PETER E. WALCOTT & ASSOCIATES LTD

Geophysical Services

FICEIVED<u>GEOPHYSICAL REPORT</u>

MAY 3 0 2002 Gold Commissioner's Office VANCOUVER, B.C.

<u>ON</u>

INDUCED POLARIZATION SURVEYING

Kena Property Nelson M.D., B.C. 49° 26'N, 117° 16'W N.T.S. 82F/6W

Claims Surveyed: EP, PY, Cat 1,2,3,5,6,7,8,9,10, 13,14,37. Gold Mtn. Gold Mtn No. 2., Shaft W1, Shaft W2, Star 1, Mae 1.

Survey Dates: November 4th - December 7th, 2001

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Owner/Operator : SULTAN MINERALS INC.

Vancouver, British Columbia

By

MAY 2002

PETER E. WALCOTT & ASSOCIATES HEATERURVEY BRANCH Vancouver, British Columbia

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LP. PSEUDOSECTIONS LINES 1800N, 1900N, 2000N, 2100N, 2200N, 2400N, 2600N, 2800N, 3000N, & 5300N, 1:2000

SMOOTH INVERSION MODELING LINES 0, 100N, 200N, 300N, 500N, 1600N, 1800N, 2000N, 2100N, 4800N, 4900N, 5000N, 5100N, 5200N, 5300N, 5400N, 5500N, 5600N WITH APPARENT CHARGEABILITY AND RESISTIVITY - 1:2000

PETER E. WALCOTT & ASSOCIATES LIMITED

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CONTOURS OF n = 1 Resistivity 1:5000	FIGURE 5
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SMOOTH INVERSION MODEL Kena GRID	

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INTRODUCTION.

In the Fall of 2001, Peter E. Walcott & Associates Limited undertook an induced polarization (IP) survey over part of the Kena Property, located some 6 kilometres south of Nelson, BC, for Sultan Minerals Inc.

The survey was a continuation of the 2000 work, and consisted of IP traversing on 14 $N60^{0}$ E bearing lines of the Gold Mountain grid, and on 9 N 40⁰ E bearing lines of the Kena grid.

Measurements -first to sixth separation -of apparent chargeability -- the IP response parameter- and resistivity were made along the grid lines using the pole-dipole technique with a 25 metre dipole.

The data was merged with the previous years' data and presented in various formats as described in later sections of this report.

PROPERTY, LOCATION & ACCESS

The consolidated property, now known as the Kena property, an amalgamation of the separately owned Kena and Shaft Properties, is located in the Nelson Mining Division of British Columbia. The claims that constitute the property are located in Appendix IV.

It is situated at higher elevations some 6 kilometres to the south and overlooking the town of Nelson, British Columbia.

Access is obtained by means of two and four wheel drive vehicle on logging roads that run through the property.

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GEOLOGY.

The property is predominantly underlain by volcanic rocks (andesite tuffs and flows) of the Elise Formation -Rossland Group. These are overlain in the southwest in the vicinity of Noman Creek by argillites and carbonaceous siltstones of the Hall Group, and are intruded by the Silver King Porphyry Stock – see Map W525-1 of the 2000 report.

A small dioritic sill – the possible cause of the elevated total field readings on the helicopter borne magnetic survey – strikes northwesterly through a good portion of the north half of the property just east of the volcanic-intrusive contact – not seen of above regional map.

Numerous mineral occurrences are found on the property. These can be collectively grouped into five mineralized zones known as the Kena Gold Zone, Kena Copper Zone, Shaft and Cat Zones, Gold Mountain Zone and South Gold Zone.

These zones have been subject of varying amount of work by previous operators with the Kena Gold Zone receiving the bulk of attention.

The style of mineralization found include gold in silicified and pyritized crackle-breccia volcanics, chalcopyrite, pyrite and magnetite as disseminations and fracture filling in northwest shear zones, gold bearing sulphide mineralization in porphyry rocks, etc.

For further description the reader is referred to reports held by Sultan Minerals Inc.

PREVIOUS WORK.

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Exploration work on the property dates back to the late 1880's. However the writer has little knowledge of previous work until the early 1980's when Lacona Mining Corporation and South Pacific Gold Corp. carried out airborne electromagnetic and magnetic surveying, soil sampling, geological mapping and diamond drilling.

Work continued into 1991 when Noramco Mining Corporation let their option lapse after completing ground geophysics including induced polarization surveying and diamond drilling.

For further details the reader is referred to the aforementioned reports held by Sultan Minerals Inc.

In 2000 Sultan Minerals conducted an exploration programme consisting of soil sampling, trenching and induced polarization surveying.

PURPOSE.

