

***Abandoned Mine Lands  
Initial Investigation Report  
Advance Mine  
Northport, Washington***

***Prepared for  
Washington State  
Department of Ecology***


***December 28, 2006  
17274-00(AV)***

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Rick Roeder, Project Manager***

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Prepared by  
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**EXPIRES 12/03/2007**

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# ABANDONED MINE LANDS INITIAL INVESTIGATION REPORT

## ADVANCE MINE

### NORTHPORT, WASHINGTON

## 1.0 EXECUTIVE SUMMARY

Information obtained during this assessment is summarized in Table 1:

**Table 1 - Advance Mine Data Summary**

Mine Name:	Advance Mine
Last Known Operation:	A zinc, lead, silver, and gold mine operated by Mines Management, Inc. of Spokane, WA from 1949 to some time after 1952. Huntting (1956) reports that the property consists of 28 unpatented claims and 840 acres of deeded land. The owner reported 50,000 tons of ore shipped in 1952. There were about 750 feet of workings in three adits, a shaft, and a winze prior to 1948. In 1948-1949 1,100 feet of drifts and cross cuts and 771 feet of raises were added. The improvements consisted of a compressor, mining machinery, 50-ton mill, 200-ton ore bin in 1952. The ore contained zinc, lead, silver, gold, and traces of gallium and germanium.
Location:	Northport District. Latitude, Longitude: 48.887, 117.674. Quadrangle Map: Boundary TRS: Township 39N, Range 41E, Section 18, NE ¼
Features Observed	<ul style="list-style-type: none"> <li>• Three waste rock piles (approximately 2,700 CY total)</li> <li>• One collapsed adit, possibly with more adits that were inaccessible at the time of the site visit</li> <li>• Two seeps</li> </ul>
Results above Criteria	Five soil samples (including one sediment sample from an ephemeral drainage) exceeded human health criteria for arsenic and one exceeded human health criteria for cadmium. Five soil samples exceed MTCA screening criteria for ecological receptors for arsenic, nickel and zinc, and occasionally for aluminium, cadmium, lead, manganese, selenium and thallium.
Work by Others	No previous site assessment information was identified.
Potential Receptors / Degree of Hazard	Concentrations of several metals exceed MTCA criteria for human health direct contact and/or ecological protection. One sample has the potential to exceed TCLP criterion for lead. No creeks or streams were present and contaminant migration to surface water is unlikely. No homes or occupied cabins were observed in the vicinity.

## 2.0 INTRODUCTION

This report summarizes the results of the initial limited soil and surface water investigation at the Advance Mine site located near Northport, Washington (Figures 1 and 2). Hart Crowser performed this initial investigation for the Washington State Department of Ecology (Ecology) under Contract No. C06254 according to the Ecology Statement of Work (SOW) and project Sampling and Analysis Plan (SAP) prepared by Hart Crowser (Hart Crowser 2006).

The objectives of this initial investigation are to:

- Determine whether the site has released or has a potential to release hazardous substances to the environment at concentrations above Model Toxics Control Act (MTCA) human health or ecological screening levels, to identify sites that may require additional investigation and sampling;
- Identify and document waste source areas including estimates of waste mass and/or volume; and
- Identify and document the presence of potential waste transport pathways and receptors.

For this study, samples were collected of the soil-like fraction of waste rock, mine tailings, and/or natural soils that was potentially affected by mining. Analytical results were compared to the MTCA criteria for soils. Use of terms such as “soils” or “waste rock”, etc. are for convenience only and do not indicate potential future designation in accordance with Chapter 173-350 WAC, or Chapter 173-303 WAC, or other regulatory criteria.

Subsurface openings observed for this study may include shafts, adits, prospect pits, collapsed stopes, and/or excavations completed for other purposes. The terms used in this report are based on visual interpretation in the field and may not fully characterize historic site use.

Prior to the site visit, Hart Crowser performed file reviews; evaluated aerial photographs, U.S. Forest Service and USGS maps; reviewed the Inventory of Washington Minerals; and reviewed county tax assessor records to:

- Identify the location of mines and associated features/structures;
- Identify property owners, mineral claimants, and mine operators; and
- Obtain contact information to gain permission for site access.

Table 2 presents the project team members and their roles and responsibilities for this investigation. A site visit was accomplished on June 14, 2006.

### **3.0 SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS**

#### **3.1 Site Location**

The Advance Mine is located approximately 10 miles east of Northport, Washington. Directions to the mine are as follows:

- Highway 25 North goes through Northport from south to north. In the approximate center of town, turn east on to Deep Creek Road, which goes to Deep Lake. Set odometer to 0.
- At 0.5 mile, the road splits, take the left fork, marked "To Colville."
- At 5.0 miles, there will be Hyytiainen Road on left, turn on to it. The road immediately splits. Bear right on to Black Canyon Road, Forest Service No. 3350. The road continues as a gravel road at this point.
- At 7.0 miles, there are derelict cabins to left.
- At 8.9 miles, the road curves to the left, and a smaller road continues straight. Stay straight on the smaller road. You will see several waste rock piles immediately. The mine is primarily above the road.

The access description provided herein is based on observations at the time the site was visited for this work. References to roads do not reflect property ownership, and does not imply that public access is available.

The site is located on Steven's County Parcel No. 8000256.

#### **3.2 Site Description**

The Advance Mine is an inactive zinc, lead, silver, and gold mine. It was actively producing from 1948 to 1952 and closed some time thereafter. The mine site is spread out on a west-facing slope. On-site vegetation consists of heavy brush, primarily shrubs, with a mixture of high-elevation trees such as silver fir, cedar, mountain hemlock, vine maple, and Douglas fir. No evidence of bats or hibernaculum was observed.

Three waste piles were observed on site (Figure 3), which consisted of a wet, gray-black, gravelly Sand, with cobbles and boulders. Cross sections used to estimate waste rock volumes are indicated on Figure 4. WR-1 lies at the north end of the site, is upslope (east) of the access road, and is approximately 1,200 cubic yards in volume. Coarser materials, such as cobbles and boulders, are evident at the bottom of WR-1. Rail ties, cans, and other metal debris were observed at the bottom of WR-1. Finer materials suitable for sampling, such as sands and gravels, remain at the top of the slope. One or more adits may exist above WR-1, but were inaccessible due to unstable slopes on the waste rock pile and impediments around the pile such as steep slopes, heavy brush, and a near-vertical rock face.

