MINE NAME (other names): Red Devil Mine COMMODITIES: Hg, Sb

LOCATION: Quadrangle: Sleetmute D-4 SE 1/4 Sec 06 T 19N R 44W
Meridian: Seward
Geographic: Located on the south side of the Kuskokwim River, 8 miles downstream from Sleetmute, near the mouth of Red Devil Creek.

REFERENCE NUMBERS:

Map #	Kx#	MAS#	BLM#
28	82-11	0020820005	AA029596-029599
	-17		AA033584-033587
	-18		

HISTORY AND PRODUCTION:

1933 - Discovered and staked by Hans Halverson (Roehm, 1939).

- Examined by Roehm of the Territorial Department of Mines.

- A few years after 1933 - A half interest was acquired by Nick Mellick and more claims staked making a total of 9 claims (Wright and Rutledge, 1947).

1939 - Groundsluicing into bank was still carried on. A 95 ft long tunnel was driven with a short crosscut. The retort from the Parks property was to be moved and rebuilt at Red Devil (Roehm, 1939).

Before 1940 - 11 flasks of mercury, from the creek float and overburden, were retorted with several used Johnson McKay tubes (Wright and Rutledge, 1947).

1940 - Mellick and Halverson took out enough ore during development work to keep two retorts busy for 3 months. Each had a 1 ton per day capacity (Smith, 1942).

- The 2 "D" retorts produced 158 flasks of mercury (Wright and Rutledge, 1947).

1941 - Mapping was done from 1941-1946 by the USGS (Cady, Wallace, Hoare, and Webber).

1941 - A second adit, was driven 135 ft. It had two crosscuts 50 ft and 40 ft long. The Red Devil shaft was started and sunk to a depth of 30 ft on a 59° incline.

- In the fall Harold Schmidt and L. J. Stampe leased the property. The New Idria Quicksilver Mining Co. sub-leased it forming the New Idria-Alaska Quicksilver Mining Co. with Harold Schmidt as superintendent. 135 flasks of mercury were produced (Wright and Rutledge, 1947).

1942 - Examined by Bureau personnel. Trenching and sampling were done. Mining continued with 117 flasks of mercury produced (Wright and Rutledge, 1947).

1940-42 - Mercury ore was mainly obtained from ground-sluicing overburden above the ore zone (Wright and Rutledge, 1947).

1942-43 Winter - Norman Ebbley of the Bureau supervised underground exploration amounting to 204 ft of drifting and crosscutting and 25 ft of shaft sinking (Wright and Rutledge, 1947).

1941-44 - Mining and furnacing equipment was brought in and a 40 ton rotary kiln and condensing system were installed. 760 ft of drifting and 250 ft of crosscutting was done on two levels along with stoping.

1944 - 1,096 flasks of mercury were recovered from 2,652 tons of ore by June 30. Then operations were curtailed due to poor market conditions for the remainder of the year (Wright and Rutledge, 1947).

1945 - In February a contract to extend the shaft was granted to Kuskokwim Mining Co., consisting of Harold Schmidt, L. J. Stampe, Earl Ellington and Glen Franklin. They extended the shaft 44 ft. In the summer they obtained a sub-lease to mine ore and use the furnacing equipment (Wright and Rutledge, 1947).

1945-46 - The mine was operated for two 4 month seasons. Development work consisted of 499 ft of drifting, 155 ft of crosscuts and 112 ft of shafts/winzes (Wright and Rutledge, 1947).

1946 - The company suffered a loss because of the unforeseen low mercury price at the end of the year, so operations were shut down (Wright and Rutledge, 1947). Robert F. Lyman held a lease on the property and produced about 500 flasks (Jasper, 1962).

1947 - On January 21, Harold Schmidt and L. J. Stamp bought all mining and furnacing equipment. They continue to hold their lease on the property. Examined by Bureau personnel (Wright and Rutledge, 1947).

1947-51 - Work was limited to annual assessment requirements (Jasper, 1962).

1949 - New Idria-Alaska sold all mining and furnacing equipment to Robert F. Lyman (Malone, 1962).

1952 - Claims located and staked by Hans Halverson, Nick Mellick, of Alaska Research Company (BLM).

