

Black Horse, Hillside and Big Bonanza Mines

(aka Black Horse, Hillside & Big Bonanza Patented Mining Claims)

Preliminary Assessment Report

Blaine County
State of Idaho



Department of Environmental Quality

December 2007

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



STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

1410 North Hilton • Boise, Idaho 83706 • (208) 373-0502

C.L. "Butch" Otter, Governor
Toni Hardesty, Director

December 19, 2007

Mrs. Evelyn Drager
c/o John Drager
P.O. Box 421
Osburn, Idaho 83849

RE: Site Assessment of the **Black Horse, Hillside and Big Bonanza** Mines and Claims.

Dear Mrs. Draeger:

The Idaho Department of Environmental Quality (IDEQ) has completed a review of historical mining data and geological information at the above referenced sites. Subsequent to that review, IDEQ conducted a site visit of the Black Horse, Hillside and Big Bonanza claims (properties). During the site visit, mining facilities were mapped and sampled to complete the analysis necessary to complete a final Preliminary Assessment (PA) report.

Preliminary Assessments are conducted according to the Federal Comprehensive Environmental Response, Compensation and Liabilities Act. The reasons to complete a Preliminary Assessment include:

- 1) To identify those sites which are not CERCLIS caliber because they do not pose a threat to public health or the environment (No Remedial Action Planned (NRAP));
- 2) To determine if there is a need for removal actions or other programmatic management of sites;
- 3) To determine if a Site Investigation, which is a more detailed site characterization, is needed; and/or
- 4) To gather data to facilitate later evaluation of the release through the Hazard Ranking System (HRS)

IDEQ has also completed PAs under contract with the U.S. Environmental Protection Agency in order to identify risks to human health and the environment, and to make recommendations to land owners regarding how risks might be managed under current site conditions and in future use scenarios.

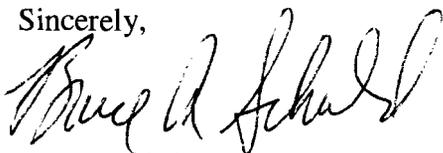
Letter to E. Drager
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Based on existing conditions and uses, historic information, data observations made during the site visit, and analysis of the mine wastes, potential pathways of contaminants to receptors, and potential exposures to ecological and human receptors, IDEQ has determined that No Remedial Action is Planned (NRAP) for the referenced properties and mine sites. However, should site conditions or uses change in the future, owners of these properties would be well advised to incorporate additional site characterization and if necessary risk management in their development and/or operating plans. Furthermore, IDEQ has noted numerous physical hazards on the properties which are beyond the scope of IDEQ's risk analysis. These openings will be identified and discussed in the attached report for your consideration.

Attached is an "abbreviated" Preliminary Assessment Report of the properties and mine facilities. The report contains copies of historic mining reports, geologic information, data results, and maps of the properties, along with a brief checklist of how IDEQ came to its recommendation that the property status is NRAP.

IDEQ very much appreciates your cooperation and approval for our access, and looks forward to addressing any questions you may have regarding our findings.

Sincerely,



Bruce A. Schuld
Mine Waste Projects Coordinator
Waste Management and Remediation Division

BAS:tg

Attachment

cc: Ken Marcie – U.S. Environmental Protection Agency
Megan Stelma – Blaine County
file

SECTION 1

The relative per cent of ownership and listed owners is not warranted by the Idaho Department of Environmental Quality. The following names and addresses of owners and their relative percentage of ownership were obtained from the tax rolls at the Blaine County Tax Assessor's Office.

Ownership

Contacts:

Evelyn Drager
John L. Drager
P.O. Box 421
Osburn, Idaho 83849

Claims and Per Cent Ownership:

Black Horse	100 %
Hillside	100 %
Big Bonanza	50 %

William S. Venable
c/o John L. Drager

Big Bonanza	50 %
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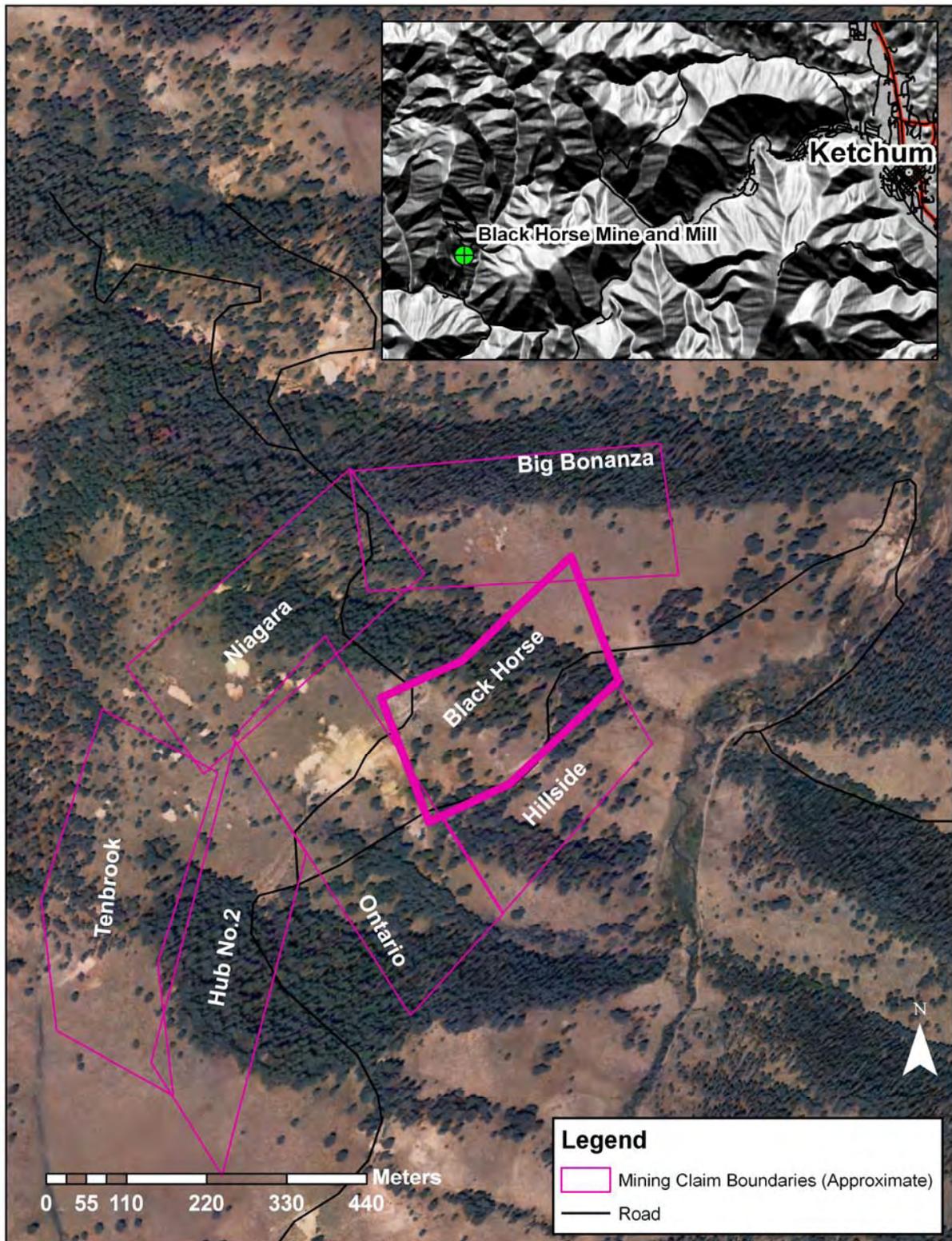


