GM 52214

ASSESSMENT REPORT ON THE 1991-1992 EXPLORATION PROGRAM, LAC MARCAUT PROPERTY

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NORTH BAY, ONTARIO

ASSESSMENT REPORT ON THE 1991-1992 EXPLORATION PROGRAM ON THE LAC MARCAUT PROPERTY TOWNSHIP 1509, JAMES BAY REGION NORTHWESTERN QUEBEC

by

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Report No. 1232NB

N.T.S. 32 N/4

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SUMMARY

In 1992 Teck Exploration Ltd. carried out a gold exploration program on the 1616 hectare Lac Marcaut property located in Township 1509 in the James Bay region of northwestern Quebec. Teck was participating in a joint venture to explore the 101-claim property with Fancamp Resources Ltd. and Fort Rupert Resources Ltd. Under the joint venture agreement, Teck could earn an interest of up to 70% in the property by fulfilling option payment and exploration commitments lasting until mid-1997.

The center of interest on the property is the Lac Marcaut showing which consists of an 80 meter long exposure of a thin, gold-bearing, massive iron sulphide formation. Grab samples collected by Teck geologists from the footwall and hanging wall contacts of the sulphide unit yielded assays as high as 27 g/t gold. The association of gold with the massive sulphides and the knowledge that the sulphide horizon had a minimum strike length of about 3 kilometers convinced the company that the Lac Marcaut property possessed good exploration potential.

The 1991-1992 program conducted by Teck on the property involved approximately 115 km of line cutting, 105.8 km of magnetometer surveying, about 100 km of horizontal loop electromagnetics surveying, geological mapping, minor trenching, and the diamond drilling of 17 short bore holes totalling 1,940.65 m, two of which were abandoned in overburden. Expenditures incurred by Teck for this program amount to $190,663.42.

The results of the geophysical surveys proved useful in developing an understanding of the geology underlying the property. For areas with scarce or no outcrops the contoured magnetics data is particularly informative since it distinguishes between sequences of greywackes, mafic lavas, interbedded volcaniclastic wackes and mafic flows, and tonalitic to gabbroic intrusive rock. The electromagnetics data were even more helpful in the exploration program, considering that a series of subparallel, laterally continuous conductors were well defined and one of these conductors represents the strike extensions of the auriferous sulphide horizon exposed at the discovery showing.

Geological mapping determined that a belt of magnetically responsive rocks which

crosses the length of the property and also hosts most of the conductors consists of amphibolitized low Ti, low K, high Mg tholeiites of basaltic to basaltic-andesite composition. These lavas and synvolcanic sills are locally separated by thin units of sulphidic metawacke or lean iron formation. Metamorphosed greywackes appear to underlie the area north of the amphibolites, and a short distance to the south lies the Lac Marcaut sulphide horizon.

Two zones of gold-bearing pyrrhotite/pyrite mineralization were intersected by the 15 bore holes drilled into bedrock. Nine holes tested a 2.8 km section of known strike length of the Lac Marcaut horizon. The best intersection in terms of gold mineralization was obtained in hole LM-2 from which an 80 cm long section of massive pyrrhotite and minor pyrite assayed 3.52 g/t gold. This intersection lies 200 m east and about 90 m downdip of where channel samples assaying 3.77 g/t Au across 1.85 m and 6.86 g/t Au across 1.3 m were collected.

A second zone of pyrrhotite-associated gold mineralization was discovered about 100 m south of the Lac Marcaut horizon in hole LM-1A. Instead of occurring as a massive unit, the pyrrhotite mineralization of the so-called South Zone is in the form of veinlets and small masses occupying brittle fractures and narrow breccia zones. The South Zone intersection in LM-1A assayed an average of 1.42 g/t Au over 6.8 m. The only other significant intersection of this zone was in hole LM-3 which is collared 200 m grid west of LM-1A. The 11.9 m section of sulphide veining in this hole assayed an averaged value of 1.27 g/t Au, which includes a 2.05 m section at 3.41 g/t gold.

Gold on the Lac Marcaut property occurs in two fundamentally different settings. It is dispersed in a massive pyrrhotite/pyrite interflow unit where it is probably syngenetic in origin and secondly, it is hosted by iron sulphide veinlets which are likely the product of sulphide remobilization that occurred after peak deformation and metamorphism. These observations have lead to the conclusion that the gold mineralization of the South Zone was remobilized from the weakly auriferous sulphide iron formation lying nearby.

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INTRODUCTION

In 1992 Teck Exploration Ltd. carried out a gold exploration program in Quebec's Township 1509, located approximately 220 kilometers north of the base metal mining community of Matagami. Referred to as the Lac Marcaut property, the claim group consists of 101 contiguous, unpatented mining claims which cover an area of about 1616 hectares.

Teck Corporation optioned the Lac Marcaut property from Fancamp Resources Ltd. and Fort Rupert Resources Ltd., Quebec-based junior companies with equal shares in the mineral rights of the claim group.

Teck decided to option the Lac Marcaut property following an examination of the main gold showing conducted in late 1991 by Teck personnel out of the North Bay office. Discovered by prospecting in October, 1987, the Lac Marcaut showing consists of a strataform massive iron sulphide unit which is exposed intermittently for a strike length of 80 meters and varies in thickness from 0.3 to 1.4 meters. Although the base metal content of the sulphide horizon is generally low, grab samples collected from both the footwall and hanging wall contact yielded gold assays as high as 27 g/t Au. Channel samples of the Sulphide unit, taken from half a dozen points along the exposed horizon, confirmed the auriferous nature of the sulphide mineralization, with assays ranging between 1 and 7 g/t Au. These assay results, considered in conjunction with geophysical evidence showing that the massive sulphide horizon has a minimum untested strike length of 3 kilometers, gave a favourable impression of the exploration potential of the property. Thus, it was concluded that the property warranted a systematic exploration program with the target being a gold-rich polymetallic sulphide deposit of volcanogenic origin.

The 1991-1992 exploration program carried out by Teck on the Lac Marcaut property consisted of ground magnetic and horizontal loop electromagnetic surveys, geological mapping, and the diamond drilling of 17 boreholes. This report presents the results of the 1991-1992 program.

LOCATION AND ACCESS

The Lac Marcaut property is situated in the central part of the Township 1509 approximately 220 kilometers north of the town of Matagami (Figure 1). Considering the remoteness of the claims, access to the property is relatively easy, since a paved highway which exists between Matagami and the LG-2 hydro installation at Radisson passes less than 3 kilometers east of the property. At about kilometer 200 on the highway a gravel road turns off to the west and lead to a large sand pit which lies within the eastern portion of the claim group. This site was used for the 1992 field camp. A network of old muskeg tracks extends westwards from the sand pit, with the main trail ending about one kilometer east of the Lac Marcaut showing.

PHYSIOGRAPHY AND VEGETATION

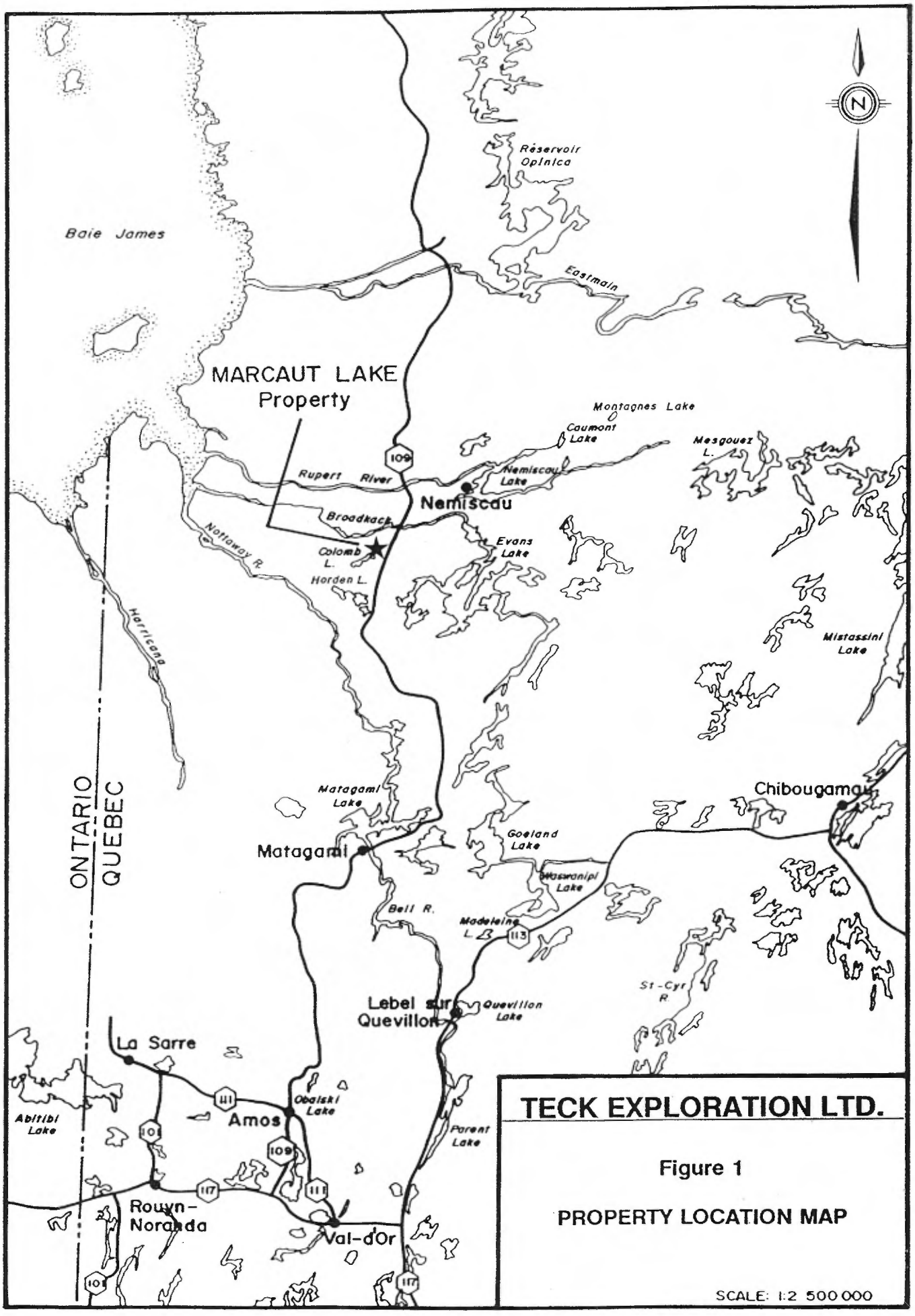
The property lies within the southern limits of the black spruce taiga country which covers most of northern Quebec. Topographic relief probably does not exceed 50 meters. There is a concentration of northeasterly trending bedrock ridges in the western quarter of the property, and in the east there is a broad hill of glacial sand and gravel.

Approximately 15% of the claim group overlies Lac Colomb and the connected lake which is locally referred to as Lac Marcaut. In addition to these bodies of water there are several ponds or small "kettle-like" lakes scattered across the property.

As is characteristic of the taiga, black spruce is by far the dominant tree species, occurring in discontinuous stands interspersed with spruce muskeg. None of the forested areas have any economic timber value.

THE PROPERTY

The Lac Marcaut property comprises 101 contiguous unpatented mining claims (Figure 2) which were staked in October, 1989 for the equal partners Fancamp Resources Ltd. and Fort Rupert Resources Ltd. The licence numbers of the claims and their recording


Baie James
Réservoir Opinica
Eastmain
MARCAUT LAKE
Property
Montagnes Lake
Caumont Lake
Mesgouez L.
109
Rupert River
Nemiscau Lake
Nemiscau
Broadback
Nottaway R.
Colomb L.
Horden L.
Evans Lake
Harricana
Mistassini Lake
ONTARIO
QUEBEC
Matagami Lake
Chibougamau
Matagami
Goeland Lake
Waswanipi Lake
Bell R.
Madeleine L.
113
St-Cyr R.
Lebel sur Quevillon
Quevillon Lake
La Sarre
111
Obalski Lake
Amos
Abitibi Lake
101
109
Parent Lake
117
111
Rouyn-Noranda
Val-d'Or
101
117
N
TECK EXPLORATION LTD.
Figure 1
PROPERTY LOCATION MAP
SCALE: 1:2 500 000

dates are listed below. On July 28, 1991 Teck Corporation was granted the option to enter into a joint venture with Fancamp Resources and Fort Rupert Resources to explore and develop the Lac Marcaut property, where Teck's interest in the property would be either 51% or 70% depending on the amount expended by Teck on exploration and how long it chooses to deliver option payments to the junior companies.

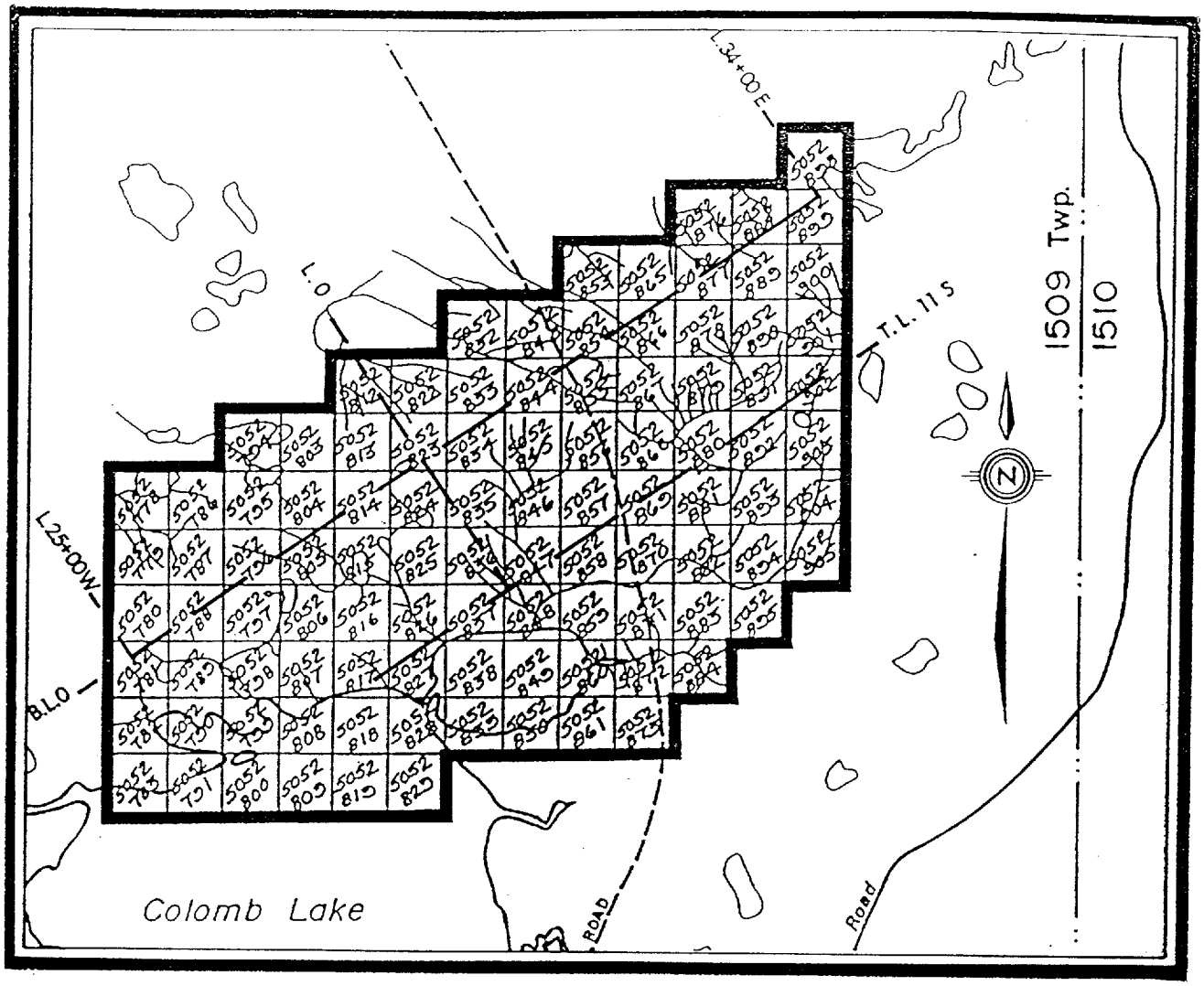
TABLE 1
LIST OF CLAIMS

Claim Licence Numbers	# of Claims	Date Recorded
5052778 to 5052783	(6)	27/11/89
5052786 to 5052791	(6)	27/11/89
5052794 to 5052800	(7)	27/11/89
5052803 to 5052809	(7)	27/11/89
5053812 to 5052819	(8)	27/11/89
5052822 to 5052829	(8)	27/11/89
5052832 to 5052839	(7)	27/11/89
5053843 to 5052850	(8)	27/11/89
5052853 to 5052861	(9)	29/11/89
5052865 to 5052873	(9)	29/11/89
5052876 to 5052884	(9)	29/11/89
5052888 to 5052895	(8)	29/11/89
5052898 to 5052905	(8)	29/11/89

PREVIOUS WORK

Due to its remote location, the Chaboullié-Colomb greenstone belt remained essentially unexplored until the late 1950's when major mining companies began venturing further afield with airborne geophysical surveys. The following outline of work done in the area of the Lac Marcaut property since that time is summarized from a technical report on the Lac Marcaut property written by a Bertrand Taquet for the optionees (Taquet, 1989).

In 1957, Noranda Exploration flew a combined airborne magnetic and electromagnetic survey over the length of the greenstone belt. Prospectors, probably working for Noranda, also discovered extensive sulphide mineralization at the southern end of the belt.



SCALE: 1 50000

1000 0 1000 2000 3000

METRES

TECK EXPLORATION LTD.

Figure 2

CLAIM LOCATION MAP

In 1962, the Quebec Ministry of Natural Resources geologically mapped Colomb-Chaboullié-Fabulet area (at a scale of 1 inch to 1 mile) (RP-514 by J. Renick). At about the same time, the Canadian Nickel Company, once Inco's exploration division, carried out ground magnetic and electromagnetic surveys on several small grids distributed between Lac Chaboullié and the Broadback River. Numerous holes were drilled, eventually leading to the discovery of an Fe-Cu-Ni sulphide deposit at the contact between anorthositic metagabbro and pegmatitic muscovite granite. Estimated geological reserves for the deposit are in the order of 5 million tonnes grading 1.47% Cu, 0.39% Ni, 23 g/t Ag, and 0.7 g/t Au. Of the several holes drilled by Canico one is reported to be located close to the western boundary of the present Lac Marcaut property.

In 1964, Crowpat Minerals Ltd. conducted ground magnetic and electromagnetic surveys on a property situated north of Lac Colomb which would have covered the western portion of the Lac Marcaut property. A small number of samples, collected during reconnaissance mapping and manual trenching programs, were analyzed for Cu, Ni, Zn and Ag. Results of the assays showed low concentrations of these metals in the samples.

Exploring for a sulphide deposit similar to the gabbro-associated Inco occurrence, Soquem commissioned an airborne magnetic-electromagnetic survey of the Chaboullié-Colomb belt in 1972. The northern block of this survey, which covered the area of the Lac Marcaut property, was devoid of good electromagnetic conductors within the belt of gabbroic rocks, although several laterally continuous and subparallel conductors were delineated in the belt of metavolcanics and biotitic schists lying north of the gabbros. Soquem followed up the airborne survey by establishing a number of small grids over the metavolcanics to better define the conductors using ground magnetic and electromagnetic surveys in the search for base metal drill targets. Grid #8 covered the western corner of the Lac Marcaut claim group and was the site of a single diamond drill hole. Pyrrhotite mineralization intersected in this hole yielded anomalous assay values for gold and nickel.

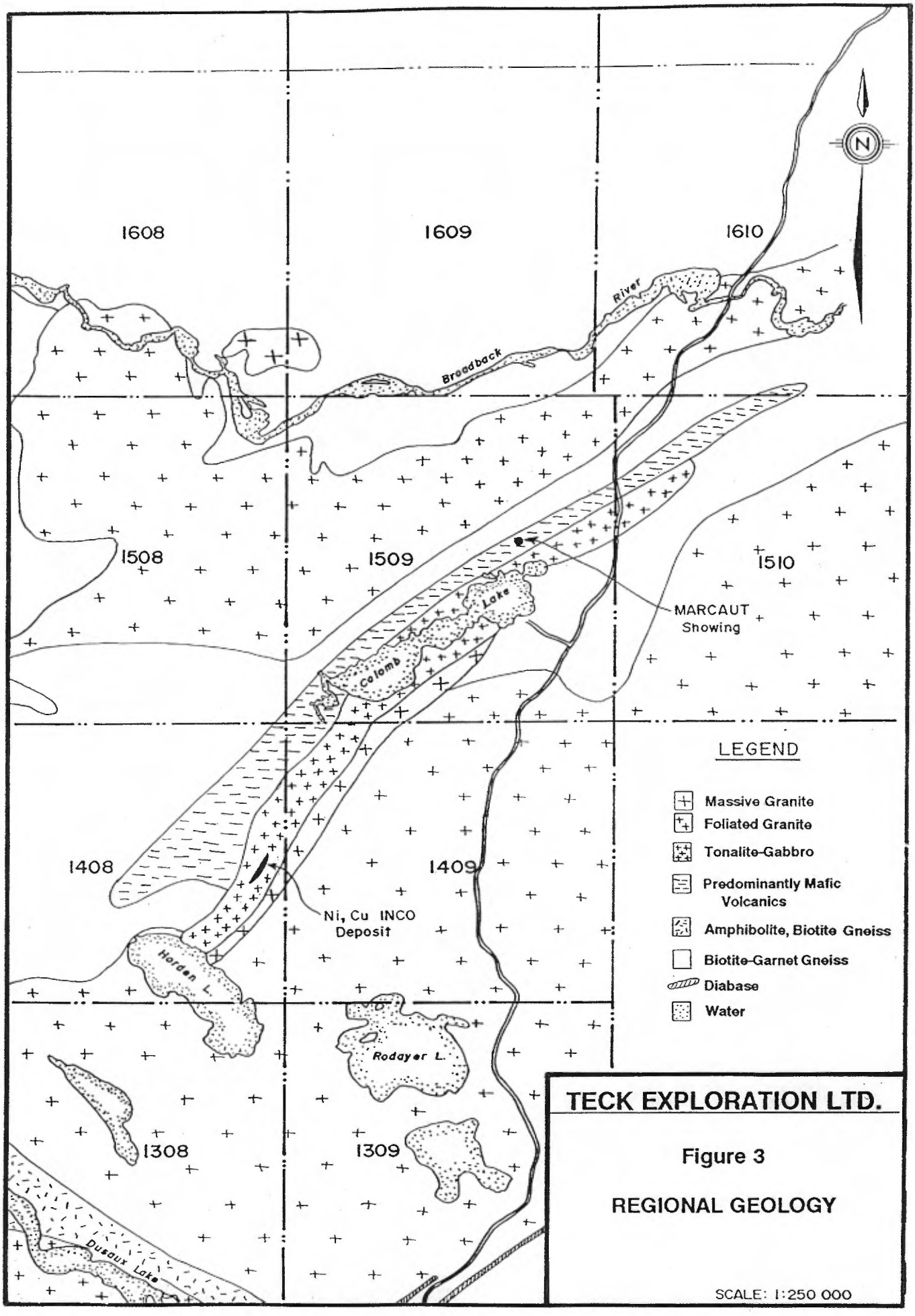
Beginning in 1987 and continuing into 1988, Fancamp Resources Ltd. carried out a program of data compilation along with geological reconnaissance and bedrock sampling in the area of metavolcanic rocks north of Lac Colomb as well as in the company's

Broadback property located further to the northeast. Two gold showings were discovered during the course of this reconnaissance. An exposure of a one meter thick massive pyrrhotite unit, located approximately 1200 meters north of the western end of Lac Marcaut, produced a sample which assayed 17 g/t Au (check assay of 128 g/t Au). The other showing occurs east of the Matagami-Radisson highway on Fancamp Resources' Broadback property and consists of auriferous arsenopyrite mineralization associated with a granitic dike.

In October, 1989, Fancamp Resources Ltd. and Fort Rupert Resources had the 101 claims of the Lac Marcaut property staked. While the staking was being done, the discovery showing was examined more thoroughly. A number of trenches were blasted into the exposure and systematic channel sampling was done. In addition, a reconnaissance horizontal loop electromagnetic survey was carried out mainly west of the showing in an attempt to trace out the sulphide horizon along strike.

GENERAL GEOLOGY

The Lac Marcaut property lies within a belt of metamorphosed Archean sedimentary and volcanic rocks intruded by a large subconformable gabbroic body (Figure 3). The northeasterly trending greenstone belt ranges up to 5 km in width, and extends approximately 70 km from Lac Chaboullié in the south to Lac Lavau and the Broadback River in the north. Granitic gneisses border most of the belt with an exception at the southern end where a thin pegmatitic granite intrusion occurs along the southern margin of the belt. The internal structure of the belt appears to be that of a southeasterly dipping homocline comprising basaltic flows and sills flanked by metagreywacke sequences. The large gabbroic intrusion follows the southern margin of the metavolcanics for at least 35 kilometers. Metamorphic grade in the belt ranges from upper greenschist to amphibolite facies. In areas of higher grade metamorphism mafic volcanics are represented by amphibolites and greywackes take the form of biotite paragneisses.


1608
1609
1610
1508
1509
1510
1408
1409
1308
1309
N
Broadback River
Colomb Lake
MARCAUT Showing
Ni, Cu INCO Deposit
Horden L.
Rodayer L.
Dusaux Lake
LEGEND
Massive Granite
Foliated Granite
Tonalite-Gabbro
Predominantly Mafic Volcanics
Amphibolite, Biotite Gneiss
Biotite-Garnet Gneiss
Diabase
Water
TECK EXPLORATION LTD.
Figure 3
REGIONAL GEOLOGY
SCALE: 1:250 000

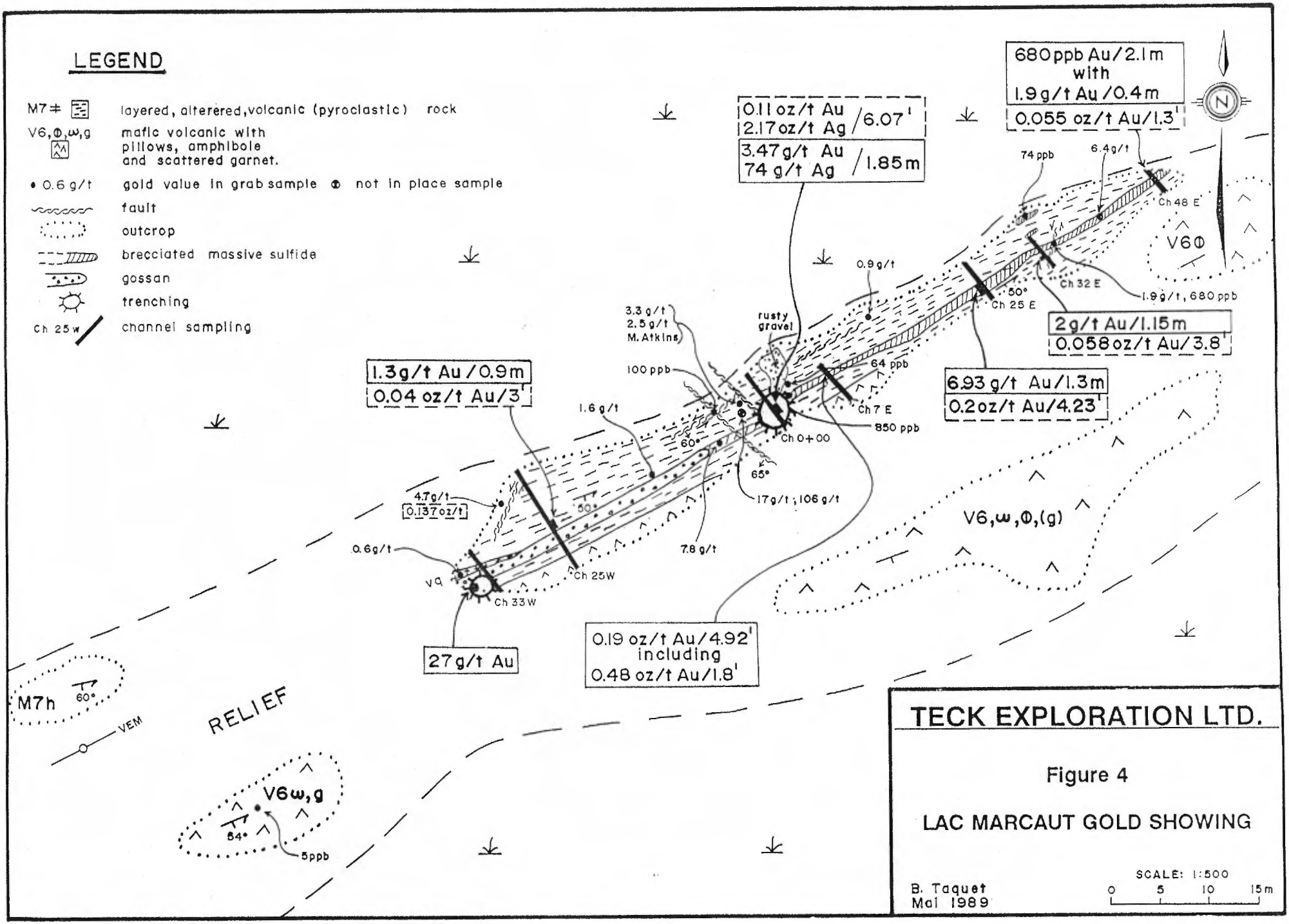
EXPLORATION TARGET

Clearly, the first companies to explore the mineral potential of the Lac Marcaut area were interested in the swarm of subparallel bedrock conductors which had been detected within the belt of metavolcanics. Testing for base metal mineralization, Inco and then Soquem a decade later drilled two separate conductors within the limits of the present property. The Inco hole was targeted on a conductor close to the southwestern boundary of the property. Assays of massive and disseminated pyrrhotite and pyrite mineralization in this hole gave values of 200 ppb Au across 5.5 m and 0.1% Cu and 0.14% Ni across 1.5 m. The Soquem drill hole, located about 750 m northeast of the Inco hole, intersected similar sulphide mineralization assaying 380 ppb Au and 0.21% Ni across 3.5 m.

The discovery of the Casa Berardi gold deposits in northwestern Quebec is largely attributed to the gold mineralization being spatially associated with a conductive graphitic fault. The directors of Fancamp Resources and Fort Rupert Resources speculated that economic quantities of gold might exist in a similar setting within the conductor-rich Chaboullié-Colomb greenstone belt. This lead to the reconnaissance of the Lac Marcaut area in October, 1987 and the discovery of the showing.

The Lac Marcaut gold occurrence is exposed in an 80 m long outcrop ridge at the southern edge of an open muskeg area (Figure 4). The gold is associated with a massive iron sulphide unit which pinches and swells across the length of the outcrop. The maximum thickness of the unit is about 1.4 meters. Stratiform, striking at about 60°, and probably syngenetic in origin, the sulphide layer lies approximately at the contact between pillowed basalt to the south and a creamy weathering, thinly but irregularly layered unit composed of fine-grained feldspar, biotite, and amphibole. The latter unit has been variously described as altered tuff or volcaniclastic sediment, sheared pyroclastic, and mylonitized pillow basalt. Both the hanging wall and footwall rocks appear to be silicified up to a few meters from the sulphide unit.

A trench blasted into and across the sulphide-bearing horizon reveals that it is rather heterogeneous in composition. From its sharp northern or footwall contact, the unit is seen


LEGEND
M7≠ layered, alterered, volcanic (pyroclastic) rock
V6,Φ,ω,g mafic volcanic with pillows, amphibole and scattered garnet.
• 0.6 g/t gold value in grab sample Φ not in place sample
fault
outcrop
brecciated massive sulfide
gossan
trenching
Ch 25 w channel sampling
680 ppb Au/2.1 m with 1.9 g/t Au/0.4 m
0.055 oz/t Au/1.3'
0.11 oz/t Au 2.17 oz/t Ag /6.07'
3.47 g/t Au 74 g/t Ag /1.85 m
74 ppb
6.4 g/t
Ch 48 E
V6Φ
0.9 g/t
Ch 32 E
50°
Ch 25 E
1.9 g/t, 680 ppb
2 g/t Au/1.15 m
0.058 oz/t Au/3.8'
3.3 g/t
2.5 g/t
M. Atkins
rusty gravel
64 ppb
6.93 g/t Au/1.3 m
0.2 oz/t Au/4.23'
Ch 7 E
1.3 g/t Au/0.9 m
0.04 oz/t Au/3'
100 ppb
1.6 g/t
60°
Ch 0+00
850 ppb
65°
17 g/t; 106 g/t
4.7 g/t
0.137 oz/t
50°
0.6 g/t
7.8 g/t
Ch 25W
Ch 33W
27 g/t Au
0.19 oz/t Au/4.92'
including
0.48 oz/t Au/1.8'
V6,ω,Φ,(g)
M7h
60°
VEM
RELIEF
V6ω,g
54°
5ppb
N
TECK EXPLORATION LTD.
Figure 4
LAC MARCAUT GOLD SHOWING
B. Taquet
Mai 1989
SCALE: 1:500
0 5 10 15m

to consist of a graphitic pyrrhotite-pyrite layer, 2-10 cm thick, which is overlain by the main sulphide layer comprising massive pyrrhotite hosting 1-5 cm nodules or rounded clasts of quartz and pyrite. In the hanging wall and directly in contact with the massive sulphide "fragmental" is a 10 cm thick band of siliceous rock containing disseminated pyrrhotite and blebs of chalcopyrite and sphalerite.

Gold contents are anomalous throughout the sulphide unit but are greatest in the thin siliceous zones at both contacts. A grab sample of the hanging wall contact zone assayed 0.72 oz/t Au, and a sample from close to the footwall gave a value of 0.41 oz/t Au (Teck samples 5890 and 5891). Grab samples of the massive sulphide rock typically yield assay values ranging between 0.04 and 0.08 oz/t Au. As might be expected, when channel samples are taken across the sulphide layer the high gold concentrations at the contacts are diluted by the less rich massive sulphide core. Two of the better channel samples collected in 1989 are reported to be 0.11 oz/t Au and 2.17 oz/t Ag across 6.07 feet and 0.20 oz/t Au across 4.23 feet, with about 80 feet separating the samples.

The Lac Marcaut showing is the first significant gold discovery to have been made in the Chaboullié-Colomb greenstone belt, coming some 35 years after the belt's mineral potential first began to be explored. Remarkably, the discovery was made through simple prospecting during a five day period in the field. Thus, it would seem that previous prospecting in the region was cursory at best, and secondly, it is unlikely that the showing is either a unique occurrence or the largest in the region. Specifically with respect to the Lac Marcaut property, it would be highly fortuitous if the gold showing represented an isolated occurrence considering that the known mineralization is associated with a sulphide unit which reconnaissance geophysics indicates has an overburden-covered strike length of at least 3 km and possibly as much as 6 km on the property.

Recognizing the exploration potential of the property, Teck decided to option the claims in 1991 with the intention of systematically testing the strike and dip extensions of the auriferous sulphide horizon with a diamond drilling program.

1991-1992 EXPLORATION PROGRAM

Line Cutting

In September, 1991, Teck Explorations contracted the cutting and chaining of approximately 74.9 kilometers of grid lines on the Lac Marcaut property to G.L. Geoservice Inc. Four kilometers of base line, were cut at 060°, with the western end of the line beginning at the western property boundary. Cross lines were cut at 100 m spacings, with pickets set up at 25 m intervals. A tie line originating at 11+00mS close to the shoreline of Lac Colomb was also cut.

In March, 1992, the grid was extended over the eastern part of the property. The base line was continued to the eastern property boundary for a distance of 1.9 km, and approximately 28.5 km of cross lines were added. The origin of the combined grids (BLO, 0+00) was chosen to be the main trench at the Lac Marcaut showing.

Ground Geophysical Surveys

In September, 1991 and again in March, 1992, ground magnetic and electromagnetic surveys were conducted on the Lac Marcaut property upon the completion of line cutting of the original grid and then the grid extension. G.L. Geoservice Inc. of Rouyn-Noranda, Quebec was contracted by Teck to do this work. Two reports with accompanying maps were prepared by the contractor for Teck.

A total of 105.8 km of grid lines were surveyed with two Scintrex/EDA OMNI IV magnetometers. This microprocessor-equipped instrument measures the earth's total magnetic field intensity and has a sensitivity of 0.1 gammas. Readings obtained in the surveys were corrected for the diurnal drift of the earth's magnetic field using a base station instrument kept on the property during surveying. Station readings were generally taken at 12.5 m intervals. Two sets of magnetic data maps were produced by the geophysical contractor, one set each for the main grid and the grid extension. A map set consists of two 1:5 000 scale plans. One shows the survey grid with corrected station readings plotted

along the lines and the other is a contour map of the total field intensity.

The electromagnetic surveys carried out on the two contiguous grids employed a MaxMin II instrument system, produced by Apex Parametrics, which is based on a horizontal loop transmitter. A primary electromagnetic field, produced by passing on alternating current through the transmitter coil, will induce currents in subsurface conductors in accordance with the laws of EM induction. These currents in turn give rise to secondary EM fields. The receiver coil, which is coplanar with the transmitter, measures both the real and imaginary (in-phase and quadrature) components of this secondary field, as a percentage of the transmitted primary field.

In order to penetrate the thick glacial deposits on the property a coil separation of 150 m was used for the surveys. Survey stations were spaced at 25 m intervals along the lines. Three secondary field measurements were recorded at each station, corresponding to primary field transmissions at 3555 Hz, 1777 Hz, and 444 Hz. In total, 99.9 km of grid lines were surveyed with the method. The survey results are presented in two sets of three 1:5000 scale plans, one plan for each transmission frequency. The in-phase and quadrature measurements are graphically plotted as profiles along the grid lines.

Geological Mapping

In June, 1992, the author and D. Tarnocai, a recent graduate of Brock University, geologically mapped the property using the cut grid lines for control. The majority of bedrock exposures were found to lie north (and within 500 m) of the base line, west of cross line 10+00mE. During the course of mapping, 60 bedrock samples were collected and analyzed for either Au only or Au plus Ag, Cu and Zn. Two of the samples were also analyzed for Ni content. An additional 26 representative samples were collected for whole rock analysis of major oxides and Zr. The interpreted geology of the property together with sample locations are presented on a 1:5000 scale plan (Drawing 6879).

Manual Trenching

During the course of mapping the property an outcrop ridge marked by extensive iron oxide staining was discovered about 225 m northwest of the main showing. It was decided that shallow trenches should be blasted across the sulphide-bearing zone so that unoxidized mineralization could be properly sampled. Another trench was blasted across a sulphide-mineralized subcrop located at about 22+75mW/0+35mS on the grid. Interestingly, the subcrop, which was buried beneath 80 to 1150 cm of moss and soil, had been located using a BEEP-MAT electromagnetic survey device. This instrument consists of a small horizontally oriented transmitter coil which is pulled along behind the operator in a plastic sled-like apparatus. A battery power-pack and the receiver, which is linked to the transmitter "mat", are carried by the operator.

The new trenches were cleaned of dirt and loose rock and then chip sampled. Most samples consisted of approximately 1 m sections across the mineralized units.

Diamond Drilling

During the period from July 13 to August 28, 1992, Moderne Drilling (1985) Inc., under contract to Teck Exploration Ltd., diamond drilled seventeen (17) boreholes with a combined length of 1,940.65 meters. The locations of the drill holes are shown on Drawing 6879.

One of the boreholes (LM-14) was targeted on the same conductor that was drilled by Soquem in 1974; the hole being located about 750m east of the Soquem hole. The other Teck holes tested two electromagnetic conductors identified south of the base line along a strike distance of 3.3 km. The drilling sites were chosen in order to probe the conductors over a significant strike length and to test a variety of magnetic and electromagnetic responses.

The BQ-sized drill core was logged in detail and stored at the field camp located in the large sand pit on the property. A total of 157 samples of mineralized core were split and

assayed for Au, and a large number of these samples were also assayed for Ag, Cu and Zn. Ten composite core samples were analyzed for major oxide contents and Zr for the purpose of lithological classification and a quantitative examination of possible compositional alteration. The assaying was done by Assayers Laboratories in Rouyn-Noranda, whereas the whole rock analyses were provided by Bondar-Clegg Laboratories in Ottawa.

Table 2 summarizes the drill hole data for the 1992 Teck program.

TABLE 2

DRILL HOLE DATA

HOLE	LOCATION	DIP	AZIMUTH	LENGTH
LM-1	0+00 2+50mS	-50°	330°	54.0m lost in overburden
LM-1A	0+00 2+52mS	-50°	330°	219.45m
LM-2	2+00mE 1+75mS	-50°	330°	114.0m
LM-3	2+00mW 0+75mS	-45°	330°	89.0m
LM-4	8+00mW 1+60mS	-50°	330°	90.7m
LM-5	15+00mW 1+75mS	-50°	330°	90.0m
LM-6	19+00mW 1+50mS	-50°	330°	87.0m
LM-7	22+00mW 1+00mS	-50°	330°	84.0m
LM-8	6+00mE 2+00mS	-50°	330°	93.0m
LM-9	8+00mE 3+25mS	-45°	330°	192.0m
LM-10	5+00mE 3+50mS	-55°	330°	113.7m
LM-11	11+00mE 3+67mS	-50°	330°	114.0m
LM-12	1+00mE 2+50mS	-50°	330°	201.0m

LM-13	1+00mW 2+50mS	-50°	330°	42.0m lost in overburden
LM-13A	1+00mW 2+49mS	-50°	330°	192.0m
LM-14	7+00mW 0+25mN	-50°	330°	81.0m
LM-15	3+00mE 1+85mS	-50°	330°	83.8m

EXPENDITURES

Project expenditures incurred by Teck amount to $190,663.42. A breakdown of these costs is presented in Table 3.

TABLE 3

EXPENDITURES

Line Cutting	23,592.20
Ground Geophysics	23,192.40
Geology	19,226.30
Diamond Drilling	124,652.52
Total	$190,663.42

RESULTS

Ground Geophysical Surveys

The contour plans of the magnetometer survey data (see Appendix D) show the presence of a belt of relatively high magnetic response extending across the central part of the Lac Marcaut property. Most of the areas north and south of this feature are devoid of prominent magnetic anomalies. The gently undulating magnetic belt has a width of 300 to 400 meters, trends at about 070 degrees mostly just north of the base line, and consists of

two and locally three, subparallel magnetic "ridges" which are defined by readings of greater than 58,800 gammas. Another much shorter magnetic linear also strikes along and just south of the base line for about 1100 meters from the western property boundary to L14+00mW. Of minor significance is a general increase in the magnetic field strength within 300 to 400 meters of tie line 11+00mS, the property's southern boundary.

The horizontal-loop electromagnetic surveys proved to be effective in delineating several conductive horizons in the northern half of the property. There appear to be five main semi-continuous, subparallel conductors with conductivity-thickness values commonly ranging from 15 to 50 mhos, with short sections producing readings of greater than 100 mhos. The most conductive horizon lies in the middle of the conductor series and basically coincides with the most prominent of the magnetic "ridges". Also, the southernmost conductor is locally coincident with a discontinuous magnetic linear which trends south of the base line. Two other conductors are defined in the area of relatively low magnetic response situated north of the belt of anomalously magnetic rocks.

The massive sulphide mineralization of the Lac Marcaut showing is represented by a conductor which extends eastwards from the 0+00 for more than 3 kilometers, mostly within 150 meters and south of the base line. West of the showing it is unclear whether the sulphide horizon is represented by the conductor delineated south of the base line or the one which is located 100 to 200 meters north of the base line.

Geological Mapping

As can be seen in Drawing 6879 (see back pocket), nearly all of the bedrock exposures on the property are located north of the base line and west of L10+00mE. More specifically, within the belt of relatively high magnetic response, outcrop ridges form about 10% of the surface area.

The dominant rock type mapped on the property consists of a fine-grained mafic metavolcanic which is interpreted to be the amphibolite-facies metamorphic equivalent of massive basaltic lava. Pillowed amphibolites were also commonly observed, however, the

pillow structures tend to be poorly preserved. Moderate to severe flattening of pillows and the dislocation of pillow rims made the determination of stratigraphic facings all but impossible. At only a single exposure on L12+00mW could a northwest tops determination be confidently identified. In addition, there are occasional but relatively widespread outcrops of medium-grained amphibolite which probably represent synvolcanic mafic sills or the core sections of thick flows.

Fine-grained feldspar-biotite schists representing metamorphosed wackes occur along the northern margin of the belt of extensive bedrock exposure. As well, there are a few isolated outcrops of metawacke further to the northwest within the broad area of low magnetic response.

Two thin but laterally continuous units of metamorphosed wackes and minor iron formation are present within the sequence of metabasalts exposed on the property. One unit strikes 150 to 250 meters north of the base line and consists of quartz-feldspar-biotite schist and granofels intercalated with thin, discontinuous subunits of garnet-pyrrhotite-actinolite schist and magnetite-bearing metachert. The other metasedimentary unit can be observed immediately south of the base line close to the western property boundary as well as at the Lac Marcaut showing. This unit is more siliceous or feldspathic than the unit to the north and contains the massive to semi-massive pyrrhotite-pyrite horizon exposed in the main trenches.

The area southeast of the base line is devoid of bedrock exposures except for the few outcrops which lie close to the base line and a single outcrop of tonalite intrusive located 200 meters northwest of Lac Marcaut.

The mapping shows that a moderate degree of regional structural deformation has occurred. A penetrative foliation is developed in most of the rocks, generally striking between 055° and 075° and dipping 40° to 50° to the southeast. It is presumed that in most places the structural fabric parallels lithological contacts.

The degree of strain in the rocks appears to increase as one approaches the contacts

between amphibolites and the metawacke units. Proximal to these contacts, the amphibolites commonly display a gneissic texture and a more strongly developed cleavage. Also, locally in the amphibolites there are disjointed and contorted bands and lenses of feldspathic material which may represent disrupted pillow rims. At the contact specifically, there are numerous meter-scale, z-shaped, asymmetric folds formed in the metawackes. The axes of these folds typically plunge at moderate angles to the south. This dextral folding also appears to have affected the main volcanic-sedimentary contact in the central part of the property.

