



***Abandoned Mine Lands
Initial Investigation Report
Robert E. Lee Mine
Metaline Falls, Washington***

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

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

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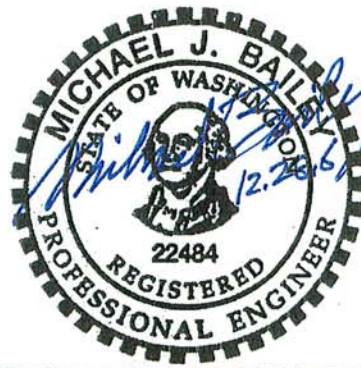
***Prepared for
Washington State
Department of Ecology
Rick Roeder, Project Manager***

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

Prepared by
Hart Crowser, Inc.



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EXPIRES 12/03/2007

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**ABANDONED MINE LANDS INITIAL INVESTIGATION REPORT
ROBERT E. LEE MINE
METALINE FALLS, WASHINGTON**

1.0 EXECUTIVE SUMMARY

Information obtained during this assessment is summarized in Table 1.

Table 1 – Robert E. Lee Mine Data Summary

Mine Name:	Robert E. Lee
Last Known Operation:	The property includes five patented claims. No production is noted in Huntting (1956). The development Huntting lists is “a short inclined shaft, and a few open pits.”
Location:	8.2 miles north of Metaline, Washington, by road. Pend Oreille County. Latitude, Longitude: 48.9259°, 117.3418° Quadrangle Map: Boundary Dam TRS: Township 40 N, Range 43 E, Section 35, NW 1/4, SW 1/4
Features Observed	One waste rock pile (approximately 320 cubic yards) One collapsed adit
Results above Criteria	Soil samples exceed MTCA human health criteria for arsenic, cadmium and occasionally lead and zinc. Samples typically exceed MTCA ecological screening criteria for arsenic, mercury, selenium and zinc; and occasionally for antimony cadmium, lead, nickel and silver. Estimated concentrations of mercury in the soil samples also exceed ecological criteria.
Work by Others	No previous site assessment information was identified.
Potential Receptors / Degree of Hazard	Human health risks possible. Risks to ecological receptors likely. Soil has the potential to fail TCLP lead and cadmium criteria for dangerous waste.

2.0 INTRODUCTION

This report summarizes the results of the initial limited soil and surface water investigation at the Robert E. Lee Mine site located near Metaline Falls, Washington (Figure 1). 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 July 18, 2006.

3.0 SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS

3.1 Site Location

The Robert E. Lee Mine is located 8.2 miles north of Metaline, Washington, by road.

Directions from Metaline, Washington, to the mine are as follows:

- Driving north on State Route 31, turn left (west) onto Boundary Road/County Road 2975 approximately 0.4 mile north of Metaline. Follow Boundary Road/County Road 2975 for approximately 6.2 miles.
- Immediately after passing Forest Service Road 304 on the left (west), turn right (east) onto the dirt/gravel road and reset the trip odometer. An all wheel drive, high clearance vehicle is advised for travel on this road.
- At 0.25 mile stay left at the fork in the road and drive under the power lines.
- At 0.35 mile bear left at the fork in the road.
- At 0.45 mile bear right at the fork in the road.
- At 0.55 mile bear left at the fork in the road. The road conditions degrade quickly after 0.55 mile, encountering large ruts/channels and numerous fallen trees.
- At approximately 0.8 mile hiking the road into the mine is necessary as it becomes overgrown with trees and shrubs, as well as having numerous fallen trees across it.
- At approximately 1.6 miles the mine is encountered.

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 Robert E. Lee Mine is located on the Pend Oreille River at its junction with Everett Creek. The best access route to the mine may be by boat, traveling south on the Pend Oreille River from a boat launch off of County Road 2975 near Boundary Dam and Pee Wee Falls, which is approximately 4.3 miles away by river.

Robert E. Lee Mine is located at latitude 48.9259°, longitude 117.3418° (WGS 1984) in Township 40 N, Range 43 E, Section 35, NW 1/4, SW 1/4 (Willamette Meridian) at elevation 2000 feet (USGS, 7.5 minute, Boundary Dam Quadrangle, 1992) (Figure 2).

3.2 Site Description

The Robert E. Lee Mine is an inactive lead and zinc mine. The last date of operation is unknown. The mine is located at the base of an east facing rock slope on the Pend Oreille River. The natural terrain slopes at approximately 40 degrees to the east down to the riverbank. The size of the mine is approximately 0.1 acre with a vertical relief of approximately 15 feet. One collapsed adit and one waste rock pile were observed at the mine (Figure 3).

A single waste rock pile, WR-1, approximately 320 cubic yards in volume, extends from the adit beyond the natural bank of the Pend Oreille River (Photograph 1). WR-1 contains three different zones of material. The majority of the waste rock is dry, gray, sandy Gravel (Zone 3). Zone 1 is dry, dark gray, gravelly, silty Sand with slight cementation, and Zone 2 is dry, brown, silty, gravelly Sand with slight cementation. The slopes of the waste rock pile vary from about 52 degrees in Zone 1 to about 30 degrees in Zone 2, with Zone 3 having slopes of about 38 degrees. Waste rock from Zones 1 and 3 extend approximately 6 feet into the river at an estimated slope of 20 degrees (Photograph 2). Water from the Pend Oreille River has washed the fines out of the lower portion of the waste rock in Zones 1 and 3.

