## INDUCED POLARIZATION SURVEYING

O.K. Property, Powell River Area, B.C.
$50002^{\prime} \mathrm{N}, 124039^{\prime} \mathrm{W}$
N.T.S. 92 F/15 \& K/2

Claims surveyed: OK C

Survey Dates: June 12th - 17th, 1995

Operator: CANQUEST RESOURCE CORPORATION

Owners: $\quad \begin{aligned} & \text { Mary V, Boylan } \\ & \text { Robert E. Mickle }\end{aligned}$

BY

PETER E. WALCOTT \& ASSOCIATES LIMITED


Vancouver, British Columbia

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SELF POTENTIAL GRADIENTSW-534-1

## INTBODUCTION.

Between June 12th and 17th, 1995, Peter E. Walcott \& Associates Limited undertook limited induced polarization (I.P.) surveying over a part of the O. K. property, located in the Powell River area of British Columbia, at the request of Canquest Resource Corporation.

The surveying was carried out over seven short N 600 E flagged compass lines established by the geophysical personnel from a N 300 W flagged baseline.

Measurements (first to fourth separation) of apparent chargeability (the I.P..response parameter) and resistivity were made every 25 metres along the lines using the pole-dipole method of surveying with a 25 metre dipole.

The I.P. data are presented in contour form on individual pseudo-sections bound.in this report. In addition at Canquest's request the self potential gradient is presented in profile form on a plan map of the line grid - Map W-534-1.

The progress of the line establishment and the I.P. surveying was severely hampered by the new undergrowth and young trees in the old clearcut area, by inclement weather, and by forestry access road culvert and bridge emplacement.

## PROPERTY, LOCATION \& ACCESS.

The property is located in the Vancouver Mining Division of British Columbia and consists of the following claims:

| Claim Name | Tenure \# | No. of Units |  |
| :--- | :---: | :---: | :---: |
|  |  |  |  |
| OK A | 258171 | 20 |  |
| OK B | 258172 | 20 |  |
| OK C | 258173 | 20 | June 17th |
| OK D | 258174 | 18 | June 17th |
| OK E | 258175 | 10 | June 17th |
| OK F | 258176 | 15 | June 17th |
| OK G | 258177 | 20 | June 17th |
| OK H | 321056 | 20 | June 17th |
|  |  |  | June 17th |
|  |  |  | Sept. 24th |

The claims are situated on an upland plateau bounded on the east by the Bunster Hills, on the west by the Okeover Inlet, and on the north by the Theodosia Inlet, some 25 kilometres northwest of the municipality of Powell River.

Access was obtained from Powell River by some 30 kilometres of highway and logging roads.

## PREVIOUS WORK.

Previous work on the property consisted of geological mapping and prospecting, trenching, soil sampling, limited induced polarization surveying and diamond drilling mainly from 1965 to 1983.

The results of the above are well summarized in a report by N . C. Carter Phd. P.Eng, dated July 1994.

## GEOLOGY.

The reader is referred to reports held by Canquest and in particular to the forementioned report by N.C. Carter.

Basically Coast Plutonic granitic rocks have been intruded by the mid-Tertiary or younger O.K. intrusive, a multiphase elliptical complex some 3.6 by 2.3 kilometres in size with its major axis in a northerly direction.

Mineralization on the property consists of pywite, chalcopyrite and molybdenite with lesser bornite, spalerite and magnetite. The sulphide mineralization occurs mainly in a stockwork of quartz veinlets with a predominant east to northeasterly trend. Several intermineral intrusive breccias have been noted on the property. The south breccia zone has suggested higher copper values with chalcopyrite, bornite, pyrite and lesser molybdenite occurring interstitially between breccia fragments.

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## PURPOSE.

The purpose of the survey was to (a) complete sufficient work to meet assessment requirements and (b) to see if the south breccia zone as described could be outlined by a possible higher chargeability signature.

## SURVEY SPECIFICATIONS.

The induced polarization (I.P.) survey was conducted using a pulse type system, the principal components of which are manufactured by Huntec Limited of Metropolitan Toronto, Ontario, and BRGM Instruments of Orleans, France.