To the south of WR-1 and also upslope (east) of the access road is a smaller waste pile, WR-3, that is estimated to be about 200 cubic yards in volume. A collapsed adit (Photograph 1) is located upslope of WR-3 and is behind a thick stand of maples that appear to be healthier than the surrounding vegetation. The health of the maples may be the result of a more constant water supply from mine drainage exiting the adit. No flow was observed coming from the adit at the time of our visit. An overgrown road grade leading south from WR-3 connects the adit with the main access road. Talus slopes composed of native material similar in appearance to the waste rock are present above WR-3 and farther south from the site.

WR-2 lies downslope (west) of the access road, below WR-1 and is approximately 1,300 cubic yards in volume (Photograph 2). The natural grade drops off steeply below the road for approximately 100 feet and then becomes a gentler grade. The drainage channels surrounding WR-2 converge about 1,000 feet below the road, which is below the toe of WR-2. No flowing water was observed in the drainages at the time of our visit. There were boulders and large rocks in the drainage, both mine waste and natural talus.

Two seeps were observed along the access road, but flow was too low to enable sampling. Seep 1 is located at the south end of the site, below the overgrown road grade and above a slope of fill material. Seep 2 lies below WR-1. The seeps drain toward the south, away from the waste piles and appear to infiltrate into the soil rather than flowing to a creek or stream.

No residences or cabins were observed in the vicinity. The nearest dwellings are approximately 1.5 miles from the site.

### **3.3 Site Ownership and Operations History**

Information on site ownership and operations is based on readily available public information and may not reflect all details of ownership and operations.

The mine is located on BLM-Spokane District property. The claim was operated by Mines Management, Inc. of Spokane, Washington, from 1948 to some time after 1952. Control of the properties held by Mines Management was acquired by Bitterroot Resources between 1949 and 1991. According to the Washington Department of Natural Resources "Washington Geology" (Vol. 19 No. 1, March 1991) Bitterroot Resources (52% owned by Equinox Ltd.) controlled the Advance, Calhoun, Deep Creek, and other claims in the vicinity. The Stevens County Tax Assessor's records do not show a patented claim on the Advance site.

## **4.0 SITE INVESTIGATION ACTIVITIES**

An initial site investigation was conducted on June 14, 2006. Photographs were taken, and GPS coordinates and waste rock and sediment samples were collected. Mine features, photograph locations and directions, GPS waypoints, sample locations, and the direction of surface water flows are shown on Figure 3.

### **4.1 Soil and Waste Pile Sampling**

Four waste rock samples and one sediment sample were collected from the Advance Mine site on June 14, 2006. Sieving the waste rock samples on the site was not possible due to the coarse, wet nature of the waste rock. Whole samples were collected and sieved in Hart Crowser's laboratory using an ASTM No. 10 sieve. Sample locations are shown on Figure 3 and descriptions are given in Table 3.

### **4.2 Surface Water, Seep, and Sediment Sampling**

No surface water, creeks, or streams were observed on the site or nearby although a small stream was indicated on USGS maps (Figure 2)

Two seeps were observed at the time of sampling, but flow was not great enough to sample. The seeps appear to drain to the south, away from the waste rock piles (Figure 3). Other drainage channels that were dry at the time of sampling were also observed. The channels converge below the toe of WR-2, and the sediment sample was collected at this location.

## **5.0 ANALYTICAL RESULTS AND ENVIRONMENTAL HAZARD ASSESSMENT**

Soil and water quality data were compared to regulatory criteria for screening purposes as discussed below. Further analysis, including risk-based analyses may be appropriate in additional future site assessments.

### **5.1 Surface Water and Sediment**

No surface water samples were collected due to inadequate flow. A sediment sample was collected from a seep drainage pathway. The sediment sample exceeded the MTCA Method B carcinogenic criteria for arsenic and the MTCA Method A criteria for cadmium. The Method A criterion is based on groundwater protection. Cadmium concentrations were below the Method B direct contact criteria. This sample also exceeded the ecological criteria for aluminum, arsenic, cadmium, lead, manganese, nickel, thallium, and zinc. While toxicity characteristic leaching procedure (TCLP) analysis was not performed, the total lead concentration is high enough to potentially fail TCLP criteria. Results are summarized in Table 4.

### **5.2 Soil**

Soil and waste rock sample analytical results were compared with applicable MTCA Method A cleanup levels, MTCA Method B cleanup levels for soil ingestion, soil ingestion and dermal contact combined, and with criteria for ecological protection of plants, soil biota, and wildlife. MTCA Method A criteria for arsenic were exceeded in samples Advance-WR2-S2 and Advance-WR2-S3. Only the Method B carcinogenic criterion for arsenic was exceeded in samples Advance-WR2-S1 and Advance-WR3-S1. Sample Advance-WR3-S1 exceeded Method A criteria for cadmium and lead. Cadmium concentrations were below the Method B direct contact criterion. Ecological criteria for arsenic, nickel, and zinc were exceeded in samples Advance-WR2-S1, Advance-WR2-S2, Advance-WR2-S3, and Advance-WR3-S1. Ecological criteria for lead, mercury, and thallium were exceeded in sample Advance-WR2-S3, while sample Advance-WR3-S1 exceeded ecological criteria for lead and selenium. Results are summarized in Table 4.

### **5.3 Air**

No air monitoring was conducted on the site. Although exposed waste rock piles have the potential to create airborne dust, no residences were observed in the mine vicinity, and the wet and coarse nature of the waste rock makes it unlikely that contaminated airborne dust will be a significant health hazard.

## **5.4 Methodology for Threatened and Endangered Species Information**

We contacted the Washington State Department of Natural Resources (DNR), the Washington State Department of Fish and Wildlife (WDFW), the U.S. Fish and Wildlife Service (USFWS), and the Colville National Forest – USDA Forest Service to obtain information on the presence of state and federal threatened or endangered terrestrial and aquatic species. We determined that the WDFW maintained the most accurate and up-to-date information on species distribution in its Priority Habitats and Species (PHS) Database. We requested maps and narratives identifying documented species presence at the Advance Mine. In addition, we contacted DNR and requested information on rare plants and high quality native wetland and terrestrial ecosystems within the vicinity of the Advance Mine.