Figure 1

SECTION 2

Introduction

This document presents the results of the preliminary assessment (PA) of the Black Horse, Hillside and Big Bonanza mines and claims. The Department of Environmental Quality (DEQ) was contracted by Region 10 of the United States Environmental Protection Agency (EPA) to provide technical support for completion of preliminary assessments at various mines within the Warm Springs Mining District in Blaine County, Idaho.

DEQ often receives complaints or information about sites that may be contaminated with hazardous waste. These sites can include abandoned mines, rural airfields that have served as bases for aerial spraying, old landfills, illegal dumps, and abandoned industrial facilities that have known or suspected releases.

In February 2002, DEQ initiated a Preliminary Assessment Program to evaluate and prioritize assessment of such potentially contaminated sites. Due to accessibility and funding considerations, priority is given to sites where potential contamination poses the most substantial threat to human health or the environment. Priority was also given to mining districts where groups or clusters of sites could be assessed on a watershed basis.

For additional information about the Preliminary Assessment Program, see the following:

http://www.deq.idaho.gov/waste/prog_issues/mining/pa_program.cfm

Access to assess the Black Horse, Hillside and Big Bonanza patented mining claims was provided by Mrs. Evelyn Drager (co-owner). Access to these properties is gained by traveling west from Ketchum, Idaho on Warm Springs Road, also known as Forest Development Road 227. The Warm Springs Road is paved for a few miles beyond of the Big Wood River after which it turns into an improved gravel road. Warwick Hot Springs sub-division is encountered at approximately nine miles up Warm Springs Road, then Rooks Creek Road at 11.25 miles. One turns onto Rooks Creek Road heading northerly for approximately 1.25 miles until reaching the ruins of the Sunday Millsite. The bridge across the creek accessing the old mine road has been removed, but the creek is fairly easy to cross. One continues by foot along the ruins to the north where the old road is located. The road winds above the old mill, heading west-southwest for approximately 0.5 miles before reaching the claims (see Figure 1).

In the lowermost portion of the Rooks Creek drainage the Rooks Creek road lies within a very constricted drainage bottom occupying a portion of the floodplain for a short distance. The road fords Rooks Creek a short distance up the canyon and is located immediately adjacent to the stream channel for approximately 250 feet past the ford. This road segment is very narrow, situated on a steep slope, and is difficult to maintain and navigate. Because of its proximity to the stream this road segment directly contributes sediment to Rooks Creek, damages riparian habitat and contributes to stream channel instability. Every year the ford captures a portion of Rooks Creek resulting in water running down the road for about 200 feet before re-entering the stream channel. Depending upon the severity of runoff the flooded road segment may be difficult if not impossible to navigate in the spring. The ford itself is difficult to navigate because of its rocky nature and steepness on the north side (USFS, 2006).

SECTION 3

Mine Site History

Historical Mine Articles

The Black Horse, Hillside and Big Bonanza Lode claims were patented in 1885, 1891 and 1913 respectively. Neither operational history nor production information was available for these properties. Numerous workings and prospects occur adjacent to and within a short distance of the Black Horse, Hillside and Big Bonanza Lode claims. The only historical information located by IDEQ refers to the Ontario mine which lies approximately 0.3 miles to the north.

The Ontario mine... was active from 1881-1887 and produced nearly \$1,000,000 from lead-silver ore....Actual grade and tonnage figures were not available. The production may also include other mines located near the Ontario mine. The mine workings consisted of several adits driven along E-trending structures and along contacts of alkali-granite and limestones of the Wood River Formation, and numerous prospects aligned along E-trending structural zones (Park, 1990, p. 52).

Production values for the Ontario's ore are as follows: copper - (1,001-5,000) lbs; zinc - (500,001-2,000,000) lbs; lead - (500,001-2,000,000) lbs; silver - (50,001-100,000) oz; and gold - (101-500) oz (IGS, 2007). Apparently, the value ranges were provided to protect confidentiality.

SECTION 4

Geology and Mineral Deposits

Previous Work

Numerous studies of the geology and mineral resources of the Wood River and adjacent areas have been made. Geologic studies have been conducted to investigate mineral deposits (Lindgren, 1900 & 1933; Umpleby et al, 1930; Anderson and Wagner, 1946; Anderson et al, 1950; Hall et al, 1978; Wavra and Hall, 1989; Link and Worl, 2001; Worl and Lewis, 2001); individual formations and units (Hall et al, 1974; Sandberg et al, 1975; Wavra and Hall, 1986; Park, 1990; Worl and Johnson, 1995); quadrangles (Batchelder and Hall, 1978; Mitchell et al, 1991; Kiisgaard et al, 2001) and to compile regional information (Rember and Bennett, 1979). Preliminary and environmental assessment investigations have been conducted to assess current and potential impacts from historic mining in the region (Mitchell and Gillerman, 2005; IDEQ, 2002 & 2006; IDEQ & USEPA, 2006 & 2007).

Stratigraphy and Lithology

The underlying geology consists of Paleozoic sedimentary and Cretaceous igneous rocks. The middle member of the Pennsylvanian-Permian Wood River Formation is represented in the area. This member is comprised of "thick-bedded micritic or siliceous sandstone, siltite, and

subordinate silty limestones” (Park, 1990, p. 11). The site is bordered by the Rook’s Creek stock, a satellite granitic pluton associated with the Idaho batholith.

Mineralization

Two distinct ages and styles of mineralization occur in association with the Rook’s Creek stock. The oldest of these is Cretaceous lead-zinc skarn mineralization that is exposed in two locations on the contact of the biotite granodiorite and thick-bedded sandy and silty limestones of the Pennsylvanian-Permian Wood River Formation...The mineralization is characterized by galena-sphalerite-pyrrhotite ore mineral assemblage in a gangue of quartz and siderite. Mineralization is confined to structures, which is typical of lead-zinc skarns (Einaudi and others, 1981), near the contact. Outside of the ore horizon, contact metamorphism of the limestones resulted in the recrystallization of quartz and calcite and the formation of abundant tremolite.

