GEOPHYSICAL REPORT

INDUCED POLARIZATION

MAGNETOMETER SURVEY

DETOUR DN-A PROPERTY

LOCATED IN

WEST SUNDAY LAKE AREA, ONTARIO

for

PELANGIO LARDER MINES LIMITED/MARL RESOURCES J.V.

Submitted by: R.J. Meikle
Geophysical Engineering & Surveys Inc.
Dec., 1997

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INTRODUCTION

This report deals with the logistics and interpretation of a Magnetometer and I.P. Survey on the Detour DN-A Property, located in the West Sunday Lake Area, Ontario, for Marl Resources and Pelangio Larder Mines Ltd.

The surveys were carried out on a contract basis by Rayan Exploration Ltd, and Geophysical Engineering Inc., Timmins, Ontario, for Pelangio Larder Mines Inc.

The surveys were done to test previously outlined ground HLEM Conductors reported by Newmont Mines in the early 1980's and to locate possible areas of disseminated mineralization in a resistive environment, similar to recent discoveries by both Pelangio and Placer Dome, to the east, close to the Detour Mine site.

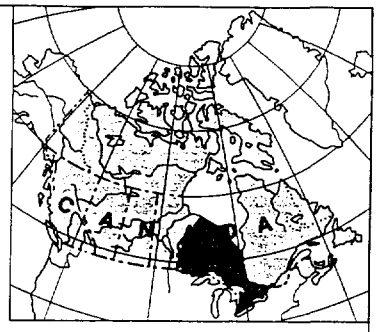
LOCATION AND ACCESS

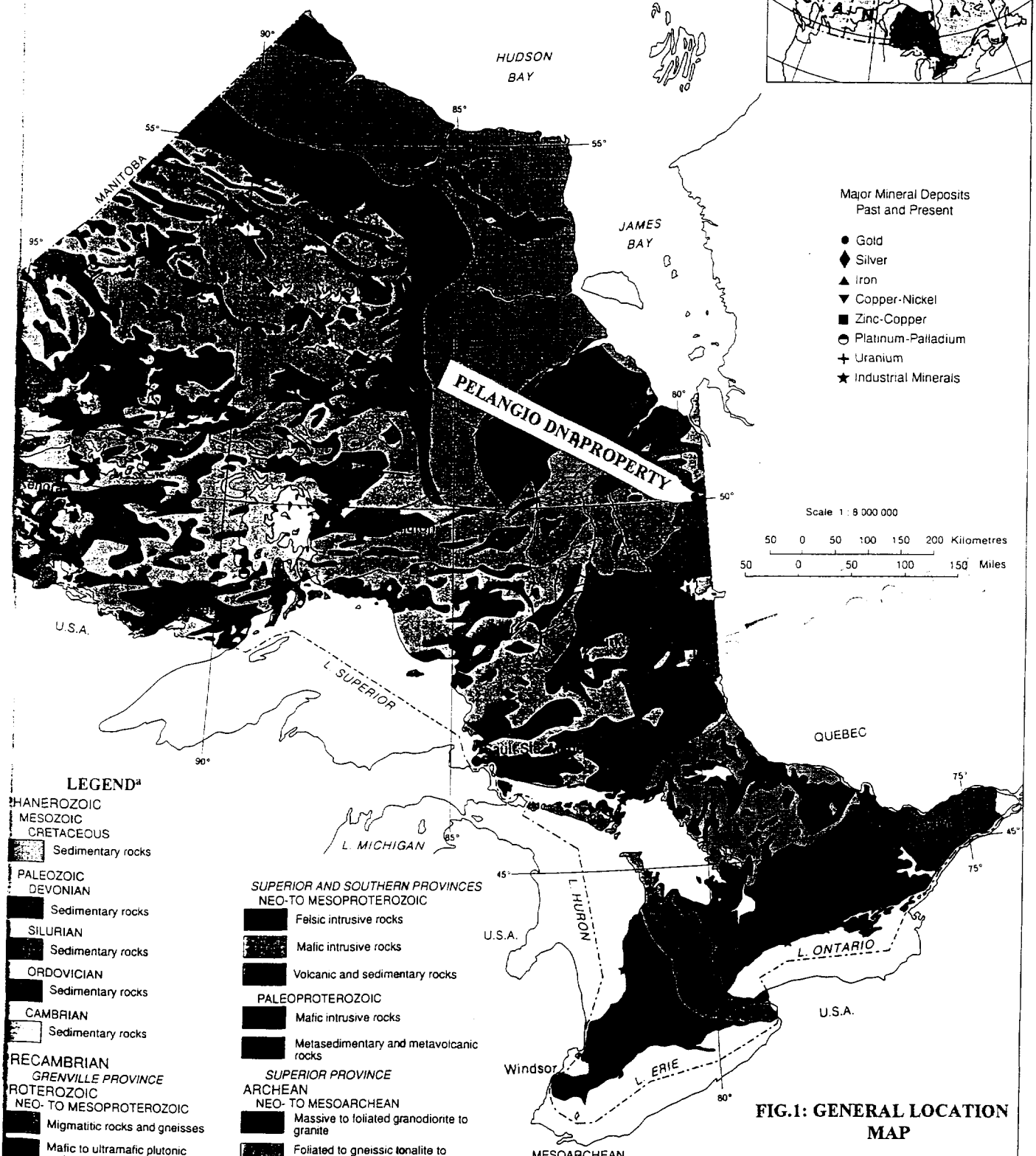
The DNA property is located in the West of Sunday Lake Area, Northeastern Ontario, approximately 190 road km. northwest of Iroquois Falls, Ontario, and approximately 13 km west of the Detour Lake Mine Site.(Figs. 1 & 2).

Access to the property is via the Detour Lake Mine road either from the town of Cochrane or Iroquois Falls. For the current surveys, the property was accessed by snowmobile and an Argo all terrain vehicle north from the main road, approximately 15 km west of the Detour Lake Mine Site.

