

673512

Supplemental Report on an  
Induced Polarization Survey

- on the -

Hol Claim Group

Omineca Mining  
Division

- for the -

LUC Syndicate

Work Performed July, 1973

Located: (1). 126 degrees 45' W,  
55 degrees 04' N  
(2). N.T.S. 93 M/Z  
(3). Babine Lake Area

L. A. Kennedy, P. Eng.  
August 13, 1973

TABLE OF CONTENTS

	<u>Page No.</u>
INTRODUCTION.....	I
LOCATION AND ACCESS.....	2
PHYSIOGRAPHY AND VEGETATION.....	5
SCOPE OF THE PRESENT WORK.....	3
GENERAL GEOLOGY.....	4
METHOD AND PROCEDURE.....	5
DISCUSSION OF RESULTS.....	6
RECOMMENDATIONS AND CONCLUSIONS.....	8

Appendix: I. P. Profiles

## INTRODUCTION

A supplementary induced polarization survey was conducted by D. F. Morrison for the LUC Syndicate on the HOL Claim group in the Babine Lake area. This report describes the results of that survey.

A previous induced polarization survey was completed in June, 1973. The initial survey utilized a 200 foot dipole spread and was taken to the fourth separation. The survey covered a total of 32,100 feet in lines 800 feet apart, and from line 6N to line 54N. Good anomalous responses were recorded.

The survey described in this report utilizes both 200 and 100 foot dipole separations. The 100 foot separation was used to further detail the anomalous values on line 28 E recorded during the course of the survey.

Line coverage was extended to the north and fill-in lines have been done between previous existing lines. A total of 16,500 feet of survey was completed.

LOCATION AND ACCESS

The property is located on the Fulton River in the Babine Lake Area of British Columbia. The closest major center is Smithers approximately 40 miles to the west. The approximate location of the claims is 126 degrees 45' west longitude and 55 degrees 04' north latitude.

The claim group is currently inaccessible by road and access was gained by helicopter.

### PHYSIOGRAPHY AND VEGETATION

The Hol claim group is located in an area which consists of steep topographic gradients estimated at up to 30 degrees in the north central portion of the property and low, flat lying relief in the southern portion. Swamps and small streams are prevalent in the south. The Fulton River flows through the south west part of the claim group in a south easterly direction.

Elevations vary from 3700 feet A.S.L. in the northern portion to 2800 A.S.L. in the south.

Vegetation consists of densely wooded Poplar and Conifer stands. Dense underbrush is common to all areas.

Outcrops are scarce except in areas of high relief with approximately 80% covered by overburden. Extensive float and rubble is present in the central portion of the claim group. Talus is present on the sides of the high ground in the northern part of the interest area.

### SCOPE OF THE PRESENT WORK

The work described in this report was undertaken to supplement and detail anomalous responses recorded during a previous survey. The target for exploration is sites of disseminated copper-molybdenum accumulation of the porphyry type.

Induced Polarization is particularly useful for this type of deposit as it can detect the presence of metallic minerals undetectable by other geophysical methods.

### GENERAL GEOLOGY

Porphyrite quartz monzonite is present in the north central portion of the claim group and forms a distinct high ridge in relatively flat terrain. Thermally metamorphosed shales and siltstones form a hornfels observed in contact with the quartz monzonite. It has been observed as outcrop in the Hol claims 5, 6, 7, and 8.

Extensive float and rubble obscures the geology in the south central portion of the group. The rounded float and coarse angular rubble is comprised of quartz monzonite intrusive rocks and hornfelsed sediments in lesser amounts.

Pyrite, Chalcopyrite and molybdenite has been observed in situ as well as in the float and rubble. The observed sulphide mineralization is of a very minor nature and takes the form of fracture coatings.

Magnetite is common to the quartz monzonite intrusive rocks, however, some intrusive samples have exhibited non-magnetic properties. The hornfels is non-magnetic. Graphite and other non-economic minerals has not been observed in any of the rocks examined.

### METHOD AND PROCEDURE

The induced polarization equipment was manufactured by McPhar Geophysics and consisted of a multi frequency P660 unit.

The field procedure employed a dipole-dipole array with dipole separations of both 200 and 100 feet. Measurements were taken to the fourth separation and employed .31 and 5 Hertz as the two frequencies.

Measurements were taken to the fourth separation to yield bedrock physical properties at depth. In areas which contained large amounts of talus, difficulty was encountered in obtaining suitable electrode contact.

Resultant observations were plotted in typical "pseudosection" profile form at a scale of  $I''=200$  feet and in the case of line 28E, at scales of  $I''=200$  feet and  $I''=100$  feet.

DISCUSSION OF RESULTS

Line 28E 30N-50N (2000')

This line was surveyed perpendicular to the other lines. Anomalous responses recorded on the previous survey indicated a zone running parallel to the East-West line orientation.

Line 28E was therefore cut at a North-South orientation to more adequately define the anomaly limits.

