010

REPORT

Mallard Twp.

Porcupine Mining Division

Work conducted:
- Line cutting
- Mag + VLF combined
- Induced Polarization
- Prospecting
- Assays

J. Richard Morin
May 17, 1996

010C

INDEX

"Appendix"

1 - Prospecting Map (Pocket) and Assay Results

2 - Mag + VLF Surveys (Lashex Ltd.)

3 - IP Survey (Rayan Expl. Ltd.)

4 - Grid Distances

5 - Kilometer recap (vehicle)

Prospecting Map
Magnetometer Map
VLF Values + Profiles Map
VLF Fraser Filter Map
Induced Polorization Map

] Pocket

Introduction

Grid was established to carry out geophysical Surveys: 19.5 km

- Combined magnetometer, VLF - electromagnetic 17.5 km.

- Induced Polarization 4.3 km

Richard Morin and partners established the baselines, turned the crosslines at 90° spaced every 100 meters apart and line 6 W.

Lashex Ltd. was contracted to complete the remaining grid and carry out the Mag and VLF Surveys. Report and Maps also completed by Lashex Ltd. for the Mag. and VLF.

Rayan exploration was contracted to carry out the Induced Polarization Survey, with logistical and interpretation report and maps supplied

Recorded holder and Denis Morin carried out traditional prospecting, collected samples which were forwarded to Swastika Laboratories for assaying.

The above noted work was carried out between May 30th to sept. 28th, 1995.

Location and Access

Map NTS. 41-O/NE Ridout Figure No. 1

Property is in Mallard Twp, Porcupine Mining Division, claim map sheet G 1171, N.T.S. Map 41-O/NE Ridout.
Latitude: 47° 41.70' Longitude 82° 16.00'
Vehicular access is readily gained From Timmins via paved highways 101 TO 144 south to the junction of highway 144 and the Sultan industrial road, thence west along the Sultan road for 46 km. to a road junction in Edith Twp. and then North via a gravel road (E.B. Eddy Co.) For 26 km. to the bridge on the Opeepeesway River. Total distance to the bridge is Approx. 226 km.

Property consists of 11 claims (13 units) in south central Mallard Twp.
Map G-1171 Figure No. 2

P 1084655	1 unit
P 1084656	"
P 1084657	"
P 1084659	"
P 1084660	"
P 1177541	"
P 1177542	"
P 1177543	"
P 1177545	"
P 1177546	"
P 1154723	3 units

Access and Location

Figure No. 1

N.T.S. 41-O/NE RIDOUT

82° 16.00'

47° 41.70'

