

RED DEVIL MINE
AKD-980495618
CERCLA Site Inspection Report

Submitted to:

Department of Environmental Conservation
Juneau, Alaska

Submitted by:

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EXECUTIVE SUMMARY

Red Devil Mine, located eight miles downriver from Sleetmute on the Kuskokwim River, is a facility on the State of Alaska list of potential hazardous waste sites. A site investigation, including a site visit of June 26, 1986 was conducted to interview residents and gather information for evaluation of the site under EPA's CERCLA or Superfund program.

Mining, milling and mercury recovery operations at Red Devil Mine spanned a period of 38 years. During this period, site operations evolved from a hand mining and retorting operation into a full scale, mechanized mercury mine. Approximately 35,000 flasks (76 lbs. per flask) of mercury were produced. The mine has been inactive since 1971.

Three previous site sampling investigations by other investigators were conducted in March, 1971; May, 1971; and July, 1979. Sufficient analytical data was available from these investigations to evaluate the site. Samples taken contained water and sediment mixed. Test results from these investigations showed mercury in the water/sediment of Red Devil Creek below the mine settling ponds at 0.3 mg/l. The release of metals to the Creek could be attributed to discharges from the mine.

Red Devil Mine is located in a rural area of Alaska. Only 50 persons live within three miles of the site. They use groundwater as a source for drinking water supply. Residents interviewed during a June, 1986 site visit were aware of the mining operations and the presence of mercury at the mine.

RED DEVIL MINE

TABLE 2

WATER SAMPLE RESULTS*

March 22, 1971(Provant, 1971)

<u>SAMPLE LOCATION</u>	<u>Hg (ug/l)</u>
Red Devil Creek below discharge from TPI	9,000

May 25, 1971 (Sceva, 1971)

<u>SAMPLE LOCATION</u>	<u>Hg (ug/l)</u>	<u>As(ug/l)</u>
1. Red Devil Creek above mine and mill	0.3	6
2. Mill Effluent from Settling Pond #1 (uppermost)	12,850	85,000
3. Red Devil Creek below Settling Pond #1	265	39,000
4. Kuskokwim River above mouth of Red Devil Creek	1.7	56
5. Kuskokwim River at Red Devil Air Strip (below Red Devil Creek)	1.0	32

*Samples contained an unknown amount of sediment.

July 31, 1979 (Morris, 1979)

		<u>Hg (ug/l)</u>
Sample 31010	Red Devil Creek above mine and mill	0.21 ug/l
31011**	Solids from bottom of settling pond #1	216 ug/gm wet wt.
31012	Red Devil Creek below third pond	0.14 ug/l
31013	Fifty feet above Red Devil Creek in Kuskokwim River	0.28 ug/l
31014	Red Devil Creek at mouth	0.14 ug/l
31015	One hundred feet downstream from Red Devil Creek in the Kuskokwim River	0.14 ug/l

** Soil sample.

5.0 FINDINGS AND CONCLUSIONS

As stated in the introduction, the purpose of this investigation was to 1) assess the extent of hazardous waste problems at the Red Devil Mine site, including the potential for off-site migration, and 2) to apply EPA's Hazardous Ranking System (HRS) to the site. In this section, the results of the four site visits conducted since 1971 are evaluated. Conclusions about the site are presented in this section. An HRS score was calculated.

5.1 Investigation Results

The sampling investigation conducted by Provant and Sceva in May, 1971 demonstrates the release of mercury and arsenic to Red Devil Creek. Background levels above the mine were found to be 0.3 ug/l mercury and 6 ug/l arsenic. A discharge to the creek containing mercury and arsenic was observed. High levels of these metals were measured in the mixed water and sediments of the creek downstream of the discharge point. A mercury level of 265 ug/l and an arsenic level of 39,000 ug/l were observed in samples taken from the creek. Based on the results of the Provant and Sceva investigation and data collected as part of this investigation, necessary data needed to score this site appears to be available.

5.2 Conclusions

The following conclusions were reached regarding this site:

- o Mercury and arsenic were discharged from the Red Devil Mine to Red Devil Creek as a result of mining operations.
- o The mine has been inactive since 1971. Run-off water still flows from the milling area through waste piles and settling ponds and into Red Devil Creek.

- o The population density near the mine is very low. Only fifty people live within three miles of the site. Residents interviewed were aware of the mining operation and the presence of mercury at the mine. Due to the low population and residents' awareness of the mine, potential public health effects due to exposure to mercury and arsenic are low. Access to the site is unrestricted. If population increases, or if people who are unaware of the presence of mercury and arsenic visit the site, the potential for adverse public health effects could increase.