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AN ASSESSMENT REPORT ON

ON THE ACE CLAIM GROUP AND THE T.T.1 AND T.T.2 CLAIMS

LAC LA HACHE PROJECT AREA

CARIBOO MINING DIVISION, BRITISH COLUMBIA

LATITUDE 52°01' NORTH LONGITUDE 121° 15-20' WEST NTS 93 A/3

FOR

REGIONAL RESOURCES LIMITED / G.W.R. RESOURCES INC.

BY

Daniel A. Klit, B.Sc. and John Lloyd, M.Sc., P.Eng.

LLOYD GEOPHYSICS INC. VANCOUVER, BRITISH COLUMBIA

> JUNE, 1994GEOLOGICAL BRANCH ASSESSMENT REPORT

Lloyd Geophysics

SUMMARY

During the period March 18 to May 31, 1994, Lloyd Geophysics Inc. conducted Induced Polarization (IP) surveys on the Ace claim group and the T.T.1 and T.T.2 claims near Lac La Hache, British Columbia, for Regional Resources Ltd. and G.W.R. Resources Inc.

The objective of the survey was to detect significant sulphide concentrations in areas of minor chalcopyrite and bornite occurrences in outcrop, and in areas of copper soil anomalies.

Results of the IP survey on the T.T.1 claim are presented in the assessment report on the Ray, Oley and Abbey claim groups of April, 1994. Chargeability anomalies with values ranging from 8 to 16 milliseconds have been identified on both the T.T.1 and T.T.2 claims.



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1.0 INTRODUCTION

During the period March 18 to May 31, 1994, Lloyd Geophysics Inc. conducted Induced Polarization (IP) surveys on the Ace claim group and the T.T.1 and T.T.2 claims, which are located north of Lac La Hache, British Columbia, and form part of the Lac La Hache Project of Regional Resources Ltd. and G.W.R. Resources Inc.

The survey was designed to cover selected areas of the claim groups, in an attempt to delineate sulphide zones, which then could be followed up by drilling.

2.0 PROPERTY LOCATION AND ACCESS

The Ace claim group and T.T.1 and T.T.2 claims are located at about 51°01'North latitude and 121°15-20'West longitude in the Cariboo Mining Division, N.T.S. 93A/3 (Figure 1). Access to the properties is by truck (and snowmobile or four-track) from Lac La Hache via the Rail Lake road and from Forest Grove via the Bradley Creek road and secondary logging roads.

3.0 PROPERTY STATUS AND CLAIM HOLDINGS

The Ace claim group and T.T.1 and T.T.2 claims are located in the Cariboo Mining Division of south-central British Columbia, and are owned by Daniel Gagne, Box 1143, Chase, British Columbia, VOE 1M0 (Figure 2). The claims form a part of a larger block of claims, the "Lac La Hache Project", which is under option to Regional Resources Ltd. of Toronto, Ontario from G.W.R. Resources Inc.

Pertinent claim information is outlined below:





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Regional Resources Ltd./G.W.R. Resources Inc.
Lac La Hache Project / Clinton M.D., B.C.
GENERAL LOCATION MAP

LLOYD GEOPHYSICS INC.

FIGURE 1

Claim Name	Record Number	Number of Units	Expiry Date
ACE GROUP			
Ace 1	302129	20	June 6, 1995
Ace 2	302130	20	June 13, 1995
Ace 3	302131	20	June 13, 1995
Ace 4	302132	20	June 14, 1995
TT 3	302143	20	June 18, 1995
RILEY GROUP			
T.T.1	302141	20	June 19, 1995
T.T.2	302142	20	June 18, 1995

4.0 PREVIOUS WORK

Previous work in the area is summarized in the assessment report by R.J. Aulis on the Lac La Hache Property (Two Mile Lake group), dated September 29, 1993 as follows:

Numerous past exploration programs have been directed towards the discovery of porphyry copper-gold in this region since the discovery of the Cariboo-Bell deposit in the mid-1960's. Exploration activity began in 1966 with reconnaissance geochemical soil sampling program by Coranex Ltd. Since then, major exploration programs have been mounted by the following:

Coranex Ltd. (1966 - Spout Lake property) Falconbridge Nickel Mines Ltd. (1961 - Bory claims) Amax Ltd. (1961-1973 - Spout Lake property) Craigmont Mines Ltd. (1973-74 - SL and WC claims) Tide Resources Ltd. (1988 - Club claims) Asarco Exploration Co. Ltd. (1991 - Ann and Peach Two claim groups) Cominco Ltd. (1992 - Zephyr Property) GWR Resources Ltd. (1987-1993 - various properties)





Various smaller programs have been conducted by junior companies in the immediate areas.

