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PROPERTY FILE

92I/N COB, 010, 026-07

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92I/N 5-8, 10,
26 etc.

REPORT OF INDUCED POLARIZATION SURVEY

ON A GROUP OF CLAIMS

FOR

KAMLOOPS COPPER CONSOLIDATED LIMITED (N.P.L.)

KAMLOOPS MINING DIVISION

KAMLOOPS, B. C.

SULMAC EXPLORATION SERVICES LIMITED

JULY 26, 1965

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Legend for maps

I.P. & Mag. Profiles - Line No. 100W
 - Line No. 130W
 - Line No. 132W
 - Line No. 134W
 - Line No. 136W
 - Line No. 138W
 - Line No. 140W
 - Line No. 146W
 - Line No. 148W

In Pocket: Claim Map

Induced Polarization Survey - Chargeability
 " " " - Resistivity

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1. Introduction

During the period February to April 1965, an Induced Polarization (I.P.) survey was carried out by Sulmac Exploration Services Limited over the group of claims held by Kamloops Copper Consolidated Limited (N.P.L.)

The claims are located to the west of Kamloops, British Columbia. The picket lines were cut and chained prior to the geophysical survey. Relative locations and orientations of the lines are shown on the maps accompanying this report. The basic coverage of the survey consisted of readings at 100 foot intervals along lines 200 feet apart.

2. Summary & Recommendations

An Induced Polarization survey was carried out over the Kamloops Copper Consolidated Limited (N.P.L.) property

near Kamloops, British Columbia. Three interesting anomalous zones were indicated that may contain sulphide mineralization.

Each of the zones showed varying intensity of chargeabilities throughout its area, indicating a variation of the mineralization content. Detail work was carried out over parts of each of the anomalous areas in order to give better resolution of the causative bodies. Two of the anomalous areas are located in areas of previous mine workings from which ore was taken. These two zones, numbered 1 and 2, are, therefore, in a geologically favourable environment for the location of further mineralization. The third area is associated with magnetic 'highs' and, therefore, the magnetite content of the rock in this area could be the cause of this anomaly.

All the zones indicated appear to extend to depth, and come to within 100 feet of surface. It is considered that disseminated sulphides of unknown quantities (probably 1-4% sulphides by volume) are the cause of the anomalies. Within these zones it is possible that more massive sections of mineralization will be found.

The economic significance of these mineralized zones must be determined by visual examination. Since over-

voltage is essentially a surface phenomena, the I.P. effects from a given volume per cent of metallic conductors generally increase as the individual particle size is decreased. In this manner the method tends to emphasize true disseminations of metallic conductors over the more massive interconnected metallic conductors with the same metallic content.

Further investigation by diamond drilling is suggested as the next step to determine the nature of the body causing the anomalies. The overburden appears to vary in thickness, but in the vicinity of the anomalies it is probably in the order of 50 feet or less. In drilling, it must be remembered that it is possible that the body may not reach the particular line on which the anomaly is observed. This is due to side effects.

The drilling programme should be arranged so as the anomalies are adequately cross sectioned in order to obtain a true picture of the zones. To date drilling in zones 1 and 2 has indicated mineralization in the amounts as expected by the I.P. survey.

3. Property, Location and Access

The group of claims discussed in this report are shown on the accompanying map and are also listed as follows:

Crown Granted Mineral Claims:

L 879, L 880, L 878, L 1036, L 1050, L 1066, L 1067, L 1068,
L 1302, L 1301, L 1340, L 1342, L 1747, and L 5622 to
L 5629 inclusive

Mineral Claim - Key

The property is located some 7 miles west of Kamloops. Access to the claims is excellent. The main Trans-Canada Highway passes along the northern boundary of the property.

4. Method of Survey & Instrument Data

The I.P. survey was carried out over the group of claims based on a grid system of 200 foot lines and 100 foot stations. The baseline of the grid was established in a northwest direction and traverse lines were turned off at right angles to this line. A total of 34.7 miles of line were surveyed.

4.1 I.P. Electrode Arrays

The data were obtained using the "three-electrode array". This array consists of one current (C_1), two potential electrodes (P_1 and P_2), and the second current electrode (C_2) being fixed at "infinity".

The data were obtained using basic electrode spacings of 200 feet over the surveyed area. Additional detail information was obtained over the anomalous area with electrode spacings of 50, 100, and 400 feet. The basic station interval was 100 feet.

4.2 I.P. Instrument

The instrument used was of the pulse-type and is similar in design and operation to that described by R. W. Baldwin in "A Decade of Development in Overvoltage Survey", A.I.M.E. Transactions, Vol. 214, 1959. Power for the unit is obtained from a Briggs and Stratton 4 H.P. motor coupled to a 400 c.p.s. generator which provides a maximum of 1500 watts d.c. to the ground. The cycling rate is 1.5 seconds current on and 0.5 seconds current off, the pulses reversing continuously in polarity. The data collected consists of measurement of the current (I) flowing through C_1 and C_2 and of the primary voltage (V_p) between P_1 and P_2 during the 'current on' period. During the 'current off' period the overvoltage appearing between P_1 and P_2 is measured. This gives a measurement of the polarization (V_g) in milliseconds. The "apparent chargeability" in milliseconds is calculated by dividing the polarization (V_g)

by the primary voltage (V_p). The "apparent resistivity" in ohm-meters is obtained by dividing the primary voltage V_p by the current I , and multiplying by a proportionality factor which depends on the geometry of the array used.

