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#### A GEOPHYSICAL REPORT

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<u>ON</u>

#### AN INDUCED POLARIZATION SURVEY

Taseko Lake Area, B.C. 51° 31' N, 123° 38' W N.T.S. 92 O/12

Boot 1 & 2, JRG 1 & 2 Claims surveyed: **U 2** Sept. 13th - Oct. 12th, 1992 Survey Dates: ZO **A A** SULTAN MINERALS INC. Owner: 2 🖾 Vancouver, B.C. 88 VALERIE GOLD RESOURCES LTD Vancouver, B.C. イス **ပ မ** VALERIE GOLD RESOURCES LTD S S Vancouver, B.C.  $\circ$ ල ල ΒY  $(\mathbf{x}, \mathbf{v})$ 

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**Operator:** 



PETER E. WALCOTT & ASSOCIATES LIMITED

Vancouver, B.C.

**FEBRUARY 1993** 

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#### INTRODUCTION.

Between September 13th and October 12th, 1992, Peter E. Walcott & Associates Limited undertook a reconnaissance induced polarization survey over part of the Cone Hill property, located in the Taseko Lake area of British Columbia, for Valerie Gold Resources Ltd.

The property is centred around the northern end of the granitic intrusive that hosts the Fish Lake deposit of Taseko Mines Limited five kilometres to the south where advanced stage definition drilling has reportedly confirmed preliminary reserves of 1.2 billion tonnes of 0.52% copper equivalent - 0.23% and 0.012 ounces of gold per tonne.

The survey was carried out over eleven east-west handcut lines established by the geophysical crew at 400 metre intervals from a hand-cut northsouth base line. The original idea of using flagged "chain and compass" lines had to be abandoned due to the fact that most of the proposed grid covered an old burn with thick second growth.

Measurements (first to fourth separation) of apparent chargeability and resistivity were made every 50 metres along the lines using the pole-dipole method of surveying with a 50 metre dipole.

The progress of the survey was severely hampered by the abundance of windfall, the dense spacing of the second growth, the topography and the poor accessability. Linecutting, in fact, accounted for more than sixty percent of the survey time.

The I.P. data are presented in contour form on individual pseudosections bound in the report. In addition the third separation chargeability and resistivity readings are shown on plan maps of the line grid - Maps W-497-7 & 8 - that accompany this report.

#### PROPERTY, LOCATION & ACCESS.

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

Claim Name	Record No.	No. of Units	<u>Anniversary</u>
BOOT 1	209404	20	May 5th
BOOT 2	209405	20	May 6th
JRG 1	311541	20	July 22nd
JRG 2	311542	20	July 23rd
JRG 3 - 7	311543-47	1	July 23rd

The claims are situated on the western extreme of the Chilcotin Plateau on and around Cone Hill, some 130 kilometres southwest of the city of Williams Lake, British Columbia.

Access was obtained from Williams Lake by paved highway (90 kilometres) to the settlement of Hanceville, then by good all weather gravel road - Taseko Lake - Nemaiah Valley road - for some 70 kilometres to the Davidson Bridge, where the exploration camp was pitched, and thence south along the east side of the river on the Fish Lake access road - grid east of this road.



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#### PURPOSE.

The purpose of this survey was to (a) test the potential of the property to host porphyry style copper mineralization such as at Fish Lake some 5 kilometres to the south, and (b) investigate the possible cause(s) of the scattered anomalous gold values extending over a 21/2 kilometre length on the west side of the property as found previously by Brinco and Placer Dome.



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#### PREVIOUS WORK.

Previous work on the property has consisted of airborne magnetic and VLF electromagnetic surveying, prospecting and geological mapping, and reconnaissance geochemical surveying.

For further detail the reader is referred to reports written by the staff of Brinco and Placer Dome.

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#### GEOLOGY.

The reader is referred to the many published and unpublished reports on the Fish Lake deposit, the previously mentioned reports of Brinco and Placer Dome, and to the 1992 engineering report on the property by A.G. Troup of Archean Engineering Ltd.

Generally the area is underlain by a northwesterly trending Cretaceous volcanic and associated clastic sequence intruded by prophyries and diorites of probable Tertiary age. In some places flat-lying younger Tertiary mafic volcanic flows and tuffs cover the earlier sequences.

Mapping by Tipper (1978) shows the northern extent of the pluton that hosts the Fish Lake deposit to underlie the southern central portion of the property, with conglomerates and siltstones of the Kingsvale Group to the west. Heavier outcrop over the property is minimal, probably in the order of one percent.

Mineralization found on the property to date has been limited to minor pyrite in local alteration in the intrusive.

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 2.5kw d.c. to the ground, obtains its power from a 2.5 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 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, (M<sub>a</sub>) presented as a direct readout in millivolts per volt using a 200 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  $(f_a)$  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 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 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,  $C_2$ , is kept constant at "infinity". The distance, "na" between  $C_1$  and the nearest potential electrode generally controls the the depth to be explored by the particular separation, "n", traverse.

