

**HANSY MINE  
PRELIMINARY ASSESSMENT REPORT  
SHOSHONE COUNTY, IDAHO**

**STATE OF IDAHO  
DEPARTMENT OF ENVIRONMENTAL QUALITY**

**December 2004**

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

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## LIST OF ACRONYMS

<u>Acronym</u>	<u>Definition</u>
amsl	above mean sea level
ATV	All Terrain Vehicle (a.k.a. 4-wheeler)
bgs	below ground surface
bya	Billion years ago
DEQ	Idaho Department of Environmental Quality
EPA	United States Environmental Protection Agency
gpm	gallons per minute
IGS	Idaho Geologic Survey
PA	Preliminary Assessment
ppm	parts per million
TCLP	Toxicity Characteristic Leaching Procedure
TDL	Target Distance Limit
TMDL	Total Maximum Daily Load
USBM	United States Bureau of Mines
USFS	United States Forest Service
303 (d)	Section of the Clean Water Act in Idaho

## 1. INTRODUCTION

The Idaho Department of Environmental Quality (DEQ), in cooperation with the United States Forest Service (USFS), agreed to conduct and complete a preliminary assessment (PA) of abandoned mine sites located in the St. Joe National Forest near the Montana/Idaho border in Shoshone County, Idaho. Two (2) sites, the Hansy and the Bullion Mines were initially targeted by the USFS for their PA assessment program but were determined to be on privately owned ground. DEQ completed the PA activities in accordance with the goals listed below.

The specific goals identified by DEQ for the Hansy Mine PA are:

- 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/data from the most recent inspection (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: Hansy Mine

CERCLIS ID No.

Location: Shoshone County, Idaho

Latitude: 47° 19.365' N

Longitude: 115° 35.178' W (NAD27 datum)

Legal Description: NE ¼, Section 20, Township 46N, Range 7E, Boise Meridian

Congressional District: Idaho

Site Owner/Contact: Richard Cooper  
5412 Indian Hill Road  
Honor, Michigan 49640  
(231) 325-2175

### 2.2 SITE DESCRIPTION, OWNERSHIP AND HISTORY

The Hansy Mine (Hansy) is located within the St. Joe Ranger District of the USFS Idaho Panhandle National Forest approximately 7 miles southwest of Saltese, Montana, 11 miles northeast of Avery, Idaho, and 19 miles southeast of Wallace, Idaho. The site is approximately one mile up Olentange Creek north from USFS Road 326, near the confluence of Ward Creek and Loop Creek (Figure 2-1). The main workings are located in the NE¼, Section 20, T 46N, R 7E, on the Adair 7.5 minute quadrangle (Figure 2-2). Additional workings and prospect pits make up the remainder of the site. The Hansy consists of a series of patented claims currently owned by Richard Cooper and is surrounded by USFS land. Mr. Cooper had acquired the land for the timber potential; and at the time of the PAQ, had no plans for any mineral extraction/exploration. The site is also known by the alternate name of the Hansey Mine.

In January 1942, Hansy Copper and Gold Mines became incorporated; and within seven (7) months, owned two (2) patented and sixteen (16) unpatented claims. Within this same timeframe, development on the site included approximately 100 feet of workings in addition to the construction of roads, a bridge, a cookhouse, and various other buildings. Sixty feet of those workings were driven between April and July of that year (Kauffman, 1999). A 5-ton, hand-sorted load of copper ore was shipped as a test shipment either in 1941 (USBM) or 1943 (Reed, 1943). One year after incorporation, workings at the Hansy included “a 110-foot adit with a 50-foot, two compartment winze that started about 40 feet from the portal, a tunnel that was being driven from near the road to intersect the structure

at depth, and an old tunnel or cut midway between the other two (2) adits (Kauffman, 1999).” By 1945, the Hansy had a total of 418 feet of workings. That same year, Hansy Copper and Gold Mines Inc. was using financing from a Reconstruction Finance Corporation (RFC) loan to continue work on the lower tunnel. The following year, the workings had grown to 138 feet for Tunnel No. 1 and 400 feet for Tunnel No. 2. At this time Sam Peterson, the Hansy company manger, mentioned that “very satisfactory returns on ore samples” were provided from the Tacoma smelter, but gave no further details (Kauffman, 1999). 1947 saw continued work as the total mine development reached a reported 732 feet. In 1948, Hansy Copper and Gold Mines, Inc. hired what was described as a “geologist and engineer” to study the mine (Kauffman, 1999). All operations were suspended that year pending the results of this study. From 1945 to 1960, minimal work was reported to have occurred sporadically from 1945 to 1960, consisting primarily of assessment and maintenance work. The final production work appears to be a small amount of copper ore shipped in 1960 (Kauffman, 1999).