Ontario

GEOLOGY AND PRINCIPAL MINERALS OF ONTARIO





Major Mineral Deposits
Past and Present

- Gold
- Silver
- Iron
- Copper-Nickel
- Zinc-Copper
- Platinum-Palladium
- Uranium
- Industrial Minerals

Scale 1 : 6 000 000

50 0 50 100 150 200 Kilometres

50 0 50 100 150 Miles

LEGEND[a]

PHANEROZOIC
MESOZOIC
CRETACEOUS
Sedimentary rocks
PALEOZOIC
DEVONIAN
Sedimentary rocks
SILURIAN
Sedimentary rocks
ORDOVICIAN
Sedimentary rocks
CAMBRIAN
Sedimentary rocks

PRECAMBRIAN
GRENVILLE PROVINCE
PROTEROZOIC
NEO- TO MESOPROTEROZOIC
Migmatitic rocks and gneisses
Mafic to ultramafic plutonic rocks
Felsic plutonic rocks, derived gneisses and migmatites
Metavolcanic and metasedimentary rocks

SUPERIOR AND SOUTHERN PROVINCES
NEO-TO MESOPROTEROZOIC
Felsic intrusive rocks
Mafic intrusive rocks
Volcanic and sedimentary rocks
PALEOPROTEROZOIC
Mafic intrusive rocks
Metasedimentary and metavolcanic rocks

SUPERIOR PROVINCE
ARCHEAN
NEO- TO MESOARCHEAN
Massive to foliated granodiorite to granite
Foliated to gneissic tonalite to granodiorite
Metasedimentary rocks and derived gneisses
Metavolcanic and metasedimentary rocks
MESOARCHEAN
Metavolcanic and metasedimentary rocks

[a] Phanerozoic units are lithostratigraphic, whereas Precambrian units are lithologic.

FIG.1: GENERAL LOCATION MAP

Pelangio

Pelangio - Larder Mines, Limited

Detour Lake Properties

Pelangio Larder Mines Ltd
Cedar Hill, Connaught, Ont.
Canada P0N 1A0
Tel: (705) 363-3100
Fax: (705) 363-2169

Symbol: PLLM
Exchange: CDN
Contact: Ingrid Hibbard
(905) 875-3625

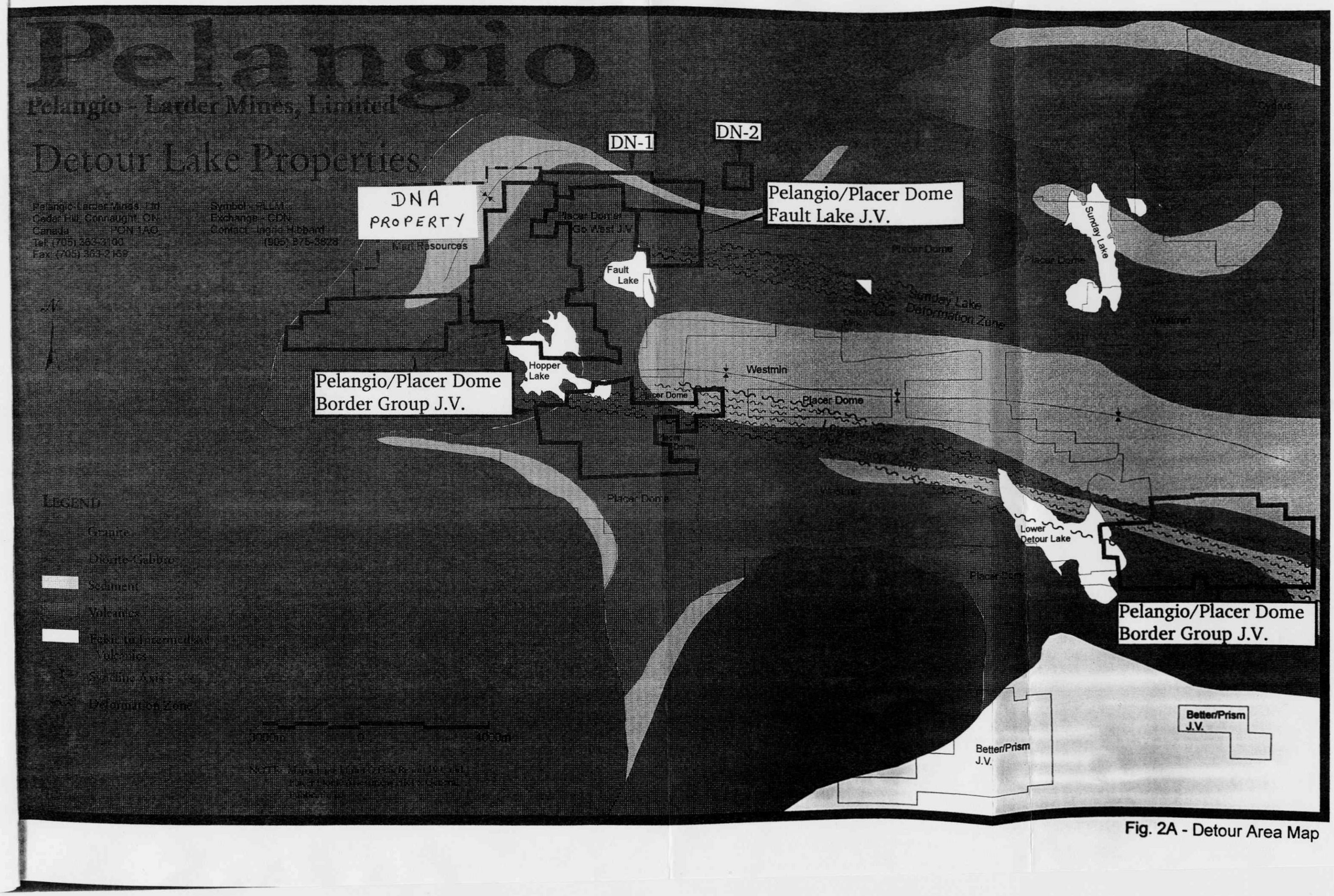
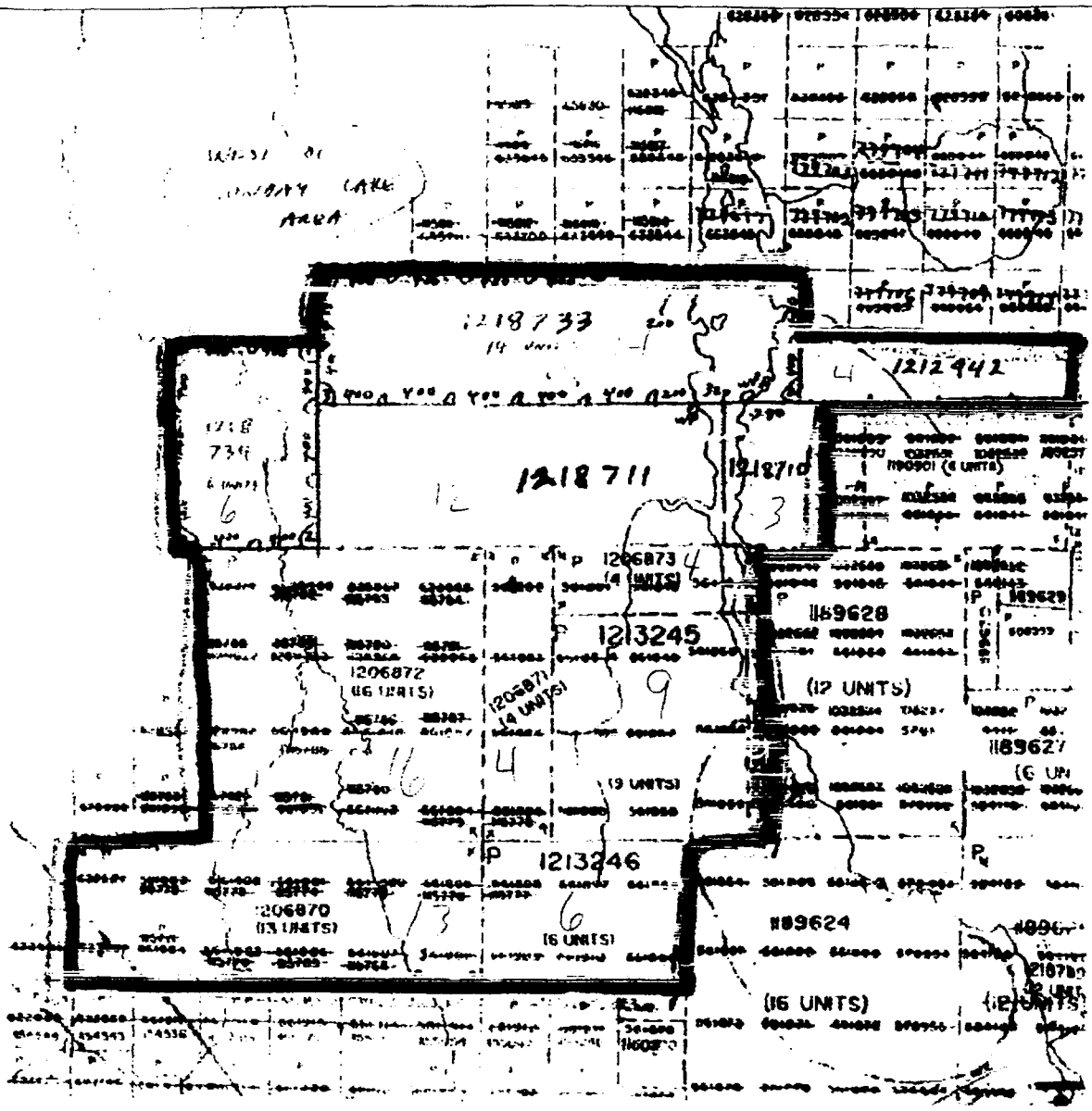


