ANTIMONY QUEEN MINE
INITIATION OF CERCLA INVESTIGATION
MEMORANDUM

I. PURPOSE

The purpose of this Memorandum is to document, pursuant to the Guidelines of the National Oil and Hazardous Substance Contingency Plan (NCP), 40 CFR 300, et seq., the decision to initiate a CERCLA investigation, and such further CERCLA actions as may be subsequently determined appropriate, as authorized by Section 104 (42 USC 9604) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA; 42 USC 9601 et seq.), and Executive Order 12580, 52 Federal Register 2923-26 (January 23, 1987).

A release, or threat of a release, of hazardous substances, pollutants or contaminants that potentially pose a threat to public health or welfare or the environment, has occurred or may occur at the Antimony Queen Mine (Site) on and/or from lands under the jurisdiction, custody, or control of the USDA Forest Service, Okanogan and Wenatchee National Forests (National Forest System or NFS lands).

II. SITE CONDITIONS AND BACKGROUND

A. Site Location and Historical Activities

The Antimony Queen Mine is located approximately 9 mi (aerial distance) southwest of the town of Carlton, in Okanogan County, Washington. Mine workings occupy the lower to middle slopes of the steep, valley walls of Gold Creek drainage and are included within the Methow Mining District. The site is included on the Hungry Mountain USGS 7.5-minute topographic map (1968). The location and legal description for the site is:

- Latitude 48° 06’ 22”N
- Longitude 120° 02’ 21”W
- Section 11, Township 31 North, Range 21 East, Willamette Meridian

The following is a brief summary of the history of the Site:

- 1906 through 1919 –Four lode claims comprising the original Antimony Queen group were staked by L. W. Barton; Dixie Queen, Minnie, Blue Bell and Lucky Ike. All of these claims were maintained through 1919 by assessment work, Proofs of Labor and Notices of Intents to Hold. Various individuals and two different companies incorporated in Okanogan County (Antimony Queen Mining Co. and Gold Creek Antimony Mines and Smelter Co.) owned the mine during this period. The claims were abandoned after 1919.

    - 1916 – Purdy (1951) reports that 1000 tons of antimony ore and several hundred tons of antimony oxide were shipped from the mine about this time. The oxide product was reportedly manufactured in a small plant near the mine.

- 1937 through 1953– The property was relocated as the Silver Seal # 1-3 and Jumbo lodes beginning in 1937. H. Johnsten, W. B. Smith, V. LaMotte and G. Gibson shared ownership of the group until 1951, when the claims were quitclaimed to G. O. P. Antimony, Inc. The claims were abandoned after 1953.

    - 1941 -- Purdy (1951) reports 2/3rds of a car or ore were shipped in 1941 from the mine. Huntting (1956) reported production of 20 tons that year.

    - 1952 – A Proof of Labor filed by G. O. P. Antimony listed the following development work: 110 feet of drift, a 20 foot bridge and 1000 feet of road.

- 1970 through 1972 – Mine workings were relocated as the Antimony Queen lode by F. J. Reeves. Lessee (?) Cheryl Lee Mines, Inc. partially rebuilt the access bridge, reopened the workings and mined 4 tons of ore. The claims were abandoned after 1972.

- 1977 through 1978 – R. Holmes, K. Hoeft and F. Bissile relocated the Antimony Queen lode and mine workings. No appreciable work was accomplished and the claims were abandoned thereafter.

- 1981 through 1982 – E. Norquest relocated the Antimony Queen lode and mine workings. No appreciable work was accomplished and the claims were abandoned thereafter.

- 1983 through 1988 – D. Flannegan relocated the Antimony Queen lode and mine workings. No appreciable work was accomplished and the claims were abandoned thereafter.

- 1989 through 1993 – The Site was included in two large lode claim groups during this period. Successive owners were Canevex Resources, Inc. and Cameco US. Inc. Exploration work conducted by these parties was outside the Antimony Queen Mine area. No appreciable work was accomplished at the mine site and the claims were abandoned thereafter.