Lithogeochemistry

A study was carried out on the major oxide geochemistry of the 26 bedrock samples collected during the mapping program. The objective of the study was to determine the petrological identity of the rocks encountered in the field as well as any alteration trends which may have affected them. Details of the computer-assisted study and its results are presented in a report by D. Tarnocai which accompanies this report as Appendix C.

Basically, the amphibolites represent the amphibolite-facies equivalents of low Ti, low K, high Mg tholeiites of basaltic to basaltic-andesitic composition. So-called "least altered" samples are comparable with an average Archean tholeiite with the exception of lower K_2O and P_2O_5 contents in the Lac Marcaut metavolcanics.

Three quarters of the amphibolite samples were determined to be geochemically altered to some degree. Typically, the altered samples show slight to moderate additions of SiO_2, MnO and K_2O, as well as depletions in Fe_2O_3, MgO, CaO and Na_2O.

A sample of pillowed basalt (#5864) which was collected immediately south of Lac Marcaut sulphide horizon was found to have undergone moderate to very strong Na_2O, K_2O and MgO depletions coupled with minor silicification and significant MnO addition.

Diamond Drilling

The results of the diamond drilling program are recorded in detail in drill hole logs (Appendix A) and are schematically presented in 15 vertical sections (Drawings 6880 to 6894). Assay results are also summarized in Table 4.

The objective of the first hole drilled in the program, LM-1A, was to intersect the Lac Marcaut sulphide horizon approximately 175 meters downdip from the Lac Marcaut showing and to test a moderate conductor detected on L0+00 about 160 meters south of the showing. Drilled at an azimuth of 330° and inclined at -50°, LM-1A passes through a short section of fine-grained amphibolite, followed by 25 meters of metamorphosed greywacke which is intercalated with thin layers of apparently reworked feldspar crystal tuff, and then a 120-meter thick unit of dark grey, fine-grained actinolite-biotite-plagioclase rock which was difficult to classify. Although this unit has been interpreted as a volcaniclastic wacke with a mafic provenance, it could just as easily be interpreted as a potassically altered metabasalt where the sheeted nature of the alteration resembles sedimentary layering.

The Lac Marcaut sulphide horizon was not intersected in LM-1A. It is apparently replaced by a 15 cm-thick, sheared graphitic layer which occurs at the base of a 10 m section of highly fractured and apparently Fe and Mg-depleted metawacke. The other conductor which was targeted by the hole is evidently caused by a 25 cm thick, semi-massive pyrrhotite unit containing small wacke fragments and subangular quartz masses. Overlying this sulphide layer is a 6 m-thick zone of randomly oriented veinlets of pyrrhotite which commonly have margins of dark green chlorite + actinolite. Locally within this mineralized zone, which has been designated as the South Zone, there are sections of quartz flooding in the form of vein-like injections and/or pervasive silicification. Trace amounts of chalcopyrite are commonly present at the edges of the pyrrhotite mineralization.

Although hole LM-1A failed to intersect the primary target, the Marcaut horizon, it did discover a new auriferous structure, the South Zone. This mineralized zone,which is characterized by the pyrrhotite veinlets, produced a 6.8 m-long section of core that assayed 1.42 g/t Au, with a best single assay of 3.54 g/t Au over 0.9 meters.

TABLE 4

SUMMARY OF ASSAY RESULTS

HOLE	COLLAR LOCATION	INTERSECTION	AVERAGED GRADE
LM-1A	0+00 2+46mS	South Zone: 86.4m-93.2m (6.8m) Marcaut Zone: No significant values	1.42 g/t Au
LM-2	2+00mE 1+75mS	Marcaut Zone: 90.5m-92.2m (1.7m)	1.86 g/t Au
LM-3	2+00mW 0+75mS	South Zone and Marcaut Zone: 61.3m-80.1m (18.8m) 68.2m-80.1m (11.9m) 73.8m-78.1m (4.3m) 76.05-78.1m (2.05m)	 0.92 g/t Au 1.27 g/t Au 2.12 g/t Au 3.41 g/t Au
LM-4	8+00mW 1+60mS	Marcaut Zone: 76.75m-81.7m (4.95m)	0.29 g/t Au
LM-5	15+00mW 1+75mS	Marcaut Zone: 81.5m-85.35m (3.85m)	0.29 g/t Au
LM-6	19+00mW 1+50mS	Marcaut Zone: 66.37m-66.95m (0.58m)	0.62 g/t Au
LM-7	22+00mW 1+00mS	Marcaut Zone: 43.2m-45.7m (2.5m)	0.33 g/t Au
LM-8	6+00mE 2+00mS	Marcaut Zone: 72.9m-74.4m (1.5m)	0.66 g/t Au
LM-9	8+00mE 3+25mS	South Zone: 84.28m-99.04m (14.76m) Marcaut Zone: No significant values	0.57 g/t Au
LM-10	5+00mE 3+50mS	South Zone: 103.1m-106.5m (3.4m)	0.40 g/t Au
LM-11	11+00mE 3+67mS	South Zone: 107.75-110.25 (2.5m)	0.54 g/t Au
LM-12	1+00mE 2+50mS	South Zone: 101.1m-103.1m (2.0m) Marcaut Zone: No significant values	1.13 g/t Au
LM-13A	1+00mW 2+49mS	South Zone: 101.85m-103.85m (2- .0m)	0.24 g/t Au
LM-14	7+00mW 0+25mN	Conductor: 66.15m-67.15m (1.0m)	0.31 g/t Au
LM-15	3+00mE 1+85mS	Marcaut Zone: 72.25m-72.87m (0.62m)	0.44 g/t Au

Drill holes LM-2 and LM-3 were collared on sections 2+00mE and 2+00mW, respectively. LM-2 cored through a sequence of apparent mafic volcaniclastic wackes which are locally intercalated with minor reworked feldspathic tuff, and intersected 50 cm of massive, pyrrhotite mineralization representing the Marcaut horizon. The pyrrhotite layer is host to about 15 cm of quartz injections and shows some pyrite replacement of the primary sulphide. An 80 cm-long core sample of the sulphides assayed 3.52 g/t Au and contains elevated concentrations of copper and zinc.

Hole LM-3 proved to be the most important hole in terms of mineralization and assay results. As in the previous two holes, LM-3 primarily intersected greenish to brownish grey, fine-grained, moderately foliated actinolite-biotite-feldspar rock which is interpreted as mafic volcaniclastic wacke, but may actually represent potassically altered metabasalt. At 78 m down the hole, approximately 70 cm of massive pyrrhotite mineralization was intersected, which is believed to be the Marcaut horizon. A sample of this mineralization yielded a disappointingly low gold assay of 327 ppb. Much more encouraging is an 18 m section of veinlet and disseminated sulphide mineralization immediately overlying the massive sulphide layer. Within this section there are intermittent, 30 to 50 cm thick zones of highly fractured amphibolite where the fractures are occupied by pyrrhotite and pyrite. Assays from the fractured or brecciated zones include values of 1.05, 2.49, 2.82, 3.16 and 4.29 g/t Au, with samples generally being one meter in length. It is presumed that this relatively broad zone of primarily vein-form mineralization represents the western extension of the South Zone intersected in LM-1A.

Holes LM-4 through LM-7 were drilled along the conductor which strikes westwards from about L7+00mW south of the base line. In each of these holes the conductor was determined to be a 30 to 50 cm thick massive pyrrhotite ± pyrite unit characterized by the presence of angular to subrounded clasts of quartz and chloritic rock. South of, and overlying the sulphide horizon is a sequence comprising volcaniclastic wackes, greywacke, amphibolite sills and probably potassically altered basalt. Recognizable metabasalt is more common below the sulphide unit. Samples collected from the sulphide intersections and immediately adjacent rock returned assay values of between 200 and 600 ppb gold. Copper and zinc values were also low.

The eastern extension of the Lac Marcaut sulphide horizon was tested with holes LM-8 and LM-15 which were collared 600 m and 300 m east of the main showing, respectively. Both of these holes cored almost entirely through massive metabasalt which locally displays a subtle banding defined by planar concentrations of biotite, sericite and/or garnet. A thin massive pyrrhotite unit containing cherty and chlorite rock fragments apparently separates mafic flows in the volcanic pile. In appearance, this massive sulphide layer is indistinguishable from that which was intersected in all the holes described to this point and which is exposed on surface at the main showing and in the trench at 21+80mW. Assays of the sulphide mineralization in LM-8 and LM-15 yielded values of 260 and 440 ppb gold with minor concentrations of copper and zinc.

The conductor extending eastwards from L4+00mE about 250 m south of the base line and believed to be caused by South Zone sulphide mineralization was the target of holes LM-9, LM-10 and LM-11. In each of the holes, zones of pyrrhotite veining coincide with units of what appears to be siliceous wacke locally intercalated with thin layers of amphibole-magnetite iron formation, sulphide iron formation, chert and argillite. The pyrrhotite veinlets occupy fractures and narrow breccia zones which formed under brittle conditions in the structurally competent wacke. Amphibolite flows and a synvolcanic sill dominate the hanging wall sequence in these holes, whereas the footwall generally consists of fine-grained actinolite-biotite-feldspar rock (metamorphosed greywacke or potassically altered basalt). Also, a rather unique unit of garnet-rich metawacke was encountered in LM-9. The mineralized sections in these holes were 2.5, 3.4 and 14.8 meters in length, with averaged assays of 540, 400 and 570 ppb gold, respectively.

Holes LM-12 and LM-13A were drilled to follow up auriferous sulphide mineralization intersected in holes LM-1A and LM-3. Hole LM-12 was drilled along a section 100 m east of LM-1A, whereas LM-13A was collared between the two earlier holes. As in the previously described holes, LM-12 and LM-13A pass through a succession of metamorphosed mafic flows and apparent volcaniclastic wackes.

In LM-12, the South Zone is represented by a 5 m wide zone of brittle fracturing and ductile shearing within metabasalt. At the core of the zone the mafic rock has been

mylonitized, altered to chlorite-sericite-epidote, and contains about 5% disseminated pyrrhotite along with trace amounts of chalcopyrite and arsenopyrite. A 2.0 m long section from the zone assayed 1.13 g/t gold.

Hole LM-13A is the only hole drilled in the program which clearly intersects typical South Zone mineralization as well as the Lac Marcaut massive sulphide unit. In this hole, the South Zone is represented by a 2.75 m thick unit of fractured and locally brecciated siliceous wacke and minor argillite containing up to 8% fracture-filling pyrrhotite and trace chalcopyrite. The highest assay from the zone was only 304 ppb gold. Intersected about 80 m below the South Zone, the Lac Marcaut horizon consists of 75% pyrrhotite, 15% small pyrite nodules, and 10% siliceous rock fragments. A 40 cm core sample of the sulphide unit returned a modest assay value of 388 ppb gold.

Finally, hole LM-14 was drilled to confirm that the Lac Marcaut horizon strikes entirely south of the base line and does not swing north of the base line on the western part of the property. The fairly prominent conductor which was tested is evidently caused by a 90 cm thick blackish argillite containing approximately 15% pyrrhotite. Immediately overlying the argillite is 40 cm of brecciated and sulphide-impregnated metabasalt which assayed 377 ppb gold and 1320 ppm zinc. Massive metamorphosed basalts occur on either side of the thin unit of interflow metasediment.

DISCUSSION AND CONCLUSIONS

Results of Teck's program of ground geophysics and geological mapping indicate that the Lac Marcaut property can be partitioned into four areas extending across the length of the property. The northernmost area, being defined by relatively low magnetic readings and containing a few outcrops of fine-grained feldspar-biotite schist, is postulated to be underlain by a metamorphosed greywacke succession. The second area, which encompasses the belt of subparallel linear magnetic "highs" and multiple, laterally continuous EM conductors, was determined to be underlain by a sequence of basaltic flows and synvolcanic sills of low Ti, low K, high Mg tholeiitic composition which are intercalated with thin units of sulphidic interflow sediments.

Further to the southeast, the third area or section of the property is marked by a belt with moderate magnetic response, and lying within it is the conductor representing the Lac Marcaut sulphide horizon. The northern margin of this section was determined from drilling to consist of interlayered basalts and their potassically altered equivalents, volcaniclastic and epiclastic wackes, and minor sulphide iron formation. Finally, the southeasternmost part of the property is presumed to be underlain by tonalitic intrusive rock.

Two zones of auriferous iron sulphide mineralization were tested by the diamond drilling program, the Lac Marcaut horizon which was discovered by the joint venture partner and the newly discovered South Zone.

Massive sulphide intersections in no less than 9 of the 15 holes drilled indicate that the Lac Marcaut mineralized horizon has a strike length of at least 2800 m. Electromagnetic data further suggest that the horizon strikes completely across the length of the property, nearly 6 km, although massive sulphides probably do not occur in a continuous sheet for this distance. For most of its strike length, the Lac Marcaut horizon lies about 100 m south of the base line, however, between lines 3+00mW and 1+00mE the sulphide layer appears to have been shifted approximately 100 m northwards. This section of the horizon is noteworthy, not so much because of its position on the property, but because it contains the most important gold mineralization encountered on the property. The channel samples which gave values of 3.77 g/t Au across 1.85 m and 6.86 g/t Au across 1.3 m, and the intersection in LM-2 which assayed 3.52 g/t Au over 0.8 m are the best results from the Lac Marcaut zone. Drill hole intersections of the horizon east and west of the main showing area, however, yielded appreciably lower assays of between 200 and 600 ppb gold.

The South Zone, discovered in hole LM-1A and tested by another five holes, is less distinct than the Lac Marcaut horizon, and consists of auriferous pyrrhotite and pyrite occupying apparently late, brittle fractures and narrow breccia zones. The best examples of this mineralization, in terms of gold content, were obtained in holes LM-1A and LM-3 (1.42 g/t Au over 6.8 m and 1.27 g/t Au over 11.9 m, including 3.41 g/t Au over 2.05 m, respectively). As noted for the Lac Marcaut zone, the respectable concentrations of gold in the South Zone appear to be localized within 200 m of Line 0+00 and the surface showing.

Intersections of the zone beyond this 200 m limit yielded less encouraging assays ranging from 200 to 1130 ppb gold across widths of 2.0 to 14.8 meters.

Obviously, what controls the apparently restricted distribution of important gold mineralization on the property is critical to any future exploration programs which may be carried out. The explanation, it is believed, is tied to the origins of the two sulphide zones.

Considering the lateral continuity of the Lac Marcaut zone, its sharp contacts, and the presence of rock fragments and quartz masses in the massive pyrrhotite, it is proposed that the horizon represents a sedimentary sulphide iron formation. Drill core samples of the unit collected more than 200 m away from the main showing tend to have gold contents 2 to 6 times greater than typical sulphide iron formation found in the Abitibi greenstone belt, suggesting that a weak gold mineralizing event accompanied the deposition of the iron sulphides.

In contrast, the pyrrhotite veinlets and masses which characterize South Zone mineralization occupy dilatencies that formed under brittle conditions most likely following the amphibolite facies regional metamorphism. Assays show that the fluids which deposited the sulphides must have also been enriched in gold. Thus, the South Zone is interpreted to be the product of a late epigenetic mineralizing event.

The metallogenetic model proposed here is consistent with the empirical features of the Lac Marcaut and South Zones and establishes a genetic link between the two forms of auriferous iron sulphide mineralization. It is hypothesized that a syngenetic deposit of sulphides and minor gold was deposited on the seafloor which on the property was largely underlain by basaltic flows. Probably tens of millions of years later following major events of regional deformation and metamorphism, a linear zone of brittle deformation formed subparallel and close to the Lac Marcaut horizon. Fluids, possibly of metamorphic origin, passed through the folded volcanic pile at about this time remobilizing sulphide and gold from the interflow iron formation and depositing them a short distance away in the permeable, fractured rock of the South Zone. Presumably, the closer the structurally-formed fluid conduit was to the primary source of the auriferous sulphides the greater the

remobilization of metals. This would explain why, in the area of L2+00mW where the South Zone is juxtaposed with the Lac Marcaut horizon, hole LM-3 produced the best mineralized intersection of the drilling program.

Additional evidence of remobilized gold at Lac Marcaut can be seen in the trenches at the main showing. Here, the syngenetic massive pyrrhotite mineralization was determined to have anomalous gold contents but still less than about 1 g/t Au, whereas grab samples of the siliceous and/or graphitic rock occurring at both contacts commonly assay more than 10 g/t Au. Since the contacts show indications of shearing and apparently late hydrothermal alteration it is reasonable to conclude the high gold concentrations are the result of local remobilization.

An alternative, but less favoured explanation of the gold distribution at the showing has a gold-bearing fluid, with its metal content derived from a source other than the anomalously auriferous Lac Marcaut horizon, coming in contact with the massive sulphide unit and being chemically induced to precipitate its precious metals.

RECOMMENDATIONS

The results obtained in the 1992 exploration program proved in the end to be discouraging. Specifically, the grade of gold mineralization intersected by the drill holes was consistently subeconomic when taken over mineable widths. Secondly, the mineralization found on the property which could be considered significant in terms of economic potential appears to be quite restricted, spatially.

Long sections of the two conductors representing the Lac Marcaut and South zones remain untested. It is the author's view that there are insufficient geological indications of good potential for a mineable gold deposit existing on the property. Consequently, it is recommended that no additional drilling be done by Teck and that the claim group be returned to the vendors.

Respectfully submitted,
TECK EXPLORATION LTD.

Ken Thorsen
July 27, 1993

REP-0164/ec

REFERENCES

Ministere de l"Energie et des Ressources, Quebec

1982: Map M-348, Gites Mineraux du Quebec, Region de la Baie James, Feuille Lac Nemiscan 32N.

Taquet, B.

1989: A Report on the Fort Rupert Resources/Fancamp Resources Lac Marcaut Property, Township 1509, Baie James District, Quebec.

APPENDIX A
DIAMOND DRILL HOLE LOGS

LEGEND

5 FELSIC INTRUSIVES

- 5a Tonalite
- 5b Granitic pegmatite

4 MAFIC INTRUSIVES

- 4a Diabase

3 CHEMICAL METASEDIMENTS

- 3a Sulphide iron formation; massive to semi-massive pyrrhotite; pyrite
- 3b Garnet-pyrrhotite-amphiboliteschist;silicate/sulphide iron formation
- 3c Oxide iron formation; magnetite-bearing siliceous wacke and/or chert
- 3d Quartzite; recrystallized chert

2 EPICLASTIC METASEDIMENTS

- 2a Fine-grained feldspar-biotite schist; greywacke
- 2b Feldspathic granofels; arkosic wacke
- 2c Quartzose granofels; siliceous wacke
- 2d Argillite; (gr) graphite
- 2e Feldspar-biotite-amphibole schist; volcaniclastic wacke
- 2f Garnet-biotite-amphibole schist; volcaniclastic wacke
- 2g Porphyritic feldspar-biotite schist; reworked feldspar crystal tuff

1 MAFIC METASEDIMENTS

- 1a Fine-grained amphibolite; massive mafic flow
- 1b Medium-grained amphibolite; mafic synvolcanic sill
- 1c Pillowed amphibolite
- 1d Highly strained amphibolite; containing feldspar-rich bands and lenses
- 1e Amphibolite gneiss
- 1f Iron-poor amphibolite composed of colourless, acicular amphibole

TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-1A
Sheet 1 of 1

Job 16100 N.T.S. 32 N/4	Objective 35 mho conductor at 1+50S	Core Location	Tests	Dip	Azimuth
Property Lac Marcaut	and main Lac Marcaut zone		At Collar	-50°	330°
Township 1509		Distance to Water 100 m			
Location: Line 0+00	Drilling Co. Moderne	Casing Lost			
Station 2+50mS	Commenced July 12, 1992				
Elevation	Completed July 14, 1992	Core Size			
Logged Ron Burk	Length 54.0m				

Remarks Hole lost in overburden and redrilled as LM-1A.

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.0	54.0	OVERBURDEN	Sand and boulders.									

TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-1A
Sheet 1 of 6

Job 16100 N.T.S. 32 N/4	Objective 35 mho conductor at 1+50S	Core Location Gravel pit at	Tests	Dip	Azimuth
Property Lac Marcaut	and main Lac Marcaut sulphide zone	km 220 off James Bay Hwy.	At Collar	-50°	330°
Township 1509, Quebec		Distance to Water 100 m	-60m	-51°	-
Location: Line 0+00	Drilling Co. Moderne	Casing Lost	-120m	-50°	-
Station 2+46mS	Commenced July 15, 1992		-180m	-51°	-
Elevation	Completed July 20, 1992	Core Size BQ	-219m	-50°	-
Logged July 17, 1992 Ron Burk	Length 219.45m				

Remarks South Zone pyrrhotite-pyrite vein-type mineralization intersected from 83.65 to 101.25m. Stratigraphic equivalent of Marcaut massive sulphide horizon apparently intersected at 196.00m.

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.00	55.00	OVERBURDEN										
55.00	59.50	MAFIC FLOW (OR SYNVOLCANIC SILL)	Dark, greenish grey, fine-grained, massive to weakly foliated amphibolite composed of fine actinolite laths, feldspar and minor biotite, locally. Composition and texture is homogeneous. 58.80-58.90 - Quartz-calcite-amphibole vein. Unit is either massive mafic flow or synvolcanic dyke/sill.									
59.50	83.65	WACKE	Generally dark, brownish grey, thinly banded, fine-grained, moderately foliated biotitic rock. Feldspar is other major component. Banding defined by mineral composition as well as by grain size. Bands or laminations of light greenish grey sericite, 1-3 cm thick, are common, especially downhole from 78.0 m. Less well defined are wider bands of feldspar-phyric to porphyritic material which has the appearance of a reworked crystal tuff. 60.00-60.40 - Bleached, carbonatized (calcite), sericitized. 63.70-68.00 - Bleached to pale buff-grey due to silicification and/or feldspathization,									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			minor sericite.									
			68.70-69.10 - Bleached; sericite-calcite altered with 0.5-1.0 cm sized syntectonic garnets; fine quartz present.									
			69.10-69.90 - Dark green section rich in actinolite, chlorite, garnet (precursor to previous section).									
			76.30-76.90 - Anhedral, syntectonic garnets common.									
			Upper contact at 82°; lower contact at 67°.									
			Note: Apparent fold closure at 68.5 m.									
83.65	101.00	WACKE (SOUTH ZONE)	In general, dark grey, fine-grained, moderately to strongly foliated amphibole-biotite-feldspar rock which appears to be fine to very fine-grained metawacke. Vaguely banded, but appears to be thickly bedded. Constituents have a mafic volcanic provenance.	G6801	85.40	86.40	1.0	156	0.3	33		40
		CONDUCTOR	86.1-93.1 - Sulphide stringer zone; randomly oriented but commonly foliation-parallel veinlets (0.5-3.0 cm wide) of pyrrhotite, chlorite and actinolite are hosted by relatively unaltered metawacke; from 5 to 10 stringers per meter; trace chalcopyrite commonly present in pyrrhotite.	G6802	86.40	87.40	1.0	2230	0.7	126		28
				G6803	87.40	88.40	1.0	161	0.7	148		11
			88.5-89.75 - Silicified section, or abundant quartz injections; pyrrhotite stringers present containing trace chalcopyrite and, in one case at 89.2, arsenopyrite.	G6804	88.40	89.30	0.9	3540	0.5	75		14
				G6805	89.30	90.30	1.0	1540	0.5	130		24
				G6806	90.30	91.30	1.0	202	0.7	131		310
				G6807	91.30	92.30	1.0	274	0.7	239		370
				G6808	92.30	93.20	0.9	2260	0.5	55		82
			99.2-99.35 - Sulphide-rich band; 50% pyrrhotite, trace pyrite, 50% feldspar, biotite, minor amphibole.	G6809	98.75	99.85	1.1	61	0.8	76		40
				G6810	99.85	101.00	1.15	254	1.8	124		86
			99.35-101.00 - Sulphide-stringer zone; irregular veinlets of pyrrhotite and green chlorite/actinolite hosted by dark brownish grey, very fine-grained metawacke.									
			Upper contact at 67°; at 94.7 m: 57°; at 99.1m: 60°.									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
101.00	101.25	MASSIVE SULPHIDE (CONDUCTOR)	Fine-grained, semi-massive pyrrhotite and trace chalcopyrite containing apparent metawacke clasts and subangular quartz grains (masses) from 1 mm to 4 cm in size. Thin slips of reddish brown sphalerite occur at both margins of the sulphide unit.	G6811	101.00	101.27	0.27	282	7.9	108		720
101.25	185.30	WACKE (OR MASSIVE, FINE-GRAINED MAFIC FLOW)	Mainly blackish, very fine-grained, foliated amphibole-biotite-feldspar rock. Unit is commonly marked by narrow bands which have increased concentrations of either biotite (brown bands), amphibole/chlorite (green bands), or calcite (pale grey bands). In addition, a banding is defined by concentrations of anhedral mauve-coloured garnet, with the widest band occurring from about 106.60 to 107.60m. There is an absence of sulphide stringers in the unit, except for a single pyrrhotite-pyrite stringer at 101.3 m. Importantly, this stringer is followed by a 3-4 cm wide band composed of up to 50% finely disseminated sphalerite. Dark to medium brownish grey, very fine-grained, moderately foliated feldspar-biotite-actinolite rock continues down the hole to 126.0 m where it becomes slightly coarser grained and predominantly composed of feldspar and actinolite. From about 145.00 m down to 165.00 m, the unit continues as a fine-grained feldspar-actinolite-biotite rock where a vague, narrow banding is developed by increased concentrations of biotite. Locally, minor garnet accompanies biotite in these bands. 164.70-166.20 - Bleached to pale brown-grey; narrow sections of quartz veining with trace pyrrhotite, garnet. 166.70-167.40 - Bleached silicified zone, similar to above.	G6812	101.27	101.80	0.53	112	1.7	113		620
				G6813	101.80	102.30	0.5	15	0.7	81		26

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			Downhole from 167.50 to 178.50, the unit is predominantly composed of fine-grained, foliated actinolite and feldspar with scarce biotite. Anhedral garnets occur rarely. Below 178.50 m, the unit again contains narrow bands of biotitic material. From 182.30 m, quartz stringers become increasingly abundant, and from 184.00 m the rock is bleached to a pale grey colour, probably due to silicification and/or sericite alteration. In general, the unit is characterized by its relatively homogeneous grain size, texture and composition. There is very minor quartz-calcite veining, and essentially no sulphide mineralization. It is difficult to discern if this unit is a thick, uniformly fine-grained metawacke or a massive mafic flow.									
185.30	197.35	ALTERED FRACTURE ZONE	Pale grey, fine-grained feldspathic rock, probably with secondary sericite and chlorite, which has been fractured and brecciated and locally hosts delicate stockworks of creamy coloured silicate veinlets. Prehnite is common on fracture surfaces. Unit possibly represents fractured and altered wacke.	G6814	185.30	185.80	0.5	5				
				G6815	189.20	190.20	1.0	44				
				G6816	190.20	191.20	1.0	42				
				G6817	191.20	192.20	1.0	6				
				G6818	192.20	193.20	1.0	32				
				G6819	193.20	194.20	1.0	57				
				G6820	194.30	195.50	1.2	49				
				G6821	195.50	196.50	1.0	79				
			There are <u>trace</u> to minor amounts of disseminated and veinlet-hosted pyrrhotite, pyrite or marcasite, chalcopyrite and arsenopyrite. At 185.40 there is a 5 mm wide quartz veinlet containing pyrrhotite, chalcopyrite and galena. At 196.00 m, there is a 15 cm wide graphitic fault gouge containing 5% subhedral pyrite.									
		CONDUCTOR (MARCAUT HORIZON?)										
197.35	206.50	WACKE (OR MASSIVE FINE-GRAINED MAFIC FLOW)	Medium to dark grey, commonly thinly banded, fine-grained, foliated amphibole-biotite-feldspar metasediments. Banding defined by varying									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			concentrations of blackish amphibole, brownish biotite and buff-coloured siliceous material. Some banding probably caused by foliation-parallel alteration (sericitization, carbonatization).									
206.50	219.45	FINE-GRAINED MAFIC FLOW (OR WACKE)	Dark greenish grey, fine-grained, weakly foliated to massive unit composed of amphibole, feldspar and minor biotite. Quartz-calcite veinlets are common but not abundant. Homogeneous in texture and composition. The unit is difficult to distinguish from the overlying units interpreted as wackes since the contacts are very gradational and there is an absence of obvious volcanic structures such as hyaloclastite or pillow selvages.									
	219.45	END OF HOLE										
			Foliations: 61.5m = 74° 147.0m = 79° 80.0m = 78° 157.0m = 82° 103.1m = 75° 166.0m = 68° 110.6m = 76° 177.0m = 64 121.0m = 76° 202.0m = 77° 132.0m = 75° 207.0m = 74° 141.0m = 80° 217.0m = 75°									

ASSAY SUMMARY

SAMPLE NO.	FROM	TO	LENGTH	GEO-CHEM	ASSAY	CHECK 1	CHECK 2	CHECK 3	CHECK 4	AVER-AGE	AV X LEN
G6801	85.40	86.40	1.0	156						156	156
G6802	86.40	87.40	1.0		2230	2060	2400			2230	2230
G6803	87.40	88.40	1.0	161						161	161
G6804	88.40	89.30	0.9		3550	3500	3570			3540	3186
G6805	89.30	90.30	1.0		1540	1540	1540			1540	1540
G6806	90.30	91.30	1.0	202						202	202
G6807	91.30	92.30	1.0	274						274	274
G6808	92.30	93.20	0.9		2260	2190	2330			2260	2034

FROM	TO	LENGTH	TOTAL AV X LEN	AVERAGE (AG) GRADE	HORIZON (HT) THICKNESS	PLOTTED HT X AG
85.40	93.20	7.8	9783	1254		
86.40	93.20	6.8	9627	1416		

TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-2
Sheet 1 of 6

Job 16100 N.T.S. 32 N/4	Objective Marcout horizon	Core Location Km 220, west of James Bay Hwy.	Tests / Dip / Azimuth
Property Lac Marcaut		Distance to Water 200 m	At Collar -50° 330°
Township 1509, Quebec		Casing Lost 0	-60m -51° 330°
Location: Line 2+00mE	Drilling Co. Moderne		-114m -49° 330°
Station 1+75mS	Commenced July 18, 1992		
Elevation	Completed July 19, 1992	Core Size BQ	
Logged D. Tarnocai	Length 114.0m		

Remarks Marcaut horizon from 91.40 to 91.90m.

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.00	34.00	OVERBURDEN										
34.00	61.90	WACKE (OR MASSIVE MAFIC FLOW)	Greenish grey, fine-grained, massive to weakly foliated amphibole + plagioclase ± quartz ± biotite with sporadic anhedral syntectonic garnets. Minor pyritic (marcasite?) fracture coatings. Diffuse to well defined brownish biotitic bands (1-2 cm) variably present throughout section. Quartz veining occurs as 1 mm to 2 cm thick foliation parallel veins as well as cross-cutting, mm-scale stringer arrays. Quartz veining <3% of section. 41.50-41.90 - Creamy coloured, possibly fault-related silica ± albite alteration; upper contact diffuse, lower contact sharp. Small stringers of pyrrhotite with trace chalcopyrite present. Total sulphides <2% of sub-interval. 52.60-53.80 - Reddish brown to grey, fine-grained to aphanitic zone of apparent silica and biotite alteration. Diffuse upper contact contains trace fine disseminated pyrrhotite with minor $CaCO_3$ alteration. 60.80-61.20 - Bleached zone of silicification and minor carbonate alteration.									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
61.90	81.70	WACKE	Light grey green, fine-grained, massive to weakly foliated amphibole + feldspar ± quartz ± biotite. Numerous medium-grained, 3-10 cm thick feldspar + amphibole + quartz interbeds (contacts at 67.30m = 54° to 84° at 83.00m - bedding subparallel to foliation). Diffuse to sharply defined reddish brown biotitic layers occur intermittently throughout unit as in overlying unit. Sporadic bedding-parallel quartz-carbonate veins connomly contain up to 3% disseminated pyrrhotite and trace fine garnet. Lower contact gradational. 62.50-62.80 - Quartz stockwork crosscut, by a late 1-2 mm wide sphalerite vein with trace chalcopyrite and silica oriented approximately 63° to core axis. Stockwork contains some fine disseminated pyrrhotite. 76.20-76.30 - Local increase in pyrrhotite content to 1-2% with carbonate.									
81.70	91.40	WACKE WITH CHERTY INTERBEDS	Fine-grained, light grey-green amphibole + feldspar + quartz rock containing numerous thin sections (increasing in abundance downhole) of pinkish brown to light green-grey chert-like material. 85.80-89.10 - Laminated or thinly bedded wacke/chert subunit (laminae at 73° to core axis). 1-3% of subunit composed of thin bedding/foliation parallel pyrite + pyrrhotite veinlets. One late, 1-2 mm thick quartz + sphalerite veinlet crosscutting bedding/foliation at 20° to core axis at 87.00m. Locally 5% pyrrhotite and pyrite and minor chalcopyrite disseminated and semi-massive between 88.70 and 89.00m. 89.10-90.20 - Decrease in cherty laminations and an increase in amphibole. Subunit contains	G6822	86.6	87.2	0.6	90	1.2	58		5700
				G6823	88.5	89.05	0.55	22	0.6	74		56

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			approximately 4% anhedral garnet and trace to 1% pyrrhotite. 90.20-90.40 - Pinkish brown laminated cherty subunit. Trace pyrrhotite parallel to bedding. Minor epidote and amphibole. 90.45-90.90 - Fine to medium-grained amphibole + plagioclase + quartz rock with (discontinuous) stringers of pyrrhotite + pyrite (5-7% of section). 90.40-91.40 - Intensely silicified zone; creamy coloured with approximately 1% disseminated pyrrhotite.	G6824	90.5	91.4	0.9	383	0.4	18		54
91.40	91.90	MASSIVE SULPHIDE (MARCAUT HORIZON)	Massive sulphide facies iron formation (pyrrhotite). Later, superimposed alteration event has resulted in quartz flooding proximal to iron formation with conversion of some pyrrhotite to subhedral pyrite veinlets mantled by blackish-green chlorite. Quartz flooding from 91.65 to 91.80 contains pyrrhotite masses. At quartz-pyrrhotite contacts, fine-grained delicate chalcopyrite has formed. This is also the case at the upper and lower contacts of the unit. Overall, interval is composed of approximately 12% quartz, 72% pyrrhotite, 10% pyrite, 2% chalcopyrite, 4% chlorite.	G6825	91.4	92.2	0.8	3520	3.18	1105		2330
91.90	114.00	WACKE	Greenish grey, fine-grained metasediment composed of fine amphibole + feldspar ± quartz intercalated with light red-brown to pink cherty beds and minor medium-grained "tuffaceous" amphibole + plagioclase + quartz layers. 91.90-93.10 - Creamy-buff highly silicified zone in contact with iron formation and similar to uphole siliceous zone. Subunit cross-cut by 3 cm chlorite + pyrite stringer with minor chalcopyrite on margin at 92.3m at 34° to core axis. Patchy, fine chlorite alteration developed	G6826	92.2	93.2	1.0	38	0.5	312		28

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			near iron formation in siliceous material. 93.10-96.90 - Fine-grained wacke with less intense silicification. Stockwork of 1-10 mm thick creamy quartz veins at 42° and 16° to core axis. Occasional pyrrhotite + chalcopyrite in some stringers. 96.90-104.10 - Minor quartz + carbonate ± pyrrhotite ± chalcopyrite veinlets. Bedding at 66° at 97.40m. 104.10-104.80 - Siliceous stockwork developed as in 93.10-96.90m subunit. 1-3% pyrrhotite + chalcopyrite in stockwork veins containing carbonate. 105.60-106.60 - Dark greenish grey wacke containing fine anhedral garnet. Garnet typically occurs in patches with carbonate (grossularite?) and mantled by dark fine-grained amphibole. Trace pyrite on fracture. Upper contact gradational.									
			106.60-107.10 - Blackish green, chloritic and possibly graphitic meta-argillite containing 10-20% fine pyrrhotite and pyrite stringers. 107.10-108.80 - Variably silicified section with weakly developed, superimposed quartz stockwork. 110.10-113.10 - Variably silicified. Brecciation at 112.70 with increased silicification. Trace to 1% pyrite + chalcopyrite. 113.10-114.00 - Dark grey-green wacke with minor carbonatization, silicification and anhedral garnet formation. Bedding 97.40m = 66°, 109.10m = 77°.	G6827	106.4	106.9	0.5	216	2.7	447		860
	114.00	END OF HOLE										
			Foliations: 34.80m = 54° 51.60 - 65°									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			69.80 = 70° 76.90 = 78° 96.10 = 73° 113.70 = 83°									

ASSAY SUMMARY

SAMPLE NO.	FROM	TO	LENGTH	GEO-CHEM	ASSAY	CHECK 1	CHECK 2	CHECK 3	CHECK 4	AVER-AGE	AV X LEN
G6824	90.50	91.40	0.9	384						384	345.6
G6825	91.40	92.20	0.8		3520	3600	3430			3520	2816

FROM	TO	LENGTH	TOTAL AV X LEN	AVERAGE (AG) GRADE	HORIZON (HT) THICKNESS	PLOTTED HT X AG
90.50	92.20	1.7m	3161.6	1860		

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TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-3
Sheet 1 of 6

Job 16100 N.T.S. 32 N/4	Objective Marcaut horizon, 11 mho	Core Location Sand pit at Km 220	Tests	Dip	Azimuth
Property Lac Marcaut	conductor on Line 2+00W	west of James Bay Hwy.	At Collar	-45°	330°
Township 1509, Quebec		Distance to Water 200 m	-60m	-46°	330°
Location: Line 2+00mW	Drilling Co. Moderne	Casing Lost 0	-89m	-43°	330°
Station 0+75mS	Commenced July 19, 1992				
Elevation	Completed July 20, 1992	Core Size BQ			
Logged R. Burk	Length 89.0m				

Remarks South Zone pyrrhotite-pyrite mineralization intersected from approximately 61.50 to 78.00m. From 78.00 to 79.00m massive sulphide zone may represent Marcaut Horizon.

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.00	25.00	OVERBURDEN										
25.00	58.00	VOLCANICLASTIC WACKE (OR MASSIVE MAFIC FLOW)	Overall, a greenish grey to brownish grey, vaguely banded, fine-grained, moderately foliated amphibole-biotite-feldspar rock. The crude banding is defined by subtle variations in the concentration of biotite. There are also thin, pale grey bands which are composed primarily of feldspar with minor mafic minerals and carbonate. Sporadically, there are minor concentrations of pinkish anhedral garnets. The homogeneous and essentially structureless nature of the rock makes identification difficult, and while it is being described as a thickly bedded metasediment, it may represent a fine-grained mafic to intermediate lava. (In fact, thin feldspathic bands which are common from about 45.00m downwards may represent pillow rims). In general, there is minor quartz and/or carbonate veining, however veining does occur from: 40.95-41.50 and 42.00-42.20m.									
58.00	77.95	AMPHIBOLITIC VOLCANICLASTIC WACKE(?)	Generally dark greenish grey, fine-grained, moderately foliated amphibole-rich unit, vari-									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
		(SOUTH ZONE)	able in texture and composition. Unit is marked by the presence of 1-5% disseminated pyrrhotite and pyrite, as well as numerous, thin irregular pyrrhotite-pyrite stringers and breccia-fillings.	G6828	58.35	59.30	0.95	98	7.9	130		280
			59.70-61.00 - Well foliated, laminated material has appearance of thinly layered metasediment; minor garnet throughout.	G6829	59.30	60.30	1.0	103	12.0	122		92
				G6830	60.30	61.30	1.0	56	8.2	161		173
				G6831	61.30	62.30	1.0	1050	28.1	377		88
			61.45-61.80 - Brecciated amphibolite with breccia matrix filled with pyrite and pyrrhotite (70:30).	G6832	62.30	63.30	1.0	580	5.1	70		32
			63.00-63.35 - Quartz-filled breccia zone.	G6833	63.30	64.30	1.0	86	5.5	84		75
			From the sulphide breccia at 61.45-61.8m downhole to about 73.5m the unit consists of a crudely banded, fine-grained amphibolite and cannot with certainty be recognized as either volcanic or epiclastic sediment. Locally, there are thin, irregular bands of anhedral garnet. Disseminated pyrite is more common than pyrrhotite and constitutes about 1-2% of the rock overall, with locally higher concentrations.	G6834	64.30	65.30	1.0	131	9.6	130		79
				G6835	65.30	66.30	1.0	96	6.9	113		82
				G6836	66.30	67.20	0.9	108	6.2	54		88
				G6837	67.20	68.20	1.0	192	5.5	87		195
				G6838	68.20	69.30	1.1	2820	11.3	68		559
				G6839	69.30	70.30	1.1	144	8.2	76		384
			70.25-70.38 - White quartz vein with large masses of pyrite.	G6840	70.30	70.60	0.3	620	11.7	126		155
				G6841	70.60	71.60	1.0	690	24.0	296		537
			71.10-71.40 - Breccia with sulphide matrix; amphibolitic clasts are angular to subrounded and are matrix-supported; matrix is 90% pyrite, 10% pyrrhotite.	G6842	71.60	72.60	1.0	620	17.8	195		201
			71.40-72.35 - Medium grey, feldspar-rich section marked by folded laminations of fine-grained pyrite, very suggestive of sediment-hosted sulphide mineralization; sulphide forms 15% of the rock.	G6843	72.60	73.80	1.2	165	4.8	82		192
			73.50-74.00 - Brecciated amphibolitic rock with pyrite and pyrrhotite forming the breccia matrix; in sulphide-rich sections the clasts are subrounded; trace chalcopyrite was observed.	G6844	73.80	74.30	0.5	3160	34.3	371		473
			74.15-74.95 - Pale grey, bleached section, where									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			alteration consists of silica, garnet, epidote and calcite; section also contains 5% pyrite as disseminated grains and as irregular veinlets.	G6845	74.30	74.95	0.65	650	26.4	125		1910
				G6846	74.95	76.05	1.1	121	14.1	137		206
			76.10-76.55 - Brecciated amphibolitic rock with dense stockwork of pyrrhotite and minor pyrite mineralization; the sulphide mineralization appears to cut bleached, foliated country rock; trace chalcopyrite present.	G6847	76.05	77.05	1.0	2490	60.3	540		428
				G6848	77.05	78.10	1.05	4290	83.0	357		521
77.95	78.95	MASSIVE SULPHIDE (MARCAUT HORIZON?)	The upper 28 cm of the unit consists of recrystallized pyrite and interstitial pyrrhotite (80:20) cut by a 3 cm wide quartz vein containing pyrrhotite. Below the pyrite-rich section, the unit is composed of massive pyrrhotite containing an occasional chloritic rock clast. At the lower contact of the sulphide unit, fractures extending a few centimeters into the underlying metasediment contain trace amounts of chalcopyrite.	G6849	78.10	79.10	1.0	327	14.4	770		53
78.95	88.50	ALTERED WACKE (OR MASSIVE FLOW)	Least altered, so-called wacke consists of dark grey, fine to very fine-grained, foliated amphibole, biotite and feldspar. However, the unit is characterized by the common presence of pale brownish sections or bands which appear to be genetically related to thin quartz veins. The pale colouration appears to be the result of the removal of Fe and Mg from the remaining mineral components. The density of quartz veining in the unit is variable, but probably averages about 2 per meter.	G6850	79.10	80.10	1.0	690	29.5	234		90
	88.50	END OF HOLE										
			Foliations: 59.0m = 67° 61.0m = 57°									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			69.0m = 45° Folding at 71.5m 73.5m = 68° 78.0m = 80° 87.0m = 80°									

ASSAY SUMMARY

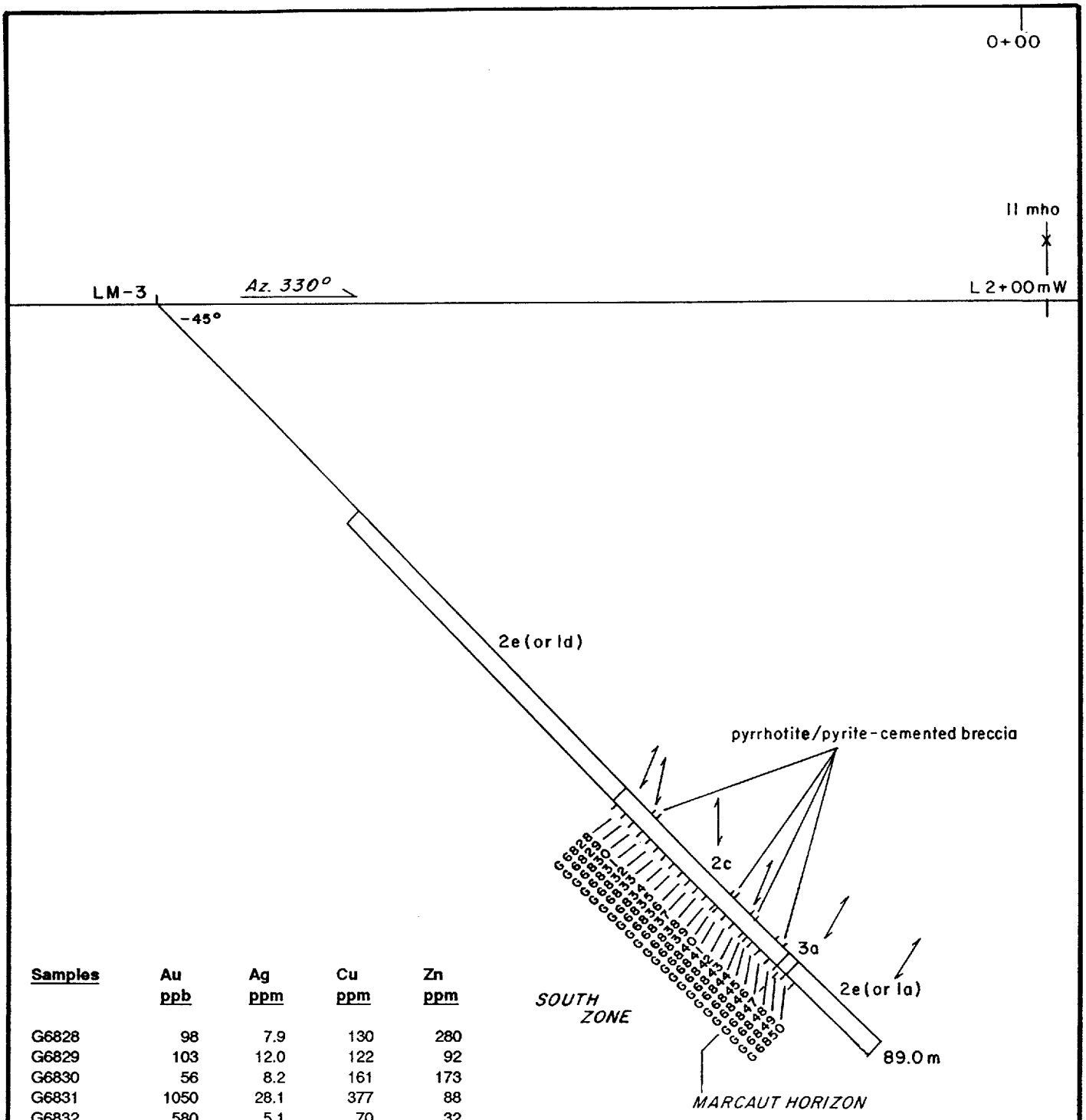
SAMPLE NO.	FROM	TO	LENGTH	GEO-CHEM	ASSAY	CHECK 1	CHECK 2	CHECK 3	CHECK 4	AVER-AGE	AV X LEN
G6828	58.35	59.30	0.95	98						98	93.1
G6829	59.30	60.30	1.0	103						103	103
G6830	60.30	61.30	1.0	56						56	56
G6831	61.30	62.30	1.0		1050	1030	1060			1050	1050
G6832	62.30	63.30	1.0		580					580	580
G6833	63.30	64.30	1.0	86						86	86
G6834	64.30	65.30	1.0	131						131	131
G6835	65.30	66.30	1.0	96						96	96
G6836	66.30	67.20	0.9	108						108	97.2
G6837	67.20	68.20	1.0	192						192	192
G6838	68.20	69.30	1.1		2820	2740	2910			2820	3102
G6839	69.30	70.30	1.0	144						144	158.4
G6840	70.30	70.60	0.3		620					620	186
G6841	70.60	71.60	1.0		690					690	690
G6842	71.60	72.60	1.0		620					620	620
G6843	72.60	73.80	1.2	165						165	198
G6844	73.80	74.30	0.5		3160	3090	3220			3160	1580

ASSAY SUMMARY

Hole LM-3
Sheet 6 of 6

SAMPLE NO.	FROM	TO	LENGTH	GEO-CHEM	ASSAY	CHECK 1	CHECK 2	CHECK 3	CHECK 4	AVER-AGE	AV X LEN
G6845	74.30	74.95	0.65		650					650	422.5
G6846	74.95	76.05	1.1	121						121	133.1
G6847	76.05	77.05	1.0		2490	2400	2570			2490	2490
G6848	77.05	78.10	1.05		4290	4180	4390			4290	4504.5
G6849	78.10	79.10	1.0	327						327	327
G6850	79.10	80.10	1.0		690					690	690

FROM	TO	LENGTH	TOTAL AV X LEN	AVERAGE (AG) GRADE	HORIZON (HT) THICKNESS	PLOTTED HT X AG
61.30	80.10	18.80m	17333.7	922		
incl.						
68.20	80.10	11.9m	15101.5	1269		
73.80	78.10	4.3	9130.1	2123		
76.05	78.10	2.05	6994.5	3412		



Samples	Au ppb	Ag ppm	Cu ppm	Zn ppm
G6828	98	7.9	130	280
G6829	103	12.0	122	92
G6830	56	8.2	161	173
G6831	1050	28.1	377	88
G6832	580	5.1	70	32
G6833	86	5.5	84	75
G6834	131	9.6	130	79
G6835	96	6.9	113	82
G6836	108	6.2	54	88
G6837	192	5.5	87	195
G6838	2820	11.3	68	559
G6839	144	8.2	76	384
G6840	620	11.7	126	155
G6841	690	24.0	296	537
G6842	620	17.8	195	201
G6843	165	4.8	82	192
G6844	3160	34.3	371	473
G6845	650	26.4	125	1910
G6846	121	14.1	137	206
G6847	2490	60.3	540	428
G6848	4290	83.0	357	521
G6849	327	14.4	770	53
G6850	690	29.5	234	90

Teck Exploration Ltd.