Fig. 2A - Detour Area Map



MARL/PELANGIO J.V.

DETOUR DN-A PROPERTY

CLAIM SKETCH Fig. 3

CLAIM STATUS

The Marl/Pelangio DNA property consists of 11 contiguous block claims for a total of 91 units, all located in the West of Sunday Area, Porcupine Mining Division, Ontario, and are listed as follows:

Claim No.	Units	Area
1206870	13	West of Sunday Lake
1206871	4	"
1206872	16	"
1206873	4	"
1212942	4	"
1213245	9	"
1213246	6	"
1218710	3	"
1218711	12	"
1218733	14	"
1218734	6	"
	11 claims	91 units

PERSONNEL

The Magnetometer and I.P. Surveys were carried out in two different phases. The west part of the Magnetic Survey and the I.P. Survey on Lines 4w,5w, and 6w, were done in March, 1997 by Rayan Exploration Ltd, Timmins, Ontario. The east part of the Magnetic Survey and the rest of the I.P. Survey was done in September, 1997, by Geophysical Engineering & Surveys Inc., Timmins, Ontario.

PREVIOUS WORK

The most extensive previous work was done by Newmont Exploration of Canada Ltd. They flew the area with a Tridem EM/Mag system in 1981. Several AEM conductors were outlined, two of which had been previously drilled by Inco in 1978. Newmont followed up on the AEM results with a detailed ground HLEM and Magnetic Survey on 100m spaced grid lines covering most of their claim block including the smaller area, subject of this report. Newmont outlined several HLEM conductors, reporting that 10 were drilled and 2 conductive zones remained untested.

GENERAL AREA AND PROPERTY GEOLOGY

The general geology of the surveyed area is reported to be Mafic Volcanics and Sediments with possible Ultramafics in the western part of the property.

The HLEM conductors previously drilled within the survey area by Inco and Newmont are reported to be massive sulphides including pyrrhotite within highly metamorphosed basalts.

SURVEY PARAMETERS

Magnetometer Survey:

A total of km of Total Field Magnetometer Survey was carried out on grid lines established on or as close as possible to the 1981 Newmont grid. The northings are coincident with Newmonts, and the current LOE is Newmont's L48E. The following is a brief description of the Geophysical Survey Method used:

A GSM-19 Omni Plus Proton Precession magnetometer was used to carry out the magnetometer survey. The instrument is synchronized with a GSM-19 recording base station to help eliminate magnetic diurnal variation. This should ensure an accuracy of less than 10 Nt.

The Proton Precession method involves energizing a wire coil immersed in a hydrocarbon fluid. This causes the protons in the proton rich fluid to spin or precess simulating spinning magnetic dipoles. When the current is removed the protons precess about the direction of the earth's magnetic field, generating a signal in the same coil which is proportional to the total magnetic field intensity. In this way, the horizontal gradient of the earth's magnetic field can be measured and plotted in plan form with values of equal intensity joined to form a contour map.

This presentation is useful in correlating with other data sets to aid in structural interpretation. Individual magnetic responses can be interpreted for dip, depth and width estimates after profiling the data. The following parameters were employed for the survey:

Instrument - GSM-19 Proton Magnetometer
Station Interval - 12.5m, Line Interval - 100m
Diurnal Correction Method - GSM-19 Recording Base Station
Data Presentation - Magnetic Data Posting and Contour Map - 1:5000

Induced Polarization Survey

Parts of 14 lines between 1800w and 600e were covered by the I.P. Survey. The following is a brief description of the I.P. method and the parameters used for the survey:

The IP method involves applying voltage across two electrodes in a pulsed manner i.e. 2 seconds on, 2 seconds off. A second "dipole" or electrode pair, measures the residual potential or voltage between them after the voltage is shut off or during the 2 second off cycle. The potential is recorded at different times after the shut off. If, for example, there is sulphide mineralization within the measuring dipoles, they will be polarized or charges set up on the sulphide particles. This polarization gives the zone a capacitor effect, thereby blocking the current delay giving a higher chargeability reading.

A typical signature for many gold showings would be a chargeability high, resistivity high and magnetic low. This would be characteristic of a mineralized, highly altered carbonated and/or silicified zone. However, this is by no means the only geological setting for gold, therefore every profile should be looked at individually and correlated with all other geophysical-geological data.