The second style of mineralization in the area is NE- to E-trending shear zone hosted lead-silver-zinc vein deposits associated with the emplacement of alkali-granite of Cretaceous age. This style of mineralization was seen at the Ontario mine and a large area surrounding the Ontario mine...The shear zone-hosted mineralization is characterized by quartz-sericite-pyrite alteration and vein mineralogy, including quartz, pyrite, sphalerite, galena, chalcocopyrite, stibnite, and geocronite (Park, 1990, p.50).

Mineralization is characterized by quartz veins with associated sulfides. Sulfide minerals include pyrite, sphalerite, galena, chalcocopyrite, stibnite and arsenopyrite. Host rocks are altered to quartz, sericite, and pyrite. Crosscutting relationships indicate that there were two episodes of mineralization (ibid, p. 61).

Structure

Fryklund (1950, pp. 65-66) noted the following in regards to the structure of the rocks:

The most obvious and significant structural features of the area are the major faults or fault zones which divide the area into a number of distinct blocks...The age of the oldest faults are to be placed as pre-intrusive and possibly all the major faulting is pre-intrusive...All of the major faults are probably pre-mineral as well as pre-intrusive.

SECTION 5

Current and Future Potential Beneficial Uses

Current land uses in the area include biking, hiking, hunting, horseback riding and off-road vehicle touring. Currently, there are no indications of active mining operations. The USFS and Blaine County provide maintenance for the Rook’s Creek trail system

Due to its remoteness and the potential for avalanches, it is very unlikely that full time residences would be developed on these patented mining claims. There is a potential for development of season housing such as hunting cabins, or housing and mine buildings if mineral values made it conducive to redevelop operations of these claims. There have been no communications with land owners that indicate that there is any desire to develop these claims in the future.

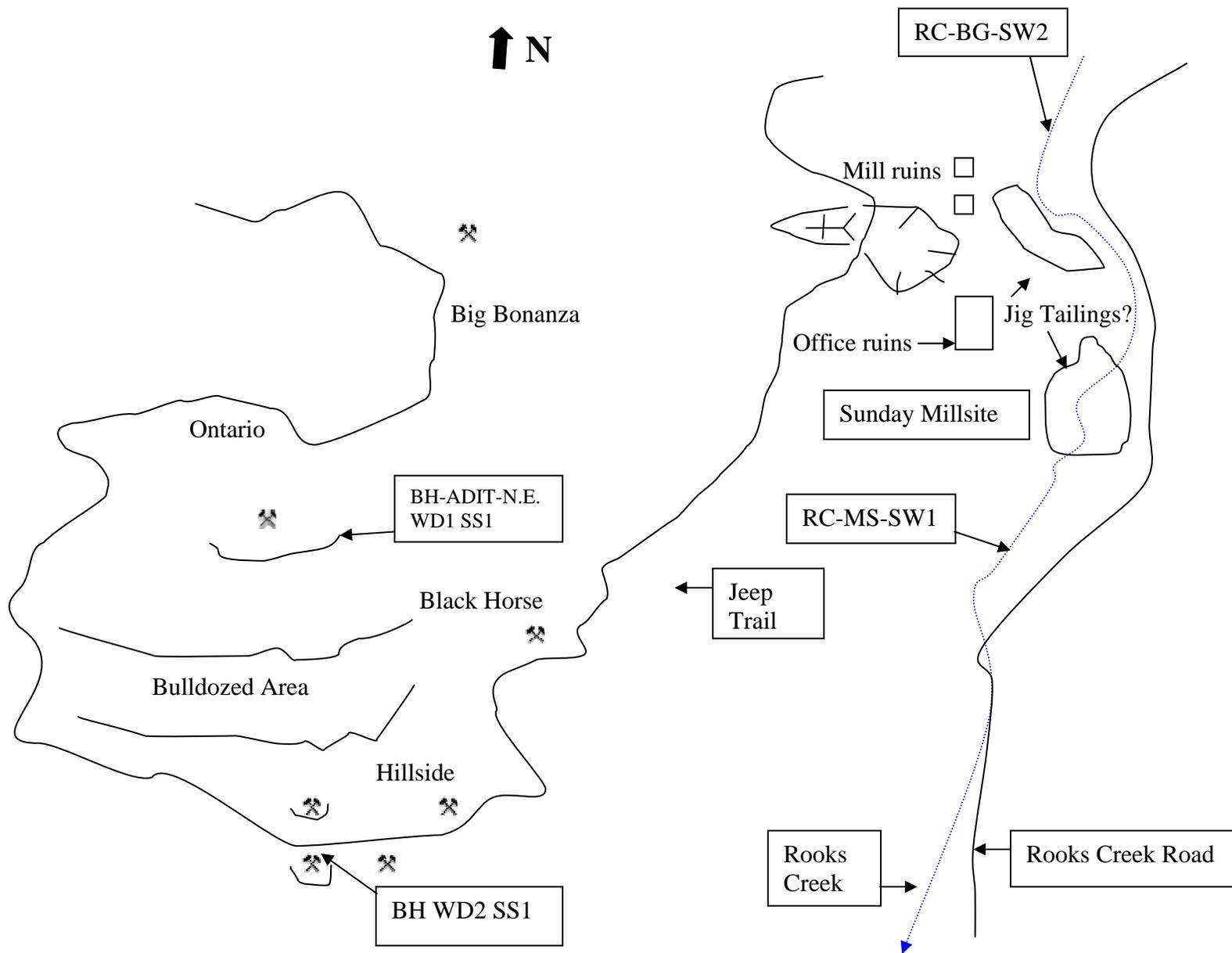


FIGURE 2

Black Horse, Hillside & Big Bonanza Claims

SECTION 6

Site Conditions and Waste Characterization

Generally speaking, the workings surrounding the Black Horse, Hillside and Big Bonanza Lode claims are visible when traveling northward on Rook's Creek Road. However, as the bridge crossing near the former Sunday millsite has been removed, access to the old mine road leading to these properties minimal. Though fording of the stream is possible, IDEQ did not discern that stream banks had been impacted by off-road vehicles (ATV). There is not any evidence of springs or drainage from any of the caved adits or prospects. There is not any evidence, in the ephemeral drains immediately beneath the workings, of riparian or wetland communities, though these communities are represented along Warm Spring Creek which lies approximately 0.8 miles to the south. Two waste rock samples were collected from the Black Horse and Hillside claims. Additionally, two water samples were collected from Rook's Creek, upgradient and downgradient from the former Sunday millsite which is located approximately 0.4 miles to the northeast of these claims.