DDH LM-3

LacMARCAUT PROJECT
1509 TWP., QUEBEC

JULY/1992	16100	032N/04	6882

TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-4
Sheet 1 of 5

Job 16100 N.T.S. 32 N/4	Objective Marcaut horizon	Core Location Gravel pit on property at Km 220 on LG-2 Hwy.	Tests	Dip	Azimuth
Property Lac Marcaut		Distance to Water	At Collar	-50°	330°
Township 1509, Quebec		Casing Lost 0	-27m	-51°	--
Location: Line 8+00mW	Drilling Co. Moderne		-60m	-53°	--
Station 1+60mS	Commenced July 20, 1992		-90m	-55°	--
Elevation	Completed July 21, 1992	Core Size BQ			
Logged D. Tarnocai	Length 90.7m				

Remarks Marcaut horizon intersected from 79.47m to 79.80m.

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.00	17.00	OVERBURDEN										
17.00	29.30	MASSIVE SILICEOUS WACKE	Fine to medium-grained, light grey to greenish grey siliceous/feldspathic wacke (quartz + feldspar + amphibole ± biotite). Garnetiferous, containing up to 10% 2-8 mm sized anhedral attenuated syntectonic porphyroblasts occasionally associated with coarser masses of biotite. 21.70-22.50 - As above, minus garnet. 25.60-25.80 - Fine-grained, leucocratic (siliceous), and garnet + biotite free. 27.00-28.50 - Minor garnet present.									
29.30	49.15	AMPHIBOLITIC WACKE (OR MASSIVE MAFIC FLOW)	Fine to medium-grained, grey, massive to weakly foliated quartz + feldspar + amphibolite + biotite rock. Amphibole as dark green crystals frequently larger than equigranular matrix. Upper contact masked by a shear zone. Lower contact sharp at 77°. 29.30-30.50 - Shear zone foliated at 77°, trace green mica. 30.50-32.20 - Finer grained, dark purple brown-tinged subsection resulting from fine biotite formation. Trace pyrite + pyrrhotite occasionally as fine disseminations but									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			generally as 1-2 mm thick biotite ± quartz + sulphide veinlets. 32.20-49.15 - Host with minor thin quartz veins at approximately 86° to core axis. Sporadic larger irregular milky quartz ± feldspar veins.									
49.15	57.10	REWORKED FELDSPAR CRYSTAL TUFF	Grey-green to dark reddish brown intergrowth of fine-grained quartz + feldspar + biotite ± amphibole with subhedral phenocrysts of white feldspar up to 3mm in size. Moderately well foliated sections marked by attenuated feldspar grams/crystals. Two generations of fracture/veining are present in the upper and lower portions of the unit. The earlier generation intersects the core axis at high angles (approximately 82°) and typically consists of quartz + carbonate + garnet + chlorite ± pyrrhotite ± pyrite ± amphibole. The second generation of veins comprises a stockwork of <1mm thick predominantly quartz veins oriented at a low angle to core axis (18-20°). 49.15-51.90 - Feldspar-phyric to porphyritic material intercalated with biotite-amphibole-feldspar metawacke. Trace to 1% pyrite + pyrrhotite mostly in high angle garnet + chlorite + carbonate + quartz veins, but also occasionally as disseminations. Trace arsenopyrite in biotitic section. 53.30-53.60 - Finer grained, greyish subunit with 1-5% 1-2mm anhedral syntectonic garnets and pervasive carbonatization. Highest calcite content coincident with greater garnet concentration suggests garnets are calcic.									
57.10	66.10	WACKE	Fine-grained, greenish grey, massive to weakly									

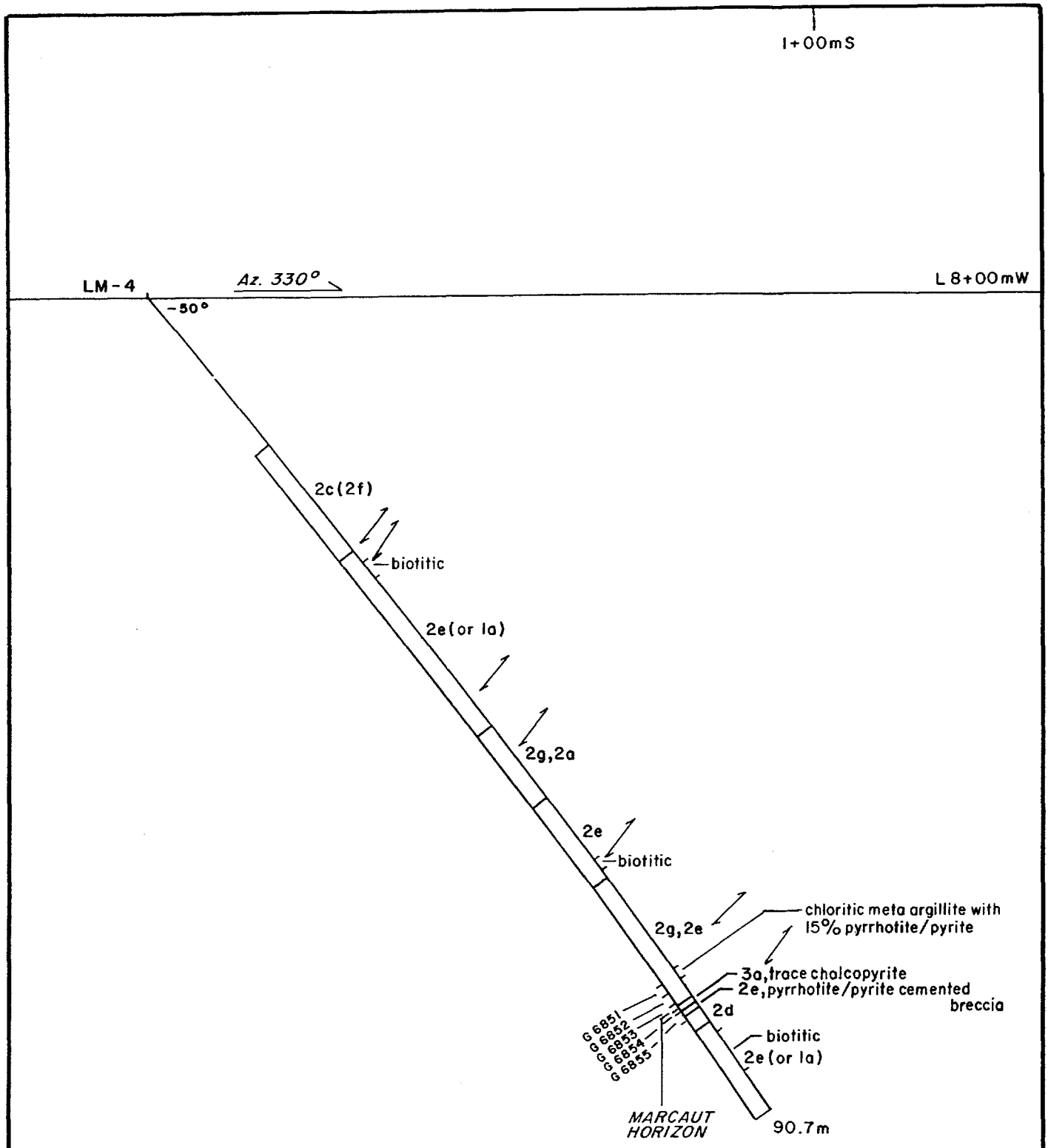
Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			foliated quartz-feldspar-amphibole ± biotite metasediment. 58.70-59.00 - Minor feldspar phenocrysts in a wacke matrix. 64.70-65.70 - Foliated, fine-grained, biotitic wacke. Carbonatized with 1-6%, 1-2mm anhedral syntectonic garnets. Fine-grained to aphanitic and siliceous from 65.60 to lower contact at 66.10m.									
66.10	79.47	REWORKED TUFFS AND WACKE	66.10-68.40 - Moderately foliated, feldspar-porphyritic rock with high angle quartz veins and related epidote-calcite alteration. 73.30-76.75 - Fine-grained, moderately foliated feldspar-phyric "reworked tuff" with variable concentrations of feldspar phenocrysts intercalated with thin, very fine-grained biotitic wacke/argillite layers.									
			76.75-77.85 - Chlorite-rich argillaceous wacke with sporadic coarse anhedral garnet. Disseminated and laminated pyrrhotite + pyrite (approximately 15%).	G6851	76.75	77.85	1.1	520	38	204		33
			77.85-78.98 - Highly siliceous breccia, possibly a fractured quartz vein. Interstitial pyrrhotite + pyrite and minor arsenopyrite. Minor spotty carbonate alteration.	G6852	77.85	78.98	1.13	181	3.1	80		13
			78.98-79.47 - Fine-grained, dark grey metawacke (amphibole + biotite + feldspar) with pyrite + pyrrhotite veinlets and breccia-fillings.	G6853	78.98	79.47	0.49	226	2.1	118		53
79.47	79.80	MASSIVE SULPHIDE (MARCAUT HORIZON) CONDUCTOR	Semi-massive to massive pyrrhotite exhalite with numerous quartz clasts and chloritic rock fragments. Trace chalcopyrite at siliceous upper contact.	G6854	79.47	79.80	0.33	136	2.4	248		98
79.80	80.90	WACKE BRECCIA	Fine-grained amphibole + biotite + feldspar rock with 40 cm of pyrrhotite + pyrite cemented breccia.	G6855	79.80	80.90	1.1	263	1.0	180		75

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
80.90	81.70	ARGILLITE	Very fine-grained, moderately foliated, brownish black biotitic argillite. 1% pyrrhotite filling fractures and as grains in high angle veins similar in mineralogy (though containing trace arsenopyrite in the argillite) to those high angle veins in the feldspar porphyritic units. Trace arsenopyrite in thin foliation-parallel slips. Upper contact sharp at 56°, lower contact sharp at 62°.	G6856	80.90	81.70	0.8	260	2.4	81		1670
81.70	90.70	WACKE (OR MASSIVE MAFIC FLOW)	Homogeneous, fine-grained, dark greenish grey, massive to weakly foliated amphibole + feldspar ± biotite rock. Carbonatization locally associated with high angle carbonate + quartz + chlorite ± amphibole veins. Low angle veins as in the reworked tuff also present. Local concentrations of anhedral syntectonic garnets. 81.70-86.00 - Biotitic; may reflect sedimentary origin, or possibly potassic alteration in metavolcanic.									
	90.70	END OF HOLE										
			Foliations: 29.5m = 77° (S.Z.) 31.5m = 73° 46.1m = 78° 52.7m = 76° 64.6m = 74° 75.0m = 82° 81.0m = 72°									

ASSAY SUMMARY

SAMPLE NO.	FROM	TO	LENGTH	GEO-CHEM	ASSAY	CHECK 1	CHECK 2	CHECK 3	CHECK 4	AVER-AGE	AV X LEN
G6851	76.75	77.85	1.1		520					520	572
G6852	77.85	78.98	1.13	181						181	204.53
G6853	78.98	79.47	0.49	226						226	110.74
G6854	79.47	79.80	0.33	136						136	44.88
G6855	79.80	80.90	1.1	263						263	289.30
G6856	80.90	81.70	0.8	260						260	208

FROM	TO	LENGTH	TOTAL AV X LEN	AVERAGE (AG) GRADE	HORIZON (HT) THICKNESS	PLOTTED HT X AG
76.75	81.70	4.95	1429.45	289		



Samples	Au ppb	Ag ppm	Cu ppm	Zn ppm
G6851	520	38.0	204	33
G6852	181	3.1	80	13
G6853	226	2.1	118	53
G6854	136	2.4	248	98
G6855	263	1.0	180	75

Teck Exploration Ltd.

DDH LM-4

Lac MARCAUT PROJECT
1509 TWP., QUEBEC

	JULY/1992	16100	032N/04	6883

TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-5
Sheet 1 of 5

Job 16100 N.T.S. 32 N/4	Objective 14 mho conductor at approximately 0+85S on Line 15+00W	Core Location Gravel pit at Km 220 west of LG-2 Hwy.	Tests / Dip / Azimuth
Property Lac Marcaut	Marcaut Horizon	Distance to Water 50m	At Collar -50° 330°
Township 1509, Quebec	Drilling Co. Moderne	Casing Lost 0m	-36m -50°
Location: Line 15+00mW	Commenced July 21, 1992		-90m -50°
Station 1+75mS	Completed July 22, 1992	Core Size BQ	
Elevation	Length 90.0m		
Logged R. Burk			

Remarks Marcaut Horizon from 81.55m to 84.34m.

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.00	38.00	CASING										
38.00	48.05	AMPHIBOLITIC WACKE (OR MASSIVE FLOW)	Generally dark grey, fine to medium-grained, moderately to highly foliated biotite-amphibole-feldspar rock representing metamorphosed wacke derived from mafic volcanic source. Minor variations in proportions of main components (biotite, amphibole, feldspar) and grain size define subtle banding or layering. There is minimal veining. Overall, the unit is quite homogeneous in texture and composition.									
48.05	57.50	ALTERED WACKE	There is a gradational contact between the amphibolitic wacke described above and this unit which consists of fine-grained, moderately foliated feldspar and lesser amounts of biotite, amphibole/chlorite and possibly quartz. This unit is characterized by a crudely banded or mottled texture as defined by brownish grey, biotitic material alternating with intervals of pale grey, feldspathic ± sericitic rock. It appears that the paler coloured bands and patches are the result of hydrothermal "bleaching" involving sericite ± silica alteration. Locally, this alteration can be seen emanating									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			from fractures which cut the foliation.									
57.50	67.65	MAFIC SILL	Very homogeneous, greenish grey, fine-grained, massive mafic igneous rock composed of pale green laths (less than 1.0mm long) of amphibole, feldspar, and probably chlorite. The unit's contacts are sharp but subtle (upper contact at 85°; lower contact at 80°). There is a general absence of veining and alteration.									
67.65	72.20	ALTERED WACKE	Similar to unit above mafic sill (48.05-57.50m). Unit is marked by a mottled or streaky, light grey to purplish grey colouration. Compositionally, the unit consists mainly of fine to medium-grained feldspar, with lesser amounts of quartz, white mica, biotite and chlorite. Locally, there are narrow sections which have a vague or "ghostly" feldspar porphyritic texture. A small mass of chalcopyrite is hosted by a 2 cm wide biotite seam (or veinlet).									
72.20	74.90	WACKE	The mottled, altered wacke from 67.65-72.20m grades quickly into a dark brownish grey, fine-grained metawacke composed of feldspar, biotite and also locally, amphibole and garnet. In fact, there are bands or layers of amphibole-garnet rock from 2 to 20 cm thick. This apparent bedding is oriented at 85° to the core axis. The lower contact is ambiguous; there are, in the lowermost 40 cm of the wacke, sporadic lenses of feldspar porphyritic rock which appear to represent fragments of the underlying phenocrystic rock.									
74.90	80.10	REWORKED FELDSPAR CRYSTAL TUFF	Brownish grey to pale grey, fine to medium-grained, massive to weakly foliated feldspathic unit characterized by variable concentrations of anhedral feldspar phenocrysts 1-3mm in size. Localized hydrothermal sericitization and meta-									

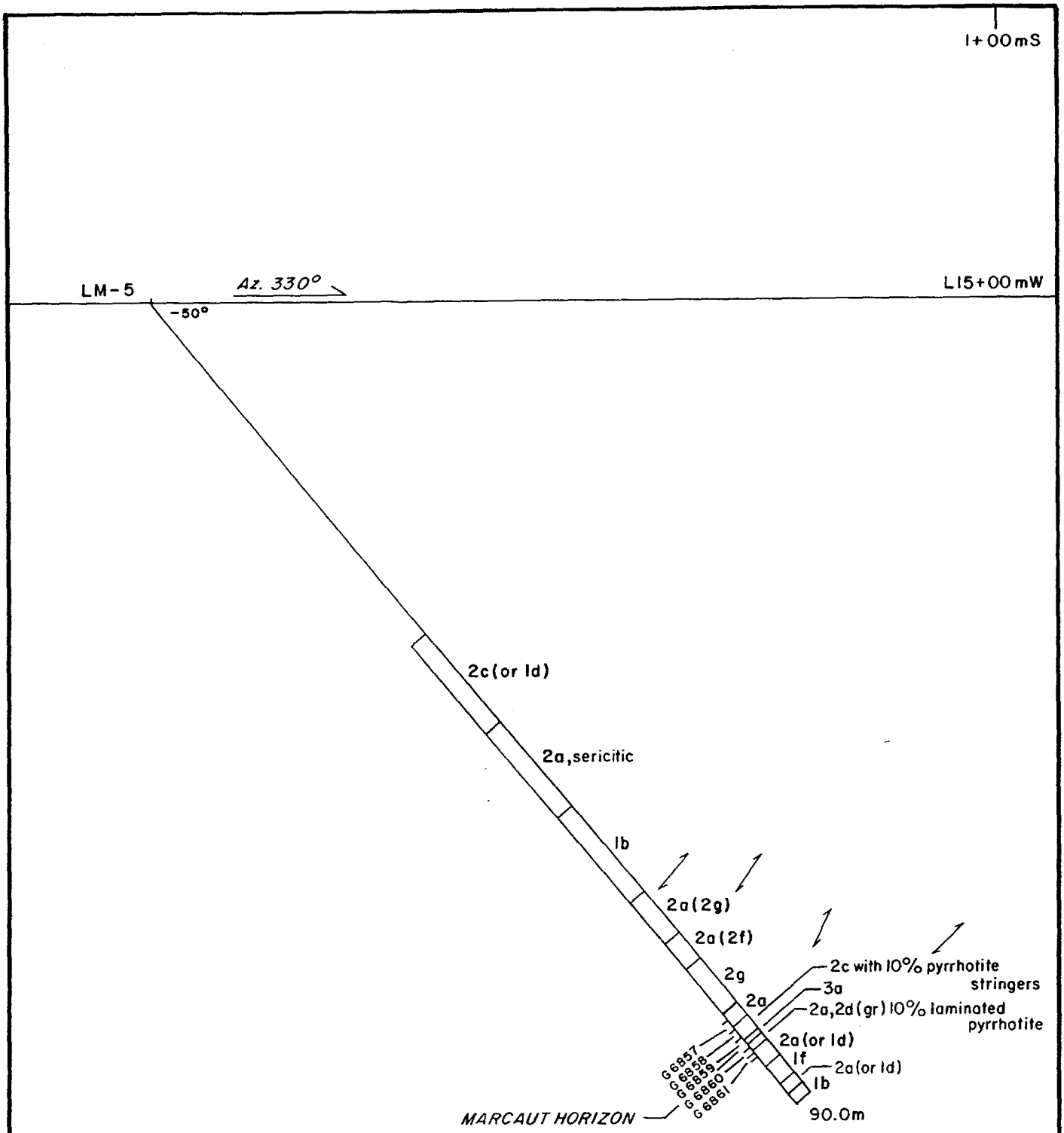
Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			morphic recrystallization tends to "break down" the phenocrysts, thus obscuring the porphyritic texture. Commonly, only a "ghostly" porphyritic texture is preserved. Where the rock is porphyritic, the matrix probably contains minor biotite and quartz. Considering the gradational contacts with fine-grained metawackes above and below, the unit is interpreted to be an intermediate volcaniclastic or reworked tuff, as opposed to an intrusive rock. 76.07-76.25 - Mafic dyke/sill; fine-grained, massive.									
80.10	81.55	WACKE	Essentially same rock type as from 72.20 to 74.90; dark grey, fine-grained, weakly foliated biotite-feldspar rock.	G6857	80.50	81.50	1.0	29	1.0	38		77
81.55	83.40	SILICEOUS WACKE	Primarily a bluish grey, fine-grained siliceous unit marked by irregular laminations and stringers of pyrrhotite and minor pyrite. Overall, the section contains 10-15% pyrrhotite, with minor pyrite and trace chalcopyrite. 81.55-81.65 - Garnet, chlorite, pyrrhotite. 81.75 - 3 cm wide pyrite-chlorite replacement of pyrrhotite.	G6858	81.50	82.40	0.9	233	1.0	98		303
				G6859	82.40	83.40	1.0	144	1.0	102		26
83.40	83.87	MASSIVE SULPHIDE (MARCAUT HORIZON) CONDUCTOR	Massive, fine-grained pyrrhotite mineralization supporting subangular to subrounded 'clasts' of quartz and siliceous, sulphide-bearing wacke up to 5 cm in size. The sulphide constitutes 70 to 80% of the unit. Trace amounts of chalcopyrite present. Sharp contacts at 90° to core axis.	G6860	83.40	83.87	0.47	587	2.7	221		50
83.87	84.34	ARGILLACEOUS WACKE	Blackish, fine to very fine-grained, laminated meta-argillite consisting of interlaminated pale feldspathic material, graphitic chlorite, and 10-15% pyrrhotite.	G6861	83.87	84.34	0.47	454	2.4	130		221

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
84.34	86.40	WACKE (OR INTERMEDIATE MASSIVE FLOW)	Typical of medium grey to brownish grey, fine-grained, weakly foliated lithology underlying Marcaut sulphide horizon, mainly composed of feldspar with minor amounts of quartz, biotite and amphibole. 85.15 - 4 cm wide vein of quartz, calcite, biotite and possibly epidote-related mineral.	6862	83.34	85.35	1.01	259	2.1	234		90
86.40	88.80	FE-POOR AMPHIBOLITE	An unusual rock consisting of fine to medium-grained, colourless, acicular amphibole (tremolite/anthophyllite) along with feldspar, minor biotite, and possibly quartz. Overall, the rock is medium grey and uniform in texture. The upper and lower contacts with fine-grained metawacke are gradational.									
88.80	89.68	WACKE (OR INTERMEDIATE MASSIVE FLOW)	Essentially same rock as occurring from 84.34 to 86.40m.									
89.68	90.00	MAFIC SILL	Pale greenish grey, fine-grained, massive mafic rock consisting of actinolite, feldspar and minor biotite.									
	90.00	END OF HOLE										
			Foliations: 68.0m = 82° 74.0m = 85° 84.0m = 66° 89.0m = 86°									

ASSAY SUMMARY

SAMPLE NO.	FROM	TO	LENGTH	GEO-CHEM	ASSAY	CHECK 1	CHECK 2	CHECK 3	CHECK 4	AVER-AGE	AV X LEN
G6858	81.50	82.40	0.9	233		222	243			233	209.7
G6859	82.40	83.40	1.0	144						144	144
G6860	83.40	83.87	0.47		590	560	610			587	275.89
G6861	83.87	84.34	0.47	454						454	213.38
G6862	84.34	85.35	1.01	259						259	261.59

FROM	TO	LENGTH	TOTAL AV X LEN	AVERAGE (AG) GRADE	HORIZON (HT) THICKNESS	PLOTTED HT X AG
81.50	85.35	3.85m	1104.56	287		



Scale 1 : 500

10 0 10 20 metres

Samples	Au ppb	Ag ppm	Cu ppm	Zn ppm
G6857	29	1.0	38	77
G6858	233	1.0	98	303
G6859	144	1.0	102	26
G6860	587	2.7	221	50
G6861	454	2.4	130	221

Teck Exploration Ltd.

DDH LM-5

LacMARCAUT PROJECT
1509 TWP., QUEBEC

	JULY/1992	16100	032N/04	6884

TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-6
Sheet 1 of 5

Job 16100 N.T.S. 32 N/4	Objective Marcaut Horizon	Core Location Gravel pit at Km 220 LG-2 Hwy.	Tests	Dip	Azimuth
Property Lac Marcaut		Distance to Water 100m	At Collar	-50°	330°
Township 1509, Quebec		Casing Lost 0'	-50m	-50°	
Location: Line 19+00mW	Drilling Co. Moderne		-87m	-50°	
Station 1+50mS	Commenced July 23, 1992	Core Size BQ			
Elevation	Completed July 24, 1992				
Logged R. Burk	Length 87.0m				

Remarks Marcaut horizon from 66.37m to 66.93m.

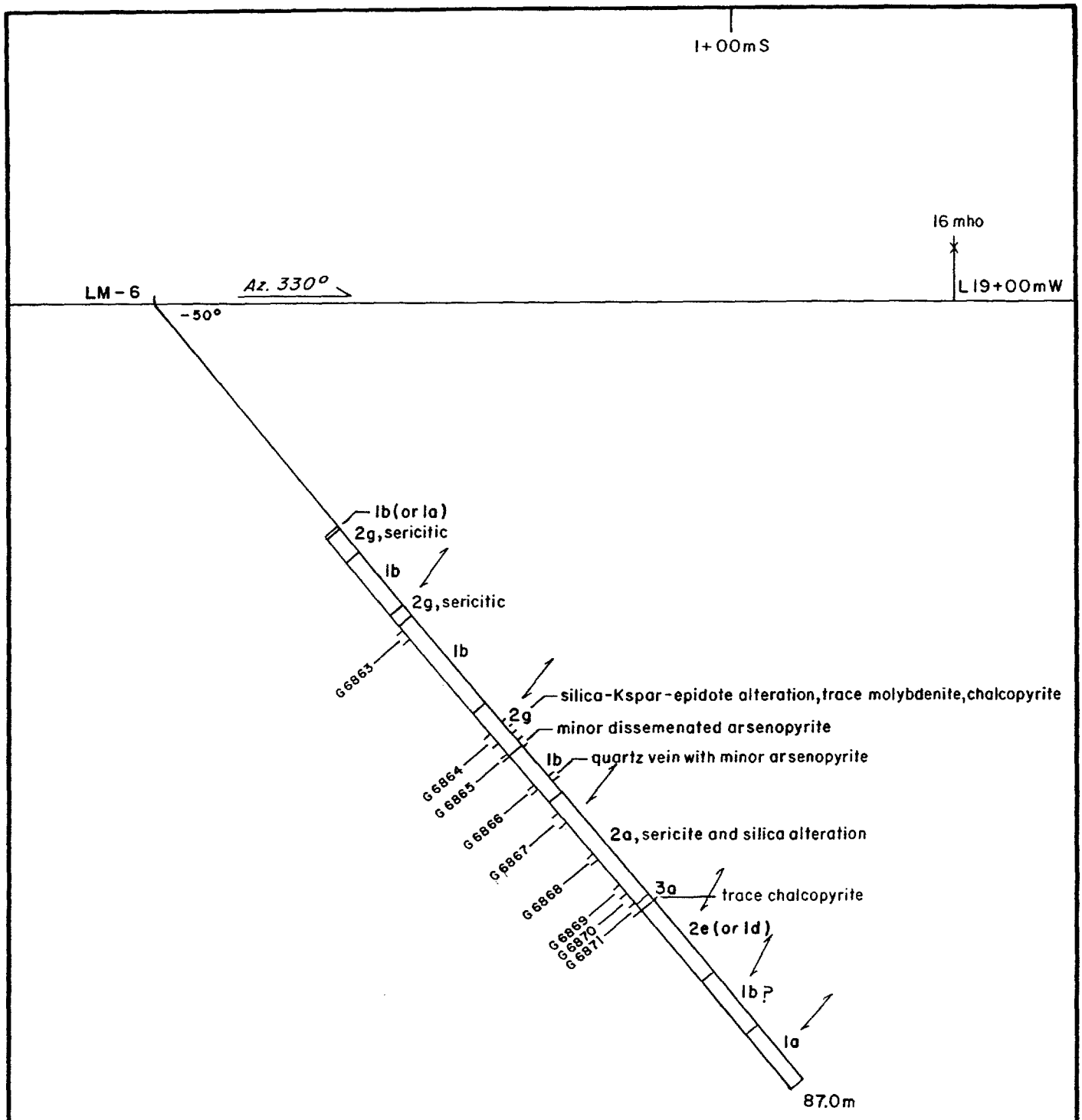
Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.00	25.00	CASING										
25.00	25.15	SYNVOLCANIC MAFIC SILL	Dark greenish grey, fine-grained, massive feldspar-amphibole rock which is interpreted as a synvolcanic mafic sill, but alternatively may be a metamorphosed volcaniclastic wacke derived from mafic volcanic detritus.									
25.15	28.13	REWORKED INTERMEDIATE TUFF	Pale brownish grey, mainly fine-grained, weakly foliated feldspathic rock. Locally the unit is thinly banded which may be the result of foliation-parallel bleaching (sericitization). Where this alteration is more patchy, the rock takes on a mottled appearance. Locally, a "crowded" feldspar porphyritic texture is barely recognizable. Some silicification may accompany the sericite alteration. Downwards in the hole the unit is increasingly biotitic, except at the lower contact where a 10 cm wide zone of sericite-silica alteration is developed.									
28.13	33.60	INTERMEDIATE TO MAFIC SYNVOLCANIC SILL	Grey to greenish grey, homogeneous, fine-grained, massive to weakly foliated intermediate to mafic igneous rock. Two main components are feldspar and a pale green to colourless, bladed									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			amphibole (tremolite-actinolite). Locally, there is minor, fine biotite, apparently replacing amphibole. Foliation is strongest towards the contacts which are quite sharp and at 85-90° to the core axis.									
33.60	35.30	ALTERED REWORKED INTERMEDIATE TUFF	Laminated to mottled, brownish grey, fine to medium-grained, moderately foliated feldspathic rock essentially the same as from 25.15-28.13m. Characterized by the local presence of a "ghostly" feldspar porphyritic texture (crystal tuff?). Laminated texture is defined by alternating biotitic and sericitic bands. At both contacts there are 20 cm wide zones of quartz flooding (veining), with the upper zone containing trace arsenopyrite. There is also a 5 cm wide quartz vein at 34.3m which contains trace arsenopyrite.	G6863	33.55	34.55	1.0	71				
35.30	45.05	MAFIC SYNVOLCANIC SILL	Relatively homogeneous, dark greenish grey, generally fine-grained, massive amphibolite. Medium-grained, weakly foliated sections occur from 36.30-37.40 and from 39.00-40.40m. Towards either contact the unit becomes finer grained and slightly biotitic. A 4 cm thick quartz vein at 38.33m contains minor arsenopyrite which also occurs in the immediately adjacent amphibolite.									
45.05	49.87	REWORKED FELDSPAR CRYSTAL TUFF	Least altered rock is a purplish grey, medium-grained, massive to weakly foliated feldspathic rock. Whitish, poorly defined, flattened feldspar phenocrysts occur in variable concentrations throughout the unit. Minor very fine-grained biotite occurs in the groundmass. Patchy sericite alteration is common (replacing biotite), and also emanates from late fractures. 46.75-46.95 - Green, fine-grained mafic dyke. 47.10-48.35 - Zone of silica-Kspar, epidote alteration elated to fractures and quartz	G6864	47.10	48.20	1.1	820				

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			veins; at 47.80m pyrite, minor molybdenite and trace chalcopyrite occur in a fracture cutting strong Kspar alteration. Trace arsenopyrite is disseminated in the lowermost 15 cm of the unit.	G6865	49.60	49.90	0.3	87				
49.87	55.05	MAFIC SYNVOLCANIC SILL	Dark grey, massive to weakly foliated, fine-grained feldspar-amphibole and feldspar-biotite-amphibole rock. Overall, homogeneous in texture with subtle variations in composition. Biotitic sections appear to occur towards both contacts, with true amphibolite at the core of the unit. 53.30-53.45 - Quartz vein containing minor arsenopyrite; arsenopyrite also found, along both margins of the vein (especially upper margin). 53.90 - 10 cm quartz-sericite-amphibole vein.	G6866	52.75	53.30	0.55	139				
55.05	66.37	ALTERED WACKE	Mottled, purplish grey and yellowish grey, fine-grained, moderately foliated, locally banded feldspathic unit. Least altered material is brownish grey, consisting of feldspar and biotite (and possibly minor quartz). Locally, there is a hint of coarser feldspar grains. With increasing intensity of hydrothermal alteration, this brownish grey metawacke is converted to a pale grey rock, then to yellowish grey, sericite-rich material, and finally to a buff coloured silica-feldspar rock. Epidote appears to be associated with sericite in the altered rock. Thin quartz veins are present, but are not abundant and appear to post-date most of the alteration products. Minor specks of pyrrhotite and trace chalcopyrite are present in the strongest altered sections.	G6867	56.00	57.00	1.0	183				
				G6868	60.78	61.28	0.5	<5				
				G6869	64.37	65.37	1.0	<5				
				G6870	65.37	66.37	1.0	16				
66.37	66.93	MASSIVE SULPHIDE CONDUCTOR	Essentially massive pyrrhotite-pyrite (2:1) iron formation characterized by the presence of rounded to subangular quartz-rich "clasts" and	G6871	66.37	66.95	0.58	620	1.4	176		488

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			occasional laminated metawacke clasts. Locally, there are lenses of sulphide-poor laminated argillite within the clast-bearing sulphide-rich material. Upper contact marked by the first appearance of disseminated pyrrhotite in siliceous wacke. Lower contact is very sharply defined at 90° to core axis. Trace chalcopyrite observed at or close to lower contact.									
66.93	75.00	VOLCANICLASTIC WACKE (OR MASSIVE MAFIC FLOW)	Consisting of a number of sections (horizons) of slightly differing composition, this unit may represent a compositionally layered metasediment or, alternatively, a variably altered, metamorphosed mafic flow. 66.93-67.40 - Greenish grey, fine-grained, massive feldspar-actinolite, gradually changing to: 67.40-68.80 - (Quartz)-feldspar-tremolite/actinolite rock; grey, fine-grained, massive, homogeneous in texture; amphibole is bladed to acicular and is essentially colourless; grades into: 68.80-75.00 - Dark grey to greenish grey, fine-grained feldspathic rock with varying proportions of actinolite, biotite, and chlorite, such that the rock commonly has a thinly banded texture.									
75.00	81.00	INTERMEDIATE TO MAFIC SILL(?)	Contacts for this unit were arbitrarily chosen, since they are very gradational. In fact, it is not certain if this unit is not simply a textural variation of the rock which occurs above and below. From about 75.00m downwards in the hole, the unit consists of medium grey, massive and homogeneous, fine-grained feldspar with minor actinolite. At about 77.00m, the grain size gradually increases and foliated green actinolite laths are formed giving the rock a densely spotted texture.									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
81.00	84.00	MASSIVE MAFIC FLOW	Mainly a dark greenish grey, fine-grained, weakly foliated feldspar-actinolite rock. Unit is marked by numerous thin quartz-calcite bands (veinlets) which are bordered by well foliated green amphibole-chlorite alteration halos. Homogeneous texture and mafic composition suggest this unit is a mafic volcanic, most likely a massive flow.									
	84.00	END OF HOLE										
			Foliations: 34.0m = 76° 47.0m = 78° 57.0m = 78° 71.0m = 70° 78.0m = 68° 84.0m = 82°									



Samples	Au ppb	Ag ppm	Cu ppm	Zn ppm
G6863	71	-	-	-
G6864	82	-	-	-
G6865	87	-	-	-
G6866	139	-	-	-
G6867	183	-	-	-
G6868	<5	-	-	-
G6869	<5	-	-	-
G6870	16	-	-	-
G6871	620	1.4	176	488

Scale 1 : 500

10 0 10 20 metres

Teck Exploration Ltd.

DDH LM-6

LacMARCAUT PROJECT
1509 TWP., QUEBEC

	JULY/1992	16100	032N/04	6885

TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-7
Sheet 1 of 6

Job 16100 N.T.S. 32 N/4	Objective Marcaut Horizon (36 mho conductor at 0+35mS on L22+00mW)	Core Location Gravel pit at Km 220 west of LG-2 Hwy.	Tests	Dip	Azimuth
Property Lac Marcaut		Distance to Water 100m	At Collar	-50°	330°
Township 1509, Quebec		Casing Lost 0m	-40m	-50°	
Location: Line 22+00mW	Drilling Co. Moderne		-84m	-50°	
Station 1+00mS	Commenced July 24, 1992	Core Size BQ			
Elevation	Completed July 25, 1992				
Logged R. Burk	Length 84.0m				

Remarks Marcaut sulphide horizon intersected from 43.72 to 45.20m.