Electrode Array

The electrode array used for the survey was the Pole-Dipole Array. In this array, one current electrode (C1) and two receiver or potential electrodes (P1,P2), are moved down a line in unison. A second current electrode (C2), is placed normal to the expected strike direction an infinite distance away, at least one km. The two current electrodes are hooked up to a motor-generator and a current applied across them, usually less than 3 amperes. The applied voltage is pulsed in a 2 second on, 2 second off pattern controlled by the transmitter.

Thus we have a single pole current electrode following a pair or dipole of potential electrodes moving down the line. The advantage of this "Pole-Dipole" array over the "Dipole-Dipole" array is a deeper current pattern between the infinite and moving current electrode, resulting in better penetration of conductive overburden. Also, this array is considerably faster in areas of high electrode contact impedance due to frozen and or rocky ground conditions because only one current electrode placement is needed for each reading. A disadvantage of the "Pole-Dipole" array is a slightly more ambiguous interpretation due to the assymetry of the array.

The distance between the potential electrodes is fixed, usually 25 or 50 meters and this is called the "a" spacing. When the potential dipole is positioned with one "a" spacing between the C1 and the nearest P1, it is called a "N=1" reading with a theoretical plot point at the intersection of a 45 degree line drawn down in a section format from the C1 and nearest P1. When this N=1 reading is finished, the C1 remains stationary and the P1P2 dipole moves ahead one "a" spacing and a N=2 reading is obtained. Using the above plot convention it can be seen that the plot point is now further from the C1 and deeper. This is repeated for as many "N" readings as desired.

IP Survey Parameters

The IP survey was carried out using the following parameters:

Method: Time Domain
Electrode Array: Pole-Dipole
"a" spacing: 25 meters
Number of Dipoles Read: 1-4 inclusive
Pulse Duration: 2 seconds on, 2 seconds off
Delay Time: 310 milliseconds
Integration Time: 140 milliseconds
Receiver: Scintrex IPR-12
Transmitter: Scintrex TSQ-3 3KVA.
Data Presentation:
Psuedosections, plates 1-3, 1:2500
Contoured Fraser Filtered Chargeability plan map
Contoured Fraser Filtered Resistivity plan map

SURVEY RESULTS

Magnetometer Survey Results

The ground magnetic survey outlined several north-northeast linear magnetic highs in the central and northern part of the surveyed area. They are coincident with Newmont HLEM conductors and I.P. anomalies subject of this report. Most of them have been drill tested by Newmont and Inco, with heavy sulphide/pyrrhotite mineralization reported.

I.P. Survey Results

The I.P. Survey outlined several north-northeast anomalies labelled 'A' - 'E' on the Filtered Chargeability Map, back of this report. Anomalies 'A' and 'E' appear to be untested, the others appear to be coincident with previous Newmont and Inco ground EM conductors, and subsequently drilled. The I.P. anomalies are described as follows:

Anomaly 'A'

- L4w/approx. 250s - L6w/275s, open both directions.
- mod. chargeable/conductive
- mod. chargeable/mod. conductive zone on south flank.
- no apparent magnetic correlation.
- Newmont HLEM weak cond. north and south of I.P. anomaly.
- appears to be untested.

Anomaly 'B'

- L9w/850n - L6e/1475n, open both directions.
- strong chargeability/conductive
- coincident mag high, Newmont HLEM conductor.
- drilled by Newmont and Inco, reported pyrrhotite.
- mod. chargeable/mod. resistive zone on south flank, with higher mag background, from L4w to east end, does not appear to be tested by above drill holes.

Anomaly 'C'

- L18w/975n - L6e/1950n, open both directions.
- strong chargeability/conductive, very conductive on east end.
- appears broad on L13w to L18w, not well defined from anomaly 'D' to the north.
- the anomaly is interpolated between L6w to L2e based on the Newmont HLEM survey which shows a coincident conductor with the I.P. anomaly and in between.
- there is a coincident magnetic high with the anomaly.
- appears drill tested by Newmont and Inco, reported pyrrhotite.
- mod. chargeable/mod. resistive zone on south flank, similar to anomaly 'B', appears to be untested.

Anomaly 'D'

- L18w/11n - L4e/2075n, open both directions.
- strong chargeability/conductive.
- coincident mag high.
- coincident with Newmont HLEM conductor.
- interpolated between L13w - L2e.
- appears to be drilled along strike to the east by Inco, again reporting pyrrhotite mineralization as the causative source for both the mag and I.P. response.
- the Newmont HLEM/Mag data suggests that the east end of Anomalies 'C' and 'D' have more than one parallel, narrow, conductive zones, which is not as clearly resolved on the I.P. data.

Anomaly 'E'

- only one line coverage, L2e/approx.2225n, open both directions.
- coincident with Newmont HLEM conductor.
- insufficient I.P. and Mag coverage but Newmont HLEM/Mag data shows the anomaly to be quite conductive with a coincident magnetic high, similar to anomaly 'D'.
- this zone appears to be untested.

RECOMMENDATIONS AND CONCLUSIONS

It appears that with the exception of anomalies 'A' and 'E', the anomalies described above have been adequately drill tested with no anomalous gold or base metal values reported.

Anomaly 'A' has a lower chargeability response and appears slightly less conductive with no apparent magnetic response. As well the Newmont HLEM Survey does not indicate a coincident conductor. This anomaly may be caused by disseminated sulphide mineralization. It should be noted that there is a weaker chargeable, more resistive zone on the south flank of the anomaly. A compilation of drill results of similar type anomalies on ground to the east of the property should be done if possible, to determine follow up work on the anomaly. At this time it appears that the anomaly is untested.

Anomalies 'B' and 'C' have a moderately chargeable, moderately resistive zone with a higher magnetic susceptability on the south flank. Drill testing of both anomalies does not appear to have explained this zone. Follow up on this zone would depend on a compilation of all available data.

CERTIFICATION

I, Raymond Joseph Meikle of Timmins, Ontario hereby certify that:

1. I hold a three year Technologist Diploma from the Haileybury School of Mines, Haileybury, Ontario, obtained in May 1975.

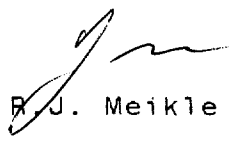
2. I have been practising my profession since 1973 in Ontario, Quebec, Nova Scotia, New Brunswick, Newfoundland, NWT, Manitoba, Germany and Chile.

3. I have been employed directly with Teck Corporation, Metallgessellschaft Canada Ltd. Sabina Industries, .S. Middleton Exploration Services Ltd., self employed 1979-1996 (Rayan Exploration Ltd.) and currently with Geophysical Engineering and Surveys Inc.