Accuracy for the location of prospects and waste dumps on the claim is questionable because mapping was conducted using GPS, county maps, and patented plat maps, none of which have been tied together by a land survey. Therefore, IDEQ does not warrant any of the maps, or diagrams contained in this Preliminary Assessment.

Based upon historical information, principally from the Ontario mine, most of the workings of the Black Horse, Hillside and Big Bonanza Lode are assumed to be shallow explorations (<150 ft). Most of the waste dumps that remain on the hillside are very small (less than 50 – 250 cubic yards). However, exploration trenches and the associated disturbed ground on the southwestern portion of the Black Horse claim measured more than 1,000 cubic yards and were dotted with sulfide mineralization. The majority of waste rock which is estimated at 10-12,000 cubic yards, however, appears to be located on the adjacent Ontario patented claim. The sample (BH ADIT N.E. WD1SS2) was collected at the eastern margin of one of the exploration trenches. These wastes were noted to contain minor sulfide mineralization including arsenopyrite and galena. A second sample (BH-WD2-SS1) was collected from the crown of the waste dump corresponding to a shallow prospect, which appeared to be located on the Hillside claim, adjacent to the old mine road and approximately 200 feet below the exploration trenches. The sampled waste rock contained minor sulfides and host-rock mineralization. The analyses are contained in Table 1. None of the remaining prospect waste dumps contains significant sulfides nor did they contain sufficient volume to warrant sampling.

The Black Horse claim includes of some exploration trenches and a few very small prospect holes. The Hillside claim includes one collapsed adit, designated as Adit 2 (see Figure 2, preceding page), and several prospects. The volume of the Adit 2 waste dump was estimated at 250 cubic yards. The Big Bonanza Lode claim includes several small prospects.

SECTION 7

Pathway and Environmental Hazards

Climate

No precipitation data is available for the Black Horse, Hillside and Big Bonanza Lode claims. Therefore, precipitation data, maintained from 1948 through 1972, was used from a recording station located approximately 1 mile south of Sun Valley at an elevation of 5,980 feet amsl. The mean annual precipitation is 17.26 inches, and the 100-year, 24-hour event is 2.16 inches (WRCC, 2007). Each site for which this data is used is subject to more localized meteorological conditions that result from difference in elevation, orientation of slopes in watershed, vegetation and other factors. The area around the site is characterized by short cool dry summers and very cold winters.

Pathways and Receptors

There are not any residences, schools or day-care facilities within 200 feet. The nearest residence is located approximately 1 mile south-southeast on Warm Springs Road. Warm Springs Creek lies adjacent and to the south of the residence. Several residences, located along Warm Springs Road near Warwick Hot Springs, are within 2 miles to the southeast from the claims.

On August 16, 2007 a lightning storm ignited a fire near Castle Rock Peak, southwest of Ketchum, Idaho. The fire, known as the "Castle Rock Fire", burned more than 48,000 acres before containment on September 4, 2007. The Rook's Creek drainage including both private holdings and lands administered by the U.S. Forest Service was impacted by the fire (USFS, 2007). The extent to which the fire impacted the Black Horse, Hillside and Big Bonanza Lode properties was not determined by IDEQ.

Air Pathway

Concentrations of metals in wind borne fugitive dust have been the driving force behind cleanups in the former mining properties of the Wood River area, particularly at the Triumph Mine Site and the Minnie Moore tailings impoundment. Although a portion of the Black Horse claim is incised from exploratory trenching, the exposed material appears competent. At the time of IDEQ's site visit on July 26, 2007, the Black Horse, Hillside and Big Bonanza Lode claims appeared fairly well vegetated and their waste dumps moderately consolidated. Consequently, the likelihood of aerial dispersion of particulates is expected to be minor, despite recent events associated with the Castle Rock Fire.

Groundwater Pathway

During the cleanup activities of the Minnie Moore mine located near Bellevue, Idaho, the first concerns were related to potential human health risks as a result of contamination of public and private drinking water supplies. Generally speaking, contamination of drinking water systems was thought likely to occur from two types of sources (ore bodies and waste dumps) and along three pathways, as illustrated by the following three scenarios. First, heavy metals are leached from mine waste dumps, enter ephemeral or perennial drains and then contaminate the area's shallow ground water system. Second, heavy metals leach from the local ore bodies and are transported through the geologic structure to the shallow ground

water. Third, heavy metals could leach out of the ore bodies, and be discharged from the underground workings as adit water, that is then conveyed through ephemeral and perennial drains to the shallow ground water systems.

For the purposes of completing Preliminary Assessments, Source Water Assessments (completed for local public drinking water supplies) were used to identify any known affects to those systems. Although IDEQ's Source Water Assessments were used to evaluate potential affects of this mine on public drinking water supplies no inferences can be made about the affects that this and adjoining mines have on local private wells.

Source water assessments provide information on the potential contaminant threats to public drinking water sources. In the Big Wood River Valley Idaho, most of those sources (>95%) are [ground water](#) (IDEQ 2000). Each source water assessment:

- Defines the zone of contribution, which is that portion of the watershed or subsurface area contributing water to the well or surface water intake (**source area delineation**)
- Identifies the significant potential sources of drinking water contamination in those areas (**contaminant source inventory**)
- Determines the likelihood that the water supply will become contaminated (**susceptibility analysis**)

Each assessment is summarized in a [report](#) that describes the above information and provides maps of the location of the public water system, the source area delineation, and the locations of potential contaminant sources. Idaho began developing source water assessments in 1999, and in May 2003 met its obligation under the amendments of the Safe Drinking Water Act by completing delineations for all 2100+ public water systems that were active in Idaho as of August 1999 (IDEQ 2000). Source water assessments for new public drinking water systems are being developed as those systems come online. Each public water system is provided with two copies of its final assessment report. Four source water assessments for drinking water supplies have been used in this Preliminary Assessment Process to evaluate the potential impacts to both public and private drinking water supplies in and around Sun Valley, Ketchum, Hailey and Bellevue.

The information extrapolated from these reports is based on data that existed at the time of their writing, and the professional judgment of IDEQ staff. Although reasonable efforts were made to present accurate information, no guarantees, including expressed or implied warranties of any kind are made with respect to these reports or this Preliminary Assessment by the State of Idaho or any of its agents who also assume no legal responsibility for accuracy of presentation, comments or other information in these publications or this Preliminary Assessment report. The results should not be used as an absolute measure of risk, and they should not be used to undermine public confidence in public drinking water systems.

