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A GEOPHYSICAL REPORT

ON

AN INDUCED POLARIZATION SURVEY

York Claims 1 - 5 Cariboo Mining Division, B.C. (53°, 18'N, 12**7**°, 45'W) N.T.S. 93 G 7

FOR

LAC MINERALS LTD.

Vancouver, British Columbia

BY

PETER E. WALCOTT AND ASSOCIATES LTD.

Vancouver, British Columbia

August 1983

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LOCATION MAP - YORK CLAIMS	
PSEUDO-SECTIONS (I.P.)	

ACCOMPANY	MAPS - S	Scale 1:2500					MAP POCH	EI		
CONTOURS	OF	APPARENT	CHARGEABILITY	a n		50 2	metres	W-325-1	6	2
CONTOURS	OF	APPARENT	RESISTIVITY	a n	=	50 2	metres	W-325-3	&	4

INTRODUCTION.

Between June 19th and July 10th, 1983, Peter E. Walcott & Associates Limited carried out an induced polarization (I.P.) survey for Lac Minerals Ltd. over their property near Hixon, British Columbia.

The survey was carried out over parts of several reconnaissance chain and compass soil sampling lines, parts of which were previously surveyed last December.

A larger non-portable 7.5 kw I.P. system was used instead of the portable 2.0 k.w. system as the low apparent resistivity resulted in weak signals and a few somewhat shaky larger separation chargeability measurements on the previous survey.

Measurements of apparent chargeability - the I.P. response parameter - and resistivity were made along these lines using the dipole-dipole method of surveying. Readings were made with a 50 metre dipole and first to second separation measurements obtained at 50 metre intervals. In addition some first separation 25 metre work was also done.

The data are presented in pseudo-section form on individual profiles bound in the report. In addition contour plans of the second separation measurements are shown on Maps W-325-1 to 4.

- 2 -

PROPERTY, LOCATION & ACCESS.

The property is situated in the Cariboo Mining Division of British Columbia and consists of the following claims:

Claim Name	No. of Units	Record No.
YORK 1	20	3863
YORK 2	18	3864
YORK 3	18	3865
YORK 4	18	3866
YORK 5	20	3867

The claims are located in the Marvin Creek area some 16 kilometres southwest of the settlement of Hixon, British Columbia.

Access is obtained from the Cariboo Highway by 4 x 4 vehicle along the logging road that traverses the area.

PURPOSE.

The purpose of the survey was to extend the previous high chargeability response apparently indicative of sulphide mineralization as indicated by trenchings (see report by P. Walcott, dated January 1983).

PREVIOUS WORK.

Previous work is believed by the writer to have consisted of prospecting, geochemical, magnetic and V.L.F. E.M. surveying, limited induced polarization surveying and trenching. The reader is referred to detailed information held by Lac Minerals Ltd.

GEOLOGY.

The reader is referred to reports and material held by Lac Minerals.

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SURVEY SPECIFICATIONS.

The induced polarization (I.P.) survey was carried out using a pulse type system, the principal components of which are manufactured by Huntec Limited of Metropolitan Toronto, Ontario.

The system consists basically of three units, a receiver, a transmitter, and a motor generator. The transmitter, which provides a maximum of 7.5 kw d.c. to the ground, obtains its power from a 7.5 kw 400 c.p.s. three phase alternator driven by a gasoline engine. The cycling rate of the transmitter is 2 seconds "current-on" and 2 seconds "current-off" with the pulses reversing continuously in polarity. The data recorded in the field consists of careful measurements of the current (I) in amperes flowing through electrodes C1 and C2, the primary voltage (V) appearing between the two potential electrodes, P_1 and P_2 , during the "current-on" part of the cycle, and the apparent chargeability (M_a) presented as a direct readout using a 200 millisecond delay and a 1000 millisecond sample window by the receiver, a digital receiver controlled by a microprocessor.

The apparent resistivity (P_a) in ohm metres is proportional to the ratio of the primary voltage and the measured current, the proportionality factor depending on the geometry of the array used. The chargeability and resistivity are called apparent as they are values which that portion of the earth sampled would have if it were homogeneous. As the earth sampled is usually inhomogeneous the calculated apparent chargeability and resistivity are functions of the actual chargeability and resistivity of the rocks.

The survey was carried out using the "dipole-dipole" electrode array. This electrode configuration and the methods of presenting the results are illustrated in the appendix. Depth penetration with this array is increased or decreased by increasing or decreasing "a" and/or "n".

In practise, the equipment is set up at a particular station of the line to be surveyed: three transmitting dipoles are laid out to the rear, measurements are made for all possible combinations of transmitting and receiving dipoles, the latter consisting of two porous pots filled with an electrolyte copper sulphate solution "a" feet apart, up to the fourth separation, i.e. n = 4, the equipment is then moved 3 "a" feet along the line to the next set-up. - 7 -

SURVEY SPECIFICATIONS cont'd

Here a 50 metre dipole was used on the survey, and first to fourth separation measurements were made at 50 metre intervals. Some limited 25 metre first separation work was also carried out.