- DeCoursey Mountain Mining Company acquired lease on the property (Jasper, 1962). It was aided by a loan from the Defense Minerals Exploration Administration (DMEA) (MacKevett and Berg, 1963).

1953 - DeCoursey Mountain Mining Co. dewatered mine and started operations (Jasper, 1962).

1953-54 - They produced 1,084 flasks of mercury from 2,500 tons of ore (Jasper, 1962).

1954 - Mine and mill equipment destroyed by fire in October. A controlling interest was sold to Brewis and White, a Canadian mining company. The name became DeCoursey Brewis (Lund, 1969).

1955 - Rebuilt the plant (Jasper, 1962).

1956 - Claims staked by Hans Halverson (BLM).

1957 - The Dolly series of ore bodies was discovered and the Dolly shaft was sunk 1,082 ft northwest of the main shaft (Mackevett and Berg, 1963). The mine produced more than 5,000 flasks of mercury and became one of the largest producers in the United States (Sainsbury and MacKevett, 1965).

1959 - DeCoursey Mountain Mining Co. changed its name to Alaska Mines and Minerals, Inc. (Mackevett and Berg, 1963). The DeCoursey Brewis name was changed to Consolidated Brewis (Lund, 1969).

1961 - The mine consists of 9 unpatented claims (Kusko No. 1-5) held by Alaska Mines and Minerals, Inc. and (Red Devil Nos. 1-4) owned by Halverson and Mellick and leased to the mining company. Robert F. Lyman, manager; Roger A. Markle, resident engineer; and Gordon Herreid, geologist are all of Alaska Mines and Minerals, Inc. (Malone, 1962).

1963 - September 1 - the property was shut down for an indefinite period. All known ore was mined and processed and all equipment was removed from the mine and the workings allowed to flood.

- By September 19, water was at the 300 ft level, the shaft was sealed,and all portals closed.

- In October, Don Holloway and Mariano Juancorena obtained a one-year lease. Jack Neubauer joined them and miners were hired. They drove a 100 ft adit in Red Devil Gulch and have 40 tons of high-grade ore stockpiled (Jasper, 1963).

1964 - The known ore bodies were exhausted and further exploration financed by an Office of Mineral Exploration (OME) loan failed to disclose minable ore. Production was limited to that from small lease holders.

1964-69 - Inactive (Lund, 1969).

1966 - The price of mercury rallied to $780 per flask and the company decided to seek financing to start up operations. They own over 50 claims, but only 4 have been worked (Lund, 1969).

1968 - Plans were made to put in a flotation plant at a cost of $300,000 with assistance from Matanuska Valley Bank. Nissho-Iwai Co. Ltd. and Nomura Mining Co. Ltd., Japanese companies agreed to add $225,000 for opening and exploration. They were to buy the cinnabar concentrate and ship it to Japan (Lund, 1969).

1969 - Open pit mining was to begin in July. Ray Wolfe was president of Alaska Mines and Minerals (Lund, 1969).

1970 - No. 1 producer in Alaska, where production was from both open pit and underground. The mill operated at maximum capacity most of the year. Stibnite was recovered in flotation. A crew of 34 was at work (Alaska Division of Geological Survey, 1971).

1971 - The first of June the mine shut down because of the drop in the mercury price (Alaska Division of Geological Survey, 1972).

1972 - The mine was still shut down as the mercury price dropped to a 20 year low at $150 per flask in February (Alaska Division of Geological Survey, 1973).

1981 - The mine is closed and flooded (DGGS, 1981).

1982 - Approximately 35,000 flasks of mercury produced from 1940-1972 (Eakins and Others, 1983).

PRODUCTION

Year	Flasks of Mercury	Tons of Ore	Income from Sale	
1933-40	11	---	---	
1940	158	---	---	
1941	135	---	---	
1942	117	---	---	
1943-44	1,096	2,652	$ 171,717.70	
1945	962	1,514	114,825.49	
1946	491	872	40,156.28	(Wright and Rutledge, 1947)
1953-54	1,084	2,500	---	
1956-60	19,800	47,250	---	
1961	3,200 (approx.)	---	---	(Jasper, 1962)
1962-63	4,800	---	---	(Lund, 1969)
1969-71	3,146 (approx.)	---	---	(Eakins, 1983)
Total	35,000 (approx.)			(Eakins, 1983)

RESERVES:

March 1943 - Estimated that seven leases had 11,360 tons of ore containing 45.3 lbs of mercury per ton plus 15,900 tons containing 36.7 lbs of mercury per ton. The ore contained antimony in almost equal amount and a small percentage of arsenic (Bain, 1946).

