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Property File

082K-SE026

REPORT OF A
SHORT EXAMINATION OF THE ST. PATRICK MINE
OF THE
HAMIL SILVER - LEAD MINES LTD.
ARSENITA, B. C.

To
C. E. Oliver & Co.,
456 Howe Street,
Vancouver, B. C.

By
Chas. G. Starr,
612 Pacific Building,
Vancouver, B. C.

January 17, 1951.

INTRODUCTION:

Three and a half days were spent at the mine. Since there were three feet of snow on the ground the surface could not be examined, except that the so-called "Glory Hole" open cut was visited.

A study of the surface would likely aid considerably in sizing up the future prospects of the property.

LOCATION:

The property is situated on the north side of Hamill Creek and is reached from Argenta, B. C. by six miles along the Argenta-Hosmer road and three and a half miles by a switch back road of 10% to 15% grade.

PROPERTY:

There are ten claims in the group, presumed to cover the vein-zone for some 9,000 feet. The chief workings are on the Regina claim. The former name of the group was the St. Patrick.

GENERAL:

The claims are, in general, heavily timbered with size and species of trees suitable for mine timbers.

Water is not available at the tunnel camp except from a spring in the mine. There is ample water for all purposes in Hamill Creek, and it is said that considerable power could be developed cheaply.

The topography is steep, with occasional cliffs.

EQUIPMENT:

Thus far there is equipment for four or five men. There is a 105 cu. ft. capacity Le Roi portable compressor, one mounted Jackhammer, one stoper, mine car, rails, piping, etc., and a 4-wheel drive truck. Two log cabins in good condition at the tunnel portal are in use as bunkhouse and cookhouse. It is reported there are two larger cabins in good repair some three hundred feet lower, near the vein extension.

GEOLOGY:

The rocks in which the ore bodies occur are banded, crystalline limestones and mica schists belonging to the Hamill series of late Pro-Cambrian age, and are the oldest rocks in the Lardouan district. In the vicinity of the mine they generally strike N 20° W and dip steeply east.

On the surface the vein is 2 to 5 feet wide and consists of galena, brown sphalerite and pyrite in a mass of limonite, lead carbonate, and decomposed limestone.

In the shaft, at 28 feet depth, there are 40 feet of drifts which show 2 to 5 feet of oxidized material and nuggets of galena. (The above geology is condensed from Memoir 161 of Geol. Survey of Canada and covers the surface and the shaft, neither of which could be examined by me. C. C. S.)

The tunnel workings are apparently all in limestone except the first 160 feet from the portal, the end of the furthest northeast crosscut, and the last 30 feet of the long West crosscut, as sketched on the map herewith. In part, the limestones are massive, but a considerable part is sheared and schisted, making it sometimes difficult to distinguish between limestone and schist proper.

The ore occurs in the limestones and tends to lie in a series of faults striking about N 20° W and dipping steeply eastward, and varies from a fraction of an inch to four or five feet in width.

In places, notable in the east end of the long crosscut, between the winze and the raise, low grade ore has replaced sheared and altered limestone over a considerable width.

ORE:

There are two types of ore exposed in the workings, in fairly definite veins, and as replacements in the limestone.

The first type, veins, is described briefly above.

The replacement ore, best exposed in the crosscut between stations 5 and 6, consists of finely disseminated grains of galena and sphalerite in limestone. It, also, is in part oxidized, leached and ore minerals are obscured from sight by iron oxides, so that it is very difficult to judge the value of this ore by eye.

DETAILS OF WORKINGS:

At 50 feet from the portal a fault, striking about N 20° W and dipping steeply north, was cut and followed to 40 feet beyond the winze. At midway between the portal and the winze the tunnel enters limestone and continues in it to the face. Traces of mineralization occur along the fault throughout the limestone but are too weak to be important, except close to the winze where fractures come in from the south and form ore extending a short distance beyond the winze; weaker mineralization extends to the face of the drift.

The winze is full of water and inaccessible. There appears to be no definite information as to this winze. I am told that it is approximately 45 feet deep, probably vertical, and that a shipment of 13.5195 dry tons of ore, made in April, 1938, and probably hand-picked, was taken from the winze.

The ore settlement certificate gives the assay as Gold 0.015 oz., Silver 30.6 oz., Lead 42.20%, Zinc 4.7%.

From survey station 5, near the winze, to station 6, near the raise, the limestone has been partially replaced by disseminated galena, sphalerite and pyrite. The north side was sampled in 1937 over a width of 27 feet and reported with the notation "I just rough sampled this 27 feet but could not properly sample it as I had no moils at hand ----". So far as can be judged from the groove cut this sample should be dependable. It assayed Silver 1.6 oz., Lead 3.4%, Zinc 7.5%.

To check this sample and to further determine the value of the replacement ore I, assisted by Mr. Tom Matier, moil-sampled the south side

of the crosscut over a width of 24 feet in approximately 5 foot sections (See Map). The weighted average of these samples, Nos. 612 to 616 inclusive, is - 24 feet, Silver 0.2 oz., Lead 0.8%, Zinc 4.1%. The weighted average of the samples from the two sides of the crosscut is - 25½ feet, Silver 0.9 oz., Lead 2.2%, Zinc 5.9%. It should be noted that to these widths should be added the width of ore in the winze plus the width of ore stoped at the raise, neither of which can now be conveniently sampled. This makes up a total of at least 36 feet of low grade ore.