The Source Area delineation process establishes the physical area around a well or surface water intake that becomes the focal point of the source water assessment. The process includes mapping the boundaries of the zone of contribution the area contributing water to the well or to the surface water intake) into time of travel zones (TOT) indicating the number of years necessary for a particle of water to reach a well or

surface water intake (IDEQ 2000). The size and shape of the source water assessment area depend on the delineation method used, local hydrogeology, and volume of water pumped from the well or surface water intake.

IDEQ used a refined computer model approved by EPA to determine the 3-year (Zone 1B), 6-year (Zone 2), and 10 year (Zone 3) time of travel associated with the Big Wood River Aquifer and its sources (IDEQ 2000). This information is illustrated in Figure 3.

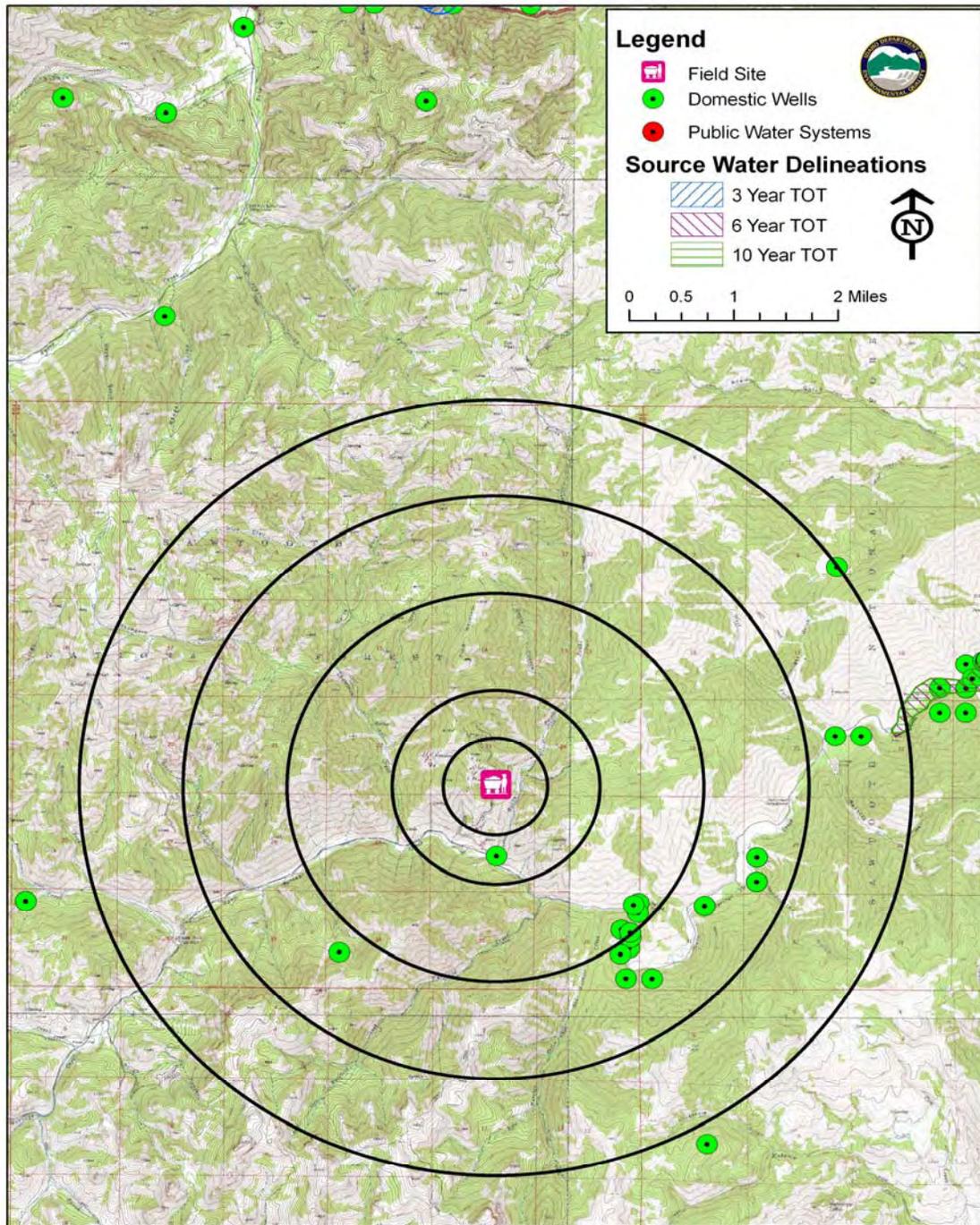


Figure 3

This process involves collecting, recording, and mapping existing data and geographical information system (GIS) coverage to determine potential contaminant sources (e.g., gas stations) within the delineated source water assessment area. The potential contaminant source inventory is one of three factors used in the susceptibility analysis to evaluate the overall potential risk to the drinking water supply (IDEQ 2000). The inventory process goal is to locate and describe those facilities, land uses, and environmental conditions that are potential sources of ground water or surface water contamination.

This susceptibility analytical process determines the susceptibility of each public water system well or surface water intake to potential contamination within the delineated source water assessment area. It considers hydrogeologic characteristics, land use characteristics, potentially significant contaminant sources, and the physical integrity of the well or surface water intake. The outcome of the process is a relative ranking into one of three susceptibility categories: high, moderate, and low. The rankings can be used to set priorities for [drinking water protection](#) efforts (IDEQ 2000).

There are numerous public and private drinking water supplies in the Big Wood River Basin. The Sun Valley Water and Sewer District operates and maintains nine wells in two groupings (IDEQ 2000). The City of Ketchum drinking water system consists of seven wells in two groupings. The City of Hailey's drinking water system consists of six wells and a spring (IDEQ 2000). The City of Bellevue drinking water system consists of two wells and three springs (IDEQ 2000).

Generally speaking, public drinking waters systems in the Big Wood River Valley are rated as moderate to high (IDEQ 2000). Multiple factors affect the likelihood of movement of contaminants from the sources to the aquifer, which lead to this moderate to high score. Soils in the area are poorly to moderately drained. The vadose zone is predominantly gravel, which increases the score. On the valley floors the average depth to ground water is twenty to fifty feet.

To date, routine water quality monitoring of public drinking water indicates that there are no significant volumes of heavy metals migrating through the regional or localized ground water systems. More specifically, there are not any long-term or recurring water chemistry problems in the Sun Valley Water and Sewer District drinking water sources. One well in the Sun Valley system has had one instance (August 1991) when cadmium exceeded the MCLs (IDEQ 2000). There is no current, long term or recurring water chemistry problems in the City of Ketchum's drinking water sources. Arsenic, nickel, antimony, barium, selenium, chromium, cyanide and nitrate have been detected in Ketchum's wells, but all were well below MCLs (IDEQ 2000). There is no long term or recurring water chemistry problems in the City of Hailey's drinking water sources. Manganese, Zinc, chromium, and mercury have been detected in Hailey's wells, but all were well below MCLs (IDEQ 2001). Currently, there are no data that indicate that any metal concentrations have exceeded MCLs in the Bellevue drinking water systems (IDEQ 2000).

