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REPORT ON
INDUCED POLARIZATION SURVEY
JERICHO MINES PROPERTY
HIGHLAND VALLEY AREA, B. C.
ON BEHALF OF
CANADIAN SUPERIOR EXPLORATION LTD.

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by

Harold O. Seigel, Ph.D., P. Eng.

Toronto, Ontario.

September 26, 1966.

SUMMARY

The present induced polarization survey on the South Grid, Jericho property, has largely discounted the possibility of the existence of a deposit of disseminated mineralization, of potential economic significance from a porphyry copper standpoint, beneath the grid covered.

SEIGEL ASSOCIATES, LIMITED

GEOPHYSICAL CONTRACTORS AND CONSULTANTS

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REPORT ON AN INDUCED POLARIZATION SURVEY
JERICHO MINES PROPERTY
HIGHLAND VALLEY AREA, BRITISH COLUMBIA
ON BEHALF OF
CANADIAN SUPERIOR EXPLORATION LTD.

INTRODUCTION

During the period from July 4th, 1966 to September 1st, 1966, a geophysical party, initially under the direction of Mr. E. Arteaga, B.Sc. and later of Mr. C. O'Sullivan, executed an induced polarization survey on a property of Jericho Mines Limited, held under option by Canadian Superior Exploration Ltd. This property is located in the Highland Valley area of British Columbia about three miles southeast of the property of Bethlehem Copper Corporation. Access is by means of the Ashcroft-Highland Valley road which passes both through the Bethlehem Copper and Jericho Mines properties. Twenty-eight lines were cut across this property, at 800' intervals, ranging up to 11,600' in length. These lines are oriented approximately N55°W. They cover, in total, approximately 22,000' length of the southern portion of the property and are known as the "South Grid". For reconnaissance coverage, induced polarization measurements were made at 200' intervals on these lines. Seigel Mark VB time-domain (pulse-type) induced polarization equipment was employed. This has a current-on time of 1.5 seconds and an integrating time of 0.5

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seconds. The accompanying copy of the writer's paper entitled "Three Recent Irish Discovery Case Histories Using Pulse Type Induced Polarization" gives a description of the phenomena involved in this type of survey, the equipment employed, the field procedures and the nature of the results obtained over various types of base metal ore bodies. The present equipment is a more advanced version of the type originally employed on the discovery I. P. survey on the Lornex property, about six miles to the west of the present grid.

On this survey the three electrode array was employed throughout with a 400' electrode spacing for reconnaissance, with the exception of line 24N on which a 200' electrode spacing was employed. This spacing was also used on a short section of line 80S.

The purpose of the present survey was to map the subsurface distribution of metallicly conducting mineralization beneath the grids covered. In this area such mineralization could include pyrite, chalcopyrite and molybdenite. It is not feasible from the electrical data alone to differentiate between the various possible sources of high polarization. Auxiliary geological or geochemical data is often of assistance in resolving this problem.

GEOLOGY

The property is believed to be underlain primarily by intrusive rocks ranging from granite to granodiorite in character. Low-order copper mineralization has been found in place at a number of points on this grid.

in particular, just east of the base line in the vicinity of lines 72S to 64S where two adits have been driven into the hillside on this mineralization. The source of economic interest in this region is, of course, the type of disseminated copper mineralization as has been exploited on the property of Bethlehem Copper Corporation and is presently being developed on the property of Lornex Mining Corporation Ltd.

DISCUSSION OF RESULTS

The accompanying plan shows the geophysical results in profile form, on the scales of 1" = 600', 1" = 5 milliseconds for chargeability and 1" = 1000 ohm metres for resistivity. The observed chargeabilities lie primarily in the range of 1 to 3 milliseconds which may be considered to be normal for unmineralized acid intrusive rocks. Initially, during the period of Mr. Arteaga's stay, considerable difficulty was encountered in making adequate electrode contacts in the loose surface material on this property. Improved operational techniques later adopted helped to resolve this problem but some residual raggedness is to be observed in comparing the earlier with the later profiles. The effect of this high contact resistance was pronounced near the ends of certain lines where interline coupling could come into greatest prominence. Portions of two lines were later repeated and the anomalous readings eliminated thereon. Considerable doubt is cast upon the validity of remaining anomalous readings under similar conditions. It is for this reason that the east ends of line 96S and 104S are indicated to be unreliable and the readings are not recorded.

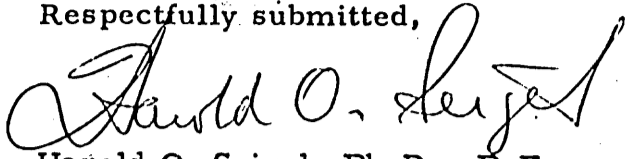
on the plan. Similarly, an area of moderately high and erratic chargeability which occurs near the east end of line 16S corresponds with a region of high contact resistances and is regarded to be unreliable.

Discounting such responses, there are no chargeabilities observed on the present plan exceeding 6 milliseconds in amplitude. A broad dissemination of 1% metallic sulphides by volume and coming within 100' of the ground surface beneath one of these lines may be expected to give rise to a chargeability level of the order of 4 to 6 milliseconds. It is to be noted that 1/2% copper by weight is equivalent to at least 1% chalcophrite by volume and that there is usually some auxiliary associated pyrite in the typical Highland Valley area porphyry copper deposit. On this basis one may conclude that there is little possibility of the existence of a deposit of disseminated mineralization of potential porphyry copper dimensions and concentration, lying within approximately 300' of the surface beneath the grid covered in the present program. Localized areas on certain lines may contain the order of 1/2% to 1% disseminated metallics but these cannot be extrapolated from line to line with any degree of assurance.

Whereas a negative statement may be made with reasonable assurance in regard to the copper potential of this property, little can be said in regard to its molybdenite potential. One half percent molybdenite by weight, which is a very significant molybdenite content, is only approximately 1/4% molybdenite by volume. This would hardly be visible on an induced polarization survey, as it would likely increase the observed

chargeability by only about the order of 1 millisecond.

Respectfully submitted,

A handwritten signature in cursive script, reading "Harold O. Seigel". The signature is written in dark ink and is positioned above the printed name.

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Consulting Geophysicist.

Toronto, Ontario.
September 26th, 1966.