4. I have based conclusions and recommendations contained in this report on knowledge of the area, my previous experience and on the results of the field work conducted on the property during 1997.

5. I hold no interest, directly or indirectly in this property, nor do I expect to receive any interest or considerations other than professional fees for services rendered.

Dated this 18th day of Dec., 1997
at Timmins, Ontario.



R.J. Meikle

APPENDIX A

SCINTREX IPR 12 RECEIVER

SCINTREX

IPR-12 Time Domain Induced Polarization/Resistivity Receiver

Brief Description

The IPR-12 Time Domain IP/Resistivity Receiver is principally used in exploration for precious and base metal mineral deposits. In addition, it is used in geoelectrical surveying for groundwater or geothermal resources, often to great depths. For these latter targets, the induced polarization measurements may be as useful as the high accuracy resistivity results since it often happens that geological materials have IP contrasts when resistivity differences are absent.

Due to its integrated, lightweight, microprocessor based design and its large, 16 line display screen, the IPR-12 is a remarkably powerful, yet easy to use instrument. A wide variety of alphanumeric and graphical information can be viewed by the operator during and after the taking of readings. Signals from up to eight potential dipoles can be measured simultaneously and recorded in solid-state memory along with automatically calculated parameters. Later, data can be output to a printer or a PC (direct or via modem) for processing into profiles and maps.

The IPR-12 is compatible with Scintrex IPC and TSQ Transmitters, or others which output square waves with equal on and off periods and polarity changes each half cycle. The IPR-12 measures the primary voltage (Vp), self potential (SP) and time domain induced polarization (Mi) characteristics of the received waveform. Resistivity, statistical and Cole-Cole parameters are calculated and recorded in memory with the measured data and time.

Scintrex has been active in induced polarization research, development, manufacturing, consulting and surveying for over thirty years. We offer a full range of instrumentation, accessories and training.

The IPR-12 Receiver measures spectral IP signals from eight dipoles simultaneously then records measured and calculated parameters in memory.

Benefits

Speed Up Surveys

The IPR-12 saves you time and money in carrying out field surveys. Its capacity to measure up to eight dipoles simultaneously is far more efficient than older receivers measuring a single dipole. This advantage is particularly valuable in drillhole logging where electrode movement time is minimal.

The built-in, solid-state memory records all information associated with a reading, dispensing with the need for any hand written notes. PC compatibility means rapid electronic transfer of data from the receiver to a computer for rapid data processing.

Taking a reading is simple and fast. Only a few keystrokes are virtually needed since the IPR-12 features automatic circuit resistance checks, SP buckout and gain setting.

High Quality Data

One of the most important features of the IPR-12 in permitting high quality data to be acquired, is the large display screen which allows the operator easy real time access to graphic and alphanumeric displays of instrument status and measured data. The IPR-12 ensures that the operator obtains accurate data from field work.

The number and relative widths of the IP decay curve windows have been carefully chosen to yield the transient information required for proper interpretation of spectral IP data. Timings are selectable to permit a very wide range of responses to be measured.

Specifications

Inputs
1 to 8 dipoles are measured simultaneously.

Input Impedance
16 Megohms

SP Bucking
±10 volt range. Automatic linear correction operating on a cycle by cycle basis.

Input Voltage (Vp) Range
50 µvolt to 14 volt

Chargeability (M) Range
0 to 300millivolt

Tau Range
1 millisecond to 1000 seconds

Reading Resolution of Vp, SP and M
Vp, 10 microvolt; SP, 1 millivolt; M, 0.01 millivolt/volt

Absolute Accuracy of Vp, SP and M
Better than 1%

Common Mode Rejection
At input more than 100db

Vp Integration Time
10% to 80% of the current on time.

IP Transient Program
Total measuring time keyboard selectable at 1, 2, 4, 8, 16 or 32 seconds. Normally 14 windows except that the first four are not measured on the 1 second timing, the first three are not measured on the 2 second timing and the first is not measured on the 4 second timing. (See diagram on page 2.) An additional transient slice of *minimum* 10 ms width, and 10ms steps, with delay of at least 40 ms is keyboard selectable.

Transmitter Timing
Equal on and off times with polarity change each half cycle. On/off times of 1, 2, 4, 8, 16 or 32 seconds. Timing accuracy of ±100 ppm or better is required.

External Circuit Test
All dipoles are measured individually in sequence, using a 10 Hz square wave. The range is 0 to 2 Mohm with 0.1kohm resolution. Circuit resistances are displayed and recorded.

Synchronization
Self synchronization on the signal received at a keyboard selectable dipole. Limited to avoid mistriggering.

Filtering
RF filter, 10 Hz 6 pole low pass filter, statistical noise spike removal.

Internal Test Generator
1200 mV of SP; 807 mV of Vp and 30.28 mV/V of M.

Analog Meter
For monitoring input signals; switchable to any dipole via keyboard.

Keyboard
17 key keypad with direct one key access to the most frequently used functions.

Display
16 lines by 42 characters, 128 x 256 dots, Backlit Liquid Crystal Display. Displays instrument status and data during and after reading. Alphanumeric and graphic displays.

Display Heater
Available for below -15°C operation.

Memory Capacity
Stores approximately 400 dipoles of information when 8 dipoles are measured simultaneously.

Real Time Clock
Data is recorded with year, month, day, hour, minute and second.

Digital Data Output
Formatted serial data output for printer and PC etc. Data output in 7 or 8 bit ASCII, one start, one stop bit, no parity format. Baud rate is keyboard selectable for standard rates between 300 baud and 51.6 kBaud. Selectable carriage return delay to accommodate slow peripherals. Handshaking is done by X-on/X-off.

Standard Rechargeable Batteries
Eight rechargeable Ni-Cad D cells. Supplied with a charger, suitable for 110/230V, 50 to 60 Hz, 10W. More than 20 hours service at +25°C, more than 8 hours at -30°C.

Ancillary Rechargeable Batteries
An additional eight rechargeable Ni-Cad D cells may be installed in the console along with the Standard Rechargeable Batteries. Used to power the Display Heater or as back up power. Supplied with a second charger. More than 6 hours service at -30°C.

Use of Non-Rechargeable Batteries
Can be powered by D size Alkaline batteries, but rechargeable batteries are recommended for longer life and lower cost over time.

Operating Temperature Range
-30°C to +50°C

Storage Temperature Range
-30°C to +50°C

Dimensions
Console: 355 x 270 x 165 mm
Charger: 120 x 95 x 55mm

Weights
Console: 5.8 kg
Standard or Ancillary Rechargeable Batteries: 1.3 kg
Charger: 1.1 kg

Transmitters available

IPC-9	200 W
TSQ-2E	750 W
TSQ-3	3 kW
TSQ-4	10 kW

SCINTREX

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Concord, Ontario
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Tel.: (905) 669-2280
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In the U.S.A.