Surface Water Pathway

The Black Horse, Hillside and Big Bonanza Lode claims lie along the flank of a ridge approximately 400 vertical feet above Rook's Creek. There were not any springs and/or seeps identified on these properties. Ephemeral drains occupy the slopes beneath and adjacent to the claims. These ephemeral drains appear to discharge into creek bottom below the former Sunday millsite.

There are no drinking water intakes within the 15-mile Total Distance Limit (TDL). The following TDL in-water segment was calculated from the lowest elevation workings on the Hillside claim. The ephemeral drain's streambed merges with Rook's Creek to the southeast at 0.3 miles. Rook's Creek flows to the south to its confluence with Warm Springs Creek at 1.1 miles. Warm Spring Creek continues to the east where it is enjoined by Warfield Creek at 1.75 miles, by Red Warrior Creek at 2.3 miles, by West Fork of Warm Springs Creek at 6.1 miles and numerous unnamed tributaries and thermal springs before merging

with the Big Wood River at 13.75 miles. The Big Wood River continues to the south for the remainder of the 15-mile TDL (see Figure 4).

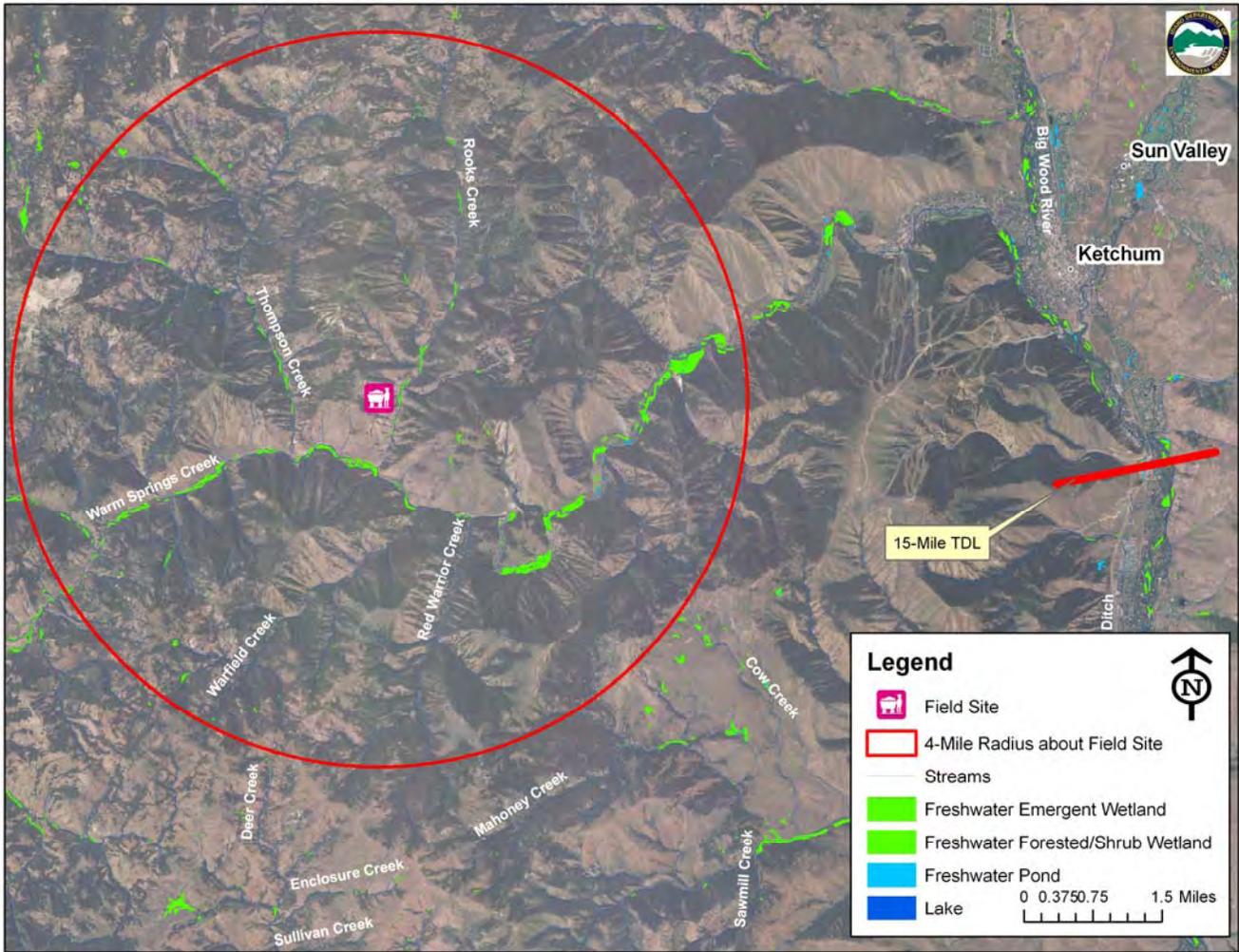


Figure 4

Surface water samples were collected from Rook’s Creek, upgradient of and downgradient from the former Sunday millsite. Based upon the analyses (see Table 1), concentrations of metals fall well below the cold water acute and chronic standards. Therefore, it appears that the surface water pathway is not affected by metal contamination.

However, the Rook’s Creek drainage will be affected by the effects of the Castle Rock Fire. Debris flows and sediment discharges have been documented by the U.S. Forest Service in the Rook’s Creek drainage (USFS², 2007). Snow pack run-off will likely release additional areas of exposed soil and debris for transport through the drainage.

Table 1: Total Recoverable Metals Analysis (mg/L)

(Standards in “dissolved” unless stated)

Rook's Creek						
	IDEQ Ground Water Standard	IDEQ Drinking Water Standard	IDEQ Cold Water Biota Standard	IDEQ Cold Water Biota Standard	Rooks Creek below millsite	Rooks Creek background
Description			Acute	Chronic	mg/L	mg/L
					RC MS SW2	RC MS SW1
Aluminum	0.2*					
Antimony						
Arsenic	0.05	0.01	0.36	0.19	0.0030	<0.0030
Barium	2	2			0.0190	0.0160
Beryllium						
Cadmium	0.005	0.005	0.00082 (H)	0.00037 (H)	<0.0020	<0.0020
Calcium						
Chromium	0.1	0.1			<0.0060	<0.0060
Cobalt						
Copper	1.3		0.0046 (H)	0.0035 (H)	<0.010	<0.010
Iron	0.3*					
Lead	0.015	0.015	0.014 (H)	0.00054 (H)	<0.0030	<0.0030
Magnesium						
Manganese	0.05					
Mercury	0.002	0.002	0.0021	0.000012 (T)	<0.00020	<0.00020
Nickel		0.61	0.438 (H)	0.049 (H)		
Potassium						
Selenium	0.05	0.05	0.018 (T)	0.005 (T)	<0.0030	<0.0030
Silver	0.1*		0.00032 (H)		<0.005	<0.005
Vanadium						
Zinc	5*		0.035 (H)	0.032 (H)	<0.010	<0.010

* secondary MCL (T) – Standard in Total (H) – Hardness dependent * 25 mg/L

Sensitive Species and Wetlands

The national wetland data base indicates that wetlands exist along Warm Springs Creek and the Big Wood River downstream from the Black Horse, Hillside and Big Bonanza Lode claims (see Figure 4). The riparian areas within Rook' Creek and downgradient from the workings did not appear to have suffered any phytotoxic affects.

