PETER E. WALCOTT & ASSOC. LTD.

824310

A GEOPHYSICAL REPORT

ON

INDUCED POLARIZATION SURVEYS

Adams Plateau, British Columbia

(51° 03' N, 119° 30' W)

N.T.S. 82 M 3 & 4

FOR

MINEQUEST EXPLORATION ASSOCIATES LTD.

Vancouver, B.C.

BY

PETER E. WALCOTT & ASSOCIATES LIMITED

Vancouver, B.C.

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INTRODUCTION.

At the request of Minequest Exploration Associates Ltd. Peter E. Walcott & Associates Limited carried out induced polarization surveys over two properties, located on the Adams Plateau, British Columbia, between August 7th and 23rd, 1981.

The properties known respectively as the Spar and Mosquito King are held by Orell Resources Ltd.

The surveys were carried out over flagged and in some places cut lines picketed at 20 metre intervals. The lines on the Spar had a bearing of N 45°W while those on the Mosquito King had one of N 30°W.

Measurements (first to fourth separation) of apparent chargeability - the I.P. response parameter - and resistivity were made along the grid lines using a 40 metre dipole. On the Spar the station intervals was 40 metres with additional 20 metre readings in the vicinity of the adit, while on the Mosquito King the first and second separation readings were taken at 20 metre intervals with the third and fourth at 40 metre ones.

The data are presented in contour form on individual "pseudo-sections" of the lines surveyed bound in this report.

PROPERTY, LOCATION AND ACCESS.

The properties are located at the 5000 foot level on the Adams Plateau, British Columbia some 20 kilometres north of Chase.

Access was obtained from the Trans Canada turnoff next to Chase by a 40 minute drive along existing logging roads.

GEOLOGY.

The reader is referred to a report by the staff of Minequest Exploration Associates Ltd. and to reports on work previously done held by them and/or Orell Resources Ltd.

PREVIOUS WORK.

Extensive programmes of geochemistry geophysics, mapping and drilling are known to have been carried out on the properties. The reader is referred to the previously mentioned reports for further detail.

PURPOSE.

The I.P. survey was undertaken as a follow-up to detailed surface mapping done in 1980. Its purpose was to investigate the responses obtained over the known showings in bedding flexures and to trace and locate the occurrence of more of the same.

SURVEY SPECIFICATIONS.

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

The system consists basically of three units; a receiver (Huntec), a transmitter and a motor generator (Phoenix). The transmitter, which provides a maximum of 3.0 kw d.c. to the ground, obtains its power from a 3.0 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 measurement of the current (I) in amperes flowing through electrodes C_1 and C_2, 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.

That over the Mosquito King was carried out using both a Huntec Mk II transmitter, which obtains its power from a 2.5 kw 400 cycle three phase alternator, and the forementioned Phoenix transmitter.

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 "pole-dipole" method of surveying. In this method the current electrode C_1, and the two potential electrodes, P_1 and P_2, are moved in unison along the survey lines. The spacing "na" (N an integer) between C_1 and P_1 is kept constant for each traverse at a distance roughly equal to the depth to be explored by that traverse, while that of P_1 to P_2 (the dipole) is kept constant at "a". The second current electrode C_2 is kept constant at "infinity".

SURVEY SPECIFICATIONS cont'd

Thus usually on a "pole-dipole" array traverse with an electrode spacing of 100 metres a body lying at a depth of 50 metres will produce a strong response, whereas the same body lying at a depth of 100 metres will only just be detected. By running subsequent traverses at different electrode separations, more precise estimates can be made of depth, width, thickness and percentage of sulphides of causative bodies located by the I.P. method.

The surveys were carried out using a 40 metre dipole. First and second separation measurements were obtained at 20 metre intervals whereas the third and fourth were obtained every 40 metres in the case of the Mosquito King coverage, while at the Spar 20 metre readings were only taken in the vicinity of the adit.

DISCUSSION OF RESULTS.

It should be mentioned here that (1) verbal reporting was carried out by the writer at the conclusion of the field work to assist in planning the ensuing drill programme and (2) at the time of writing he had no access to geological maps or sections.

Both the areas surveyed exhibited high chargeability backgrounds as could be expected from the underlying sedimentary rock package, consisting for the most of siliceous phyllites, black carbonaceous phyllites, quartzites, limestone,etc.

The chargeability background over the Spar was more uniform and in the 40 millisecond range while that over the Moquito King varied between the low 20's to the 40's. Values of apparent chargeability of greater than 50 milliseconds were considered anomalous, these being the values observed over the trenches containing known sulphide mineralization.

The background over the Mosquito King was more erratic presumably due to (a) the fact that the lines were nearly twice as long thus covering a greater portion of the section and (b) the rock package could be more variable. However a scrutiny of the results shows that in essence both exhibit the same characteristics.

The Spar.

On compiling a composite map of the pseudo-sections it can be seen that a prominent resistivity high strikes across the grid centred approximately at 0 on L 00 and 1 + 60 S on Line 4 + 40W.

A second resistivity high can be observed on the southern end of the lines.

The resistivity lowobserved between these two highs is very dominant between Lines 00 and 2 + 40 W.

Another dominant resistivity low is observed on the northernmost extremes of the lines between 2 + 80 and 4 + 40 W respectively:

Associated with these lows are chargeability highs.

DISCUSSION OF RESULTS cont'd.