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.00	7.50	CASING										
7.50	9.70	WACKE	Dark brownish grey to purplish grey, fine-grained, weakly foliated metasediment primarily composed of feldspar and biotite, with minor amounts of amphibole, garnet, and possibly quartz. Garnets are anhedral, flattened in the foliation, and occur in the darker, biotitic rock. Towards the lower, gradational contact the unit becomes paler in colour, possibly due to sericite replacement of biotite.									
9.70	13.46	REWORKED FELDSPAR CRYSTAL TUFF	The above-described wacke grades into a pale grey to medium grey, fine to medium-grained, weakly foliated feldspathic rock which is characterized by a diffuse feldspar porphyritic texture. Also, the unit commonly has a banded texture defined by slight compositional variations, mostly defined by biotite content. The poorly formed whitish feldspar phenocrysts are interpreted to represent partially resorbed crystal fragments reworked from an intermediate tuff. Much of the unit has undergone some degree of sericite alteration. 13.20-13.46 - Pale greenish grey, fine-grained									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			dyke; composed of feldspar, sericite, actinolite, garnet.									
13.46	23.20	ALTERED WACKE	Unit is highly variable in appearance and composition due to hydrothermal alteration. The original, least altered rock probably consists of fine-grained, weakly to moderately foliated, thickly bedded biotite-feldspar metawacke. 13.46-14.20 - Dark brown, biotitic with minor anhedral garnet. 14.20-15.50 - Pale grey, fine-grained, sericitized; at 15.00m, 12 cm wide oxidized shear or fault surface. 15.50-23.20 - Mottled and locally banded, brownish grey to pale grey (biotite being replaced by sericite); locally, coarser feldspar grains recognizable. 17.25 - 10 cm quartz-sericite-garnet vein with 10% arsenopyrite. 21.95 - 15 cm wide silicified breccia zone. Upper contact is gradational, but lower contact is quite sharp at 65° to core axis.	G6872	16.55	17.55	1.0	42				
23.20	34.45	MAFIC SYNVOLCANIC SILL	Dark green, massive to weakly foliated, fine-grained amphibolite. The unit is slightly coarser grained in its core. There is minor quartz-calcite veining (banding) parallel to foliation. Most noteworthy feature of the unit is the presence of trace to minor disseminated arsenopyrite from about 30.00 to 33.00m. Coarse subhedral arsenopyrite occurs adjacent to a thin quartz vein at 32.15m. Sharp lower contact at 70°.	G6873 G6874	31.00 32.00	32.00 33.00	1.0 1.0	33 47				
34.45	36.11	WACKE	Dark brownish grey, fine-grained, weakly foliated biotite-feldspar rock containing poorly defined thin bands or lenses of feldspar porphyritic rock which may represent thin layers of reworked feldspar crystal tuff or possibly									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			flattened fragments of porphyritic rock. Lower contact at 78°.									
36.11	38.74	MAFIC SYNVOLCANIC SILL	Greenish grey, massive to very weakly foliated, fine-grained feldspar-actinolite rock. Unit is homogeneous in texture and composition, and has sharply defined contacts. Lower contact at 74° to core axis.									
38.74	41.80	REWORKED FELDSPAR CRYSTAL TUFF	Pale brownish grey, generally medium-grained, weakly foliated feldspathic unit characterized by an abundance of white feldspar grains or small aggregates of feldspar ± quartz grains. The groundmass is composed of fine feldspar, quartz and biotite. In the core of the unit, there is a concentration of flattened, fine-grained siliceous lenses which may be felsic volcanic fragments, or, alternatively are products of metamorphic recrystallization. Noteworthy is the presence of trace to minor amounts of fine crystalline arsenopyrite.									
			39.20-39.50 - Vein of quartz-calcite-sericite-actinolite containing trace arsenopyrite.	G6875	39.16	40.16	1.0	95				
			39.85-40.01 - Vein of quartz-calcite-actinolite-sericite vein.									
			40.55-40.85 - Quartz-feldspar-calcite-actinolite-sericite vein containing trace pyrite and arsenopyrite.	G6876	40.16	41.16	1.0	257				
			40.85-41.80 - Reworked crystal tuff intercalated with feldspar-biotite ± garnet metawacke.	G6877	41.16	41.66	0.5	204				
41.80	43.72	WACKE	Typical brownish grey, fine-grained, massive to weakly foliated feldspar-biotite metasediment. Locally, minor sericite replacement of biotite. Approximately 10 cm above the lower contact there is a 5 mm wide pyrite seam or veinlet. Lower contact at 67° to core axis.	G6878	43.20	43.70	0.5	577	0.3	39		220

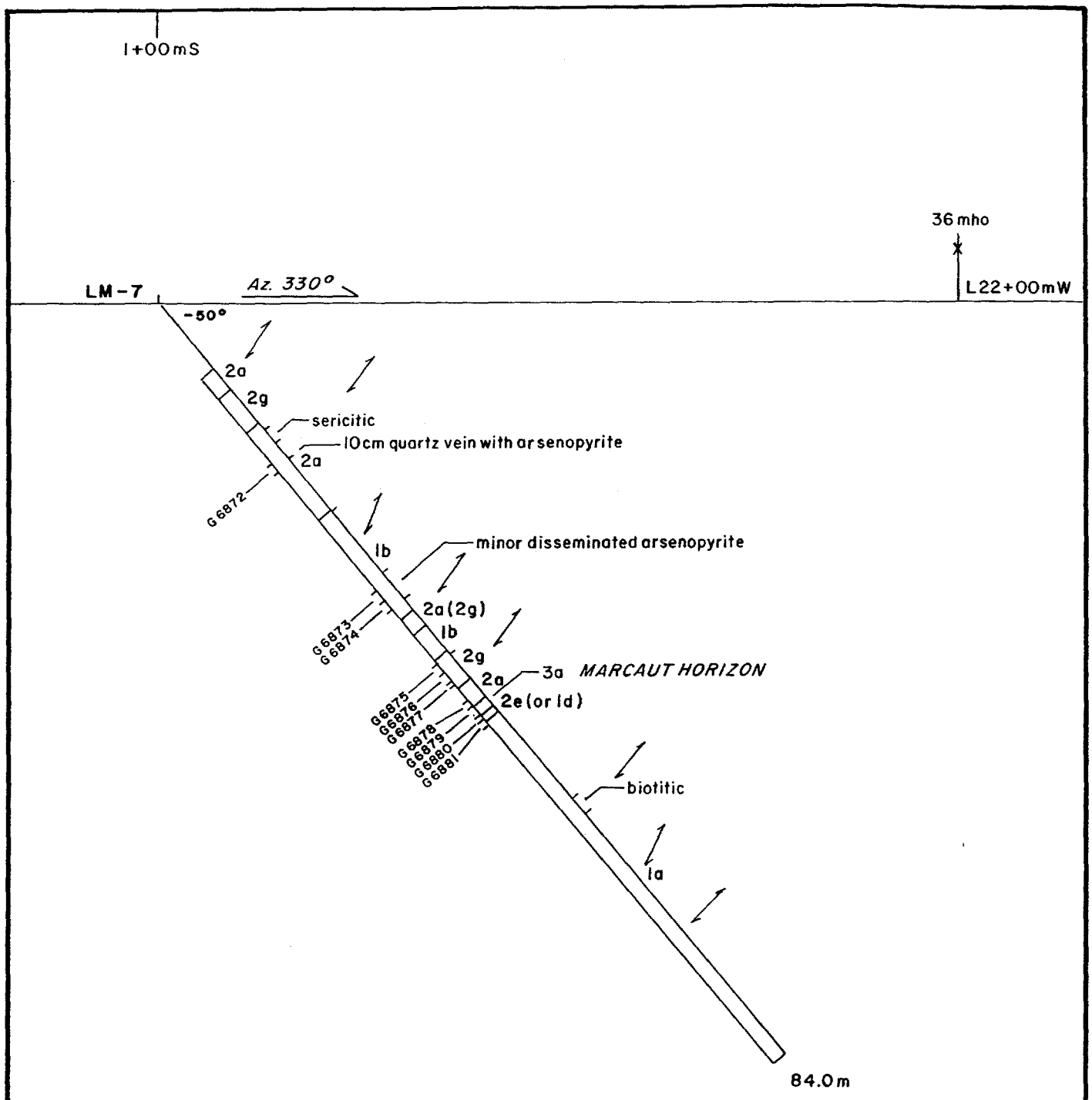
Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
43.72	45.20	MASSIVE SULPHIDE (MARCAUT HORIZON)	Fairly typical of the Marcaut sulphide horizon, with about 75% of the unit consisting of massive, fine-grained pyrrhotite and minor pyrite mineralization hosting subangular to rounded clasts of siliceous rock as well as sporadic green, chloritic pebbles. This sulphide mineralization is interbedded with a 20 cm thick wacke showing asymmetrically folded laminations. Also, 10 cm from the upper contact there is a large clast or layer of siliceous wacke (or recrystallized chert). The ratio of pyrrhotite to pyrite is about 4:1. No chalcopyrite observed. Contacts are fairly sharp, but subtle, and are at 80°.	G6879 G6880	43.70 44.70	44.70 45.20	1.0 0.5	330 274	1.5 0.8	188 146		83 147
45.20	45.66	VOLCANICLASTIC WACKE (OR SHEARED MAFIC FLOW)	Dark green, laminated, fine-grained amphibolitic rock which has a gradational contact with the underlying mafic volcanic. In fact, this unit may simply be the sheared contact zone of the underlying volcanic unit.	G6881	45.20	45.70	0.5	158	0.3	55		312
45.66	84.00	MAFIC FLOW	Although not for certain, it appears that the sulphide iron formation is structurally underlain by a massive mafic flow. Overall the unit consists of dark green, massive to weakly foliated, fine to very fine-grained actinolite and feldspar. Slightly altered (biotitic) or coarser grained sections represent local variations of the basic fine-grained amphibolite. For example, from: 54.40-55.30 - Medium-grained and moderately foliated. 55.30-57.00 - Abundant thin bands of biotite alteration (potassic alteration of amphibole). 70.00-76.50 - Moderately foliated, fine-grained feldspar-biotite-actinolite; homogeneous. Thin quartz-calcite veinlets are common but not abundant. Veins greater than 10 cm thick occur									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			at 48.35, 59.85 and 74.00m.									
	84.00	END OF HOLE										
			Foliations:									
			9.0m = 74°									
			18.0m = 77°									
			27.0m = 62°									
			35.0m = 75°									
			42.0m = 75°									
			57.0m = 80°									
			64.0m = 66°									
			70.0m = 85°									

ASSAY SUMMARY

SAMPLE NO.	FROM	TO	LENGTH	GEO-CHEM	ASSAY	CHECK 1	CHECK 2	CHECK 3	CHECK 4	AVER-AGE	AV X LEN
G6878	43.20	43.70	0.5		580	550	600			577	288.5
G6879	43.70	44.70	1.0	330						330	330
G6880	44.70	45.20	0.5	274						274	137
G6881	45.20	45.70	0.5	158						158	79

FROM	TO	LENGTH	TOTAL AV X LEN	AVERAGE (AG) GRADE	HORIZON (HT) THICKNESS	PLOTTED HT X AG
43.20	45.70	2.5m	834.50	334		



Samples	Au ppb	Ag ppm	Cu ppm	Zn ppm
G6872	42	-	-	-
G6873	33	-	-	-
G6874	47	-	-	-
G6875	95	-	-	-
G6876	257	-	-	-
G6877	204	-	-	-
G6878	577	0.3	39	220
G6879	330	1.5	188	83
G6880	274	0.8	146	147
G6881	158	0.3	55	312

Scale 1 : 500

10 0 10 20 metres

Teck Exploration Ltd.

DDH LM-7

LacMARCAUT PROJECT
1509 TWP., QUEBEC

	JULY/1992	16100	032N/04	6886

TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-8
Sheet 1 of 4

Job 16100 N.T.S. 32 N/4	Objective Marcaut Horizon (55 mho conductor at 1+20mS on Line 6+00mE)	Core Location Gravel pit at Km 220 west of LG-2 hwy.	Tests / Dip / Azimuth
Property Lac Marcaut		Distance to Water 700m	At Collar -50°
Township 1509, Quebec	Drilling Co. Moderne	Casing Lost 0m	50m -51°
Location: Line L6+00mE	Commenced July 25, 1992		93m -51°
Station 2+00mS	Completed July 26, 1992	Core Size BQ	
Elevation	Length 93.0m		
Logged D. Tarnocai			

Remarks Marcaut Horizon intersected from 73.50 to 73.70m.

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.00	25.00	OVERBURDEN										
25.00	73.55	MASSIVE MAFIC FLOW	Dark grey, fine-grained, weakly foliated mafic to mafic-intermediate flow composed of amphibole + feldspar ± quartz ± biotite. Biotitization occurs as fine-grained, reddish brown alteration lenses? sub-parallel to foliation. Margins of alteration are diffuse and commonly are "feathered" with the amphibolite. Carbonatization in the unit is confined to (1) thin foliation-parallel zones, (2) quartz + amphibole + garnet + carbonate ± pyrrhotite ± pyrite veins, (3) irregular lensoid patches typically with increased amphibole content. High angle (approximately 80°) quartz + amphibole + minor garnet + carbonate veins are sparsely present. 27.20-29.50 - Fine-grained red-brown biotite + garnet-rich horizon. Garnet as anhedral syntectonic porphyroblasts. 31.50 - Trace chalcopyrite in small fracture/fault. 48.60-49.20 - Weakly sheared and weakly silicified. Foliated at 83° to core axis. 50.50-54.30 - Fine-grained reddish-brown biotitic section with occasional irregular									

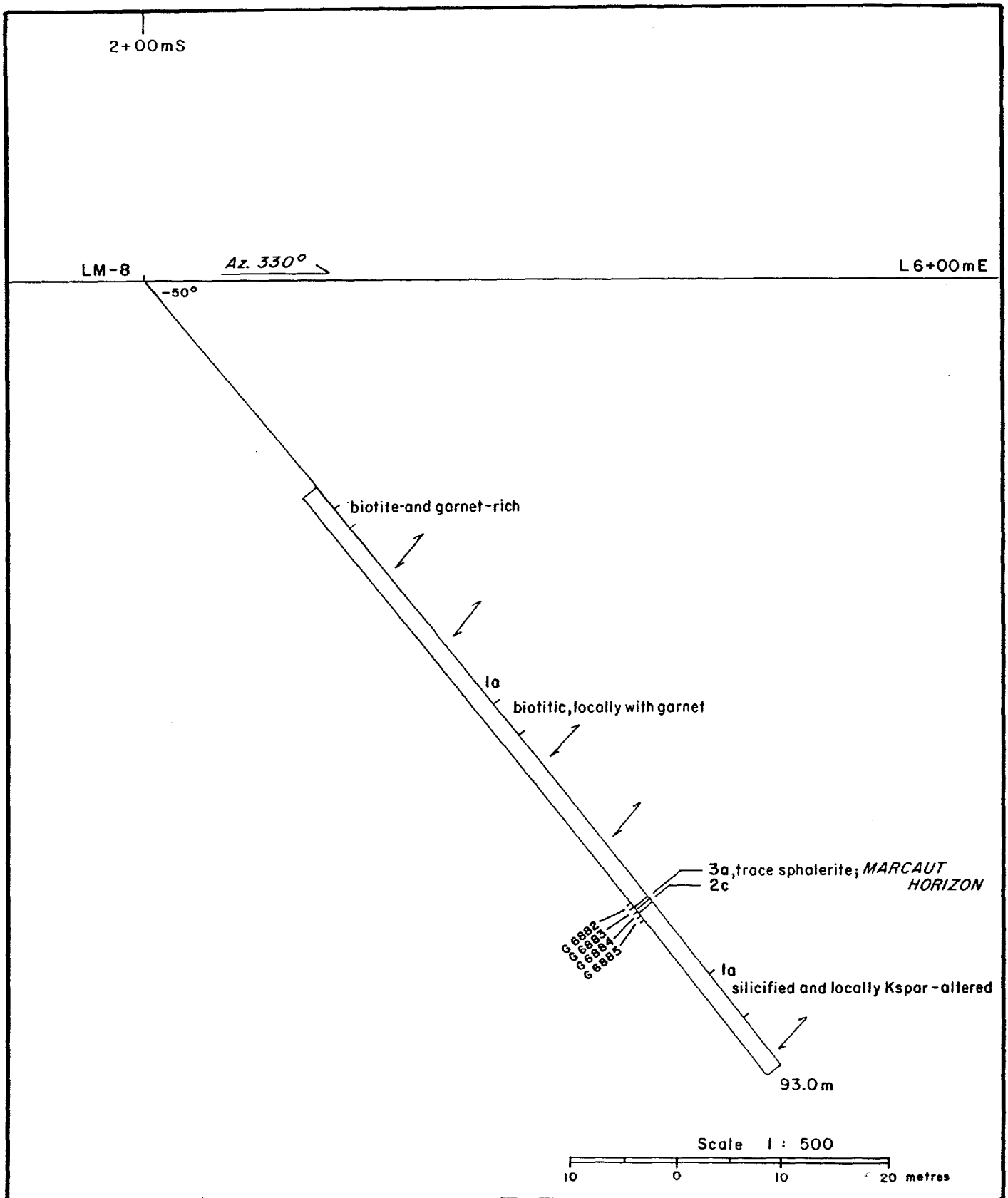
Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			quartz + carbonate + amphibole ± pyrrhotite/pyrite veins? subparallel to foliation. Garnetiferous between 51.30-52.00. 62.60-63.00 - Garnetiferous section, also with increased amphibole content; minor carbonate alteration + trace pyrite + pyrrhotite.	G6882	72.90	73.40	0.5	243	0.1	21		87
73.50	73.70	MASSIVE SULPHIDE (MARCAUT HORIZON)	Massive pyrrhotite with small subrounded cherty clasts up to 8 mm and what appears to be a brecciated cherty bed in the middle of the iron formation. Trace amount of finely disseminated sphalerite on exhalite margins. Minor disseminated pyrrhotite for 6 cm downhole from, lower contact. Contacts sharp.	G6883	73.40	73.90	0.5	266	0.4	267		566
73.70	74.00	WACKE	Greyish, fine-grained, siliceous wacke.	G6884	73.90	74.40	0.5	1470	0.1	74		30
74.00	93.00	MASSIVE MAFIC FLOW	Dark greenish grey, fine-grained amphibolite. Locally, the unit is feldspar-phyric and hosts a loose stockwork of quartz veinlets oriented at low angles to core axis. Three large quartz veins at 77.10m (5 cm), 77.40m (12 cm), and 78.50m (5 cm) contain trace to 2% pyrrhotite. Large quartz vein orientations range from 20 to 60 ° to core axis. 82.60-87.80 - Pervasively silicified mafic unit. Fine-grained to aphanitic, dark grey and hard to scratch, with gradational upper and lower contacts. Probably silicified equivalent of overlying amphibolite. Locally, pervasive, cream coloured Kspar + quartz altered sections 4-10 cm wide with later quartz-filled fractures. Unit has behaved relatively brittley as evidenced by randomly oriented hairline quartz-filled fractures. 86.60-86.90 - Medium-grained, anhedral, attenuated garnets form 5% of section.	G6746	74.40	74.90	0.5	88	0.1			

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
	93.00	END OF HOLE										
			Foliations: 36.40m = 79° 43.70 = 78° 58.00 = 83° 67.00 = 79° 92.00 = 82°									

ASSAY SUMMARY

SAMPLE NO.	FROM	TO	LENGTH	GEO-CHEM	ASSAY	CHECK 1	CHECK 2	CHECK 3	CHECK 4	AVER-AGE	AV X LEN
G6882	72.90	73.40	0.5	243						243	121.5
G6883	73.40	73.90	0.5	266						266	133
G6884	73.90	74.40	0.5		1470					1470	735

FROM	TO	LENGTH	TOTAL AV X LEN	AVERAGE (AG) GRADE	HORIZON (HT) THICKNESS	PLOTTED HT X AG
72.90	74.40	1.5m		660		



Samples	Au ppb	Ag ppm	Cu ppm	Zn ppm
G6882	243	0.1	21	87
G6883	266	0.4	267	566
G6884	1470	0.1	74	30
G6885	88	0.1	-	-

Teck Exploration Ltd.

DDH LM-8

LacMARCAUT PROJECT
1509 TWP., QUEBEC

	JULY/1992	16100	032N/04	6887

TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-9
Sheet 1 of 8

Job 16100 N.T.S. 32 N/4	Objective South Zone conductor (75 mho) and Marcaut Horizon conductor (15 mho)	Core Location Gravel pit and Km 220 west of LG-2 hwy.	Tests	Dip	Azimuth
Property Lac Marcaut		Distance to Water 300m	At Collar	-45°	330°
Township 1509, Quebec	Drilling Co. Moderne	Casing Lost 55m NW	63.0m	-44°	
Location: Line 8+00mE	Commenced July 26, 1992	39m BW	99.0m	-45°	
Station 3+25mS	Completed July 29, 1992	Core Size BQ	147.0m	-43°	
Elevation	Length 192.0m		192.0m	-45°	
Logged R. Burk					

Remarks South Zone intersected from 88.30 to 99.13m and Marcaut Horizon intersected from 165.00 to 165.25m.

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.00	55.00	CASING										
55.00	74.10	MASSIVE MAFIC FLOW	Dark greenish grey, fine to medium-grained, weakly foliated mafic volcanic composed of actinolite, feldspar, possibly minor chlorite, and locally minor biotite. Homogeneous texture and composition suggest the unit is a massive, fine-grained flow. There are gradational transitions from fine-grained amphibolite into medium-grained rock, where actinolite laths are up to 10 mm in length, for sections 63.50 to 64.90 and 71.10 to 72.10m.									
			55.00-55.70 - Pale grey, sericitized, kink band indicates alteration probably related to shearing.									
			56.35-56.55 - Quartz vein with trace pyrrhotite, arsenopyrite; minor pyrrhotite-arsenopyrite mineralization associated with silica-biotite alteration in 50 cm section above quartz vein.	G6744	55.00	55.75	0.75	208	0.1	20		15
				G6885	55.75	56.75	1.0	740				
				G6745	56.75	57.75	1.0	930	0.1	32		12
			1-3 cm thick quartz-calcite veinlets occur sporadically throughout the unit.									
74.10	81.20	ALTERED WACKE(?)	Mottled, brownish grey and pale, yellowish grey, fine-grained, moderately foliated feldspar-									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			biotite-muscovite rock. Apparently, least altered rock is brown in colour and biotite-rich, being replaced to varying degrees by muscovite-rich material. The muscovite alteration is patchy or spotty, resulting in the mottled texture. Pervasive muscovite replacement occurs from 77.30 to 77.90m. Rarely, green muscovite slips are present within strongly altered bands. There are essentially no sulphides present in the unit. Both contacts are somewhat ambiguous. The upper contact is marked by 20 cm of "bleaching" of the overlying amphibolite and a 5mm band of pinkish Kspar alteration followed downwards by 10 cm of diffuse sericitic "veining". The lower contact is completely gradational with the underlying garnetiferous rock.									
81.20	88.30	GARNETIFEROUS VOLCANICLASTIC WACKE(?)	Brownish to brown and green banded, garnetiferous unit. From the upper contact for about 1.0m downwards the unit consists of fine-grained, moderately foliated feldspar and biotite with minor actinolite and garnet. This grades downwards into increasingly amphibole and garnet-rich material. In addition, a banded texture is developed, defined by 2 to 20 cm wide concentrations of dark green actinolite and pinkish garnet porphyroblasts up to 5 mm in size. Between about 80.50 and 83.50 there are no less than 6 narrow bands (2 to 10 cm wide) of vaguely feldspar porphyritic rock which consists of poorly preserved, flattened and foliated white feldspar grains (or grain aggregates) set in a groundmass of brownish, fine-grained feldspar, biotite, and possibly minor quartz. These bands may represent porphyritic dikelets, or possibly layers of reworked crystal tuff. Trace amounts of pyrite and arsenopyrite occur sporadically in the unit below about 85.00m, and	G6743	82.28	83.28	1.0	411	0.4	25		29
				G6742	83.28	84.28	1.0	930	0.2	29		37
				G6886	84.28	85.28	1.0	1100				
				G6887	85.28	86.28	1.0	306				
				G6888	86.28	87.28	1.0	510				
				G6889	87.28	88.28	1.0	640				

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			strong pyrrhotite mineralization occurs in a 5 cm section immediately at the lower contact which is at 67° to core axis.									
88.30	96.97	SILICEOUS WACKE/LEAN IRON FORMATION (SOUTH ZONE)	A mixed metasedimentary unit primarily composed of grey,fine-grained, massive siliceous wacke (quartz-feldspar) thinly intercalated with iron amphibole-magnetite-pyrrhotite iron formation layers, cherty siltstone layers, and black graphitic argillite beds. Significantly, the central portion of the unit has been strongly silicified in the form of glassy, grey-white quartz flooding. In addition, the siliceous wacke material hosts numerous, irregular pyrrhotite masses and veinlets.	G6890	88.28	89.28	1.0	454	0.7	85		11
			88.30-93.00 - 15-20% of section consists of 2 to 20 cm thick, fine-grained iron amphibole-magnetite-pyrrhotite iron formation; 10-15% of section consists of intensely silicified (quartz flooded) rock; remainder consists of siliceous wacke with minor disseminated and veinlet pyrrhotite.	G6891	89.28	90.28	1.0	292	1.0	111		21
				G6892	90.28	91.28	1.0	810	1.5	104		11
				G6893	91.28	92.28	1.0	438	0.8	88		19
				G6894	92.28	93.28	1.0	870	1.9	208		41
				G6895	93.28	94.28	1.0	480	1.5	111		16
				G6896	94.28	95.28	1.0	590	3.0	218		201
				G6897	95.28	96.28	1.0	790	2.2	190		119
			93.00-96.70 - Greyish silicified wacke/siltstone with graphitic argillite beds at 94.65-94.81; 94.94-94.99; 95.25-95.41m. Approximately 5% of section consists of irregular pyrrhotite stringers or breccia-fillings; trace amounts of chalcopyrite associated with late quartz-filled hairline fractures (noticeably at 96.29 and 96.61m).									
96.97	98.30	ALTERED INTERMEDIATE SILL	A fairly homogeneous, pale grey, fine-grained, moderately foliated feldspathic rock which has been pervasively sericitized. There is a noticeable absence of pyrrhotite stringers in the unit supporting the interpretation that it is an intrusive, one which is younger than the sulphide mineralization.	G6898	96.28	97.28	1.0	810	2.5	371		539
				G6899	97.28	98.18	0.9	102	0.5	148		145

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
98.30	99.13	SILICEOUS WACKE AND/OR CHERT	Dark grey, very fine-grained, pervasively silicified wacke, or alternatively, cherty siltstone which has been intensely fractured, locally brecciated, and strongly mineralized with pyrrhotite. The iron sulphide constitutes about 10% of the rock and occurs as irregular veinlets and breccia matrix. Trace chalcopyrite associated with white quartz in late, minute veinlets. (Also, possibly trace amount of sphalerite associated with chalcopyrite).	G6900	98.18	99.04	0.86	182	2.5	453		1490
99.13	165.00	VOLCANICLASTIC WACKE (OR MASSIVE FLOW)	This lithology is the dominant rock type encountered in drill holes LM-1 through LM-9, but its identification is uncertain. Generally, it is dark to medium grey, but commonly there are thin bands of pale grey, sericitic material as well as brownish, biotitic bands. The banding is rarely sharply defined; instead, one compositional band will grade into adjacent material. The fine to very fine grain size and the crystallinity are quite homogeneous and might be evidence of the unit being a thick, massive mafic to intermediate flow. Feldspar and actinolite appear to be the major components of the least altered rock. Biotite and sericite (muscovite) are believed to be secondary products of metamorphosed alteration. Minor calcite is also present and is typically concentrated into thin laminae or bands parallel to foliation. Some of the more noteworthy altered sections are as follows: 102.55-103.15 - Numerous thin, biotite/silica-altered bands. 108.30-111.50 - Fault zone; creamy white quartz ± feldspar, patches of tan-coloured muscovite, finely disseminated minor pyrrhotite, trace chalcopyrite, sphalerite?; country rock fragments common in fault zone; fault	G6701	99.04	100.04	1.0	6	0.3	150		89
				G6702				20	0.3	60		23
				G6703	108.30	109.30	1.0	30	0.3	197		49
				G6704	109.30	110.30	1.0	22	0.4	97		27
				G6705	110.30	111.45	1.15	53	0.2	57		540

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			boundaries at 15-25° to core axis. 113.90 - 5 cm thick sericitic bands with minor garnet in adjacent rock. 114.50 - As above. 115.90-116.50 - Buff-coloured silica/sericite altered fault with bluish green talc? filling fractures. 122.10-123.65 - Laminated sericite/chlorite alteration. 125.80-125.95 - Buff coloured silica/sericite alteration. 135.50-137.30 - Mottled purplish grey and pale grey, fine-grained sericite ± calcite alteration; bleached fractures. 153.20-156.45 - Very fine-grained, generally biotitic with intermittent sericitic sections; fracture subparallel to core axis filled with bluish green, "soapy" mineral, possibly talc; minor garnet in brownish biotitic sections. 159.50-163.50 - Weak but pervasive calcite alteration turning rock to medium grey; intermittent thin bands or laminae of fine-grained pyrrhotite, locally being replaced by blackish chlorite and pyrite. 161.52-161.62 - Quartz-chlorite-sulphide band; originally quartz-pyrrhotite "vein"; replacement of pyrrhotite by blackish chlorite followed by pyrite; approximately 25% pyrite over 10 cm. 162.10-162.27 - Quartz-calcite veins with minor pyrrhotite, pyrite at the margins. 162.43-162.56 - As above.	G6706	160.00	161.00	1.0	<5	0.1	129		195
				G6707	161.00	162.00	1.0	<5	0.1	153		247
				G6708	162.00	163.00	1.0	79	ND	81		965
				G6709	163.00	164.00	1.0	23	0.1	77		54
				G6710	164.00	165.00	1.0	16	0.1	109		64
165.00	165.25	SULPHIDE-BEARING ARGILLITE CONDUCTOR (MARCAUT HORIZON)	Contacts are somewhat vague and appear to be obscured by calcite veining and alteration. Unit consists of very fine-grained black argillaceous rock with very thin, irregular laminae and/or veinlets of pyrrhotite (5% of									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			unit). Bands of concentrated, interstitial pyrrhotite mineralization, 2-3 cm thick, occur at both contacts. These pyrrhotite-rich bands also contain minute specks of chalcopyrite.	G6711	165.00	165.32	0.32	12	0.9	468		694
165.25	192.00	FINE VOLCANICLASTIC WACKE (OR MASSIVE FLOW)	Essentially the same lithology as from 99.13 to 165.00m, consisting of dark grey, fine to very fine-grained, massive to weakly foliated feldspar-actinolite rock. Based on the rock's hardness it may be more intermediate than mafic in composition. Thin quartz-calcite veinlets and stringers are common in the unit down to about 179.00m. There are at least two, and probably more, ages of veining, with the younger veinlets showing stronger alteration halos. 175.00-178.30 - Dense stockwork of bleached fractures, where "bleaching" is the result of silicification, carbonatization, and possibly sericitization; most intense alteration from 176.90 to 177.40m. 179.50-181.10 - Gradational transition into medium-grained to feldspar-phyric, greyish amphibolite; 1 cm quartz vein with broad "bleached" alteration halos. 182.20 - Thin, late shear injected with 9 cm thick quartz vein containing minor k-spar and trace pyrite. 182.80-183.95 - Gradational transition into medium-grained, weakly foliated amphibolite with carbonate alteration related to thin stringers. 187.40-188.20 - Sheared and altered amphibolite; chlorite-biotite alteration of actinolite and sericite alteration of feldspar; at 187.50m there is a 15 cm quartz vein with a 2 cm calcite vein at its core; another 8 cm thick quartz vein at 187.80m. 188.75-190.00 - Grey, very fine-grained feldspar + amphibole ± quartz rock with vague bands	G6712 G6713 G6714	165.32 187.40 188.40	166.30 188.40 189.40	0.98 1.0 1.0	11 30 30	0.3	69		50

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			of brownish biotite alteration; also contains calcareous bands, and minor quartz-calcite veining.									
	192.00	END OF HOLE										

ASSAY SUMMARY

SAMPLE NO.	FROM	TO	LENGTH	GEO-CHEM	ASSAY	CHECK 1	CHECK 2	CHECK 3	CHECK 4	AVER-AGE	AV X LEN
G6886	84.25	85.28	1.0		1100					1100	1100
G6887	85.28	86.28	1.0	306						306	306
G6888	86.28	87.28	1.0		510					510	510
G6889	87.28	88.28	1.0		640	620	660			640	640
G6890	88.28	89.28	1.0	454						454	454
G6891	89.28	90.28	1.0	292						292	292
G6892	90.28	91.28	1.0		810					810	810
G6893	91.28	92.28	1.0	438						438	438
G6894	92.28	93.28	1.0		870					870	870
G6895	93.28	94.28	1.0	480						480	480
G6896	94.28	95.28	1.0	590						590	590
G6897	95.28	96.28	1.0		790					790	790
G6898	96.28	97.28	1.0		810					810	810
G6899	97.28	98.18	0.9	102		95	108			102	91.8
G6900	98.18	99.04	0.86	182						182	156.52

FROM	TO	LENGTH	TOTAL AV X LEN	AVERAGE (AG) GRADE	HORIZON (HT) THICKNESS	PLOTTED HT X AG
84.28	99.04	14.76m	8338.32	565		
incl. South Zone						
88.28	97.28	9.00m	5534	615		

TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-10
Sheet 1 of 5

Job 16100 N.T.S. 31 N/4	Objective South Zone conductor (22 mho) at about 2+50mS on Line 5+00mE	Core Location Gravel pit at Km 220 west of LG-2 hwy.	Tests	Dip	Azimuth
Property Lac Marcaut		Distance to Water 300m	At Collar	-55°	330°
Township 1509, Quebec		Casing Lost 0m	60.0m	-52°	
Location: Line 5+00mE	Drilling Co. Moderne		114.0m	-54°	
Station 3+50mS	Commenced July 29, 1992	Core Size BQ			
Elevation	Completed				
Logged D. Tarnocai	Length 113.70m				

Remarks South Zone intersected from 102.05 to 104.25m.

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.00	61.00	OVERBURDEN										
61.00	61.20	WACKE	Fine-grained, dark grey siliceous wacke with minor subhedral garnet porphyroblasts. Contact sharp at 76°. Minor biotitization.									
61.20	81.50	MASSIVE MAFIC FLOW	Fine-grained, massive, dark-grey amphibole + feldspar (± quartz) rock. Potassic alteration (biotite + trace muscovite) and chloritization of amphibole imparts a light green to brownish colour to the unit. Altered amphibolite hosts sporadic quartz ± Kspar ± carbonate veins, subparallel to foliation.									
			61.20-61.50 - Fine-grained, siliceous section with approximately 5% subhedral medium-sized garnet porphyroblasts.									
			64.70-65.30 - Light grey silicified and carbonatized section.									
			69.20-71.20 - Intense potassic alteration manifested as fine-grained, light brown biotite. Altered section is moderately well foliated, and contains sporadic quartz ± carbonate ± garnet stringers (approximately parallel to foliation) with dark green chloritic aureoles. Stringers are sulphide free except	G6721	70.20	71.20	1.0	23				
				G6722	72.90	73.40	0.5	64				

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			for three small 1-4 cm stringers which contain arsenopyrite at 70.35m; pyrrhotite at 70.90m; and pyrrhotite + chalcopyrite at 70.95m. Potassically altered section is bounded on either side in core by the previously mentioned light green chloritized amphibolite. 73.10 - 8 cm quartz vein at 75-82° to core axis. Approximately 3 cm of biotitic host downhole contains approximately 3% arsenopyrite as subhedral crystals up to 5 mm in size. 73.40 - 0.4 cm pyrrhotite slip. 73.90 - 15 cm quartz vein ± Kspar with spotty and fracture-related $CaCO_3$.									
81.50	94.60	MAFIC SYNVOLCANIC SILL	Dark grey, massive, medium-grained amphibole + feldspar ± quartz rock interpreted as a synvolcanic sill. Alternatively, unit may represent the unaltered equivalent of the amphibolitic mafic volcanic from 61.20 to 81.50m. Upper and lower contacts are diffuse (chilled margins?) and the margins of the unit are finer grained than the central part. Alteration restricted to rare quartz + carbonate ± k-spar ± chalcopyrite ± pyrrhotite (trace total sulphides) veins at approximately 80° to core axis.									
94.60	102.05	MASSIVE MAFIC FLOW (OR VOLCANICLASTIC WACKE)	Dark grey, fine-grained, moderately foliated, amphibole + feldspar ± quartz unit interpreted as massive mafic flow. Broad sections of altered fine-grained amphibolite difficult to distinguish from so-called metawackes. 94.60-99.40 - Dark grey to brown biotite-altered host with 10-15% diffuse, irregular veinlets or laminations of quartz + carbonate ± pyrrhotite ± arsenopyrite (trace total sulphides). 99.40-102.05 - Mottled light brown to grey, pervasive muscovite + biotite + carbonate ±	G6723	101.10	102.10	1.0	77	0.2	49		114

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			garnet ± quartz ± epidote(?) alteration. Trace pyrrhotite, arsenopyrite in altered sections.									
102.05	104.25	SILICEOUS WACKE (SOUTH ZONE)	Light grey, fine-grained quartz + feldspar metasediment. Mineralized with 2-15% pyrrhotite + pyrite (approximately 10:1) as breccia-fillings, laminations and disseminations. Sporadic carbonatization associated with pyrite.									
			102.05-102.30 - Pyrite replacing pyrrhotite. Pyrite has irregular framboidal margins and is separated from pyrrhotite by a dark fine-grained chloritic reaction rim/margin.	G6724	102.10	103.10	1.0	13	0.9	49		114
				G6725	103.10	104.10	1.0	334	1.3	104		46
				G6726	104.10	104.50	0.4	780	2.1	85		477
		CONDUCTOR	104.19-104.25 - Very fine-grained pyrite-pyrrhotite (8:1) exhalite with sharp contacts at about 85° to core axis. Finely laminated texture defined by pyrrhotite.									
104.25	113.70	MASSIVE MAFIC FLOW	Dark grey, fine-grained, weakly foliated amphibole + feldspar ± quartz metavolcanic. Unit is weakly but pervasively carbonatized with increased $CaCO_3$ concentration associated with diffuse, irregular carbonate + quartz ± pyrrhotite ± chalcopyrite ± arsenopyrite veins (trace total sulphides, pyrrhotite >> chalcopyrite). Locally, patchy biotite alteration and rare garnets.	G6727	104.50	105.50	1.0	156	0.6	45		58
				G6728	105.50	106.50	1.0	472	0.4	58		32
			104.30-107.40 - Alteration intensity decreasing downhole from exhalite. Alteration predominantly SiO_2. Arsenopyrite noted at 106.40 as trace disseminations.									
	113.70	END OF HOLE										
			Foliations:									
			61.20m = 76°									
			70.60 = 70°									
			81.40 = 73°									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			99.00m = 71° 106.80 = 74°									

ASSAY SUMMARY

SAMPLE NO.	FROM	TO	LENGTH	GEO-CHEM	ASSAY	CHECK 1	CHECK 2	CHECK 3	CHECK 4	AVER-AGE	AV X LEN
G6725	103.10	104.10	1.0	327		326	348			334	334
G6726	104.10	104.50	0.4		780	750	810			780	390
G6727	104.50	105.50	1.0	156						156	156
G6728	105.50	106.50	1.0	472		458	486			472	472

FROM	TO	LENGTH	TOTAL AV X LEN	AVERAGE (AG) GRADE	HORIZON (HT) THICKNESS	PLOTTED HT X AG
103.10	106.50	3.40m	1352	398		

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TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-11
Sheet 1 of 5

Job 16100 N.T.S. 32 N/4	Objective South Zone conductor	Core Location Gravel pit at Km 220	Tests	Dip	Azimuth
Property Lac Marcaut	(80 mho) at 2+40mS on Line 11+00mE	west of LG-2 hwy.	At Collar	-50°	330°
Township 1509, Quebec		Distance to Water 300 m			
Location: Line 11+00mE	Drilling Co. Moderne	Casing Lost 146.0 feet of NW	114.0m	-50°	
Station 3+67mS	Commenced July 29, 1992				
Elevation	Completed July 31, 1992	Core Size BQ			
Logged R. Burk	Length 114.00m				

Remarks South Zone intersected from 107.75 to 110.25m (0.87 g/t Au over 1.0m).

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.00	44.00	CASING										
44.00	56.70	MASSIVE MAFIC FLOW	Dark greenish grey, fine-grained, massive to weakly foliated, generally homogeneous mafic unit composed of actinolite, feldspar and possibly minor chlorite. There is very minor amount of quartz-carbonate veining, most of which occurs towards the lower contact.									
56.70	70.75	ALTERED WACKE (OR MASSIVE FLOW)	Observed in several earlier holes, this unit or rock type is largely characterized by a fine-grained, moderately foliated, brown and yellowish grey mottled texture. It is unclear if the brownish, biotitic material represents "least altered" rock, or if it in fact is a potassically altered equivalent of the overlying amphibolite. It is clear, however, that the banded and patchy sericitic material is replacing biotitic sections. It is also evident that the fluid(s) responsible for the sericite alteration moved along foliation surfaces as well as through cross cutting fractures. Locally, there are thin, amphibolitic bands or laminations, particularly towards the lower contact. 62.73-63.32 - Massive, fine-grained, amphibol-									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			itic dyke. 63.70-64.00 - Rubbled core (fault?). 64.46-65.05 - Massive, fine-grained mafic dyke. 65.10-66.36 - Strong potassic alteration; top of section shows increasing sericitization downhole, with pale orange coloured, possibly K-spar-altered laminations appearing at 65.60m and continuing down to 66.36m. 66.88-67.32 - Fine-grained feldspar-actinolite-biotite rock hosting anhedral pinkish garnets. The contacts of this unit are relatively sharp, but subtle; the upper contact is at 78°, and the lower contact is at 70° to core axis.	G6733	65.26	66.36	1.10	154				
70.75	98.50	INTERMEDIATE TO MAFIC SILL	Pale greenish grey, fine to medium-grained, massive to weakly foliated intrusive unit. Medium-grained material, which occurs from about 75.00 to 79.00m is seen to consist of bladed, faintly greenish actinolite and plagioclase. There may be minor chlorite. Overall, the unit is quite homogeneous in texture and composition, and there is only a very minor amount of veining, with quartz-feldspar-carbonate "bands" more common than true veins. 85.10-86.20 - Pale grey, apparently sericitized section with 2 cm quartz vein at its core. From 96.80 downhole, there is a progressive increase in the degree of foliation, the amount of pale brownish biotite, sericite, and perhaps calcite. In addition to feldspar and biotite, chlorite is the other main component of this altered equivalent of the sill. In the bottom 75 cm of the unit there are two quartz veins, each about 5 cm thick, containing specks of pyrrhotite and arsenopyrite. The veins have mineralized halos, 3 cm wide along the uphole	G6734	97.50	98.50	1.0	210				

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			vein margin, consisting of 20% pyrrhotite, 5-10% pyrite, minor arsenopyrite and trace chalcopyrite.									
98.50	107.75	ALTERED WACKE (OR MASSIVE FLOW)	Similar to the unit from 56.70 to 70.75m, this unit basically consists of fine to very fine-grained, brownish biotite-feldspar ± quartz rock commonly acquiring a mottled appearance where foliation and fracture-controlled sericite ± silica alteration is developed. This unit differs from the overlying unit in that there is an abundance of thin, greenish actinolite-feldspar ± calcite bands which may represent original compositional variations in a sediment. Syntectonic porphyroblasts of garnet occur at the top of the unit in a zone about 1.00m thick. There are thin quartz veins or zones of quartz flooding (less than 10 cm thick) containing minor pyrrhotite at 100.40, 103.03, 105.50 and 107.40m. The lower contact of the unit appears to be gradational with the underlying mineralized siliceous wacke. In fact, there is minor disseminated and stringer pyrrhotite mineralization in the bottom 30 cm of the unit.	G6735 G6736	105.35 106.75	105.65 107.75	0.3 1.0	38 138	0.3 1.9	54 56		60 474
107.75	110.25	MINERALIZED SILICEOUS WACKE (SOUTH ZONE)	The basic host rock to the pyrrhotite stringer, breccia-style, and apparently syn-sedimentary pyrrhotite mineralization is a brownish grey, massive, very fine-grained siliceous rock, possibly a siliceous wacke. It contains extremely finely disseminated pyrrhotite throughout (1-5%). Characteristic of the unit is the presence of irregular pyrrhotite masses and veinlets which formed through sulphide deposition in dilated fractures and thin breccia zones in the brittle sediment. Also, there are a									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			number of massive to semi-massive pyrrhotite bands, typically 10 cm thick, which contain subangular to rounded fragments of the siliceous host rock. Locally, the unit consists of disrupted bands or lenses of essentially quartz which are outlined by pyrrhotite and chlorite laminations. Only minor pyrite is present, and it is largely restricted to the margins of the zone. Perhaps most noteworthy is the presence of 1-5 mm thick sphalerite seams at both contacts of the mineralized unit. The sphalerite occurs in both brown and silvery forms, and is associated with thin pyrite-black chlorite replacement seams (ie. possible late faulting and zinc mineralization along unit contacts?).									
			107.75-107.85 - Blackish green chloritic fault gouge? with pyrite replacing pyrrhotite; 5 mm sphalerite seam at 35° to core axis.	G6737	107.75	108.25	0.5	418	5.8	306		3425
				G6738	108.25	109.25	1.0	286	6.6	171		441
				G6739	109.25	109.75	0.5	428	1.5	170		40
			107.85-109.05 - Siliceous wacke with 8% pyrrhotite veinlets.	G6740	109.75	110.25	0.5	1300	5.3	240		695
				G6741	110.25	111.25	1.0	54	1.5	94		247
			109.05-109.15 - Massive pyrrhotite.									
			109.15-109.60 - Quartz-rich lenses with pyrrhotite laminae; 10-15% pyrrhotite.									
			109.60-109.69 - Massive pyrrhotite with 25% quartz-rich clasts.									
			109.69-110.10 - Fractured silicified wacke; approximately 10% pyrrhotite.									
			110.10-110.20 - Semi-massive pyrrhotite with brecciated argillite.									
			110.20-110.25 - 2 veins of blackish chlorite + pyrite, 1-5 mm sphalerite seam at 60° to core axis.									
110.25	114.00	VOLCANICLASTIC WACKE (OR MASSIVE FLOW)	Dark grey, vaguely banded, very fine-grained amphibole-biotite-feldspar rock. Subtle banding is defined by brownish biotitic material alternating with greenish amphibolitic rock. The banding is also somewhat enhanced by the abundant thin calcite-rich seams. Minor garnet									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			occurs in the upper 70 cm of the unit. Determining if the unit is a fine-grained metawacke or a massive, partially altered mafic volcanic is difficult.									
	114.00	END OF HOLE										
			Foliations: 50.00m = 75° 66.00 = 76° 101.50 = 75° 112.50 = 72°									

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TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-12
Sheet 1 of 7

Job 16100 N.T.S. 32 N/4	Objective South Zone and Marcaut Horizon	Core Location Gravel pit at Km 220 west of LG-2 hwy.	Tests	Dip	Azimuth
Property Lac Marcaut		Distance to Water 100 m	At Collar	-50°	330°
Township 1509, Quebec		Casing Lost 0	57.0m	-50°	
Location: Line 1+00mE	Drilling Co. Moderne		102.0m	-51°	
Station 2+50mS	Commenced August 18, 1992		172.0m	-49°	
Elevation	Completed August 21, 1992	Core Size BQ	200.0m	-49°	
Logged R. Burk	Length 201.00m				

Remarks South intersected from 101.10m to 103.10m (1.13 g/t Au over 2.0m) and possible stratigraphic equivalent to Marcaut horizon intersected from 190.05 to 190.95 (NSV).