Our search ranges included a 4-mile radius for terrestrial species and a 15-mile radius for aquatic species.

We reviewed approximately 86 PHS maps and accompanying narratives to determine whether any threatened or endangered species were documented within our search ranges. We drew 4- and 15-mile radii around the Advance Mine on a Colville National Forest Map. We then examined the PHS maps in relation to the search ranges for our project areas. All state and federal threatened and endangered species and habitats that occurred within our search ranges were recorded. Species and habitats that occurred on the edge of our search range were considered within the range and recorded.

A summary of the threatened and endangered species within our search ranges is provided in Table 5.

## **6.0 SUMMARY AND CONCLUSIONS**

The Advance Mine site has a collapsed adit and three waste rock piles containing an estimated 2,700 cubic yards of waste rock that may exceed MTCA Method A, MTCA Method B, or ecological protection criteria. The main constituents of concern are arsenic, lead, and zinc. Some waste rock may also exceed the applicable criteria for cadmium, lead, selenium, or thallium. Sediments on site may contain elevated concentrations of aluminum, arsenic, cadmium, lead, manganese, nickel, thallium, and zinc. Potential risks to human health are most likely limited to direct contact and incidental ingestion for recreational users. MTCA Method A and B screening levels may over estimate risk to recreational users since their exposure duration is less than the duration for a residential scenario. A site-specific terrestrial ecological evaluation (TEE) would

be required to evaluate ecological risks. It is unknown whether there are surface water impacts from the site since there was no flow to the creek during the site visit.

A site visit is recommended during the rainy season to determine if seeps and surface water flow into the nearby creek and if so, collect samples for analysis. Additional sediment sampling is recommended for TCLP analysis.

## **7.0 USE OF THIS REPORT**

Work for this project was performed, and this report prepared, in accordance with generally accepted professional practices for the nature and conditions of the work completed, in the same or similar localities, at the time the work was performed. It is intended for the exclusive use of the Washington State Department of Ecology, for specific application to the referenced property. This report is not meant to represent a legal opinion. No other warranty, express or implied, is made.

The information in this report is intended to be used to determine whether the site has released or has a potential to release hazardous substances to the environment at concentrations above Model Toxics Control Act (MTCA) human health or ecological screening levels.

## **8.0 REFERENCES**

Ecology 1990. Washington Ranking Method Scoring Manual. Ecology Publication 90-14. Revised April 1992.

Ecology 2001a. Model Toxics Control Act Cleanup Levels and Risk Calculations (CLARC II) Update. November 2001.

Ecology 2001b. Adopted Amendments. Model Toxics Control Act Cleanup Regulations. Chapter 173-340-WAC. February 2001.

Hart Crowser 2006. Sampling and Analysis Plan, Abandoned Mine Lands Assessments, Washington State. Prepared for Washington State Department of Ecology. June 9, 2006.

Hunting, Marshall T., 1956, "Inventory of Washington Minerals", Part II Metallic Minerals, 2 volumes. State of Washington Department of Conservation and

Development, Bulletin No. 37, Washington State printing office, Olympia, Washington.

Mindat.org website <http://www.mindat.org/index.php>

Stevens County Tax Assessor's Website:  
<http://www.co.stevens.wa.us/assessor/assessor.htm>

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**Table 2 - Project Team Roles and Responsibilities**

<b>Project Role</b>	<b>Personnel Assignment</b>	<b>Roles/Responsibilities</b>
Ecology Project Manager	Rick Roeder Ecology (509) 454-7837	Client Project Manager
Program Manager	Mike Bailey Hart Crowser (206) 324-9530	Ensures that all work is carried out in accordance with contractual obligations and the Delivery Order statement of work. Assists the Project Manager as needed with technical decisions and in resolving issues. Final reviewer.
Project/Task Manager	Roger McGinnis Hart Crowser (206) 324-9530	Overall responsibility for execution of the Work Plan. Coordinate with Client, Field Manager and Program Manager as necessary to resolve issues.
Corporate Health and Safety Officer (HSO)	Mike Ehlebracht Hart Crowser (206) 324-9530	Overall responsibility for review and answering questions regarding H&S.
Field Manager and Site Safety Coordinators (SSC)	Abby Bazin/Pat Reed Hart Crowser (206) 324-9530	Ensures that explorations are conducted and samples are collected in accordance with project specifications. Coordinates field activities with Project and Program Managers.
Mine Information Research	Pat Reed Mike Swenson Hart Crowser (206) 324-9530	Determined location of mine, access route, and ownership
Project Chemist	Erin Breckel Hart Crowser (206) 324-9530	Performs laboratory coordination and data quality review to assure analytical methods and data are consistent with project needs and data quality objectives.
Laboratory Services	Harvey Jacky Columbia Analytical Services (360) 577-7222	Analyzes soil, sediment, and water samples.

**Table 3 - Advance Mine Sample Inventory**

Sample Name	Sample Location	Sample Description
<b>Waste Rock Samples</b>		
Advance-WR2-S1	Top of WR-2, adjacent to access road	Wet, gray-black, gravelly Sand
Advance-WR2-S2	Center of WR-2	Wet, gray-black, gravelly Sand
Advance-WR2-S3	Bottom of WR-2	Wet, gray-black, gravelly Sand
Advance-WR3-S1	Southern end of WR-3	Wet, gray, gravelly Sand
<b>Sediment Samples</b>		
Advance-Sed 1	At convergence of drainage channels below WR-2	Five-point composite