The majority of existing work comprises geological mapping of sparse outcrop, soil geochemistry and ground magnetometer surveys of isolated individual properties. Falconbridge Nickel Mines Ltd. conducted a detailed Induced Polarization survey in the area immediately north of Two Mile Lake and recorded elevated chargeabilities over their entire grid. Cominco Ltd. undertook a reconnaissance IP survey over 65 km of roads in an area bracketed by McIntosh, Spout and Murphy Lakes; background chargeabilities with only rare, weakly-elevated readings were obtained.

Drilling north of Spout Lake is restricted to two or three poorly-documented holes interpreted to have intersected pyrite bearing, weakly to moderately altered volcanics. Scattered drilling of IP targets to the south and south-east of Spout Lake has outlined a large, sulphide-bearing porphyry system with significant portions left untested. Drilling of a prominent magnetic feature on the south shore of Spout Lake has roughly delineated two copper-bearing magnetite skarn zones of economic grades (Gale, R.E. 1989).

In 1993, the Regional Resources/G.W.R. Resources joint venture compiled results of all available pre-existing exploration and completed a program of overburden and rock sampling and of reconnaissance mapping on the Two Mile Lake group of the Lac La Hache project area (R.J. Aulis, 1993).

The surveys delineated two areas with anomalous copper/gold in soils, one to the south of Bluff Lake on the Ace 3 claim, and one near the boundary of the Ace 2 claim with the TT claim. Mineralization in the latter area is related to dioritic dikes intruding the monzonite. Traces of chalcopyrite, bornite and native copper appear to occur in shears and K-feldspar pegmatitic veins.



5.0 REGIONAL GEOLOGY

The Lac La Hache Project is situated within the Upper Triassic to Lower Jurassic Nicola Group, which forms part of the Quesnel Trough (Figure 3), a volcanic and sedimentary arc sequence affected by Upper Triassic to Jurassic intrusions, and by volcanic activity continuing into the Quaternary. The Quesnel Trough extends for over one thousand kilometres from northern Washington State to north-central British Columbia, and hosts alkalic porphyry copper-gold deposits (Afton, Similco) and mine prospects (Mount Milligan, Mount Polley) as well as gold-skarns, and numerous porphyry occurrences.

Northeast of Lac La Hache, Nicola Group sediments, basalts, andesites and breccias are intruded by coeval small stocks of syenitic to dioritic composition. A significant portion of the Nicola Group is covered by Tertiary flood basalts. The Lower Jurassic Takomkane batholith, a monzonitic intrusion measuring about 50 kilometres in diameter, is located with its centre 35 kilometres northeast of Lac La Hache.

A large annular aeromagnetic anomaly, which may have developed as the result of monzonite intruding Nicola Group to the north of Peach Lake and Spout Lake, was first delineated by a survey flown for the Geological Survey of Canada in 1967. The DMG grid on the Abbey claim group is situated at the northwestern outside edge of the magnetic anomaly, while the Oley group is located inside the anomaly, close to its northern edge. The TT grid on the Ray claim group is also located inside the regional magnetic anomaly, at the contact of a local magnetic high to the east, which may be caused by gabbro.

Hydrothermal alteration has affected Nicola Group intrusives and metavolcanic rocks and consists of K-feldspar flooding, development of magnetite, hematite and propylitic alteration. Porphyry and skarn-type chalcopyrite and pyrite mineralization is locally associated with these alteration zones and includes the Peach, Miracle, Tim occurrences and the WC magnetite-chalcopyrite zone.





6.0 LOCAL GEOLOGY

The portion of the Lac La Hache project area located to the north of Spout Lake and Peach Lake is covered largely by glacio-fluvial deposits, which, together with extensive Tertiary basalt flows make the geological interpretation of that area dependent on indirect exploration methods, e.g. magnetometer and induced polarization surveys.

Rock Types

The oldest rocks in the area are Upper Triassic Nicola Group mafic to intermediate flows, tuffs and breccias, including augite-feldspar porphyritic basalt flows. The latter are relatively fresh and locally difficult to discern from Tertiary volcanics. Minor occurrences of Nicola Group syenitic to dioritic intrusions have also been reported.