**FIGURE 2-1. Site Vicinity Map of Hansy Mine**

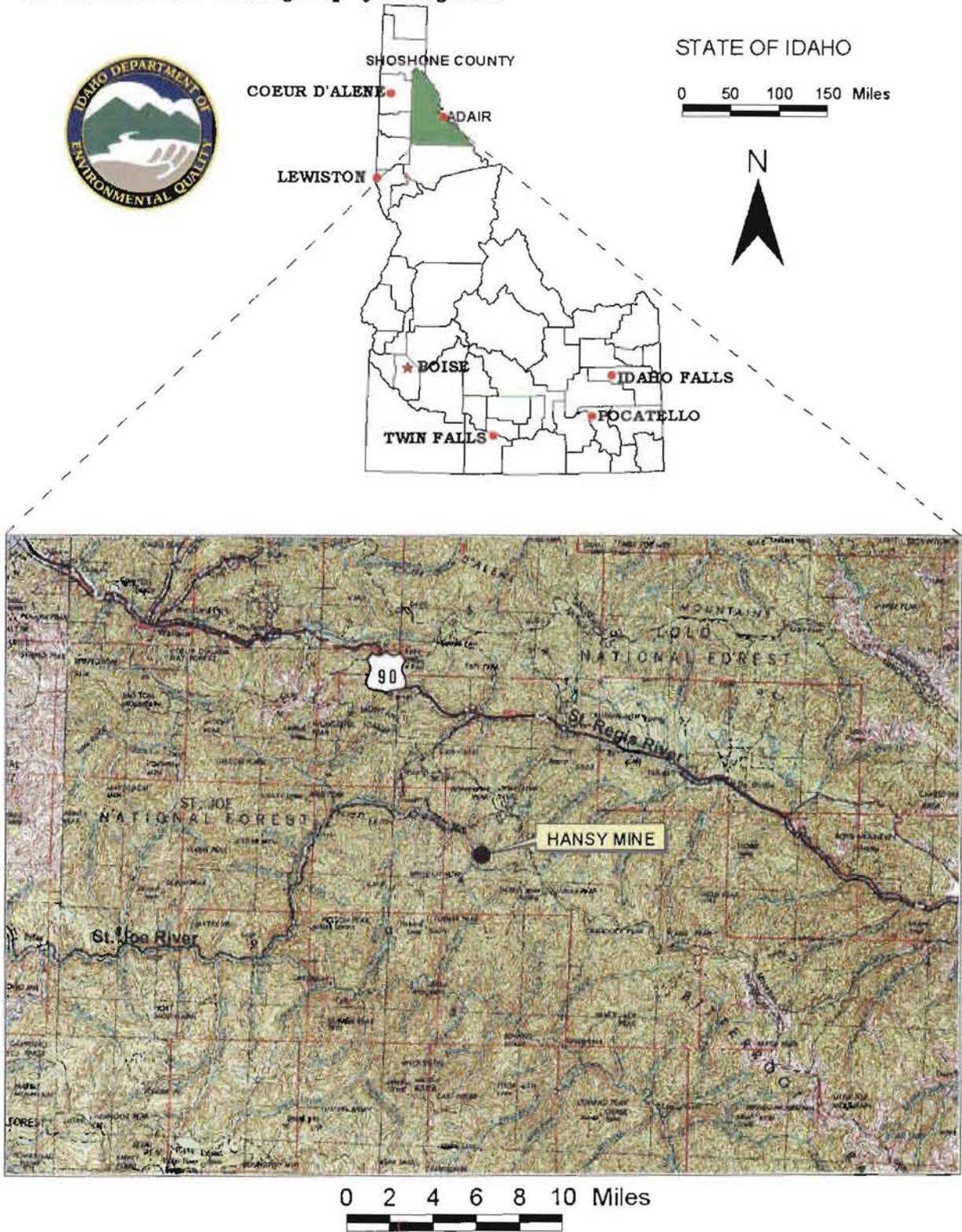
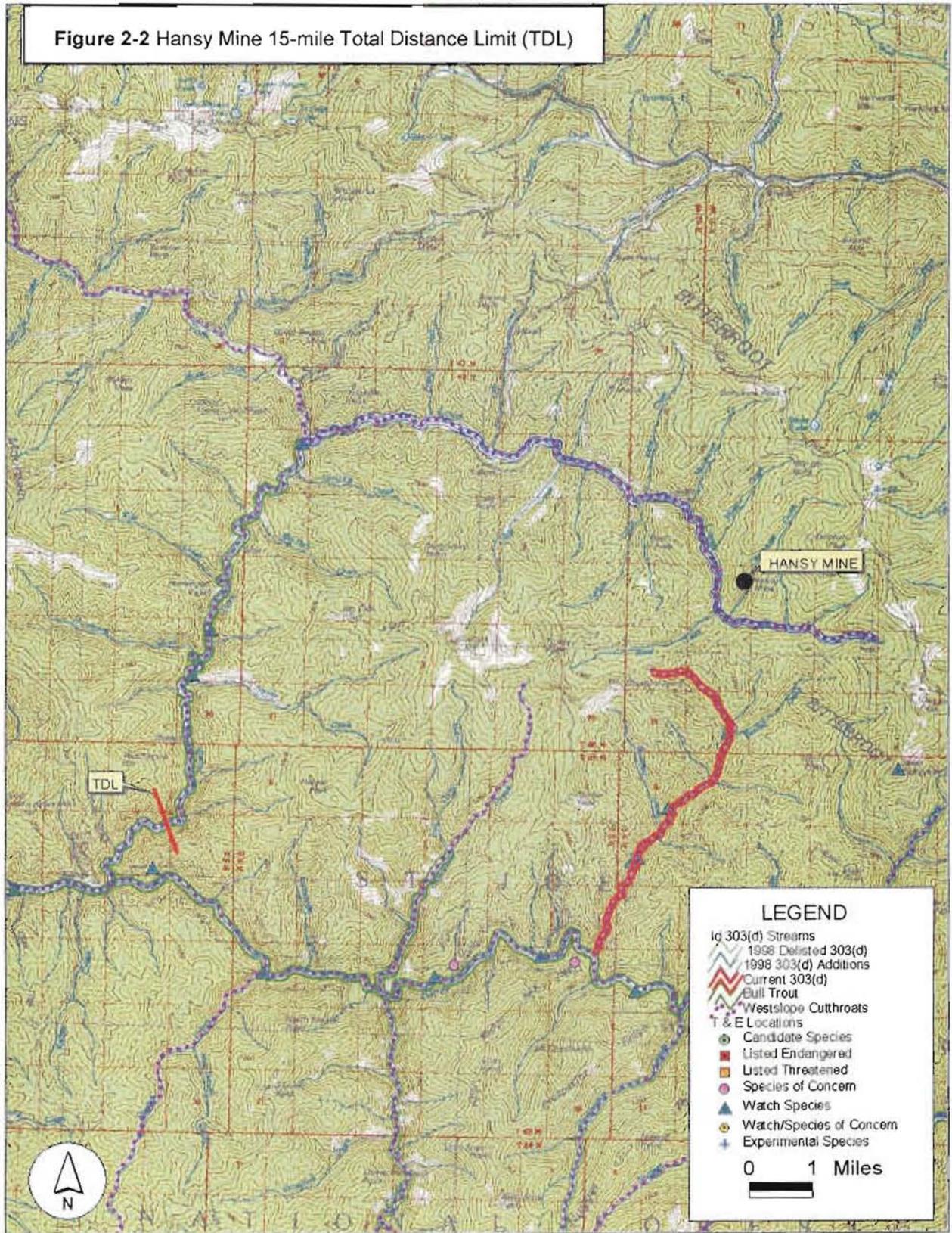


Figure 2-2 Hansy Mine 15-mile Total Distance Limit (TDL)