**Table 4 - Analytical Results for Soil and Sediment Samples - Advance Mine**

Sheet 1 of 2

SDG Sample ID Sampling Date	MTCA Method A (a)	MTCA Method B		Ecological Protection (c) Plant/Soil Biota/Wildlife	K0605942 Advance-Sed 1 6/14/2006	K0605942 Advance-WR2-S1 6/14/2006	K0605942 Advance-WR2-S2 6/14/2006
		Soil Ingestion (b)	Soil Ingestion & Dermal Contact (b)				
<b>Total Solids in %</b>					98.8	100	100
<b>Total Metals in mg/kg</b>							
Aluminum	--	80,000	72,072	50 / -- / --	<b>11,100</b>		
Antimony	--	32	29	5 / -- / --	1.86	1.23	1.87
Arsenic	20	0.67	0.62	10(d) / 60 / 132	<b>10.2</b>	<b>12.5</b>	<b>21.1</b>
Beryllium	--	160	144	10 / -- / --	0.46	0.1	0.17
Cadmium	2	80	74	4 / 20 / 14	<b>11.2</b>	0.5	1.27
Chromium	2,000 <sup>e</sup>	120,000 <sup>e</sup>	44,571 <sup>e</sup>	42 / 42 / 67	9.4	2.3	4.3
Copper	--	2,960	2,700	100 / 50 / 217	47.1	22	8.6
Iron	--	24,000	21,622	-- / -- / --	21,400		
Lead	250	--	--	50 / 500 / 118	<b>225</b>	15.8	40.9
Manganese	--	11,200	10,090	1,100 / -- / 1,500	<b>1,610</b>		
Mercury	2	24	18	0.3 / 0.1 / 5.5	0.03 J	0.03 J	0.07 J
Nickel	--	1,600	1,441	30 / 200 / 980	<b>67.8</b>	<b>36.4</b>	<b>85.7</b>
Selenium	--	400	360	1 / 70 / 0.3	1 U	1 U	1 U
Silver	--	400	360	2 / -- / --	0.16	0.03 J	0.31
Thallium	--	5.6	5.0	1 / -- / --	<b>2.93</b>	0.2	0.25
Zinc	--	24,000	22,000	86 / 200 / 360	<b>1,210</b>	<b>127</b>	<b>413</b>

**Table 4 - Analytical Results for Soil and Sediment Samples - Advance Mine**

SDG Sample ID Sampling Date	K0605942 Advance-WR2-S3 6/14/2006	K0606045 Advance-WR3-S1 6/14/2006
<b>Total Solids in %</b>	100	87.1
<b>Total Metals in mg/kg</b>		
Aluminum		
Antimony	4.89	1.77
Arsenic	<b>60.2</b>	<b>10.1</b>
Beryllium	0.24	0.15
Cadmium	1.41	2
Chromium	5.6	3.3
Copper	10.2	23.2
Iron		
Lead	<b>72.9</b>	<b>250</b>
Manganese		
Mercury	<b>0.12</b> J	<b>1.14</b> J
Nickel	<b>140</b>	<b>51.5</b>
Selenium	<b>3.2</b>	<b>1.9</b> J
Silver	0.13	0.13
Thallium	<b>1.02</b>	0.3
Zinc	<b>328</b>	<b>1,310</b>

**Notes:**

U = Not detected at the detection limit indicated.

J = Estimated value.

-- Not established or Not applicable.

Bold - Concentration exceeds ecological criterion.

Box - Concentration exceeds MTCA Method A or Method B criterion.

(a) WAC 173-340-740(2), WAC 173-340-900 (Table 740-1). Model Toxics Control Act (MTCA) Method A.

(b) WAC 173-340-740(3). MTCA Method B Unrestricted land use soil cleanup standards. For carcinogenic constituents, the value presented is the lower of the non-carcinogenic and carcinogenic level calculated using Equations 740-1 and 740-2 for ingestion only. Equations 740-4 and 740-5 for ingestion and dermal contact. Information from CLARC 3.1 was used unless otherwise noted.

(c) WAC 173-340-740(3)(b)(ii), WAC 173-340-749, WAC 173-340-900 (Table 749-3).

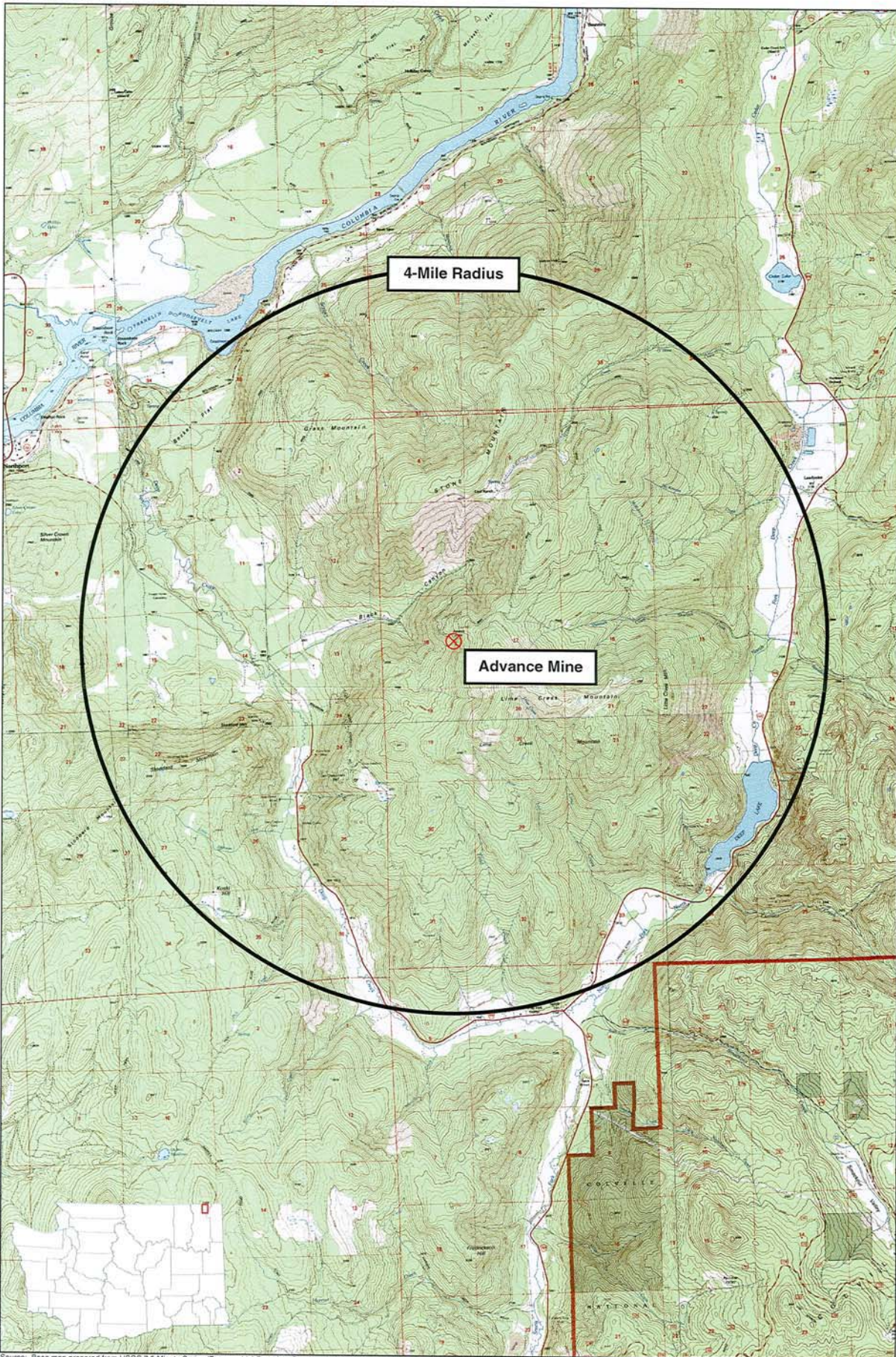
(d) Based on Arsenic V (10 mg/kg)