The system consists basically of three units, a receiver (BRGM), a transmitter and a motor generator (Huntec). The transmitter, which provided a maximum of 2.5 kw d.c. to the ground, obtains its power from a $2.5 \mathrm{kw} 400 \mathrm{c} . \mathrm{p} . \mathrm{s}$. 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 the current electrodes $C_{1}$ and $C_{2}$, the primary voltages (V) appearing between any two potential electrodes, $P_{1}$ through $P_{7}$, during the "current-on" part of the cycle, and the apparent chargeability, $\left(M_{a}\right)$ presented as a direct readout in millivolts per volt using a 100 millisecond delay and a 1000 millisecond sample window by the receiver, a digital receiver controlled by a micro-processor - the sample window is actually the total of ten individual windows of 100 millisecond widths.

The apparent resistivity ( $\rho_{a}$ ) 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 wich that portion of the earth sampled would have if it ware 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 potential electrodes, $P_{1}$ through $P_{7}$, are moved in unison along the survey lines at a spacing of "a" (the dipole) apart, while the second current electrode, $\mathrm{C}_{3}$, is kept constant at "infinity". The distance, "na" between $\mathrm{C}_{1}$ and the nearest potential electrode generally controls the the depth to be explored by the particular separation, "n", traverse.

On this survey a 25 metre dipole was employed and first to fourth separation readings were obtained.

In all some 5.2 kilometres of line were established, and some 4.2 kilometres of surveying carried out with the formentioned method.

## DISCUSSION OF RESULTS.

The results should be studied in conjunction with the forementioned report by N.C. Carter and that of the results of the I.P. survey carried out by Aquarius Resources in 1982.

Considerable time was spent initially trying to locate the baseline and existing lines from the old grid but as previously discussed proved fruitless due to dense recent undergrowth. However Line 0 approximately follows the route of Line 22 N with the lake on Line 24 N ( 1982 grid from Carter) situated between 150 and 250 $E$ on Line 60 N .

The results show all the lines to exhibit moderate to high chargeability across their entirety as expected with somewhat reduced values at their extremities probably reflecting the width of sulphide mineralization occurrence in the area surveyed.

Although the writer does not know the delay or the integration times of the Aquarius survey the values of apparent chargeability obtained here compare closely with the presumably $a=500$ feet $n=1$ contour plan of the 1982 survey.

Within this broad anomalous area there are two zones of higher chargeability response - values of $30^{\prime}$ 's and 40's as compared to 20's. These are marked on the respective pseudosections and are clearly discernible on the profilies of the ten point filter plot. It should be mentioned here that the writer has not shown the whole area anomalous on the interpretation legend but the outline of the sulphide mineralization should be defined by values above 15 millivolts/volt on the filier profiles.

These two zones would appear to represent zones of higher sulphide content.

The more easterly of these would appear to occur on the eastern edge of the mapped south breccia zone where elevated copper values in the rocks were returned from trenching results and could reflect an extension of the same.

The resistivity survey showed the grid area to exhibit high resistivity values suggesting a thin overburden veneer and little conductive alteration.

The plot of the self potential gradient - Map W-534-1 - (Scale 1 $\mathrm{cm}=50 \mathrm{mV} / 25 \mathrm{~ms}$ ) showed great variation across the area surveyed and numerous high negative potentials - high negative to high positive measurements flanking a

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zero gradient. However due to the variations in repeatability it is recommended that a direct measurement of the potentials be carried out if these are desired.

## SUMAMARY, CONCLUSIONS \& RECOMAMENDATIONS.

Between June 12th and 17th, 1995, Peter E. Walcott \& Associates Limited carried out a small line establishment and induced polarization surveying programme for Canquest Resource Corporation on the O.K. property, located in the Powell River area of British Columbia.

The survey carried out with a small dipole was conducted to meet assessment requirements but was designed to investigate the I.P. signature of the south breccia zone where elevated copper values had been noted with an eye to outlining a zone of higher sulphide concentration.

The results as expected did outline the sulphide system in the area, but also showed the existence of two zones of higher chargeability within tha main anomalous area.

The more easterly of these adjoins the trenched breccia zone and could be an expression of an extension of the same and/or another similar occurrence.

As a result the writer recommends that the results be further studied in conjunction with the known geology, and that the zones be investigated by trenching as to their causative sources.

Respectfully submitted,
PETER E. WALCOTTT \& ASSOCIATES LIMITED


Peter E. Walcott, P. Eng. Geophysicist

Vancouver, B.C.
September 1995

APPENDIX


## COST OF SURVEY.

Peter E. Walcott \& Associates Limited undertook the survey on a contract basis. The total cost of services provided was as follows:
1.