A collapsed, dry adit, Adit-1, approximately 4 feet wide by 5 feet high was the only opening discovered at the site (Photograph 3). A wooden adit door with a latch is present, and a rusted metal pipe extends from the slope over Adit-1. A pile of approximately 60 logs, cut to 3 feet long by 6 inches in diameter, is located adjacent on top of WR-1.

The Pend Oreille River flows from south to north. Water levels appear to fluctuate more than 1 foot and dropped approximately 0.75 foot during the 1.5-hour site visit. Everett Creek flows from northwest to southeast and intersects the Pend Oreille River on the north side of the Robert E. Lee Mine.

Surrounding vegetation is composed of moss, grass, ferns, and a mix of deciduous and evergreen trees, approximately 3 to 12 inches in diameter. No vegetation appears distressed.

A beer can and wine cooler wrapper were observed on the waste rock pile indicating recent human activity at the site. Also, a fishing boat was observed

from the mine, which can clearly be seen from the Pend Oreille River. No residences were observed in the vicinity of the mine. The nearest residence is approximately 0.6 mile southwest of the mine.

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. An ownership timeline is shown in Table 3.

Table 3 – Ownership Timeline

Year	Owner	
Current Land Ownership	City of Seattle, City Light	Parcel No. 43-40-35-46-0003, Pend Oreille Tax Assessor
Current Claim Ownership	No record of a currently active patented claim was found.	Pend Oreille Tax Assessor
1973-1997	Vernon Anderson filed a claim on the Section containing the mine, Geronimo #1, 2, and 4. It was not patented, and was closed by the BLM in 1997.	BLM
1965	Five unpatented claims, owned by Jerome Drumheller, Spokane, WA	Dings & Whitebread (1965)
1950-1952	Sullivan Mining Co., Wallace, Idaho	Huntting (1956)
1942-1945?	Columbia Lead & Zinc Mining Co.	Huntting (1956), Dings & Whitebread (1965)
1937	Drumheller Investment Co.	Huntting (1956)
1924	San Ramone Mining Co.	Huntting (1956)

Dings and Whitebread (1965) describe the property as five unpatented claims, high on the west bank of the Pend Oreille River, about a mile northeast of Ledbetter Lake. It was reached by a dirt road that leaves the main road to Russian Creek near the lake. “Before World War II exploratory diggings consisted of a few shallow pits and a short inclined shaft. A few diamond-drill holes were sunk by the Pend Oreille Mines & Metals Co., which held the property under option for a short time.”

Columbia Lead & Zinc Mining Co. started explorations in 1942, that extended over several years. “This company bulldozed a road into the property, drove two adits westward near a mineralized outcrop, and did both underground and surface diamond drilling. Little work, other than for assessment, has been done

since June 1945. Tonnage of ore shipped from the property, if any, is probably small.” Dings & Whitebread (1965).

The main mine workings are described as an adit driven westward under a mineralized outcrop. Dings indicated it was inaccessible. Reports they reviewed indicated that the adit was about 75 feet in length. Another adit was reported about 100 feet northwest, bearing southwest for 125 feet. A short inclined shaft observed in 1943 by another investigation team (reported by Dings) was filled with dirt during construction of the road to the property.

4.0 SITE INVESTIGATION ACTIVITIES

An initial site investigation was conducted on July 18, 2006. Photographs were taken and GPS data points, and waste rock samples, were collected. Mine features, photograph locations and directions, GPS waypoints, sample locations, and the likely direction of surface water flows are shown on Figure 3.

4.1 Soil and Waste Pile Sampling

Three waste rock samples were collected from WR-1, one from each zone of material: Rob Lee-WR1-S1 (Zone 3), Rob Lee-WR1-S2 (Zone 1), and Rob Lee-WR1-S3 (Zone 2). Sample descriptions are provided in Table 4.

4.2 Surface Water and Seep Sampling

No mine-related surface water or seeps from WR-1 or Adit-1 were observed at the time of the site visit; thus, no water samples were collected. However, as previously mentioned, the Pend Oreille River flows through a portion of WR-1.

4.3 Sediment Sampling

No mine related drainage channels were observed at the time of the site visit; thus, no sediment samples were collected.

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 Soil

Soil and waste rock sample analytical results are 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. Sample Rob Lee-WR1-S3 exceeds the ecological criterion for antimony. The three samples exceed the MTCA Method B and ecological criteria for arsenic; samples Rob Lee-WR1-S1 and Rob Lee-WR1-S2 also exceed the MTCA Method A criterion for arsenic. Samples Rob Lee-WR1-S1 and Rob Lee-WR1-S3 exceed MTCA Method A and ecological criteria for cadmium. Samples Rob Lee-WR1-S1 and Rob Lee-WR1-S2 exceed the ecological criteria for lead; sample Rob Lee-WR1-S1 also exceed the MTCA Method A criterion for lead. The estimated concentrations of mercury for all three samples exceed ecological criteria. Sample Rob Lee-WR1-S2 exceeds the ecological criteria for nickel. Sample Rob Lee-WR1-S3 exceeds the ecological criteria for selenium and silver; the concentrations of selenium in samples Rob Lee-WR1-S1 and Rob Lee-WR1-S2 exceed the ecological criteria. Samples Rob Lee-WR1-S1, Rob Lee-WR1-S2, and Rob Lee-WR1-S3 exceed the ecological criteria for zinc; sample Rob Lee-WR1-S3 also exceeds the MTCA Method B criteria for zinc.

