~~CONFIDENTIAL~~

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EMERALD, Omineca Mining Division

This property on Sweeney Mountain, northeast of the eastern end of Tahtsa Lake, is some 60 miles from Burns Lake on the Canadian National Railway. The route from Burns Lake is by road southerly, ferrying across Francois Lake and continuing to Ootsa Lake, thence westerly by boat up Ootsa Lake and Tahtsa River to a landing, thence northerly by trail to the property.

The property has been known for more than 25 years; surface workings, a little underground work and some diamond drilling have explored lead-zinc mineralization developed with quartz and other gangue minerals, including some rhodochrosite, in tuffaceous rocks brecciated along a fracture. The Consolidated Mining and Smelting Company optioned the property and did work there in several years, but in 1931 removed the equipment and later allowed its interest to run out.

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Surface showings indicating mineralization for a length of 400 feet, work on the one adit level indicating a length of 370 feet and average width of 5 feet, and diamond drill intersections have been taken as indicating 150,000 tons of ore averaging roughly 15% lead and zinc combined and 5 oz. silver per ton. Zinc is in excess of lead. Deep diamond drill holes did not cut commercial mineralization. This possible ore must be regarded as having a vertical extent of 750 feet if the horizontal extent is taken as 5 by 400 feet.

Freight rates on concentrates to United States smelters from Burns Lake or other point on the railroad in that area have not been established. Preliminary studies with assumed freight rates indicate that F.O.B. railway cars at Burns Lake, zinc concentrates assaying 5 oz. silver per ton and 55% zinc would have a net value of about $22 per dry ton, and that lead concentrates assaying 48 oz. silver per ton and 60% lead would have a net value of about $38.00per ton dry weight, based on current United States prices, duty deducted. It is unlikely that even though moved in some volume, concentrates could be hauled from the mine to the railway for less than $5.00 per ton and the price might well exceed this figure. At $5.00 per ton for hauling and loading, zinc concentrates have a net value of $17.00 and lead concentrates of $33, per dry ton at the mine. These are equivalent to 1.55 cents per pound for zinc and 2.75 cents per pound for lead at the mine. Available information does not indicate the ratio of lead to zinc. Assuming that after dilution with 10% waste the ore contains 5% lead and 8% zinc, from which 90% of the lead and 80% of the zinc are recovered in the proper concentrates, the net return per ton of ore milled is about $2.75 for lead and $1.95 for zinc, total $4.70 per ton milled.

It seems probable that a considerable expense would be required for road work and other transportation facilities. The long distance from the railroad would materially increase the capital expenditure for mine plant, mine preparation and for a mill, and would also increase operating costs.

The available information is not detailed but it appears that the ore is "indicated" and by no means "blocked out". As there has been no production in the area, we must assume a high risk in "indicated" ore.

Unless substantially more ore were indicated at this or nearby properties, the probable high costs and high capital charges remove any incentive to take the risk involved in bringing the property into production, even with settlement prices for lead and zinc higher than at present.

H. Sargent,
Mining Engineer.

Vancouver, B.C.
June 13, 1942.