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.00	47.00	CASING										
47.00	61.40	MAFIC SYNVOLCANIC SILL (OR MASSIVE FLOW)	Greyish, fine to medium-grained, massive mafic unit composed of a felted intergrowth of actinolite and feldspar. Overall, the unit has a homogeneous texture and composition. There is minimal veining (or alteration) and relatively minor fracturing.									
61.40	69.90	REWORKED INTERMEDIATE TUFF	Mottled, grey to purplish grey feldspathic unit distinguished by the presence, locally, of a faintly feldspar-porphyritic texture. The mottled appearance is due to alternating biotitic and sericitic patches and bands. Due to the mica content, the rock displays a moderate to well developed foliation and, locally, a lamination. The brownish biotitic bands have less dense concentrations of feldspar phenocrysts than do the light grey sericitic bands. Some of the banding may be the result of flattened porphyritic cobbles occurring in a reworked tuffaceous groundmass. The presence of porphyritic material progressively diminishes downwards in the hole, being replaced by fine-grained, locally laminated, sericitized felds-									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			pathic rock. In this fine-grained, possibly tuffaceous material there are rare lenses of feldspar porphyry which may represent flattened clasts similar in origin to the overlying porphyritic rock. From about 68.80m to 69.75m the core is highly fractured, and is recovered as a rubble.									
69.90	70.50	GARNETIFEROUS VOLCANICLASTIC WACKE	Blackish green, fine-grained amphibole-rich unit containing two forms of garnet; an earlier, dull purplish anhedral type and a later, apparently hydrothermal reddish type. The unit has sharply defined contacts; the upper contact is about 68° and the lower contact is folded at a moderate angle to the core axis. The unit possibly represents a metamorphosed Fe-rich sediment.									
70.50	81.90	ALTERED WACKE (OR MAFIC FLOW)	Mottled and banded, purplish grey to light grey, fine-grained, moderately foliated biotite-sericite-feldspar schist. The precursor to the unit appears to have been a homogeneously textured unit with an intermediate to mafic composition. Original feldspar, a major component, has been variably altered to sericite ± calcite. The original mafic component is represented by biotite. A number of intensely sericitized sections, 15-30 cm thick, occur in the 2 meters below the upper contact. 72.95-73.11 - Blackish green, very fine-grained amphibolite containing 5% finely disseminated and stringer pyrrhotite, 10% anhedral garnet, and trace arsenopyrite (silicate iron formation?) The lower contact of the unit was selected on the basis of the disappearance of biotite. Otherwise, the underlying unit is very similar and may represent a precursor to the unit just described.									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
81.90	99.20	MASSIVE MAFIC FLOW	Homogeneous, medium grey, fine-grained, massive to very weakly foliated actinolite-feldspar rock. Feldspar appears to be more abundant than amphibole. Feldspar and actinolite probably partially altered to sericite and chlorite, respectively. Trace to minor amounts of biotite occur locally. There is a minimal amount of veining and alteration, although at the base of the unit there is a marked increase in structural deformation. 97.50-99.20 - A foliation and even a lamination is developed in this section. This fabric has been folded such that it is aligned subparallel to the core axis. Locally, the deformed rock contains black amorphous material which appears to be graphitic, and may be argillaceous in origin. There is a trace amount of pyrrhotite.									
99.20	104.00	FAULT ZONE	The highly strained rock within this 5-meter thick section shows general similarities in composition and texture to the overlying and underlying volcanic units. In fact, least altered portions of the two volcanic units are essentially indistinguishable. Within the designated "fault zone" there is evidence of both ductile deformation (shearing, mylonitization) and brittle deformation (fracturing, brecciation). Evidence that this structural zone may represent the South Zone is in the presence of minor fracture-controlled pyrrhotite mineralization. 99.20-100.23 - Laminated to thinly banded, with apparent silicification; banding resembles a cherty metasediment but may actually be a structurally-controlled hydrothermal product. 100.23-101.17 - Brownish due to very fine-grained biotite; unusual lenses or flattened	G6747 G6748	99.10 100.10	100.10 101.10	1.0 1.0	463 172	1.1 0.3			

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			clots of whitish quartz-feldspar(?).									
		SOUTH ZONE	101.17-102.70 - Zone of greatest deformation and alteration; upper portion shows foliated mylonitic texture, whereas lower portion is mainly brecciated; chlorite-sericite-epidote ± talc alteration is associated with deformation. Section contains no more than 5% fine pyrrhotite, mostly concentrated in the central portion; trace chalcopyrite and arsenopyrite also observed.	G6749	101.10	102.10	1.0	1270	2.2			
				G6750	102.10	103.10	1.0	990	1.7			
			102.70-104.00 - Crude banding developed by chlorite, biotite, and calcite alteration; dilated fractures filled with black amorphous silica occur intermittently; minor, fracture-controlled pyrrhotite mineralization is present.	G6751	103.10	104.10	1.0	167	0.7			
104.00	169.90	MASSIVE MAFIC FLOW	This is the dominant lithology encountered to date in the drilling program. Overall, it is a dark grey to brownish grey, very fine-grained, essentially massive mafic rock composed of actinolite/chlorite, feldspar and a lesser amount of biotite. The unit has a crudely banded texture defined by variable concentrations of biotite. The banded texture is somewhat enhanced by the presence of intermittent pale grey, calcite-rich seams. There are also occasional sections, 0.3-0.8m thick, which contain minor anhedral garnet. The banding and a very weak foliation are oriented at high angles to the core axis (+80°).									
			143.25-146.00 - Increased foliation and, locally, lamination suggests increased strain; 10 cm quartz vein at 143.50m followed by 1.0m of thinly laminated, probably sheared volcanic which, in turn, is replaced by banded, biotitic and chloritic altered volcanic.									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			161.60 - 8 cm thick band of granular quartz-calcite-pyrrhotite mineralization. From about 164.50m the unit's components appear to have recrystallized, giving the unit a weakly gneissic texture. This subtle gneissosity is oriented at low to moderate angles to the core axis. From about 166.00m, a pinkish brown pervasive silicification has partially replaced the gneissic amphibolite, with the alteration being conformable to the fabric.									
			169.35-169.90 - Zone of strong sericite alteration cut by creamy white quartz veining and 10 cm of sulphide mineralization (30%), mainly pyrrhotite with some replacement by pyrite; also trace chalcopyrite.	G6752	168.95	169.95	1.0	164	0.6			
169.90	190.05	FRACTURED MASSIVE INTERMEDIATE FLOW	Multiple types and degrees of alteration make the identification of this unit difficult. The apparently least altered form is represented by a pale grey, very fine-grained, massive feldspathic lithology, quite possibly a dacitic flow. The characteristic feature of the unit, however, is the intensity of fracturing, the concentration of veining and the extent of alteration. Probably the earliest stage of veining (and alteration) is represented by a set of buff-coloured sericitic stringers and stockworks which are not overly abundant. This was apparently followed by locally pervasive silicification, increasing the brittleness of the rock. Finally, the main stage of veining occurred under brittle conditions as evidenced by the randomly oriented fracture and breccia-filling creamy white quartz veins. The density of these late-stage veins increases towards the bottom of the unit.									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			Sections of particularly strong veining and/or alteration are at:									
			171.70-171.80 - 3 cm white quartz vein flanked uphole by semi-massive pyrrhotite and trace chalcopyrite.	G6753	171.50	172.00	0.5	204	0.2			
			179.80-180.40 - Intense silicification, brecciating and quartz veining; occasional pyrrhotite clots with trace chalcopyrite.	G6754	179.80	180.90	1.1	820	ND			
			181.30-182.20 - Intense silicification with multiple ages of quartz veining fracturing; minor pyrite along late fractures; rare chalcopyrite.	G6755	181.20	182.20	1.0	306	ND			
			189.00-190.05 - Intense brecciation has resulted in a fault-induced "mill rock".	G6756	186.40	187.30	0.9	322	0.1			
				G6757	187.30	188.20	0.9	317	ND			
				G6758	188.20	189.10	0.9	8	ND			
				G6759	189.10	190.10	1.0	62	0.1			
190.05	190.95	BLACK ARGILLITE	Largely a black chlorite-rich argillite intercalated with thin wacke layers. Unit is highly fractured and for 30 cm close to the lower contact it consists of a clay-rich fault gouge. There is minor quartz veining.	G6760	190.10	191.00	0.9	55	1.7			
		FAULT	190.15-190.45 - 15% sulphide, including early, fine pyrrhotite, fracture-controlled pyrite and trace chalcopyrite.									
			Lower contact at 80° to core axis.									
190.95	201.00	ALTERED MASSIVE FLOW (OR WACKE)	Again, due to the absence of distinctive textures and the masking-effect of hydrothermal alteration this unit cannot be confidently identified as either a volcanic or a volcaniclastic wacke. Where is appears to be least altered, the unit consists of very fine-grained, weakly foliated feldspar and chlorite (after actinolite). Altered sections are typically bleached to a pale brownish grey, and appear to be sericitized and possibly silicified. These sections also tend to show a weak banding, giving the impression of a metasediment. The	G6761	191.00	192.00	1.0	35	0.4			

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			strongest alteration occurs in the top 2 meters of the unit. Randomly oriented, creamy white quartz stringers are common. There are trace to minor amounts of pyrite coating late fractures.									
	201.00	END OF HOLE										
			Foliation: 55.00m = 66° 70.00 = 67° 80.00 = 68° 91.00 = 57° 103.00 = 72° 117.00 = 80° 124.00 = 81° 135.00 = 65° 144.00 = 68° 157.00 = 60° 168.00 = 69° 195.00 = 72°									

TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-13A
Sheet 1 of 1

Job 16100 N.T.S. 32 N/4	Objective To test South Zone and	Core Location	Tests	Dip	Azimuth
Property Lac Marcaut	Marcaut Horizon		At Collar	-50°	330°
Township 1509		Distance to Water 200 m			
Location: Line 1+00mW	Drilling Co. Moderne	Casing Lost			
Station 2+50mS	Commenced August 21, 1992				
Elevation	Completed August 21, 1992	Core Size			
Logged Ron Burk	Length 42.0m				

Remarks Hole lost in overburden and redrilled as LM-13A.

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.0	42.0	OVERBURDEN	Sand and boulders.									

TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-13A
Sheet 1 of 6

Job 16100 N.T.S. 32 N/4	Objective To test South Zone and Marcaut Horizon	Core Location Gravel pit at Late Marcaut property.	Tests	Dip	Azimuth
Property Lac Marcaut		Distance to Water 200 m	At Collar	-50°	330°
Township 1509, Quebec	Drilling Co. Moderne	Casing Lost	117.0m	-50°	
Location: Line 1+00mW	Commenced August 21, 1992		168.0m	-49°	
Station 2+49mS	Completed August 24, 1992	Core Size BQ	192.0m	-49°	
Elevation	Length 192.00m				
Logged D. Tarnocai					

Remarks South Zone intersected from 101.85 to 103.75m. Marcaut Horizon massive sulphide intersected from 180.30 to 180.70m.

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.00	55.00	OVERBURDEN										
55.00	65.37	SYNVOLCANIC SILL	Medium-grained, equigranular, dark green-grey amphibolite. Locally weakly carbonatized. From 61.25m unit becomes finer grained, weakly foliated with minor biotite. Lower contact sharp and altered (Kspar + carbonate + SiO_2), possible baked zone 10 cm wide.									
65.37	91.20	WACKE AND REWORKED CRYSTAL TUFF	A metasedimentary unit mainly consisting of fine-grained, weakly to moderately foliated quartz-feldspar-biotite schist, or metawacke, which is intercalated with subunits of reworked feldspar crystal tuff and garnetiferous amphibolite (volcaniclastic wacke). 65.37-66.13 - Feldspar-phyric with minor creamy SiO_2 + $KAlSi_3O_3$ alteration. 66.13-67.90 - Large (2-5 cm) fine-grained, leucocratic (quartz + feldspar + biotite ± amphibole) clasts in a fine-grained biotitic matrix. Clast content approximately 20% of section. 67.90-69.00 - Bedded (approximately 75° to core axis) biotitic subunit with ghost feldspar grains; probably reworked crystal tuff.									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			69.00-72.50 - Fine-grained leucocratic metawacke (quartz + feldspar + biotite ± amphibole) intercalated with fine-grained foliated biotitic layers. Locally pervasively carbonatized with anhedral garnets (grossular) in carbonate-rich sections. 72.50-75.25 - Dark grey-brown biotitic, reworked tuff; approximately 10% attenuated feldspar crystal fragments. Minor carbonate alteration and trace garnet formation. 75.25-76.10 - Light grey, carbonatized metawacke with 3-5% anhedral garnets. 76.10-79.10 - Fine-grained, dark grey-brown biotitic metawacke; laminated and feldspar-phyric from 77.30-77.90m. Quartz + carbonate + garnet + amphibole vein 7 cm wide at 78.40m. Occasional siliceous/sericitic lamellae. Minor garnet from 79.00-79.10. 79.10-79.70 - Garnet-amphibole subunit with biotite laminations and sporadic carbonatization. Possibly a calcareous, iron-rich clay sediment. 79.70-82.25 - Dark brownish grey, fine-grained quartz-feldspar-biotite schist/metawacke. Locally contains pale grey siliceous or sericitic laminations. 79.70-80.20 - Light grey, carbonate-altered with approximately 5% anhedral garnets. 82.25-82.60 - Moderately well foliated amphibole + garnet subunit with biotite-rich laminations. 82.60-88.30 - Fine-grained, moderately foliated, dark grey-brown biotitic wacke with biotitic and siliceous laminations. Locally thinly banded as defined by alternating concentrations of biotite and muscovite/sericite. 82.60-83.50 - Carbonate + amphibole + quartz alteration in foliation parallel veins? 2-3 cm wide with 3-5% anhedral									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			garnet throughout subunit. 83.50-83.70 - Moderately well foliated garnet-amphibole subunit. Sharp upper contact at approximately 78° to core axis. 86.35-86.78 - Moderately well foliated garnet + amphibole subunit. 86.86-87.00 - Light grey, silicified and Kspar-altered metawacke. 88.30-88.90 - Moderately well foliated garnet + amphibole subunit. Minor carbonate alteration 88.90-91.20 - Fine-grained, light grey to creamy white, very siliceous laminated wacke with sporadic fine-grained biotitic laminations.									
91.20	101.00	MAFIC FLOW	Greenish grey, fine-grained, massive to weakly foliated basaltic flow. Occasional patchy, foliation-parallel biotite alteration from approximately 93.70-101.00. Upper contact sharp at approximately 83°. Lower contact gradational with a progressive increase in sericite ± silica from 100.70-101.00.	G6762	99.85	100.85	1.0	73	ND			
101.00	103.63	SILICEOUS WACKE (SOUTH ZONE)	Apparently a very siliceous, fine-grained metasediment which is fractured and mineralized with 5-8% pyrrhotite. The sulphide occurs as filling fractures as well as forming laminations. Trace amounts of chalcopyrite present. 102.70-102.80 - Highly disrupted, siliceous, graphitic argillite. 10-15% pyrrhotite. 102.80-102.86 - Brecciated siliceous wacke with 1 cm brecciated milky feldspar/quartz vein. 102.86-103.10 - Highly disrupted siliceous, graphitic argillite with approximately 10% pyrrhotite. 103.10-103.28 - Finely brecciated siliceous wacke cemented with pyrrhotite. Sulphide matrix supports rock fragments.	G6763 G6764	100.85 101.85	101.85 102.85	1.0 1.0	47 166	1.0 0.8			

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			103.50-103.63 - Brecciated siliceous wacke with pyrrhotite matrix.									
103.63	103.75	MASSIVE SULPHIDE (SOUTH ZONE)	Semi-massive pyrrhotite with approximately 20% subangular cherty clasts. Clast size and concentration decreases downhole. Lower contact sharp. Upper contact irregular and transitional from sulphide-cemented wacke breccia.	G6765	102.85	103.85	1.0	304	2.2			
103.75	113.10	MAFIC FLOW	Fine-grained, greenish-grey, massive mafic unit. Occasional pyrrhotite + quartz + carbonate ± garnet ± pyrite veinlets at high angles to core axis. 109.00-109.30 - 1-3% anhedral attenuated garnet. 109.70-109.85 - 15-20% anhedral attenuated garnet.	G6766	103.85	104.85	1.0	16	0.3			
113.10	120.10	BANDED, ALTERED MAFIC VOLCANIC(?)	Banded, brown to greenish grey, fine-grained, amphibole + feldspar + biotite schists which represent altered basalt, or possibly volcaniclastic wacke. 113.10-113.70 - Approximately 10% anhedral-subhedral garnet with minor carbonate alteration. 114.70-115.45 - 20-25% anhedral fine to coarse-grained garnet, trace epidote + carbonate. 115.90-116.20 - 3% fine-grained attenuated syntectonic garnet. 118.00-120.10 - Moderately well foliated garnetiferous biotitic altered section. Weak local carbonate alteration.									
120.10	180.30	ALTERED MAFIC VOLCANIC	Greenish grey, fine-grained, massive to weakly foliated amphibole-feldspar rock with numerous fine-grained biotite alteration patches. Unit is potassically altered equivalent of unit from 103.75 to 113.10m in the hole. 127.90-128.10 - Carbonatized breccia/vein zone. 129.60-129.80 - Garnetiferous biotite-altered section.									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			156.00-170.30 - More highly altered section showing increases in concentrations of biotite, garnet, calcite, as well as recrystallization of amphibole (actinolite). 157.00-158.00 - 4 cm barren quartz vein at approximately 80° to core axis with alteration selvage of SiO_2, $CaCO_3$, biotite. 162.70-163.60 - 10 cm wide quartz vein with trace arsenopyrite. Alteration selvage of garnet, SiO_2, $CaCO_3$, amphibole ± biotite. 177.15-180.30 - Alteration intensity increasing, (carbonate + SiO_2). 1-2% stringers of pyrite + pyrrhotite associated with carbonate + quartz + actinolite alteration.									
180.30	180.71	MASSIVE SULPHIDE (MARCAUT HORIZON)	Semi-massive to massive sulphide unit composed of 75% pyrrhotite (matrix), 15% small (0.2-0.5 cm) spherical pyrite nodules/clasts, and 10% subround to subangular quartz-chlorite and quartz/chert clasts. Lower and upper contacts sharp with some disseminated sulphides (3-15%) approximately 5 cm outside upper and lower contacts. Possible sulphide debris flow.	G6767 G6768 G6767	179.37 180.37 180.76	180.37 180.76 180.76	1.0 0.39 1.0	46 388 49	0.2 0.2 2.6	43 126 83		245 148 263
180.71	192.00	VOLCANICLASTIC SEDIMENT	Dark grey, fine-grained, moderately well foliated unit composed of feldspar + amphibole + biotite ± quartz. A thinly banded texture is developed, consisting of 0.5-5.0 cm thick alternating layers of light grey feldspar + muscovite + calcite ± amphibole rock and brownish feldspar-actinolite-biotite material. Occasional bands of pervasive carbonate + SiO_2 alteration. Trace fine-grained anhedral garnet.									
	192.00	END OF HOLE										

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			Foliations: 62.30m = 83° 75.40 = 81° 83.00 = 80° 86.00 = 82° 97.50 = 73° 106.00 = 78° 107.80 = 80° 121.50 = 78° 138.00 = 81° 162.00 = 76° 166.00 = 84° 186.00 = 74°									

TECK EXPLORATION LTD.
DIAMOND DRILL LOG

Hole LM-14
Sheet 1 of 3

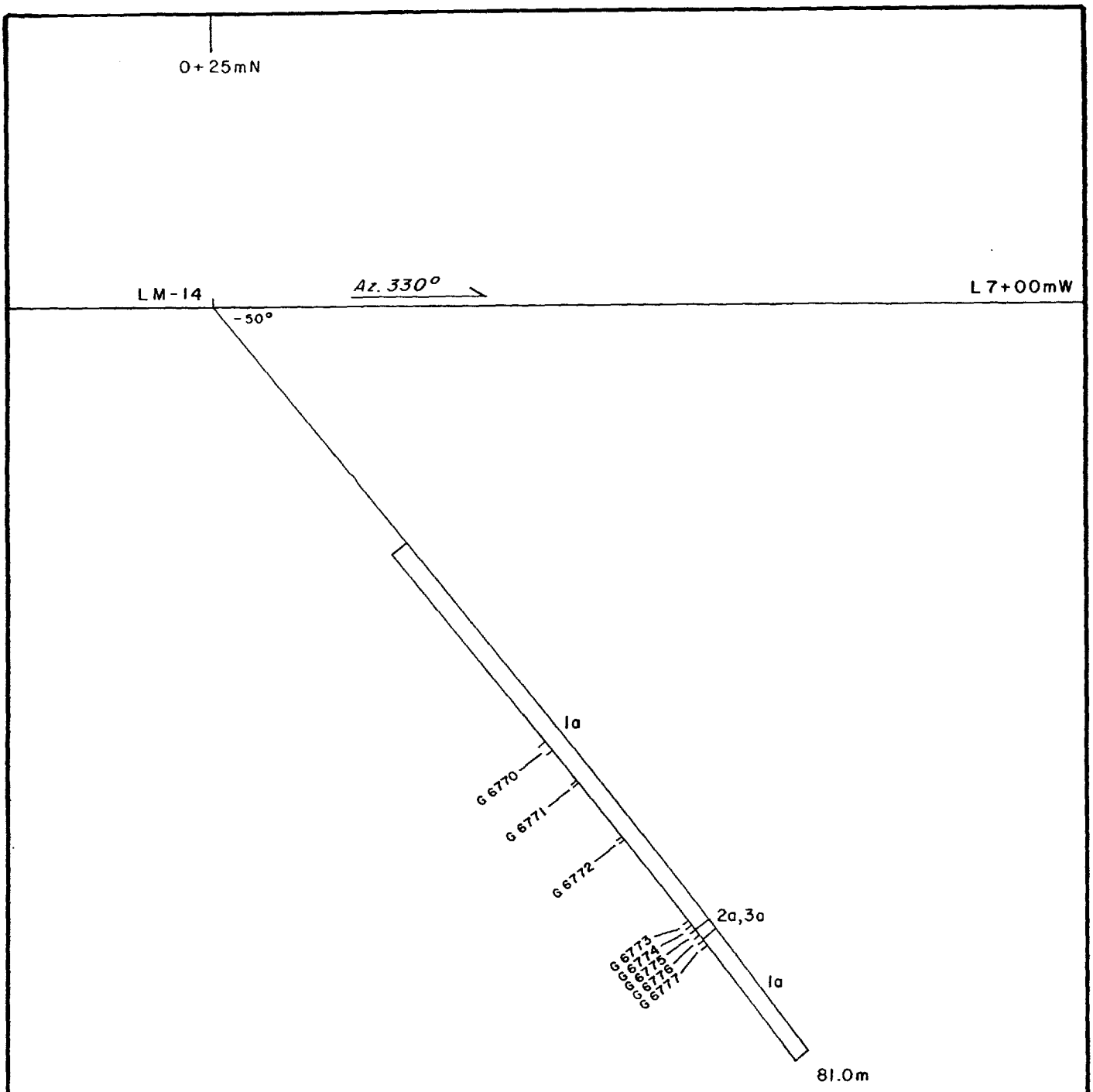
Job 16100 N.T.S. 32 N/4	Objective To test if conductor represents Marcaut Horizon	Core Location Gravel pit at KM 220 west of LG-2 hwy.	Tests / Dip / Azimuth
Property Lac Marcaut		Distance to Water 300 m	At Collar -50° 330°
Township 1509, Quebec	Drilling Co. Moderne	Casing Lost 0	30.0m -51°
Location: Line 7+00mW	Commenced August 24, 1992		81.0m -52°
Station 0+25mN	Completed August 25, 1992	Core Size BQ	
Elevation	Length 81.00m		
Logged R. Burk			

Remarks Pyrrhotite-bearing argillaceous wacke intersected from 66.63 to 68.13m does not appear to be Marcaut Horizon, but instead represents separate iron-rich interflow sediment.

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.00	26.00	CASING										
26.00	66.63	INTERMEDIATE TO MAFIC MASSIVE FLOW	A variably altered flow unit locally marked by abundant fracturing, brecciation and silica veining. Least altered form of the unit, which occurs predominantly in the upper 10 meters of the section, consists of a medium grey, weakly foliated, very fine-grained feldspar-actinolite-/chlorite intergrowth. The homogeneous texture and composition favours the identification of the unit as a flow rather than a fine-grained volcaniclastic wacke. Thin quartz and quartz-calcite veinlets are common but not abundant in the upper 12 meters of the hole. Downhole from about 38.00m there is a steady increase in the concentration of silica veining and associated alteration which culminates in a zone of quartz-healed brecciation occurring from about 46.50m to 50.50m. 32.00-33.20 - Weakly garnetiferous section; garnets are poorly formed. 37.90-41.40 - Buff-coloured silica veining is abundant, occurring as randomly oriented stringers and foliation-parallel seams; later, white quartz veins occupy brittle									

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			fractures; host rock is pale grey, apparently sericitized.									
			41.40-42.95 - Minor quartz veining and weak to moderate sericite alteration.									
			42.95-46.50 - As in 37.90-41.40m.									
			46.50-50.80 - Zone of strong alteration, heavy silica veining and localized, quartz-healed brecciation; more than 80% of flow rock has been sericitized (± chloritized) to pale brownish grey colour; randomly oriented white quartz veinlets fill brittle fractures which locally are so concentrated that a breccia is formed; trace amounts of pyrrhotite and pyrite occur in these breccia zones.	G6770	46.50	47.50	1.0	8	0.3			
			50.80-50.95 - Zone of exfoliated and weakly brecciated, sericitized volcanic mixed with blackish, argillaceous rock containing 5% pyrrhotite, pyrite. (This material may be equivalent of clay-altered fault gouge seen at proposed Marcaut Horizon in LM-1A and LM-12).	G6771	50.70	51.00	0.3	206	0.9			
			From 50.95m to the base of the unit at 66.63m, dark greenish-grey, fine-grained massive volcanic is intermittently bleached to a buff-grey (sericitized ± silicified) especially where there are concentrations of buff-coloured siliceous stringers. Less abundant than the buff-coloured stringers, but still common, are younger veinlets of white quartz.									
			57.05-57.12 - Apparently fractured (possibly exfoliated) volcanic with pyrrhotite, minor pyrite and chalcopyrite mineralization, margins of zone at 45° to core axis.	G6772	57.05	57.35	0.3	53	0.8			
66.63	68.13	MINERALIZED ARGILLACEOUS WACKE	True argillaceous wacke is separated from the overlying flow unit by 40.00 cm of apparently brecciated and sulphide-impregnated fine-grained	G6773	66.15	66.65	0.5	240	0.6	36		162
				G6774	66.65	67.15	0.5	377	2.3	158		1320
				G6775	67.15	67.65	0.5	58	1.8	112		1050

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			volcanic rock which is also injected by several quartz veins containing minor pyrrhotite and pyrite. Here the sulphide mineralization appears to be late and may be remobilized from the underlying sulphide-bearing sediment. The blackish argillaceous wacke occurs from 67.03 to 67.90m, and is generally very fine-grained, massive with localized shearing, and contains approximately 15% pyrrhotite, minor pyrite, and trace amounts of chalcopyrite. The sulphides occur as densely disseminated grains, stringers and thin semi-massive bands. A single white quartz vein 2 cm thick cuts the mineralization. At 67.90, the metasediment becomes less argillaceous, taking on the appearance of a mafic volcaniclastic wacke which is difficult to distinguish from the underlying volcanic unit. Lower contact (?) at 70°, foliation in argillite at 55°.	G6776	67.65	68.15	0.5	71	2.3	108		980
68.13	81.00	MAFIC MASSIVE FLOW	Similar in composition and texture to the flow unit overlying the sulphide-bearing argillaceous wacke. Least altered rock is dark greenish grey, fine-grained and essentially massive. As in the overlying volcanic there are numerous white quartz veinlets and irregular stringers as well as the earlier buff-coloured siliceous stringers. There are also occasional zones, 20-80 cm thick, of buff-coloured sericite + minor biotite ± silica alteration (eg. 70.65 - 71.45 and 74.60-74.95m). In addition, the unit is marked by irregular and occasionally folded lenses of strong calcite alteration. This carbonate alteration is generally uncommon in the volcanic sequences drilled to date.	G6777	68.15	68.65	0.5	16	0.2	60		47
	81.00	END OF HOLE										



Samples	Au ppb	Ag ppm	Cu ppm	Zn ppm
G6770	8	0.3	-	-
G6771	206	0.9	-	-
G6772	53	0.8	-	-
G6773	240	0.6	36	162
G6774	377	2.3	158	1320
G6775	58	1.8	112	1050
G6776	71	2.3	108	980
G6777	16	0.2	60	47

Scale 1 : 500

10 0 10 20 metres

Teck Exploration Ltd.

DDH LM-14

LacMARCAUT PROJECT
1509 TWP., QUEBEC

	NOV./1992	16100	032N/04	6893

TECK EXPLORATION LTD.
DIAMOND DRILL LOG

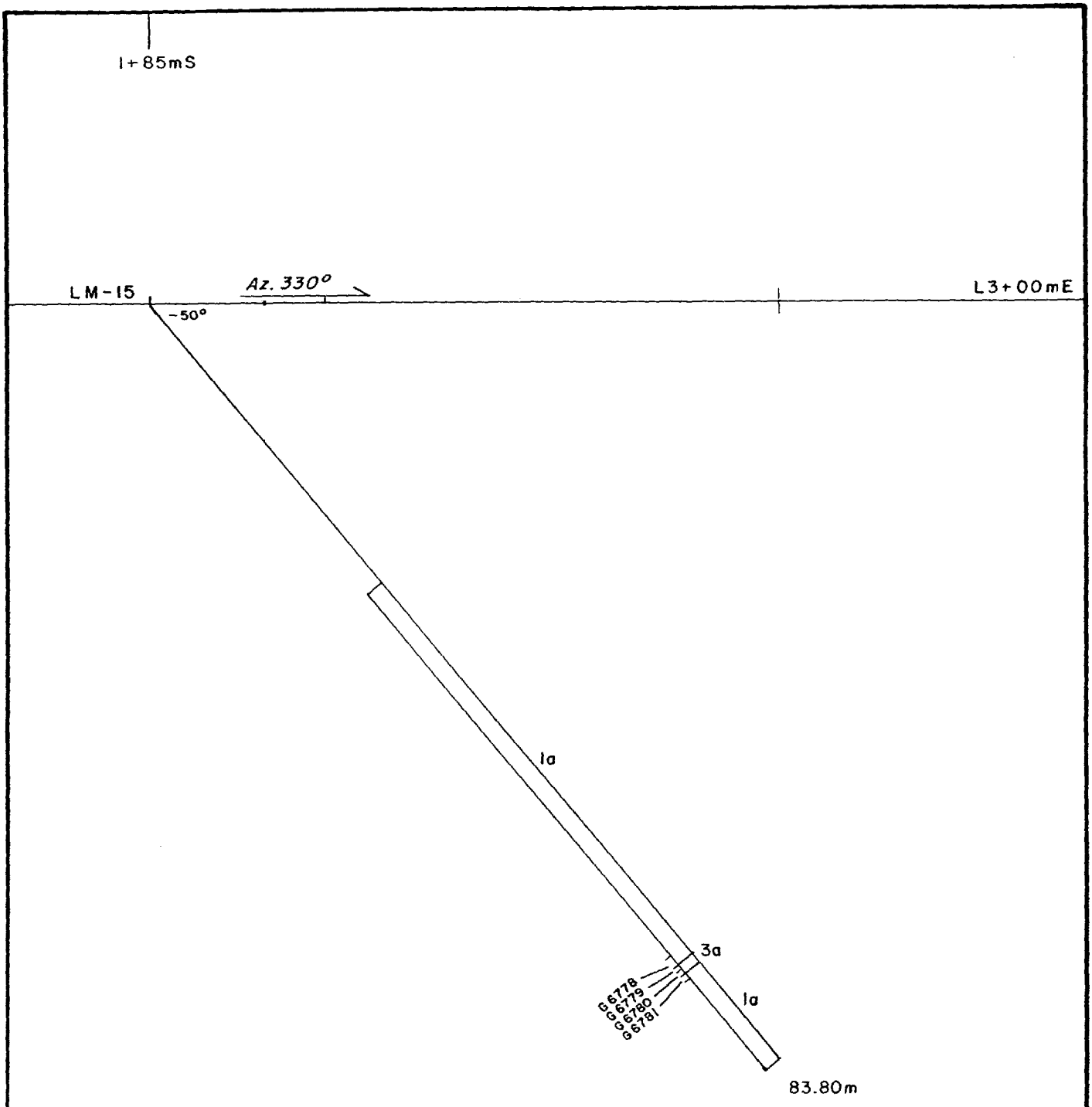
Hole LM-15
Sheet 1 of 2

Job 16100 N.T.S. 32 N/4	Objective To test Marcaut Horizon	Core Location KM 220 LG-2 Hwy.	Tests / Dip / Azimuth
Property Lac Marcaut			At Collar / -50° / 330°
Township 1509, Quebec		Distance to Water 450 m	
Location: Line 3+00mE	Drilling Co. Moderne	Casing Lost 0	
Station 1+85mS	Commenced August 26, 1992		
Elevation	Completed August 27, 1992	Core Size BQ	
Logged R. Burk	Length 83.80m		

Remarks Marcaut Horizon massive sulphide intersected from 72.30 to 72.87m.

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppb
0.00	31.00	CASING										
31.00	72.30	MASSIVE MAFIC FLOW	In general, the unit consists of dark grey to greenish grey, massive to very weakly foliated, fine-grained basalt. A subtle banding is developed throughout most of the unit, which is defined by the presence of minor amounts of very fine biotite. In addition, there are thin, diffuse bands of calcite alteration. Thin quartz-calcite veins are ubiquitous, but not abundant.									
			42.20-43.00 - Bleached to pale greenish grey; sericite, biotite, chlorite alteration related to stringers.									
			51.90-52.20 - Barren glassy quartz vein.									
			From about 60.00m there is a gradual increase in the amount of biotite alteration. The density of foliation-parallel quartz-calcite veinlets/seams also appears to increase.									
			66.80-67.40 - Calcite-sericite-garnet altered section followed by strong biotite-sericite alteration.									
			69.50-72.30 - Progressive increase in disseminated and laminated pyrite associated with	G6778	70.75	71.75	1.0	92	0.3	39		782
				G6779	71.75	72.25	0.5	155	0.4	44		454

Depth (m) From	Depth (m) To	Rock Type	Description	Sample No.	From	To	Lgth (m)	Au ppb	Ag ppm	Cu ppm	Pb ppm	Zn ppm
			calcite-rich seams and bands of sericite + biotite ± calcite ± epidote ± garnet alteration; sulphide constitutes 1-3% of section.									
72.30	72.87	MASSIVE SULPHIDE MARCAUT HORIZON	Massive, clast-rich sulphide iron formation in sharp contact with overlying and underlying volcanic units; contacts at 75°-80°. From the upper contact there is 5 cm of predominantly pyrite mineralization containing subrounded chloritic rock fragments. This grades quickly into a fine granular mixture of pyrrhotite, pyrite and rock fragments which supports angular to subrounded, chloritic and pyrrhotite-bearing rock clasts as well as spherical "clasts" of massive pyrite mineralization. The ratio of matrix to clasts is about 3:1. Rock fragments are up to 10 cm in size, and pyrite balls tend to be less than 1 cm.	G6780	72.25	72.87	0.62	440	1.6	335		276
72.87	83.70	MASSIVE MAFIC FLOW	Where relatively unaltered the unit is very similar to the overlying flow unit, consisting of dark grey, very fine-grained, massive basalt. Immediately below the massive sulphide unit the volcanic is a pale grey colour, apparently having been sericitized and possibly silicified. Intense alteration of the basalt to a buff-coloured sericite + silica + trace biotite rock occurs from 76.90 to 77.15 and from 77.45 to 77.70m. Patchy sericite-silica alteration is present to the end of the hole as is weak biotite alteration. Quartz-calcite veinlets are also common and typically have chloritic halos. Minor pyrrhotite mineralization occurs with the larger of these veins.	G6781	72.87	73.37	0.5	275	0.5	70		144
	83.70	END OF HOLE										



Scale 1 : 500

10 0 10 20 metres

Samples	Au ppb	Ag ppm	Cu ppm	Zn ppm
G6778	92	0.3	39	782
G6779	155	0.4	44	454
G6780	440	1.6	335	276
G6781	275	0.5	70	144

Teck Exploration Ltd.

DDH LM-15

LacMARCAUT PROJECT
1509 TWP., QUEBEC

	NOV./1992	16100	032N/04	6894

APPENDIX B
ASSAY CERTIFICATES

Rae Marcaut
JOB 16100

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DIVISION DE/OF ASSAYERS CORPORATION LTD.
780, AV. DU CUIVRE, C.P. 665, ROUYN-NORANDA (QUÉBEC) J9X 5C6 TÉL.: (819) 797-4653 FAX: (819) 797-4501

Certificat/Certificate

2R-1237-RG1

Comp: **TECK EXPLORATION**
Proj: 16100
Attn: RON BURK

Date: JUIL/JUL-27-92

Nombre D'Echantillons/No. of Samples:
Soumis le/Submitted: JUIL/JUL-21-92

No. D'Echantillon / Sample Number	AU PPB	AU CH'KS PPB	AU CH'KS PPB	AU G/TONNE	AU CH'KS G/TONNE	AU CH'KS G/TONNE	AG PPM	AG OZ/TONNE	CU PPM	ZN PPM
6801	156						0.3		33	40
6802				2.23	2.06	2.40	0.7		126	28
6803	161						0.7		148	11
6804				3.55	3.50	3.57	0.5		75	14
6805				1.54	1.54	1.54	0.5		130	24
6806	202						0.7		131	310
6807	274						0.7		239	370
6808				2.26	2.19	2.33	0.5		55	82
6809	61	58	64				0.8		76	40
6810	254						1.8		124	86
6811	282						*	0.23	108	720
6812	112						1.7		113	620
6813	15						0.7		81	26
6814	5									
6815	44									
6816	42									
6817	6									
6818	32									
6819	57									
6820	49									
6821	79									
6822	90						1.2		58	0.57%

LAM-1A

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Certificat/Certificate

2R-1237-RG2

Comp: **TECK EXPLORATION**
Proj: 16100
Attn: RON BURK

Date: JUIL/JUL-27-92

Nombre D'Echantillons/No. of Samples:
Soumis le/Submitted: JUIL/JUL-21-92

No. D'Echantillon Sample Number	AU PPB	AU G/TONNE	AU CH'KS G/TONNE	AU CH'KS G/TONNE	AG PPM	CU PPM	ZN PPM
6823	22				0.6	74	56
6824	384				0.4	18	54
6825		3.52	3.60	3.43	3.8	1105	2330
6826	38				0.5	312	28
6827	216				2.7	447	860

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2R-1255-RG1

Comp: **TECK EXPLORATION**
Proj: 16100
Attn: RON BURK

Date: AOUT/AUG-03-92

Nombre D'Echantillons/No. of Samples:
Soumis le/Submitted: JUIL/JUL-24-92

No. D'Echantillon Sample Number	AU PPB	AU G/TONNE	AU CH'KS G/TONNE	AU CH'KS G/TONNE	AG OZ/TONNE	CU PPM	ZN PPM
6828	98				0.23	130	280
6829	103				0.35	122	92
6830	56				0.24	161	173
6831		1.05	1.03	1.06	0.82	377	88
6832		0.58			0.15	70	132
6833	86				0.16	84	75
6834	131				0.28	130	79
6835	96				0.20	113	82
6836	108				0.18	54	88
6837	192				0.16	87	195
6838		2.82	2.74	2.91	0.33	68	559
6839	144				0.24	76	384
6840		0.62			0.34	126	155
6841	LM-3	0.69			0.70	296	537
6842		0.62			0.52	195	201
6843	165				0.14	82	192
6844		3.16	3.09	3.22	1.00	371	473
6845		0.65			0.77	125	1910
6846	121				0.41	137	206
6847		2.49	2.40	2.57	1.76	540	428
6848		4.29	4.18	4.39	2.42	357	521
6849	327				0.42	770	53

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Certificat/Certificate

2R-1255-RG2

Comp: **TECK EXPLORATION**
Proj: 16100
Attn: RON BURK

Date: AOUT/AUG-03-92

Nombre D'Echantillons/No. of Samples:
Soumis le/Submitted: JUIL/JUL-24-92

No. D'Echantillon / Sample Number	AU PPB	AU CH'KS PPB	AU CH'KS PPB	AU G/TONNE	AU CH'KS G/TONNE	AU CH'KS G/TONNE	AG OZ/TONNE	CU PPM	ZN PPM
6850 Lm-3				0.69			0.86	234	90
6851				0.52			0.11	204	33
6852	181						0.09	80	13
6853	226						0.06	118	53
6854	136	126	146				0.07	248	98
6855	263						0.03	180	75
6856 Lm-4	260						0.07	81	1670
6857	29						0.03	38	77
6858	233	222	243				0.03	98	303
6859	144						0.03	102	26
6860				0.59	0.56	0.61	0.08	221	50
6861 Lm-5	454						0.07	130	221
6862	259						0.06	80	85

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Certificat/Certificate

2R-1266-RG1

Comp: **TECK EXPLORATION**
Proj:
Attn: RON BURK

Date: AOUT/AUG-03-92

Nombre D'Echantillons/No. of Samples:
Soumis le/Submitted: JUIL/JUL-29-92

No. D'Echantillon / Sample Number	AU PPB	AU CH'KS PPB	AU CH'KS PPB	AU G/TONNE	AU CH'KS G/TONNE	AU CH'KS G/TONNE	AG PPM	CU PPM	ZN PPM
6863	71	69	72						
6864	*			0.82	0.82	0.82			
6865	87	85	89						
6866	139								
6867	183								
6868	<5								
6869	<5								
6870	16								
6871	*			0.62	0.62	0.62	1.4	176	488
6872	42								
6873	33								
6874	47								

LM-6

LM-7

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Certificat/Certificate

2R-1284-RG2

Comp: **TECK EXPLORATION**
Proj: 16100
Attn: KEN THORSEN

Date: AOUT/AUG-07-92

Nombre D'Echantillons/No. of Samples:
Soumis le/Submitted: AOUT/AUG-02-92

No. D'Echantillon / Sample Number	AU PPB	AU CH'KS PPB	AU CH'KS PPB	AU G/TONNE	AU CH'KS G/TONNE	AU CH'KS G/TONNE	AG PPM	CU PPM	ZN PPM
6875	95								
6876	257								
6877	204								
6878				0.58	0.55	0.60	0.3	39	220
6879	330						1.5	188	83
6880	274						0.8	146	147
6881	158						0.3	55	312
6882	243						0.1	21	87
6883	266						0.4	267	566
6884				1.47			0.1	74	33
6885				0.74					
6886				1.10					
6887	306								

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Certificat/Certificate

✓ **2R-1284-RG3**

Comp: **TECK EXPLORATION**
Proj: 16100
Attn: KEN THORSEN

Date: AOUT/AUG-07-92

Nombre D'Echantillons/No. of Samples:
Soumis le/Submitted: AOUT/AUG-02-92

No. D'Echantillon / Sample Number	AU PPB	AU CH'KS PPB	AU CH'KS PPB	AU G/TONNE	AU CH'KS G/TONNE	AU CH'KS G/TONNE	AG PPM	CU PPM	ZN PPM
6888				0.51					
6889				0.64	0.62	0.66			
6890	454						0.7	85	11
6891	292						1.0	111	21
6892				0.81			1.5	104	11
6893	438						0.8	88	19
6894				0.87			1.9	208	41
6895	480						1.5	111	16
6896	590						3.0	218	201
6897				0.79			2.2	190	119
6898				0.81			2.5	371	539
6899	102	95	108				0.5	148	145
6900	182						2.5	453	1490

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2R-1284-RG1

Comp: **TECK EXPLORATION**
Proj: 16100
Attn: KEN THORSEN

Date: AOUT/AUG-07-92

Nombre D'Echantillons/No. of Samples:
Soumis le/Submitted: AOUT/AUG-02-92

No. D'Echantillon / Sample Number	AU PPB	AU CH'KS PPB	AU CH'KS PPB	AU G/TONNE	AU CH'KS G/TONNE	AU CH'KS G/TONNE	AG PPM	CU PPM	ZN PPM
6701	6						0.3	150	89
6702	20	20	20				0.3	60	23
6703	30						0.3	197	49
6704	22						0.4	97	27
6705	53						0.2	57	540
6706	<5						0.1	129	195
6707	<5						0.1	153	247
6708	79						ND	81	965
6709	23						0.1	77	54
6710	16						0.1	109	64
6711	12						0.9	468	694
6712	11						0.3	69	50
6713 LM-9	30								
6714	30								
6721	23								
6722	64								
6723	77						0.2	49	114
6724	13						0.9	82	120
6725 LM-10	327	326	348				1.3	104	46
6726				0.78	0.75	0.81	2.1	85	477
6727	156						0.6	45	58
6728	472	458	486				0.4	58	32

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Certificat/Certificate

2R-1284-RG2

Comp: **TECK EXPLORATION**
Proj: 16100
Attn: KEN THORSEN

Date: AOUT/AUG-07-92

Nombre D'Echantillons/No. of Samples:
Soumis le/Submitted: AOUT/AUG-02-92

No. D'Echantillon / Sample Number		AU PPB	AU CH'KS PPB	AU CH'KS PPB	AU G/TONNE	AU CH'KS G/TONNE	AU CH'KS G/TONNE	AG PPM	CU PPM	ZN PPM
6733		154								
6734		210								
6735		38						0.3	54	60
6736	LM-11	138	133	143				1.9	56	474
6737		418						5.8	306	3425
6738		286						6.6	171	441
6739		428						1.5	170	40
6740					1.30	1.23	1.37	5.3	240	695
6741		54						1.5	94	247

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Certificat/Certificate

2R-1435-RG1

Comp: **TECK EXPLORATION**
Proj: NO1600
Attn: RON BURK

Date: SEP-03-92

Nombre D'Echantillons/No. of Samples:
Soumis le/Submitted: MMM-DD-YY

No. D'Echantillon / Sample Number	AU PPB	AU CH'KS PPB	AU CH'KS PPB	AU G/TONNE	AG PPM	CU PPM	ZN PPM
6742				0.93	0.2	29	37
6743		411			0.4	25	29
6744 LM-9		208			0.1	20	15
6745				0.93	0.1	32	12
6746 LM-8		88			0.1		
6747		463			1.1		
6748		172			0.3		
6749				1.27	2.2		
6750				0.99	1.7		
6751		167			0.7		
6752		164			0.6		
6753		204	200	208	0.2		
6754				0.82	ND		
6755 LM-12		306			ND		
6756		322			0.1		
6757		317			ND		
6758		8			ND		
6759		62			0.1		
6760		55			1.7		
6761		35			0.4		
6762		73			ND		
6763 LM-139		47	46	48	1.0		

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Certificat/Certificate

2R-1435-RG2

Comp: **TECK EXPLORATION**
Proj: NO1600
Attn: RON BURK

Date: SEP-03-92

Nombre D'Echantillons/No. of Samples:
Soumis le/Submitted: MMM-DD-YY

No. D'Echantillon / Sample Number	AU PPB	AU CH'KS PPB	AU CH'KS PPB	AG PPM	CU PPM	ZN PPM
6764	166	156	176	0.8		
6765	304			2.2		
6766 LM-13A	16			0.3		
6767	46			0.2	43	245
6768	388	390	386	0.2	126	148
6769	49			2.6	83	263
6770	8			0.3		
6771	206			0.9		
6772	53			0.8		
6773	240			0.6	36	162
6774	377			2.3	158	1320
6775	58			1.8	112	1050
6776 LM-13A	71			2.3	108	980
6777	16			0.2	60	47
6778	92			0.3	39	782
6779	155			0.4	44	454
6780 LM-15	440	468	411	1.6	335	276
6781	275	250	300	0.5	70	144
6782	81			0.1		
6783 Surface	27			0.2		
6784	155			0.2		
6785	126			0.1		

Certifie par/Certified by _____

Bondar-Clegg & Company Ltd.
5420 Canotek Road
Ottawa, Ontario
K1J 9G2
Tel: (613) 749-2220
Fax: (613) 749-7170

BONDAR-CLEGG

Geochemical Lab Report

REPORT: 092-60346.0 (COMPLETE)

REFERENCE INFO:

CLIENT: TECK EXPLORATIONS LIMITED
PROJECT: 16100

SUBMITTED BY: R. BURK
DATE PRINTED: 26-JUN-92

ORDER	ELEMENT		NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Cu	Copper	12	1 PPM	HF-HNO3-HCLO4-HCL	ATOMIC ABSORPTION
2	Zn	Zinc	12	1 PPM	HF-HNO3-HCLO4-HCL	ATOMIC ABSORPTION
3	Ag	Silver	15	0.1 PPM	HF-HNO3-HCLO4-HCL	ATOMIC ABSORPTION
4	Au	Gold	15	5 PPB	FIRE ASSAY	FIRE ASSAY @ 30 G
5	Au Wt1	Test Weight	15	0.1 g		

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
DRILL CORE	15	-150	15	CRUSH, PULVERIZE	15

REPORT COPIES TO: MR. KEN THORSEN
FAX: (705) 474-4053

INVOICE TO: MR. KEN THORSEN

Bondar-Clegg & Company Ltd.
5420 Canotek Road
Ottawa, Ontario
K1J 9G2
Tel: (613) 749-2220
Fax: (613) 749-7170

