ABBREVIATED PRELIMINARY ASSESSMENT

INDEPENDENCE MINE

Independence Crosscut Portal

Umatilla National Forest
Grant County, Oregon
June 2012

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EXECUTIVE SUMMARY

The US Forest Service performed an Abbreviated Preliminary Assessment for the Independence Mine (Site) to determine the need for further site characterization. The Site contains numerous underground and surface workings located in the headwaters of China Gulch, a tributary to Granite Creek. Granite Creek is considered a critical source watershed for anadromous fish habitat and recovery. Approximately 50,000 cubic yards of mine-generated waste rock dumps are located on or nearby China Gulch. Adit water from the largest underground workings discharges directly into China Gulch.

A Niton x-ray fluorescence field analyzer was used for in-situ screening of the waste rock piles to determine the levels of hazardous substances present. Samples analyzed showed the arsenic concentration ranges from 53-2,023 mg/kg, averaging 654 mg/kg. This exceeds the 2012 EPA Region IX Regional Screening Level of 1.6 mg/kg. The Regional Screening Level (RSL) (formerly Preliminary Remediation Goal) is considered protective of excess cancer risk to humans exposed to soils at industrial sites. Adit water, surface water, creek sediment, and background soil samples were not collected. Not all workings at the Site have been inspected.

Based upon the presence of high levels of a hazardous substance in proximity to China Gulch, and potential exposure to recreational visitors and Forest workers at and around the Site, it is recommended that a Site Inspection 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 is to determine whether or not there is an actual or potential for a release of hazardous substances that may impact human health or the environment. Additionally, an APA is used to evaluate whether further site characterization is warranted. A Niton x-ray fluorescence hand-held analyzer was used to determine the level of hazardous substances present in this initial screening of the Site. Waste rock volume estimates were done by pacing and hand level.

2.0 SITE DESCRIPTION AND WASTE CHARACTERISTICS

The Independence Mine group (Site) is located approximately 3.0 miles north of Granite, Oregon, off County Road 73. The location of the largest workings is: Latitude: 44° 51' 6.17" N, Longitude: 118° 24' 22.89" W, in the center of Sec 22, T 8 S, R 35.5 E. The Site is situated on moderately steep hillsides at 5,375' elevation, adjacent to China Gulch. The Site is located in the Granite mining district.

The Site consists of at least four adits, one shaft, open pits and trenches, and numerous prospects. The Independence Crosscut is discharging mine water from the collapsed portal into the headwaters of China Gulch after passing through a small settling pond and traversing a large waste rock pile. At approximately 30,000 cubic yards of waste rock, it is the largest working inspected on Forest Servicce land. It has an intact building and shed. The building has a weathered sign naming the site as the Cougar Mine, with contact information for W.A. Bowes. The nearby Cougar 1st Level contains nearly 9,000 cubic yards of waste rock in front of the collapsed portal. About one thousand feet north of these working are the Independence 2-4 adits. These collapsed portals have approximately 13,000 cubic yards of waste rock adjacent to Forest Road 7350-050. Independence 2-4 consists of three distinct waste rock piles located adjacent to each other in front of collapsed portals. Each of the waste rock piles have sparse or no vegetation. All of the waste rock piles show evidence of surface erosion. The total area of disturbances exceeds two acres. Signs of recreational all-terrain vehicle use at the workings were observed.

The New Independence Crosscut is about 3,500' to the southwest from the main Independence workings. The adit is located on Forest Service land, while the collapsed portal and dumps are located on private land associated with the Cougar Mine. The mill for the Independence and Cougar Mines is situated in the Granite Creek flood plain, adjacent to County Road 73, about 3,000 feet south of the Site.

3.0 SITE SAMPLING AND TEST RESULTS

A Niton XRF, XLt 592 was used to analyze the waste rock piles for the presence of hazardous substances. In situ testing was performed on the Site per EPA Method 6200; however no confirmation samples were analyzed by laboratory. Surface soils were removed to approximately 12-18 inches below grade in order to get below highly oxidized surface layers. Coarse rocks, debris and other deleterious materials were removed. The waste rock excavation was worked to gain a uniform flat surface area on which to set the Niton.