While toxicity characteristic leaching procedure (TCLP) tests were not performed, lead concentrations in samples Rob Lee-WR1-S1 and Rob Lee-WR1-S2 and cadmium concentrations in sample Rob Lee-WR1-S3 are sufficiently high to potentially fail TCLP criteria for dangerous waste.

5.2 Air

No airborne dust was observed from WR-1 while on site, and, while the waste is exposed, it is relatively sheltered by the natural terrain and tall trees. Significant quantities of airborne dust are not believed to be a concern. Potential airborne dust would likely be deposited in the Pend Oreille River.

5.3 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 Robert E Lee 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 Robert E Lee 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 Robert E Lee 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 6.

6.0 SUMMARY AND CONCLUSIONS

The Robert E Lee Mine contains one waste rock pile with an approximate volume of 320 cubic yards. Waste rock samples contain metals at concentrations above MTCA Method A, MTCA Method B, or the ecological protection screening criteria. The main contaminants of concern are antimony, arsenic, cadmium, lead, mercury, nickel, selenium, silver, and zinc. Lead and cadmium concentrations have the potential to fail TCLP criteria for dangerous waste. Additional sampling and TCLP analysis are recommended.

Human health risks are likely limited to recreational users of the site. MTCA Method A and B screening levels may overestimate risk to recreational users since their exposure duration is less than the duration for a residential scenario. Metal releases may have occurred to the Pend Oreille River where it intercepts the waste rock pile. A site-specific terrestrial ecological evaluation (TEE) would be required to evaluate ecological risks.

Potential exposure pathways are shown on Figure 4.

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 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

BLM (Bureau of Land Management) Website

<http://www.geocommunicator.gov/>

Dings, McClelland G., and Whitebread, Donald H., 1965 Geology and Ore Deposits of the Metaline Zinc-Lead District, Pend Oreille County, Washington, USGS Professional Paper 489.

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

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Henry Day, "The Records of the Aurum Mining Company" University of Idaho Special Collections, accessed on 6/26/06 by PLR, at <http://www.lib.uidaho.edu/special-collections/Manuscripts/dmginv/mg235.htm>

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

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Table 2 - Project Team Roles and Responsibilities

Project Role	Personnel Assignment	Roles/Responsibilities
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 4 – Robert E. Lee Mine Sample Inventory

Sample Name	Sample Location	Sample Description
Waste Rock Samples		
Rob Lee-WR1-S1	Northeast slope of WR-1 in Zone 3	Dry, gray, sandy GRAVEL
Rob Lee-WR1-S2	East slope of WR-1 in Zone 1	Dry, dark gray, gravelly, silty SAND with slight cementation
Rob Lee-WR1-S3	Top of WR-1 in Zone 2	Dry, brown, silty, gravelly SAND with slight cementation

Table 5 - Analytical Results for Soil Samples - Robert E. Lee Mine

SDG Sample ID Sampling Date	MTCA Method A (a)	MTCA Method B		Ecological Protection (c) Plant/Soil Biota/Wildlife	K0606045 Rob Lee-WR1-S1 7/18/2006	K0606045 Rob Lee-WR1-S2 7/18/2006	K0606045 Rob Lee-WR1-S3 7/18/2006
		Soil Ingestion (b)	Soil Ingestion & Dermal Contact (b)				
Total Solids in %					99.8	99.6	97.8
Total Metals in mg/kg							
Aluminum	--	80,000	72,072	50 / -- / --			
Antimony	--	32	29	5 / -- / --	1.82	0.69	7.77
Arsenic	20	0.67	0.62	10(d) / 60 / 132	35.7	33.8	15.1
Beryllium	--	160	144	10 / -- / --	0.12	0.25	0.24
Cadmium	2	80	74	4 / 20 / 14	8.4	1.42	68.5
Chromium	2,000 ^e	120,000 ^e	44,571 ^e	42 / 42 / 67	2	1.9	3.2
Copper	--	2,960	2,700	100 / 50 / 217	10.3	22.4	33
Iron	--	24,000	21,622	-- / -- / --			
Lead	250	--	--	50 / 500 / 118	584	192	38.3
Manganese	--	11,200	10,090	1,100 / -- / 1,500			
Mercury	2	24	18	0.3 / 0.1 / 5.5	0.73 J	0.24 J	0.88 J
Nickel	--	1,600	1,441	30 / 200 / 980	18.7	39.3	20.4
Selenium	--	400	360	1 / 70 / 0.3	1.2 J	1.1 J	4
Silver	--	400	360	2 / -- / --	0.53	0.26	5.49
Thallium	--	5.6	5.0	1 / -- / --	0.69	0.32	0.74
Zinc	--	24,000	22,000	86 / 200 / 360	3,120	412	22,600

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).

