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April 11th 1935.

Dr John F. Walker,
Provincial Mineralogist,
VICTORIA, B.C.

Dear Sir,

re Silver Standard Mine, Hazelton.

With further reference to my letter of the 9th inst.:-

Under "Mineralization" on page 1, will you kindly add after "galena", "some jamesonite". While there are apparently subordinate amounts of chalcopyrite in this ore, the presence of jamesonite is important from the flotation standpoint, and emphasizes the invariable need of milling research prior to actual plant erection.

There does not seem any reason to suppose that this mineral would give any real trouble in flotation, but it is worth bearing in mind that the ore of the Silver Cup, which must have contained very appreciable amounts of this mineral proved difficult to float satisfactorily. Quite possibly this was due to the fact that very unwisely no milling experimental work was carried out in the laboratory, so far as I am aware prior to plant erection.

I am,

Yours faithfully,

Resident Engineer.

Subsequent to mill erection:-

Records indicate that in 1919 and 1920 about 7000 tons of ore was treated from which was produced 407 tons lead concentrates and 992 tons zinc concentrates.

In 1920 279 tons of lead concentrates was produced containing 218 ozs. gold; 103,020 ozs. silver; 169488 lbs. lead; and 453,512 lbs. zinc.

In 1922 approximately 900 tons of ore was mined and milled producing 165 tons of concentrates containing 45 ozs. gold; 20,191 ozs. silver; 30,979 lbs. lead; and 21,071 lbs zinc.

Underground workings: The mine was originally opened by an incline shaft sunk to a depth of 450 feet in F.W. branch of Main vein with drifts at different levels, workings total some 3500 feet from this shaft. (elevation of collar 1730 feet)

Subsequently a main crosscut adit was run at elevation 1511 feet, which constituted the main working adit during the active life of the property, which was shut down permanently in 1922.

A still lower crosscut adit was started at elevation 1312 feet, but was discontinued at a point about 1000 feet from portal, the face is said to be within about 380 feet of No.4 vein, and within about 900 feet of the foot-wall branch of the Main vein.

From a study of available data I infer that the reason for cessation of operation in 1922 were:-

(a) Development was clearly in arrears.

(b) The limitations in metallurgical efficiency imposed by the coarse-concentration type of mill in operation are too obvious to call for comment, more especially having regard to the complex nature of the ore. It ~~cannot be doubted~~ *seems probable* that an up-to-date flotation plant would yield ~~widely highly~~ satisfactory results. Moreover the mill feed was hauled by motor-truck from mine to mill-a severe handicap on profits.

(c) Apart from any purely domestic reasons, it would seem that extraneous conditions were none too good in 1921 and 1922 for the operation of a property of this class. The only reason that can be assigned for non-operation of this property during the favourable years 1925 to 1929 must be due to the fact that the then owners were unable themselves to operate, and the high price and severe terms offered discouraged other interests.

From a study of reports I also infer:-

(3)

- (1) There seems every reason to assume that this property is far from being exhausted, and that the record of its past shipments justifies continuation of the lower crosscut adit through No.4 vein and the Main vein and development in these veins, under market conditions that may be deemed favourable, and which it would seem are fast approaching.
- (2) The pronounced gold content of the mineralization is a favourable feature . According to Dr O'Neill an increase in gold content in depth is a reasonable expectation.
- (3) The accessibility of this property, likewise a favourable topography contributing to economic mining, emphasize other reasons for its re-opening.

I am,

Yours faithfully,

Resident Engineer.

Completed April 1935

Silver Standard. Present ownership not known, formerly Silver Standard Mining Co. Ltd. Number of claims and Crown-grants unknown

Location. Northwest side of Glen mountain, 4 miles by motor-road from Hazelton, 6 miles by motor-road from New Hazelton, the shipping point on the Canadian National Railway. The character of the ground is timbered mountain slope of between 20 and 30 degrees.

Type of deposit. There are nine veins on the property, roughly parallel, striking N 20 E (mag.) to N 35 E (mag.) with steep dips to the south-east. These are numbered from west to east. Vein-widths vary from a few inches up to 6 feet. No. 1 vein being the most westerly. Two of these, ~~were~~ the Main vein and No. 4 vein were important producers, and the major portion of ore resulted from the Main vein, which splits into two branches about the centre of the property. These branches diverge at an angle of about 10 degrees and are known as the hanging-wall and foot-wall veins. Mineralization consists of galena, sphalerite, freibergite, pyrite, pyrrhotite, arsenopyrite in a quartzose gangue. High silver values and noteworthy gold values feature this mineralization. *The host rocks are sedimentary beds of the Hazelton series underlain by a sheet of green schist - Northhorn.*

History:- Originally located in 1910 by Messrs Long and McBain acquired in 1912 by Messrs Stewart, Welch and McLeod, and subsequently the Silver-Standard Mining Company, Ltd. was incorporated for its operation. Shipments commenced in 1913 and constituted the first shipments over the then newly-completed Grand Trunk Pacific ^{ore} Railway. In 1914 the property was temporarily closed owing to conditions occasioned by the War, but was re-opened in 1915

(2)