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Geochemical Lab Report

REPORT: 092-60346.0 (COMPLETE)

DATE PRINTED: 26-JUN-92
PROJECT: 16100 PAGE 1

SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Zn PPM	Ag PPM	Au PPB	Au Wt1 g
5801		37	223	11.6	142	30.2
5802		393	368	8.6	482	15.3
5803		98	102	3.6	28	30.3
5804		177	289	>50.0	826	30.6
5805		31	167	3.8	90	30.6
5806		422	487	10.5	933	15.3
5807		514	416	17.6	732	15.2
5808		84	78	4.0	206	30.6
5809		71	207	1.7	139	30.8
5810		374	164	8.6	218	15.2
5811		40	162	3.4	271	30.5
5812		435	96	6.0	260	15.0
5813				1.9	44	30.4
5818				15.1	1017	15.2
5819				12.8	2218	15.6

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Geochemical Lab Report

REPORT: 092-60346.0 (COMPLETE)

DATE PRINTED: 26-JUN-92
PROJECT: 16100 PAGE 2

STANDARD NAME	ELEMENT UNITS	Cu PPM	Zn PPM	Ag PPM	Au PPB	Au Wt1 g
ANALYTICAL BLANK		<1	1	<0.1	<5	-
Number of Analyses		1	1	1	1	-
Mean Value		0.5	1.0	0.05	2.5	-
Standard Deviation		-	-	-	-	-
Accepted Value		1	1	0.1	5	-
TRACE GEOCHEM STD		292	255	0.3	-	-
Number of Analyses		1	1	1	-	-
Mean Value		292.5	254.8	0.29	-	-
Standard Deviation		-	-	-	-	-
Accepted Value		-	-	-	-	-

Bondar-Clegg & Company Ltd.
5420 Canotek Road
Ottawa, Ontario
K1J 9G2
Tel: (613) 749-2220
Fax: (613) 749-7170

BONDAR-CLEGG

Geochemical Lab Report

REPORT: 092-60346.0 (COMPLETE)

DATE PRINTED: 26-JUN-92
PROJECT: 16100 PAGE 3

SAMPLE NUMBER	ELEMENT UNITS	Cu PPM	Zn PPM	Ag PPM	Au PPB	Au Wt1 g
5807		514	416	17.6	732	15.2
Duplicate		503	429	16.0	650	15.7
5808		84	78	4.0	206	30.6
Prep Duplicate		88	83	4.4	162	30.2

Bondar-Clegg & Company Ltd.
5420 Canotek Road
Ottawa, Ontario
K1J 9G2
Tel: (613) 749-2220
Fax: (613) 749-7170

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Geochemical Lab Report

REPORT: 092-60347.0 (COMPLETE)

REFERENCE INFO:

CLIENT: TECK EXPLORATIONS LIMITED
PROJECT: 16100

SUBMITTED BY: R. BURK
DATE PRINTED: 26-JUN-92

ORDER	ELEMENT		NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	Au	Gold	21	5 PPB	FIRE ASSAY	FIRE ASSAY @ 30 G

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
DRILL CORE	21	-150	21	CRUSH, PULVERIZE	21

REPORT COPIES TO: MR. KEN THORSEN
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SAMPLE NUMBER	ELEMENT UNITS	Au PPB
5820		18
5821		275
5822		11
5823		15
5824		<5
5825		24
5826		8
5827		8
5828		23
5829		220
5830		7
5831		20
5832		<5
5833		51
5834		21
5835		26
5836		<5
5837		15
5838		9
5839		77
5840		29

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STANDARD NAME	ELEMENT UNITS	Au PPB
BCC GOLD STD 90-3		718
Number of Analyses		1
Mean Value		718.0
Standard Deviation		-
Accepted Value		765

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SAMPLE NUMBER	ELEMENT UNITS	Au PPB
5827		8
Duplicate		8
5832		<5
Prep Duplicate		7

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1	SiO2	Silica Di-oxide	22	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
2	TiO2	Titanium Di-oxide	22	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
3	Al2O3	Alumina	22	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
4	Fe2O3	Total Iron	22	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
5	MnO	Manganese Oxide	22	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
6	MgO	Magnesium Oxide	22	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
7	CaO	Calcium (CaO)	22	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
8	Na2O	Sodium Oxide	22	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
9	K2O	Potassium	22	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
10	P2O5	Phosphorous (P2O5)	22	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
11	LOI	Loss on Ignition	22	0.05 PCT		GRAVIMETRIC
12	Total	Whole Rock Total	22	0.01 PCT		
13	Zr	Zirconium	22	1 PPM		XRAY FLUORESCENCE

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
DRILL CORE	22	-150	22	CRUSH, PULVERIZE	22

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SAMPLE NUMBER	ELEMENT UNITS	SiO2 PCT	TiO2 PCT	Al2O3 PCT	Fe2O3 PCT	MnO PCT	MgO PCT	CaO PCT	Na2O PCT	K2O PCT	P2O5 PCT	LOI PCT
5850		47.98	0.56	14.88	11.67	0.26	9.30	10.93	1.48	0.63	<0.01	2.04
5851		59.99	0.68	15.54	10.72	0.17	1.75	6.99	0.50	1.63	0.08	1.86
5852		50.96	1.34	15.15	10.97	0.39	3.21	12.74	3.28	0.42	0.09	1.78
5853		53.19	0.56	13.99	11.49	0.21	6.95	9.53	2.44	0.11	<0.01	0.53
5854		50.72	0.62	13.12	12.25	0.19	8.92	10.07	2.57	0.18	<0.01	1.27
5855		61.94	0.64	17.59	6.66	0.09	3.97	1.55	3.16	2.56	0.12	3.27
5856		61.63	0.55	16.32	6.21	0.07	3.26	2.74	3.39	2.33	0.14	1.88
5857		44.35	0.50	15.71	11.33	0.22	10.29	7.13	1.62	0.71	<0.01	8.19
5858		49.52	0.61	12.48	12.48	0.16	8.93	10.55	2.17	0.11	<0.01	1.52
5859		52.00	0.45	15.10	9.61	0.23	8.25	11.56	2.07	0.03	0.02	0.83
5860		54.20	0.42	14.80	11.65	0.16	8.84	7.03	1.70	0.84	<0.01	1.75
5861		53.36	0.88	16.79	5.69	0.12	2.81	14.06	2.10	0.08	<0.01	4.56
5862		53.46	0.59	15.56	11.23	0.31	4.75	8.58	1.66	1.07	<0.01	2.76
5863		52.15	0.66	16.52	10.82	0.32	4.09	10.04	2.05	0.77	<0.01	2.45
5864		52.73	0.52	16.85	12.12	0.36	4.51	10.55	0.06	<0.01	<0.01	3.73
5865		50.96	0.48	14.51	14.00	0.41	6.12	10.52	1.33	0.17	<0.01	1.81
5866		47.78	0.57	14.74	15.96	0.55	5.66	10.59	1.82	0.32	<0.01	2.27
5867		42.81	0.85	11.35	25.35	1.08	5.40	12.04	0.92	0.18	<0.01	0.10
5868		59.46	0.72	18.16	8.31	0.09	3.87	1.39	1.90	4.17	0.13	2.52
5869		51.81	0.47	15.06	13.95	0.30	5.90	10.01	1.34	0.28	<0.01	2.16
5870		49.28	2.44	14.64	18.18	0.25	4.07	8.18	3.36	0.20	0.07	0.39
5871		60.63	0.81	15.13	8.46	0.10	4.50	4.21	4.08	1.33	0.16	1.67

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SAMPLE NUMBER	ELEMENT UNITS	Total PCT	Zr PPM
5850		99.72	44
5851		99.92	137
5852		100.34	85
5853		99.00	61
5854		99.92	38
5855		101.54	145
5856		98.53	138
5857		100.04	36
5858		98.53	38
5859		100.15	43
5860		101.39	49
5861		100.45	58
5862		99.98	44
5863		99.86	44
5864		101.43	45
5865		100.30	39
5866		100.27	37
5867		100.08	50
5868		100.71	121
5869		101.30	43
5870		101.06	121
5871		101.09	181

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STANDARD NAME / ELEMENT / UNITS	SiO2 PCT	TiO2 PCT	Al2O3 PCT	Fe2O3 PCT	MnO PCT	MgO PCT	CaO PCT	Na2O PCT	K2O PCT	P2O5 PCT	LOI PCT
BCC HIGH XRF STD	-	-	-	-	-	-	-	-	-	-	-
Number of Analyses	-	-	-	-	-	-	-	-	-	-	-
Mean Value	-	-	-	-	-	-	-	-	-	-	-
Standard Deviation	-	-	-	-	-	-	-	-	-	-	-
Accepted Value	-	-	-	-	-	-	-	-	-	-	-
BCC LOW LOI STD 1986	-	-	-	-	-	-	-	-	-	-	3.05
Number of Analyses	-	-	-	-	-	-	-	-	-	-	1
Mean Value	-	-	-	-	-	-	-	-	-	-	3.050
Standard Deviation	-	-	-	-	-	-	-	-	-	-	-
Accepted Value	-	-	-	-	-	-	-	-	-	-	3.08
GEO TRACE STD1(1989)	-	-	-	-	-	-	-	-	-	-	-
Number of Analyses	-	-	-	-	-	-	-	-	-	-	-
Mean Value	-	-	-	-	-	-	-	-	-	-	-
Standard Deviation	-	-	-	-	-	-	-	-	-	-	-
Accepted Value	-	-	-	-	-	-	-	-	-	-	-
CANMET CERTIFIED STD	60.53	0.14	12.00	6.38	0.33	2.79	8.03	4.40	4.26	0.43	-
Number of Analyses	1	1	1	1	1	1	1	1	1	1	-
Mean Value	60.530	0.143	12.000	6.380	0.328	2.792	8.030	4.402	4.264	0.435	-
Standard Deviation	-	-	-	-	-	-	-	-	-	-	-
Accepted Value	60.10	0.14	12.12	6.28	0.32	2.70	7.98	4.34	4.48	0.43	1.11
ANALYTICAL BLANK	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	-
Number of Analyses	1	1	1	1	1	1	1	1	1	1	-
Mean Value	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	-
Standard Deviation	-	-	-	-	-	-	-	-	-	-	-
Accepted Value	-	-	-	-	-	-	-	-	-	-	-

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STANDARD NAME	ELEMENT UNITS	Total PCT	Zr PPM
BCC HIGH XRF STD		-	288
Number of Analyses		-	1
Mean Value		-	288.0
Standard Deviation		-	-
Accepted Value		-	280
BCC LOW LOI STD 1986		-	-
Number of Analyses		1	-
Mean Value		3.050	-
Standard Deviation		-	-
Accepted Value		-	-
GEO TRACE STD1(1989)		-	117
Number of Analyses		-	1
Mean Value		-	117.0
Standard Deviation		-	-
Accepted Value		-	110
CANMET CERTIFIED STD		99.30	-
Number of Analyses		1	-
Mean Value		99.304	-
Standard Deviation		-	-
Accepted Value		-	280
ANALYTICAL BLANK		-	-
Number of Analyses		-	-
Mean Value		-	-
Standard Deviation		-	-
Accepted Value		-	-

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SAMPLE NUMBER	ELEMENT UNITS	SiO2 PCT	TiO2 PCT	Al2O3 PCT	Fe2O3 PCT	MnO PCT	MgO PCT	CaO PCT	Na2O PCT	K2O PCT	P2O5 PCT	LOI PCT
5850		47.98	0.56	14.88	11.67	0.26	9.30	10.93	1.48	0.63	<0.01	2.04
Duplicate												1.94
5858		49.52	0.61	12.48	12.48	0.16	8.93	10.55	2.17	0.11	<0.01	1.52
Duplicate		51.58	0.63	13.06	13.03	0.17	9.31	11.08	2.27	0.09	<0.01	
5859		52.00	0.45	15.10	9.61	0.23	8.25	11.56	2.07	0.03	0.02	0.83
Duplicate												1.03
5862		53.46	0.59	15.56	11.23	0.31	4.75	8.58	1.66	1.07	<0.01	2.76
Prep Duplicate		52.79	0.58	15.62	11.21	0.30	4.57	8.46	1.66	0.97	<0.01	

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SAMPLE NUMBER	ELEMENT UNITS	Total PCT	Zr PPM
5850		99.72	44
Duplicate			
5858		98.53	38
Duplicate			
5859		100.15	43
Duplicate			43
5862		99.98	44
Prep Duplicate			37

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Geochemical Lab Report

REPORT: 092-41793.0 (COMPLETE)

REFERENCE INFO:

CLIENT: TECK EXPLORATIONS LIMITED
PROJECT: 16100

SUBMITTED BY: R. BURK
DATE PRINTED: 12-AUG-92

ORDER	ELEMENT		NUMBER OF ANALYSES	LOWER DETECTION LIMIT	EXTRACTION	METHOD
1	BaO	Barium Oxide	10	0.001 PCT	BORATE FUSION	INDUC. COUP. PLASMA
2	Cr2O3	Chromium Oxide	10	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
3	SiO2	Silica Dioxide	10	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
4	TiO2	Titanium Dioxide	10	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
5	Al2O3	Alumina	10	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
6	Fe2O3	Total Iron	10	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
7	MnO	Manganese Oxide	10	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
8	MgO	Magnesium Oxide	10	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
9	CaO	Calcium (CaO)	10	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
10	Na2O	Sodium Oxide	10	0.01 PCT	BORATE FUSION	INDUC. COUP. PLASMA
11	K2O	Potassium	10	0.05 PCT	BORATE FUSION	INDUC. COUP. PLASMA
12	P2O5	Phosphorous (P2O5)	10	0.03 PCT	BORATE FUSION	INDUC. COUP. PLASMA
13	LOI	Loss on Ignition	10	0.05 PCT		GRAVIMETRIC
14	Total	Whole Rock Total	10	0.01 PCT		
15	Zr	Zirconium	10	1 PPM		XRAY FLUORESCENCE

SAMPLE TYPES	NUMBER	SIZE FRACTIONS	NUMBER	SAMPLE PREPARATIONS	NUMBER
ROCK	10	-200	10	CRUSH, PULVERIZE	10

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SAMPLE NUMBER	ELEMENT UNITS	BaO PCT	Cr2O3 PCT	SiO2 PCT	TiO2 PCT	Al2O3 PCT	Fe2O3 PCT	MnO PCT	MgO PCT	CaO PCT	Na2O PCT	K2O PCT
6715		0.015	0.01	53.54	0.65	14.09	12.48	0.18	6.89	8.35	2.01	0.24
6716		0.041	0.01	64.96	0.59	17.85	1.76	0.05	2.16	3.44	1.21	4.30
6717		0.015	0.01	53.30	0.56	13.49	18.52	0.99	3.91	6.03	0.61	1.13
6718		0.011	0.03	53.20	0.57	14.55	14.15	0.37	5.29	7.64	1.46	0.52
6719		0.010	0.03	53.74	0.52	18.28	8.72	0.20	5.63	8.69	2.24	0.45
6720		0.009	0.05	50.17	0.51	16.58	10.25	0.28	7.25	11.79	1.47	0.43
6729		0.023	0.02	62.57	0.53	16.96	6.90	0.06	2.87	5.42	1.83	2.95
6730		0.013	0.05	51.38	0.42	14.62	10.45	0.16	10.14	8.60	2.06	0.61
6731		0.011	0.02	51.69	0.57	14.51	11.53	0.19	6.79	9.56	2.46	0.86
6732		0.009	0.02	53.52	0.49	15.95	9.84	0.21	5.97	9.65	2.24	0.06

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SAMPLE NUMBER	ELEMENT UNITS	P2O5 PCT	LOI PCT	Total PCT	Zr PPM
6715		<0.03	0.95	99.41	65
6716		0.17	2.05	98.59	161
6717		0.04	0.84	99.44	81
6718		0.03	2.36	100.18	62
6719		0.04	1.53	100.07	49
6720		<0.03	2.06	100.86	30
6729		<0.03	1.03	101.15	128
6730		0.07	1.12	99.69	41
6731		0.06	0.95	98.40	55
6732		<0.03	1.03	98.99	56

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STANDARD NAME	ELEMENT UNITS	BaO PCT	Cr2O3 PCT	SiO2 PCT	TiO2 PCT	Al2O3 PCT	Fe2O3 PCT	MnO PCT	MgO PCT	CaO PCT	Na2O PCT	K2O PCT
BCC HIGH XRF STD		-	-	-	-	-	-	-	-	-	-	-
Number of Analyses		-	-	-	-	-	-	-	-	-	-	-
Mean Value		-	-	-	-	-	-	-	-	-	-	-
Standard Deviation		-	-	-	-	-	-	-	-	-	-	-
Accepted Value		-	-	-	-	-	-	-	-	-	-	-
BCC Rock Std 1989		0.273	0.02	59.90	0.91	12.34	6.99	0.10	3.53	5.72	1.31	2.05
Number of Analyses		1	1	1	1	1	1	1	1	1	1	1
Mean Value		0.2731	0.023	59.900	0.910	12.343	6.990	0.098	3.530	5.723	1.310	2.049
Standard Deviation		-	-	-	-	-	-	-	-	-	-	-
Accepted Value		-	-	60.40	0.90	12.10	6.90	0.09	3.50	5.90	1.30	2.10
ANALYTICAL BLANK		<0.001	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.05
Number of Analyses		1	1	1	1	1	1	1	1	1	1	1
Mean Value		0.0005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.025
Standard Deviation		-	-	-	-	-	-	-	-	-	-	-
Accepted Value		-	-	-	-	-	-	-	-	-	-	-
GEO TRACE STD1(1989)		-	-	-	-	-	-	-	-	-	-	-
Number of Analyses		-	-	-	-	-	-	-	-	-	-	-
Mean Value		-	-	-	-	-	-	-	-	-	-	-
Standard Deviation		-	-	-	-	-	-	-	-	-	-	-
Accepted Value		-	-	-	-	-	-	-	-	-	-	-

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STANDARD NAME	ELEMENT UNITS	P2O5 PCT	LOI PCT	Total PCT	Zr PPM
BCC HIGH XRF STD		-	-	-	304
Number of Analyses		-	-	-	1
Mean Value		-	-	-	304.0
Standard Deviation		-	-	-	-
Accepted Value		-	-	-	280
BCC Rock Std 1989		0.19	-	93.34	-
Number of Analyses		1	-	1	-
Mean Value		0.194	-	93.343	-
Standard Deviation		-	-	-	-
Accepted Value		0.19	5.00	-	-
ANALYTICAL BLANK		<0.03	-	-	-
Number of Analyses		1	-	-	-
Mean Value		0.015	-	-	-
Standard Deviation		-	-	-	-
Accepted Value		-	-	-	-
GEO TRACE STD1(1989)		-	-	-	103
Number of Analyses		-	-	-	1
Mean Value		-	-	-	103.0
Standard Deviation		-	-	-	-
Accepted Value		-	-	-	110

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Geochemical Lab Report

DATE PRINTED: 12-AUG-92

REPORT: 092-41793.0 (COMPLETE)

PROJECT: 16100 PAGE 3A

SAMPLE NUMBER	ELEMENT UNITS	BaO PCT	Cr2O3 PCT	SiO2 PCT	TiO2 PCT	Al2O3 PCT	Fe2O3 PCT	MnO PCT	MgO PCT	CaO PCT	Na2O PCT	K2O PCT
6715		0.015	0.01	53.54	0.65	14.09	12.48	0.18	6.89	8.35	2.01	0.24
Duplicate												
6718		0.011	0.03	53.20	0.57	14.56	14.15	0.37	5.29	7.64	1.46	0.52
Duplicate		0.012	0.02	53.26	0.57	14.65	14.26	0.37	5.32	7.71	1.48	0.47
6730		0.013	0.05	51.38	0.42	14.62	10.45	0.16	10.14	8.50	2.06	0.61
Prep Duplicate		0.011	0.05	50.85	0.38	14.33	10.40	0.16	10.33	8.55	1.95	0.53
6732		0.009	0.02	53.52	0.49	15.95	9.84	0.21	5.97	9.65	2.24	0.06
Duplicate												

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Geochemical Lab Report

REPORT: 092-41793.0 (COMPLETE)

DATE PRINTED: 12-AUG-92

PROJECT: 16100 PAGE 3B

SAMPLE NUMBER	ELEMENT UNITS	P2O5 PCT	LOI PCT	Total PCT	Zr PPM
6715		<0.03	0.95	99.41	65
Duplicate			0.94		
6718		0.03	2.36	100.18	62
Duplicate		<0.03			
6730		0.07	1.12	99.69	41
Prep Duplicate		0.06			44
6732		<0.03	1.03	98.99	56
Duplicate					48

APPENDIX C

LITHOLOGIC CLASSIFICATION AND ALTERATION AND PRIMARY CHEMISTRY OF THE LAC MARCAUT VOLCANICS

(D. TARNOCAI)

Lithologic classification and Alteration and Primary Chemistry of the Lac Marcaut Volcanics

Abstract

Mafic meta-volcanics in the Lac Marcaut property are a comagmatic suite of slightly fractionated hypersthene/diopside, plagioclase, +/- quartz, +/- olivine normative subaqueous low Ti, high Mg, low K tholeiitic basalts and basaltic andesites. Alteration is minimal with total average element depletions on the order of ~ -1wt% (mass loss) with major fluxes of K2O, MnO (added), and Na2O (lost) being the most notable modifications.

Geochemical Subdivision

Lac Marcaut whole rock analysis have been attempted to be lithologically discriminated based upon TiO_2 and Zr concentrations and field observations (Fig. 1). Two relatively distinct fields are defined for the tightly clustering mafic meta-volcanics (possibly mafic meta-volcanoclastics as well) and the skewed field of leucocratic sediments based upon mineralogy and structure. Un-assigned samples have been plotted on this binary diagram and classified as to which field they fall in. Results of this classification are listed in Table 1.

Immobile Element Selection (Volcanics)

It is generally accepted that certain elements such as Al, Ti, and Zr remain relatively immobile under metamorphic and hydrothermal alteration conditions (Winchester and Floyd, 1977.

MacLean and Kranidiotis, 1987) which allows for the characterization of primary geochemical affinities in altered volcanics. Titania and Zr have been chosen as the potentially least mobile element couple for reasons that they are HFS elements, not geochemically coupled (Ti is moderately igneous compatible while Zr is incompatible) and show relatively smooth trends on harker style plots vs MgO as a fractionation monitor (Fig. 2).

Recognition of Least Altered Samples (Volcanics)

Since the degree of alteration was determined to be low in the field, no least altered samples were identified during mapping. Prior to the calculation of elemental fluxes and lithologic classification, suitable chemically discriminated precursor samples have been selected. Least alkali altered samples were screened based upon their fit to modern igneous fields (Hughes, 1973) (Fig. 3) and noted accordingly in the logarithmic molecular proportion ratio (LMPR) plots (Beswick and Soucie, 1978) (Fig. 4) used to determine major element alteration patterns. Samples which fell within the field defined for unaltered igneous lithologies in K_2O+Na_2O vs $K_2O/(K_2O+Na_2O)$ space were accepted as least altered and represented as least altered in the LMPR plots. All samples appear to have undergone varying degrees of post-solidus modifications as evidenced by the sample displacements away from the Cenozoic trends. Two of the alkali unaltered samples were rejected (5859, 6719) from the least altered category due to their position at either end of the

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linear trend defined by the unaltered samples by inferred K_2O depletion and enrichment (respectively). Ideally, in a multiple precursor system, these least altered samples should define a fractionation trend that may be utilized in determining original sample compositions.

Primary Geochemistry

Volcanics sampled on the Lac Marcaut property have been discriminated as low Ti, low K, high Mg tholeiites of basaltic - basaltic andesite composition using least altered sample compositions (Fig 5a-e). Low pottasium tholeiitic affinities have been unambiguously determined with a combination of AFM (Fig. 5b), Ti vs Zr (Fig. 5c) and eight oxide linear discriminant function classification plots (Fig. 5e, f). Calculated CIPW mineralogy (NewPet, 1992) suggests that the least altered samples were primarily anorthite (~40%) - albite (~20%) and hypersthene (~25%) normative with lesser variable percentages of diopside (~11%), olivine (0-7%) and quartz (0-5%) in the norm which is presently elevated to an amphibolite facies assemblage of amphibole and plagioclase. The analyzed major and trace element chemistry is similar to that of an average Archaean tholeiite (TH2) (Condie, ?) with the exception of anomalously low K_2O and P_2O_5 concentrations in the Lac Marcaut volcanics.

Alteration Geochemistry (Volcanics)

Binary plots of majors plus Zr versus TiO_2 and Zr/TiO_2 plus Al_2O_3/TiO_2 vs TiO_2 (Fig. 6) have been used as a first

approximation to determine alteration redistributions based upon the linearity of the data. Zr vs TiO_2 and Zr/TiO_2 vs TiO_2 form coherent fractionation normal patterns suggesting that the lithologies sampled are slightly fractionated and TiO_2 - Zr are a reasonably immobile element pair. Dispersion from a linear trend in all oxides are interpreted to be the result of alteration modifications with the most dramatic changes manifested in K_2O.

Plots of immobile element ratios vs mobile oxides (Fig. 7) have been constructed to determine alteration fluxes and precursor composition. Since it is assumed that the TiO_2/Zr ratio remains constant for a specific sample during alteration, the original concentration of a mobile oxide should theoretically be possible to accurately determine by solving a set of linear equations derived from the fractionation trend for the immobile ratio-mobile oxide and the sample TiO_2/Zr ratio. Logical results are produced from this method as illustrated by the calculated precursor oxide sums of approximately 98% (Table 2). This is considered acceptable since the concentrations of TiO_2, Zr (used in the calculation and not corrected), and P_2O_5 (most samples fell below detection limit and therefore are unreliable to correct) have not been included in the calculation and would normally bring the total up to 100%.

The results of this correction (Table 3) suggest that SiO_2, MnO, and K_2O have been added during alteration and that $Fe2O_3$, MgO, CaO, and Na_2O have been lost during alteration (Fig. 8) to varying degrees during alteration. This alteration pattern

agrees with that defined for the samples using the LMPR approach to alteration assessment with one notable exception, SiO_2 appears to have been leached during alteration (Fig. 4) according the fit of the data to the igneous trend. The most extreme elemental fluxes are K_2O additions on the order of 270%, Na_2O depletions of 20%, and MnO enrichments of 58% (samples 6716, 6717, and 6729 excluded from this calculation due to possibility that they may represent sediments (Fig. 1 - Table 1)). Calculated precursor compositions are listed (Table 2) and compared to an average Archaean tholeiite, TH2, and a modern N-MORB composition. Good agreement between the TH2 and sample data is obtained while the N-MORB is rejected as an analogous volcanic on the basis of the low sample Zr and TiO_2.

Pillow basalt sample 5864 which is immediately stratigraphically below the main Marcaut showing has undergone extreme Na_2O (97%), K_2O (90%), and MgO (34%) depletions coupled with minor silicification and large MnO additions (90%). The large K_2O depletion is atypical of the entirety of the volcanics sampled on the property suggesting possibly different operative alteration conditions directly associated with the deposition of the sulphide facies (pyrrhotite) iron formation.

References

Beswick A.E., and G. Soucie. 1978. A correction Procedure for metasomatism in an Archaean Greenstone Belt. Precambrian Research, 6, pp235-248.

Condie K.C. Archaean Greenstone Belts ????? p97.

Hughes C.J., 1973. Spilites, Keratophyres, and the Igneous Spectrum. Geological Magazine, 109 (6), pp513-527.

Irvine, T.N., and W.R.A. Baragar. 1971. A Guide to the Chemical Classification of the Common Volcanic Rocks. Canadian Journal of Earth Sciences, 8 (5), pp523-548.

Le Maitre, R.W. (ed.). 1989. A Classification of Igneous rocks and Glossary of Terms, Blackwell, Oxford, 193 pp.

MacLean, W.H., and P. Kranidiotis. 1987. Immobile Elements as Monitors of Mass Transfer in Hydrothermal Alteration: Phelps

Dodge Massive Sulphide Deposit, Matagami, Quebec. Economic Geology, 82, pp951-962.

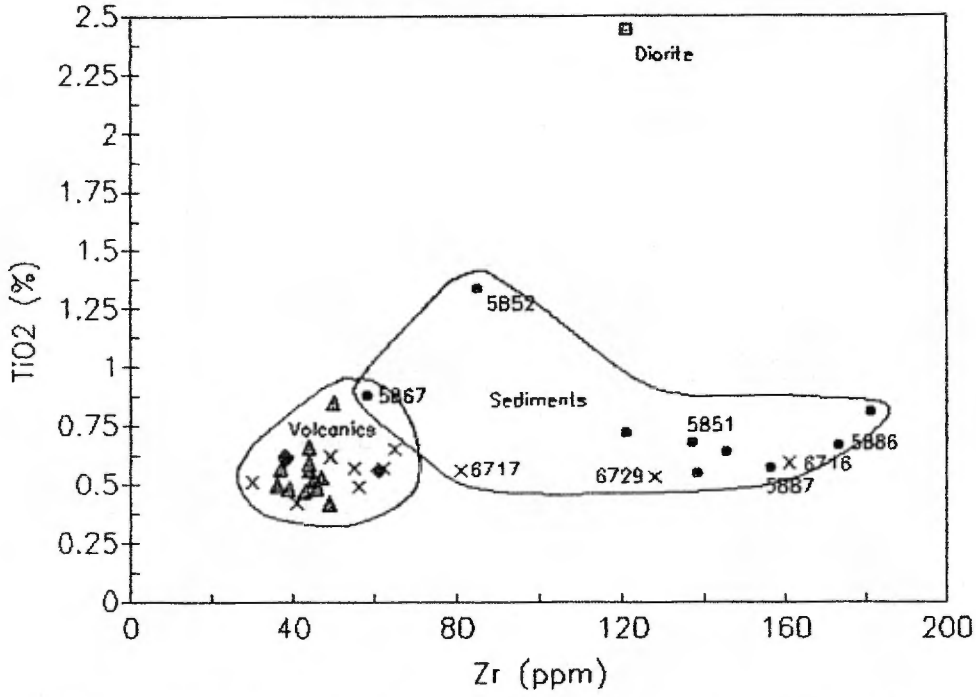
NewPet, 1992. Memorial University of Newfoundland, Department of Earth Sciences, Centre for Earth Sciences Resources Research.

Pearce, J.A., 1976. Statistical Analysis of Major Element Patterns in Basalts. Journal of Petrology, 17 (1), pp15-43.

Pearce, J.A., and J.R. Cann. 1973. Tectonic Setting of Basic Volcanic Rocks Determined using Trace Element Analysis. Earth and Planetary Science Letters, 19, pp290-300

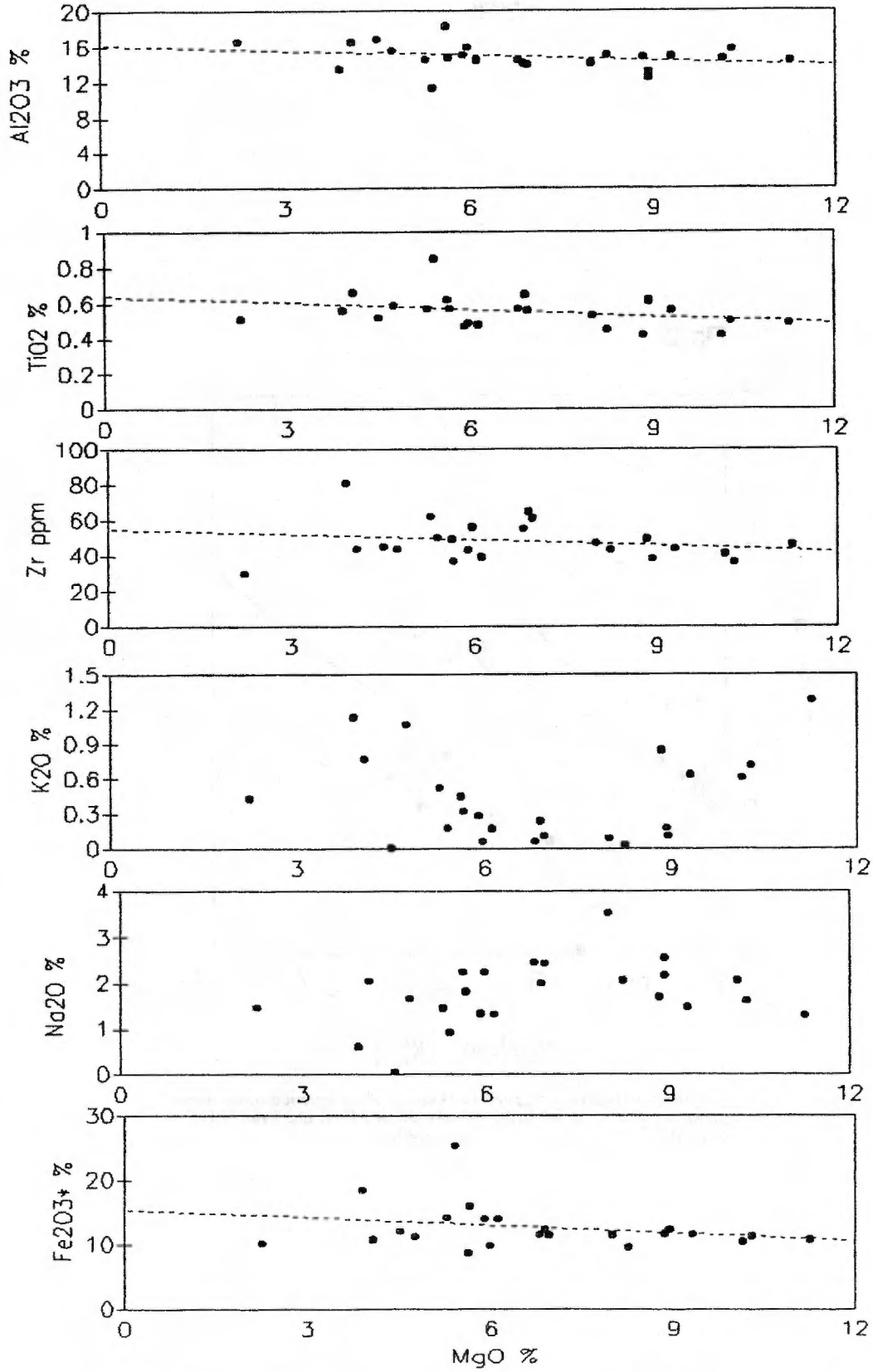
Winchester J.A., and P.A. Floyd. 1977. Geochemical Discrimination of Different Magma Series and their Differentiation Products using Immobile Elements. Chemical Geology, 20, pp325-343.

Fig. 1



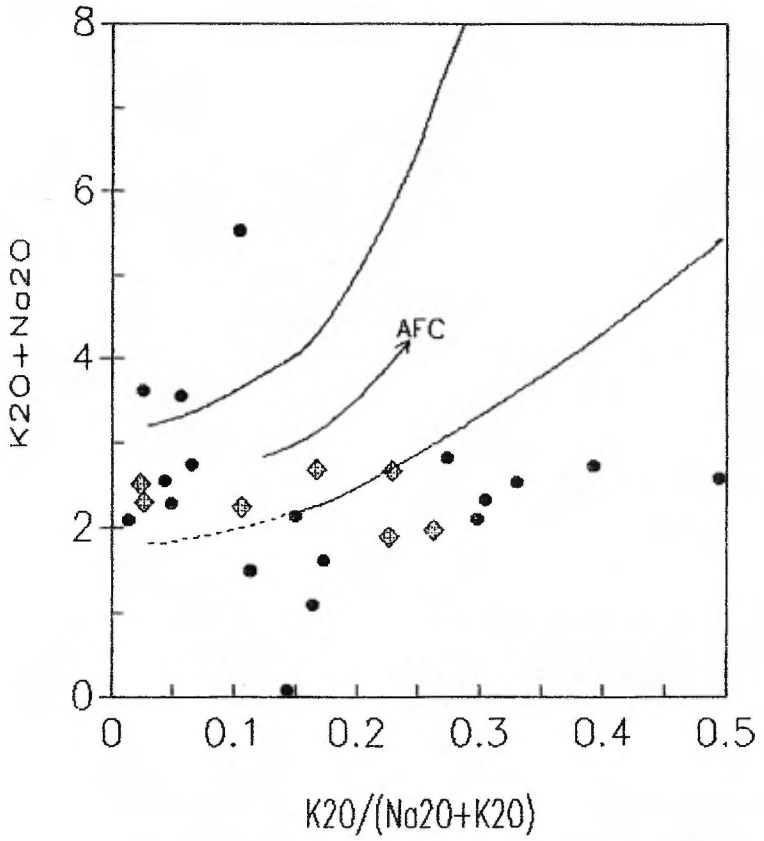
TiO2 vs Zr plot of all Lac Marcoul whole rock analysis. Crosses represent drill core samples, triangles = surface amphibolitic volcanics, circles = surface leucocratic sediments, diamonds = interpreted surface least altered volcanics (3), and square = diorite/Qtz diorite intrusive.

Fig. 2



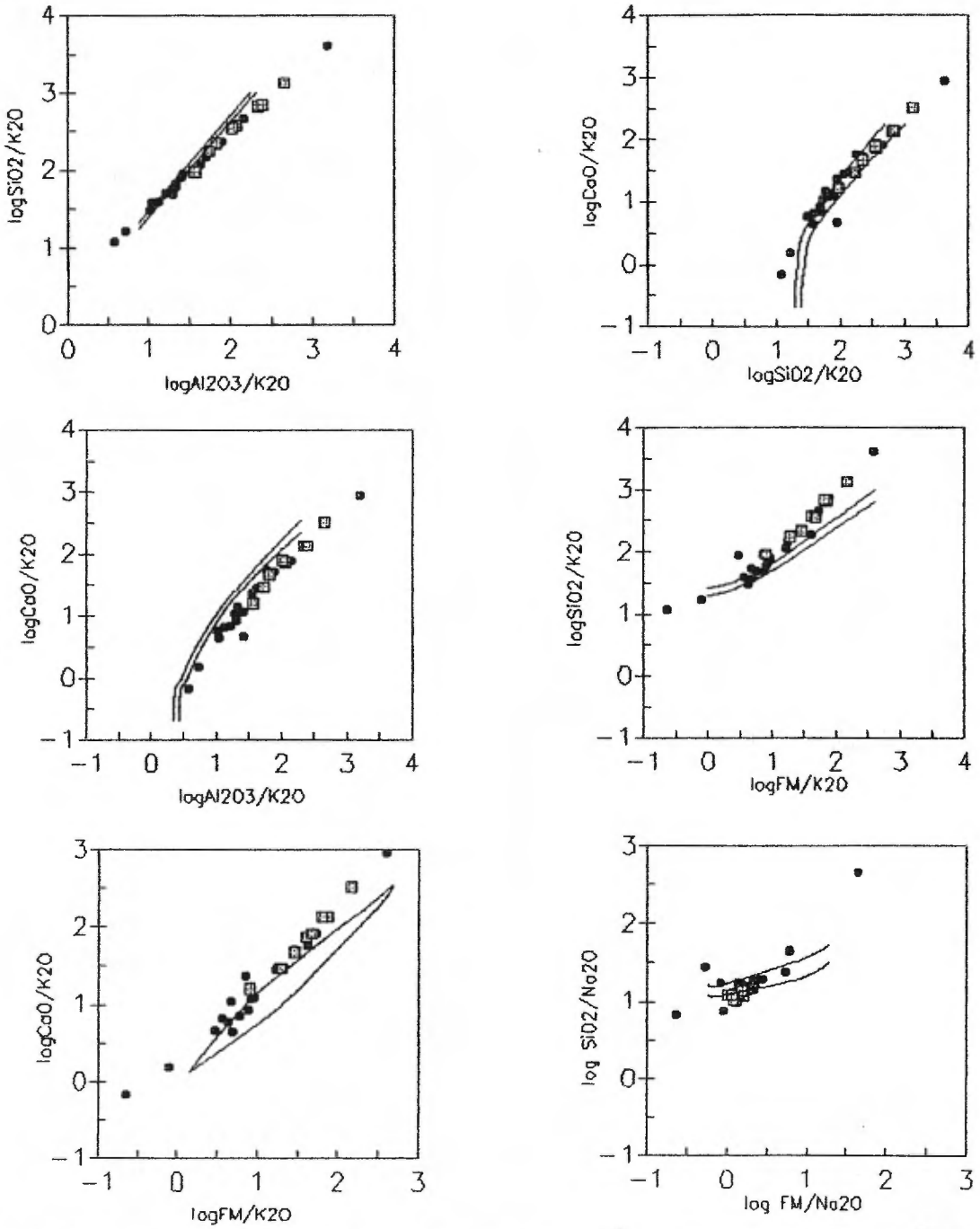
Smooth trends in TiO2, Al2O3, Zr, and Fe2O3 vs MgO infered to be the result of limited mobility. MgO, the fractionation moniter, is also infered to have undergone little alteration mobility due to the relatively smooth trends. Alkalis, Na2O and K2O, have undergone significant alteration fluxes evidenced by the extreme scatter in the data.

Fig. 3



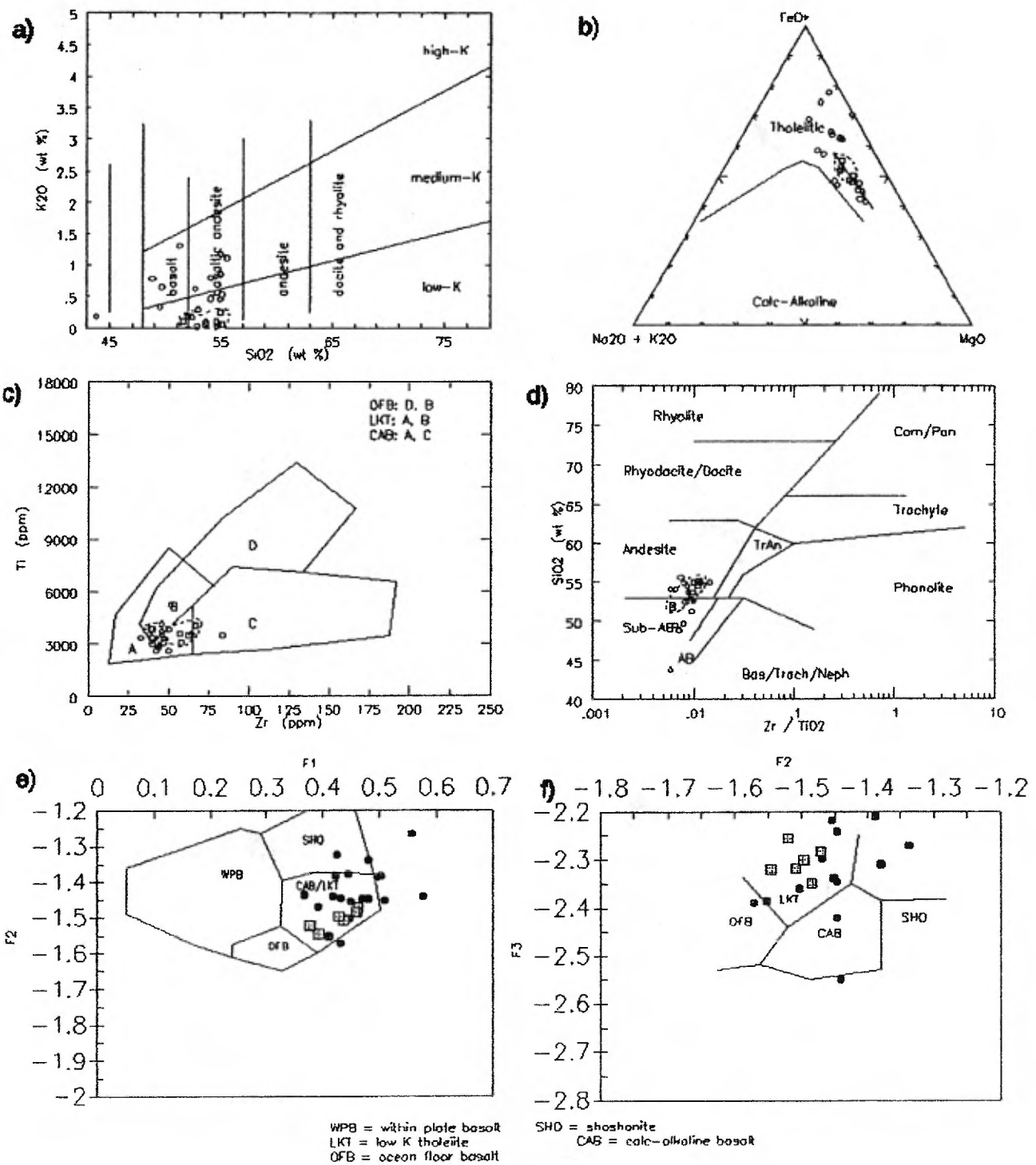
Samples plotted with respect to Hughes alkali igneous spectrum. Samples plotting outside the funnel shoped field are rejected from the chemically least altered category.

Fig. 4



Log molecular proportion ratio plots for the Loc Marcout volcanics. Alkali unaltered samples plotted as squares, altered samples as circles. All samples appear to have undergone small but variable degrees of alteration. Fluxes as $-SiO_2$, CaO, FM ($MgO+MnO+Fe_2O_3$), and Na_2O, while K_2O has been added.

