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**ESPERANZA EXPLORATIONS LTD.**

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SUMMARY REPORT

ON THE

BIG LEDGE EXTENSION

(JUNE 1 to 4 and LEDGE CLAIM GROUPS)

N.T.S. 82K-5, 82L-8, 9

SLOCAN MINING DIVISION

Latitude 50°29'N

Longitude 118°00'W

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Robert Holland

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## SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Work by Cominco on the BIG LEDGE horizon has outlined a deposit of proposed sedimentary exhalative origin with estimated reserves in the order of 100 million tons of 4 percent zinc, including 10 million tons of 7 percent zinc. Mineralization persists to the east of the Cominco holdings on to ground (referred to as the BIG LEDGE EXTENSION) now held by Esperanza Explorations. Drilling in this area has intersected as many as four sphalerite-bearing horizons within low grade sulphide horizons up to 40 meters thick. Although grades are generally low where tested, there still remain untested areas along strike, which could well host higher grade sections.

Considerable potential also exists south of the Cominco ground where down-dip extensions of the LEDGE horizon have been virtually untested. Sulphide occurrences in the Fosthall Creek area have been reported and structural interpretations suggest that the LEDGE horizon may occur near to surface in this area.

Soil geochemical work conducted during 1979, due to thick overburden, only sporadically traced the mineralized horizons, even in areas of known sulphide exposure. Reports from Cominco indicate that soil geochemistry is quite effective on much of their ground, however it would appear to be unreliable in the lower elevation and thicker cover areas to the east.

Work is recommended on both the southern and eastern projections of the LEDGE horizon. Cominco has reported success in tracing the horizon with geophysics, particularly magnetometer and to a lesser extent I.P. In light of this, it is recommended that a detailed magnetometer survey be conducted over the JUNE 1, 2, and 3, and LEDGE 1 to 8 mineral claims, as well as a reconnaissance magnetometer survey to the south into Fosthall Creek. Depending on the success

of these surveys, E.M. and possibly I.P. should also be considered to further detail anomalous areas.

Further geological mapping is also required, particularly in the Fosthall Creek area where good rock exposure should reveal important structural information. The sulphide occurrences in this area would also be further investigated.

Contingent on evaluation of the above results, diamond drilling would be conducted as a final test.

#### INTRODUCTION

The mineralization along the BIG LEDGE horizon was first located in about 1892 and was worked intermittently by individuals and small companies until 1948, when Consolidated Mining and Smelting Company (Cominco) acquired rights to the property. During the period from 1948 to 1966 a total of 10,060 meters of drilling was completed by Cominco, defining a mineralized zone extending from the western edge of Upper Arrow Lake to the eastern margin of Monashee Provincial Park, a distance of about 14 kilometers. Estimated reserves are approximately 100 million tons of 4 percent zinc (with minor lead), contained mainly in two zones, the Central Camp zone (70 million tons of 4 percent) and the Empress Lake zone (10 million tons of 7 percent).

During 1979 the eastern and projected southern (down-dip) extensions of BIG LEDGE deposit were acquired by Esperanza Explorations through an option agreement, and staking of 60 claim units. The property was visited briefly in September, 1979 and many of the showings were examined and sampled. Reconnaissance soil grid and stream sediment sampling, as well as limited regional geological mapping were also conducted.

Subsequent to the completion of this work Cominco was approached and has since furnished Esperanza with information concerning prior drilling on ground now held by Esperanza.

#### LOCATION AND ACCESS

The property occurs along the western edge of Upper Arrow Lake approximately 30 kilometers north of the town of Nakusp and 60 kilometers south of Revelstoke and the Trans-Canada Highway (Highway 1). Access to the claims is via 20 kilometers of good quality logging roads from Shelter Bay on the Revelstoke-Nakusp road (Highway 26). The more remote western sections and most of the adjacent Cominco ground can be reached along a four-wheel drive road or alternately by helicopter from Nakusp, Vernon, or Revelstoke.

#### GENERAL GEOLOGY

The BIG LEDGE deposit occurs along the southern margin of the Thor-Odin gneiss dome within the eastern part of the Shuswap Complex. The predominantly metasedimentary sequence now consists mainly of schists, gneisses, migmatites, amphibolites, marbles and quartzites arranged by decreasing grade into four packages, the Core, the Mantling, the Fringe and the Supracrustal zones. These rocks have been isoclinally folded into south-dipping overturned east-west trending structures with the metamorphic fabric now obscuring almost all the primary textures of the rocks.

#### LOCAL GEOLOGY

The geology shown in Plate 1 is an adaptation of work done by Höy (1975), Ressor and Moore (1971), and Cominco (1948-53) combined with observations made by the author in 1979. The best rock exposure and hence greatest detail of information occurs in the Empress Lake area and areas to the west and south. Much of the detail in this area has been projected to the east where more limited exposure prohibits good stratigraphic control.