On this survey a 50 metre dipole was employed and first to fourth separation readings were obtained.

In all some 30.0 kilometres of line were established, and some 26.3 kilometres of I.P. traversing were completed using the above method.

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#### DISCUSSION OF RESULTS.

The I.P. survey conducted on the property and surrounding areas show these to exhibit a low chargeability background - 3 to 7 millivolts/volt similar to those on the 1980's surveys by Cominco over the Fish Lake property.

This background is clearly discernible on the western extremities of all the lines, on the eastern extremities of all lines north of Line 100S and Line 1500S, and on the complete coverage of Lines 300N to 1100N, as can be seen on the respective pseudosections and on Map W-497-7 - extension of Line 1500S not shown --, the contour plan of the third separation data.

Above this a complex area of high chargeability, some 2 kilometres by 2 kilometres and undefined to the south and the east, can be seen striking northwards across the southern and central portions of the grid as outlined by the 10 millivolts/volt contour on Map W-497-7.

Within this zone two areas exhibiting chargeabilities greater than 20 millivolts/volt form a suggestive halo around a central core with chargeabilities in high teens, a pattern not unlike that seen over the Fish Lake deposit, where the disseminated sulphide content of the rocks appears reflected in the chargeability strength.

The westerly higher chargeability area in the above is fairly coincidental with an extensive gold soil anomaly as outlined by the 10 p.p.b. contour.

The resistivity survey results - Map W-497-8 - mostly reflected the topography with higher values over outcrop and suboutcrop, although they showed in general the sediments to exhibit lower resistivities than the intrusive and/or basalts.



#### SUMMARY, CONCLUSIONS & RECOMMENDATIONS.

Between September 13th and October 12th, 1992, Peter E. Walcott & Associates Limited carried out a linecutting and reconnaissance induced polarization surveying programme on a property, located some five kilometres north of the Fish Lake deposit in the Taseko Lake area of British Columbia, for Valerie Gold Resources Ltd.

The eleven traverses conducted to date revealed a large moderately high chargeability zone, undefined to the south and to the east, underlying the southern part of the property, believed by the writer to be the signature of a sulphide system similar to the one hosting the Fish Lake deposit.

As a result he recommends that further work be carried out on the property to better investigate this potential sulphide system. To this end he suggests that the following programme be implemented:

- (1) Establish fill in lines every 200 metres from 100S to 2500S, and extend these and the previous grid lines to 4800E.
- (2) Complete the I.P. coverage on these lines.
- (3) Conduct geochemical surveying on this grid with systematic geological mapping.
- (4) Diamond drill test the targets resolved by the first three.

As the eastern part of the grid is not readily accessable from the present road on the west side of the grid, consideration should be given to extending the fire break/Pioneer Metals access road from the south up the eastern side of Cone Hill for access instead of reliance on helicopter transportation.

Respectfully submitted,

PETER E. WALCOTT & ASSOCIATES LIMITED

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Peter E. Walcott, P.Eng. Geophysicist

Vancouver, B.C. February 1993



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# APPENDIX

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#### COST OF SURVEY.

Peter E. Walcott & Associates Limited undertook the survey on a contract basis for a total cost of \$83,983.10 (GST included) broken as follows:

1.	Mobilization - fixed price (organize, pack, set up cam and remove)	\$8,560.00
2.	Linecutting 30.5 kms at \$1,200.00 per km	\$38,584.20
3.	I.P. survey 26.4 kms at \$1,180.00 per km	\$33,260.95
4.	Reporting including map presentation	\$3,577.95
		\$83,983.10

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### PERSONNEL EMPLOYED ON SURVEY.

Occupation	Address	Dates
Geophysicist	Peter E. Walcott & Assoc. 605 Rutland Court, Coquitlam, B.C. V3J 3T8	Oct. 13 - 17, Nov. 20 - 22, Jan. 17 -19, Feb. 20, 1993
Geophysical Operator	**	Sept. 14 - Oct. 12 1992
"	**	Sept. 13 - 23, Oct. 1 - 12, 1992
"	**	Sept. 13, 14, 21 - Oct. 12, 1992
et	11	Ħ
*1	Ħ	Sept. 13 - Oct. 12, 1992
**	11	Sept. 13, Oct. 11, Nov. 20 - 24, 1992 Jan. 20, 1993
Geophysical Helper	**	Sept. 13, 14, 16 - Oct. 12, 1992
17	11	Sept. 13 - 25, 1992
11	"	Sept. 27 - Oct. 12, 92
11	**	Sept. 14 - 23, 1992
Typing	11	Feb. 27, 1993
	Occupation Geophysicist Geophysical Operator " " " " " " " Geophysical Helper " " " " " " "	OccupationAddressGeophysicistPeter E. Walcott & Assoc. 605 Rutland Court, Coquitlam, B.C. V3J 3T8Geophysical Operator"""Typing"



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#### 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 years.
- 3. I am member of the Association of Professional Engineers of British Columbia and Ontario.