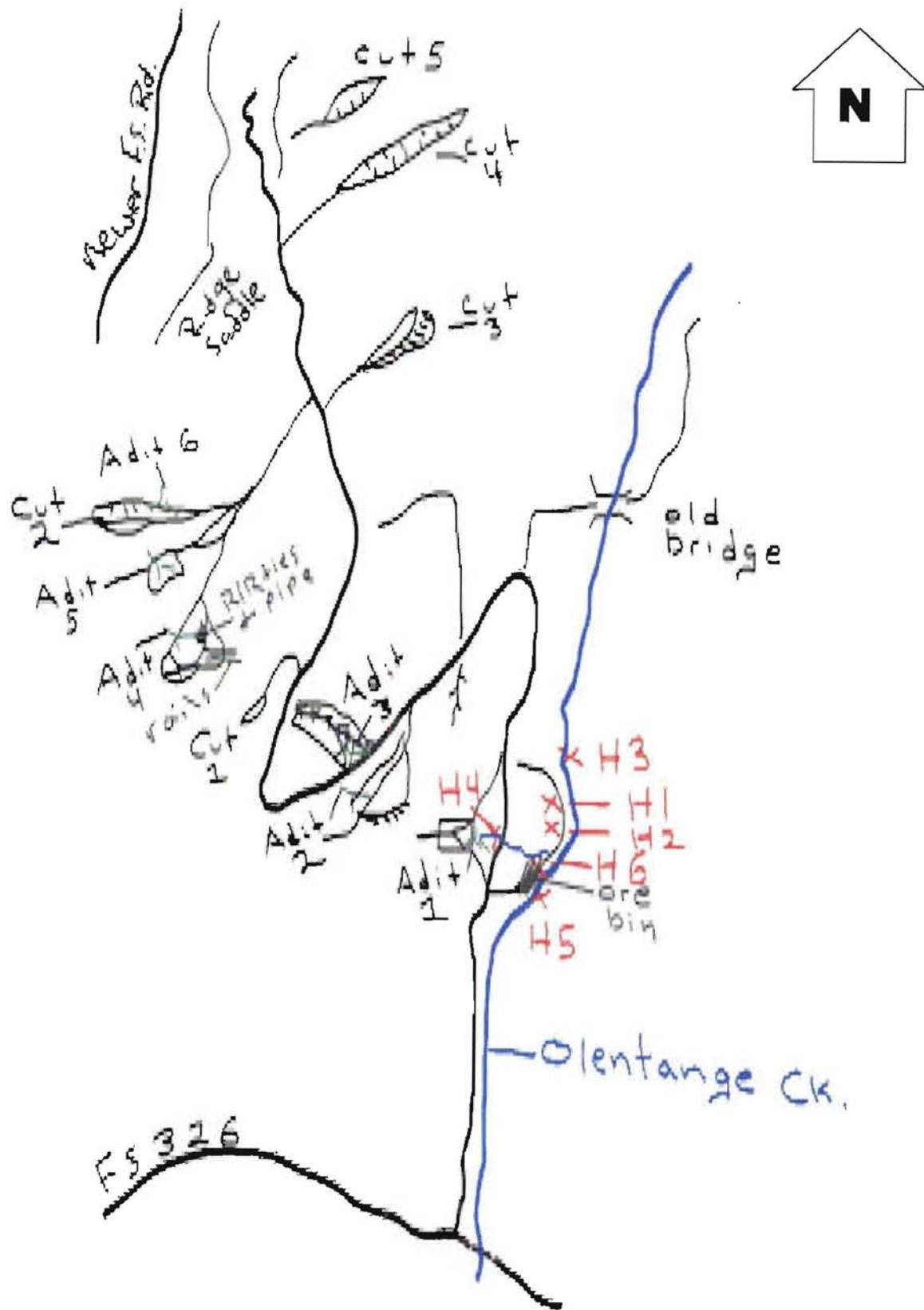


Figure 2-3 Hansy Mine Field Map

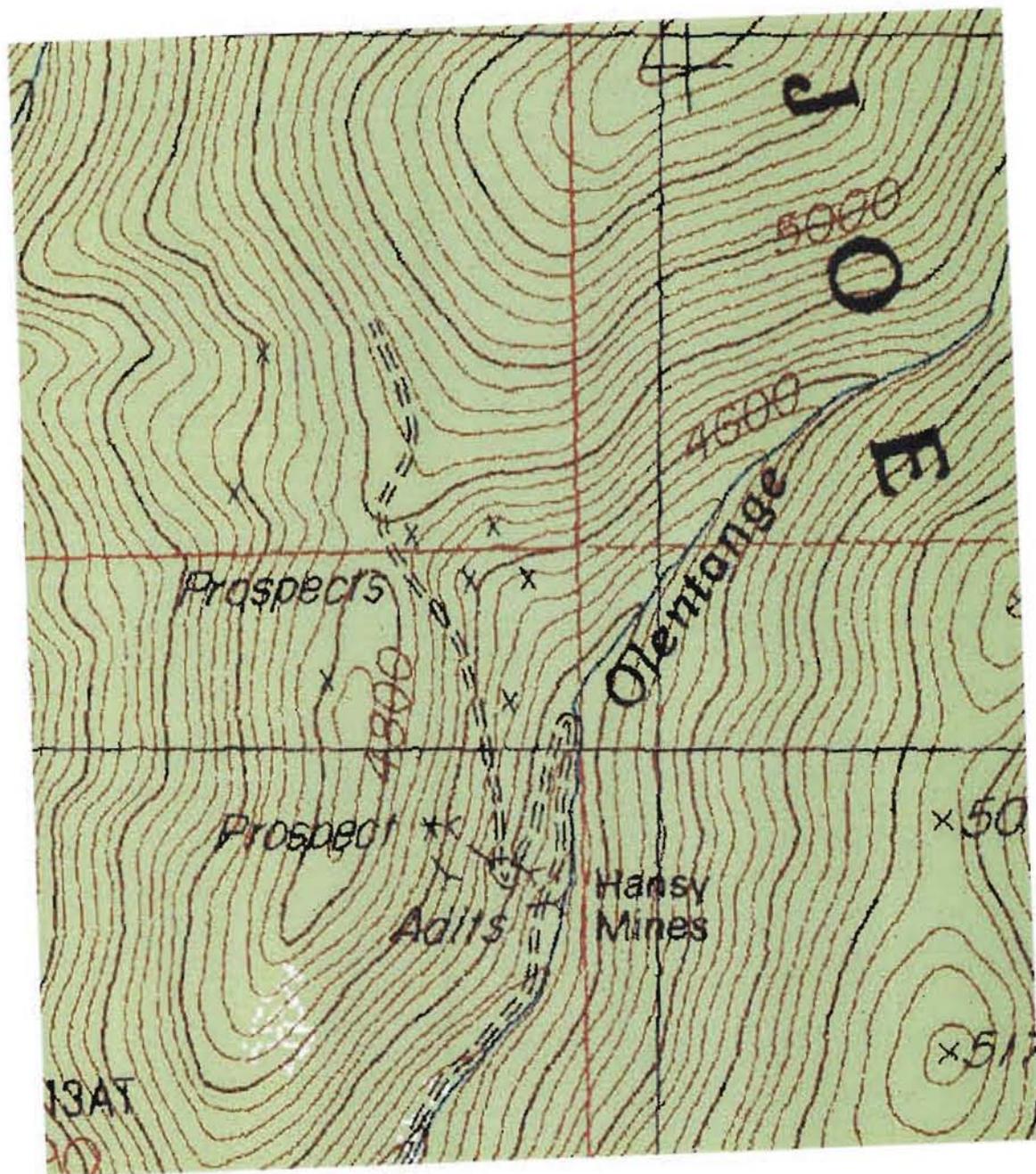




Figure 2-5  
Aerial photograph of the Hansy site.