A monzonitic intrusion, which is probably the cause of the annular shaped magnetic anomaly in Nicola Group lithologies, extends from Spout Lake - Peach Lake to the north and is possibly a satellite of the Takomkane batholith. A larger gabbroic intrusion is indicated from outcrop west of Murphy Lake, and is probably a phase of the monzonite.

Basaltic flows of Tertiary or younger age cover a large portion of the project area, and effectively mask underlying lithologies of possible economic interest.

Structure

Faults and fractures with notable alteration or mineralization trend 060°, dipping steeply south and 030°, dipping subvertically. A large topographic linear encompassing Murphy and Lang lakes is interpreted to be a large northwest-trending fault which cuts the northeastern edge of the property.



Alteration and Mineralization

A weak chlorite-epidote alteration is characteristic for the rocks on the property, with a stronger potassium metasomatism being locally developed near stocks and dikes. The monzonite may carry 1-2% disseminated magnetite and traces of sulphides lining fractures.

The most significant mineralization to date is related to dioritic dikes intruding monzonite to the west of Murphy Lake, and consists of traces of chalcopyrite, bornite and native copper. The most anomalous sample from that area returned 508 ppm Cu and 38 ppb Au.

7.0 INSTRUMENT SPECIFICATIONS

The equipment used to carry out this survey was a time domain measuring system consisting of a Wagner Leland/Onan motor generator set and a Mark II transmitter manufactured by Huntec Limited, Toronto, Canada and a 6 channel IP-6 receiver manufactured by BRGM Instruments, Orleans, France.

The Wagner Leland/Onan motor generator supplies in excess of 7.5 kilowatts of 3 phase power to the ground at 400 hertz via the Mark II transmitter.

The transmitter was operated with a cycle time of 8 seconds and the duty cycle ratio: [(time on)/(time on + time off)] was 0.5. This means the cycling sequence of the transmitter was 2 seconds current "on" and 2 seconds current "off" with consecutive pulses reversed in polarity.

The IP-6 receiver can read up to 6 dipoles simultaneously. It is microprocessor controlled, featuring automatic calibration, gain setting, SP cancellation and fault diagnosis. To accommodate a wide range of geological conditions, the delay time, the window widths and



hence the total integration time is programmable via the keypad. Measurements are calculated automatically every 2 to 4 seconds from the averaged waveform which is accumulated in memory.

The window widths of the IP-6 receiver can be programmed arithmetically or logarithmically. For this particular survey the instrument was programmed arithmetically into 10 equal window widths or channels, Ch_0 , Ch_1 , Ch_2 , Ch_3 , Ch_4 , Ch_5 , Ch_6 , Ch_7 , Ch_8 , Ch_9 (see Figure 4). These may be recorded individually and summed up automatically to obtain the total chargeability. Similarly the resistivity (ρ_a) in ohm-metres is also calculated automatically.

The instrument parameters chosen for this survey were as follows:

Cycle Time (T _c)	= 8 seconds
Ratio (<u>Time On)</u> (Time Off)	= 1:1
Duty Cycle Ratio	
<u>(Time On)</u> (Time On)+(Time Off)	= 0.5
Delay Time (T _D)	= 120 milliseconds
Window Width (t _p)	= 90 milliseconds
Total Integrating Time (T _p)	= 900 milliseconds





BRGM IP-6 RECIEVER PARAMETERS

Figure 4



8.0 SURVEY SPECIFICATIONS

The configuration of the pole-dipole array used for the survey is shown below:

POLE-DIPOLE ARRAY



x = 50 metres; n = 1, 2, 3, 4, 5 and 6

The dipole length (x) is the distance between P_1 and P_2 and determines mainly the sensitivity of the array. The electrode separation (nx) is the distance between C_1 and P_1 and determines mainly the depth of penetration of the array.

The Induced Polarization survey was carried out with the current electrode, C_1 , SOUTH of the potential measuring dipole P_1P_2 on the Ace grid and with C_1 EAST of the potential measuring dipole P_1P_2 on the T.T. grids. Here the lines were 200 metres apart and measurements were taken for x = 50 metres and n = 1, 2, 3, 4, 5 and 6.

9.0 DATA PROCESSING

The data collected was processed in the field at the end of each survey day using a portable 386 computer and a Fujitsu printer.

The IP pseudo-sections were plotted out in the field and contoured using in-house software based on the mathematical solution known as kriging.