Line establishment 5.2 kms at $\$ 940.00$ per km
\$4,880.00
2.
I.P. survey 4.2 kms at $\$ 1,760$ per km
$\$ 7,392.00$
Total cost (exclusive of GST)
\$12,280.00


| Name | Occupation |  | Address | Dates |
| :---: | :---: | :---: | :---: | :---: |
| Peter E. Walcott | Geophysicist | Peter E. Walcott \& Assoc.Ltd. June 15-17  <br> 605 Rutland Court July 24, Sept. 14 <br> Coquitlam, B.C. 1995 |  |  |
| L. Leamont | Geophysical Operator | " | " | $\text { June }_{n} 12-17,1995$ |
| R. Grummish | " | " | " | " |
| R. Nuisker | Geophysical Helper | " | " | " |
| R. Tilley | " | " | " | " |
| J. Walcott | Typing | " | " | Sept. 14th, 1995 |

CERTIFICATION.

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

1. I am a graduate of the University of Toronto in 1962 with a B.A.Sc in Engineering Physics, Geophysics Option.
2. 

I have been practising my profession for the last thirty three years.
3. I am a member of the Association of Professional Engineers of British Columbia and Ontario.


Peter E. Walcott, P. Eng.

Vancouver B.C.



RESISTMTY
ohm-metres


INTERPRETATION

CHARGEABILITY mallivolts/volt

Line 180 S

trument: Huntec 2.5 kw . Tx. , Iris IP 6 Rx. Operators: R.

Logarithmic $1,1.5,2,3,5,7,5,10$
Contours
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polverizition with or without morked polanzation witho with
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Fairy well defined weak increase
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METAL FACTOR
ch/res \& 1000

CANQUEST RESOURCE CORPORATION
INDUCED POLARIZATION SURVEY POWEL RNER AREA, BRITSH COLUMBA Date: JUNE $1995{ }_{\text {Interpretation: }}$ N.E.W.S. $92 \mathrm{~F} / 15$ \& K/2 . WALCOTT \& ASSOC. LID.



RESISTMTY ohm-metres


INTERPRETATION

CHARGEABITIT millvolts/volt


METAL FACTOR
cn/res $\times 1000$

Pole-Dipole Array
$\qquad$ Filter

nstrument: Huntec 2.5 kw . Tx., Iris IP 6 Rx Frequency:

Cen.
Logarithmic $1,1.5,2,3,5,7.5,10$
Contours
INTERPPETATION
NTERPRETATION

CHARGEABILTT mill olts out
ial factor
h./res $\times 1000$

Well defined, strong increase in
polarization with or without marked decrease in resistivity.
Faint well defined moderate mrrease
Fairy well defined wear increase
Resisifivity feoture.

Scale 1:2500





RESISTMT
orm-metres


INTERPRETATION

CHARGEABIUTY milluolts,'volt


nstrument: Huntec 2.5 kw . Tx., Iris IP 6 Rx Frequency: 2.5 kw . $\mathrm{Ix}_{\mathrm{I}}$

Logarithmic $1,1.5,2,3,5,7.5,10$ ontours

NIERPRETATIO:
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in podoriztion.

Foiry, well defined weak increase
Resistinity fecture.


CANQUEST RESOURCE CORPORATION INDUCED POLARIZATION SURVEY POWEL RMER AREA, BRTISH COLUMBAA Date: JUNE 1995 Interpretation: P.E.S.:. 92 F/15 \& K/2

RESISTMTY ohm-metres
interpretation

CHARGEABILITY
mullinots/Voit

METAL FACTOR
ch/res $\times 1000$

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n=3 \\
n=4
\end{array}
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\begin{aligned}
& \begin{array}{l}
\mathrm{n}=3 \\
\mathrm{n}=4
\end{array}
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$\qquad$

Line 180 N


Instrument: Huntec 2.5 kw . Tx. , Iris IP 6 Rx Frequency: 0.125 Hz Operators: R.L., R.G., P.E.W

Logarithmic $1,1.5,2,3,5,7.5,10$ Contours

INIERPRETATION
InTERPRETATION

CHARGEABiLITY milifuctis/volt

METAL FACTOR
ch/res $\times 1000$

Well defiried, strong increase in
polbriztion with or without marked decrease in resistivity.
Foirly well defined mederate incrense
Foiny weil defined weak increase
Resistinity festure.

Scale 1:2500


CANQUEST RESOURCE CORPORATION INDUCED POLARIZATION SURVEY POWELI RMER AREA, BRIISH COLUMBA
Date: JUNE 1995 N.T.S.: $92 \mathrm{~F} / 15 \& \mathrm{~K} / 2$


