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Dear Sir:

*L.D. Clark Report.
173p. 131.*

I herewith submit a report on the "Big Ledge" zinc property which I examined last week spending three days at preliminary examination.

SUMMARY

The Big Ledge deposit occurs as a replacement of a particular horizon of inclined metamorphosed pre-Cambrian sediments. Mineralization is continuous for over three miles along the strike and concentrated masses of sulphides containing zinc blende are very numerous. The geological structure appears favourable since it is quite regular showing no evidence of faulting #. The average value of ore as computed from the recorded logs of sixteen diamond drill holes put down more or less at random along the strike indicates a grade of ore of 8.35% Zinc per ton.

The location of the property is a favourable factor. Water power is available by means of an underground tunnel with outlet about one thousand feet below the reservoir which is a lake fed by mountain streams. The water from the lake pours through this natural tunnel one mile to the outlet which is located conveniently for plant purposes. Timber is abundant and the elevation of the workings is about 4000' with a road of easy grade seven miles from the lake entirely free of snow slides. The deposit occurs about three and one half miles in a direct line from Arrow Lake.

Mr. Fowler, the major owner of the property informed me that his syndicate ask only for an interest in any company that might be formed to develop the property.

CONCLUSION

Sixteen drill holes spaced along a zone of over three miles in length can hardly be expected to afford a satisfactory basis from which to estimate values; but they do indicate the possibility of enough tonnage of a grade of zinc to be of importance. The lateral extent of the ore-bearing zone is so great that the probability of a great tonnage cannot be overlooked and is encouraging for a large scale operation.

RECOMMENDATION

Since the deposit is of the type that surface sampling is out of the question and the drilling done to date is insufficient, I believe that, if steps could be taken to establish a market for zinc, \$25,000.00 spent on systematic diamond drilling of this deposit could prove up an important tonnage of zinc ore of commercial grade.

The diamond drill logs were obtained from the report by the B. C. Govt. engineers and geologists.

Location

The property is located on the west side of the Upper Arrow Lake opposite St. Leon Hot Springs and just west of Pingston Creek about 17 miles south on the lake from Arrowhead on the C.P.R. Railway; and 15 miles north of Nakusp on the lake, the southern terminal of the C.P.R. Rlwy. The ore deposit occurs about 3.5 miles straight west of the lake and is reached by a good trail free of slides and easy grade some seven miles long.

Ownership

The group is held by a syndicate of which Mr. A. E. Fowler of Nakusp is the major owner.

Price of Property

Mr. Fowler informed me that his syndicate are willing to accept an interest in any company which might be formed to develop the property and that cash payments are not required.

Development

Three very shallow tunnels and many open cuts make up the only development attempted to date. The cuts are all in good shape and the tunnels accessible.

Buildings

There are several cabins on the property suitable to a small crew of men.

Diamond Drilling.

Sixteen drill holes have been put down by a former company which undertook to develop the property in 1927. The holes have been put down more or less non systematically as will be seen from the map. In addition they are all shallow holes, all drilled very close to the out-crop and in no case giving any depth greater than 150-200 feet.

History of Property.

Interest has long been attached to the properties located along the Big Ledge but until 1925, when their amalgamation was effected, very little effort had been made to explore or develop the several holdings. Friction between individual owners and lack of co-operation on their part prevented development of the mineralized zone and probably lack of knowledge of treatment of complex ores retarded advancement.

About 1927 the group was taken over by a Vancouver promoter and an option was turned over to a Mr. C. Butler of *La* Idaho who began exploring the deposit with a diamond drill. From what I can learn, a lack of finances forced him to abandon the project in 1929 and since then nothing has been done.

With regard to the Consolidated Mining & Smelting Co. I find that never have their engineers visited the property since they explain that with a tremendous tonnage of zinc ore at their Kimberley mine they are not interested in developing another zinc producer.

Grade of ore.