(e) Based on Chromium III

**Table 5 - Threatened & Endangered Species**

Species	Federal Status		State Status		Narrative
	T	E	T	E	
Bull trout ( <i>Salvelinus confluentus</i> )	X				Lower reach of Onion Creek, Deep Creek and Big Sheep Creek
Bald eagle ( <i>Haliaeetus leucocephalus</i> )	X		X		Columbia River south of Northport, Columbia River and Deep Creek
Grizzly bear ( <i>Ursus arctos</i> )	X			X	Near Scriver Creek

# Site Location Map Advance Mine



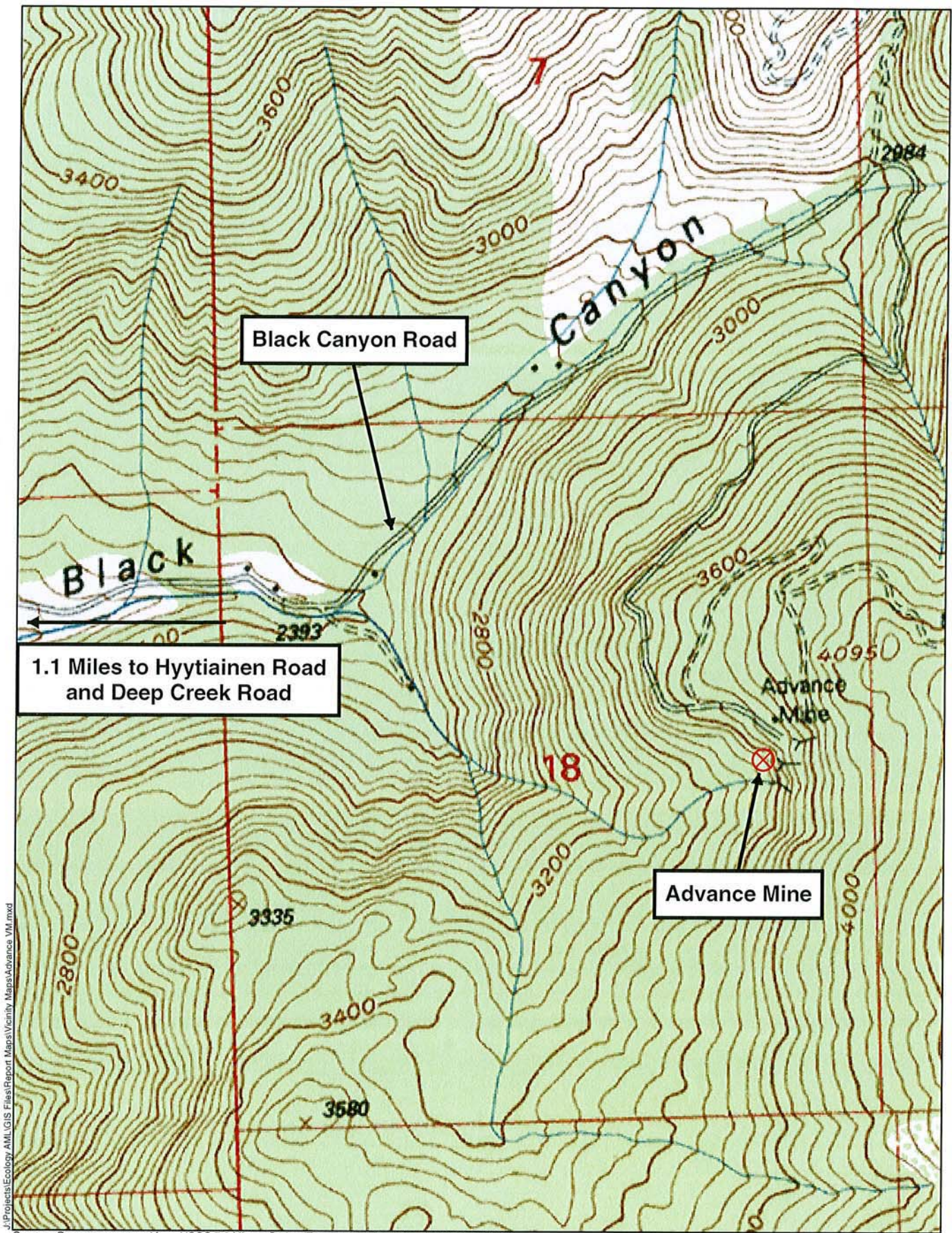
Source: Base map prepared from USGS 7.5 Minute Series (Topographic) Boundary Quadrangle (1992), Deep Lake Quadrangle (1992), Leadpoint Quadrangle (1992), Northport Quadrangle (1992), Onion Creek Quadrangle (1992), and Spirit Quadrangle (1992).

0 0.5 1 2  
Scale in Miles




**HARTCROWSER**  
17274-00 (AV) 9/06  
Figure 1

### Vicinity Map Advance Mine



Source: Base map prepared from USGS 7.5 Minute Series (Topographic) Boundary Quadrangle (1992).