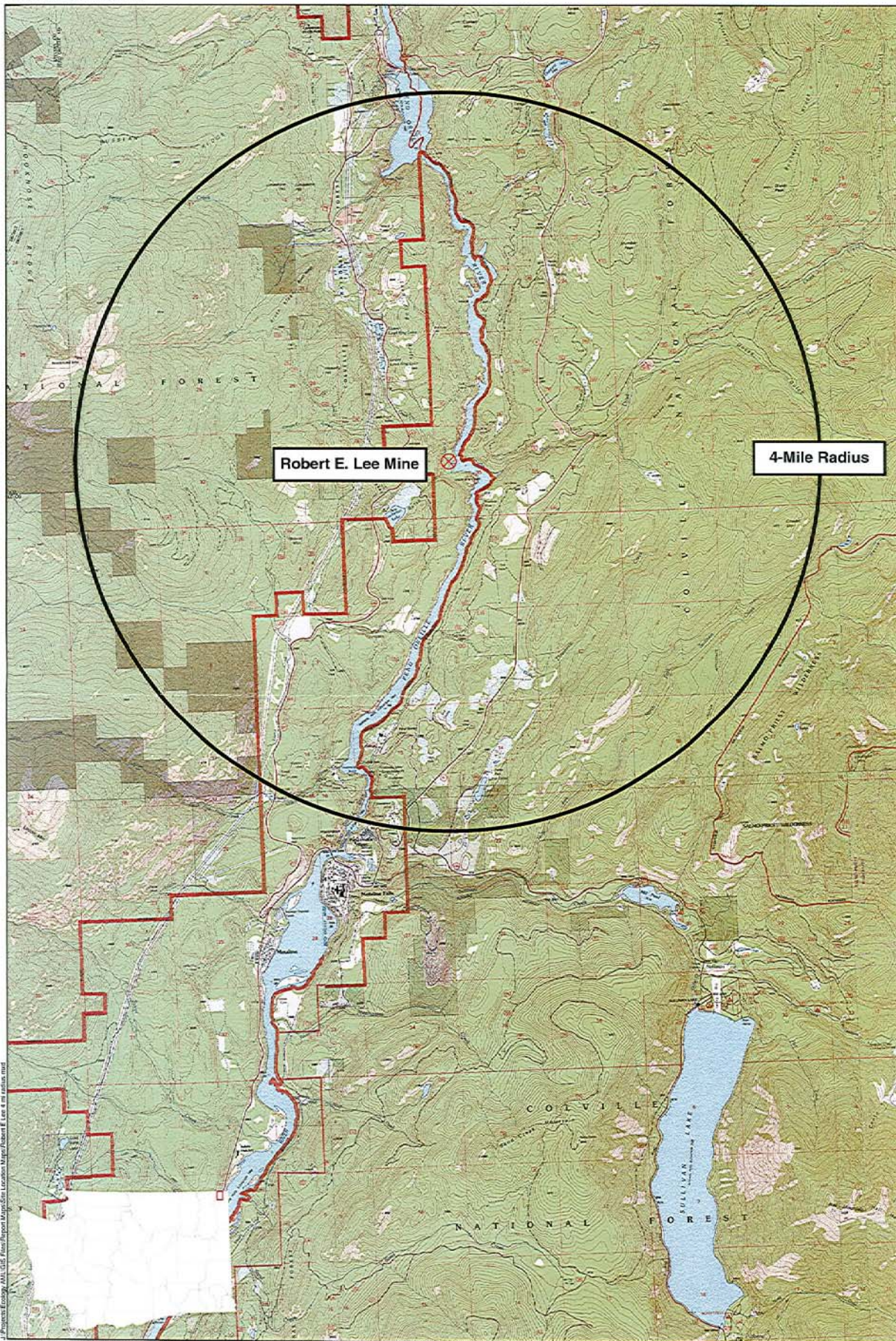
(d) Based on Arsenic V

(e) Based on Chromium III

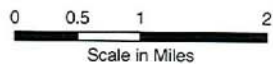
Table 6 - Threatened & Endangered Species

Species	Federal Status		State Status		Narrative
	T	E	T	E	
Lynx (<i>Lynx canadensis</i>)	X		X		Crowell Mtn
Grizzly bear (<i>Ursus arctos</i>)	X			X	Flume Creek
Bull trout (<i>Salvelinus confluentus</i>)	X				Pend Oreille River, Slate Creek, South Salmo River and Bench Creek
Woodland caribou (<i>Rangifer trandus</i>)		X		X	Beaver Creek and Slate Creek
Fisher (<i>Martes pennanti</i>)				X	Slate Creek

