Deadwood Reservoir Quadrangle, Idaho.
- , 1992, Geologic Map of Challis 1x2 Quadrangle, Idaho.
- , 1994, Groundwater Atlas of the United States, Segment 7, Idaho, Oregon, and Washington.

Western Regional Climate Center (WRCC), 1999a, Period of Record Monthly Climate Summary, Lowman, Idaho.

———, 1999b, Map of Two Year Twenty-four Hour Rainfall, Idaho.

Wilson, Roy, July 26, 1999, personal communication, Forester, USFS Lowman Ranger District, telephone conversation with Dan Weiss, Ecology and Environment, Inc., Seattle, Washington, regarding agriculture and silviculture in the Deadwood vicinity.

Zurstadt, Caleb, October 6, 1999, personal communication, Fish Biologist, USFS Boise National Forest, personal conversation with Dan Weiss, Ecology and Environment, Inc., Seattle, Washington, regarding the presence of the Spotted frog in the Deadwood vicinity.

ATTACHMENT A
PHOTOGRAPHIC DOCUMENTATION

PHOTOGRAPH IDENTIFICATION SHEET

Camera Serial #: EPA# 645493

TDD #: 99-02-0007

Lens Type: 35mm

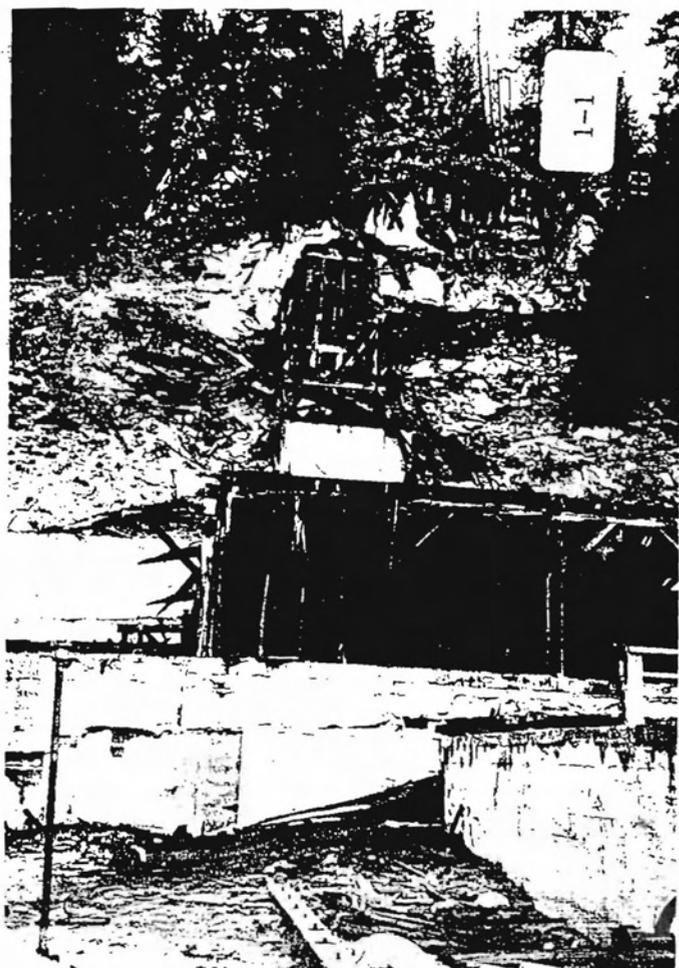
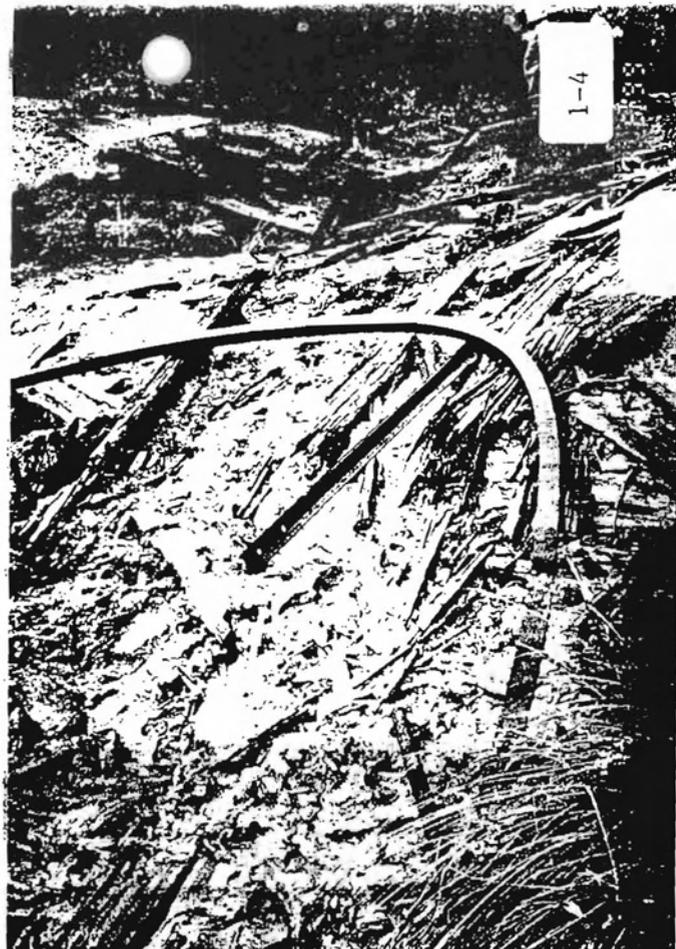
Site Name: Deadwood Mine