## 2.3 SITE OPERATIONS AND WASTE CHARACTERISTICS

John Kauffman of the Idaho Geological Survey (IGS) conducted a site inspection of the Hansy in 1998, as part of their assessment of abandoned and inactive mines in Idaho on USFS lands. During this inspection, IGS noted the presence of six (6) adits and five (5) prospect cuts. The IGS Report numbered these features in the order Kauffman encountered them. For lack of a better numbering system, this report will adopt this same identification nomenclature.

The lowest tunnel (and closest to Olentange Creek) was identified as Adit No. 1. The condition of this adit was described as a timbered portal with a gate. IGS observed a water seep flowing from this adit at a rate of about 2 gallons per minute. The dump from this adit borders Olentange Creek and appeared to be eroding away into the creek. Total area was estimated to be approximately 0.5 acre. An ore bin located in the waste rock dump of Adit No. 1, and near Olentange Creek, was the only structure noted. In both the dissolved metals and total recoverable metals screens by IGS on this water, it exceeded the Aquatic Life Standards for cadmium. Copper analyses from the adit discharge, as well as upstream and downstream (Olentange Creek), were below detection limits. Cadmium levels exceeding the Aquatic Life Standards were also found in samples collected in both the upstream and downstream samples. A stream sediment sample, collected from Olentange Creek downstream from the mine, exceeded the “background and environmental levels for arsenic, cadmium, and copper.” Soil samples collected from the Adit No. 1 dump exceeded “background and environmental levels for arsenic, cadmium, copper iron, nickel, and lead in the element screen (Kauffman, 1999). In the TCLP analysis, no metals were noted to be leaching from the soil samples.

Adit No. 2 was described as being approximately 50 feet directly above Adit No. 1. The condition of this adit was observed to be caved in, but with several portal timbers and ore car rails still visible. Total area was estimated to be less than 0.25 acre.

Adit No. 3 was described as being located “slightly uphill and above from, and north of, Adit No. 2” (Kauffman, 1999). This adit had apparently suffered from a collapse and caused the road to completely slump in. No evidence of a portal was present. Due to the steep slope of the hill at this location, it was estimated the slumped material only formed a “thin veneer.” Total area was estimated to be less than 0.5 acre.

Adit No. 4 was located at the end of a spur road uphill from and southwest of Adit No. 3. This adit was nearly collapsed and had rock debris filling the majority of it. The portal had been reduced to a unique “eye-shaped” opening 4 feet long by 2 feet high. This site also contained an older wooden trestle with ore car rails extending out beyond the end of the dump. Nearby a stack of railroad ties and PVC drain pipe was also observed. Total area was estimated to be less than 0.25 acre.

Adit No. 5 was located above and to the north of Adit No. 4 and was also at the end of a spur road. The portal was open with several collapsed timbers observed inside. Total area was estimated to be less than 0.25 acre.

Prospect Cut No. 1 was located directly above Adit No. 3 and consisted of a trench cut along contour and approximately 75 feet long by 15 feet wide. Prospect Cut No. 2 was located approximately 40 feet above Adit No. 5 and consisted of a 30 foot wide cut nearly 300 feet long. IGS suggested a potential location of Adit No. 6 with what was described as a “narrow opening that appears to be a decline,” and subsequently obliterated by bulldozer work.. Prospect Cut Nos. 3, 4, and 5 were all located east of the main road, up from the Adit No. 5 spur road, and consisted primarily of bulldozer-made excavations.

## 2.4 DEQ ACTIONS

DEQ conducted a site visit on July 27, 2004. This included inspections of the 6 (six) adits and 5 (five) prospect cuts previously described by the IGS. A close examination was given to the waste rock dump and ore bin associated with Adit No. 1. A field map was constructed at the time of the visit (Figure 2-3). Due to heavy vegetative growth over the access road, the assessment was conducted on foot after parking the vehicle on FR Road 326.

Arriving on site at 10:45 a.m., DEQ first came to Adit No. 1 which had a partial collapse of its portal. A heavy wooden and locked gate blocked the entrance. A claim notice/location marker and warning signs were posted and clearly visible. The marker was heavily weathered and appeared to read: “HANSY COPPER AND GOLD / MINES, INC. / \_\_\_\_R TUNNEL \_\_\_\_ / \_\_\_\_ CLAIM / PAT. NO. 26 \_\_\_\_ / SAM PETERSON, \_\_\_\_.” Across (east) from the adit and on the western bank of the Olentangee Creek was the waste rock dump and the remains of an ore bin. A small amount of water discharge was coming from the adit and pooling on the road. The flow was insufficient enough to reach the creek and appeared to be subsiding into the waste rock dump. The discharge rate was estimated to be at or less than 2 gallons per minute. The waste rock dump was estimated to be approximately 100’ long x 50’ wide x 15’ high. The exposed portion of the dump, adjacent to the creek, appeared to have weathered to red ferrous staining. A total of six (6) samples were collected from the adit discharge, the waste rock dump, and from Olentangee Creek above – at and below the waste rock dump (Figure 2-4).



**Photo 1**  
Close-up of identification marker outside Adit No. 1.



**Photo 2**  
Opening to Adit No.1 with warning sign and identification marker.



**Photo 3**  
Looking south down Olentange Creek along the eastern edge of the Adit No.1 waste dump, with the log ore bin in center of photograph. Sample H-5 was collected from the creek approximately 15 feet downstream from the ore bin. Sample No. H-6 collected from the waste pile to the adjacent to the ore bin, next to the rotting log.