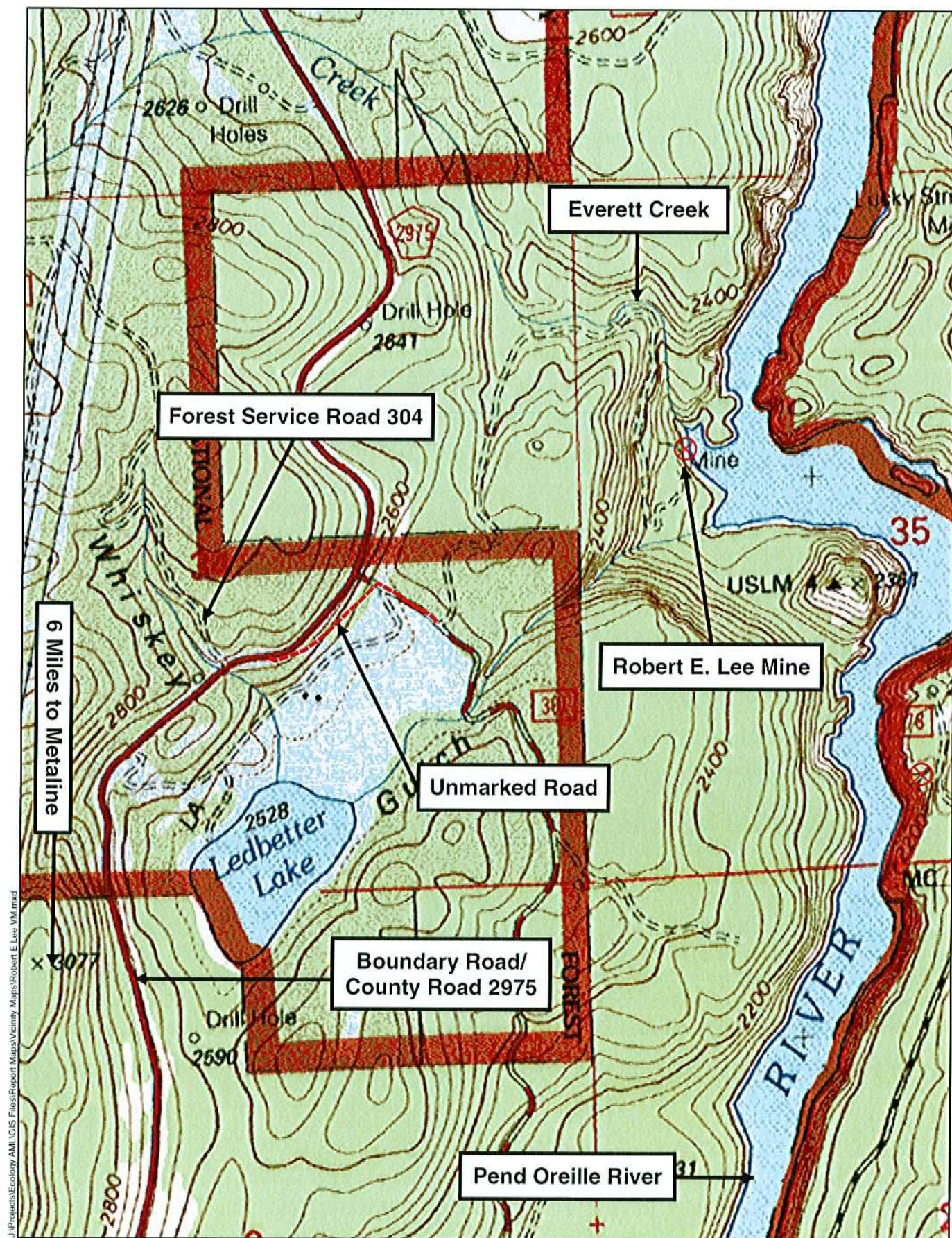
Site Location Map
Robert E. Lee Mine



Source: Base map prepared from USGS 7.5 Minute Series (Topographic) Abercrombie Mtn. Quadrangle (1992), Boundary Dam Quadrangle (1992), Gypsy Peak Quadrangle (1992), Metairie Quadrangle (1992), Metairie Falls Quadrangle (1992), and Pass Creek Quadrangle (1992).



Vicinity Map
Robert E. Lee Mine



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

0 500 1,000
 Scale in Feet

⊗ Mine Location Visited in Field

Standard Key for Site Plan

Robert E. Lee Mine



GPS Data Point Location and Number

WR1-S2

Soil or Waste Rock Sample Location and Number
(Note: Site name prefix also part of sample number)