85 River Rock Drive
Unit # 202
Buffalo, N.Y.
U.S.A. 14207

Tel.: (716) 298-1219
Fax: (716) 298-1317

IPR-12/94

APPENDIX B

SCINTREX TSQ-3 TRANSMITTER

SCINTREX TSQ-3 3000 W

Time and Frequency Domain IP and Resistivity Transmitter

Function

The TSQ-3 is a multi-frequency, square wave transmitter suitable for induced polarization and resistivity measurements in either the time or frequency domain. The unit is powered by a separate motor-generator.

The favourable power/weight ratio and compact design of this system make it portable and highly versatile for use with a wide variety of electrode arrays. The medium range power rating is sufficient for use under most geophysical conditions.

The TSQ-3 has been designed primarily for use with the Scintrex Time Domain and Frequency Domain Receivers, for combined induced polarization and resistivity measurements, although it is compatible with most standard time domain and frequency domain receivers. It is also compatible with the Scintrex Commutated DC Resistivity Receivers for resistivity surveying. The TSQ-3 may also be used as a very low frequency electromagnetic transmitter.

Basically the transmitter functions as follows. The motor turns the generator (alternator) which produces 800 Hz, three phase, 230 V AC. This energy is transformed upwards according to a front panel voltage setting by a large transformer housed in the TSQ-3. The resulting AC is then rectified in a rectifier bridge. Commutator switches then control the DC voltage output according to the waveform and frequency selected. Excellent output current stability is ensured by a unique, highly efficient technique based on control of the phase angle of the three phase input power.

Features

Current outputs up to 10 amperes, voltage outputs up to 1500 volts, maximum power 3000 VA.

Solid state design for both power switching and electronic timing control circuits.

Circuit boards are removable for easy servicing.

Switch selectable wave forms: square wave continuous for frequency domain and square wave interrupted with automatic polarity change for time domain.

Switch selectable frequencies and pulse times.

Overload, underload and thermal protection for maximum safety.

Digital readout of output current.

Programmer is crystal controlled for very high stability.

Low loss, solid state output current regulation over broad range of load and input voltage variations.

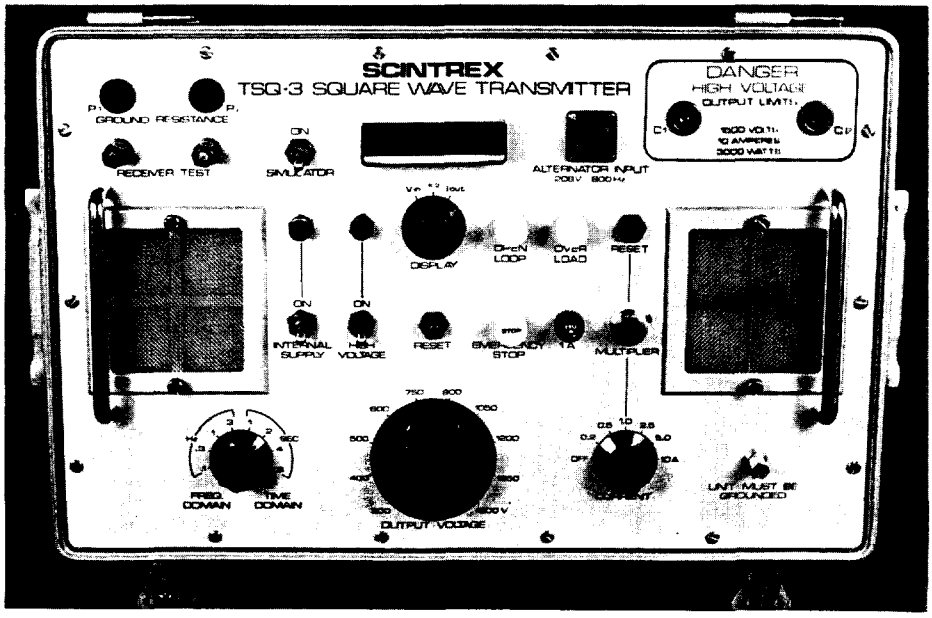
Rectifier circuit is protected against transients.

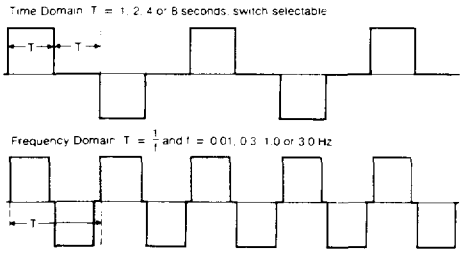
Excellent power/weight ratio and efficiency.

Designed for field portability; motor-generator is installed on a convenient frame and is easily man-portable. The transmitter is housed in an aluminum case.

The motor-generator consists of a reliable Briggs and Stratton four stroke engine coupled to a brushless permanent magnet alternator.

New motor-generator design eliminates need for time domain dummy load.





Waveforms output by the TSQ-3

Technical Description of TSQ-3/3000W Time and Frequency Domain IP and Resistivity Transmitter

TSQ-3 transmitter with portable motor generator unit

Transmitter Console	
Output Power	3000 VA maximum
Output Voltages	300, 400, 500, 600, 750, 900, 1050, 1200, 1350 and 1500 volts, switch selectable
Output Current	10 amperes maximum
Output Current Stability	Automatically controlled to within ±0.1% for up to 20% external load variation or up to ±10% input voltage variation
Digital Display	Light emitting diodes permit display up to 1999 with variable decimal point; switch selectable to read input voltage, output current, external circuit resistance. Dual current range, switch selectable
Absolute Accuracy	±3% of full range
Current Reading Resolution	10 mA on coarse range (0-10A) 1 mA on fine range (0-2A)
Frequency Domain Waveform	Square wave, continuous with approximately 6% off time at polarity change
Frequency Domain Frequencies	Standard: 0.1, 0.3, 1.0 and 3.0 Hz, switch selectable Optional: any number of frequencies in range 0 to 5 Hz.
Time Domain Cycle Timing	t:t:t:t;on:off:on:off;automatic
Time Domain Polarity Change	each 2t; automatic
Time Domain Pulse Durations	Standard: t = 1, 2, 4 or 8 seconds Optional: any other timings
Time and Frequency Stability	Crystal controlled to better than .01%
Efficiency	.78
Operating Temperature Range	−30°C to +50°C
Overload Protection	Automatic shut-off at 3300 VA
Underload Protection	Automatic shut-off at current below 75mA
Thermal Protection	*Automatic shut-off at internal temperature of* +85°C
Dimensions	350 mm x 530 mm x 320 mm
Weight	25.0 kg.
Power Source	
Type	Motor flexibly coupled to alternator and installed on a frame with carrying handles.
Motor	Briggs and Stratton, four stroke, 8 H.P.
Alternator	Permanent magnet type, 800 Hz, three phase 230 V AC
Output Power	3500 VA maximum
Dimensions	520 mm x 715 mm x 560 mm
Weight	72.5 kg
Total System	
Shipping Weight	150 kg includes transmitter console, motor generator, connecting cables and re-usable wooden crates