The difference between the assays from the north and south sides of the crosscut is rather surprising since, visually, they appear entirely similar.

Mr. Matier and the writer also took three samples (see Map) on the east side of the south drift from the raise. These were cut along an angle of about 45° from the horizontal in order to cut rather flat lying seams of better ore.

They indicate a length along the drift of 27 feet assaying Silver 0.14 oz., Lead 1.1%, Zinc 3.4%.

In the drift north from the raise, which follows a fault, there is a streak of high grade sphalerite, sometimes with a little galena, from a fraction of an inch to six inches in width, bordered by an unknown amount of low grade material. Sample No. 621 is from a hole blasted into the wall of the drift at floor level at 185 feet northerly from the raise. It shows four inches of solid sphalerite, with the remainder of the 2.7 foot sample consisting of limestone with some galena and sphalerite.

The sample assayed Silver 0.4 oz., Lead 3.1%, Zinc 10.3%.

The northeast crosscut from this drift shows some sphalerite, both in the faces of the short drifts from it, and over parts of the crosscut itself, but it is doubtful if it is commercial ore, although it is evident that some ore has been gouged out from the north drift.

Coming back to the raise, short drifts north and south have been driven at 24 feet above the tunnel floor from which, it is reported, "nuggets" of galena were mined and shipped. A little galena and some sphalerite are still showing, enough, it is believed, to constitute low grade ore. The raise itself is approximately 85 feet in height on about 67° incline, and is reported to be in ore throughout; it is difficult to check this at present.

In the northwest drift at survey station 7 a few small kidneys of sphalerite have been found and weak disseminations of sphalerite, but nothing of much importance. In the west crosscut from this drift there is a short northerly drift in which there are small kidneys and grains of sphalerite. This is noteworthy because the surface shaft, if extended downward on its present dip, should reach the tunnel level at this drift about fifteen feet from the crosscut.

ORE RESERVES:

The lay-out of the present mine workings and the lack of adequate sampling make it impossible to class any of the ore as "Positive Ore", -

that is ore blocks which are exposed on four sides. The ore that can be classed as "Probable Ore" is, in this case, more a matter of the opinion of the engineer doing the calculating than the assembling of pertinent figures and data. With the understanding that the following figures of reserves of "Probable Ore" are my opinion, rather than facts backed by figures, I give you the following:-

	<u>Probable Ore</u>
Replacement ore in tunnel (36' x 100' x 100' + 10)	36,000 Tons
Extensions of ore in shaft, north & south (2' x 80' x 50' + 10)	800 Tons
Ore said to be on dump	<u>600 Tons</u>
Total	37,400 Tons

There is no possibility of estimating the value of this ore without thorough sampling of the mine. Another point, which has a very important bearing on the value of the ore, and therefore on the tonnage, is the extensive oxidation of parts of the ore bodies. The oxidised products of galena and sphalerite, the primary minerals of lead and zinc, are notoriously difficult or impossible to treat by ordinary concentration methods, either flotation or tables.

In Arthur Lakes' report of 1926 he states that a sample of ore, said to be representative, from the dump had been test-milled by the C. N. & S. Co. Ltd. There are several indications that the ore was far from average in value, or that it contained any considerable amount of oxidised ore, and I do not believe that it was a representative sample.

I strongly recommend that a carefully taken sample of ore, of milling grade, be taken throughout the mine and sent to a reputable laboratory for concentration tests. Until this is done no trustworthy data on the net value of the ore in the mine is possible.

Oxidation and leaching of the ore is very shallow in most British Columbia mines and has gone far deeper here than is usual. It is certain to decrease in depth and finally die out, but at what depth I cannot predict. There is also a good possibility of enriched ore just below the zone of oxidation.

CONCLUSION:

As noted above, snow on the surface, the impossibility of entering the shaft and winze, the lack of extensive sampling or concentration tests make the mine very difficult to size up, and perhaps make the over-all picture appear unduly gloomy. However, the rock formation in which the ore occurs is definitely good, and is undoubtedly the same formation, though not necessarily the same bed of limestone, as that in which the Blue Bell mine of the C. N. & S. Co. occurs. Furthermore, the presence of replacement ore in the tunnel is a definitely encouraging feature; also, more nuggets and lenses of high grade galena are to be expected in further work.

I understand that the management is planning to do considerable diamond drilling and also to drive a raise to connect with the shaft. I am fully in accord with both plans.

Results of development to date, in my opinion, fully justify the driving of a new tunnel at some point at least 150 feet lower elevation than the present one and, while I would suggest this be deferred until further sampling, milling tests and diamond drilling have been done, I feel confident that the results of such work will confirm my opinion.

The mine impresses me as a prospect which can in all probability be developed into a moderately large mine.

Respectfully submitted,

Chas. C. Starr

Charles C. Starr, M. E.

January 17, 1951.

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