W1

Water Sample Location and Number

45

Composite Sediment Sample Location
and Number



Adit



Shaft



Prospect/Pit



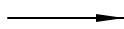
Building/Structure



Seep



Drainage Channel



Intermittent/Seasonal Drainage Channel



Wood Debris



Metal Debris



Soil or Seep Staining



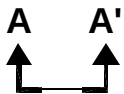
Other Feature



Groundwater Well



Photo Location, Number and Direction



Approximate Cross Section Location and Designation

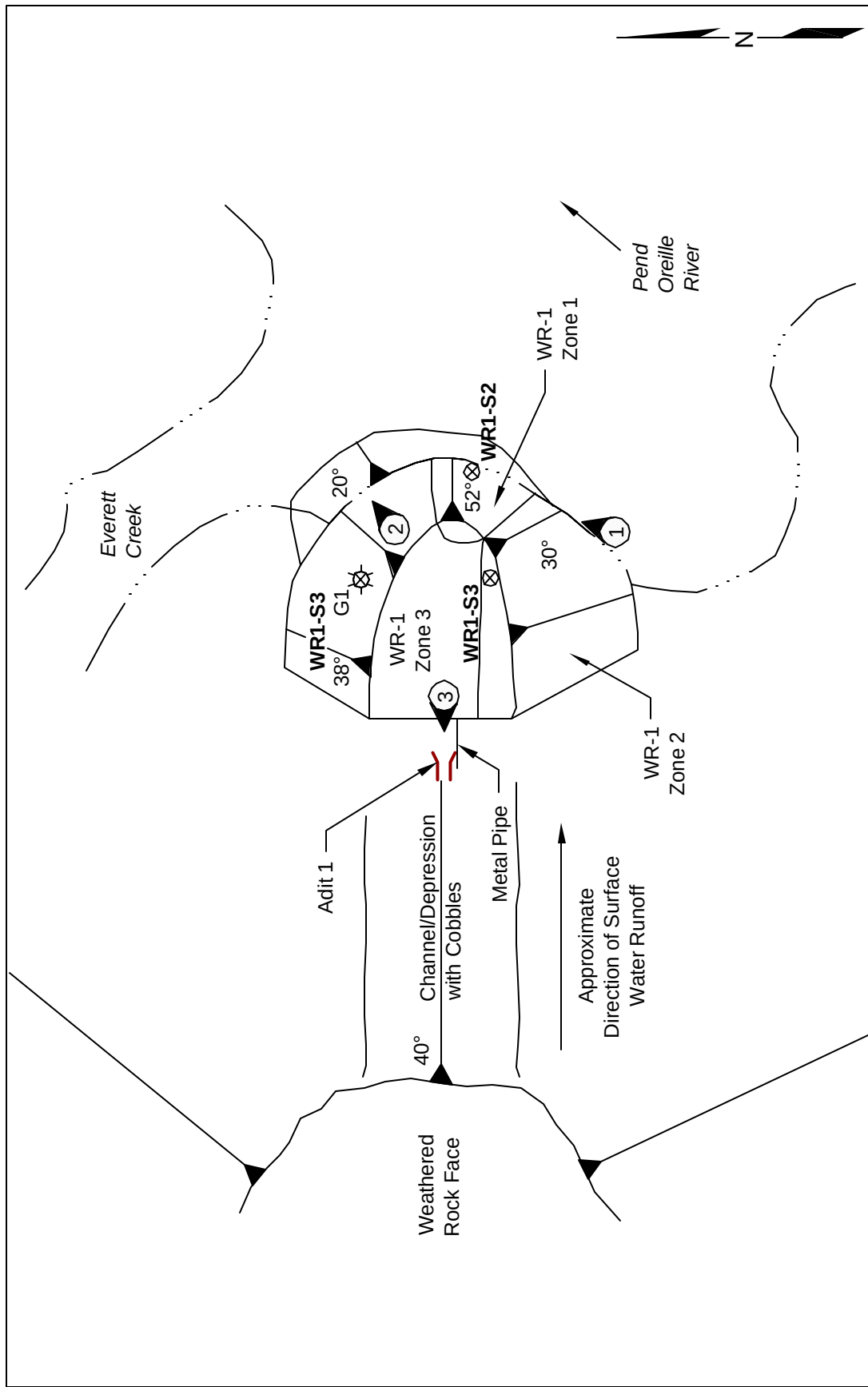


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Site Plan
Robert E. Lee Mine