Fig. 5



WPB = within plate basalt
LKT = low K tholeiite
OFB = ocean floor basalt

SHO = shoshonite
CAB = calc-alkaline basalt

Outlined field defined for chemically discriminated unaltered samples. Marcout samples plot as low K basalts and basaltic andesites (Fig. 5a, c) of tholeiitic affinities (Fig. 5b, c, e, f). Alteration mobilizations can be seen in Fig. 5a, b, d and a preserved tholeiitic fraction trend is present in Fig. 5b. Figure a) after Le Maitre, 1989. figure b) after Irvine and Baragar, 1971, figure c) after Pearce and Cann, 1973, Figure d) after Winchester and Floyd, 1977, and Figures e) and f) after Pearce 1976. Discriminant functions used in the LKT discriminations are: F1 = +0.0088SiO2−0.0774TiO2+0.0102Al2O3+0.0066FeO−0.0017MgO−0.0143CaO−0.0155Na2O−0.0007K2O

F2 = −0.013SiO2−0.0185TiO2−0.0129Al2O3−0.0134FeO−0.03MgO−0.0204CaO−0.0481Na2O+0.0715K2O

F3 = −0.0221SiO2−0.0532TiO2−0.0361Al2O3−0.0016FeO−0.031MgO−0.0237CaO−0.0614Na2O−0.0289K2O

FeO calculated from total Fe as Fe2O3 by FeO = (Fe2O3T−TiO2−1.5)x0.8998 (Irvine and Baragar, 1971)

Fig. 6

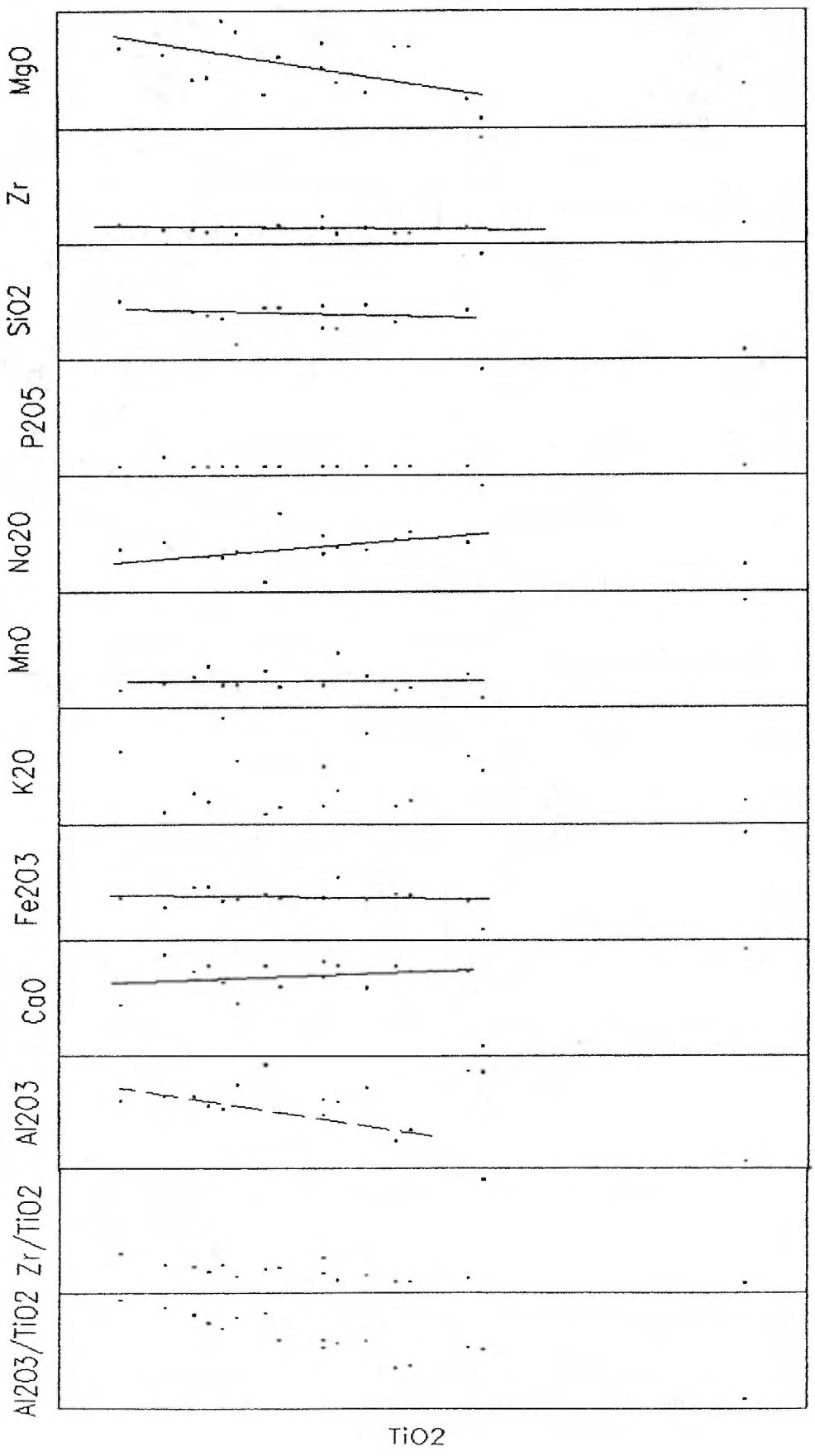
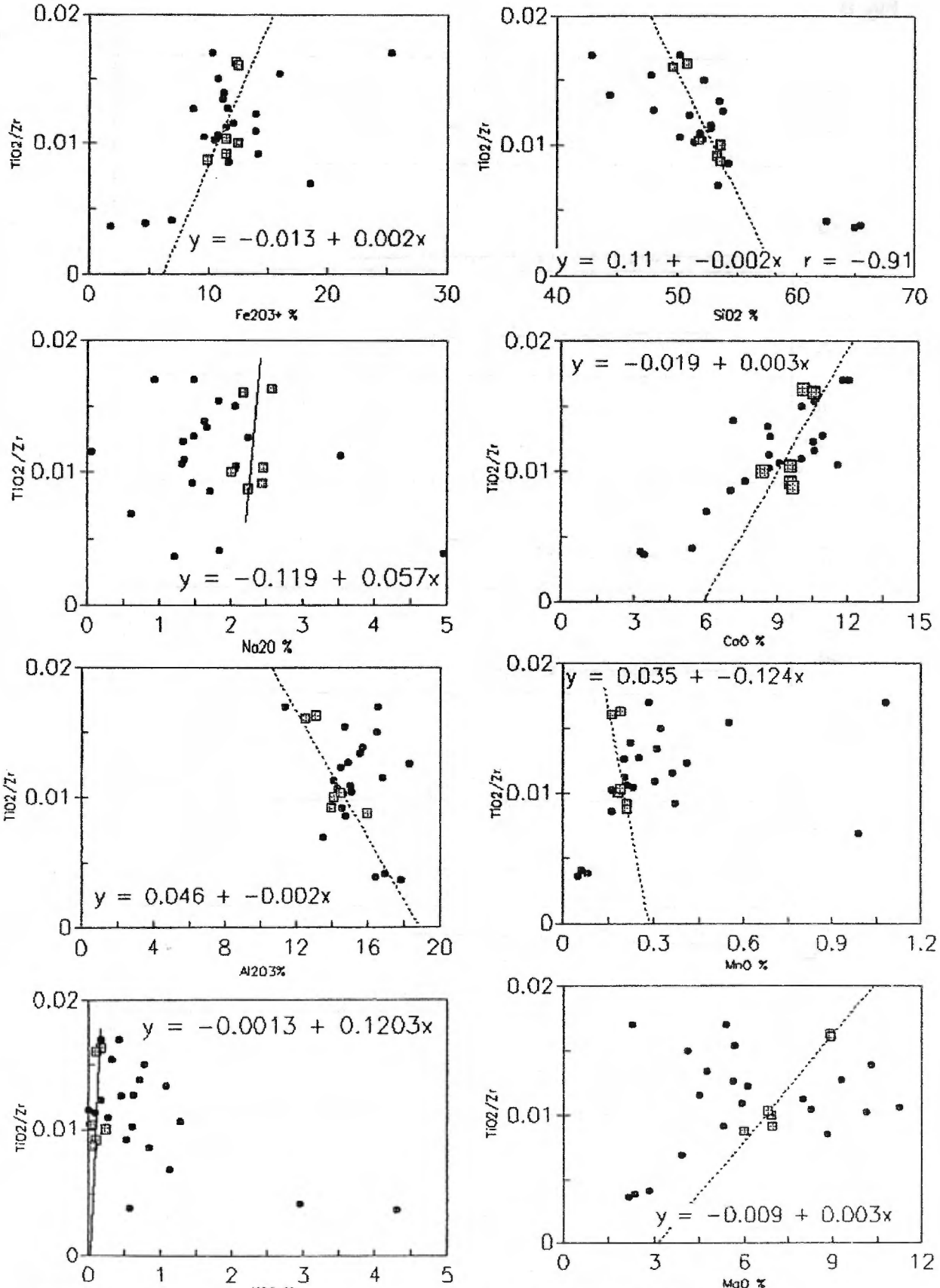
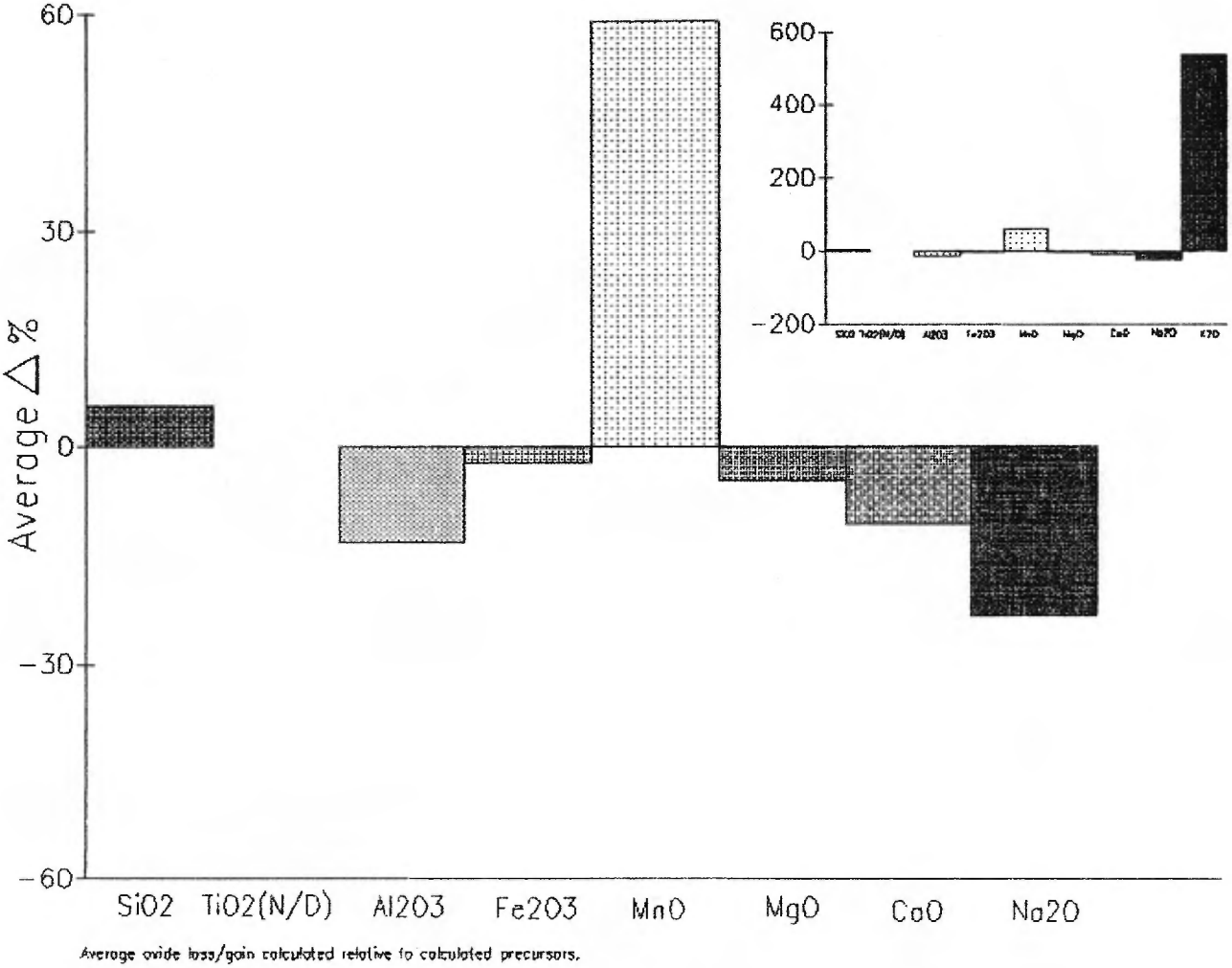

MgO
Zr
SiO2
P2O5
Na2O
MnO
K2O
Fe2O3
CaO
Al2O3
Al2O3/TiO2 Zr/TiO2
TiO2

Fig. 7



Immobile element ratio vs mobile oxide alteration quantification plot. Squares represent chemically discriminated unaltered samples and circles represent altered volcanics. Calculated regression line is assumed to be the fraction trend based upon the unaltered samples.

Fig. 8



Average oxide loss/gain calculated relative to calculated precursors.

Inset shows additions and depletions with K2O change included. Major changes are K2O + MnO additions and Na2O depletions. DDH samples 6717, and 6729 included in calculations.

Table 1

litho	samp	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO	CaO	Na2O	K2O	P2O5	LOI	Zr	SUMOX	BaO	Cr2O3
Sediments																
	5852	50.96	1.34	15.15	10.97	0.39	3.21	12.74	3.28	0.42	0.09	1.78	85	100.33		
	5855	61.94	0.64	17.59	6.66	0.09	3.97	1.55	3.16	2.56	0.12	3.27	145	101.55		
	5856	61.63	0.55	16.32	6.21	0.07	3.26	2.74	3.39	2.33	0.14	1.88	133	98.52		
	5861	53.36	0.88	16.79	5.69	0.12	2.81	14.06	2.1	0.08	0.01	4.56	58	100.46		
	5858	59.46	0.72	18.16	8.31	0.09	3.87	1.39	1.9	4.17	0.13	2.52	121	100.72		
	5871	60.63	0.81	15.13	8.46	0.1	4.5	4.21	4.08	1.33	0.16	1.67	181	101.08		
	5851	59.99	0.68	15.54	10.72	0.17	1.75	6.99	0.5	1.63	0.08	1.86	137	99.91		
	5886	65.41	0.67	16.41	4.73	0.08	2.36	3.27	4.96	0.58	0.11	1.65	173	100.23		
	5887	65.02	0.57	18.9	2.28	0.04	1.56	3.63	4.82	2.17	0.13	1.03	156	100.15		
Diorite																
	5870	49.28	2.44	14.64	18.18	0.25	4.07	8.18	3.36	0.2	0.07	0.39	121	101.06		
altered volcanics																
	samp															
	5850	47.98	0.56	14.88	11.57	0.25	9.3	10.93	1.43	0.65	0.01	2.04	44	99.63		
	5857	44.35	0.5	15.71	11.33	0.22	10.25	7.13	1.62	0.71	0.01	8.19	36	100.06		
	5860	54.2	0.42	14.8	11.65	0.15	8.84	7.03	1.7	0.84	0.01	1.75	49	101.4		
	5862	53.46	0.59	15.56	11.23	0.31	4.75	8.58	1.66	1.07	0.01	2.76	44	99.98		
	5863	52.15	0.66	16.52	10.82	0.32	4.09	10.04	2.65	0.77	0.01	2.45	44	99.88		

	5864	52.73	0.52	16.85	12.12	0.36	4.51	10.55	0.06	0.01	0.01	3.73	45	101.45	
	5865	50.96	0.48	14.51	14	0.41	6.12	10.52	1.33	0.17	0.01	1.81	39	100.32	
	5866	47.78	0.57	14.74	15.96	0.55	5.66	10.59	1.82	0.32	0.01	2.27	37	100.27	
	5867	42.81	0.85	11.35	25.35	1.08	5.4	12.04	0.92	0.18	0.01	0.1	50	100.09	
	5869	51.81	0.47	15.06	13.95	0.3	5.9	10.01	1.34	0.26	0.01	2.16	43	101.29	
	5884	52.78	0.53	14.11	11.49	0.2	8	8.63	3.53	0.09	0.01	0.96	47	100.33	
	5885	50.17	0.49	14.33	10.8	0.21	11.25	9.06	1.31	1.28	0.01	1.74	46	100.66	
unaltered volcanics															
	5853	53.19	0.56	13.99	11.49	0.21	6.95	9.53	2.44	0.11	0.01	0.53	61	99.01	
	5854	50.72	0.62	13.12	12.25	0.19	8.92	10.07	2.57	0.18	0.01	1.27	38	99.92	
	5858	49.52	0.61	12.48	12.48	0.16	8.93	10.55	2.17	0.11	0.01	1.52	38	98.54	
	5859[A]	52	0.45	15.1	9.61	0.23	8.25	11.56	2.07	0.03	0.02	0.83	43	100.15	
DDH samples															
														BaO	Cr2O3
	6715[W]	53.54	0.65	14.09	12.48	0.18	6.89	8.35	2.01	0.24	0.03	0.98	55	0.015	0.01
	6716[S]	64.96	0.39	17.85	1.76	0.05	2.16	3.44	1.21	4.3	0.17	2.35	161	0.041	0.01
	6717[S]	53.3	0.55	13.49	18.52	0.99	3.91	6.53	0.51	1.13	0.04	0.34	51	0.015	0.01
	6718[A]	53.2	0.57	14.66	14.15	0.37	5.29	7.64	1.46	0.52	0.03	2.36	62	0.011	0.03
	6719[A]	55.74	0.62	18.28	8.72	0.2	5.63	8.69	2.24	0.45	0.04	1.58	49	0.01	0.03
	6720[A]	50.17	0.51	16.58	10.25	0.28	2.25	11.79	1.47	0.43	0.03	2.06	30	0.009	0.05

	6729[S]	62.57	0.53	16.96	6.9	0.06	2.82	5.42	1.83	2.95	0.03	1.09	128		0.023	0.02
	6730[A]	51.38	0.42	14.62	10.45	0.16	10.14	8.6	2.06	0.61	0.02	1.12	41		0.013	0.05
	6731[U]	51.69	0.57	14.51	11.53	0.19	6.79	9.56	2.46	0.06	0.06	0.96	55		0.011	0.02
	6732[U]	53.52	0.49	15.95	9.84	0.21	5.97	9.65	2.24	0.06	0.03	1.08	56		0.009	0.02

[S] refers to possible sediment
[A] refers to altereed volcanic
[U] refers to unaltered volcanic

Table 2
corrected compositions (volcanics)

sample	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO
5850.00	48.64		16.64	12.86	0.18	7.24
5857.00	48.06		16.06	13.44	0.17	7.63
5860.00	50.71		18.71	10.79	0.21	5.86
5862.00	48.30		16.30	13.20	0.17	7.47
5863.00	47.50		15.50	14.00	0.16	8.00
5864.00	49.22		17.22	12.28	0.19	6.85
5865.00	48.85		16.85	12.65	0.18	7.10
5866.00	47.30		15.30	14.20	0.16	8.14
5867.00	46.50		14.50	15.00	0.15	8.67
5869.00	49.53		17.53	11.97	0.19	6.64
5884.00	49.36		17.36	12.14	0.19	6.76
5885.00	49.67		17.67	11.83	0.20	6.55
5853.00	50.41		18.41	11.09	0.21	6.06
5854.00	46.84		14.84	14.66	0.15	8.44
5858.00	46.97		14.97	14.53	0.15	8.35
5859.00	49.77		17.77	11.73	0.20	6.49
6715.00	50.00		18.00	11.50	0.20	6.33
6719.00	48.67		16.67	12.83	0.18	7.22
6731.00	49.82		17.82	11.68	0.20	6.45
6732.00	50.63		18.63	10.88	0.21	5.92
6716.00	53.17		21.17	8.33	0.25	4.22
6717.00	51.54		19.54	9.96	0.23	5.30
6718.00	50.40		18.40	11.10	0.21	6.06
6720.00	46.50		14.50	15.00	0.15	8.67
6729.00	52.93		20.93	8.57	0.25	4.38
6730.00	49.88		17.88	11.62	0.20	6.41
AVG	49.28		17.28	12.22	0.19	6.82
TH2	49.5		15.2	11.97	0.18	6.82
N-MORB	49.8		16	9.5	0.17	7.5

corrected compositions (volcanics)

sample	CaO	Na2O	K2O	SUMOX
5850.00	10.58	2.31	0.12	98.56
5857.00	10.96	2.33	0.13	98.78
5860.00	9.19	2.24	0.08	97.80
5862.00	10.80	2.32	0.12	98.69
5863.00	11.33	2.35	0.14	98.98
5864.00	10.19	2.29	0.11	98.35
5865.00	10.44	2.30	0.11	98.48
5866.00	11.47	2.36	0.14	99.06
5867.00	12.00	2.39	0.15	99.35
5869.00	9.98	2.28	0.10	98.23
5884.00	10.09	2.29	0.10	98.29
5885.00	9.88	2.27	0.10	98.18
5853.00	9.39	2.25	0.09	97.91
5854.00	11.77	2.37	0.15	99.22
5858.00	11.68	2.37	0.14	99.18
5859.00	9.82	2.27	0.10	98.14
6715.00	9.67	2.26	0.09	98.06
6719.00	10.55	2.31	0.12	98.55
6731.00	9.79	2.27	0.10	98.13
6732.00	9.25	2.24	0.08	97.83
6716.00	7.55	2.15	0.04	96.89
6717.00	8.64	2.21	0.07	97.49
6718.00	9.40	2.25	0.09	97.91
6720.00	12.00	2.39	0.15	99.35
6729.00	7.71	2.16	0.05	96.98
6730.00	9.75	2.27	0.10	98.10
AVG	10.15	2.29	0.11	98.33
TH2	8.79	2.7	0.69	
N-MORB	11.2	2.8	0.14	

Table 3
Percent change

sample	SiO2	TiO2	Al2O3	Fe2O3	MnO	MgO
5850.00	-1.35		-10.56	-10.06	39.18	28.41
5857.00	-7.71		-2.15	-15.73	29.22	34.87
5860.00	6.87		-20.92	8.01	-24.93	50.93
5862.00	10.69		-4.51	-14.95	78.04	-36.41
5863.00	9.79		6.58	-22.71	98.40	-48.88
5864.00	7.13		-2.16	-1.29	90.41	-34.18
5865.00	4.33		-13.87	10.64	124.04	-13.83
5866.00	1.02		-3.64	12.37	248.06	-30.43
5867.00	-7.94		-21.72	69.00	644.00	-37.69
5869.00	4.59		-14.11	16.59	54.55	-11.19
5884.00	6.93		-18.73	-5.34	4.54	18.36
5885.00	1.00		-18.92	-8.68	6.95	71.89
5853.00	5.52		-24.01	3.61	0.85	14.68
5854.00	8.28		-11.60	-16.43	26.10	5.70
5858.00	5.42		-16.65	-14.09	4.71	6.93
5859.00	4.49		-15.01	-18.09	16.24	27.15
6715.00	7.08		-21.72	8.52	-10.72	8.79
6719.00	10.41		9.64	-32.02	10.98	-22.00
6731.00	3.76		-18.57	-1.30	-4.37	5.20
6732.00	5.72		-14.36	-9.52	-0.80	0.90
6716.00	22.18		-15.67	-78.88	-80.21	-48.83
6717.00	3.41		-30.97	86.00	337.08	-26.29
6718.00	5.55		-20.88	27.51	77.79	-12.77
6720.00	7.89		14.34	-31.67	92.89	-74.04
6729.00	18.21		-18.97	-19.49	-75.89	-35.62
6730.00	3.01		-18.22	-10.08	-19.86	58.08
AVG	5.63		-12.59	-2.62	67.97	-3.86
AVG1	4.44		-11.53	-2.65	58.14	-2.03

AVG1 calculated without samples 6716, 6717, and 6729 as they may represent sediments.

Percent change

sample	CaO	Na2O	K2O
5850.00	3.35	-35.96	440.30
5857.00	-34.96	-30.51	462.34
5860.00	-23.51	-24.04	923.68
5862.00	-20.58	-28.54	775.11
5863.00	-11.41	-12.80	468.29
5864.00	3.58	-97.38	-90.64
5865.00	0.81	-42.27	50.29
5866.00	-7.66	-22.82	130.44
5867.00	0.33	-61.44	18.33
5869.00	0.33	-41.21	175.42
5884.00	-14.49	54.45	-13.91
5885.00	-8.34	-42.41	1188.33
5853.00	1.45	8.50	26.27
5854.00	-14.46	8.26	22.92
5858.00	-9.71	-8.41	-23.74
5859.00	17.70	-8.86	-69.32
6715.00	-13.62	-11.19	155.50
6719.00	-17.64	-3.02	287.98
6731.00	-2.33	8.39	-38.12
6732.00	4.32	-0.05	-28.18
6716.00	-54.47	-43.77	10319.58
6717.00	-30.19	-72.39	1555.05
6718.00	-18.70	-35.08	496.14
6720.00	-1.75	-38.39	182.67
6729.00	-29.73	-15.29	6422.87
6730.00	-11.78	-9.15	535.69
AVG	-11.29	-23.28	937.43
AVG1	-8.09	-37.61	268.71

APPENDIX D

GEOPHYSICAL REPORTS; SEPTEMBER, 1991 AND MARCH, 1992

RAPPORT DE TRAVAUX D'EXPLORATIONS

PROPRIETE LAC MARCAUT

CANTON 1509

POUR

TECK EXPLORATION INC.

25 SEPTEMBRE 1991

Bertrand Taquet
Géologue

TABLE DES MATIERES

INTRODUCTION

Du 1 au 20 septembre 1991, un programme d'exploration fut conduit sur un groupe de claims localisé dans le canton 1509 à environ 210 kilomètres au nord de Matagami. Ce rapport présente les méthodes utilisées ainsi que les résultats obtenus lors de levés magnétique et électromagnétique.

PROPRIETE

DESCRIPTION:

La propriété Lac Marcaut consiste en 101 claims contigues d'une superficie totale d'environ 1616 ha et les travaux ont portés sur 54 claims d'une superficie de 864 ha dont les numéros de permis sont:

5052778 à 5052783

5052786 à 5052791

5052794 à 5052799

5052803 à 5052808

5052812 à 5052817

5052822 à 5052826

5052832 à 5052837

5052843 à 5052847

5052854 à 5052858

5052867 à 5052869

ACCES:

La propriété Lac Marcaut est située dans le canton 15Ø9 à environ 21Ø km au nord de Matagami, Québec (fig 1). La route asphaltée de Matagami à Radisson passe 2 km à l'est de la propriété. A partir de celle-ci, un chemin secondaire rejoint le Lac Colomb qui permet d'accéder en bateau ou moto-neige, à la partie sud de la propriété. Un autre chemin secondaire débute à l'ouest de la route principale au kilomètre 22Ø et se rend à une gravière à 2 kilomètres de la route. De là, un sentier de débusqueuse permet d'accéder à la partie est de la propriété.

PHYSIOGRAPHIE:

La propriété est recouverte en grande partie par du sol marécageux, notamment au bord des lac Colomb et Marcaut. Le couvert végetal est du type forêt clairsemée d'épinettes se développant surtout sur les reliefs. La tiers est de la propriété est recouvert par une épaisseur relativement importante de gravier, les autres haut-reliefs sont en général dus à des zones affleurantes et plus généralement sub-affleurantes représentant environ 5% de la surface de la propriété.

Figure 1

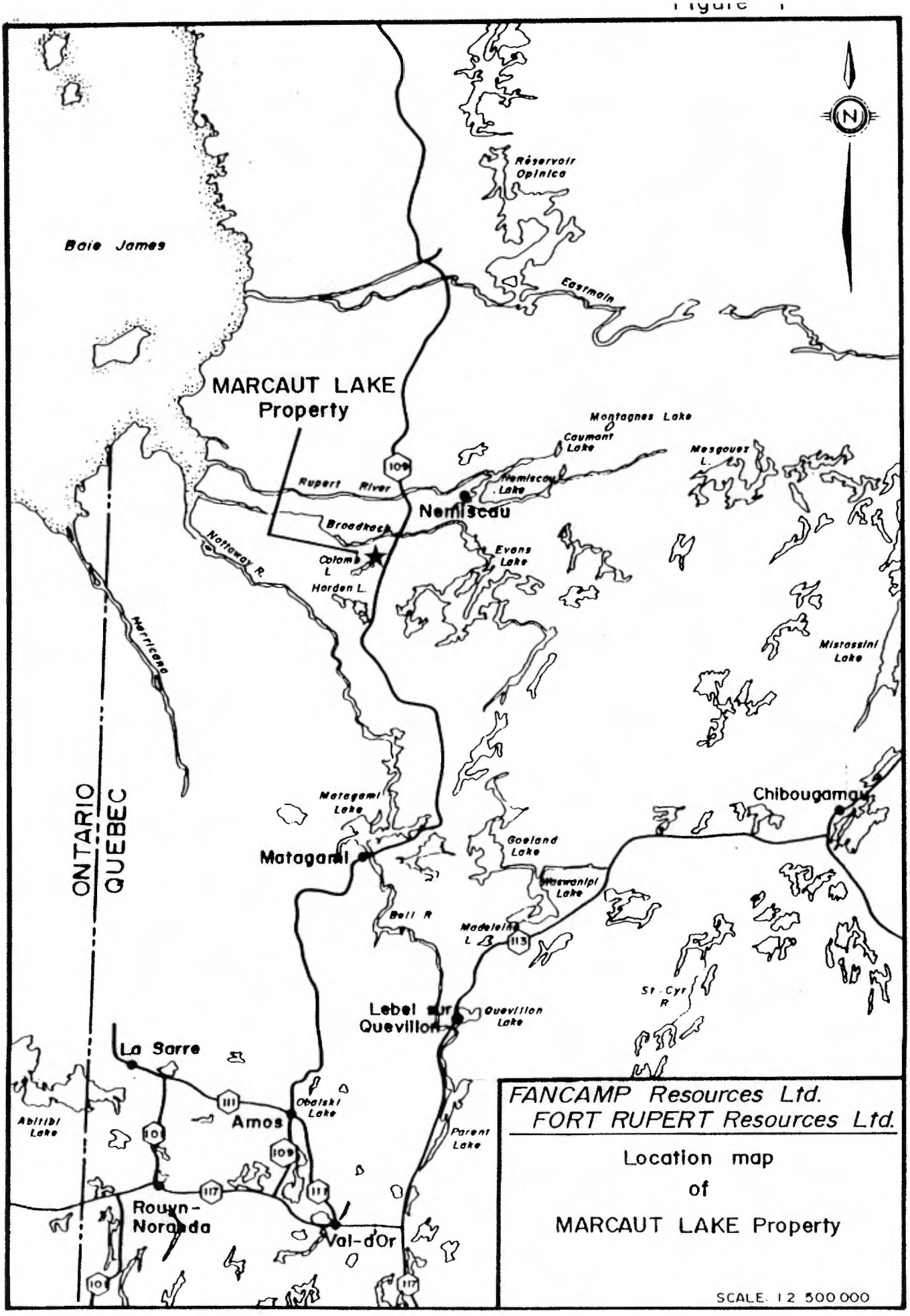
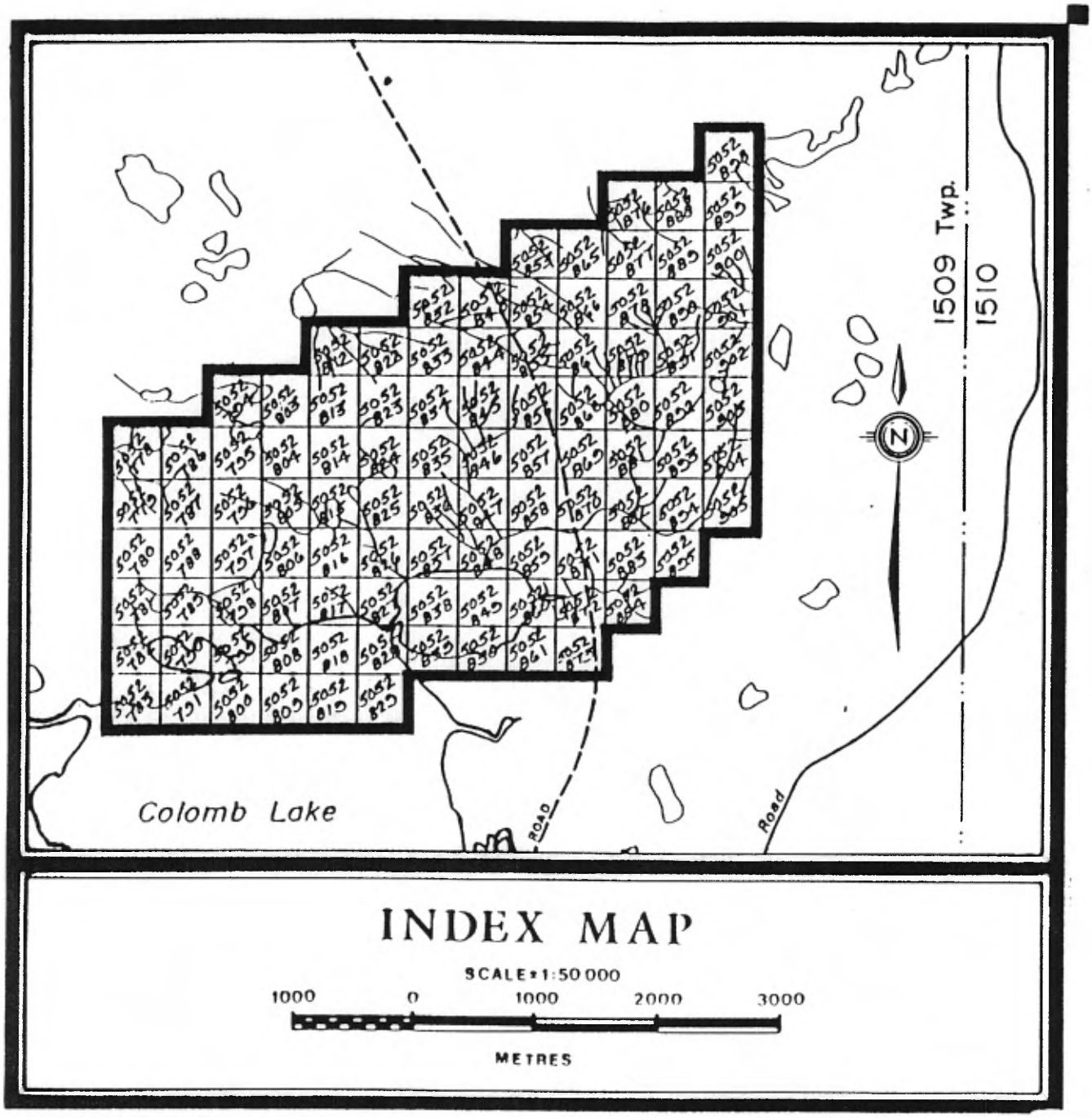
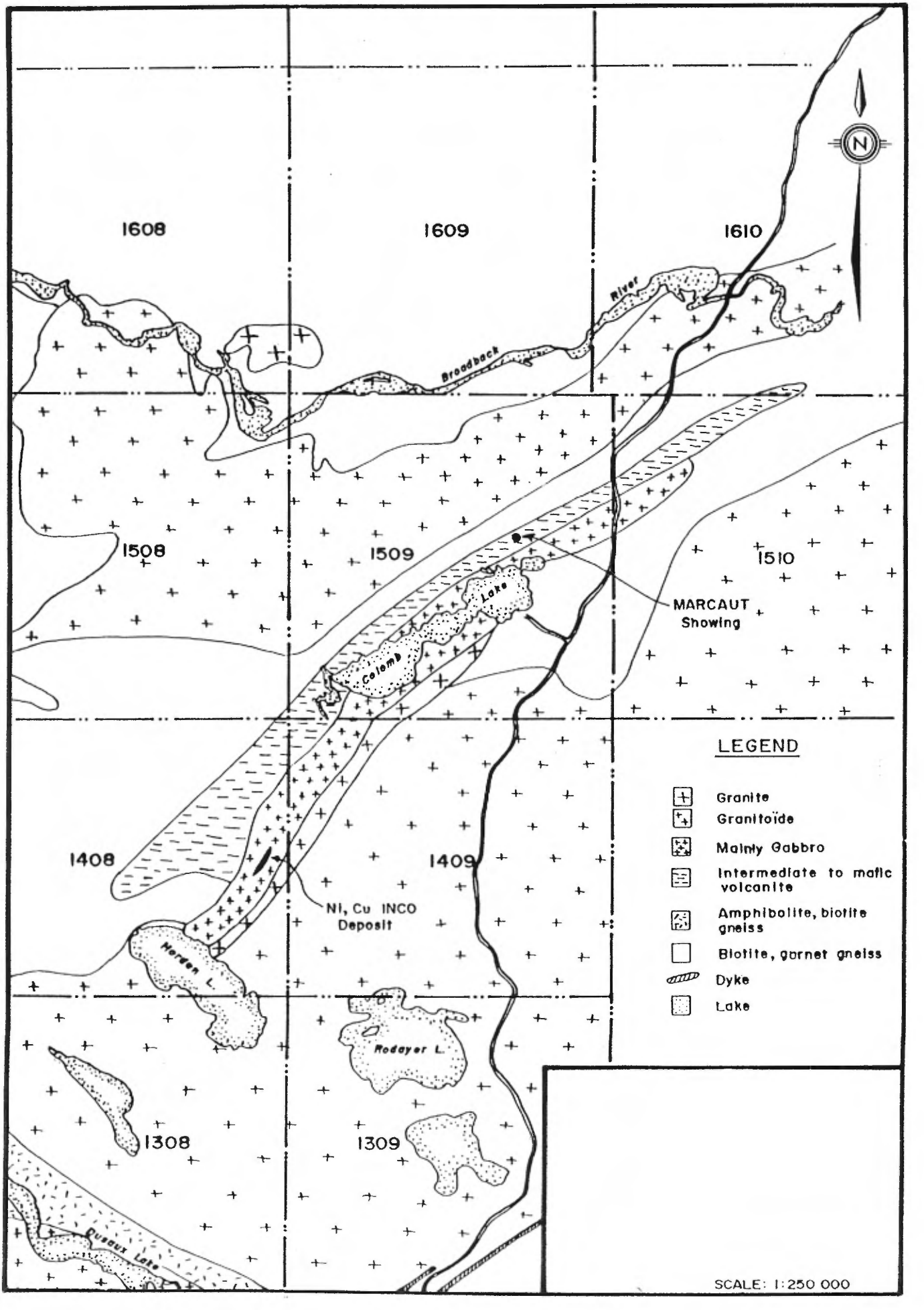

Réservoir Opinica
Baie James
Eastmain
MARCAUT LAKE Property
Montagnes Lake
Caumont Lake
Mesgouez L.
Rupert River
Nemiscau Lake
Nemiscau
Broadback
Nottaway R.
Colomb L.
Evans Lake
Horden L.
Harricana
Mistassini Lake
ONTARIO
QUEBEC
Matagami Lake
Chibougamau
Matagami
Gosland Lake
Miswanipi Lake
Bell R.
Madeleine L.
St-Cyr R.
Lebel sur Quevillon
Quevillon Lake
La Sarre
Abitibi Lake
Obalski Lake
Amos
Parent Lake
Rouyn-Noranda
Val-d'Or
FANCAMP Resources Ltd.
FORT RUPERT Resources Ltd.
Location map
of
MARCAUT LAKE Property
SCALE: 1 2 500 000

FIGURE 2


1509 Twp.
1510
N
Colomb Lake
ROAD
Road
INDEX MAP
SCALE 1:50 000
1000
0
1000
2000
3000
METRES


1608
1609
1610
1508
1509
1510
1408
1409
1308
1309
Broadback River
Colomb Lake
MARCAUT Showing
NI, Cu INCO Deposit
Nordon L.
Rodayer L.
Quagut Lake
N
LEGEND
Granite
Granitoïde
Mainly Gabbro
Intermediate to mafic volcanite
Amphibolite, biotite gneiss
Biotite, garnet gneiss
Dyke
Lake
SCALE: 1:250 000

FACILITES:

La présence de plusieurs lacs dispersés sur l'ensemble de la propriété permet un approvisionnement aisé en eau. La ligne de transport électrique sous haute tension en provenance de LG2 passe à une centaine de kms à l'est de la propriété, et la consttruction d'autres lignes plus proches sont prévues. La main d'oeuvre ainsi que le support logistique sont disponibles à Matagami à 210 km au sud de la propriété, par la route.

TRAVAUX ANTERIEURS

Le secteur de la propriété a été exploré au cours des trente derniéres années par Noranda Exploration, INCO, SOQUEM, Crowpat Minerals et plus récemment par Fancamp Resources et Fort-Rupert Resources.

-1957: aprés la découverte d'importants affleurements de sulfure au nord du lac Horden (fig 3), Noranda Exploration a couvert en levés géophysiques aériens (magnétique et électomagnétique) un vaste rectangle allant du lac Horden au sud à la riviére Broadback au nord. Seule la moitié sud du levé est disponible au M.E.R (Ministére de l'Energie et des Resources, province du Québec).

-1962: le M.E.R effectue la cartographie de la région au 1/63 360 De nombreuses lentilles de sulfures furent identifiées dans une bande volcano-sédimentaire de direction NE, traversant la propriété.

- au début des années 60, INCO réalise dans cette même bande une campagne de levés géophysiques sol, sur de nombreuses petites grilles, suivie par une campagne de sondages. Ces travaux aboutissent à la découverte au nord du lac Horden d'un gisement évalué à 2 millions de tonnes à 1.47% Cu, 0.39% Ni, 23 g/t Ag, 0.7g/t Au (GM 34179). Ce gisement est situé au contact d'une bande régionale de gabbro avec des gneiss. Quelques grilles d'INCO jouxtent ou pénétrent légèrement la propriété.

-1964: Crowpat Minerals Ltd effectue des levés geophysiques (Mag et EM) sur une grille couvrant la propriété Lac Marcaut. Du levé géophysique de détail, quelques tranchées et de la reconnaissance géologique completérent ce levé. Huit échantillons seulement furent prélevés, donnant des traces de Cu, Ni, Zn et Ag; l'or n'a pas été testé.

-En 1972, SOQUEM entame un vaste programme d'exploration visant à trouver une extention du dépot d'INCO. Des levés aériens magnétique et électomagnétique sont réalisés par Questor Surveys. Le levé effectué au Nord du gisement d'Inco couvre 30x5 km et inclue le secteur de la propriété. Aucun bon conducteur ne fut décelé dans la bande de gabbro, par contre le levé permis de

reconnaitre, une large bande conductrice traversant du sud-ouest au nord-est la zone couverte. Cette bande située au nord du gabbro consiste en formations volcano-sédimentaires.

Des levés geophysiques au sol, de la cartographie géologique suivis par une campagne de 14 sondages sont réalisés sur quelques grilles-cible localisées à l'intérieur de la bande conductrice. En outre 5 sondages sont implantés sur des anomalies magnétiques dans la bandes de gabbros, sur le Lac Marcaut. Sur la grille #8 qui jouxte au NW la propriété, un sondage localisé immédiatement à l'oues t de la propriété rapporta quelques valeurs anomaliques en or et nickel.(450 ppb Au, .27% Ni/1.8m et 310 ppb Au/1.7m)

- 1987: Fort-Rupert Resources fait réaliser une interprétation de photos-satellite des feuillets NTS 32N-4 et 32K-13, suivi d'un levé héliporté Aerodat Ltd sur le secteur Lac Horden au sud du Lac Marcaut.

- 1987-89: l'auteur, en Octobre 87 au cours d'un projet de reconnaissance géologique pour le compte de Fancamp Resources Ltd/ Fort Rupert Ltd, découvre un indice d'or, légérement au nord du Lac Marcaut, au centre de l'actuelle propriété. Parmis plusieurs échantillons anomaliques, un échantillon donne une valeur de 17g/t Au. Plus au nord-est, la propriété Broadback de Fancamp Resources Ltd fait l'objet en 1988 d'un levé géologique qui identifie un nouvel indice d'or sur lequel un échantillon titrant 8g/t Au est obtenu.

En automne 1989 des rainurages réalisés sur l'indice du lac Marcaut confirme l'extention de la zone anomalique sur toute la longueur de l'affleurement soit 80m, avec notamment deux sections distantes de 25m à 6.4g/t/Au/1.5m et 6.93g/t/Au/1.3m. Un levé électromagnétique EMV et EMH effectué à partir de l'indice vers le sud ouest démontre la continuité de l'horizon porteur de la minéralisation jusqu'à deux kilomètres à l'ouest de l'indice.

GEOLOGIE REGIONALE (FIG 3)

La propriété se situe dans une ceinture nord-est de roche volcano-sédimentaires et d'intrusifs mafiques concordants, large d'environ 5 km, se suivant bien sur 70 km, du lac Horden jusqu'à la riviére Broadback (Figure 3),et se poursuivant probablement au-delà vers le nord jusque dans le district du lac des Montagnes. Cette bande, d'aprés la cartographie disponible est noyée régionalement dans des gneiss et granites.

En simplifiant, du sud-est au nord-ouest la ceinture se compose de deux unités:

Le sill de gabbro: large de 1 à 2.5 km, il se retrace bien avec le levé aerien du magnétisme. Sa limite méridionale avec les gneiss est le cadre de la minéralisation du gite d'INCO, au nord du lac Horden. Le sill est recoupé par des corps ultramafiques, recoupés notamment dans les sondages de SOQUEM (GM 34181).

La bande conductrice: elle est constituée d'unités volcaniques mafiques et de roches sédimentaires? , (grauwakes, quartzites ou millonites), passant vers le NW ainsi que vers le SE à des équivalents plus métamorphisés, gneiss à amphibole et/ou à biotite. Ce sont les paragneiss décrit par Remick (1963). Les axes d'anomalies INPUT sont provoqués par plusieurs niveaux anastomosés d'ordre métrique à décamétrique de sulfures ou de graphite.

La direction structurale majeure est nord-est et le pendage des formations varient de 30 à 70 vers le sud-est, sauf pour le contact gabbro-gneiss du gite d'INCO qui pend à 45-70 vers le NW (sections dans le GM 16461).

Les formations géologiques sont affectées par une schistosité régionale S1 parallèle aux contacts lithologiques S0. Ces plans ont subi un replissement d'entrainement type sub-ductile créant des plis semblables à tendance isoclinal, d'ordre métrique à décamétrique (observations de l'auteur). Le jeu en cisaillement des contacts lithologiques est probablement relié à ces plissements.

