MINETA RESOURCES LTD. GEOPHYSICAL REPORT ON A TOTAL FIELD MAGNETICS AND TWO STATION VLF-EM SURVEY ON THE GOLDEN LOON CLAIM GROUP KAMLOOPS MINING DIVISION NTS: 92 P/8 LATITUDE: 51 25'N LONGITUDE: 120 20'W AUTHOR: Glen E. White, B.Sc., P.Eng Geophysicist DATE OF WORK: October 26 - October 10, 1989 DATE OF REPORT: December 10, 1989

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# GEOLOGICAL BRANCH ASSESSMENT REPORT

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### INTRODUCTION:

During October of 1989, White Geophysical Inc. was contracted by Mineta Resources Ltd. to conduct a total field magnetics and two station VLF-EM survey over portions of the Golden Loon claims near Little Fort, British Columbia. The purpose of these surveys was to follow up on existing geochemical and geophysical information and attempt to target mineralized zones. These surveys were also designed to aid the geologist in mapping the property.

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### **PROPERTY:**

The property consists of nine minerals claims located in the Kamloops Mining Division and is summarized as follows:

Number

	Mandoer		
<u>Claim Name</u>	<u>of Units</u>	Record No.	<u>Anniversary Date</u>
Golden Loon I	20	5541	March 9, 1989
Golden Loon II	20	5542	March 9, 1989
Golden Loon III	20	5543	March 9, 1989
Golden Loon IV	20	5544	March 9, 1989
Golden Loon V	20	6539	March 9, 1989
Golden Loon VI	20	6540	March 7, 1989
Golden Loon VII	16	6549	March 7, 1989
Golden Loon VIII	20	6550	March 14, 1989
Golden Loon IX	20	6556	March 27, 1989



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#### LOCATION AND ACCESS:

The property primarily lies on an undulating plateau varying between 1100 and 1400 metres in elevation. Towards the east
the plateau slopes to the North Thompson Valley at Little Fort (elevation 400 metres).

The property is covered by thick pine, poplar and alder, making line cutting necessary. A number of small lakes and swamps are on the western portion of the property.

Access to the property can be had by a good road network originating at Little Fort or alternately by a road network originating in Barrier, B.C. Choice of road systems would depend on time of year and present condition. The area is centered at Latitude 51 25'N and Longitude 120 20'W and covered by NTS Map 92P/8.

## HISTORY AND PREVIOUS WORK:

The initial probes into this area were made by the placer miners of the early 1920's. Several of the creeks in the area were staked for placer gold, but no significant quantities were produced. The area then appears to have lain dormant until the 1960's when Noranda Explorations targeted the area as a possible copper producing region. After a stream and lake sediment sampling program was completed, a follow up program consisting of a broadly spaced soil geochemistry survey was conducted. A number of anomalous values were recorded but were apparently not followed up.

In the early 1980's, Teck Corporation again staked much of this ground as a copper target. Soil geochemistry and ground



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FIG. 2

magnetic surveys were conducted along with a programme of geological mapping, but lost interest in the property.

In 1984, the property was staked by Barnes Creek Minerals. A limited grid of 7.0 kilometres of line was established over a series of old trenches on the western edge of the claim. A strong correlation was found between VLF-EM conductors and the gold geochemistry suggesting the presence of mineralized fault/shear zones.

## **REGIONAL GEOLOGY:**

The regional geology of the Little Fort area is seen in Figure 3 taken from GSC Map 1278A. This mapping indicates the property is on the northeast margin of the Thuya Batholith, which is an Early Mesozoic granodiorite intrusive. The property area itself is structurally complex with several splay faults, originating from the regional Thompson Valley Fault, branching to the northwest. This mapping indicates the property is underlain by the Nicola Group which consists of augite andesite flows and breccia, tuff, argillite, greywackes, and grey limestone, as well as serpentinite and serpentinized peridotite. The regional strike of the geology is toward from the northwest.

### PROPERTY GEOLOGY AND MINERALIZATION

(Summarized from report by R.C. Wells, B.Sc., 1988)

The western part of the property is underlain by the Thuya Batholith. The area is extensively covered by glacial till and/or swamps. In his report, R.C. Wells indicates that the GSC mapping of the area is misleading. The ultramafic intrusive is not restricted to the eastern edge of the Thuya

# LEGEND





Batholith as two small lenses, but rather follows the high ground (ridge) south of Dum Lake and continues off the property.

# Mineralization:

Three main areas of mineralization have been outlined.

1.Loon VII Fault Zone

A mineralized fault in which copper showings (malachite) and mineralized quartz veins occur. The quartz veins (1-5 cm) carry chalcopyrite, galena, pyrite, along with some silver and gold.

2.Silicified Ultramafics with Chalcedony

A series of old trenches have been located on the Golden Loon VII which contain strongly brecciated, silicified and chalcedony veined ultramafics which have returned some anomalous gold values.

3.Peripheral to the Ultramafics South of Dunn Lakes

In this area numerous quartz veins occur near the ultramafic units. The veins were reported to be up to 25 cm wide with galena, pyrite and chalcopyrite. Veins within the Thuya Batholith have yielded gold values up to .1 oz/t and silver to .7 oz/t.