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The purpose of the I.P. survey was to ascertain the I.P. response of the gold bearing sulphide mineralization in the Silver King Porphyry and to use this response in an effort to outline this mineralization and other similar occurrences.

SURVEY SPECIFICATIONS.

Induced Polarization Survey.

The induced polarization (I.P.) survey was conducted using a pulse type system, the principal components of which are manufactured by Iris Instruments of Orleans, France.

The system consists basically of three units, a receiver (Iris), transmitter and a motor generator (Iris). The transmitter, which provides a maximum of 4.0 kw d.c. to the ground, obtains its power from a 4 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_a) presented as a direct readout in millivolts per volt using a 120 millisecond delay and a 900 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 90 millisecond widths.

The apparent resistivity (\int_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 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 depth to be explored by the particular separation, "n", traverse.

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

SURVEY SPECIFICTIONS cont'd

Data Presentation.

The LP. data are presented as individual pseudo-section plots of apparent chargeability and resistivity at a scale of 1:2000.

Contour plans were made of the first and third separation measurements of apparent chargeability and resistivity at 1:5000. Data from the previous LP. surveying were incorporated into these plots.

Two-dimensional smooth model inversion of the resistivity and chargeability data was carried out using the Zonge Smooth Model Algorithm. This algorithm uses a 2-D finite element method and incorporates topography in modeling resistivity and LP, data. Nearly uniform starting models are generated by running broad moving-average filters over the respective lines of data. Model resistivity and chargeability properties are then adjusted iteratively until the calculated data values match the observed as closely as possible, given constraints which keep the model section smooth.

The smooth chargeability model along with plots of the apparent and synthetic (calculated) chargeability and resistivity are plotted for some individual lines at 1:2000.

Plots of the 21 point moving filter – illustrated on the pseudo section – for the above were also displayed in the top plot window to better show the location of the anomalous zones.

DISCUSSION OF RESULTS

This report should be studied in conjunction with the report on the 2000 induced polarization survey, as well as with the report on the 2001 drilling program by Linda Dandy, P.Geo et al.

Gold Mountain Zone.

The moderately strong chargeability response on L 1900 N centred circa 100W was discerned trending across the fill-in lines– L 1600 & L 1800 – and continuing through to L 2400 N with decreasing intensity, and not seen on L's 2600N, 2800N and 3200N respectively - Figures 4 & 5, the contour plans of the apparent chargeability and the individual pseudosections.

It should be mentioned here that the data was not contoured to the north beyond L 2100N as the electrode array was switched around for lines 2200N to 3000N.

The extensions of L's 1800N to 3000N to the west from 500N to 1200N and beyond in some cases show the area traversed to exhibit a low chargeability background (6-8 mV/V) above which some poor to moderate anomalous responses are discernible in the central portions of the lines, except on L's 2800N and 3200N where none were observed.

Strong anomalous chargeability responses were obtained at the western extremities of L's 1800N, 1900N, 2000N and 2100N in the vicinity of the volcanic- Silver King contact. Similar responses were not seen at the extremities of the remaining lines as the contact swings westwards and they did not cross it.

A narrow zone of higher resistivity, that could be indicative of alteration, can be seen on L's 2000N and 2100N on the eastern edge of the chargeability high.

The chargeability zone is presumably part of the larger strongly anomalous zone in the hanging wall of the volcanics -- instrusive contact previously investigated by drilling by Asarco.

Higher resistivities were noted on L's 2800N and 3000N, where the chargeabilities were around background levels, along the extent of the lines.

DISCUSSION OF RESULTS cont'd.

The strong complex zone of higher chargeability observed on the 2000 survey on or around the eastern Silver King porphyry contact is clearly discernible extending to the south into the Elise volcanic package – Figures 3 & 4.

A similar parallel zone is observed trending southwards from L 500N to L 0. The majority of this anomalous zone and the southern portion of the previously mentioned are associated with a large zone of high resistivity – Figures 5 & 6. The latter zone is also coincident with a zone of high gold geochemistry.

It should be mentioned here that some of the increase in resitivity could be due to the relocation of the "infinity" as snow conditions did not permit it to be placed in the same vicinity as in 2000.

Kena Zone.

The two anomalous zones noted on the Gold Mountain grid extend into the Kena grid – Figures 3 & 4 - with the zone of higher resitivity terminating between L's 5200N and 5300N.

The Kena showing has a strong chargeability signature at the eastern end of L 4900N, associated with lower resistivity values in the volcanics.

Smooth model inversion was carried out on the eastern traverses on the Gold Mountain grid, and on the Kena grid. The results are shown for each line with the apparent chargeability, the synthetic chargeability, the smooth inversion model of chargeability , the calculated resistivy and the synthetic resistivity featured along with the filter profiles of the respective chargeabilities and resistivities.