The line was originally surveyed using a 200 foot dipole spacing, then repeated over the anomaly with a 100 foot dipole spacing.

The 200 foot dipole survey indicates an anomaly extending from 39N to 46N with the maximum intensity of the anomaly at 44N.

The 100 foot dipole survey indicates an anomalous recording from 46N to 38N with high readings to the end of the line towards 38N. Maximum response is noted from 44N to 46N.

The anomalous zone appears to be at a contact between relatively low electrically resistive rock to the south and highly resistive rock to the north. From the previous I. P. survey, the highly resistive zone would correlate with the Quartz Monzonite intrusive.

The depth of cover above the bedrock basement is deduced to be no greater than 100 feet over the strongest portion of the anomaly.

Line 42N 20E-50 E (3000')

Frequency effect anomalous responses are noted from 40E to the western end of the line. Resistivity values do not directly reflect the frequency effect anomalies. Resistivities vary but indicate a trend towards increased apparent resistivities to the west.

I. P. anomalies incorporating both frequency effect and resistivity are indicated from 26E to 28E, 32E to 34E and from 38E to 40E.

The frequency effects indicate polarizable material underlying much of the anomalous responses recorded at depths in excess of 200'.

Line 46N 46E-55E (900')

Noisy readings that may be anomalously high are recorded from 49E to the westernmost limits of the survey line. Resistivities are uniformly low but with a slight increase to the west.



Line 54N 43E-53E (1000')

A contact zone at 50E would appear to be indicated from the frequency effect results. This is not reflected in the resistivities, which although showing a slight increase to the west, do not show the abrupt change noticeable in the frequency effect measurements. It is considered that the rock type remains the same however, polarizable material increases to the west.

Line 62N 7W-12E, 38E-53E (3,400')

Line 62N is an extension of the I. P. surveying to the north. The survey on the line is made up of two sections. The central portion of the line could not be completed due to topographic limitations.

The western portion of the survey exhibits anomalous effects from 0+00 to the eastern limit of the line.

The highly anomalous metal factor at 8E is caused by one noisy reading on the second separation and should be discounted. The total anomaly however, is one of a good response.

The eastern section of the survey indicates a contact at 44E which is recorded on both apparent resistivity and frequency effect measurements. An I.P. anomaly exists from 44E to 46E.

Line 70N 11W-7E, 39E-53E (3200')

The line is again made up of two sections as in line 62N. In the western sector, anomalous responses are recorded from 4W to 2E. This 600 foot anomaly is indicative of a broad polarizable zone which is close to surface (ie. less than 200 feet) and extending to depths greater than 400 feet.

The eastern portion indicates a weak anomaly extending from 45E to 48E.

Line 78N 11W-8E (1900')

A contact zone is indicated at 3W between a highly resistive rock type to the east and a low resistivity rock type to the west. The high resistivity rock is deduced as Quartz Monzonite. A weakly anomalous zone is present from 5W to 8W.

## RECOMMENDATION AND CONCLUSION

A zone of polarizable minerals exists at what is considered to be the contact zone between the quartz monzonite and the country rock. The results of the two I.P. surveys indicate that the polarizable minerals are continuous throughout the contact zone.

It is recommended that a drill program be initiated as a next step towards the investigation of the interest area. Sufficient information has been obtained from the I.P. survey to warrant this program.

Further investigation by geophysical methods at this point would be redundant, and not necessary. The information gathered during the course of the two I. P. surveys conducted during June and July of 1973 are considered by this writer to be adequate, and encouraging enough to go to a drill program. The good anomalous responses recorded by the I. P. survey coupled with the noticeable lack of graphite and other non-economic mineralization augurs well for this interest area.

The minor sulphide mineralization that has been observed in the field does not, in this writers' opinion, account for the large I.P. anomalies that have been recorded. The anomalous responses are not attributed to the magnetite, but rather to sulphide mineralization in larger amounts than that observed to date.

Adequate testing of the polarizable zone would require a minimum of two drill locations with the possibility of two more.

The following drill locations are submitted for consideration. Two of the locations (Numbers 2 and 3) are at the same locations recommended in the previous report. The third however, was recommended on the basis of incomplete data and has been changed. The locations are listed in decreasing priority.

- (1) 43+75 N -Line 28E to be drilled due north at 60 degrees, estimated footage- 500'
- (2) 46N-II+50E to be drilled east at 60 degrees, estimated footage - 500'. To test the north western contact zone.
- (3) If encouraging results are obtained from the first hole, the zone may be further tested by stepping the drill back to 37=50N Line 28E and drilled north at 60 degrees with an estimated footage of 500'.

(4) 54N-2+50W to be drilled east at 60 degrees, estimated footage - 450'. If encouraging results are obtained in the first two drill holes, this location should be considered, to test the westernmost portion of the deduced dual zone.

RESPECTFULLY SUBMITTED,



*Lance Kennedy*

Lance A. Kennedy, B. Sc., P. Eng.  
(Manitoba)

A P P E N D I X

I. P. P R O F I L E S