SCINTREX

222 Snidercroft Road
Concord Ontario Canada
L4K 1B5

Telephone: (416) 669-2280
Cable: Geoscint Toronto
Telex: 06-964570

Geophysical and Geochemical Instrumentation and Services

APPENDIX C

GSM - 19 MAGNETOMETER

INSTRUMENT SPECIFICATIONS

MAGNETOMETER / GRADIOMETER

Resolution:	0.01 nT (gamma), magnetic field and gradient.
Accuracy:	0.2 nT over operating range.
Range:	20,000 to 120,000 nT.
Gradient Tolerance:	Over 10,000 nT/m
Operating interval:	3 seconds minimum, faster optional. Readings initiated from keyboard, external trigger, or carriage return via RS-232-C.
Input/Output:	6 pin weatherproof connector, RS-232C, and (optional) analog output.
Power Requirements:	12 V, 200 mA peak (during polarization), 30 mA standby. 300mA peak in gradiometer mode.
Power Source:	Internal 12 V, 2.6 Ah sealed lead-acid battery standard, others optional. An External 12V power source can also be used.
Battery Charger:	**Input:** 110 VAC, 60 Hz. Optional 110/220 VAC, 50/60 Hz. **Output:** dual level charging.
Operating Ranges:	Temperature: **-40 °C to +60 °C.** Battery Voltage: **10.0 V minimum to 15V maximum.** Humidity: **up to 90% relative, non condensing.**
Storage Temperature:	-50°C to +65°C
Display:	**LCD:** 240 x 64 pixels, or 8 x 30 characters. Built in heater for operation below -20°C
Dimensions:	**Console:** 223 x 69 x 240mm. **Sensor staff:** 4 x 450mm sections. **Sensor:** 170 x 71mm dia. **Weight:** Console 2.1kg, Staff 0.9kg, Sensors 1.1kg each.

VLF

Frequency Range:	15 - 30.0 kHz.
Parameters Measured:	Vertical In-phase and Out-of-phase components as percentage of total field. 2 components of horizontal field. Absolute amplitude of total field.
Resolution:	0.1%.
Number of Stations:	Up to 3 at a time.
Storage:	Automatic with: time, coordinates, magnetic field/gradient, slope, EM field, frequency, in- and out-of-phase vertical, and both horizontal components for each selected station.
Terrain Slope Range:	0° - 90° (entered manually).
Sensor Dimensions:	14 x 15 x 9 cm. (5.5 x 6 x 3 inches).
Sensor Weight:	1.0 kg (2.2 lb).

Ontario Ministry of Northern Development and Mines

Declaration of Assessment Work Performed on [redacted] Mining Lands

Mining Act, Subsection 66(2), R.S.O. 1990

Transaction Number (office use): D960.00775

Assessment Files Research Imaging

FINAL REVISION

Personal information collected on this form is obtained under the authority of subsection 66(2) of the Mining Act. Under section 8 of the Mining Act, this information is a public record. This information will be used to review the assessment work directed by a Provincial Mining Recorder, Ministry of Northern Development and

Instructions: - For work performed on mining lands, use for
- Please type or print in ink

32L04SW2001 2.18046 WEST OF SUNDAY LAKE

900

1. Recorded holder(s) (Attach a list if necessary)

Name: DAVID V. JONES	Client Number: 119868
Address: P.O. Box 1513 Porcupine Ont	Telephone Number: 235-2474
	Fax Number: 235-2213
Name: MRL Resc. INC & MAURAY Res.	Client Number: 802503 & 293253
Address: BOTH COMPANIES → CEDAR HILL CONNAUGHT ONT P0N 1A0	Telephone Number: 363-3100 (SAME Phone)
	Fax Number:

2. Type of work performed.

Work Type: Geophysical Surveys MAG, LINECUTTING & INDUCED POLARIZATION SURVEYS

Office Use	
Commodity	
Total $ Value of Work Claimed	$ 51,262
NTS Reference	
Mining Division	Porcupine
Resident Geologist District	Timmins

Claim Work Performed: From 2 Day 2 Month 97 Year To 22 Day 12 Month 97 Year

Global Positioning System Data (if available): Township/Area: WEST OF SUNDAY LAKE

M or G-Plan Number:

Please remember to:
- complete and attach a Statement of Costs, form 0212;
- provide a map showing contiguous mining lands that are linked for assigning work;
- include two copies of your technical report;
- provide proper notice to surface rights holders before starting work.

2.18046

3. Person or companies who prepared the technical report (Attach a list if necessary)

Name: Ray Makk	Telephone Number: 268-4866
Address: Timmins Ontario	Fax Number:
Name:	Telephone Number:
Address:	Fax Number:
Name:	Telephone Number:
Address:	Fax Number:

RECEIVED DEC 30 1997 GEOSCIENCE ASSESSMENT OFFICE

4. Certification by Recorded Holder or Agent

I, T. K. Filo (Print Name), do hereby certify that I have personal knowledge of the facts set forth in this Declaration of Assessment Work having caused the work to be performed or witnessed the same during or after its completion and, to the best of my knowledge, the annexed report is true.

Signature of Recorded Holder or Agent: T. K. Filo		Date: Dec 24/97	
Agent's Address: 535 Barrette Street Timmins Ont P4N 4X2	Telephone Number: 705 268-0371	Fax Number: 705 268 5894	

March 24/98

...o be recorded and distributed. Work that is performed on Crown Lands that are subsequently staked as a mining ...n be claimed at 100% of its value (state this amount in column "a" below). If work is performed on Crown lands and ...losed within a subsequently recorded claim, it can be claimed at 25% of its value (state this amount in column "b" ...). Work can only be assigned to claims that are contiguous to (adjoining) the lands where work was performed at the time ...k was performed. A map showing the contiguous link must accompany this form.