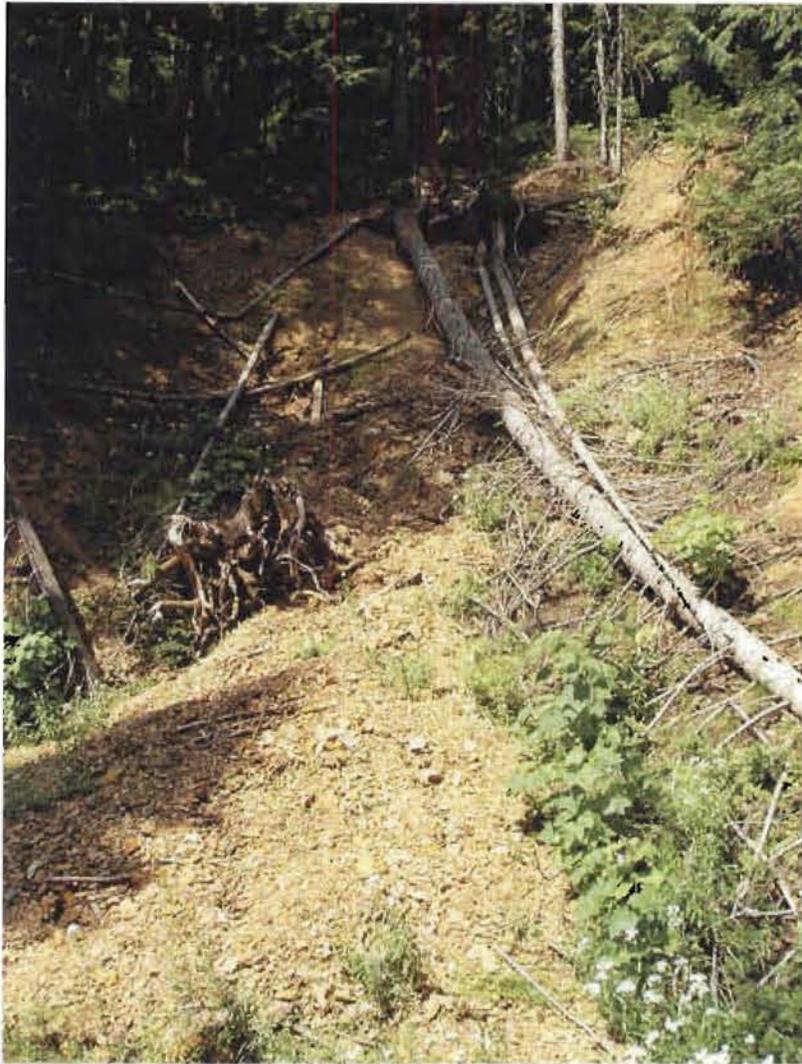
**Photo 4**

Looking west at the portal to Adit No.2. This tunnel is completely collapsed.



**Photo 5**

Close-up of the collapsed entrance to Adit No. 2. Drum is empty.



**Photo 6**

Looking west at the sloughed slope caused by the collapse of Adit No. 3. View is from the main road (below Adit No. 3) and looking uphill.

North past Adit No. 1, the road splits with the northern fork crossing the remains of an old wooden bridge and appearing to continue along the creek's drainage. The other fork makes a switchback to the south. A spur to the left continues to Adit No. 2, located approximately 50 to 75 feet vertically above Adit No. 1. This adit is collapsed and has a small (25' x 25' x 30') waste rock dump. A partially timbered portal and evidence of the collapsed adit are visible. An empty, 55-gallon steel drum rests on the timbers. Approximately 100 yards further on the main road is Adit No. 3. The portal to this adit has collapsed to such an extent that it has severely compromised the main road which switched back and crossed above Adit No. 3. Debris lay on the collapsed feature including several smaller trees, stumps, and a large tree. A determination of the waste rock dump was not possible at this time due to what appeared to be road-building activities and erosion from

the collapse of Adit No. 3. Just past Adit No. 3, the road switches back towards the north and crosses precariously above the slipped land mass. Evidence of 4-wheeler/ATV activity, at this point, suggested the road was no longer passable via conventional vehicles. Prospect Cut No. 1 was observed directly above the road and uphill from Adit No. 3. Continuing up the road, Prospect Cut No. 3 was observed off the right side of the road, approximately 100 yards from Adit No. 3.

Just past this cut is the spur road to Adit Nos. 4, 5, and 6. This spur road was heavily overgrown with brush, and difficult to discover. Traveling south off the main road, the spur initially split with the uphill fork leading to Adit Nos. 5 and 6. The lower fork continued onto Adit No. 4.

Adit No. 6 appeared to have been driven downward to intersect Adit No. 5. The portal was partially collapsed. A three pound rock was tossed into the opening and heard tumbling and falling for at least 15 seconds until the sound faded. A pile of shattered timbers marks the portal. The waste rock pile appeared to have been heavily cut is identified as Prospect Cut No. 2. A winze or decline appeared to be associated with this adit and lay adjacent to an outcrop of heavily limonitic stained soil and rock.



**Photo 8**

Looking northwest at the opening of Adit No. 6, just above the pile of timbers.



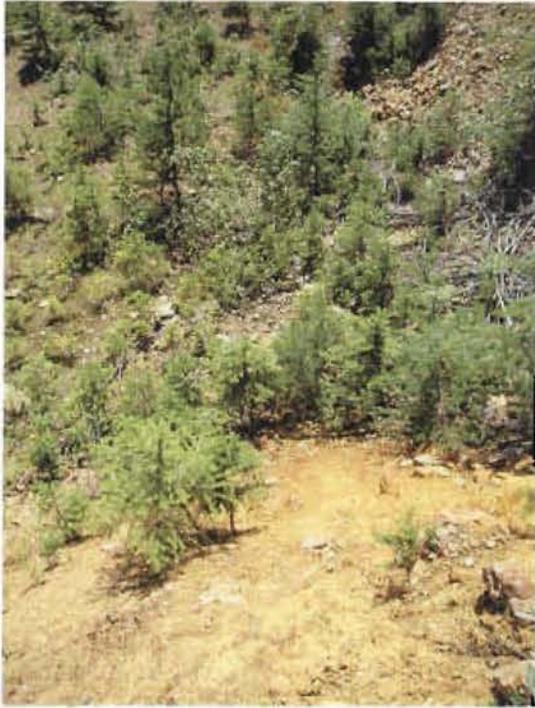
**Photo 9**

Looking down at the opening to Adit No. 6. A 4-inch rock dropped into the opening was heard rolling and traveling for an extended length of time suggesting a downward sloped tunnel.

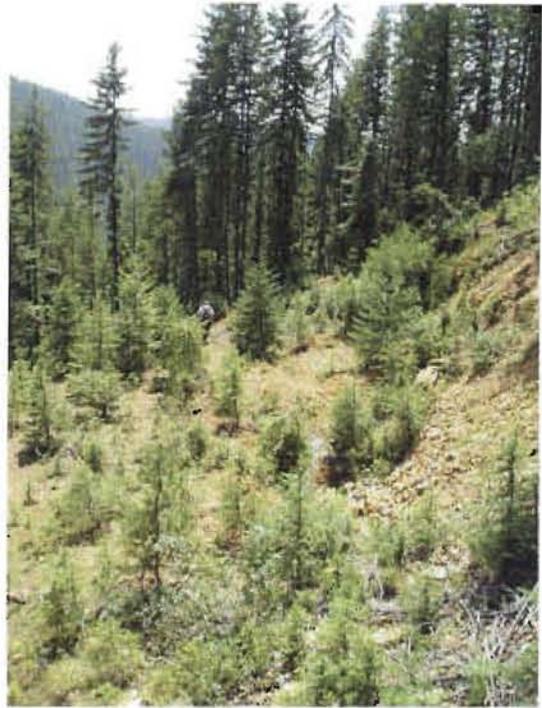


**Photo 10**

Looking south from the opening to Adit No. 6. Area identified as Prospect Cut No. 2.



**Photo 11**  
Looking down from opening to Adit No. 6.  
Prospect Cut No. 2 in background.



**Photo 12**  
Looking south. Long view of Prospect Cut  
No. 2



**Photo 13**  
These photos are of the Adit No. 5 portal. Opening is large enough for human entrance. Note piled debris at the entrance, with fallen timbers on the inside. Mine access warning poster to the left of the opening had been vandalized, and discarded away from the adit.