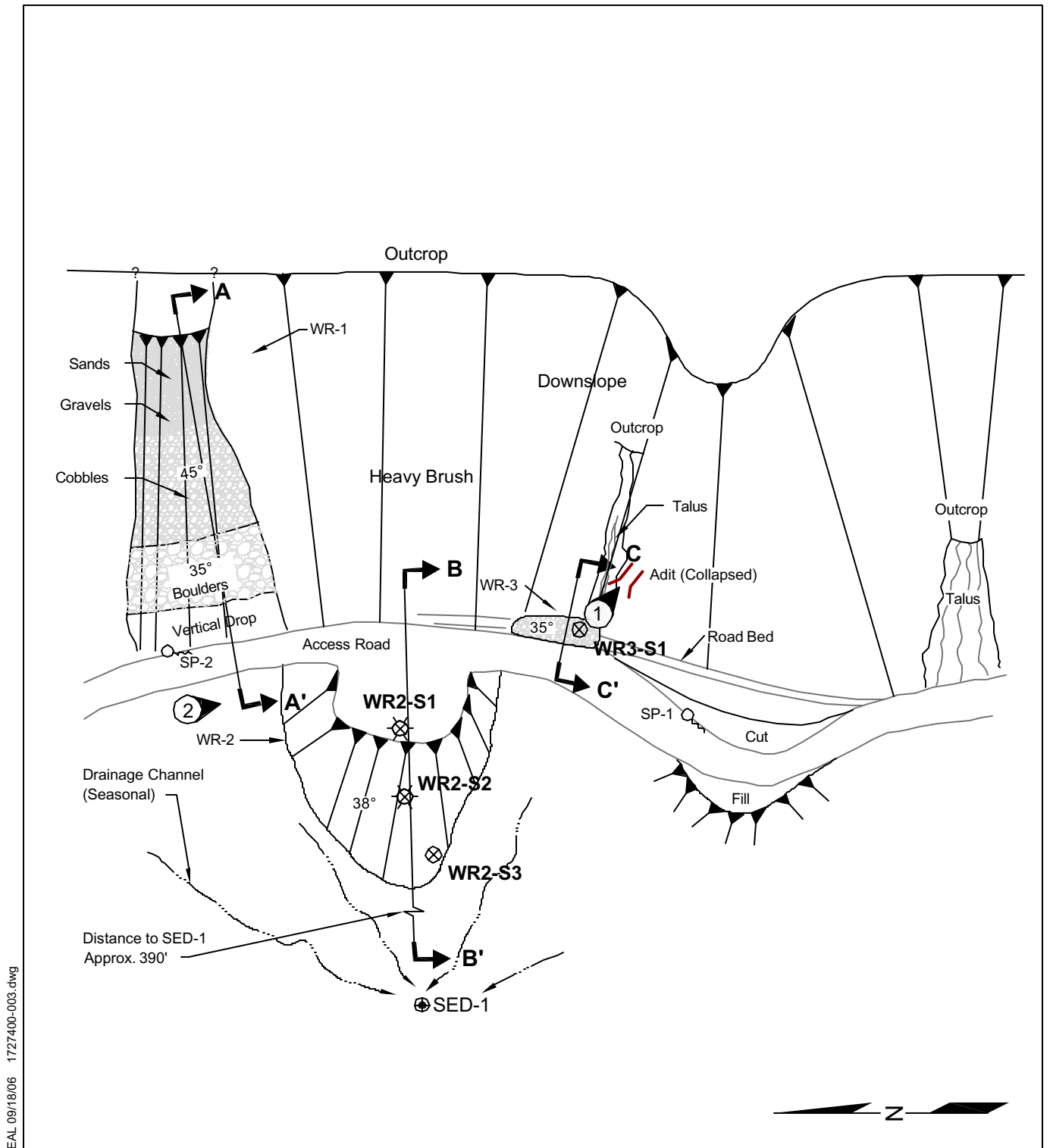
0 500 1,000  
Scale in Feet

 Mine Location Visited in Field



**HARTCROWSER**  
17274-00 (AV) 9/06  
Figure 2

# **Site Plan** **Advance Mine**

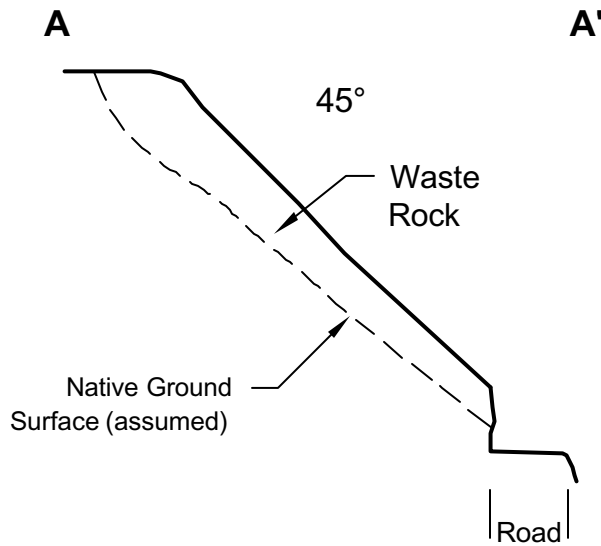


EAL 09/18/06 1727400-003.dwg

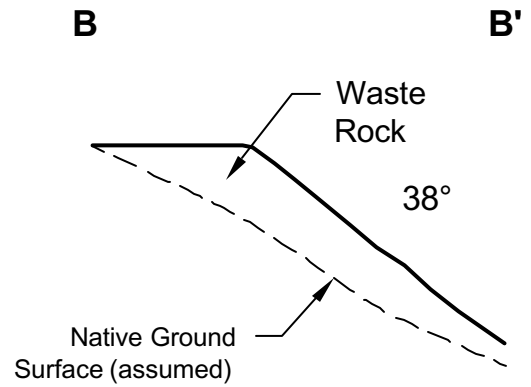
Source: Base map prepared from field notes 06/14/06.

