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GEOLOGIC REPORT
WARREN (FLOWER) QUICKSILVER MINE

Belmont Mining District
Nye County, Nevada

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INTRODUCTION

Investigations of the Warren quicksilver property were designed to determine, through geologic and allied studies, the extent and grade of quicksilver deposits on those mining claims under lease by Mr. Don R. Link, Denver, Colorado.

During the period of June 1 through June 16, 1965, surface topographic and geologic maps were made of the two main mineralized areas along with maps of the underground workings in the main mine area. The workings and mine dumps were sampled and geochemical soil surveys were conducted over selected surface areas. Subsequently these data were reviewed and analyzed, and in the light of certain mining and milling economics and the apparent lack of large ore-reserve tonnages needed for the type of large-scale operation required by the lessee, the recommendation is made that no further extensive exploratory programs be conducted by the lessee. The property, however, should prove adequate for a small mine operator with local facilities and ore reserve needs, or in conjunction with other properties. With this in mind, suggested exploration areas are indicated as well as certain prospecting and development methods that should prove to be of value for an efficient and effective operation.

LOCATION AND ACCESSIBILITY

The Warren quicksilver mine and properties are in the Belmont mining district, Nye County, Nevada, on the east flank of the Toquima Range. The fourteen claims under lease are on the steep slopes of Antone Canyon, one of the many tributaries of Meadow Canyon. Generally, the roads are good,

although of a secondary character, and are maintained regularly by state and county highway departments. Sufficient area is available for campsite, retorts, roads, and mine dumps within the allotted claims.

GENERAL GEOLOGY

The Belmont mining district, which is on the southern end of the Toquima Range about forty miles north of Tonopah, is primarily a silver-gold producer, but several mines have yielded significant amounts of quick-silver. Production from the Warren property has amounted to about 50 flasks to the end of 1943.

The rocks of the mine area comprise a very thick sequence of Ordovician (?) sediments, more or less metamorphosed, and include shale, limestone, sandstone, quartzite, and phyllite. These rocks dip moderately to steeply southwestward and strike northeastward. Although the rocks are not complexly oriented one to the other, significant large-scale faulting has taken place.

The ore bodies are found in hard, gray, limy phyllite near the contact of this unit and the underlying quartzite unit near faults of comparatively little displacement.

The outcrop of the ore body near the underground workings is highly mineralized as cinnabar disseminations in the gray porous member of the limy phyllite. Assays across this outcrop are as follows:

<u>Width</u>	<u># Hg/Ton</u>
NW side-10.0'	6.6
7.0'	0.6
8.5'	7.8
SE side - 7.0'	17.0

Average of 15.5' is 12.0#/Ton and of the entire 32.5', 7.9#/Ton, or gross values, respectively, of \$110.00/Ton and \$72.60/Ton.

Because of the lithologic character of the underlying quartzites and overlying shales, the ore body appears to be confined and limited in both a northeast and southwest direction. However, there appears to be a good possibility of extending the deposit in a northwest and southeast direction from the main workings. This conclusion is based on geologic probability as well as on geochemical sampling results.

GEOCHEMICAL SURVEYS

In planning the exploration of the Warren property, the possibility of using geochemical methods to rapidly outline areas that merit further explorations was considered and was subsequently carried out. Samples were run using the Lemaire Instruments S-1 Mercury Detector. A series of geochemical samples in the area of the main mine workings suggest the possibility of mineralized zones extending along strike from the main mine. These results appear to be the most promising in extending the ore reserves of the property. Evidence derived from a similar survey conducted over the claims located west of the main camp was considered unfavorable, however.

CONCLUSIONS AND RECOMMENDATIONS

As a result of a thorough study of the mine, prospects, and the general area, the following significant geologic and economic facts are apparent:

1. The main workings are on the Bar #3 claim and consist of about 225 feet of drifts and three shafts, none of which are in a good state of repair. Rehabilitation, however, of the shafts and drifts would be a simple and inexpensive operation.

These workings explore a quicksilver-bearing zone of variable thickness, which on the surface has a thickness of over thirty feet. Average of 32.5' is 7.9#/Ton and of 15.5' - 12.0#/Ton. Cinnabar occurs as small, irregular veinlets in a silicified limy phyllite or, more rarely, as pockets in the same host rock along faults. Although the cinnabar is the dark red variety and difficult to observe, it is assumed that it also occurs as finely disseminated particles in the softer wall rocks adjacent to small faults.

2. As in many other areas of Nevada, cinnabar on the Warren property is localized along small faults where favorable beds are encountered. The brittle character of the siliceous, limy phyllite in the mine area are especially favorable since they allow development of multiple fractures suitable for passageways and for deposition of mineralizing solutions.

Since bedding appears to play an important part in the localization of quicksilver deposits, its strike length becomes important as a prospecting area. On the Warren property, the favorable host rock extends in a northwest-southeast direction from the main workings. The southeast extension possibility, however, is limited to about 150 feet because of the occurrence of faults of large displacement east of the mine. This is somewhat further substantiated by the results of geochemical sampling of this area. To date this area has not been explored. A similar geochemical program covered the possible northwest extension for some 200 feet. The results of these tests suggest subsurface mineralization over the entire distance. This favorable host rock continues northwestward for another traceable 600 feet.

3. The area to the west of the Warren camp is underlain by quicksilver-bearing rocks that are dissimilar to those found in the main workings. Here the cinnabar occurs in a restricted zone as many small veinlets along faults which cut relatively soft, highly-altered phyllite, thereby suggesting a possible open-pit deposit. Sampling of the dumps indicates that, while cinnabar is disseminated throughout the rock, the grade is less than one pound/ton and therefore too low-grade. Geochemical sampling did not indicate any major extension under the adjacent soil-covered areas.

4. Considering the geologic evidence, the practical considerations, and the type of large-scale operation required by the lessee, an extensive exploratory program does not appear warranted. However, two possibilities should be considered: (1) Additional properties should be found in the district, which, together with the Warren property, might furnish enough reserves to justify a sizeable mining and milling operation, or (2) A small producer in the area with existing milling facilities be advised of the findings of this investigation and be allowed the opportunity of developing this property.

5. Several deep bulldozer cuts should be made along the possible northwest-southeast extension directions to ascertain the dimensions and the

extent of mineralization of the host rock. Particular attention should be given those areas where cross-cutting faults are encountered or indicated by the accompanying geologic map. Because of the relief of the area, the depth of mineralization might be determined with short cross-cuts, although, in many cases, this is more effectively done by diamond drilling operations. Should ample tonnages of ore be developed, it is suggested that the ore body be opened and produced from a series of cross-cut levels and drifts which will allow the operator to stay with the ore or vein structure until a certain amount of continuity is proven.

Respectfully submitted,

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