**Photo 14**



**Photo 15**

Looking north across waste rock dump from Adit No. 5 (in the center-left of photograph). The red, 55-gallon drum and rust-brown, 55-gallon drum in front of it are empty.

Adit No. 5 appeared to have been driven in a NW direction. Numerous quartz veins were noted. The adit itself was partially collapsed with some timbers still present. The opening was large enough for a human adult to enter. A warning placard was found on the ground and in pieces. Two empty, 55-gallon drums were located on the waste rock dump along with numerous 5-gallon metal containers (empty), metal piping, and hoses. An examination of the waste rock dump indicated minor copper present via a patina coloring.

Adit No. 4 was mostly collapsed, with the portal reduced to the oval “eye-shape” previously noted by IGS. The waste rock dump for this adit measured approximately 30’ x 25’ x 25.’ An ore car rail is still present off the end of the waste rock dump. A stack of railroad ties and PVC piping was observed on the landing.



**Photo 16**

Looking northwest at Adit No. 4. Note slumped materials. Adit opening is in center.



**Photo 17**

Looking south at the deck of railroad ties (center of photograph) located at Adit No. 4. Note the section of rails beyond the stacked ties. The rails extended from Adit No. 4, across the landing, and out over the waste rock dump.



**Photo 18**

Close-up of the opening to Adit No. 4. Note slumped/collapsed debris at the entrance. There appeared to be less material obstructing the entrance than noted by IGS.



**Photo 19**

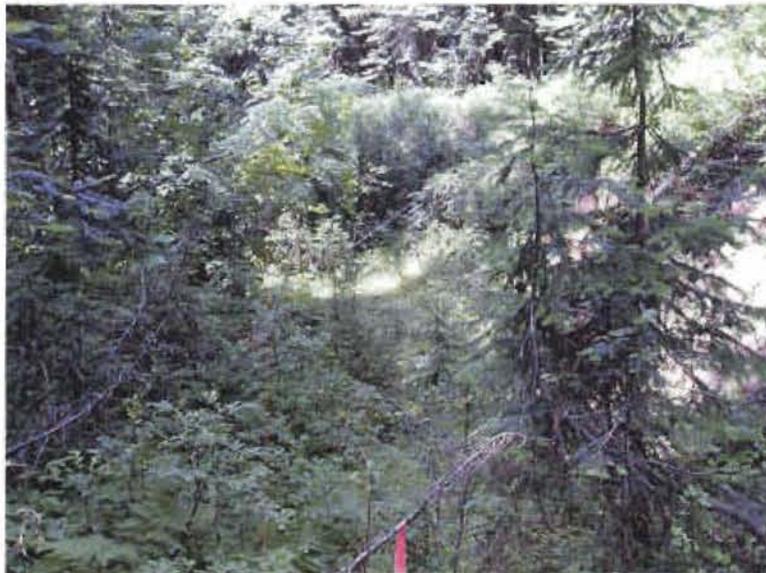
Close-up of the rails extending out over the edge of the waste rock dump.



**Photo 20**

Wider view of the rails extending out over the edge of the Adit No. 4 waste rock dump.

Back on the main road, two (2) additional cuts were observed further to the north and on the downhill side. These consisted of nothing more than overgrown trenches. The first of these was identified as Prospect Cut No. 4 and was approximately 100 yards in length. The uppermost was identified as Prospect Cut No. 5 and was located near the saddle of the ridge.



**Photo 7**

Looking southwest from the end of Prospect Cut #4.

Regarding the site as a whole, access appeared to be unlimited with no fencing, gates, or signs. The only controlled access observed was the locked wooden gate on Adit No. 1. Only two of the four adits, with openings remaining, had warning signs (Adit Nos. 1 and 5). Adit No. 6 appeared to present the greatest physical danger, due to its sharply sloped entrance, consisting of loose rock combined with what appeared to be a sloped shaft. Adit No. 5 appeared to have a great potential for mammal/carnivore habitation. None of the Prospect Cuts appeared to pose any physical threat. All waste rock piles posed the physical trip/fall hazard. Full-size vehicle access on the site appears to be limited to the base of Adit No. 3 and the collapsed bridge past Adit No. 1. Prior motorcycle and ATV access was quite apparent.

### 3. MIGRATION/EXPOSURE PATHWAYS AND TARGETS

The following sections describe migration/exposure pathways and potential targets within the site's range of influence (Figure 3-1). Receptors in the area have been identified as seasonal recreationists including occasional tourists, hikers, campers, hunters, and snowmobilers. The only commerce in the area is the occasional timber harvesting operation. The current owner of the Hansy had originally purchased the site just for this purpose. However, at this time, there appeared to be no active logging.

#### 3.1 GROUND WATER MIGRATION PATHWAY

The workings of the Hansy lie within rocks of the Belt series, known as the "Supergroup." The Hansy was wholly developed within the Wallace formation, which dates to the pre-Cambrian era (1.4 bya – 0.85 bya). "The entire formation bears evidence of shallow water deposition; the more shaly facies are mud cracked, while the sandy facies are ripple marked" (Wagner, 1949, p. 12). The mud cracks are distinctly typical of the shales and slates of the lower member of the formation. The formation consists of mostly thin-bedded calcareous sediments. "The rocks contain carbonates of magnesium and iron as well as of calcium, but the calcium seems the most abundant. The formation comprises three members which are fairly distinct in general character, but which grade into one another... The lowest member is characterized by the prevailing green color of its rocks... Higher in the formation the proportion of limy material is greater, as is indicated by the yellow color assumed by the rocks when weathered; numerous bands of whitish calcareous sandstone and a few strata of blue and white argillite make their appearance. The part of the formation in which the green color is strongly preponderant constitutes what may conveniently be called the lower member" (Calkins and Jones, 1912, pp. 13 and 14). Rock outcrops at the Hansy contain both mud cracks and ripple marks, suggesting the mine's gradation between the middle and lower members of the Wallace formation.