4.3 I.P. Data

The results of the survey are shown as contour maps of 'apparent chargeability' and 'apparent resistivity' for the basic 200 foot electrode spacing. These maps are located in the pocket at the rear of the report.

The results obtained during the detail work are shown as profiles. These profiles have a horizontal scale of one inch to one hundred feet. The "apparent chargeability" is plotted at a vertical scale of 2 milliseconds per inch. The "apparent resistivity" is plotted to a vertical scale of 500 ohm-meters per inch.

5. Discussion of Results

The interpretation of this survey data consists of a careful analysis of the individual profiles. The variations in the resistivity obtained may be ascribed to changes in the overburden thickness and in the overburden and

bedrock resistivities. The overburden appears to have resistivity varying between 10 and 200 ohm meters, whereas the bedrock resistivity may be as high as 2000 ohm meters.

A reconnaissance I.P. survey was carried out over lines 200 feet apart using an electrode spacing of 200 feet. The data obtained during this survey is shown on the maps accompanying this report at a scale of 400 feet to the inch.

Background values of 'chargeability' for the surveyed area are approximately 2.5 milliseconds. Areas which showed as anomalous, that is having 'chargeability' values of twice background or better, were selected for detail work. Anomalous areas are designated on the accompanying map by the numbers 1 to 3 inclusive. In addition to these zones, a number of smaller anomalies have been indicated, but these are not designated on the map. Detail work, using electrode arrays of 50 foot and 100 foot, was carried out over the anomalous zones in order to better define the conductor and aid the interpretation of the data. The results of detail work are shown as profiles at the end of the report. Along with the chargeability profiles, profiles of the resistivity and magnetics are incorporated.

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Anomalous area #1 is located in the south-central portion of the claim group. Previous mining and underground development work took place in this anomalous area. Three shafts, Norma, Iron Mask and Erin, are to be found on the edges of the anomaly. The readings obtained within the zone vary considerably, indicating that the mineralization also varies. Results obtained during a recently completed magnetometer survey indicate that Area #1 is located along the contact of the Iron Mask Batholith. This is known to be a favourable environment for ore occurrences in the general area. Detail survey was carried out over lines 130W to 138W. The magnetite content was found to be part of the cause of the anomalies, particularly the near surface erratics, however mineralization is believed to be the cause of the deeper seated anomalies. Calculations carried out indicate that the anomaly could be caused by 1-3% sulphides by volume located at a depth of approximately 100' and that these appear to extend to depth. The disseminated mineralization appears to be spread throughout the anomalous area, with selected areas having greater concentrations. Drilling conducted along L130W has confirmed these interpretations. Further investigation of this area by drilling is recommended.

A small lake located in the central part of the property resulted in the anomalous Area #2 not being completely outlined. However sufficient information was obtained during the reconnaissance survey to warrant carrying out detail work on lines 140W, 146W and 148W. The magnetometer survey shows that the anomaly is in an area of relatively low magnetic relief, and therefore it is not expected that the anomalies would be caused entirely by magnetite. Geologically the environments appear to be good as an old shaft and adit is located within the conducting zone. The top of the cause of the anomaly appears to be fairly shallow, situated at less than 100 feet, but extending in depth. The three lines surveyed in detail indicate a pronounced anomaly, and calculations show that it could be caused by mineralization in the order of 1-3% sulphides by volume. The body appears to be near vertical.

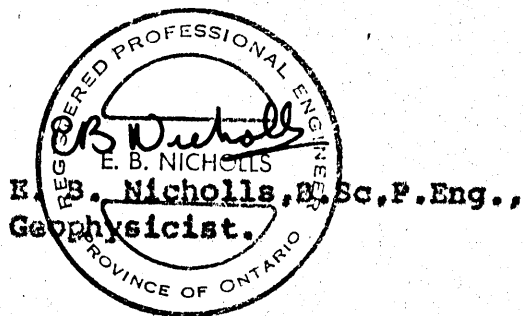
Magnetic 'highs' are associated with the third anomalous area which is located within the Iron Mask Batholith. This anomaly extends off the property and is, therefore, not completely outlined. The calculated magnetite content of the underlying rocks could be the cause of the anomaly, however it is possible that sulphide mineralization is also present as it

is in other areas of the Batholith. Depth to the top of the cause of the anomaly appears to be less than 100 feet; this is expected to be magnetite. The sulphides will probably be below this.

In conclusion, a number of anomalous areas have been established by the survey. The accompanying map and profiles show the possible trend patterns. Although the trends appear fairly well established, their lateral extent and position is open to question due to the possibility of side effects. Thus, it must be remembered that the bodies indicated may or may not reach a specific line, and may become more or less significant in between the lines.

Respectfully submitted,

SULMAC EXPLORATION SERVICES LIMITED



July 26, 1965

APPENDIX

The following personnel were employed on the survey:

E. B. Nicholls	Chief Geophysicist	March 10, April 20, June 3, July 6 and 7, 1965
R. Pild	Geophysicist	Feb. 6 to May 8, 1965
E. Gabor	Technician/Operator	Feb. 6 to May 8, 1965
J. Gibben)		Feb. 6 to Mar. 12/65
L. Jensen)	Geophysical	Feb. 6 to May 8, 1965
K. Kerslake)	Assistants	Feb. 6 to May 8, 1965
A. Pape)		Mar. 13 to May 8, 1965
P. Tapson	Draughtsman	July 19 - 22, 1965
D. Grant	"	June 14 to 17, July 12 to 16, and July 23, 1965