In the office the data was transferred to mylar using a Compaq 386 computer coupled to a Hewlett Packard Draftsmaster II Plotter for the preparation of the final pseudo-sections and contour plan maps.

10.0 DATA PRESENTATION

ACE CDID

The data obtained from the surveys described in this report are presented on 11 pseudo-sections, one Chargeability contour plan map and one Resistivity contour plan map as outlined below: <u>Pseudo-Sections (Scale 1:2000)</u>

<u>Dwg. No.</u>	Line No.	<u>Dwg. No.</u>
94352-A1	800E	94352-A5
94352-A2	1000E	94352-A6
94352-A3	1200E	94352-A7
94352-A4	1400E	94352-A8
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<u>Dwg. No.</u>		
94352-T1		
94352-T2		
ſ		
	Dwg. No. 94352-A1 94352-A2 94352-A3 94352-A4 1 <u>Dwg. No.</u> 94352-T1 94352-T2	Dwg, No. Line No. 94352-A1 800E 94352-A2 1000E 94352-A3 1200E 94352-A4 1400E 1 94352-T1 94352-T2 94352-T2

<u>Line No.</u>	<u>Dwg. No.</u>
1000S	94352-T3

Plan Maps (Scale 1:5000)

Chargeability 21 Point Triangular Filter Contours (Ace Grid)

94352-A9



Resistivity 21 Point Triangular Filter Contours (Ace Grid)

11.0 DISCUSSION OF RESULTS

An IP response depends largely on the following factors:

- 1. The volume content of sulphide minerals
- 2. The number of pore paths that are blocked by sulphide grains
- 3. The number of sulphide faces that are available for polarization
- 4. The absolute size and shape of the sulphide grains and the relationship of their size and shape to the size and shape of the available pore paths
- 5. The electrode array employed
- 6. The width, depth, thickness and strike length of the mineralized body and its location relative to the array
- 7. The resistivity contrast between the mineralized body and the unmineralized host rock

The sulphide content of the underlying rocks is one of the critical factors that we would like to determine from field measurements. Experience has shown that this is both difficult and unreliable because of the large number of variables, described above, which contribute to an IP response. The problem is futher complicated by the fact that rocks containing magnetite, graphite, clay minerals and variably altered rocks produce IP responses of varying amplitudes.

A detailed study has been made of the pseudo-sections which accompany this report. These pseudo-sections are not sections of the electrical properties of the sub-surface strata and cannot be treated as such when determining the depth, width and thickness of a zone which produces an anomalous pattern. The anomalies are classified into 4 groups; definite, probable and possible anomalies and anomalies which have a much deeper source. These latter anomalies are mostly related to deeper overburden cover.



This classification is based partly on the relative amplitudes of the chargeability and to a lesser degree on the resistivity response. In addition the overall anomaly pattern and the degree to which this pattern may be correlated from line to line is of equal importance.

T.T.1 CLAIM

The IP survey on the T.T.1 claim delineated a few moderately well defined anomalies which appear on both lines. The most prominent anomaly has chargeability values ranging from 8 to 14 milliseconds and is centred at 225W on line 300N and 725W on line 100N. Chargeability values suggest that this anomaly is continuous at depth. The second anomaly is at about 1250W on line 100N and depicts a fairly narrow and shallow source. Chargeability values between these two anomalies are fairly uniform and are between 8 and 10 milliseconds while background values are in the 3 to 5 millisecond range. These higher values may be caused by monzonites with the more well defined anomalies representing mineralized dioritic dykes which intrude the monzonite.

T.T.2 CLAIM

Two adjacent IP anomalies were delineated on line 1000S with chargeability values ranging from 8 to over 16 milliseconds. These anomalies occur to the west of a strong resistivity break which is indicative of a fault or contact. It is difficult to determine whether these anomalies are associated with those on the T.T.1 claim to the north or with the contact between the Nicola volcanics and the monzonite intrusive to the south without further geological or geophysical information.

ACE GRID

No significant IP anomalies were detected on the Ace grid. Chargeability values are low and



relatively uniform with about 95% of the data being in the 2 to 5 millisecond range. A northwest-southeast trending feature, probably a contact, is depicted by a subtle response on the chargeability map (dwg. 94352-A9) and a well defined response on the Resistivity map (dwg. 94352-A10). This trend strikes from about 450N on line 300E to 300S on line 1000E with the high resistivity values occuring to the west and low values (say less than 700 ohm-m) occuring to the east.