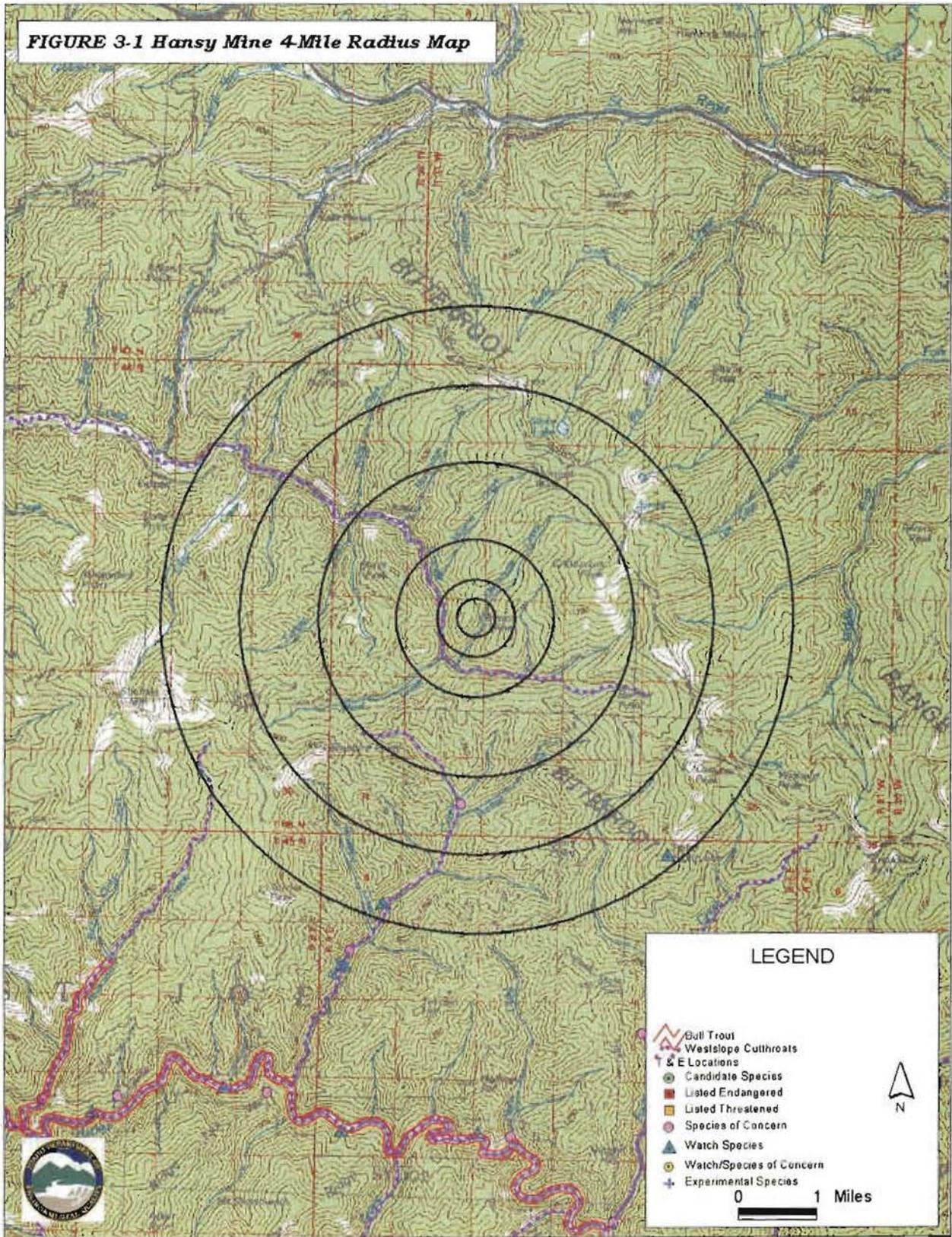
The Olentangie Creek drainage and surrounding area is devoid of wells, so ground water data is unavailable. Consequently, ground water is expected to follow preferential pathways along bedding planes and be controlled by faults and fractures, locally. Though the Hansy has underground workings totally more than 700 feet, most of the entrances have collapsed or partially collapsed. Adit No. 1 appears to be the only adit with ground water seepage. Therefore, it is surmised that ground water in the Olentangie and adjacent Loop Creek drainages recharge surface waters.

No precipitation data is available for the Hansy. Therefore, precipitation data from the Avery Ranger Station No. 2 that was maintained from 11/1/1968 to 9/30/2004 was used. This site is located 12 miles southeast and at an elevation of 2,780 feet amsl. The mean annual precipitation is 37.78 inches, and the 100-year, 24-hour event is 2.80 inches (WRCC, 2004). There are no drinking water wells within a 4-mile radius of the Hansy.

#### 3.2 AIR MIGRATION PATHWAY

The site is situated within a mountainous canyon covered with heavy vegetation, consisting mostly of coniferous trees and an under-story of heavy brush. The existing tailings/waste rock dumps are becoming overgrown with annual and perennial vegetation. The waste rock from Adit Nos. 1 and 3 are compacted into the main roadbed. However, due to the limited vehicle traffic, combined with the vegetative cover, the potential for aerial dispersal from the dumps appears to be very low.

**FIGURE 3-1 Hansy Mine 4 Mile Radius Map**



### 3.3 SOIL EXPOSURE PATHWAY

Access to the Hansy site is via an unimproved road extending north from FS 326. This road is overgrown with brush but could be accessible with an off-road vehicle. The site has no fencing, gates, or signs. Full-size vehicle access on the site appears to be limited up to the base of Adit No. 3. Prior motorcycle and ATV access was quite apparent. Soil samples collected by DEQ, from the waste rock dump at Adit No. 1, indicate elevated levels of arsenic (Appendix B).

### 3.4 SURFACE WATER MIGRATION PATHWAY

From the surface discharge of water from Adit No. 1, Olentang Creek flows approximately 0.5 miles to Loop Creek. Flowing in a west-northwest direction, Loop Creek joins the North Fork St. Joe River after approximately 9.0 miles. Olentang Creek has no tributaries. Loop Creek has many smaller tributaries (including Olentang Creek). After the Loop Creek confluence, the North Fork St. Joe River flows another 8.0 miles to the border of the TDL (Figure 2-2).

Water samples collected by DEQ from Olentang Creek above and below the Adit No. 1 waste rock pile, as well as from the discharge from Adit No. 1, revealed no constituents of concern (Appendix B).

Commercial and subsistence fishing are not conducted within the surface water Target Distance Limit (TDL). Sport fishing may occur on Olentang Creek, though direct evidence of this was not observed. Empirical data suggests the majority of sport fishing is contained to the larger tributaries of the North Fork St. Joe River including Loop Creek. Fish catch data was not available at the time of the inspection.

#### 3.4.1 Target Species

The Clustered Lady's Slipper (*Cypripedium fasciculatum*) is listed as a species of concern and has been identified in an area approximately 2.34 miles south of the Hansy site.

Known to populate the St. Joe River, the bull trout (*Salvelinus confluentus*) are listed as a threatened species (FWS, 2003). Loop Creek and the North Fork St. Joe River are located within the site's TDL. The TDL also contains the presence of the Westslope cutthroat (*Oncorhynchus clarki lewisi*).

The North American Wolverine (*Gulo gulo luscus*) is a listed species and has been identified in an area approximately 3.8 miles south-southwest of the Hansy site. Another listed species, the fisher (*Martes pennanti*), has been identified in an area approximately 3.9 miles south-southeast of the Hansy site.

The use of surface water for watering of livestock and irrigation appears to be non-existent within the TDL. Large indigenous mammals (deer, elk, bear, etc.) are presumed to present

in the area and would utilize the water from Olentange Creek, Loop Creek, and the North Fork St. Joe River. There are no drinking water intakes/wells within the TDL.

