ABBREVIATED PRELIMINARY ASSESSMENT

BLUE BIRD MINE

Wallowa-Whitman National Forest
Grant County, Oregon

October 2002

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EXECUTIVE SUMMARY

The Forest Service performed an Abbreviated Preliminary Assessment for the Bluebird Mine (Site) to determine the need for further site characterization. The Site waste piles are placed on steep side slopes and a portion are located within the Clear Creek floodplain. A Niton XRF unit was used for In Situ field screening of the waste piles for any potential contaminants. Water and sediment samples were not collected.

Three elements exceeded EPA Region IX Preliminary Remediation Goals (PRG) as to acceptable industrial levels in soil. The elements were Iron, Arsenic, and Antimony. It is apparent material from the waste piles is moving into Clear Creek from erosion forces.

Based on the proximity of the Site to Clear Creek, it is recommended a Site Inspection (SI) be performed.

1.0 INTRODUCTION

An Abbreviated Preliminary Assessment (APA) was performed by the US Forest Service in accordance with the EPA "Guidance for Performing Preliminary Assessments Under CERCLA", EPA "Improving Site Assessment: Abbreviated Preliminary Assessments" of 1999, the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, the Superfund Amendments and Reauthorization Act (SARA) of 1986, and the National Contingency Plan as outlined in 40 CFR Parts 300.410(c)(1)(i-v).

The purpose of this assessment was to determine whether or not there is a potential for a release of contaminants to the environment and/or to human health. The purpose of an APA is to determine whether further site characterization is warranted. A Niton XRF 700 Series was utilized to help in the preliminary screening of this Site.

2.0 SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS

The Bluebird Mine (Site) is located approximately 4.5 miles southwest of Granite, OR, on Forest Service Road 13. The legal description for the Site is; Latitude: 44° 45' 59"N, Longitude: 118° 29' 37"W, Sec 11, T 9 S, R 35 E, USGS Quadrangle Map - Granite. The Site is situated on moderate to steep hillsides adjacent to Clear Creek. The Site is located in the mining district of Granite.

The Site consists of one adit, which is currently sealed off with a bulkhead. Water is drained from the adit via PVC piping, which goes underneath Clear Creek and is intentionally discharged to a man-made wetland on the opposite side of Clear Creek from the Site. The Site consists of a large waste pile and a smaller waste pile upstream from the larger pile. The waste piles are situated on top of moderate to steep side slopes and in the flood zone of Clear Creek. There are no structures, other than the adit, in the area. Accessing the site requires crossing Clear Creek on foot, as there are no bridges or roads on the Site. Approximately two acres are disturbed on the Site.

There is limited historical data available on this mine. It appears this mine was developed in the early 1900s, and consists of 2,500 feet of underground drift. The mine was idle and the drift inaccessible in 1914, but apparently 1,500 tons of ore were produced from this mine in 1904 and 1905. The primary production for this mine was gold and silver.

The waste piles are from hardrock mining and contain coloration indicative of high iron content. Little is know of the ore materials, however, the mine dump contains fragments of argillite host rock with quartz and minor pyrite and arsenopyrite. Currently, the Site is inactive.

3.0 SITE SAMPLING AND TEST RESULTS

A Niton XRF, XL-722S was used to assess the waste piles for potential contamination. In Situ testing was performed on the Site per EPA Method 6200. Surface soils were removed to approximately 4 to 6 inches below grade in order to get below highly oxidized surface layers. Rocks, debris and other deleterious materials were removed. The soil was worked to gain a flat surface area on which to set the Niton.

No surface water, sediment, or adit discharge samples were collected and analyzed.

The following constituents exceeded EPA Region IX PRG industrial levels and are based on bench test results:

Location	Constituent	Result (mg/kg)	PRG (mg/kg)
Waste Rock	Arsenic	36.9 – 60.0	1.6*
	Antimony	752	410
Sludge	Iron	1,310k – 1,400k	**
	Arsenic	49.1 – 65.0	1.6*
	Antimony	724	410

*Cancer endpoint for Arsenic is 1.6 mg/kg and for noncancer endpoints, it is 260 mg/kg.
** All that can be established by these readings is that Iron is high as the concentrations measured exceed the capability of the Niton.

It is apparent that material is entering Clear Creek both from erosion forces and from a recent blowout from the portal when a pipe draining the adit plugged. The ramification from this material entering an aquatic environment is unknown at this time.

4.0 SUMMARY

A portion of the Bluebird Mine waste piles lay within the floodplain of Clear Creek. It was apparent erosion forces are contributing some material to Clear Creek.

The constituents of concern that exceeded EPA Region IX industrial levels in soil were Iron, Arsenic, and Antimony. At this time, it is unclear as to any impacts to the aquatic environment from these constituents.

