

*Submitted as
assessment work
on GALENA 1-12
prior to Feb. 16, 1952.
Assessed at \$980.00*

REPORT ON

McQUESTEN SLOPE MINES LIMITED

MARCH 19, 1951.

G. L. HOLBROOKE

INTRODUCTION

The following report is based on a personal inspection of the property by the writer December 3rd to 7th, 1950 and on data incorporated in Preliminary map 50-20B of the Geological Survey of Canada compiled by K. C. McTaggart during 1948 and 1949.

CONCLUSIONS

The property is well located geologically and has an excellent chance of carrying important silver-lead orebodies similar to those found on the adjoining property of United Keno Hills Mines Ltd. The exploration programme recommended below is amply warranted.

LOCATION

The property is located along the north slope of Galena hill on the southern edge of the McQuesten River valley about 30 miles northeast of the town of Mayo, Yukon Territories. It adjoins on the north the main producing property of United Keno Hill Mines and consists of 12 mineral claims staked in September and October 1950 covering approximately 1000 acres. The claims are named Galena No. 1 to Galena No. 12 inclusive, being numbers 59918 to 59929 inclusive.

FACILITIES

The main highway from Mayo to the Elsa mine and the village of Keno passes along the north slope of Galena hill parallel to, and about $\frac{1}{2}$ mile south of the south boundary of the property. This section of the road is some 30 miles from Mayo and 12 miles from Keno and provides year round access to the claims. Mayo is located on the Stewart River and during the open season has regular boat service to both Whitehorse and Dawson. It is also connected by all-weather highway with Whitehorse and has twice-weekly plane connections with that town.

The property is located on the fringe of the timber line and is not well wooded. Tree growth is very spotty and, while occasional spruce up to 12 inch diameter are noted practically all mine timber would have to be imported. There is a limited amount of wood suitable for fuel.

An ample water supply for all purposes is provided by Flat Creek which flows northward across the eastern section of the property the year round. An additional water supply is provided by Brefalt Creek which also crosses the ground.

No electric power is at present available in the area but a hydro-electric power development is under construction by United Keno Hill Mines and will eventually supply ample power for the area.

There are no buildings on the property but arrangements can be made for the rental of adequate camp buildings on the Mayo-Elsa road about 1 mile distant.

TOPOGRAPHY

As noted above the property is located along the north slope of Galena hill and is in relatively mountainous country. It lies between elevations 2100 and 2400 feet above sea level with Galena hill rising to 4500 feet to the southeast. It covers part of a broad shelf or terrace along the south edge of the McQuesten River valley and thus to the north the ground is relatively flat for several thousand feet before dropping off gradually to the valley bottom.

The main McQuesten valley is filled with a thickness of several hundred feet of sand and gravel. However, there is a strong suggestion that the terrace on which the property is located is underlain by rock at a shallow depth and that the mantle of overburden is here relatively light..

GEOLOGY - LOCAL

As far as is known the property is entirely covered by overburden and the only indications of the underlying geology are supplied by surrounding properties. The Galena hill area was accurately mapped by K. C. McLaggart in 1948 and 1949 for the Geological Survey of Canada and the results were published in 1950 on Preliminary map No. 50-20B, "Galena Hill, Yukon Territory."

By projecting the structure shown on this map it is seen that a strong fault strikes $N76^{\circ}W$ across the property and shows a right-hand horizontal displacement of about 4800 feet.

To the east of this fault the projection of the geology shows that the claims are underlain by part of a thick series of thin-bedded pre-Cambrian slates and schist, possibly carrying small elliptical intrusive bodies of Devonian "greenstone." This main schist horizon is found throughout the area along the north side of, and underlying, a thick band of massive pre-Cambrian quartzite which forms the host rock for most of the ore-bearing veins of the district.

To the west of the fault most of the western and southwestern part of the property is indicated as being underlain by the main massive quartzite horizon. This rock has been displaced onto the property by the movement along the fault with the quartzite schist contact lying about 400 feet south of the north property boundary. Naturally, with no outcrops available, the presence of the quartzite on the property cannot be proven but with the rock distribution and the fault direction and movement established on adjoining ground this interpretation of the underlying geology is the only reasonable result.

In the vicinity of the property both the quartzites and the schists have a general trend of $N75^{\circ}$ to $80^{\circ}E$ and dip flatly southward at from 25° to 40° . The structure of the area has not been worked out in detail

but in this vicinity these rocks apparently lie along the southern limb of a major, westward plunging, anticline. The north limb of the major anticline apparently lies along the north side of the McQuesten valley.

GEOLOGY - ECONOMIC

A study of the Galena-Keno Hills area has shown that practically all of the silver-lead orebodies of the district are found in fault and fracture zones trending from N25° to 75°E and dipping steeply south. Where these fault zones lie in quartzite, or even where only one wall of the zone is in quartzite, orebodies are found. So far, however, they have not been found in the schists and these rocks must be regarded as unfavourable. In rare instances orebodies have also been found in fault zones cutting the intrusive greenstones in the schist but these are of minor importance.

From the above it is obvious that the section of the property east of the fault, being underlain by schist, has little if any chance of carrying important orebodies. On the other hand the section of the property west of the fault, being underlain by the favourable quartzites has an excellent chance of harbouring important orebodies.

In this western section of the property any orebodies will probably occupy fault or fracture zones trending from N25° to 75°E as is the experience elsewhere in the area and any exploration should be planned for this orientation. However there is some possibility that the main fault itself may be a locus of ore deposition and this feature should not be overlooked in any programme of development.

RECOMMENDATIONS

As described above the property is entirely covered with overburden and the only indications of the possibilities are provided by the

extension of the surrounding geology. These show that the eastern half of the property is probably underlain by the unfavourable schist horizon and has a very poor chance of carrying important orebodies. Obversly the section of the property west of the fault, being underlain by the favourable quartzite, has excellent chances of carrying orebodies. There is also some possibility of the main fault itself being a locus of ore deposition.

Therefore I would recommend that the first step in the exploration of the property be an electric-magnetic survey of the claims by McPhar Engineering Co. of Toronto. This survey should be oriented for a probable N25° to 75°E trend of any ore and should be particularly concerned with locating the main fault and in exploring the property to the west.

Any anomalies found by the geophysical work should be further explored by diamond drilling and if it is found that the electro-magnetic results are not reliable in this area the western part of the property should be cross-sectioned by similar drilling. An allowance should be made for a preliminary programme of at least 5000 feet and additional work will be predicted by the results obtained.

The cost of the proposed preliminary exploration is estimated as follows:

Geophysical work	-	1000 acres @ \$5.00	-	\$5000.00
Diamond drilling	-	5000 feet @ \$5.00	-	<u>25000.00</u>
Total				\$30,000.00

G. L. Holbrooke

March 19th, 1951.

G. L. Holbrooke.

C E R T I F I C A T E

I, G. L. Holbrooke, of the City of Toronto, in the Province of Ontario, do hereby certify as follows:

1. That I am a Consulting Geologist and a member of the Association of Professional Engineers of Ontario.

2. That I am a graduate of McGill University with degrees of B.Sc., and M.Sc., and have been practising my profession for twenty-four years.

3. That the accompanying report is based on information acquired as indicated in the report.

4. That I have no direct or indirect interest whatsoever in the properties or securities of the Company, nor do I expect to receive any such interest.

DATED this 19th day of March, 1951.

G. L. Holbrooke

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