Site Characteristics

The Antimony Queen mine is located in North Fork Gold Creek, an east-flowing drainage off the Sawtooth Ridge Mountain Range, North Cascade Mountains geomorphic province. The Site occupies the southern portion of a major northwest trending structural low known as the Methow-Pasayten graben. This structure preserves Mesozoic-aged sedimentary and volcanic rocks of terrestrial and marine origin in a block extending from below Carlton northwestward into British Columbia. Mineral deposits at Antimony Queen occur in an eastward-striking quartz-calcite-sulfide vein system hosted by argillite and greywacke of the Cretaceous-Jurassic Newby Group (Barksdale, 1975). Genesis of the vein system is complex, involving several stages of development, fracturing and brecciation. Veins are reported up to 2 feet wide and ore shoots up to 2 feet wide and 40 feet long (Purdy, 1951). Minerals described in the vein system include pyrite,

arsenopyrite, sphalerite, galena, jamesonite, stibnite, quartz, and calcite. One to three ounces of gold per ton is reported in some of the pyrite and arsenopyrite crystals (Purdy, 1951). Commodities present at the Site include mainly antimony, with minor amounts of gold, lead, zinc, tungsten and arsenic.

Mine workings include five adits; four being mostly caved and one open. The lower two adits, at elevations of 1,940 and 1,970 feet above mean sea level (amsl) respectively, are the most extensive. Combined development totals up to 780 lineal feet of drifts and crosscuts in these adits, with an additional 200 lineal feet in the other workings. Total waste rock disposed at all adit portals is less than 2000 cubic yards (CES, 2004). Total production from the Antimony Queen Mine has been relatively small, probably less than 1200 tons.

B. Release or Threatened Release into the Environment of a Hazardous Substance, Pollutant, or Contaminant

A Site Inspection completed at the Site (CES, 2004) has determined that a release has occurred and that an Engineering Evaluation/Cost Analysis (EE/CA) is warranted.

C. Actions Taken on the Site

Recent actions taken at the Site include:

1. *Abbreviated Preliminary Assessment, USFS 7/02*
2. *Site Inspection, CES Engineering 01/04*

III. PROPOSED ACTIONS AND ESTIMATED COSTS

The proposed action for the Site is to initiate CERCLA. In compliance with the NCP, an EE/CA will be performed to evaluate removal alternatives.

The anticipated costs for the various aspects of the project are uncertain at this time as valuable data is missing. However, costs for work completed and an estimate of future work would be:

1. APA - $4000
2. SI - $78,000
3. EE/CA - $50,000
4. PRP Search - $10,000
5. Removal Action - $300,000
6. Three year monitoring - $78,000
7. Total Anticipated Cost - $520,000

IV. ADMINISTRATIVE RECORD AND COMMUNITY RELATIONS

Pursuant to 40 CFR 300.415(m), I designate Dennis Boles of the Fremont/Winema National Forest as the On-Scene Coordinator and Rod Lentz/Deb Kelly Okanogan-Wenatchee National Forests, as Spokespersons for the project.

A Community Relations Plan will be developed for this project. The Administrative Record for any response action selected will be compiled and made available during regular business hours at the office of the Okanogan and Wenatchee National Forests, Okanogan Valley Office, Okanogan, Washington. A Notice of Availability of the Administrative Record will be published in local newspapers.

V. DECISION

By this Memorandum, I am initiating CERCLA activities at the Antimony Queen Mine as appropriate.

By copy of this Memorandum, we are formally notifying the State of Washington and EPA of our finding of the appropriateness of initiating CERCLA activities at the Site.

VI. REFERENCES

CES, 2004 Site inspection, Antimony Queen Mine: Unpublished USFS report, Contract #10181-1-D007, 20 p. plus tables, figures and appendices.

Huntting, M. T., 1956, Inventory of Washington Minerals, Part II: Washington Div. of Mines and Geology, Bull. 37, 428 p.

Purdy, C. P., 1951, Antimony occurrences of Washington: Washington Div. of Mines and Geology, Bull. 39, 186 p.

S/ Richard Sowa
Richard Sowa Date: 02/26/04
Director of Engineering
Pacific Northwest Region

cc:
Ecology
EPA