Peter E. Walcott, P.Eng.

Vancouver, B.C. February 1993



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**\_\_\_\_300** E \_\_\_400 E \_\_\_\_500 E **\_\_\_\_600** E \_\_\_\_700 E \_\_\_\_800 E **\_\_\_\_900** E Γ. ſ\_\_\_\_ ۲----100 700 \_\_\_1000 E 300  $\geq$  $\mathbb{Z}$  $\geq$ \_\_\_\_1100 E \_\_\_1200 E +1.5 +2.3 -2.8 \_\_\_1300 E **1.2** -2.1 +2.3 -1.5 +2.4 +1.9 \_\_\_\_1400 E -2.8 +2.2 +1.5 +1.5 +3.4 2.5 \_\_\_1500 E +1.5 +2.4 +2.4 +1.0 -1.6 +2.4 \_\_\_1600 E +5.9 +1.4 +2.2 +9.4 +1.9 +2.5 \_\_\_1700 E 2.0 +5.4 +2.2 +0.9 -1.9 +1.3 \_\_\_\_1800 E -1.6 +1.5 +1.3 **1**1.1 +3.0 -1.0 \_\_\_1900 E +5.O +1.8 +1.3 -2.0 +4.77 +1.4 \_\_\_\_2000 E +5.3 -3.2 +1.2 - 3.6 +5.9 +2.8 \_\_\_\_2100 E Pole-Dipole Array 7.3 +3.0 +4.1 na +3.0 ⊢\_\_\_<u>a</u> +7.4 +3.2 \_\_\_\_2200 E -6.1 2.2 +1.9 ----())---(1)-3.6 +5.5 -2.3 \_\_\_\_2300 E +3.7 +4.3 +2.5 +2.4 -7.2 +3.7 \_\_\_\_2400 E +9.0 +1.8 +2.9 plot point +9.0 +1.8 +2.4 \_\_\_\_2500 E 4.2 + 3.6 +1.9 GEOLOGICAL BRANCH +7.4 -5.1 +2.5 \_\_\_\_2600 E ASSESSMENT REPORT -1.9 +2.5 -5.9 +5.86 +0.9 +1.7 \_\_\_\_2700 E +5.5 +1.5 +1.3 -6.9 +2.2 +1.5 \_\_\_\_2800 E +7.7 +2.6 -5.5 -2.6 -1.8 \_\_\_\_2900 E -3.7 +2.0 +2.1 analiana American Baconnel / Kunthamerican +2.7 +1.6 +1.6 \_\_\_\_3000 E Ŧ1.8 +2.77 +1.2 100 200 100 + 1.18 +1.3 +2.2 \_\_\_\_3100 E (metres) ٢----[ \_\_\_\_\_ Γ-----\_\_\_\_3300 E 700 300 VALERIE GOLD RESOURCES LTD. \_\_\_\_3400 E POLE-DIPOLE ARRAY INDUCED POLARIZATION SURVEY CONTOURS OF APPARENT CHARGEABILITY e = 50 ms., n = 3  $\mathbb{Z}$  $\mathbb{Z}$ 2 BOOT & CONE HILL CLAIMS TASEKO LAKE AREA, BRITISH COLUMBIA OCTOBER 1992 N.T.S: 92 0/12 Map No. W-497-7 PETER E. WALCOTT & ASSOC. LTD.



\_\_\_300 E \_\_\_400 E \_\_\_.500 E \_\_\_600 E \_\_700 E \_\_\_.BOD E \_\_\_900 E \_\_\_1000 E \_\_1100 E \_\_\_1200 E \_\_\_1300 E \_\_\_1400 E \_\_\_1500 E \_\_\_1600 E \_\_\_1700 E \_\_\_1800 E \_\_\_1900 E \_\_\_2000 E \_\_\_\_2100 E \_\_\_\_2200 E \_\_\_\_2300 E \_\_\_2400 E \_\_\_\_2500 E \_\_\_\_2600 E \_\_\_\_2700 E \_\_\_\_2800 E \_\_\_\_2900 E \_\_\_.3000 E \_\_\_3100 E \_\_\_\_3200 E \_\_\_\_3300 E

\_\_\_.3400 E

# plot point GEOLOGICAL BRANCH ASSESSMENT REPORT annast / (metres) VALERIE GOLD RESOURCES LTD. POLE-DIPOLE ARRAY INDUCED POLARIZATION SURVEY CONTOURS OF APPARENT RESISTIVITY a = 50 ms., n = 3

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BOOT & CONE HILL CLAIMS TASEKO LAKE AREA, BRITISH COLUMBIA OCTOBER 1992

N.T.S: 92 0/12 Map No. W-497-8 PETER E. WALCOTT & ASSOC. LTD.