0 50 100  
Scale in Feet

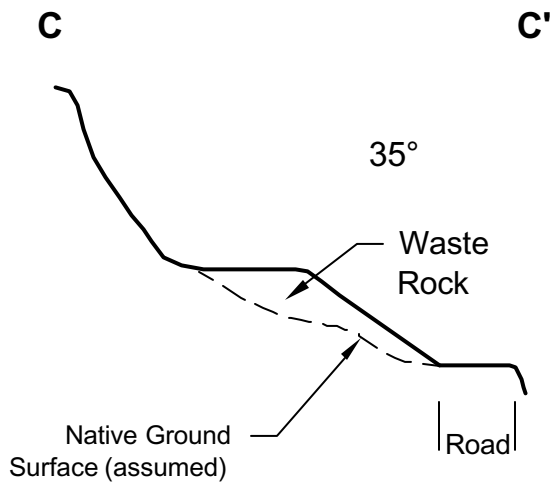
# Cross Sections Advance Mine



WR-1



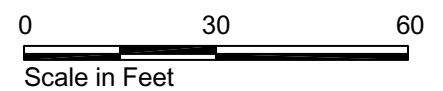
WR-2



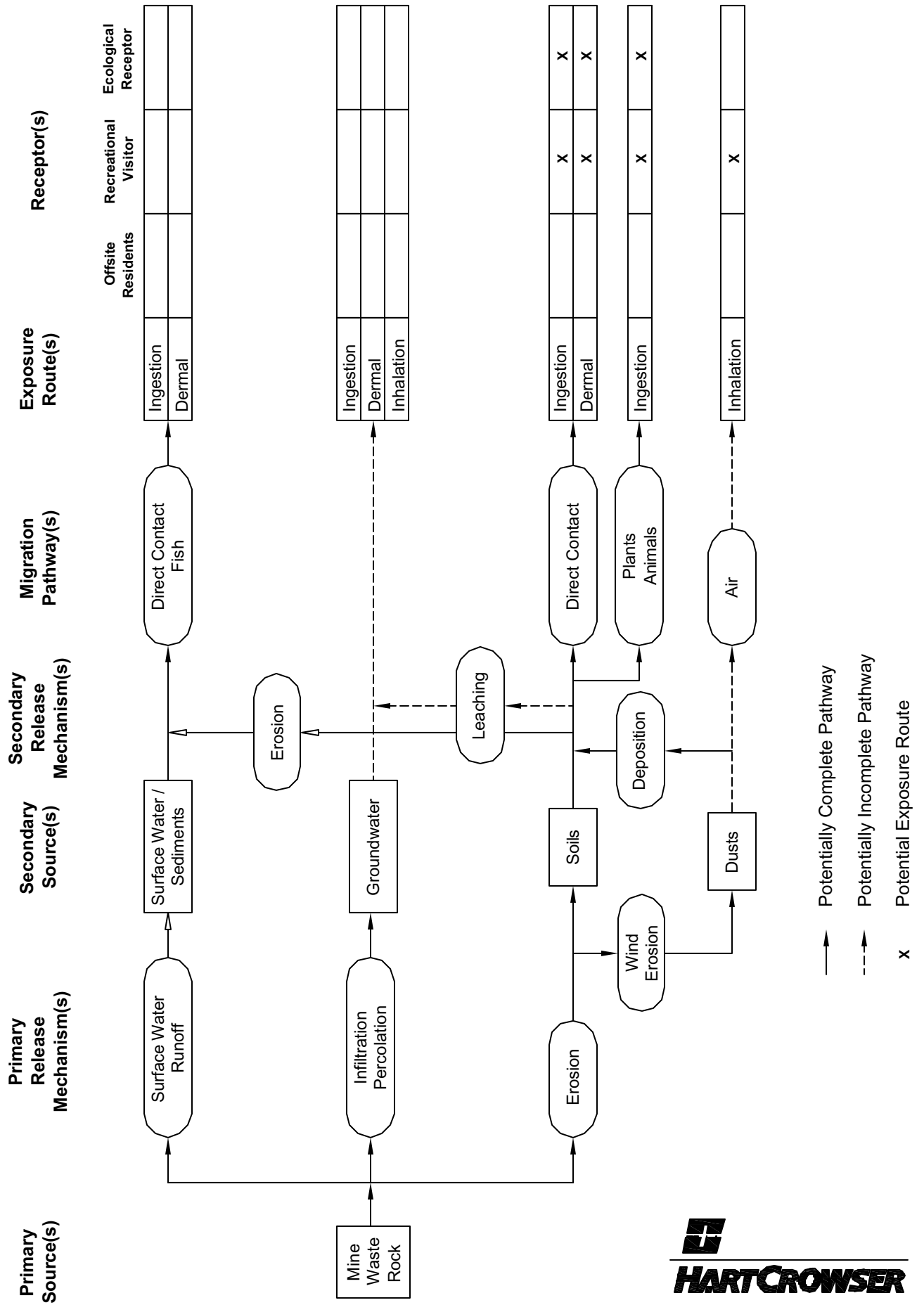
WR-3

EAL 09/08/06 1727400-004.dwg

Source: Figure prepared from field notes 08/14/06



# Mine Waste Rock Conceptual Site Model for Human and Ecological Risk Advance Mine



## **APPENDIX A FIELD DOCUMENTATION**

# AML Feature Inventory

page 1

Feature ID Advance USGS Quad: Boundary Survey Date 6/14/06

Surveyor(s) Pat Reed, Ashley Bazin

## Directions to Site (from a main road or landmark appearing on map)

From Northport, center of town, take road to Deep Lake. Set odometer @ 0  
 0.5 road splits, take left 4.7 to Colville  
 5.0 Highway Rd on left, steep left pit  
 Immediately take right fork - Black Canyon Road 3350  
 Road turns to gravel  
 Residence in valley to 6.5 mi.  
 7.0 Degraded by cutting  
 8.9 take right road at curve on outside of curve.  
 9.0 near S.R. Wash, rock piles visible.