Les structures cassantes recoupantes notées sur le terrain dans le secteur ou interprétées d'après les photo-satellites montrent deux familles N140 et nord-sud.

LEVES GEOPHYSIQUES

Les levés furent effectués du 1 au 20 septembre 1991 le long de lignes coupées avec un espacement de 100 mètres et piquetées à un intervalle de 25 mètres. Le point d'origine de la ligne de base se situe sur l'indice Marcault. La direction de N240 fut controlée à l'aide d'un transit. De plus une ligne de rattache fut établie au nivau de 1100 mètres sud. Toutes les lignes transversales et lignes de rattaches furent l'objet de levés magnétique et toutes les lignes transversalles furent parcourrues à l'aide d'un Maxmin II.

Un total de 74.9 kilometres de lignes fut coupé sur la propriété.

LEVE ELECTROMAGNETIQUE

Deux appareils Maxmin II de la firme Apex Parametric fut utilisé afin de mesurer les variations de conductivité sur la partie ouest de la propriété. Les fréquences 3555 Hz, 1777 Hz et 444 Hz furent utilisées, en mode horizontal et avec un espacement entre les bobines de 150 mètres. Les résultats sont présentés sur 3 cartes annexées, montrant les résultats sous forme de profils et des mesures En-Phase et Quadrature. L'échelle horizontale est de 1:5000 tandis que l'échelle verticale est de 420% au cm. Les axes de conductivité identifiés par une numérotation de C-1 à C-7 sont reportés sur une carte de compilation qui accompagne le rapport. Un total de 71.36 kilométres fut parcourrus à l'aide de cette méthode.

LEVE MAGNETIQUE

Deux appareil Omni IV de la firme Scintrex/EDA fut utilisé pour mesurer les variations du champ total à tous les 12.5 mètres.

Les variations diurnes furent controlées en utilisant une station de base Omni IV localisée sur la propriété, des lectures de controles furent prises à un intervalle de 30 secondes et les corrections furent appliquées avant la mise en plan.

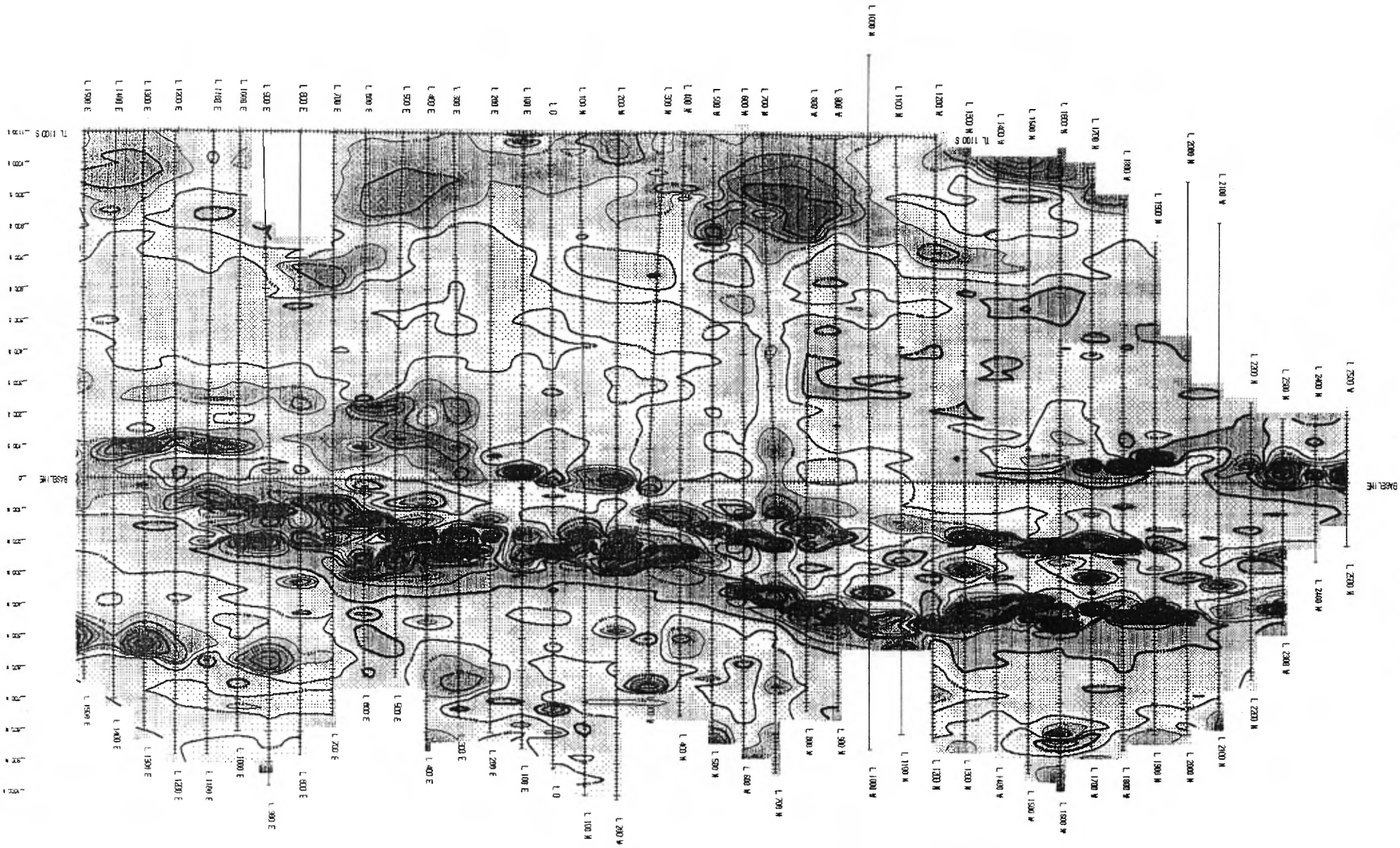
Deux cartes à l'échelle 1:5000 présentent les résultats obtenues, Une premiére carte présente les données sous forme de contours, une deuxième montre les valeurs corrigées du champ total, dont on a retranché 58,000 gammas.

DISCUSSION DES RESULTATS

Les résultats du levé magnétique mettent en évidence trois domaine de contraste magnétique différents. Du sud au nord, le premier, situé dans la partie sud-ouest de la grille montre de courts axes de hautes valeurs magnétiques de direction générale est-ouest (M-7) sans coincidence avec des axes de conductivité. Le niveau de fond est de l'ordre de 700 gammas et les variations sont de plus de 1,500 gammas. Ce domaine limité au nord par l'axe M-6 caractérise des unités gabbroiques où la ségrégation magmatique peut-être responsable des fortes variations du gradient magnétique. On note une zone de cisaillement de direction est-ouest qui recoupe ce demaine.

Le deuxième domaine situé du nord de l'axe M-6 est caractérisé par un faible contraste et niveau de fond de l'ordre de 500 gammas d'une largeur d'environ 350 mètres cette région est limitée au nord par les axes M-1 ou M-2 qui marquent le début du domaine D-3.

Le domaine D-3 est caractérisé par d'importantes variations marquant des axes de fortes valeurs de direction générale N60. Ces axes, avec lesquels on note une coincidence de conductivité correspondent à des horizons riches en pyrrhotine ou magnétite.



TECK EXPLORATION INC. MARCAUT LAKE PROPERTY

TOTAL FIELD MAG

SCALE 1:16,666

Latéralement on note des variations de l'intensité magnétique, qui sont provoquées soit par l'augmentation de pyrite et de quartz à l'intérieur des horizons de sulfures, soit par l'étirement et l'amincissement des bandes conductrices du à des effets de plissements et de cisaillements.

Le levé électromagnétique à cadres horizontaux a permis de mettre en évidence plusieurs conducteurs qui montrent une coincidence avec des axes magnétiques d'intensité variable. On remarque sous plusieurs aspect l'irrégularité de ces bandes conductrices. Premièrement les variations latérales de conductivité de ces bandes, ainsi que les variations apparentes de leur épaisseur, qui pourraient s'expliquer soit par la forme lenticulaire originale de ces bandes soit par des phénomènes d'étirement et de boudinnage ou de plissement, la combinaison de plusieurs causes est très probable. De plus les changements fréquents de direction des axes de conductivité suggèrent la présence de failles recoupantes et de plissement locaux.

Le conducteur C-1 qui correspond à l'horizon de pyrrhotine, pyrite et quartz, de l'indice du lac Marcault se prolonge sur 1.5 kilomètre vers l'est montrant une étenante continuité et regularitée. A l'extremité est de la propriété on observe une diminution de la réponse électromagnétique causée par l'épaissisement du mort-terrain (gravier). A l'ouest de l'indice il se prolonge sur 500 mètres avant de diminué au point de disparaitre avant de reprendre en intensité au niveau de 13W

jusqu'à la limite ouest du levé, soit un kilomètre, où il montre une inflection vers le nord le long d'une zone de cisaillement est-ouest.

L'axe C-2, parallèle à C-1 montre une variation de conductivité variant de 100 à 1500 gammas. Cet horizon conducteur n'a jamais été observé en surface ni recoupé dans aucun sondage reporté.

L'axe C-3, marqué par une tré fort conductivité avec coincidence magnétique semble être causé par deux ou trois bandes dont la conductivité varie latéralement, ces bandes semblent être repliée sur elle-même et montrent des patrons en forme de "Z" ce qui pourrait expliqué la complexité de ce secteur.

Les axes C-4 et C-5 sont marqués par une forte conductivité et une coincidence magnétique . Il subit le même genre de perturbation que la précédente. Du graphite et la pyrrhotine semble être la cause de ce conducteur.

CONCLUSIONS ET RECOMMANDATIONS

Les présents levés géophysiques ont permis de cerner plusieurs secteurs méritant une étude plus approfondie. La présence d'or et de métaux de base dans les unités que l'on retrouve sur la propriété justifie la poursuite des travaux sur les horizons de sulfures.

Dans un premier temps il est recommandé de prolonger la grille jusqu'à la limite est de la propriété et de compléter les levés sur cette nouvelle grille ainsi que sur les secteurs où la présence de lacs ou de ruisseaux qui ont empêcher l'execution des levés. Il est ausssi recommandé d'exécuter un levé électromagnétique de détail utilisant une séparation entre les bobines de 50 mètres et avec un espacement entre les lignes de 50 mètres afin de couvrir les secteurs de 15E à 4W entre 3S et 3N, afin d'augmenter la résolution du levé dans les secteurs les plus prometteurs.

Aussi il est recommandé d'effectuer un levé géologique avec prélevement d'échantillons pour fin étude litho-géochimique, cette campagne devrait être accompagnée de prospection utilisant un "Beep-Mat (GDD) afin d'échantillonner le maximum de site correspondant aux zones conductrices . Ces travaux devraient permettre de générer plusieurs cibles de sondage.

Bertrand Taquet Gilbert Lamothe

REFERENCES

RP 514: Québec Natural Resources Minister report by Remick, J.H. Geology of Colomb-Chabouille-Fabulet regions, 1963.

CGC carte #5610-G carte aeromagnetique feuillet 32N4, 1966.

GM 7591: Report on airbone geophisical surveys by J.C Stam. Noranda Mines Ltd, 1957.

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GM 17178: Report on ground investigation, A.W Mullan. Crowpat Minerals Ltd, 1964.

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GM 30561: Preliminary geological observations N and NE of Lac Colomb, by K. Tapaninen. SOQUEM 1973

GM 34177: Airbone electromagetic survey, by Questor Surveys. D.Watson for SOQUEM, 1972.

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GM 34181: Projet Colomb, canton 15Ø9, J. Bélanger, SOQUEM, 1974

GM 47434: Report on combined Helicopter borne EM and Mag surveys, Z. Dvorak. Fort-Rupert Resources Ltd, 1987.

Rapport de travaux d'exploration, projet 151Ø,
Magma Exploration, B. Taquet, pour Fancamp Resources.
1988

Rapport d'évaluation de propriété, canton 15Ø9,
B. Taquet, Fort-Rupert Resources Inc., 1989.

Rapport interne de levé électromagnétique de reconnaissance
Projet Lac Colomb, G. Lamothe et B. Taquet,
Free West Inc./ Fort Rupert Inc. 1989

Carte topographique échelle 1/5Ø ØØØ, feuillet 32N4

RAPPORT DE TRAVAUX DE GEOPHYSIQUE

pour

TECK EXPLORATION

PROPRIETE LAC MARCAUT

OPTION FANCAMP/FORT RUPERT RESSOURCES LTEE

CANTON #15Ø9
region de la Baie James (Québec)

par

G.L. GEOSERVICE INC

MARS 1992

TABLE DES MATIERES

INTRODUCTION

A la demande de TECK EXPLORATION, un levé géophysique consistant en levé magnétique et levé électromagnétique à cadres horizontaux, fut exécuté entre le 1 et le 15 mars 1992 sur une propriété localisée dans le canton #1509.

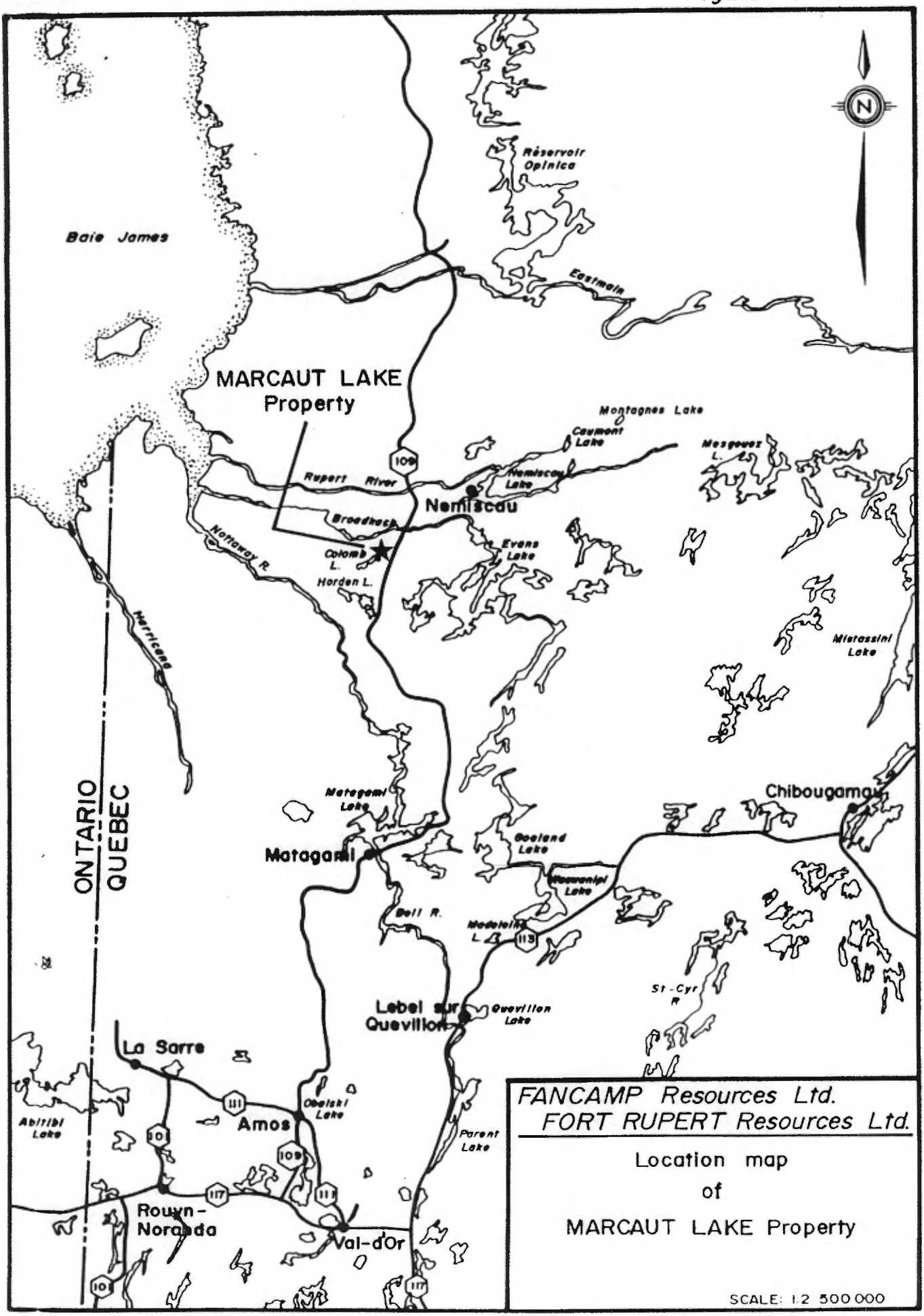
Un réseau de lignes totalisant 30.5 kilomètres fut établit afin d'étendre vers l'est une grille pré-existante. Les levés furent éxécutés sur cette nouvelle grille.

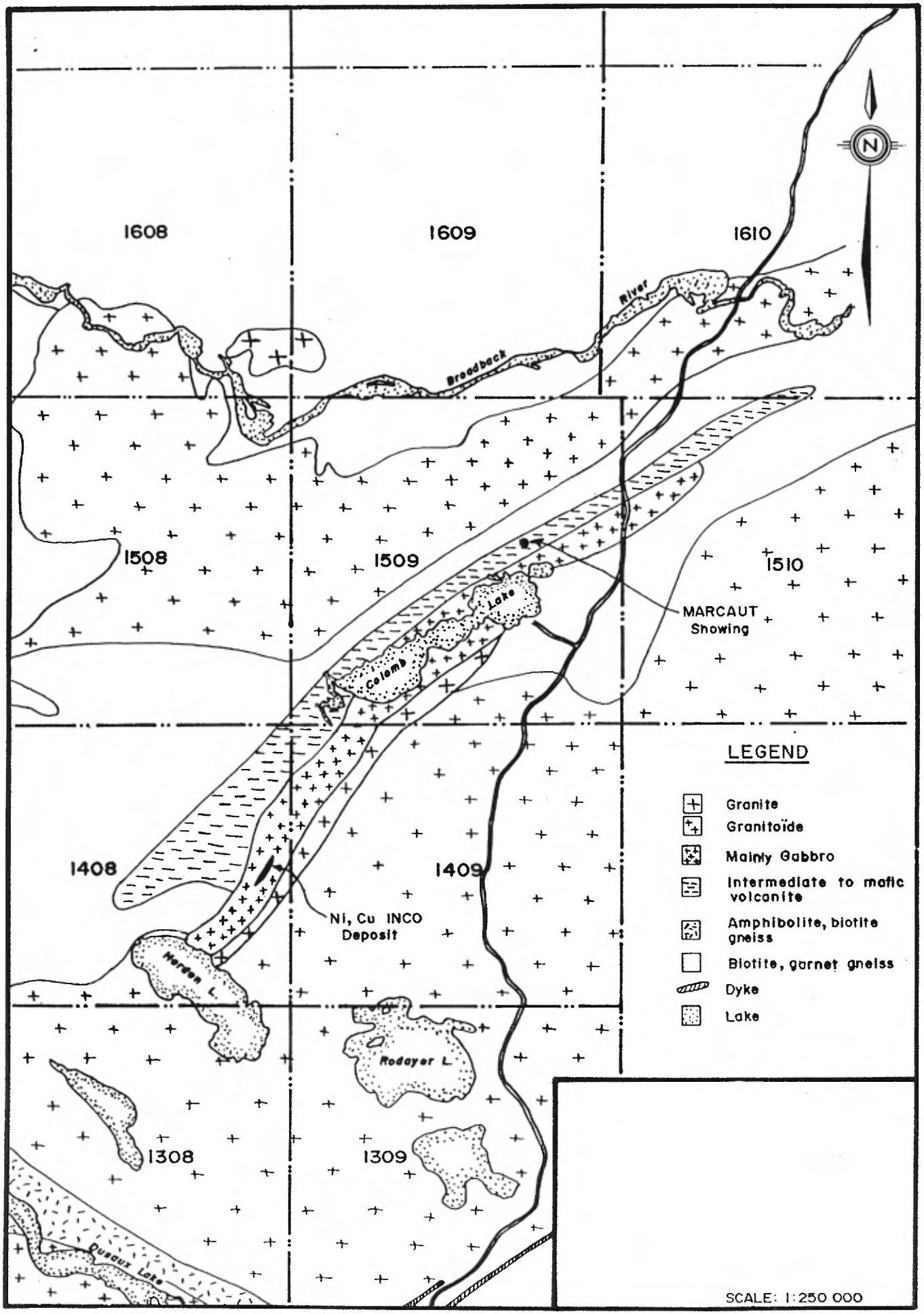
Propriété, Localisation, Accès,

La propriété consiste en 101 claims totalisant 1616 hectares, localisée dans le canton #1509 à environ 200 kilométres au nord de la ville de Matagami.

On peut facilement accéder à la propriété en empruntant un chemin secondaire localisé au kilométre 220 de la route Matagami-LG2 et qui se rend à une gravière située dans la partie est de la propriété, de là un sentier se rend vers l'ouest à 2 kilométres à l'intérieur de la propriété. On peut aussi se rendre sur la propriété en traversant en bateau ou moto-neige le lac Colomb qui borde la propriété au sud.

Figure 1


Réservoir Opinica
Baie James
Eastmain
MARCAUT LAKE
Property
Montagnes Lake
Caumont Lake
Mesgouez L.
Rupert River
Nemiscau Lake
Nemiscau
Broadback
Nottaway R.
Colomb L.
Horden L.
Evans Lake
Mistassini Lake
Harricana
ONTARIO
QUEBEC
Matagami Lake
Chibougamau
Matagami
Gooland Lake
Waswanipi Lake
Bell R.
Lebel sur Quevillon
Quevillon Lake
St-Cyr R.
La Sarre
Abitibi Lake
Obatchi Lake
Amos
Parent Lake
Rouyn-Noranda
Val-d'Or
FANCAMP Resources Ltd.
FORT RUPERT Resources Ltd.
Location map
of
MARCAUT LAKE Property
SCALE: 1:2 500 000


1608
1609
1610
1508
1509
1510
1408
1409
1308
1309
Breadback River
Colomb Lake
MARCAUT Showing
Ni, Cu INCO Deposit
Horden L.
Rodayer L.
Quagux Lake
N
LEGEND
Granite
Granitoïde
Mainly Gabbro
Intermediate to mafic volcanite
Amphibolite, biotite gneiss
Biotite, garnet gneiss
Dyke
Lake
SCALE: 1:250 000

Liste des claims couverts par le présent levé

5052853 à 5052855

5052865 à 5052869

5052876 à 5052881

5052881 à 5052892

5052898 à 5052902

Totalisant une superficie d'environ 384 hectares.

METHODE

Levé magnétométrique

Un appareil OMNI Plus de la firme EDA fut utilisé afin de mesurer les variations du champ total et ce à tous les 12.5 mètres. Les variations diurnes furent controlées en utilisant une station de base OMNI IV localisée immédiatement à l'est de la grille, les lectures furent prélevées à toutes les dix secondes. De plus des mesures de controles furent effectuées afin de coroller le présent levé avec celui exécuté précedement à l'ouest, sur la même propriété. Le degré de précision de ce système est généralement considéré comme étant de l'ordre de +/- 1 nT.

Les données sont présentées sous forme de contours à intervalle de 100 nT sur une carte à l'échelle 1:5,000, ainsi que sur une deuxième carte montrant les mesures corrigées du champ total soustraites de 58,000 nT.

Un total de 30 kilomètres de lignes fut parcouru en utilisant cette méthode.

Levé électromagnétique à cadres horizontaux.

Un appareil MAXMIN II de la firme Apex Parametrics fut utilisé afin d'étudier les variations de conductivité sur la propriété.

Les fréquences 3555, 1777 et 444 Hz furent utilisées, en mode horizontal, et avec une séparation des bobines de 150 mètres. L'espacement entre les lectures fut de 25 mètres. Le degré de précision de l'échelle de lecture est de 1% .

Un total de 28.5 kilométres de lignes fut parcourru avec cette méthode, les résultats des mesures En-Phase et quadrature sont présentés sous forme de profils sur trois cartes à l'échelle 1:5000 incluse en annexe, une quatrième carte montre les résultats de l'interprétation des zones de conductivité.

DISCUSSION DES RESULTATS

Le levé magnétique est caractérisé par quatre axes de hautes valeurs, coincidant avec avec les conducteurs électromagnétiques. Ces axes montrent d'importantes variations d'intensité latérale ne coincidant pas necessairement avec les variations de conductivité électromagnétique . Ces axes de hautes valeurs magnétique, de direction générale N60 avec pendage vers le Sud-Est sont bordées au sud et au nord par des domaines de faible gradient magnétique.

Le levé électromagnétique à cadres horizontaux a permis de définir plusieurs zones conductrices coincidant avec les axes de hautes valeurs magnétique. Ces axes numérotés C-1 à C-5 sur la carte d'interprétation montrent une direction génerale N60 et un pendage de 40 à 60 degré vers le sud-est. Les directions sont localement affectées par des inflexions qui donnent une allure sinosoidale (en forme de "Z") aux axes sub-paralelles entre eux. De plus des dédoublements de certains axes de conductivité laissent supposer la présence de plis ou de plis-failles affectant l'ensemble de la région couverte.

Le conducteur C-1 correspond vraisemblement à l'horizon de l'indice aurifère Marcaut, qui consiste en un horizon de phyrrhotine, pyrite et quartz bréchique, à la base de ce conducteur, sur l'indice on peu observé localement une bande de graphite centimétrique. Les variations de conductivité qui vont

de faible à très forte et de suceptibilité magnétique qu'on observe le long de cet axe peuvent être causées par les variations du contenu minéralogique de l'horizon.

Entre 150 et 300 mètres au sud un deuxième axe: C-2, sub-paralelle à C-1 montre conductivité une plus faible, de faible à forte et un susceptibilité magnétique moindre. Son extrémité est semble recoupé par une faille et c'est dans ce secteur que la conductivité et la coincidence avec un axe magnétique sont les plus marquée. Cet horizon n'a jamais été observé en surface et n'a jamais fait l'objet de sondages.

L'axe C-3 est marquée par une forte conductivité ainsi qu'une association avec des hautes valeurs magnétiques. Il est constitué de deux ou trois bandes parellèles qui semblent être repliées sur elles-même, des structures en forme de "Z" peuvent être observées en quelques endroits.

Les axes C-4 et C-5 situés au nord des précédents sont marqués par une faible conductivité et par la quasi absence de relief magnétique, ils sont probablement causé par de minces bandes graphite.

CONCLUSIONS ET RECOMMANDATIONS

Le présent relevé à permis de mettre en évidence plusieurs secteurs intéressants nécessitant un étude plus detaillée. La continuité des horizons favorables ainsi que la superposition de phénomènes structuraux laisse entrevoir un fort potentiel pour l'exploration des métaux de base ainsi que pour l'or, et justifient la poursuite des travaux.

Dans un premier temps il est recommandé d'effectuer un levé électromagnétique à cadres horizontaux de détail dans les secteurs ou les conducteurs semblent se dédoubler, en effet une séparation de 150 mètres entre les bobines ne permet pas une résolution suffisante pour discriminer avec suffisamment de précision des conducteurs espacés de moins de 75 mètres.
Ces secteurs devraient être couvert en utilisant un espacement de 50 ou 100 mètres entre les bobines.

Aussi il est recommandé d'effectuer un relevé géologique et géochimique avec prélèvement d'échantillons de roche et d'humus pour fin d'analyse. Cette campagne devrait être accompagnée de prospection utilisant un BEEP MAT afin de relever le maximum de site correspondant aux zones conductrices, ou de trouver des boulders pouvant provenir de ces zones conductrices. Ces travaux devraient permettre de générer plusieurs cibles de forage.

Respectueusement soumis,

Bertrand Taquet

Gilbert Lamothe

REFERENCES

RP 514: Québec Natural Resources Minister report by Remick, J.H. Geology of Colomb-Chabouille-Fabulet regions, 1963.

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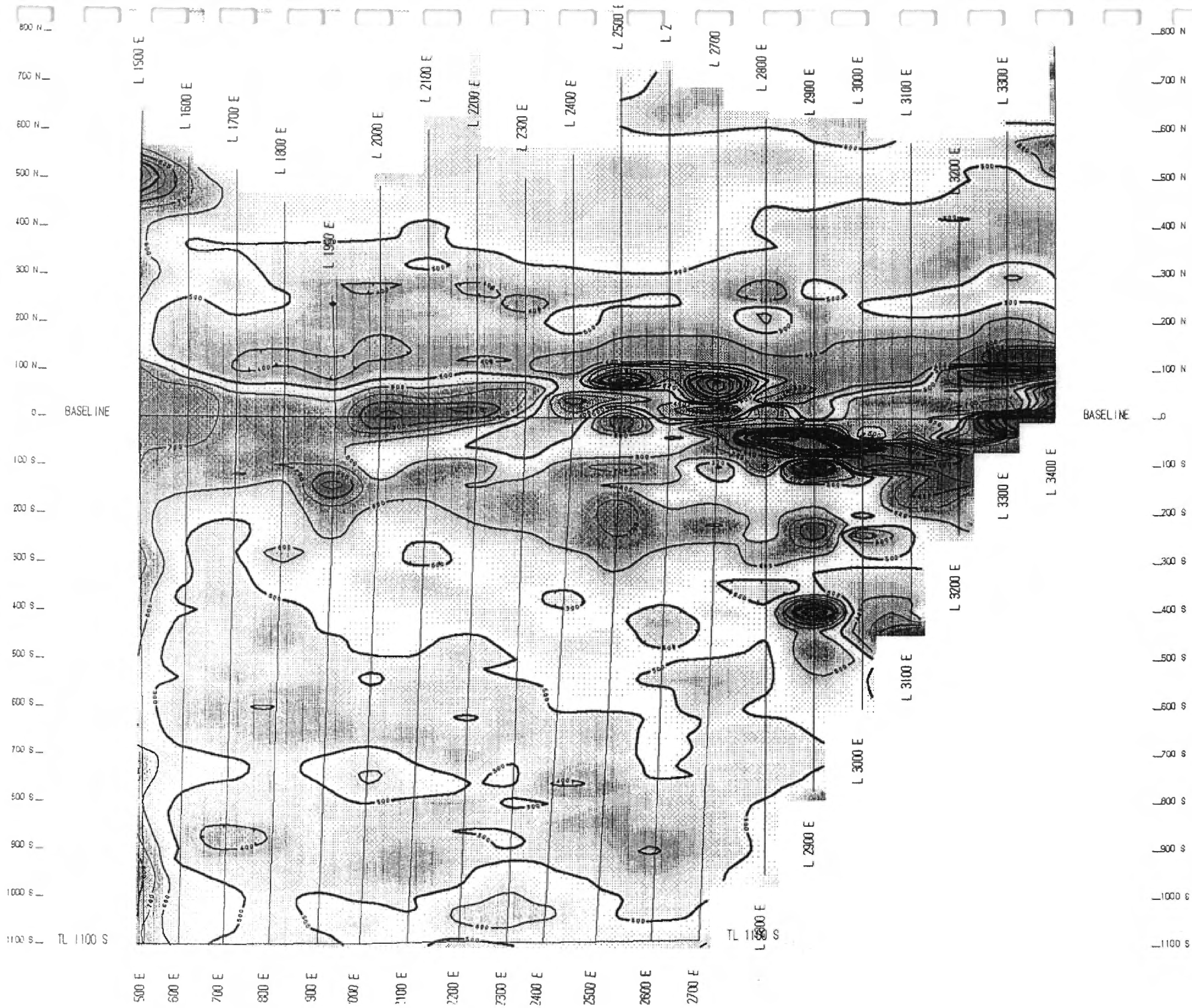
GM 47434: Report on combined Helicopter borne EM and Mag surveys, Z. Dvorak. Fort-Rupert Resources Ltd, 1987.

Rapport de travaux d'exploration, projet 1510,
Magma Exploration, B. Taquet, pour Fancamp Resources.
1988

Rapport d'évaluation de propriété, canton 1509,
B. Taquet, Fort-Rupert Resources Inc., 1989.

Rapport interne de levé électromagnétique de reconnaissance
Projet Lac Colomb, G. Lamothe et B. Taquet,
Free West Inc./ Fort Rupert Inc. 1989

Carte topographique échelle 1/50 000, feuillet 32N4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700 N
600 N
500 N
400 N
300 N
200 N
100 N
0
BASELINE
100 S
200 S
300 S
400 S
500 S
600 S
700 S
800 S
900 S
1000 S
1100 S
TL 1100 S
L 1500 E
L 1600 E
L 1700 E
L 1800 E
L 1900 E
L 2000 E
L 2100 E
L 2200 E
L 2300 E
L 2400 E
L 2500 E
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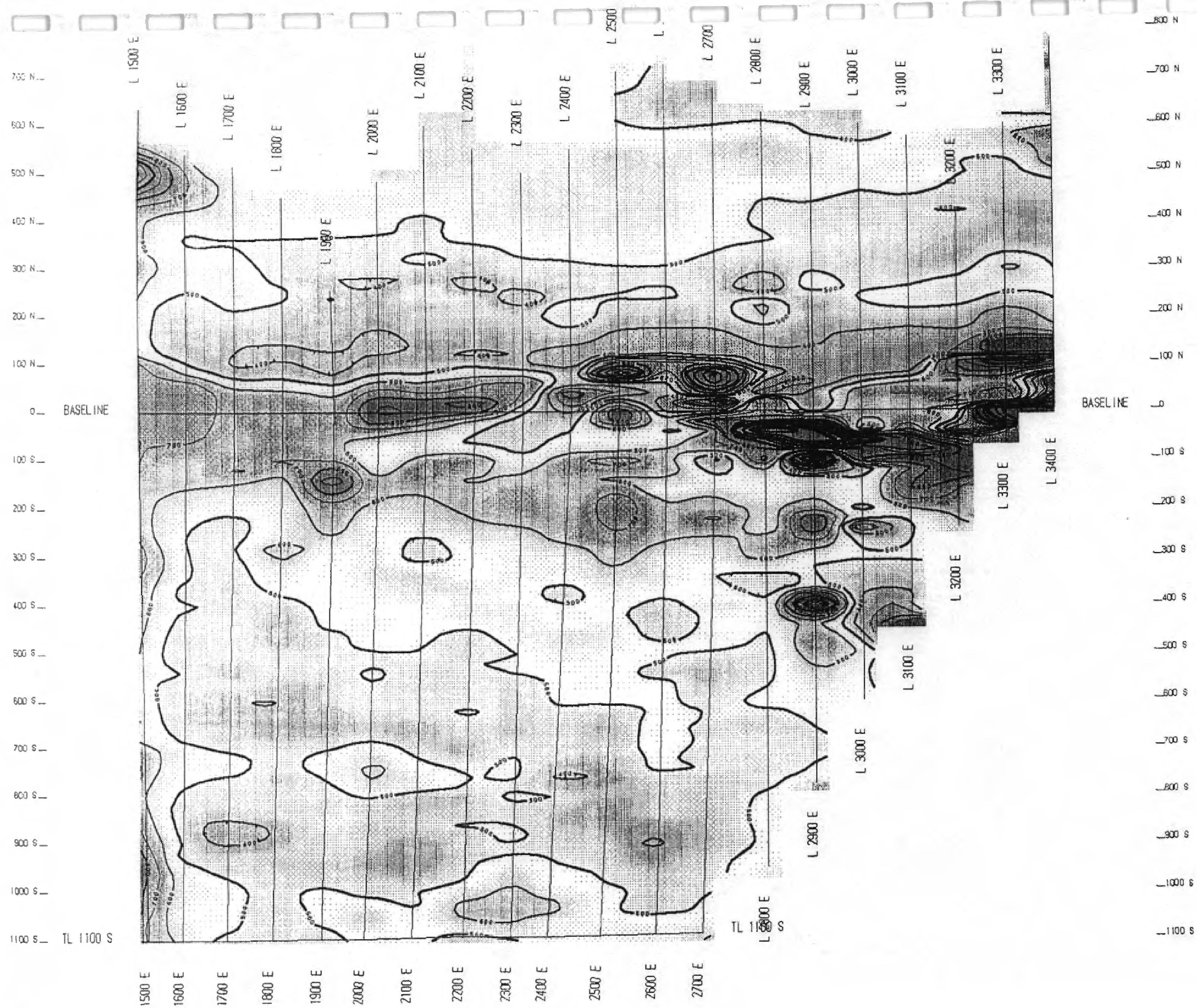
L 3300 E
L 3400 E
BASELINE
TL 1100 S



BASELINE
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L 1500 E
L 1600 E
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L 1800 E
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L 2000 E
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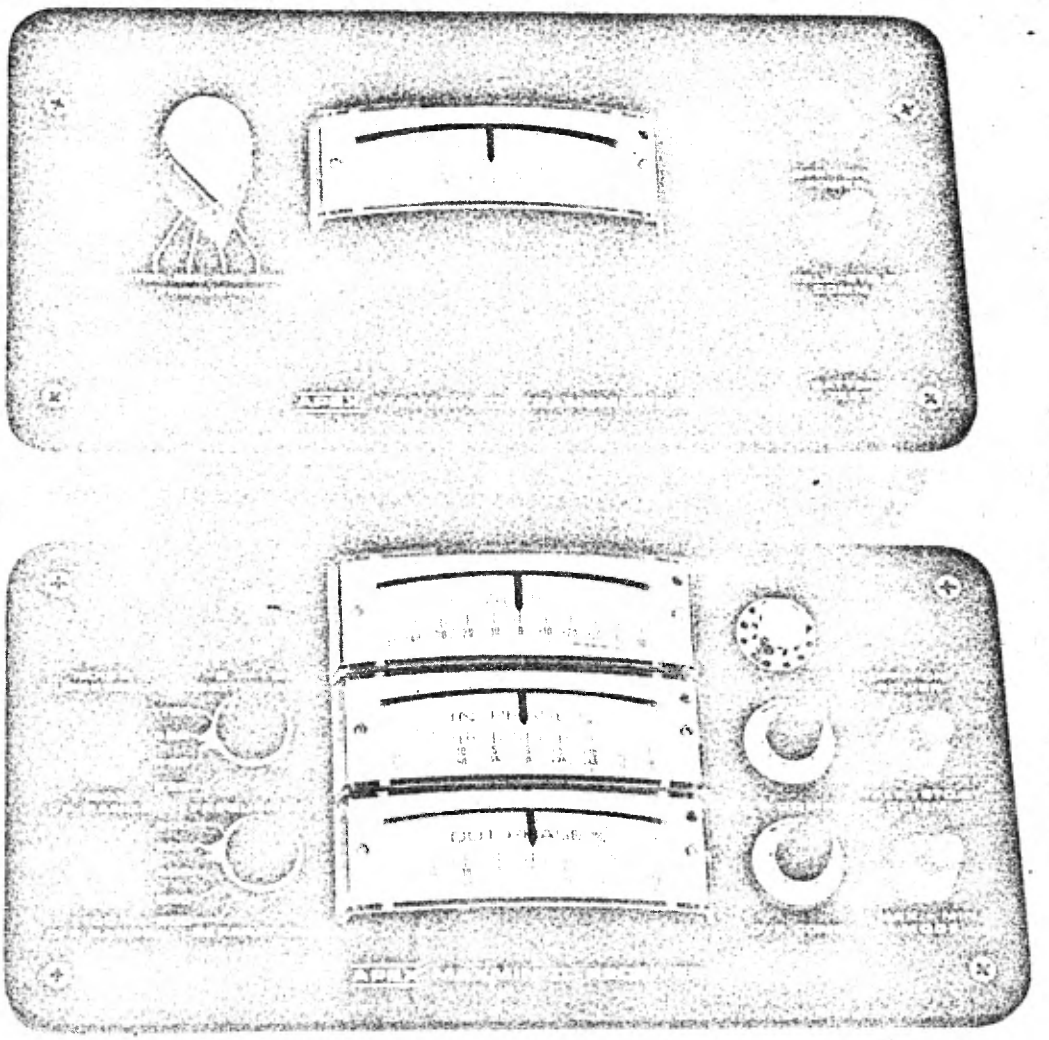
2600 E
2700 E

APEX PARAMETRICS LIMITED
255 YORKLAND BLVD. WILLOWDALE (TORONTO), ONTARIO, CANADA
PHONE (416) 491-6388

APEX MAXMIN II EM SYSTEM:

APEX MAXMIN III E.M. SYSTEM

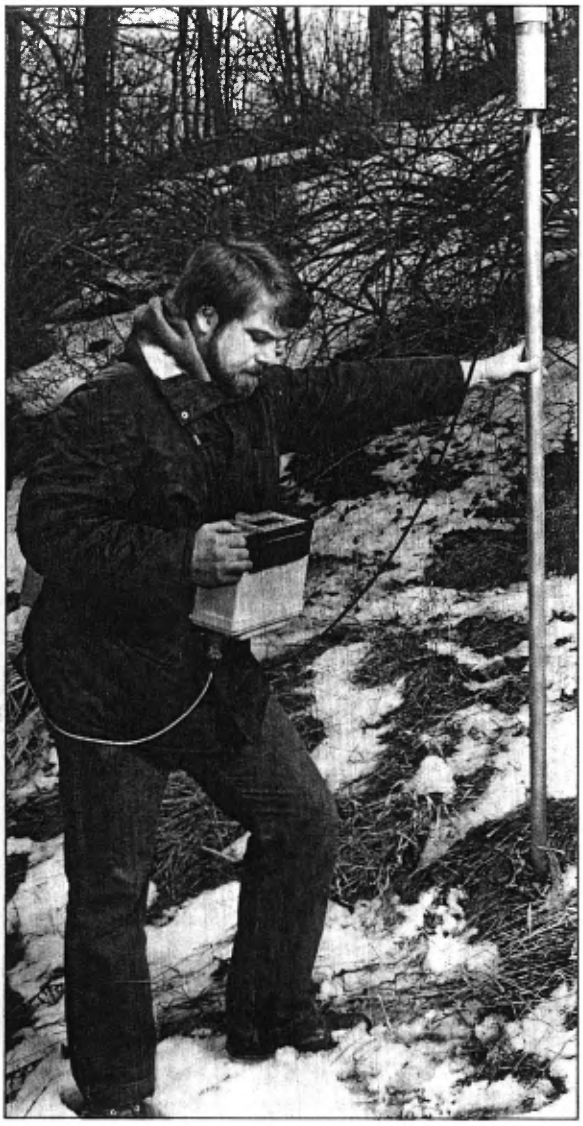


Preliminary Specifications:

OPERATING FREQUENCIES:	220, 440, 880 and 1760 Hz. (MaxMin II) 111, 222, 444, 888, 1777Hz. (MaxMin III)
COIL SEPARATIONS :	200, 300, 400, 600 and 800 feet.(MaxMin II) 25, 50, 100, 150, 200, 250 metres(MaxMinIII)
MODES OF OPERATION:	a) Tx coil plane horizontal and Rx coil plane horizontal (Horizontal loop mode). b) Tx coil plane horizontal and Rx coil plane vertical (Minimum coupled mode).
PARAMETERS MEASURED:	In Phase and Quadrature component of the secondary field.
READOUTS:	Automatic direct, from 3½" type meter.
SCALE RANGES:	In Phase ±20% normal, ±100% by switch. Quadrature ±20% normal, ±100% by switch. Inclinometers ±50%
READING REPEATABILITY:	±½% to ±1%
RX BANDWIDTH (-3dB):	0.3 Hz normal, 0.03 Hz by switch
RX INTERNAL NOISE:	Negligible
TX DIPOLE MOMENT:	150 @ 220 Hz, 150 @ 440 Hz, 75 @ 880 Hz, 38 @ 1760 Hz.
RX POWER SUPPLY:	Ten 1.5 V penlight cells, type AA
TX POWER SUPPLY:	Three 6 V lantern batteries in a battery pack. Optionally two 12 V 6Ah rechargeable Gel Cells.
REFERENCE CABLE:	Light weight, low friction unshielded. Unit supplied with 200, 400 and 600 ft. cables, other lengths optional.
WEIGHT OF RX UNIT:	Approx. 10 lbs.
WEIGHT OF TX UNIT:	Approx. 27 lbs.

OMNI PLUS
VLF/Magnetometer System

EDA



Major Benefits of the OMNI PLUS

- Combined VLF/Magnetometer/Gradiometer System
- No Orientation Required
- Three VLF Magnetic Parameters Recorded
- Automatic Calculation of Fraser Filter
- Calculation of Ellipticity
- Automatic Correction of Primary Field Variations
- Measurement of VLF Electric Field

EDA

Specifications*

Frequency Tuning Range	15 to 30 kHz, with bandwidth of 150 Hz; tuning range accommodates new Puerto Rico station at 28.5 kHz
Transmitting Stations Measured	Up to 3 stations can be automatically measured at any given grid location within frequency tuning range
Recorded VLF Magnetic Parameters	Total field strength, total dip, vertical quadrature (or alternately, horizontal amplitude)
Standard Memory Capacity	800 combined VLF magnetic and VLF electric measurements as well as gradiometer and magnetometer readings
Display	Custom designed, ruggedized liquid crystal display with built-in heater and an operating temperature range from −40°C to +55°C. The display contains six numeric digits, decimal point, battery status monitor, signal strength status monitor and function descriptors.
RS232C Serial I/O Interface	2400 baud rate, 8 data bits, 2 stop bits, no parity
Test Mode	A. Diagnostic Testing (data and programmable memory) B. Self Test (hardware)
Sensor Head	Contains 3 orthogonally mounted coils with automatic tilt compensation
Operating Environmental Range	−40°C to +55°C; 0 – 100% relative humidity; Weatherproof
Power Supply	Non-magnetic rechargeable sealed lead-acid 18V DC battery cartridge or belt; 18V DC disposable battery belt; 12V DC external power source for base station operation only.
Weights and Dimensions	
Instrument Console	2.8 kg, 128 x 150 x 250 mm
Sensor Head	2.1 kg, 130 dia. x 130 mm
VLF Electronics Module	1.1 kg, 40 x 150 x 250 mm
Lead Acid Battery Cartridge	1.8 kg, 235 x 105 x 90 mm
Lead Acid Battery Belt	1.8 kg, 540 x 100 x 40 mm
Disposable Battery Belt	1.2 kg, 540 x 100 x 40 mm

*Preliminary

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