In all some 22 kilometres were surveyed by the method.

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DISCUSSION OF RESULTS.

The results should be studied in conjunction with other collected data held by Lac Minerals, in particular the geophysical report by Peter E. Walcott of January 1983 as observations made there will be valid here.

The chargeability results show good agreement with those obtained on the previous survey and again point out the underlying metasedimentary rocks to exhibit a high chargeability background of 30 to 40 milliseconds.

Again lower chargeability readings were encountered over the postulated granodiorite intrusive as expected although the accompanying resistivity values were somewhat lower than normal. This is best illustrated by the east end of Line 30 + 75N.

Three anomalous zones, Zones A,B & C are discernible on the contour plot of the second separation data - Maps W-325-1 & 2.

Zone A, a large complex zone associated with the known mineralization to date, is located mainly in the hownfels unit at or near the intrusive contact. It is undefined in three directions on its eastern extremities. Low resistivity values - indicative of good conductivity - also accompany the higher chargeability values as can be seen from Maps W-325-3 & 4, the contour plots of the resistivity measurements.

Stronger anomalous areas within the zone are best observed on the pseudo-section profiles. Shallow narrower causative sources are indicated by the "pant-leg" pattern i.e. peaks on either side of the causative source on the larger separations.

Zone B is a large complex zone in the middle of the survey area. It encompasses an area underlain primarily by phyllites and • metagreywackes. It is not associated with any large geochemical anomaly, though this latter response could be blocked by the overlying clays. Whether the overlying material here is carbonaceous material in the sediments or pyrite associated with the volcanics will have to be determined by further investigation.

Again individual zones are best illustrated on the pseudosections. Here again lower resistivity values are for the most associated with high chargeability readings although they are not generally as low as those in Zone A.

- 9 -

DISCUSSION OF RESULTS cont'd

Zone C is a narrow weaker anomalous zone in underlying metagreywackes. Its causative source is probably the same as that of Zone B.

A number of resistivity lows can be seen on the contour plan of the second separation results - Maps W-325-3 & 4, the strongest of which are associated with Zone A. The denser line coverage has all but eradicated the axiel pattern of these lows as described previously.

They would appear to be mostly indicative of conductivity associated with polarizable material although they could be partially representative of faulting as suggested by the north south low east of Pet Pond where no higher chargeability readings were observed over the northern portion.

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SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.

Between June 19th and July 10th, 1983, Peter E. Walcott & Associates Limited carried out a continuation of the I.P. survey of December 1982 for Lac Minerals Limited over part of their property, located near Hixon, British Columbia.

The survey located the presence of essentially three zones of high chargeability coincident for the most with lower resistivity, i.e. high conductivity, discernible above the high chargeability background.

The polarizable material in Zone A would appear to be contact metasomatic sulphide mineralization as the zone follows fairly closely the hornfels-intrusive contact, while the origin of that in Zone B and C are unknown at this time.

The writer recommends that further trenching be done to investigate the shallower responses as indicated on the pseudo-sections. Should further encouraging results be obtained then the deeper responses could be investigated by drilling. Again all work should be undertaken with geological control.

Respectfully submitted,

PETER E. WALCOIT & ASSOCIATES LIMITED

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Peter E. Walcott, P.Eng. Geophysicist

Vancouver, British Columbia

August 1983

APPENDIX

COST OF SURVEY.

Peter E. Walcott & Associates Limited undertook the survey on a daily basis. Mobilization and reporting costs were extra so that the total estimated cost of services to date was \$23,464.35.

PERSONNEL EMPLOYED ON SURVEY.

-	Name	Occupation	Address	Dates
-	Peter E. Walcott	Geophysicist	Peter E. Walcott & Assoc. 605 Rutland Court, Coquitlam, B.C. V3J 3T8	4 - 6th Aug., 1983
-	R. Summerfield	Geophysical Operator	"	June 19th - July 10th, 1983
-	G. Mandryk			
-	P. Charlie	Geophysical Helper		н
	P. Dawson			
-	F. Von Flotow		"	
-	R. Rollings	Draughting		Aug. 1st - 7th, 83
	J. Walcott	Typing	"	Aug. 7th, 1983

- iii -

CERTIFICATION.

I, Peter E, Walcott of the Municipality of Coquitlam, British Columbia; hereby certify that:

- I am a Graduate of the University of Toronto in 1962 with a B.A.Sc. in Engineering Physics, Geophysics Option.
- I have been practising my profession for the last twenty one years.
- I am a member of the Association of Professional Engineers of British Columbia and Ontario.
- 4. I hold no interest, direct or indirect in the securities or properties of the York property nor do I expect to receive any.

Peter E.Walcott, P.Eng.

Vancouver, British Columbia

July 1982





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