

317W
ENVIRONMENTAL PROTECTION AGENCY

WATER QUALITY OFFICE

NORTHWEST REGION

IN REPLYING ADDRESS:

REGIONAL OFFICE
ROOM 301 PITTOCK BLOCK
PORTLAND OREGON 97205

June 1, 1971

M E M O R A N D U M

TO: John J. Vlastelicia, Director, Office of Technical Programs

Through: Gary L. O'Neal, Chief, Technical Assistance and Investigations Branch *250*

FROM: Jack E. Sceva, Geologist *JES*

SUBJECT: Summary of Alaska Trip

1. The Red Devil Mercury Mine was visited on May 25, 1971, in the company of Steve Provant, Alaska Operations Office, EPA; Kyle Cherry, Department of Environmental Conservation; and Joe Town, General Manager, Alaska Mines and Minerals. The mine is located along the Kuskokwim River about 100 miles downstream from McGrath.

2. The underground mining is being terminated and the tracks are being removed from the mine. The mill will probably continue operating with ore obtained from the nearby Barometer Mine. The mercury concentrate is shipped to Japan for retorting.

3. The waste treatment operations at the Red Devil Mill are almost nonexistent. The company has constructed three small tailing ponds below the mill. These ponds are completely full of tailings and mill waste (about $\frac{1}{2}$ cfs) flows across the uppermost pond and cascades over the dike into Red Devil Creek about 150 yards above its confluence with the Kuskokwim River.

4. Red Devil Creek has a flow of about 7 cfs. It is clear above the discharge of the waste stream and very turbid below.

5. Samples were collected in Red Devil Creek above and below the mill discharge, and the Kuskokwim River was sampled above and below the mouth of Red Devil Creek. Samples of the mill waste and mine water were also obtained. No mine water is being discharged to the environment since the termination of underground mining. There will be no waste stream from the mine as it will not overflow. A sample was also collected from the stream draining the nearby Barometer Mine (an open pit operation).

6. The ore processed at the Red Devil Mill is high in both arsenic and antimony. In the milling operation, lead acetate is added in the flotation process. The samples will be checked for these parameters as well as mercury.

7. The Kuskokwim River drains one of the world's largest mercury provinces. The amount of mercury being discharged from the Red Devil Mill is probably insignificant in comparison to the total amount of mercury being discharged by the Kuskokwim River.

8. Mr. Provant and I met with Mr. Ray Malony of the U.S. Bureau of Mines. He is one of the world's foremost authorities on the occurrence of mercury. He mentioned that many streams in the Kuskokwim River Basin carry mercury, antimony and arsenic. He also reported that a Dr. Price of the Alaska Dept. of Health had told him that the natives in the Kuskokwim River Basin have a higher incidence of mental illness than in any other region of Alaska. Whether this is related to the amount of mercury in the resident whitefish and grayling is not known.

9. A Mr. Sears of the Alaska Fish and Game Dept. wants to sample some of the resident fish in the Kuskokwim River System for mercury. He is seeking laboratory support from the Bureau of Mines Laboratory at Juneau, but the Bureau of Mines has been unable to get approval from their headquarters.

The following information on mining and water pollution problems in Alaska was obtained from Mr. James Williams, Director, Division of Geological Survey, Alaska Dept. of Natural Resources; and Alfred Service and Mr. Malony of the Bureau of Mines.

10. Large amounts of mercury were used in the placer mining operations in Alaska. Much of this was lost to the dredge ponds.

11. Mercury was used for a while at the old mills at Juneau. The tailings from these mills were discharged as fill extending into the waterways and later by barge directly into the water.

12. Numerous old tailing ponds and dumps exist in Alaska. Some of these are undoubtedly being eroded and wasted into the streams.

13. Two copper smelters operated on Prince of Wales Island in the early nineteen hundreds. The impact of these waste sources is unknown.

14. Newmont Exploration Ltd. operates an active uranium mine on Prince of Wales Island. This mine produces a high grade ore that is shipped to Ford, Washington for processing. The amount of radioactive material that is washed into the environment from this mining operation is unknown.

15. Mining is at an all-time low in Alaska except for sand and gravel. Several dredges and a few hydraulic mines remain in operation, and a few companies are doing exploration work.

Recommendations.

1. We should take immediate action in stopping the discharge of untreated mill waste into Red Devil Creek. Any correspondence with the company should be directed to:

Mr. Ray Wolfe, President
Alaska Mines & Minerals
P. O. Box 422
Anchorage, Alaska

2. We should offer to perform a limited number of mercury analyses of the resident fish from the Kuskokwim River. If these fish prove to be high in mercury, we may have a public health hazard from the natural mercury, as large numbers of these fish are consumed by the natives.

3. We should, when convenient, sample the fish and bottom sediments from the old dredge ponds in Alaska for mercury.

4. When convenient, we should sample the old mill tailing dumps at Juneau for mercury and the Newmont mining operation for radioactive wastes.

The results of the laboratory analysis of the Red Devil samples should be available in a few weeks.

Jack E. Sceva