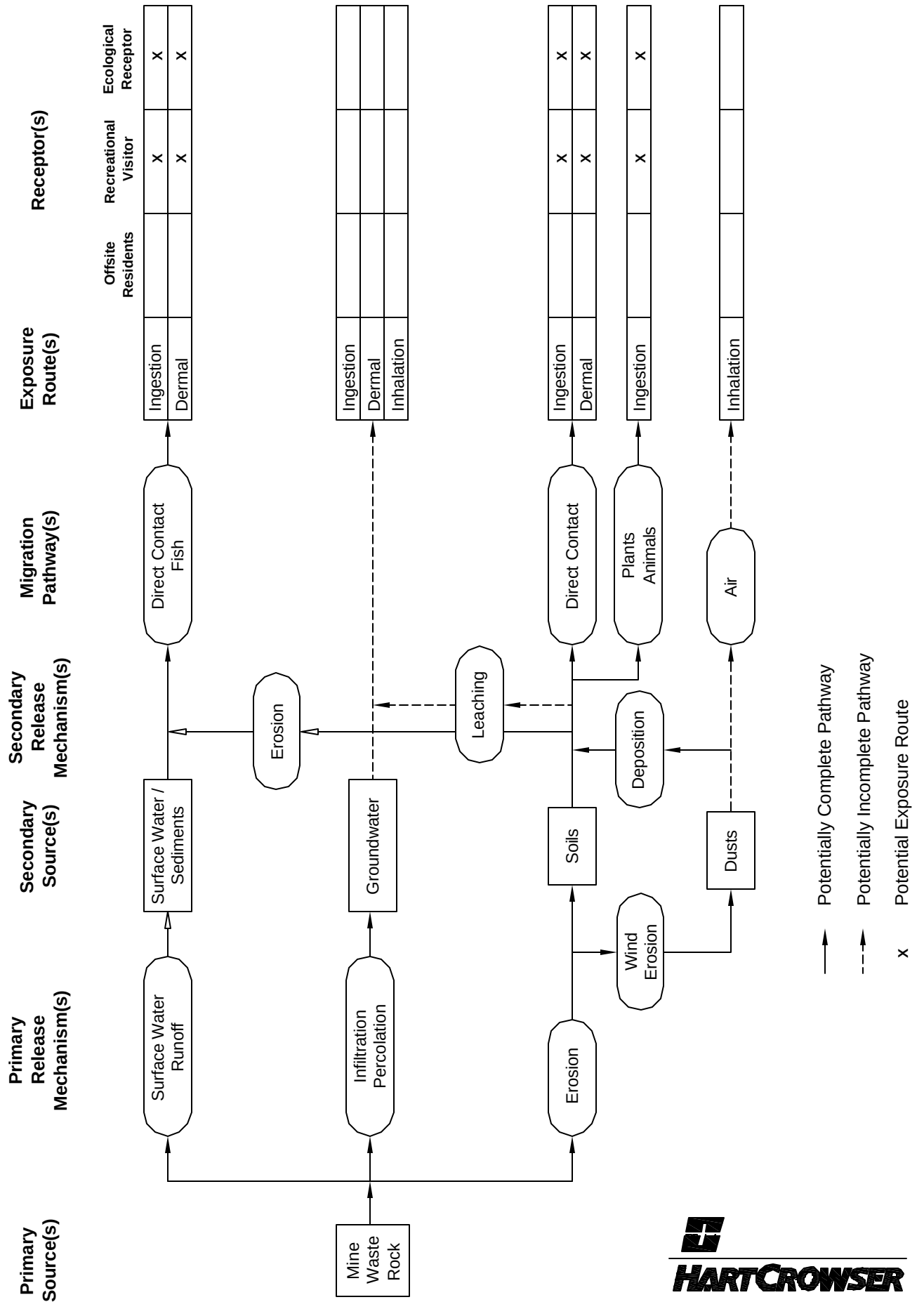


Source: Base map prepared from field notes dated 7/18/06.



Mine Waste Rock Conceptual Site Model for Human and Ecological Risk

Robert E. Lee Mine



APPENDIX A FIELD DOCUMENTATION

AML Feature Inventory

Feature ID Robert Lee
 Surveyor(s) MJS & AG

USGS Quad: Boundary Mon

Survey Date 7-16-06

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

See ASB's notes

Mine is right on
 bend Dreille River.
 Easiest access to
 site would be by
 boat.

Abandoned

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

Physical Features / Sources est. 5' base on floor

Mine Openings: ☐ shaft(s) ☒ adit(s) ☐ pit(s) ☐ other (explain)

Operating Type / Count ID	Count ID	Dimensions	Depth	Water Present	Flowage in GPM	pH	Cond in uS	Temp in C	Photo #	Photo Date	GPS	Description
Adit 1	Adit 1	5 x 10 x 2	4 x 3 x 2	Y	0.5 U/min	3.4	0.254	14.7	Butte - P3 - 6/15		GT: 1278955, 479895	Adit on northeast side of WR-2
Pit 2	Pit 2			N								Adit goes in @ 272°

Mining Activity-Related Piles: ☐ waste rock pile(s) ☐ tailings pile(s) ☐ one / each pile(s) ☐ debris pile(s)

Pile Type / Count ID	Count ID	Dimensions in ft	Slope in degrees	Seepage	Active / Inactive	% Vegetative Cover	Vegetation	Distressed	Recent Human Activity	Sample Name(s)	Estimated Particle Gradation	Soil Classification
WR-1	WR-1	150 x 50 x 3	38	Y	N	20% / 30% / 15%	N	N	botles, bottons	Butte - WR1 - S1/S4	0.5" - 4"	moist, gray, silty, v. sandy, Gravel
WR-2	WR-2	150 x 50 x 3							botles, bottons			

Note: one rock pile with three zones of material

Sample Inventory
 but 1' above water he is slightly stained from river sed. (we h's fruct. 40 1' from current) - no fines
 in this material so not sampled - upper material dry - material above river edge is moist

Sample Name	Location	GPS Name	GPS	Nothing Ending	Soils
(Site - Feature - Sample Number)					
(e.g.) Butte - WR1 - S1	Southern end of WR-1, top	GS: Butte - WR1 - S1	GT: 1278955, 479895	moist, gray, silty, v. gravelly, Sand	Y, ASTM #10

Miscellaneous Notes:

AML Feature Inventory

Feature ID Robert Lee
 Surveyor(s) MJS & ASB

Survey Date 7-18-06

Physical Features / Sources (Continued)

Mining Activity-Related Ponds or Liquid Containment Structures:

None

☐ leach pond(s) ☐ tailings pond(s) ☐ tailings impoundment(s) ☐ other (explain)