Since the property in its present stage has been so little developed, it is only possible to make an estimate as to grade of ore from the best obtainable data, namely the diamond drill logs obtained from the report by the Can. Dept. of Mines. I feel quite confident that these logs as reported in the report are authentic. Surface sampling is practically out of the question since the mineralized zone is so large that channel sampling would be a tremendous and difficult task. I therefore have estimated a grade of ore from the assay of the diamond drill cores and I find that the most economic grade is about 8% Zn. Of course there are cases where a different computation is possible, for instance over greater widths bring the grade down. In fact the grade can be juggled considerably to suit the existing price of Zinc, either by mining greater widths and a greater tonnage or keeping the width down and the grade high.

Tonnage

With regard to tonnage, variable factors can again be employed and the diamond drill logs furnish the only available information. It can be seen from the map, however, that the tonnage is of importance considering the length and possible available depth down dip, and here again, the least width gives the best grade. I have allowed a 50% error for possible non-continuity of the ore in the section illustrated on the map and I believe that a conservative estimate in this section is 2,000,000 tons of 8% Zn. ore. This would give a gross value to that ore at 7¢ zinc of \$22,000,000.00.

\$13,600,000

at 3.44

Description of Deposit.

Mineralization in the Big Ledge occurs in a zone which is remarkable in its continuity and character of its mineralization. The zone can be traced by surface outcrop for over three miles. It appears to vary from 75 to over 200 ft. in width and appears to rise from 2600ft. to 5600 ft. above the Upper Arrow Lake. The deposit seems to conform with the enclosing strata. Walls are difficult to trace from the surface outcrop but I understand that during diamond drilling it was never difficult to observe the exact boundaries in the core.

Toward the west the deposit strikes practically east and west and dips at 40 degrees to the south. Toward the eastern end the strike swings from 65 to 75 degrees west and the dip varies from a steep angle to the south to 20 degrees. It would seem from examination that the deposit is of the replacement type in which the mineralizing solutions have impregnated a limy horizon which has been more porous by nature, thus facilitating the entrance of the mineralization.

Mineralization seems to be confined to bands and zones within the main zone and they vary from inches to 60 ft. in width. The most persistent mineralization appears to follow the hanging wall of the zone. Elsewhere zones of mineralization are distributed irregularly in the zone. It is very difficult to say whether the mineralized widths as observed from the core record are actually continuous for such considerable distances or whether these widths form part of mineralized zones raking across the dip. However, the limited depth of the drilling gives little evidence and the apparent persistence of mineralization along the hanging wall is encouraging.

Mineralization consists of pyrrhotite, pyrite, zinc blende and some galena (small amounts of galena are often observed in the extreme hanging wall of the zone.) Pyrrhotite seems to be the most abundant of the sulphides with pyrite next and zinc blende third. The sulphides occur in massive lenses of considerable size to impregnations of country rock. In the masses Zinc blende was observed to occur as bunches varying from two or three feet in diameter to masses weighing many tons. The diamond drill core shows places where disseminate mineralization is chiefly zinc blende and in others massive pyrrhotite and pyrite combined with Zinc blende and galena.

Topography

The topography in the vicinity of the deposit is worthy of special mention in view of its bearing on any future development work. The claims are located continuously along the deposit for a distance close to five miles. In this distance the elevation rises from less than 4,000 ft. to nearly 7,000 ft. The topography is not rugged and up on the outcrop is easily travelled on foot or by horse, having a park-like appearance through nicely wooded country. There is no ruggedness or danger of bad snow conditions, the grade up from the lake by trail is gentle and road building, camp building and water power facilities are excellent, matters which are a strong point in considering this property.

Timber

Ample timber is available for any camp or mine requirements.

Itinerary.

Three days were spent in examining the deposit. Several traverses were made along its strike. The property is easily reached from Nelson by motorcar and boat and the whole trip took five days.

"L. D. CLARK"

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Sept. 17th, 1937.

Sept. 18th, 1937.

Dear Sir:

Since mailing my report to you today on the Big Ledge zinc property, it has occurred to me that the figures on the map may be misinterpreted in that the possible ore might be taken as an additional tonnage. This is not the case as the 50% factor is the factor of safety which I have used and the 2,000,000 tons is the tonnage which can be reasonably expected although the drilling does indicate a block of 4,000,000 tons.

Sincerely yours,