# MAGNETOMETER AND VLF ELECTROMAGNETOMETER SURVEYS:

The VLF EM Magnetic surveys were and conducted simultaneously utilizing the Omni-Plus VLF/MAGNETOMETER System built by EDA Instruments Inc. This instrument contains several microprocessors and associated circuitry for monitoring, processing and storing data. The VLF EM portion of this instrument utilizes the VLF-electromagnetic fields generated by submarine navigation and communication stations which operate in the 15-30 khz frequency band. The field generated by these stations is primarily horizontal. The instrument indicates the presence of a secondary field due to a conductor as a distortion in this horizontal field.

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The distortion of this field produces an anomaly in the tilt angle, quadrature and total field intensity readings. VLF EM data is corrected for facing direction during data processing and is edited for spurious noise spikes. For maximum coupling, a transmitter station located in the same direction as the geological strike of interest should be selected, since the direction of the horizontal electromagnetic field is perpendicular to the direction from the transmitting station. The advantage of the Omni-Plus is that several stations can be recorded simultaneously since the instrument automatically orientates to the individual station direction.

The magnetics portion of this survey was conducted using the magnetometer system built into the Omni-Plus in conjunction with an EDA base magnetometer. The quartz clocks in the two instruments are synchronized in the morning. At the end of each survey day the field unit's readings are corrected using an RS232C interface and the built in microprocessors. Following the diurnal correction procedure, data is dumped via the RS232C interface to a microprocessor which writes



data to the disk for storage and later processing. The solid state memory of this instrument and the microprocessor give rapid data gathering at some 5 - 10 kilometers per day at 12.5 m station intervals.

### DISCUSSION OF RESULTS:

The magnetometer and 2 station VLF-EM survey was conducted over approximately 25 kilometres on the Golden Loon claims group. The VLF-EM transmitters used were Cutler, Maine and Seattle. They surveys were conducted on two separate grids, with Grid 4 encompassing approximately 10 kilometres of line, and Grid 5 encompassing approximately 15 kilometres of line.

### Grid 4:

Grid 4 constitutes 10 kilometres of line on 100 metre centers with stations every 12.5 metres. A reading of both VLF-EM stations and the total field magnetics was taken every 12.5 metres. The total field magnetics data is displayed in contoured form in Figure 4. The VLF-EM data is displayed in staked profile form in Figures 5 and 6 (Cutler, Hawaii respectively); and the Inphase component of the Cutler data has been Fraser filtered and is displayed in contoured form in Figure 7.

The regional airborne magnetic data indicates the northern proportion of Grid 4 is underlain by the ultramafic intrusives. The ground total field magnetic data collected in 1988 supports R.C. Wells hypothesis that the ultramafics are compositionally layered and as expected the 1989 data indicates that the northern portion of Grid 4 is underlain by the ultramafic unit. The total field magnetic data delineates three probable faults in the region survey (F1, F2 and F3 Figure 9). Faults F1 and F2 are present themselves as breaks in the continuity of the magnetic data cross-cutting the ultramafic unit. Fault F3 is sub-parallel to the ultramafic unit and unlike F1 and F2, F3 is also a VLF-EM conductor (C2). The data gives no indication as to displacement along any of these faults.

In addition to conductor C1 thirteen other VLF-EM reponses were delineated in the VLF-EM data. The Cutler transmitting station had the best responses. The conductors may be sourced in shears, faults, mineralized horizons, conductive clays and/or graphite. The longest and most continuous conductor on the property is conductor C2 which transects the grid to the south of the ultramafic unit. This conductor may be sourced a graphitic or mineralized fault or shear.

# Grid 5:

Grid 5 constitutes 15 kilometres of line with a variable line spacing from 50-100 metres apart. All lines had stations established every 25 metres and both magnetic and VLF-EM measurements were taken every 12.5 metres.

The total field magnetics data is displayed in contoured form in Figure 10. The VLF-EM data is displayed in staked profile form in Figures 11 and 12 (Cutler, Hawaii respectively); and the Inphase component has been Fraser filtered and is displayed in contoured form in Figures 13 for the Cutler, Maine transmitting station.

The first feature to become apparent in the data collected on Grid 5 is again the presence of the ultramafic unit intersected on the southern extensions of all of the lines constituting this grid. Near the northern edge of the ultramafic unit is a long linear very narrow magnetic low. This low may represent an alteration zone through which a large amount of fluids have passed making it a good target for epithermal precious metal mineralization.

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Twelve VLF-EM responses were delineated on the grid. Aqain as with Grid 4 the Cutler, Maine data was most useful in delineating the reponses. The strongest response on the grid is C3. This conductor is intersected in the northeast corner of the grid and is oblique to the local geological strike. The conductor is probably source in a cross fault which may The magnetic data indicates or may not be mineralized. approximately 50 metres of displacement has probably occurred along this fault. A second conductor of note on Grid 5 is This conductor traverses the grid between conductor C4. This conductor may be sourced in a fault, shear, 200-400S. mineralized or graphitic horizon, and/or conductive clay.