Pond Type / Count ID (i.e.) LP 1	Dimensions in ft (L x W x D)	Lined (Y/N)	Liquid Present (Y/N)	pH	Parameters:		Temp in C	Animals Present (e.g. bats, other)	Sample Name(s)	GPS
					Cond in mS	Flowrate in GPM				
	50 x 30 x 4	N	N					N	Butte - LP1 - S1-S2	G5: 1278965, 476985

Pond Oreille R. & Everett Creek

☐ Seep(s) ☒ Creek(s) ☐ Pond(s) ☐ Lake(s)

Type / Count ID (i.e.) Flume Creek	Location	Color	Distance from Potential Contaminant Source to Receptor	Parameters:		Temp in C	Odor, sheen, discoloration?
				pH	Cond in mS		
	southern site border						
	Eastern border of site						
	Northern border of site						

Waste rack is in the water @ Everett Cr. & Pond Oreille R. Junction

☒ Soil Staining ☐ Seep Staining

None

Type / Count ID (i.e.) Stain 1	Location	Color	Distance from Potential Contaminant Source to Receptor	Source & Receptor	Notes
	soil downslope of Ault 1	orange/brown	100' upslope of Flume Creek	fish	ferric-like

Seasonal Flow Paths or Channels

None

Count / ID (i.e.) Drainage 1	Water Present (Y/N)	Sample Name	GPS	Parameters:		Temp in C	Distance from Potential Contaminant Source to Receptor	Source & Receptor
				Flowrate in GPM	pH			
	N	Butte - Sed 1	G1: 1279645, 476985					

Wetlands

Count / ID (i.e.) Wetland 1	GPS	Flowrate in GPM	pH	Parameters:		Temp in C	Distance from Potential Contaminant Source to Receptor	Source & Receptor
				Cond in mS	Flowrate in GPM			
	G7: 127856, 476985	1 L/min	5.9	0.2		12.1	50' N of Pond Oreille River	None

not really a wetland just natural stream bank.

Sections of wetlands bordering Everett Cr. & Pond Oreille R.

AML Feature Inventory

page 3

Feature ID	Robert E Lee
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Survey Date 7-18-06

Surveyor(s) NTG & AS

Physical Features / Sources (Continued)

Water Supply Structures: ☐ None ☐ GW Well(s) ☐ SW Intake(s) ☐ Pit Toilet(s) ☐ Other (explain) ☐

[illegible]

No

Mill Present / (N)	Mill Footprint in ft. ²	Chemicals Assoc with Mill	GPS
		Waste Associated with Mill	

Buildings / Structures

Count / ID	Bldg. Footprint in ft. ²	Suspected Bldg. Use	Bldg. Condition	GPS	Comments
W/ind					

Other Buildings

[illegible]

Liquid or Waste Containment Structures:

	drum(s)	tank(s)	other (explain)
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[illegible]

☐	☐	☐	☐	☐	☐
	assay equip & retorts	drum(s)	scrap lumber	scrap metal	machinery
☐	☐	☐	☐	☐	☐
					other (explain)

Type / ID	Number	Size	Location	Description
(a) scrap lumber & metal		5' x 10' x 1"	top of mill	limbers (some charred), rails, stakes, and sheet metal
Rusted metal pipe	1	1" x 8'	into slope over eddy	
Log pile	60 logs	12' x 8' x 2'	E of eddy 1 on N-21	cut logs 16" diam
11A door	1	5X5	@ N-21	bladder door w/ tack patch

Other Observations:

[illegible]

Feature ID Robert E. Lee
Date _____
Weather _____

Weather

[illegible]

Slope Direction

7/18/00

Robert E. Lee

- Heading N on SR 31
- After seeing FR 304 on left. Make next right turn on dirt/grass road
- @ 0.25 mi go left @ fork heading under power lines
- Reach fork @ 0.35 mi. bear left
- Reach fork @ 0.45, bear right
- Fork @ 0.55 Bear left
- walk along road (down in elev.) to site.

Road is heavily overgrown w/ many fallen trees & ruts. Best route in may be by boat.

Samples

- Rob Lee - WR 1 - S1 - Dry gray sandy ~~GRAVEL~~
- Rob Lee - WR 1 - S2 - Dry dark gray gravelly silt & NP

Slightly cemented. Appears as though water passes through this material

G1S

G1: Rob Lee - WR 1 - S1

G2:

G3:

Photos:

1. Adit, twd Z65°
2. Wood pile, twd Z50°
3. WR 1 twd N
4. WR in Pond Orville River
5. "
6. Looking down NE slope of WR 1. Note we continue into River
7. Cliff above adit - likely natural vegetation, rather than human activity

Rob Lee - WR 1 - S3: Dry brown silty gravelly sand & slightly cemented surface

Ecology AML

Robert E Lee			
Coordinate Name	Northing	Easting	Altitude
ROB LEE-WR1-S1	1325718	2400099	1947

Notes:

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



Photograph 1 - WR-1: Zone 1 (black material on right slope), Zone 2 (brown material on facing slope), and Zone 3 (gray material on top).



Photograph 2 - WR-1 showing Zone 3 material above and below the waterline.



Photograph 3 - View of Adit-1.