5.0 RECOMMENDATION

Based on the In Situ as well as bench testing of samples from the waste piles with the Niton XRF unit, the proximity of the waste piles to Clear Creek, and EPA's APA Checklist (Appendix A), it is recommended that a Site Inspection (SI) be completed. As part of this inspection, water samples from pore spaces of the stream gravels should be collected as well as sampling of the benthic macroinvertebrate organisms. In addition to testing water samples from the pore spaces of the gravels for the presence of metallic elements, water parameters such as pH, conductivity, turbidity, dissolved oxygen, temperature, total dissolved solids, hardness, and oxygen reduction potential are required. The waste piles should be sampled at depth and a determination of volumes should be calculated. The water from the adit should be sampled and tested for the field parameters as outlined above as well as for elemental contaminants. The wetland that the acid mine drainage (AMD) is draining into needs to be evaluated. Acid base accounting (ABA) is required. Sediment samples are to be collected from transects of the stream and preferably at depth and analyzed for total as well as for available metals. Surface water samples are also required for analysis of total and dissolved metal concentrations.

Appendix A

ABBREVIATED PRELIMINARY ASSESSMENT CHECKLIST

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 assessment process are required under CERCLA. Use additional sheets, if necessary.

Checklist Preparer: Dennis Boles, Environmental Engineer (Name/Title) — July 9, 2002 (Date)

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Site Name: Bluebird Mine

Previous Names (if any): None

Site Location: The Site is located approximately 4.5 miles southwest of Granite, OR on FS Road 13. The site is located on the riparian area of Clear Creek.

Legal Description: Latitude: 44°45'59"N Longitude: 118°29'37"W

Describe the release (or potential release) and its probable nature: Clear Creek runs about 50 feet from the toe of the waste pile. The following elements exceed industrial levels of the PRGs and the results and relevant PRG industrial levels are listed in parentheses:

Iron: 1,310k – 1,400k (100,000 mg/kg, readings exceed capability of the Niton), Antimony: 724 – 752 (410 mg/kg), Arsenic: 36.9 – 65.0 (1.6 mg/kg cancer endpoints and 260 mg/kg for noncancer endpoints)

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 (i.e., 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 exist (i.e., comprehensive remedial investigation equivalent data showing no release above ARAR's, completed removal action, documentation showing that no hazardous substance release have occurred, or an EPA approved risk assessment completed)?		X

Please explain all "yes" answer(s), _____

Part 2 - Initial Site Evaluation

For Part 2, if information is not available to make a "yes" or "no" response, further investigation may be needed. In these cases, determine whether an APA is appropriate. Exhibit 1 parallels the questions in Part 2. Use Exhibit 1 to make decisions in Part 3.

If the answer is "no" to any questions 1, 2, or 3, proceed directly to Part 3.	**YES**	**NO**
1. Does the site have a release or a potential to release?	X	
2. Does the site have uncontained sources containing CERCLA eligible substances?	X	
3. Does the site have documented on-site, adjacent, or nearby targets?	X	

If the answers to questions 1, 2, and 3 above were all "yes" then answer the questions below before proceeding to Part 3.	**YES**	**NO**
4. Does documentation indicate that a target (i.e., drinking water wells, drinking surface water intakes, etc.) has been exposed to a hazardous substance released from the site?		X
5. Is there an apparent release at the site with no documentation of exposed targets, but there are targets on site or immediately adjacent to the site?	X	
6. Is there an apparent release and no documented on-site targets or targets immediately adjacent to the site, but there are nearby targets (i.e., targets within 1 mile)?	X	
7. Is there 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?	X	

Notes:

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 judgment when evaluating a site. Your judgment 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 (i.e., 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	No
5. There is an apparent release at the site with no documentation of exposed 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	N/A
6. There is an apparent release and no documented on-site targets and no documented 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 migrating 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:

( ) NFRAP	( ) Refer to Removal Program – further site assessment needed
(X) Higher Priority SI	( ) Refer to Removal Program – NFRAP
( ) Lower Priority SI	( ) Site is being addressed as part of another CERCLIS site
( ) Defer to RCRA Subtitle C	( ) Other: _____
( ) Defer to NRC	

Regional EPA Reviewer: __N/A_____ _____
Print Name/Signature Date

PLEASE EXPLAIN THE RATIONALE FOR YOUR DECISION:

The toe of the waste pile at the Bluebird Mine is on the floodplain of Clear Creek. It is obvious that material is transported to Clear Creek during rain and snowmelt situations. The bulkhead released water and materials into Clear Creek when the drainpipe plugged and appears to have removed some of the waste rock material during this episode. Considering Clear Creek is a salmon and steelhead spawning area, an SI is warranted for this Site. Also, water samples from the pore spaces of the gravels of Clear Creek should be collected both up and down stream from the Site and analyzed for impacts to benthic macroinvertebrate organisms. Iron, Antimony, and Arsenic all exceed the EPA Region IX PRGs for industrial levels. ABA should be performed at the site.

NOTES:

The Site sits on moderate to steep side slopes and getting drilling equipment on the waste piles is possible, but would have to cross Clear Creek. Based on this, hand-auguring methods may be more appropriate in order to collect soil samples for laboratory evaluation and to determine the volume of material onsite as well as any impact to groundwater in the area.