ABBREVIATED PRELIMINARY ASSESSMENT

TILLICUM

Wallowa Whitman National Forest
Granite County, Oregon

February 2003

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APPENDICES

EXECUTIVE SUMMARY

The Forest Service performed an Abbreviated Preliminary Assessment for the Tillicum Mine (Site) to determine the need for further site characterization. The Site waste piles are placed on moderate to steep side slopes.

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.

Two elements exceeded EPA Region IX Preliminary Remediation Goals (PRG) as to acceptable industrial levels in soil. The elements were Arsenic and Lead.

Based on the proximity of the Site to Granite 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 on October 17, 2002.

2.0 SITE DESCRIPTION, OPERATIONAL HISTORY, AND WASTE CHARACTERISTICS

The Tillicum Mine (Site) is located approximately m miles northeast of Granite, OR, on Forest Service Road 7345. The legal description for the Site is; Latitude: 44° 51' 23"N, Longitude: 118° 22' 58"W, Sec 23, T 8 S, R 35.5 E, USGS Quadrangle Map – Granite. The Site is situated on moderate to steep hillsides adjacent to Granite Creek. The Site is located within the Granite Mining District.

The Site consists of two adits, which have collapsed portals. The Site consists of several waste piles. The waste piles are situated on top of moderate to steep terrain. There are no structures, other than the adit, in the area. An abandoned Forest Service road utilizing quads can accomplish access to the site. Approximately 2 acres are disturbed on the Site.

There is not any information available as to the history of the Site. It is anticipated that both adits are only about 50 feet in length. There are no records as to production. 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 materials 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 waste material was worked to gain a flat surface area on which to set the Niton. The results from this effort are provided below.

No surface water or sediment samples were collected and analyzed during the October 17, 2002 visit.

The following constituents exceeded EPA Region IX PRG industrial levels:

Location	Constituent	Result (mg/kg)	PRG (mg/kg)
Waste Rock	Lead	1760	750
	Arsenic*	75.1 to 222.8	1.6

*Arsenic – for noncancer endpoint, the PRG is 260 mg/kg. For cancer endpoints, the PRG is 1.6 mg/kg.

It appears that some material could be entering Granite Creek from the waste rock piles. The ramification from this material entering an aquatic environment is unknown at this time.

4.0 SUMMARY

It appears that some contaminated material may be entering Granite Creek from the waste rock piles.

The constituents of concern that exceeded EPA Region IX industrial levels in soil were Arsenic and Lead. 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 screening of the waste rock piles with the Niton XRF unit, the proximity of the waste piles to Granite 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, where feasible, as well as sampling of the benthic 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 rock piles should be sampled at depth using hand augurs and a determination of volumes should be calculated. 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.

Appendix B contains additional photos of the Site.

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) — October 17, 2002 (Date)

Winema NF, 2819 Dahlia St, Klamath Falls, OR 97601 (Address) — 541-219-1201 (Phone)

djboles@fs.fed.us (E-Mail Address)

Site Name: Tillicum Mine

Previous Names (if any): None

Site Location: The Site is located approximately 8 miles northeast of Granite, OR on FS Road 7345.

Legal Description: Latitude: 44°51'23"N Longitude: 118°22'58"W

Describe the release (or potential release) and its probable nature: The following elements exceed industrial levels of the PRGs, and the results and relevant PRG industrial levels are listed in parentheses:

Arsenic – 75.10 to 222.8 (1.6 for cancer and 260 mg/kg for noncancer endpoints), Lead – 1760 (750 mg/kg)

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

Regional EPA Reviewer: N/A _____ _____
Print Name/Signature Date

PLEASE EXPLAIN THE RATIONALE FOR YOUR DECISION:

Tillicum is in the same stream as is the Monumental Mine. There are others in this system. Based on the elevated readings for Arsenic and lead, and the fact that this is only one of many mines in this stream, it is recommended an SI be performed on this 3-mile stretch of stream.

NOTES:

The Site sits on moderate to steep side sloes. As such, stainless steel augurs will be required for soil sampling. The main thrust for the SI would be the sampling of Granite Creek to determine the overall health of the benthic community.

Appendix B

ADDITIONAL SITE PHTOS

Upper Tillicum Caved Adit

Lower Tillicum Caved Adit