These highs are presumably due to either sulphide mieralization and/or the black carbonaceous phase of the phyllites. (Pyrite was believed by the writer to have been encountered in a hole drilled to test this feature located on a previous survey - hearsay from Orell personnel as no evidence such as drill hole location exists to corroborate the above).

From these results a case can be made for a tightly folded and/or layered structure existing across the area surveyed. Whether or not the two resistivity lows are (1) the same, offset by transverse faulting, and due to conductivity associated with the above mentioned chargeability causative sources, (2) due to a different limb with the same causative source or (3) primarily due to shear/fault zones - both coincide with topographic features - cannot be determined here due to the length of the survey coverage. The situation could be clarified with longer lines and geological data.

In any event no anomalous chargeability response was obtained over the mineralization in the Spar adit. In fact the adit lies halfway between the axes of the central resistivity high and the strong I.P. zone to the south.

Mosquito King.

Here again, although more complex than the Spar, the same resistivity and I.P. type patterns and responses are observed.

On compiling a composite pseudo-section plan several resistivity features can be traced line by line through the grid area.

Again a case can be made for a folded/layered structure.

The resistivity low between 3 + 60 and 4 + 40 N on Line 2 + 40 W broadens to extend between 0 + 20 N and 3 + 00 N on Line 1 + 20 E with a prominent resistivity high observed in the middle of this low between Lines 0 + 40 W and 1 + 60 E.

The southern contact of this resistivity low can be traced through to Line 3 + 20 E at the base line.

DISCUSSION OF RESULTS cont'd

A change of pattern is noticed between this line and the next, Line 3 + 60 E. However it would appear that the contact is shifted some 200 metres north either by folding and/or faulting. It can then possibly be traced through to 1 + 80 N on Line 4 + 80 E.

All the chargeability highs with the exception of a zone seen in a smaller resistivity low on Lines 2 + 00 and 2 + 40 W are located within this resistivity low - it extends at depth on the north end of some lines and is undefined due to the coverage. The extent of the anomalous chargeability zones is greatest where the low is widest, i.e. Line 0 + 00. East of Line 0 + 00 the northernmost zone appears to peter out where the resistivity low no longer extends to depth on the north. An extension of Line 0 + 40 E would have verified both.

Similarily the southernmost zone starting on Line 0 + 40 W peters out on Line 0 + 80 E.

The middle zone of Line 1 + 20 W through Line 0 + 40 W appears to merge with the northernmost zone.

Another small zone can be traced between 1 + 20 E and 2 + 40 E with another anomalous response on Line 3 + 60 E.

Most of these anomalies are of narrow extent and occur only on the shallow spacings or as single dipole responses.

However wider responses are obtained over Lines 0 + 80W, 0 + 40 W and 0 + 00 where a fold nose is suspected. These should be the target of drilling based on the I.P. results.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.

Between August 7th and 23rd, 1981, Peter E. Walcott & Associates Limited carried out induced polarization surveys over the Spar and Mosquito King properties for Minequest Exploration Associates Ltd.

The I.P. survey failed to locate any response associated with the known mineralization on the Spar, but did define three zones of interest associated with postulated flexure and the mapped sulphides in the trenches on the Mosquito King.

Drilling, if any, should be based on a combined study of the geological and geophysical data, but should be limited, in the writer's opinion, to the area around Lines 0 + 80 W, 0 + 40 W and 0 + 00 on the Mosquito King.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED

Peter E. Walcott, P.Eng.,
Geophysicist

Vancouver,
British Columbia

January 1982

APPENDIX

COST OF SURVEY.

Peter E. Walcott undertook the surveys on a daily basis. Mobilization, board, draughting and reporting costs were extra so that the total cost of services provided was $23,252.62.

PERSONNEL EMPLOYED ON SURVEY.

Name	Occupation	Address	Dates
Peter E. Walcott	Geophysicist	Peter E. Walcott & Assoc. 605 Rutland Court, Coquitlam, B.C. V3J 3T8	Aug. 7th, 10th - 17th, 22, 23 & 25th, 1981 Jan. 17th - 22nd, 1982
T. Kirby	Geophysical Operator	"	Aug. 9 - 16, 81
R. Summerfield	"	"	Aug. 10 - 23, 81
D. Greaves	"	"	Aug. 7 - 17th, 81
G. Zutz	"	"	Aug. 7 - 23rd, 81
J. Charlie	Helper	"	Aug. 7 - 17th, 81
D. Dawson	"	"	Aug. 9 - 23rd, 81
P. Charlie	"	"	Aug. 10 - 23rd, 81
B. Nielsen	"	"	Aug. 10 - 23rd, 81
J. Monkley	"	"	Aug. 10 - 23rd, 81
G. MacMillan	Draughting	"	Jan 10th - 16th,
J. Walcott	Typing	"	Jan 28th, 1982

CERTIFICATION.

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

1. I am a Graduate of the University of Toronto with a B.A.Sc in Engineering Physics, Geophysics Option, in 1962.

2. I have been practising my profession for the last 19 years.

3. 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 Spar and Mosquito King properties nor do I expect to receive any.

Peter E. Walcott, P.Eng.

Vancouver,
British Columbia

January 1982

I.P. Pseudo Sections
Spar & Mosquito King Grids

Anomalous Zone.

Possible Anomalous Zone

Zone undefined at ends.