11.0 CONCLUSIONS AND RECOMMENDATIONS

The IP survey delineated anomalies on both the T.T.1 and T.T.2 claims. These anomalies are relatively low amplitude anomalies (about 10 milliseconds) which have not been closed off by the IP survey. If favourable geology exists then further fill-in exploration by IP and soil geochemistry methods is recommended to determine the exent of and close off the anomalies.

Respectfully Submitted, LLOYD GEOPHYSICS INC.

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Daniel A. Klit, B.Sc. Geophysicist

John Lloyd, M.Sc., P.Eng Geophysicist



APPENDICES

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(A) PERSONNEL EMPLOYED ON SURVEY

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<u>Name</u>	Occupation	Address	Dates
J Lloyd	Geophysicist	LLOYD GEOPHYSICS INC.	June 15/94
		1007-1166 Alberni Street	
		Vancouver, B.C. V6E 3Z3	
D Klit	Geophysicist	H	June 13,14/94
			March 18-20,30,31/94
			May 24-31/94
B Waddington	n Geophysi	icist "	March 18-20,30,31/94
C Bilquist	Geophysical	u	March 18-20,30,31/94
	Technician		
A Lloyd	Geophysical	11	May 24-31/94
	Technician		
I Campbell	Geophysical	89	May 24-31/94
	Technician		
R Wheater	Geophysical	11	May 24-31/94
	Technician		
B Westerberg	Helper	*	March 18-20,30,31/94
W Thomas	Helper	1 7	March 18-20,30,31/94
A Savard	Helper	tt	May 24-31/94



(B) COST OF SURVEY

Lloyd Geophysics Inc contracted the IP data acquisition on a per diem basis. Mobilization/demobilization, room and board, truck charges, data processing, map reproduction, interpretation and report writing were additional costs:

1. Line cutting/flagging (Standard Metals Exploration Ltd.)

T.T.1 Claim, 2.0 km @ \$475/km	\$ 950.00
T.T.2 Claim, 1.2 km @ \$300/km	360.00
Sub-Total	\$ 1310.00

2. Induced Polarization Survey (Lloyd Geophysics Inc.)

T.T.1 claim, 1 day @ \$1350/day	\$ 1,350.00
T.T.2 claim, 1 day @ \$1350/day	1,350.00
Ace Grid, 7.0 days @ \$1350/day	9,450.00
Truck, 9 days @ \$85/day	765.00
Room and Board, 9 days @ \$300	2,700.00
Mob, Demob	700.00
ATV's, 2 @ \$30/day	1,059.30
Report	<u>1,075.00</u>
Sub-Total	\$ 18,449.30

3. Project Preparation (Strathcona)

TOTAL

\$ 20,459.30



(C) CERTIFICATION OF AUTHORS

I, John Lloyd, of 1007-1166 Alberni Street, in the City of Vancouver, in the Province of British Columbia, do hereby certify that:

- 1. I graduated from the University of Liverpool, England in 1960 with a B.Sc. in Physics and Geology, Geophysics Option.
- 2. I obtained the diploma of the Imperial College of Science and Technology (D.I.C.), in Applied Geophysics from the Royal School of Mines, London University in 1961.
- 3. I obtained the degree of M.Sc. in Geophysics from the Royal School of Mines, London University in 1962.
- 4. I am a member in good standing of the Association of Professional Engineers in the Province of British Columbia, the Society of Exploration Geophysicists of America, the European Association of Exploration Geophysicists and the Canadian Institute of Mining and Metallurgy.
- 5. I have been practising my profession for over twenty-five years.

Vancouver, B.C.

June, 1994



Certification

I, Daniel A. Klit, of 1007-1166 Alberni Street, in the City of Vancouver, in the Porvince of British Columbia, do hereby certify that:

1. I graduated from the University of British Columbia in 1987 with a B.Sc. in Geophysics.

 I am a member in good standing of the Society of Exploration Geophysicists of America, British Columbia Geophysical Society, and British Columbia and Yukon Chamber of Mines.

3. I have practiced my profession continuously since 1986.

Vancouver, B.C. June 1994

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(D) REFERENCES

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Aulis, R.J., (1993); Assessment report; Geological and geochemical surveys on the Lac La Hache property (Two Mile Lake Group).

Klit, D.A., Lloyd, J.,(1994); An assessment report on an Induced Polarization survey on the Ray, Oley and Abbey claim groups, Lac La Hache Project area, Cariboo Mining Division, British Columbia



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