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So. 157 Howard Street
Spokane 4, Washington

July 24, 1951

Memorandum

To: A. E. Weissenborn, Executive Officer, DMA, Field Team, Region II

From: J. J. Quinlan, U.S.G.S.

Subject: Senate mine, DMA Docket No. 1350

RECOMMENDATIONS

The DMA field examiner recommends that the application of the Senate Mines, Inc. for an exploration loan be denied.

The copper possibilities offered by the Senate mine are small. No appreciable tonnage of low-grade oxide ore has been blocked out, and if such a body of ore could be blocked out by an exploration program the successful metallurgical treatment of the ore would be questionable. The possibility of a commercial secondary enriched copper ore body below the No. 2 tunnel level is small.

PROPOSED EXPLORATION PROGRAM

The applicant proposes to extend the No. 3 tunnel approximately 400 feet to cut the mineralized zone encountered in the No. 1 and No. 2 tunnels. From this crosscut the applicant plans to drift 100 feet south and 200 feet north to explore the mineralized zone on this level. The applicant hopes by this program to develop a tonnage of secondarily enriched copper ore.

APPLICANT

The applicant is the Senate Mines, Inc., Philipsburg, Montana, Patrick M. Ward, Moose Lake, Montana, President, and Grover R. Fermer, Anaconda, Montana, Director; all other officers of the corporation are deceased.

The Senate Mines, Inc., is a corporation chartered under the laws of the State of Montana, August 1938, with a capitalization of 1,000,000 shares of non-assessable common stock, par value 25 cents; 550,000 shares issued. There is a possibility the Senate Mines, Inc. has lost its Montana charter.

LOCATION

The Senate mine is approximately 5½ miles south of Moose Lake, Granite County, Montana, on the west side of the Middle Fork of Rock Creek. The nearest point of supply, Philipsburg, Montana, is 35 miles by road northeast of the property. The Senate mine is comprised of one patented mining claim, the Senate, and two unpatented mining claims, the Hillside and Chance in T. 3 N., R. 16 W., MPM (unsurveyed), Moose Lake mining district, Granite County, Montana.

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PAST PRODUCTION

The Senate Group of claims was originally located in 1896 by a group of five men. There is no recorded past production; however, a small tonnage of ore is said to have been shipped in the late nineties.

GEOLOGY

The Senate mine is in the Spokane formation (Upper pre-Cambrian age). The sedimentary rocks, which in the vicinity of the mine strike northwest and dip southwest, are chiefly sandstones and quartzites.

Three north-striking and west-dipping shear zones are contained in an area 100 feet wide. The east shear contains a five-foot quartz pyrite vein. The middle and west shears contain thin quartz stringers one-half inch to two inches thick with a minor amount of chalcopyrite and galena. Malachite and azurite occur throughout the 100-foot zone. However, the most noteworthy concentrations of secondary copper minerals are near the major shear zones.

In the vicinity of the quartz-pyrite vein some of the sedimentary beds are highly leached and contain much limonite and secondary copper minerals. R. H. Thurston and D. Y. Meschter, U.S.G.S., in a report on the Senate mine, August 1950, state, "The leached beds do not appear to be gossan of any description, and the inference made is that the secondary copper minerals, malachite and azurite, were derived from the oxidation of chalcopyrite in the quartz vein and redeposited in the leached and limonitic beds".

Another possible mode of formation of the secondary copper minerals in the 100-foot wide zone would be the oxidation of a disseminated chalcopyrite deposit. The highest concentration of the disseminated chalcopyrite being in the major pre-mineral shear zones.

Several northeast-trending post mineral faults off-set the east, middle, and west shear zones a few feet.

If Thurston and Meschter's interpretation is correct, there is very little possibility of a secondary enrichment below. Considering the amount of shearing, and numerous channelways in which any leached copper might be carried to depth, the chances for a commercial secondary enriched ore body are small.

MINE WORKINGS

The Senate mine is developed by two adit levels, the No. 1 tunnel at an elevation of 7,500 feet (caved July 1951), and the No. 2 tunnel approximately 80 feet lower. The No. 1 tunnel is reported to be a crosscut 65 feet in length exposing the same mineralized conditions as the No. 2 tunnel. The No. 2 tunnel consists of approximately 750 feet of crosscuts and drifts.

A small adit (caved July 1951) (for location see applicant's section showing proposed No. 3 tunnel) has been started 80 feet below the No. 2 tunnel. This adit is reported to have been driven 35 feet on bearing N. 84° W. and was the start of the third adit to cut the mineralized zone.

ORE RESERVES

The Senate mine has no measured ore reserve. For a more complete discussion of Ore Reserves see War Minerals Report, Senate Mine, Granite County, Montana.

METALLURGY

Considerable work was done by the U.S. Bureau of Mines to determine the amenability of the Senate ore to concentration. These metallurgical tests showed that the oxidized Senate ores are not amenable to concentration. For a more complete discussion of Metallurgy see War Minerals Report, Senate Mine, Granite County, Montana.