The following locations all exceed the 2012 EPA Region IX Regional Screening level considered protective of excess cancer risk from arsenic in soils at industrial sites (1.6 mg/kg):

Location/Sample #	Result (mg/kg)	Waste Rock Volume (Cubic yards, approximate)
Independence Crosscut		30,000
5A	259	
5B	53	
5C	182	
Independence 2-4		13,000
2A	275	
2B	2,023	
3	1,009	
4	1,002	
Cougar 1st Level		8,800
1	152	
2	1,148	
3	338	
4	754	

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

4.0 SUMMARY

Approximately 50,000 cubic yards of mining-generated waste rock piles contain high levels of arsenic. Arsenic is present in the waste piles at levels ranging from 33 to 1,264 times the 2012 EPA Region IX Regional Screening Level for soil at industrial sites. The release of this hazardous substance has the potential to adversely impact human health and the environment. The largest waste pile lies in the riparian zone of China Gulch. It is apparent erosion is contributing contaminated sediment to China Gulch, and that all of the waste piles show signs of erosion.

5.0 RECOMMENDATIONS

Based on the in situ screening of the waste rock piles with the Niton analyzer, the proximity of the waste piles to China Gulch, and EPA's APA Checklist (Appendix A), it is recommended that a Site Inspection be completed. China Gulch is ephemeral, so sampling of surface water should occur in the spring following snow melt. China Gulch and upstream and downstream of the confluence with Granite Creek should be sampled and analyzed. This would include benthic macroinvertebrates, water, and stream sediment. In addition to testing water samples for metals content, water parameters should be determined such as: pH, conductivity, turbidity, dissolved oxygen, temperature, total dissolved solids, hardness, and oxygen reduction potential. Surface water samples should be analyzed for both total and dissolved metals. The water from the adit should be sampled and tested for elemental contaminants, along with the water parameters as outlined above. The waste rock piles should be sampled at depth and a more accurate determination of the volume should be calculated. Acid generating potential of the waste rock should be determined. Sampling of nearby undisturbed soils should be included to establish background contaminant concentrations.

Regional Screening Levels are generic, not de facto cleanup standards, and should not be applied as such. Results from recently completed site specific risk-based soil cleanup level for arsenic at the nearby Ajax-Magnolia and New York Mine sites ranged from 144-152 mg/kg. Accordingly, a site specific risk-based soil cleanup level should be established for the Independence Mine group as part of the Site Inspection.

Appendix A

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: Pete Jones, Region 6 On-Scene Coordinator (Name/Title) — June 6, 2012 (Date)

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

Site Name: Independence Mine

Other Names: Cougar, Cougar Group, Independence Group

Site Location: The Site is located approximately 3.0 miles north of Granite, OR on Forest Road 7350-050. The site is located on or around the China Gulch drainage.

Legal Description: Latitude: 44°51'6.17"N Longitude: 118°24'22.89"W

Describe the release (or potential release) and its probable nature: In excess of 50,000 cubic yards of waste rock are located in the headwaters of China Gulch. Erosion of the waste rock piles is evident. Arsenic is present at levels ranging from 33 to 1,264 times the 2012 EPA Regional Screening Level value for soil at industrial sites considered protective of excess cancer risk in humans.

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:

The waste rock piles at the Independence Mine are in or nearby the riparian zone of China Gulch. Erosion of the waste piles is evident, including at the Independence Crosscut where material is transported to China Gulch during rain and snowmelt situations. Adit water discharging from the Independence Crosscut is entering the headwater of China Gulch, a tributary to Granite Creek. Granite Creek is essential habitat for Chinook salmon. A Site Inspection is warranted for this Site. Arsenic concentrations exceed the 2012 EPA Region IX Regional Screening Level for industrial soil by as much as 1,264 times.