W.G. Norrie-Lowenthal being in charge of operations, development continuing promising ^{erection of} a mill of the "coarse concentration" type of 50-ton daily capacity was completed in 1918 on Two-mile creek, power being supplied by steam boilers burning cordwood augmented by water-power derived from Two-mile creek. Records indicate that in 1919 and 1920 in which latter year ^{mining and} ~~milling~~ ^{temporarily} operations were suspended, about 7000 tons of ore was treated from which was produced 407 tons lead concentrates, and 992 tons zinc concentrates. The auriferous content of the ore is markedly reflected in the lead concentrates of which in 1920 279 tons was produced containing 218 ozs. gold, 103,020 ozs. silver; 189488 lbs. lead; 453, 512 lbs. zinc. Mining and milling operations were again resumed in 1922 for about 3 months only but were thereafter suspended, and since then the property has unfortunately remained entirely inoperative. In 1922 approximately 900 tons of ore was mined and milled producing 165 tons of concentrates containing 45 ozs. gold; 20,191 ozs. silver; 30,979 lbs lead; 21,071 lbs. zinc. In Memoir II6 Geological Survey, 1919, production of hand-sorted ore from years 1913 to 1917 is given as 2229 tons silver-lead ore containing 746259 lbs. lead; 516.8 ozs. gold; 304,411 ozs. silver; ~~with~~ with an average of 20.3 per cent zinc; also 393.9 tons zinc ore averaging 43.16 % zinc; 0.24 ozs. gold per ton; 60.02 ozs. silver per ton. Refer to Annual Reports for the years 1910 to 1922 (inclusive) also to ¹⁹¹⁰ Memoir II0 Geological Survey by J.J. O'Neill.

Surface showings:- Nearly all the veins have been prospected more or less on the surface.

Underground Workings:- The mine was originally opened by an incline shaft (el. of collar ^{I730} ~~I511~~ feet) sunk in the foot-wall branch of the Main vein to a depth of 450 feet with drifts at different levels, workings of which total some 3500 feet.

Subsequently a cross-cut adit was run at elevation I511 feet connecting with the above-mentioned workings, and constituting the main working tunnel during the active life of the property. Workings at the latter horizon cut Nos. 3, 4, 5, 6, both branches of the Main vein, and No.7 vein. A still lower cross-cut adit was started at elevation I312 feet, the objective being the penetration of No. 4 vein and both branches of the Main vein. This adit which has one I20 degree bend was discontinued at a point I000 feet from the portal, the face being within about 400 feet of No.4 vein and within about 900 feet of the foot-wall branch of the Main vein. Production resulted almost entirely from the Main and No.4 veins, but other veins give evidence of productive powers on development.

Conclusions:- There seems every reason to infer that this property is far from being exhausted, and most unfortunate that during the years 1925 to 1929 it remained inoperative at a time when conditions were particularly favourable for the operation of a property of this class, but apparently the reason was due to the fact that prospective buyers and the owners were unable to agree as to terms.

It seems clear that the conditions which led to the cessation of operations in 1922 were:-

- (a) Development work was in arrears. In the 1922 Annual Report of the Minister of Mines, J.D. Galloway, then Resident Engineer, says: "The property is now in the position that further development is required, as most of the ore above the 250-foot tunnel (the main working ait) has been stoped out".
- (b) The limitations in metallurgical efficiency imposed by a mill of the type in operation at this property are too obvious to call for comment, having regard also to the complex nature of the ore. ~~Moreover~~ There ~~has~~ seems ~~no~~ reason to anticipate that an up-to-date flotation plant would give satisfactory results. Moreover, the mill feed was hauled from the mine by motor-truck to the mill, a severe handicap on profits.
- (c) Apart from purely domestic reasons, it would seem that extraneous conditions were none too good in the years 1921 and 1922 for the operation of a property of this class.

It is desired at the present time to draw attention to the pronounced gold content of the mineralization, which may reasonably be expected to increase with depth.

Having regard to the accessibility of this property, and favourable topography permitting favourable mining costs, there

(5)

seems every justification for inferring that it should witness re-opening as soon as market conditions as to lead and zinc are more favourable.

April 9th 1935.

Dr John F. Walker,
Provincial Mineralogist,
VICTORIA, B.C.

Dear Sir,

re Silver Standard Mine, Hazelton.

In view of the increasing price of silver, and gold, it seems that some activity in silver-lead properties carrying appreciable gold values may shortly take place. Indeed rumours of Duthie starting are once again rife.

In the circumstances, I think, you may find it useful to have on file a few salient particulars concerning the Silver Standard mine.

I am able to view this property in a detached way, because I have never inspected it as no work has taken place at it since I have been Resident Engineer, and moreover all workings below the main crosscut adit are of course under water. I have, however, studied at different times when activity has seemed likely the reports of Mr Galloway and Dr O'Neill of the Geological Survey on the property from which I glean the following information:-

Location: Northwest side of Glen mountain, distant 4 miles by motor-road from Hazelton town, and 6 miles from New Hazelton station (the shipping point).

Type of deposit: There are nine veins, varying in width from a few inches to 6 feet. These are numbered from west to east No.1 vein being the most westerly. Two of them, No.4 and the Main vein were important producers, and the majority of ore resulted from the latter, which has two branches. While production resulted almost entirely from these two veins, the others give evidence of productive powers on development.

Mineralization: galena, sphalerite, freibergite, pyrite, pyrrothite, and arsenopyrite in a quartzose gangue.

Production: Prior to mill erection, from years 1913 to 1917:-

2229 tons silver-lead ore containing 516.8 ozs. gold; 1504,411 ozs. silver; and 746259 lbs. lead, with average of 20.3 % zinc. 393.9 tons zinc ore averaging 43.16 % zinc; and 0.24 ozs. gold per ton.