OPERATING DATA:

In the early years development consisted of surface trenching and hydraulic sluicing of the overburden. Up to 1947 development consisted of 139 ft of shafts and 2,170 ft of drifting and crosscutting on four levels. The main shaft is 99 ft deep (Wright and Rutledge, 1947).

By 1958, the underground workings consisted of a total of about 9,600 ft of shafts, adits, crosscuts, drifts, winzes, and raises. The main shaft is inclined at 63° for a distance of 507 ft downslope and 143 ft vertically. Five main levels connect with the main shaft (MacKevett and Berg, 1963)

By 1969, the mine consisted of an airfield, and a well equipped camp with a modern furnacing plant consisting of a retort plant with 40 tons per day capacity, two 650 kw Ingersoll-Rand light plants, several 340,000 gallon fuel oil tanks, machine shops, offices, dormitories, apartments and a flotation plant that will process 100 tons of ore per day (Lund, 1969).

GEOLOGIC SETTING:

The Red Devil deposit is on the southwest flank of the Sleetmute anticline and occurs along the Red Devil Fault zone, a wrench (strike slip) fault with right lateral displacement.

The country rock is a well-bedded, graded graywacke-mudstone-shale typical of the upper Cretaceous Kuskokwim formation. The average strike is N38°W dipping 63°S.

Altered biotite basalt, andesite and diabasic(?) dikes and sills occur at the mine. The dikes are altered to quartz, chalcedony, carbonate, and sericite. They contain quartz blotches and veinlets. The dike rocks are reddish-yellowish tan in the surface alteration zone. Contacts with shale or mudstone are sharp, but often the adjacent graywacke is argillized. The dikes carry disseminated cinnabar locally within a few feet of the ore shoots. The most striking feature of the deposit structure is the series of steplike offsets of the crosscutting dikes along the many Red Devil Fault planes.

The Red Devil Fault zone parallels bedding for the most part, but in many places it laces from one bedding plane to another along steep fault planes. The zone is complex and ore shoots are difficult to follow.

Ore production is mainly from the footwall of the Red Devil Fault zone, where ore shoots are localized at the intersections of bedding-plane wrench faults with crosscutting dikes. Ore shoots also occur along the steep facing faults.

Stibnite and cinnabar are the only sulfides found throughout the deposit with small amounts of orphiment and realgar occurring locally. Occasional grains and veinlets of authigenic pyrite are present. The major gangue minerals are quartz and white clay.

The ore shoots are composed of stibnite-cinnabar-quartz. The dimensions of the shoots are 1 in to 1 ft wide and and 5 to 30 ft long. Cinnabar may constitute from 0 to 40 percent of the ore shoot, quartz from 1 to 10 percent, and stibnite the rest. Adjacent to the ore shoots, cracks in the host rock carry 1/16 to 1/4 in wide vuggy veinlets of quartz, white clay, and cinnabar. This halo may extend out to 50 ft before cinnabar disappears, but the quartz-clay veinlets continued on (Malone, 1962).

Ore Genesis Sequence (Malone, 1962)

1. Beds folded and conjugate joints perpendicular to the beds formed.
2. Right lateral Red Devil wrench fault movement began.
3. Dikes intruded the joints.
4. More movement occurred along the Red Devil Fault and ore solutions were introduced near the end of faulting. The ore minerals were deposited contemporaneously.
5. Post-mineral cross faults formed.

The oldest probable date of mineralization is late Miocene.

BUREAU WORK:

Sampled and trenched in 1942. Samples contained 2.96 to 32.0 percent mercury and 0.98 to 26.5 percent antimony.

Norman Ebbley supervised underground exploration during the winter of 1942-43.

Examined by Bureau personnel in 1947 (Wright and Rutledge, 1947).

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Kx
MAS
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