Appendix B

SITE PHOTOS

Independence Crosscut waste rock pile with adit drainage

Independence Crosscut waste rock pile toe

Independence Crosscut adit drainage into China Gulch

Sign on Independence Crosscut mine building

Cougar 1st Level portal

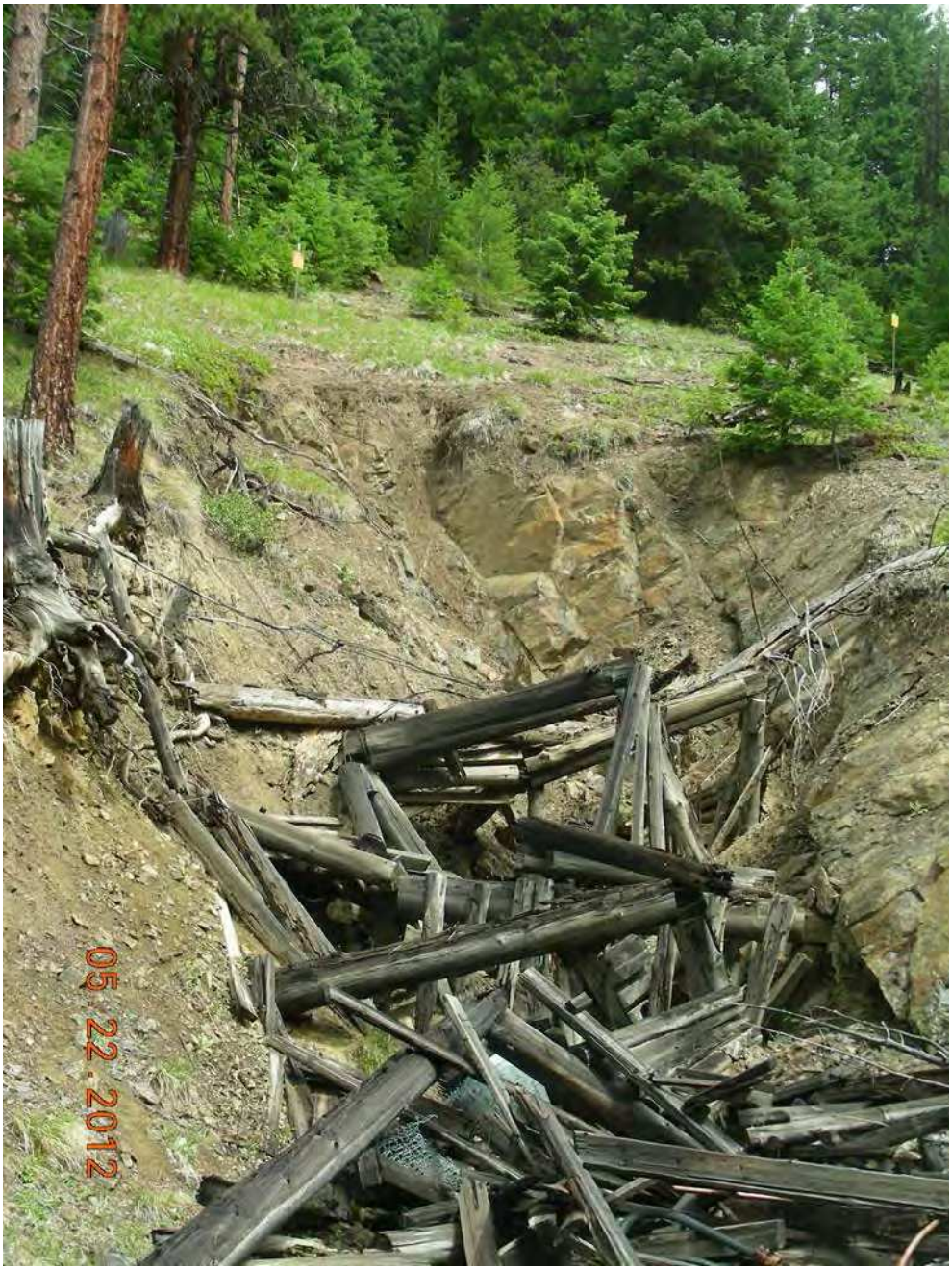
Cougar 1st Level waste rock pile

Cougar 1st Level waste rock piles

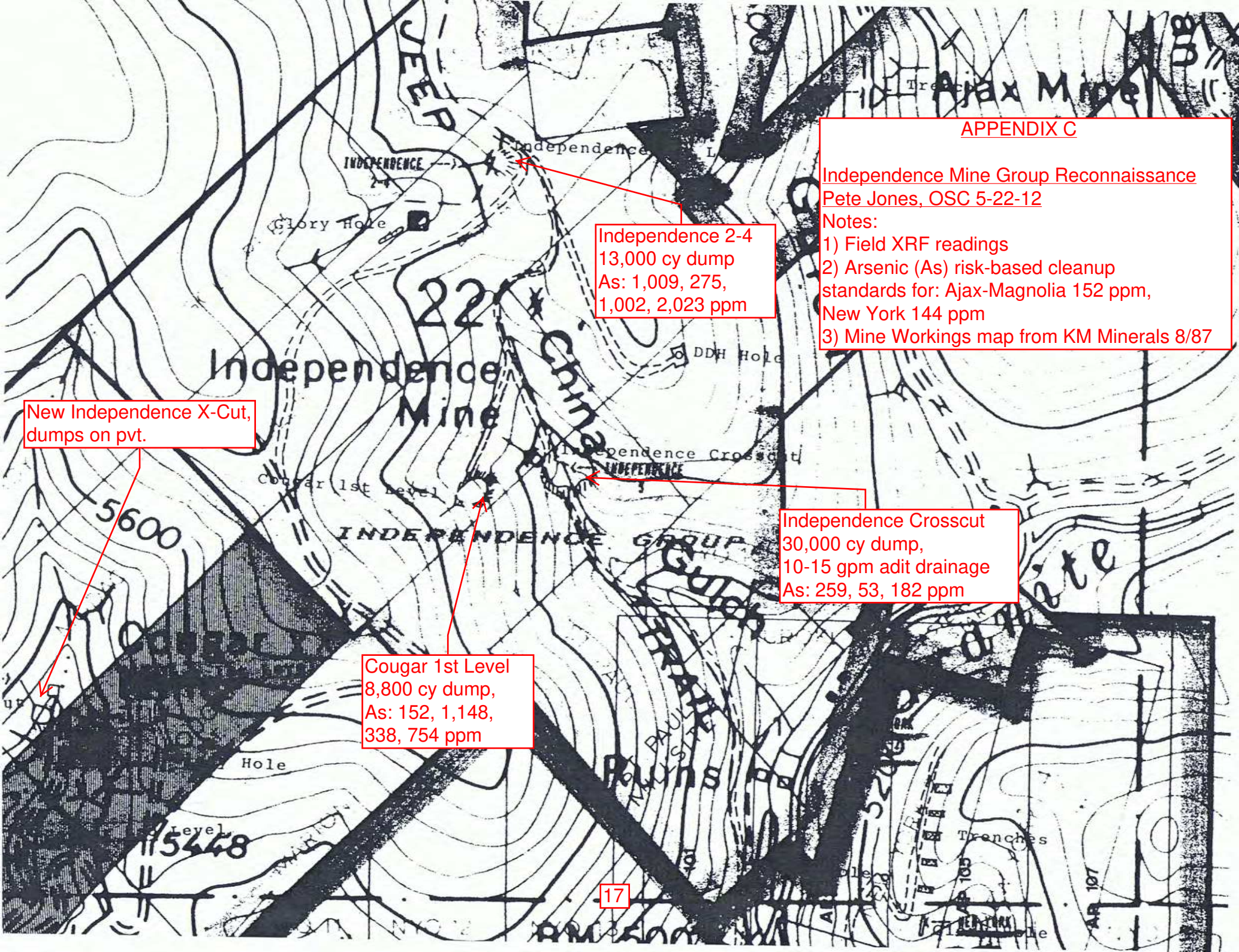
Independence 3 waste rock pile

Independence 3 XRF sample site, seen from FR 7350-050

Independence 2 XRF sample site, seen from FR 7350-050



New Independence Crosscut, note FS property is behind signs above collapsed portal


APPENDIX C
Independence Mine Group Reconnaissance
Pete Jones, OSC 5-22-12
Notes:
1) Field XRF readings
2) Arsenic (As) risk-based cleanup standards for: Ajax-Magnolia 152 ppm, New York 144 ppm
3) Mine Workings map from KM Minerals 8/87
Independence 2-4
13,000 cy dump
As: 1,009, 275, 1,002, 2,023 ppm
New Independence X-Cut, dumps on pvt.
Independence Crosscut
30,000 cy dump,
10-15 gpm adit drainage
As: 259, 53, 182 ppm
Cougar 1st Level
8,800 cy dump,
As: 152, 1,148, 338, 754 ppm
Independence Mine
INDEPENDENCE GROUP
Glory Hole
Cougar 1st Level
5600
5448
Trenches
17