“Species of concern” such as the Western Toad and the Long-eared Myotis have been identified within the Warm Springs sub-drainage (see Figure 5). However, endangered or threatened species have not been identified within a 4-mile radius of the properties.

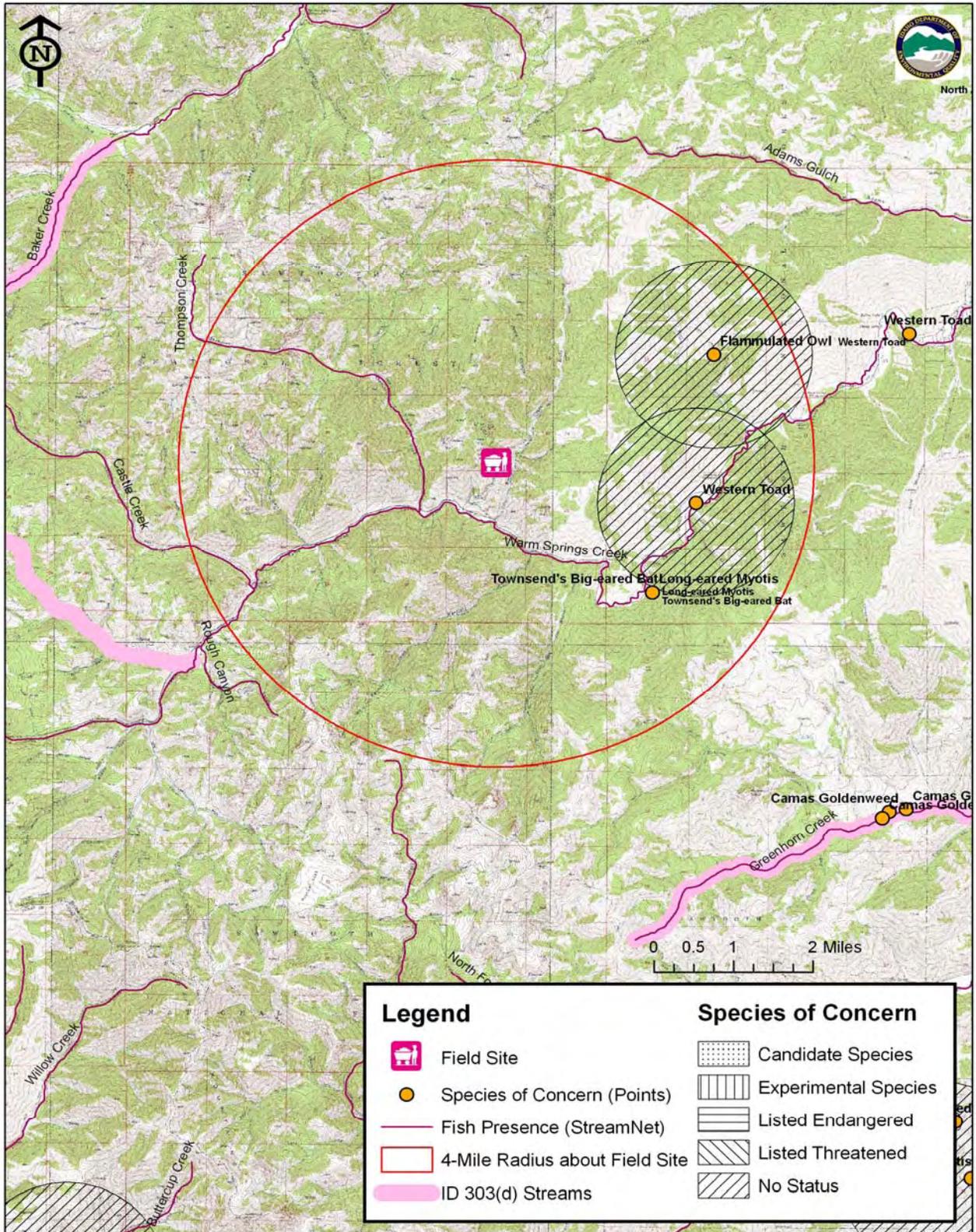


Figure 5

Soil Pathway

Essentially, the mine waste samples collected from the Black Horse and Hillside claims show concentrations for total arsenic, total cadmium, total lead, total mercury, total silver and total zinc that exceed Idaho's *Initial Default Target Levels* (IDTLs). These IDTLs are risk-based target levels for certain chemicals that have been developed by DEQ using conservative input parameters, a target acceptable risk of 10^{-6} , and a *Hazard Quotient* of 1.

The mine waste concentrations for total cadmium, total lead, total mercury, total silver and total zinc also exceed EPA Region 6's Human Health Medium Specific Screening Levels (HHSL). The HHSL numbers, although used for comparison even at remote locations, are more applicable in locations where these types of contaminants are determined to be readily available to receptors, and where exposures might produce an acute or chronic toxicological effect in a population.

All metals exceedance indicate that additional site characterization and risk management may be warranted. As the claim sites are remotely located beyond where most human receptors would go, and where future development is unlikely, risks are likely de minimus. However, if development is planned for these properties, additional site characterization and risk management is recommended.