Photo No.	Direction	Date	Time	By	Description
1	NE	10/6/99	15:05	LF	Remnants of Mill Building.
2	NE	10/6/99	15:10	LF	Office building; may have contained a lab.
3	D	10/6/99	15:22	LF	Seep/ adit discharge. Exact location of adit is not known; however, sediment coloration (rust color) is indicative of adit discharge, precipitation, and other heavy metals from oxygenated water.
4	D	10/6/99	15:25	LF	Discharge from suspected adit with estimated flow rate of < 10 cfs.
5	D	10/6/99	15:30	LF	Discharge pipe and unnamed creek. It is suspected that adit discharge was piped to creek to keep water away from working mine. Note that no rust color is associated with sediments in this creek. Estimated creek flow is < 10 cfs.
6	N	10/6/99	15:35	LF	Water tank in the background.
7	W	10/6/99	15:40	LF	Suspected location of second adit. Collapsed structure and enclosed rail line from second adit location.
8	N	10/6/99	15:42	LF	Second adit with collapsed opening.
9	N	10/6/99	15:44	LF	Small cabin on site.
10	W	10/6/99	15:45	LF	Waste rock.
11	W	10/6/99	15:48	LF	Panoramic view of tailings (located in the background). Taken from the elevation of the adits.
12	W	10/6/99	15:50	LF	View of the mill from the elevation of the adits.
13	W	10/6/99	16:00	LF	View of tailings depositional area with Deadwood River in background and potential wetland areas.
14	D	10/6/99	16:15	LF	Stream at site approximately 20 feet downstream of the point of convergence between the adit discharge and the stream. Some of the rust coloration is still evident.
15	W	10/6/99	16:20	LF	U.S. Forest Service land markers near the bottom of the mill.
16	S	10/6/99	16:34	LF	Tailings. Color varies from light-tan to brownish-orange. Material is very fine.
17	SE	10/6/99	16:36	LF	Waste rock pile and mill building from location of the tailings.
18	S	10/6/99	16:40	LF	View of tailings from road. Surface runoff from tailings is by sheet flow across road.
19	S	10/6/99	16:42	LF	Tailings depositional area across road (west).
20	W	10/6/99	16:46	LF	Tailings discharged into suspected wetlands.

Key:

cfs = Cubic feet per second.
 D = Down.
 E = East.
 LF = Linda Foster.
 N = North.
 NE = Northeast.
 S = South.
 SE = Southeast.
 U.S. = United States.
 W = West.

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