The North Fork St. Joe River and Loop Creek, within the TDL, has been designated by DEQ under the Total Maximum Daily Load (TMDL) program as a 303(d) listed stream for the pollutant of concern of temperature. It does not appear the former mining activity associated with the Hansy Mines has any impact on this pollutant of concern.

#### 4. SUMMARY

The Hansy Mine, which is located in the upper reaches of the St. Joe River drainage, lies adjacent to Olentange Creek. The site is situated within a mountainous canyon covered with heavy vegetation, consisting mostly of coniferous trees and an under-story of dense brush. The existing waste rock dumps are becoming overgrown with annual and perennial vegetation. The entrance to Adit No. 1 is controlled by a locked wooden gate, but access to Adit Nos. 5 and 6 are unrestricted. These two (2) adits present serious safety concerns.

Limited sampling revealed elevated arsenic levels in soil (10" depth) from the waste rock dump adjacent to Adit No. 1. Though the likeliest target of arsenic exposure would be on-site receptors (i.e., hunters, hikers, etc.), the likelihood of accidental contact appears remote. The waste dumps and prospect cuts appear compacted and vegetated. The likelihood of aerial dispersion from these areas appears remote.

Water samples collected by DEQ from Olentange Creek above and below the Adit No. 1 waste rock dump, as well as from the discharge from Adit No. 1, revealed no constituents of concern (Appendix B). Surface water analysis does not indicate that heavy metals are mobilizing.

Consequently, the greatest concern identified at the Hansy pertains to safety issues relating to unrestricted access to open adits and/or inclines. For instance, Adit No. 5 appeared to have been previously inhabited by large mammals (i.e., bear or mountain lion) and possible physical dangers could remain.

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## APPENDIX A

### Photograph Log

Photo	Description
Hansy1	Close-up of identification marker outside Adit No. 1 – Appears to read as follows: “HANSY COPPER AND GOLD / MINES, INC. / ___R TUNNEL ___ / ___ CLAIM / PAT. NO. 26 ___ / SAM PETERSON, ___.”
Hansy2	Looking at the opening to Adit No.1 – Heavily overgrown with small flow of water from the floor. Mine access warning poster on a timber to the left. Identification marker described in photograph Hansy1 is located directly below the warning poster. Locked wooden gate is in the background. Supporting timbers and overhead materials appear to have collapsed/decayed greatly since the 1998 photograph by J. Kauffman. Sample H-4 was collected from the adit water discharge.
Hansy3	Looking south down Olentange Creek, along the eastern edge of the Adit No.1 waste dump, with the log ore bin in center of photograph – Sample H-5 was collected from the creek approximately 15 feet downstream from the ore bin. Sample No. H-6 collected from the waste pile adjacent to the ore bin, next to the rotting log.
Hansy4	Looking west at the portal to Adit No.2 – This tunnel is completely collapsed. No discharge noted from this adit.
Hansy5	Close-up of the collapsed entrance to Adit No. 2 – Drum is empty.
Hansy6	Looking west at the sloughed slope caused by the collapse of Adit No. 3 – View is from the main road (below Adit No. 3) and looking uphill.
Hansy7	Looking southwest from the end of Prospect Cut #4.
Hansy8	Looking northwest at the opening of Adit No. 6.
Hansy9	Looking down at the opening to Adit No. 6 – A 4” rock dropped into the opening and was heard rolling and traveling for a long period of time suggesting a downward sloped tunnel.
Hansy10	Looking south from the opening to Adit No. 6 – This is Prospect Cut #2.
Hansy11	Looking down from the opening to Adit No. 6 – Prospect Cut #2 in background.

- Hansy12 Looking south – Long view of Prospect Cut #2.
- Hansy13 Close-up of Adit No. 5 entrance – Opening is large enough for human entrance. Note the piled debris at the entrance with fallen timbers on the inside.
- Hansy14 Looking northwest at Adit No. 5 entrance – Mine access warning poster to the left of the opening had been vandalized and discarded away from the adit.
- Hansy15 Looking north across waste rock dump from Adit No. 5 (in the center-left of photograph) – The red, 55-gallon drum and rust-brown, 55-gallon drum in front of it are empty.
- Hansy16 Looking northwest at Adit No. 4 – Note slumped materials. Adit opening is in center of photograph.
- Hansy17 Looking south at the deck of railroad ties (center of photograph) located at Adit No. 4 – Note the section of rails beyond the stacked ties. The rails extended from Adit No. 4, across the landing and out over the waste rock dump (see photos Hansy19 and Hansy20).
- Hansy18 Close-up of the opening to Adit No. 4 – Note the slumped/collapsed debris at the entrance. There appeared to be less material obstructing the entrance than the 1998 inspection by J. Kauffman.
- Hansy19 Close-up of the rails extending out over the edge of the waste rock dump – Looking east.
- Hansy20 Wider close-up of the rails extending out over the edge of the waste rock dump – Looking south.

**APPENDIX B**  
**ANALYTICAL DATA**

Soil Samples												
Sample ID	Specific Location	By	Sample Medium	Date	* Ag	* As	* Ba	* Cd	* Cr	* Pb	* Se	* Hg
H-1	Adit No. 1 waste rock pile	RH	Rock	7/27/04	<2.5	1580	57.6	<1.0	3.8	11.8	<5.0	<0.0330
H-6	10" deep at Adit No. 1 waste dump	RH	Soil	7/27/04	<2.5	2450	50.9	<1.0	9.5	9.5	<5.0	0.052
H-2	Rock dump (Adit No. 1)	RH	Soil	7/27/04	<0.0050	0.087	0.209	<0.0020	<0.0060	<0.0050	<0.010	<0.00020

\* Units - mg/kg

Water Samples												
Sample ID	Specific Location	By	Sample Medium	Date	* Ag	* As	* Ba	* Cd	* Cr	* Pb	* Se	* Hg
H-3	Olentange Ck upstream of adit	RH	Water	7/27/04	<0.0050	<0.010	0.0037	<0.0020	<0.0060	<0.0050	<0.010	<0.00020
H-4	Olentange Ck @ adit discharge	RH	Water	7/27/04	<0.0050	0.013	0.0049	<0.0020	<0.0060	<0.0050	<0.010	<0.00020
H-5	Olentange Ck downstream	RH	Water	7/27/04	<0.0050	<0.010	0.004	<0.0020	<0.0060	<0.0050	<0.010	<0.00020

\* Cu      \* Zn      pH

H-ADIT	Lowest adit, collected at portal	CS	Water	9/1/04	0.0128	<0.0050	8.09					
H-V	Olentange Ck above all workings	CS	Water	9/1/04	<0.0030	<0.0050	7.85					
H-L	Olentange Ck below all workings	BG	Water	9/1/04	0.0047	0.0077	7.84					

\* Units - mg/L