Table 2: Total Recoverable Metals Analysis (mg/kg)

Black Horse- Hillside- Big Bonanza Lode claims

IDTLs		EPA Region 6 HHSLs	sample description	sample description
Description	mg/kg	mg/kg	(Black Horse) BH ADIT N.E. WD1SS1	(Hillside) BH WD2 SS1
Aluminum				
Antimony	4.77	31		
Arsenic	0.391	23	294	40.3
Barium	896	1600	196	79.2
Beryllium	1.63	160		
Cadmium	1.35	39	3.46	22.3
Calcium				
Chromium	7.9	210	1.80	1.88
Cobalt		900		
Copper	921	2900	14.8	37.8
Iron		55000		
Lead	49.6	400	3400	1800
Magnesium				
Manganese	223	3600		
Mercury	0.00509	23	0.180	0.047
Nickel	59.1	1600		
Potassium				
Selenium	2.03	390	<4.0	<4.0
Silver	0.189	390	18.3	2.75
Vanadium		390		
Zinc	886	23000	359	1700

Conclusions and Recommendations

The Black Horse claim includes portions of exploration trenches and a few very shallow prospects. The Hillside claim includes one shallow adit and several very shallow prospects. The adit was caved. The Big Bonanza Lode includes a few very shallow prospects. IDEQ did not note any dangerous openings or other physical hazards which should be managed or closed.

Although IDEQ's Source Water Assessments were used to evaluate potential affects of this mine on public drinking water supplies no inferences can be made about the effects that this and adjoining mines have on local private wells. Furthermore, based on the lack of site-specific historical information regarding mine development and production, IDEQ recommends if these properties are developed, particularly for residential purposes, a more thorough site characterization should be conducted , and if necessary development plans should include risk management provisions.

Based on existing conditions and uses and historic information, two mine waste and two water samples were collected during the site visit. Subsequent to our analysis IDEQ has determined that No Remedial Action is Planned (NRAP) for this property.

Black Horse-Hillside Patented Claim Photos



Caved portal of Adit 2 (Hillside claim); exploration trenches (above)



Exploration trench (Black Horse) at upper right; iron oxides *and sulfides* apparent.



Waste Dump below Adit 2 (Hillside claim); <250 cubic yards

References

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ABBREVIATED PRELIMINARY ASSESSMENT CHECKLIST

This checklist can be used to help the site investigator determine if an Abbreviated Preliminary Assessment (APA) is warranted. This checklist should document the rationale for the decision on whether further steps in the site investigation process are required under CERCLA. Use additional sheets, if necessary.

Checklist Preparer: Brian Gaber, Environmental Compliance Officer 11/30/07
(Name/Title) (Date)
 Idaho DEQ, 1410 N Hilton, Boise 208-373-0566
(Address) (Phone)
 Brian.gaber@deq.idaho.gov
(E-Mail Address)

Site Name: _____ BLACK HORSE, HILLSIDE & BIG BONANZA Lode _____

Previous Names (if any):

Site Location: Rooks Creek area _____
(Street)
 Ketchum _____, Idaho _____ - _____
(City) (ST) (Zip)

Latitude: 43° 39' 39.07"N **Longitude:** 114° 30' 45.63"W

Describe the release (or potential release) and its probable nature: the site was investigated for the potential release of heavy metals & sediment from mine waste dumps

Part 1 - Superfund Eligibility Evaluation

If all answers are "no" go on to Part 2, otherwise proceed to Part 3.

	YES	NO
1. Is the site currently in CERCLIS or an "alias" of another site?		X
2. Is the site being addressed by some other remedial program (Federal, State, or Tribal)?		X
3. Are the hazardous substances potentially released at the site regulated under a statutory exclusion (e.g., petroleum, natural gas, natural gas liquids, synthetic gas usable for fuel, normal application of fertilizer, release located in a workplace, naturally occurring, or regulated by the NRC, UMTRCA, or OSHA)?		X
4. Are the hazardous substances potentially released at the site excluded by policy considerations (i.e., deferred to RCRA corrective action)?		X
5. Is there sufficient documentation to demonstrate that no potential for a release that could cause adverse environmental or human health impacts exists (e.g., comprehensive remedial investigation equivalent data showing no release above ARARs, completed removal action, documentation showing that no hazardous substance releases have occurred, or an EPA approved risk assessment completed)?	X	

Please explain all "yes" answer(s).

Site visit and sampling of waste dumps confirmed that contaminants of concern do not exist in concentrations or available quantities to represent a threat to human health or the environment

Part 2 - Initial Site Evaluation

EXHIBIT 1 SITE ASSESSMENT DECISION GUIDELINES FOR A SITE

Exhibit 1 identifies different types of site information and provides some possible recommendations for further site assessment activities based on that information. You will use Exhibit 1 in determining the need for further action at the site, based on the answers to the questions in Part 2. Please use your professional judgement when evaluating a site. Your judgement may be different from the general recommendations for a site given below.

Suspected/Documented Site Conditions		APA	Full PA	PA/SI	SI
1. There are no releases or potential to release.		Yes	No	No	No
2. No uncontained sources with CERCLA-eligible substances are present on site.		Yes	No	No	No
3. There are no on-site, adjacent, or nearby targets.		Yes	No	No	No
4. There is documentation indicating that a target (e.g., drinking water wells, drinking surface water intakes, etc.) has been exposed to a hazardous substance released from the site.	Option 1: APA SI	Yes	No	No	Yes
	Option 2: PA/SI	No	No	Yes	NA
5. There is an apparent release at the site with no documentation of targets, but there are targets on site or immediately adjacent to the site.	Option 1: APA SI	Yes	No	No	Yes
	Option 2: PA/SI	No	No	Yes	NA
6. There is an apparent release and no documented on-site targets and no documented targets immediately adjacent to the site, but there are nearby targets. Nearby targets are those targets that are located within 1 mile of the site and have a relatively high likelihood of exposure to a hazardous substance migration from the site.		No	Yes	No	No
7. There is no indication of a hazardous substance release, and there are uncontained sources containing CERCLA hazardous substances, but there is a potential to release with targets present on site or in proximity to the site.		No	Yes	No	No

Part 3 - EPA Site Assessment Decision

When completing Part 3, use Part 2 and Exhibit 1 to select the appropriate decision. For example, if the answer to question 1 in Part 2 was “no,” then an APA may be performed and the “NFRAP” box below should be checked. Additionally, if the answer to question 4 in Part 2 is “yes,” then you have two options (as indicated in Exhibit 1): Option 1 --conduct an APA and check the “Lower Priority SI” or “Higher Priority SI” box below; or Option 2 -- proceed with a combined PA/SI assessment.

Check the box that applies based on the conclusions of the APA:

<input type="checkbox"/>	NFRAP	<input type="checkbox"/>	Refer to Removal Program - further site assessment needed
<input type="checkbox"/>	Higher Priority SI	<input type="checkbox"/>	Refer to Removal Program - NFRAP
<input type="checkbox"/>	Lower Priority SI	<input type="checkbox"/>	Site is being addressed as part of another CERCLIS site
<input type="checkbox"/>	Defer to RCRA Subtitle C	<input type="checkbox"/>	Other: _____
<input type="checkbox"/>	Defer to NRC	<input type="checkbox"/>	

Regional EPA Reviewer: _____
Print Name/Signature Date