Terrain Slope (Circle where applicable): 1. Flat 2. Vertical 3. Sloped (if sloped, report approx slope angle) slope angle:    deg

## Physical Features / Sources

### Mine Openings:

Count / ID	Condition: (open / closed / collapsed / flooded / other)	Nominal Dimensions in feet	Water Present (Y / N)	Flowrate in GPM	pH	Cond in mS	Temp in C	Animals Present (ie: bats, other)	Photo # (Site-Photo-Date)	GPS Coord (Report in NAD 83, WA North Zone, State Plane Coordinates, Units of Feet)	Elevation in feet above MSL*
1	Cloud	8.0 x 12.0 x 10.0	N								
-											
Shells											
adits											
pits											
other (explain)											

\*Elevation Measurement Method: B=barometer, T=Topo Map, O=Other (explain)

### Mining Activity-Related Piles:

Count / ID	Dimensions in ft (L X W X H)	Feature Vol. In yds <sup>3</sup>	Seepage Visible? (Y / N)	Seepage: Active / Inactive?	Estimated Particle Gradation (eg. 0.5" - 4")	# of Samples	% Ground Cover	Distressed Vegetation (Y / N)	Recent Human Activity (Y / N)	General Description of Location(s)
3										
waste rock pile(s)										
tailings pile(s)										
ore / leach pile(s)										
debris pile(s)										
other (explain)										

### Miscellaneous Notes:

Acorn upper adits from above - hillside is very steep and heavy brush many acorn adits. Topo shows 3 adits. We did not find the upper adits. Talus in WA-1 to 2 steep to climb near top.

**page 3**

Survey Date 6/14/06

Surveyor(s) Pat Reedy Abby Bazin

## Water Supply Structures

Count / ID	Inner Diameter	Depth	Soil Type	Served	Distance from Potential Contaminant Source	General Location
1						
2						
3						
4						
5						
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	Mill Present (Y/N)	Mill Footprint in ft <sup>2</sup>	Waste Associated with Mill	Chemicals Assoc with Mill
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9				
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Count / ID	Bldg Footprint in ft. <sup>2</sup>	Suspected Bldg Use	Bldg Condition	Comments
✓				
✓				
✓				
✓				
Other Buildings				

## Liquid or Waste Containment Structures

Count / ID	Volume in Gal.	Condition	Suspected Contents
drums	55	Rusted	Open, no labels or indication of contents
tanks	0		
other	0		

5<sup>00</sup> WTI # 0072

Number	Size	Description
several	55 gal	as above
cf		
<del>7</del>		
0		
Rails, cons, metal sheets (WR-1)		

## Ground Cover, Vegetation, Evidence of Wildlife or Recent Human Activity

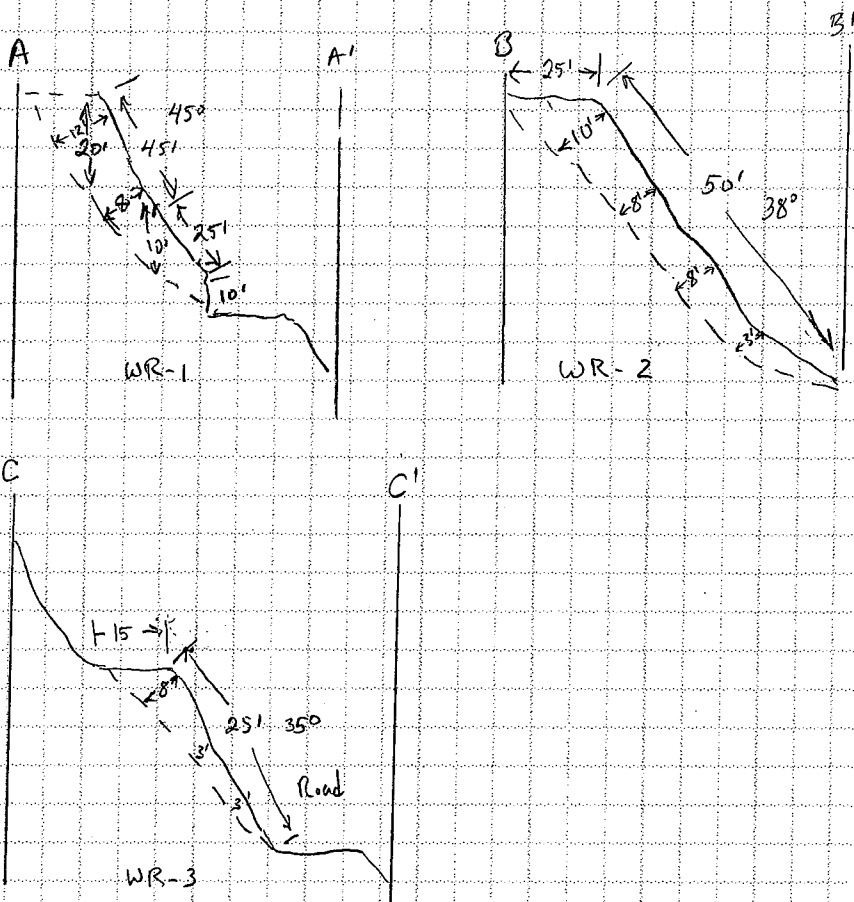
Type / Name	Number	Endangered / Threatened (%)	Comments*
Trees burned in wild fire, 80% dead			
20% 2-4" cedar	10%	2-4" birds	
30-40% Mt. Gambel's	20-30% live, seed, 20-30% wilted, 5		

\*Note whether vegetation is distressed

\*Note whether vegetation is distressed

Feature ID Advance  
 Date 6/14/06  
 Weather Rain

Cross Section Sketch (show orientation of section on plan view)



= \_\_\_\_ ft  
 |-----|

INCLUDE THE FOLLOWING IN THE FIELD SKETCH FOR:

X - X' Cross Section Orientation

Scale Bar

Photo Location(s) and View Direction(s)

Sample Location(s) and ID(s):

W-# Water

S-# Soil

T-# Tailings

R-# Rock (Waste)

O-# Ore

S-# Other (Describe)

LOCATION(S) OF:

MILLS

BUILDINGS

STRUCTURES

MINING-RELATED PILES

OTHER

SURFACE WATER (PONDS, SEEPS, ETC.)

GPS Collection Location \*

Elevation (Topographic Variation)

## Ecology AML

<b>Advance</b>			
<b>Coordinate Name</b>	<b>Northing</b>	<b>Easting</b>	<b>Altitude</b>
ADVANCE WR2 S1	1308680.7	2320771.97	3582.941
ADVANCE WR2 S2	1308688.9	2320744.07	3545.151
<b>Average</b>	<b>1308685</b>	<b>2320758</b>	<b>3564</b>

### Notes:

Northings and Eastings are reported in units of US Feet, relative to NAD 83 State Plane Coordinate System, Washington Zone South.



Photograph 1 - View of Adit 1. ←Up



Photograph 2 - View of Waste Rock Pile 2 (WR-2).