The last feature to note in the data set is a long linear magnetic high centred at ON on line 1100E. This high may be sourced in a narrow mafic dyke or possible in pyrrhotite mineralization.

### **RECOMMENDATIONS AND CONCLUSIONS:**

In October of 1989, White Geophysical Inc. conducted 25 kilometres of total field magnetics and two station VLF-EM surveys on Mineta Resources Ltd's Golden Loon near Clearwater B.C..

The survey was successful in locating numerous VLF-EM

conductors. The strongest being C1 - C4 (Figures 9 and 15). These conductors should be correlated with the existing geochemical data in order to determine a set of priorities as to which to examine as new exploration targets. A program of detail geological mapping would assist greatly in this effort. Once this has been completed and priorities assigned, the conductors not visible at surface should be trenched and/or drilled.

The geophysical data also gave a good postulate as to the location of various major faults and contacts. Again these areas should be examined as to their merit as exploration targets. If it is deemed that the geochemical data correlates well with these areas they should be trenched and/or diamond drilled.

Respectful ubmitted, Glen E. B.Sc., P.Eng

Consulting Geophysicist

### **REFERENCES:**

Campbell, R.B. 1967 Geology of Bonapart Lake Map Area, Tipper, H.W., British Columbia, GSC Mem. 363.

Seywerd, M.B. 1988 Geophysical Report on a Magnetometer and VLF-EM Survey.

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Wells, R.C., 1988 Geochemical Report on Golden Loon Claim Group. COST BREAKDOWN:

		Wages	
<u>Personnel</u>	Dates	per Diam	Total
L. Torhieden	Oct.17-Oct.24	\$ 350.00	\$2800.00
Instrument ren Data processin Data analysis	nd demobilization tal 8 days @ 150/ g and reproduction and report writing	'day 	\$1200.00 \$ 750.00 \$ 750.00
			3 Am 445 AA

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Total \$7,165.00

PROFESSION:	Geophysicist
EDUCATION:	B.Sc. Geophysics-Geology University of British Columbia
PROFESSIONAL ASSOCIATIONS:	Registered Professional Engineer, Province of British Columbia.
	Associate Menber of Society of Geophysicist
	Past President of B.C. Society of Mining Geophysicists
EXPERIENCE:	-Pre-Graduate experience in Geology - Geochemistry - Geophysics with Anaconda American Brass.
	-Two years mining Geophysicist with Sulmac Exploration Ltd. and Airborne Geophysics with Spartan Air Services Ltd.
	-One year Mining Geophysicist and Technical Sales Manager in the Pacific Northwest for W.P. McGill and Associates.
	-Two years Mining Geophysicist and Supervis aiborne and ground geophysical divisions with Geo-X Surveys Ltd.
	-Two Years Chief Geophysicist Tri-Con Exploration Surveys Ltd.
	-Seventeen Years Consulting Geophysicist
	-Active Experience in all Geological Provinces of Canada.

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CERTIFICATE:

I, Glen E. White, with a business address of 11751 Bridgeport Road, Richmond B.C. do hereby certify that:

- I am a consulting geophysicist registered with the Association of Professional Engineers of British Columbia since 1977
- 2) I am an Associate Member of the Society of Exploration Geophysicists.
- 3) I hold a B.Sc. degree (1966) in geology and geophysics from the University of British Columbia.
- 4) I have been practising my profession as geophysicist geologist for over 20 years.
- 5) I have no direct or indirect interest, nor do I expect to receive any interest directly or indirectly in the Bart Claims or securities of Mineta Resources Ltd.
- 6) I have based this report on a review of available geological publications and exploration reports in the area of the Bart Claim Group and on the geophysical data just acquired.
- 7) I consent to the use of this report in whole or in part by Mineta Resources Ltd. for publication or any filing statement of Statement of Material Facts as long as the context of the report is not violated.

1989. Dated B.Eng., Consulting Geophysicist

WHITE GEOPHYSICAL INC.-

OMNI-PLUS MAGNETOMETER/VLF SPECIFICATIONS

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Dynamic Range	18,000 to 110,000 gammas. Roll over display feature
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Tuning Method	Tuning value is calculated
-	accurately utilizing a
	specially developed tuning
	algorithm
Automatic Fine Tuning	+ 15% relative to ambient
	field strength of last stored
	value
Display Resolution	0.1 gamma
Processing Sensitivity	+ 0.02 gamma
Statistical Error Resolution	0.01 gamma
Absolute Accuracy	+ 1 gamma at 50,000 gammas at 23 <sup>0</sup> C
- · · · ·	+ 2 gamma over total
	temperature range
Standard Memory Capacity	
Total Field or Gradient	1,200 data blocks or sets or
	readings
Tie-Line Points	100 data blocks or sets or
	readings
Base Station	5,000 data blocks or sets or
	readings
Display	Custom-designed, ruggedized
	liquid crystal display with an
	operating temp. range from
	$-40^{\circ}$ C to $+55^{\circ}$ C. The display
	contains six numeric digits,
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