W9760.00775

Mining Claim Number	No. of Claim Units	Value of work performed before recording a mining claim (a) Work now within a claim. Show 100% of cost	(b) Work on adjacent Crown lands. Show 25% of cost.	Value of work applied to this claim	Value of work assigned to other mining claims	Bank. Value of work to be distributed at a later date
1234567	4	$4980	$725	$1600	$800	$3305
1234568	2	N/A	N/A	$ 800	N/A	N/A
1218733	14	9741		5600	4141	0 ✓
1218711	12	12859		4800	8059	0 ✓
1206871	4	[illegible]		1600	4748	0 ✓
1206872	16	[illegible]		6400	252	13197 ✓
1206873	4	2465		1600	0	865 ✓
1206874	2	0		800 ✓		
1218734	6	0		2400 ✓		
1212942	4	0		1600 ✓		
1218710	3	0		1200 ✓		
1213245	9	0		3600 ✓		
1213246	6	0		2400 ✓		
1206870	13	0		5200 ✓		
Column Totals		51262		37200	17200	~~[illegible]~~ 14062

J. K. Filo (Print Full Name) . do hereby certify that the above work credits are eligible under ...ubsection 7 (1) of the Assessment Work Regulation ~~6788~~ for assignment to contiguous claims or for application to the claim ...here the work was done.

...nature of Recorded Holder or Agent Authorized in Writing | Date Dec. 24/1997

Instruction for cutting back credits that are not approved.

...ome of the credits claimed in this declaration may be cut back. Please check (✓) in the boxes below to show how you wish to ...ioritize the deletion of credits:

1. Credits are to be cut back from the Bank first, followed by option 2 or 3 or 4 as indicated.
2. Credits are to be cut back starting with the claims listed last, working backwards; or
3. Credits are to be cut back equally over all claims listed in this declaration; or
4. Credits are to be cut back as prioritized on the attached appendix or as follows (describe):

RECEIVED DEC 30 1997 GEOSCIENCE ASSESSMENT OFFICE

...ote: If you have not indicated how your credits are to be deleted, credits will be cut back from the Bank first, ...followed by option number 2 if necessary.

...or Office Use Only

...ceived Stamp

Deemed Approved Date	Date Notification Sent
Date Approved	Total Value of Credit Approved
Approved for Recording by Mining Recorder (Signature)	

Ontario Ministry of Northern Development and Mines

Statement of Costs for Assessment Credit

Transaction Number (office use): W9760.0075

Personal information collected on this form is obtained under the authority of subsection 6 (1) of the Assessment Work Regulation 6/96. Under section 8 of the Mining Act, this information is a public record. This information will be used to review the assessment work and correspond with the mining land holder. Questions about this collection should be directed to a Provincial Mining Recorder, Ministry of Northern Development and Mines, 3rd Floor, 933 Ramsey Lake Road, Sudbury, Ontario, P3E 6B5.

Work Type	Units of work Depending on the type of work, list the number of hours/days worked, metres of drilling, kilometres of grid line, number of samples, etc.	Cost Per Unit of work	Total Cost
Geophysical Surveys	53 km	~~$96.72~~ /km	~~5094.72~~
(I.P, MAG, Linecutting)			
53 km. of mag			
& linecutting &			
13.8 km of I.P.			
Associated Costs (e.g. supplies, mobilization and demobilization).			
Transportation Costs			
Food and Lodging Costs			
		Total Value of Assessment Work	~~5094.72~~ 5126.2

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Calculations of Filing Discounts:

1. Work filed within two years of performance is claimed at 100% of the above Total Value of Assessment Work.
2. If work is filed after two years and up to five years after performance, it can only be claimed at 50% of the Total Value of Assessment Work. If this situation applies to your claims, use the calculation below:

TOTAL VALUE OF ASSESSMENT WORK x 0.50 = Total $ value of worked claimed.

Note:

- Work older than 5 years is not eligible for credit.
- A recorded holder may be required to verify expenditures claimed in this statement of costs within 45 days of a request for verification and/or correction/clarification. If verification and/or correction/clarification is not made, the Minister may reject all or part of the assessment work submitted.

Certification verifying costs:

I, J. M. Frew (please print full name), do hereby certify, that the amounts shown are as accurate as may reasonably be determined and the costs were incurred while conducting assessment work on the lands indicated on the accompanying Declaration of Work form as _____ (recorded holder, agent, or state company position with signing authority) I am authorized to make this certification.

Signature: _____ Date: Dec. 24/97

0212 (03/97)

RECEIVED DEC 24 1997 @ 1:54pm PORCUPINE MINING DIVISION

RECEIVED DEC 29 1997 GEOSCIENCE ASSESSMENT OFFICE

Ministry of
Northern Development
and Mines

Ministère du
Développement du Nord
et des Mines

Ontario

Geoscience Assessment Office
933 Ramsey Lake Road
6th Floor
Sudbury, Ontario
P3E 6B5

Telephone: (888) 415-9846
Fax: (705) 670-5881

March 20, 1998

MARL RESOURCES INC.
Cedar Hill
Connaught, Ontario
P0N 1A0

Dear Sir or Madam:

Submission Number: 2.18046

Subject: Transaction Number(s):		**Status**
	W9760.00775	Approval

We have reviewed your Assessment Work submission with the above noted Transaction Number(s). The attached summary page(s) indicate the results of the review. WE RECOMMEND YOU READ THIS SUMMARY FOR THE DETAILS PERTAINING TO YOUR ASSESSMENT WORK.

If the status for a transaction is a 45 Day Notice, the summary will outline the reasons for the notice, and any steps you can take to remedy deficiencies. The 90-day deemed approval provision, subsection 6(7) of the Assessment Work Regulation, will no longer be in effect for assessment work which has received a 45 Day Notice.

Please note any revisions must be submitted in DUPLICATE to the Geoscience Assessment Office, by the response date on the summary.

If you have any questions regarding this correspondence, please contact Steve Beneteau by e-mail at benetest@epo.gov.on.ca or by telephone at (705) 670-5855.

Yours sincerely,

ORIGINAL SIGNED BY
Blair Kite
Supervisor, Geoscience Assessment Office
Mining Lands Section

Correspondence ID: 12031

Copy for: Assessment Library

Work Report Assessment Results

Submission Number: 2.18046

Date Correspondence Sent: March 20, 1998 **Assessor:** Steve Beneteau

Transaction Number	First Claim Number	Township(s) / Area(s)	Status	Approval Date
W9760.00775	1218733	WEST OF SUNDAY LAKE	Approval	March 19, 1998

Section:
14 Geophysical IP
14 Geophysical MAG

Correspondence to:
Resident Geologist
South Porcupine, ON

Assessment Files Library
Sudbury, ON

Recorded Holder(s) and/or Agent(s):
Kevin Filo
TIMMINS, ONTARIO, CANADA

MARL RESOURCES INC.
Connaught, Ontario

MAUREX RESOURCES LIMITED
CONNAUGHT, ONTARIO

DAVID V. JONES
SOUTH PORCUPINE, Ontario

Correspondence ID: 12031