The LEDGE horizon occurs in the core of an overturned antiformal structure of Mantling zone rocks and is the lowest unit exposed in this area. It is composed of calcareous, weakly graphitic schist, calcareous quartzite, calc-silicate gneiss and marble, and is host to the BIG LEDGE mineralization. Overlying the LEDGE horizon to the south and to a lesser extent to the north is a sequence of sillimanite-garnet-biotite schists and calc-silicate gneisses (M5) which contain at least four horizons of white to gray siliceous marble (M7). These marble bands form distinct, often structurally repeated marker horizons which are traceable through much of the length of the BIG LEDGE area. Also contained within the schist-gneiss sequence are pure to feldspathic biotite quartzites (M3) and dark green amphibolites (M8).

In addition to the LEDGE antiform, several other major parallel fold structures have been recognized, particularly to the south where the numerous marble occurrences appear to represent stratigraphic repetitions of only a few horizons. The metamorphic fabric of the rocks strikes east-west and dips 35° to 80° south, apparently parallel to the axial planes of these folds. Considerable structural thickening has occurred and the stratigraphic section represented between Empress Lake and Fosthall Creek is probably relatively thin. As a result the underlying LEDGE horizon, if present in this area, should occur near or at surface at one or more locations.

#### MINERALIZATION

The LEDGE horizon is generally not well exposed in outcrop, particularly at higher elevations where sulphide zones are strongly leached and rusted to well below surface level. Mineralized widths within the Cominco holdings vary from less than 1 meter to greater than 60 meters, with their Central Camp and Express Lake zones averaging 45 meters and 60 meters thick respectively. The sulphide zones have been drill intersected to at least 500

meters down-dip, however in general little work has been reported on this dimension.

Exposures of fresh sulphides and mineralized float can be seen in the Pingston Creek area on ground held by Esperanza Explorations. Outcropping sulphide horizons average 1 to 4 meters thick where observed, however due to limited exposure there is considerable potential for yet undiscovered zones of thickening as found at Empress Lake and Central Camp. Exposures also may represent only one of several mineralized horizons. Drilling by Cominco in this area would tend to verify this premise as several of their holes intersected up to four zinc-rich zones within one or more weakly mineralized horizon (up to 40 meters thick).

Sulphide occurrences, mainly pyrite, have also been reported in the Fosthall Creek area. These were not visited during 1979 and their significance is not known at this time.

Many of the Pingston Creek showings were visited during 1979 and chip samples (1-2 meter intervals) were collected from outcroppings and representative grab samples were taken of float occurrences. Assay results and sample locations are shown in Plate 1. In general the mineralized zones ranged from 0.2 to 5.3 percent zinc, 0.01 to 0.5 percent lead, and 0.07 ounces/ton to 0.36 ounces/ton silver. One chip sample with visible galena assayed 2.88 percent lead and 0.66 ounces/ton silver. Similar grades were also obtained in drill core by Cominco, averaging 1 to 3 percent zinc over 1.5 to 7.5 meter sections. High grade float and trench exposures have also been reported in this area, however attempts to locate these were not successful during the limited time available.

The sulphides consist predominantly of pyrrhotite with pyrite and lesser amounts of dark brown sphalerite. Galena was noted just west of Pingston Creek, generally in minor amounts, with some increased silver content. Mineralization varies from massive (80 to 90 percent sulphide) to weakly disseminated (5 percent sulphide) with sphalerite occurring as disseminated clots or interstitial mats in both. Sulphides are generally medium to coarse grained and some recrystallization textures are apparent. Massive sections generally contain 10 to 20 percent rounded clasts of quartz and altered schist, suggesting some post-ore movement.

All primary ore textures and features with the exception of the increased lead content in the Pingston Creek area (possible metal zonation) appear to have been destroyed during subsequent metamorphism, however the sulphides deposition has been postulated to be of sedimentary exhalative origin similar to that proposed for the Sullivan deposit at Kimberley. Certainly the presence of metavolcanic (amphibolite) members within the overall sequence indicates the existence of a sub-surface heat source. The presence of the marble and quartzite horizons particularly near the sulphide zones would also indicate a near-shore environment at the time of deposition.

#### GEOCHEMISTRY

Three soil grids totalling 333 samples were established over the JUNE 1 to 4 and LEDGE claims in an attempt to trace mineralization through areas of extensive overburden. Samples were taken at 50-meter intervals along 500-meter spaced lines and analysed by standard geochemical methods for lead, zinc and silver. Grid locations and results in ppm for zinc are shown in Plate 1.

Thick glacial cover (over 60 meters thick in places ) appears to seriously inhibit element dispersion and as a result anomalous values for zinc were



spotty and generally restricted to one or two values. Where present however these anomalous zones correspond closely to known or projected mineral horizons with values to 1300 ppm zinc. No anomalous values were reported on the JUNE 4 grid, probably as a result of the sulphide horizon being postulated to occur well below surface in the area. No significant anomalous values for silver or lead were noted in soils.

Thirty-four stream sediment samples were collected both on and off the claim areas (Plate 1) and analysed for lead, zinc and silver. Zinc values to 800 ppm were reported from the lower reaches of Sunshine Creek reflecting mineral exposures in this area. Two anomalous values of 880 ppm and 1100 ppm zinc were also obtained from the lower Paint Creek area, 3.5 kilometers south of Empress Lake. Although none was observed, mineralization has been reported in this area which could possibly be related up-dip to the LEDGE horizon. No anomalous lead or silver values were obtained in any stream sediment samples.