These models show the unlimited depth of the sulphide mineralization – the interpreted causative source of the chargeability response – in the context of the survey investigation depth. It should be note here that it would be better to conduct the inversion using electrodes on the topographic surface rather than on a flat plane.

DISCUSSION OF RESULTS cont'd

The model response at 50 metre depth of burial is shown on the two plan maps of the grids.

Caribou Zone.

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The one traverse completed showed the eastern half to exhibit a strong chargeability response with no resistivity contrast presumably reflecting the presence of pyrite in the volcanics.

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SUMMARY, CONCLUSIONS AND RECOMMENDATIONS.

In the fall of 2001, Peter E. Walcott & Associates Limited undertook an induced polarization survey programme over part of the Kena Property for Sultan Minerals Inc.

The property is located in the Nelson Mining District, some six kilometers south of the town of Nelson.

The survey was a continuation of the IP survey carried out in the fall of 2000.

The chargeability results showed the large complex zone of strongly anomalous readings trending northwest across the area previously surveyed to continue to the southeast on to the Kena grid.

Another parallel zone of high chargeability readings was observed some 300 metres to the west of the above. This zone occurs in a larger zone of high resisitivity and is coincident with a zone of anomalous gold soils.

The charcgeability results also show the larger zone or its offset to decrease in intensity in the northern portion of the grid before fading away on the two most northerly lines.

Traversing on four lines over the westerly contact on the Silver King with the volcanics resulted in the recognition of a zone of high chargeability in the volcanics on the contact. The westerly extent of this zone remains undefined.

A strong chargeability anomaly was observed over the eastern half of the one profile run over the Caribou grid.

As a result the writer recommends that :

- 1. An effort be made to compile all the data, old and new geology, soil geochemistry, old workings, diamond drill holes and geophysics on one base map for a better understanding of the project and;
- 2. The IP coverage be continued to the south to investigate the signature of the Kena showing.

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SUMMARY, CONCLUSIONS & RECOMMENDATIONS cont'd

Respectfully submitted.

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PETER E. WALCOTT & ASSOCIATES LIMITED

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Peter E. Walcott, P.Eng. Geophysicist

Vancouver, BC May 2002

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APPENDIX

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COST OF SURVEY.

Peter E. Walcott & Associates Limited undertook the surveys on a daily basis. Plotting and reporting costs were extra so that the total cost of the services provided was \$73,879.87.

PERSONNEL EMPLOYED ON SURVEY

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Name	Occupation	Address	Dates
Peter E. Walcott	Geophysicist	Peter E. Walcott & . Associates Limited 506-1529 W, 6 th Ave. Vancouver, B.C.	Nov 4 - Dec 2 nd , 2001 Jan 8 - 10 th , 2002 May 8 - 11 th , 2002
P. Dubchuk	Geophysicist	u	Dec 1- 7 th , 2001
J. Walcott	Geophysical Operator		Nov 4- Dec 2 nd , 2001 May 12 th , 2002
B. Cross	u		Nov. 11th ~ Dec 2 nd 2001
P. Charlie	• •		Dec $1^{st} - 7^{th}$, 2002
J. Denny	Geophysical Assistant	Sultan Minerals	Nov 4^{th} - Dec 7^{th} , 2001
O. Janout			Nov 4 th - Nov 24th, 2001
Sultan Minerals	Pool of 2 helpers	vi	Nov 4^{th} – Dec 7^{th} , 2001

CERTIFICATION

- 1. I am graduate of the University of Toronto in 1962 with a B.A.Sc. in Engineering Physics, Geophysics Option.
- 2. I have been practicing my profession for the last forty years.
- 3. I am a member of the Association of Professional Engineers of British Columbia and Ontario.

Ph Aren

Peter E. Walcott, P.Eng.

Vancouver, B.C. May 2002

CLAIM INFORMATION

Claim Name	Units	Record#	Owner
			/Optionor
GOLD MTN	1	232760	Janouts
			/Bourdon
GOLD MTN 2	1	232761	Janouts
			/Bourdon
MACT	20	232794	Janouts
	1		/Bourdon
SHAFT W1	1	362976	Janouts
			/Bourdon
SHAFT W2	1	362977	Janouts
		ł	/Bourdon
CAT 1	1	372729	Sultan
CAT 2	1	372730	Sultan
CAT 3	1	372731	Sultan
CAT 5	I	373750	Sultan
САТ 6	1	373751	Sultan
CAT 7	1	373752	Sultan
CAT 8	1	373753	Sultan
CAT 9	1	373754	Sultan
CAT 10	1	373755	Sultan
CAT 13	1	373758	Sultan
CAT 14	1	373759	Sultan
CAT 37	I	380091	Sultan
STAR I	1	374211	Janouts
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STAR 2	1	374212	Janouts
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