Location of Project

GARNET

Wakami River

BENTON

MALLARD

ERIC LAKE

Rae Lake

Sauerly

McBain

North Arm

Northwest Arm

Cipway Pt

Monetta Pt

Jerome Pt

Jerome

OPEEPEESWAY

OSWAY

ESTHER

FAWN

HUFFMAN

East Arm

Huffman L

Boundary

Abandoned

Hydro

Line

Little Rush R

Camp L

Felix L

Squaw L

Eade L

River

Ramsey

Silva L

Elmes L

Mick L

Beckett L

Crubiere L

EDITH

Shallow L

Mallard Road

Sultan Industrial Road

FINGAL

Buerr L

Burke Pond

Cordes L

Bithrey L

To Kelso

To Sultan

Foster Lake

ARBUTUS

Arbutus Lake

Canoe L

Ven Lake

Bear L

Pottier L

YEO

Dismal L

Stony L

Lake

POTIER

Area: Swayze Gold

Township: Mallard

Mining Division: Porcupine

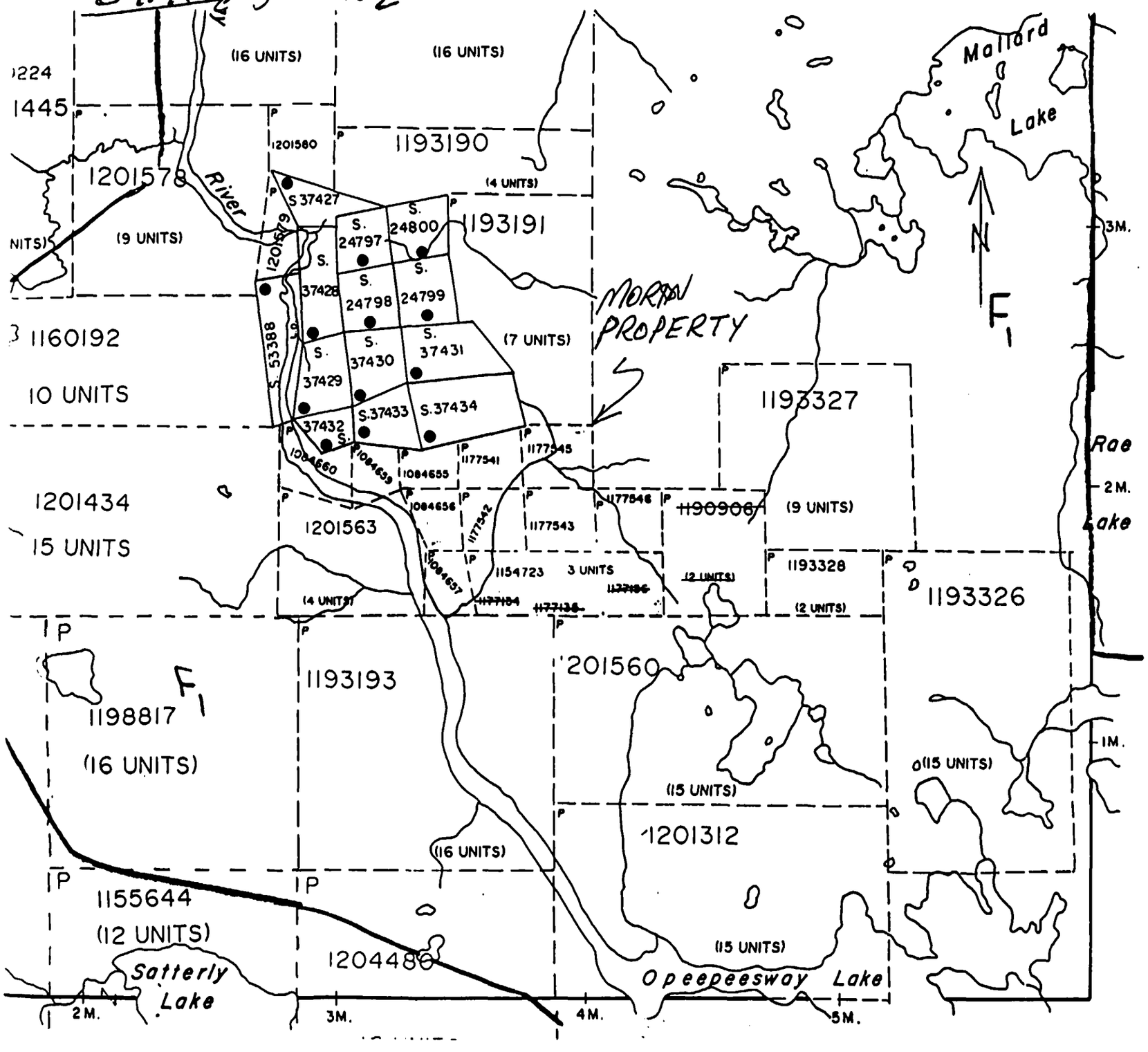
Claim Map Sheet: G 1171

N.T.S. Map 41-O/NE Ridout

Latitude: 47° 41.70'

Longitude: 82° 16.00'

G-1171 Figure No. 2



ERIC TWP.

SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000

METRES 0 200 1000 (1 KM) 2000 (2 KM)

ACRES	HECTARES
40	16

TOWNSHIP OF MALLARD

G1171

DISTRICT OF SUDBURY

MINING DIVISION PORCUPINE

Ministry of Natural Resources

Ministry of Northern Develop and Mines

Geology

Mallard twp. is in the Abitibi greenstone belt, Porcupine Mining Division. Predominent rock types are mafic metavolcanics flows with a few local mafic intrusives (gabro diorite). Also present in the area are locally intercalated intermediate and felsic metavolcanics and felsic intrusives (granodiolite) quarte monzonite. A persuasive schistosity in the area strikes at 30-40°.

Regional geology of Mallard Twp. is covered in Ontario Geological Survey report 248 Geology of the Garnet Lake Area 1987.

Previous work

1- September 1991 (Denommée et al) Stripping to expose along strike of Gold showing found spring 1991. Followed by staking. Contract work carried out by Kapel's backhoe service.

2- September - October 1991 Copperquest Indian Cat. Junior, implemented a surface exploration program on the property; Backhoe stripping, power pump washing channel samples.

3- Summer 1992, Norex drilling (6 holes)

Project:

Line cutting and grid:

Baseline was established at the north boundary approx. 200 meters south west of Post No. 1 claim 1084655 using an azimuth of 125 degrees. Crosslines turned at 90° to the baseline at 100 meter spacing. Line 6W was cut south and another baseline at L 6W/ 700TOOS was turned with crosslines 7W and 8W turned at 90°

Total Baselines 2.0 Km
Total crosslines 17.5 Km
Total 19.5

Stations located every 25M along crosslines.

Prospecting:

A total of 14 samples were collected and recorded: Following covered:

July 19-21, 1995 Lines 0, 2E, 3E, 4E, 5E, 6E, claim 1084659, 1084660;
July 24-25, 1995 Lines 2, 3, 4 5 6 west
Sept 28 1995 Lines 7, 8 west.

Sampling

Fourteen samples assayed by Swastika Laboratories.

Results: Appendix 1

Geophysics:

Magnetometer survey:

Station interval 25M
Readings every 12.5 M
Line interval 100 M
Readings 1400
Carried out August 3, 16, 17 1995
by Lashex Ltd.

Appendix 2

VLF survey:

Station interval 25M
Readings every 25M
Line interval 100 M
Readings 700
Carried out August 3, 16, 17 1995
by Lashex Ltd.

Appendix 2

Induced Polarization Survey

Carried out on lines 1W to 3E) (4.3 km)
Sept. 26 and 27, 1995 by Rayan exploration Ltd.

Appendix 3

Results and Recommendations

Mag and VLF (Appendix 2) Lashex Ltd.

- Several coincidental anomalies located. Some VLF conductors caused by differences in resistivity along wet areas and some graphitic horizons.
Magnetic anomaly caused from a diabase dyke or sill.

- Property should be mapped and more prospecting done with special attention along the coincidental mag - VLF conductors to try and explain them.
Diamond drilling will ultimately be required to fully explain the anomalies.

Induced Polarization (Appendix 3) Rayan Ltd.

- IP survey results to be compiled and correlated with ground Mag & VLF surveys. Try to trace the zones as well as detect new ones.
Additional I.P. would be determined based on the results of data compilation.

Appendix I

1 of 3

Swastika Laboratories

A Division of TSL/Assayers Inc.

Established 1928

Assaying - Consulting - Representation

Assay Certificate

5W-3036-RA1

Company: **R. MORIN**

Date: JUL-27-95

Project:

Attn: R. Morin

We hereby certify the following Assay of 10 Rock samples submitted JUL-21-95 by .

Sample Number	Au oz/ton	Au Check oz/ton
26552	0.001	-
26553	0.001	0.001
26554	0.003	-
26555	0.001	-
26556	0.002	-
26557	Nil	-
26558	0.001	-
26559	0.006	0.005
26560	0.162	0.164
26561	0.001	-

Certified by Denis Chartre

P.O. Box 10, Swastika, Ontario P0K 1T0

Telephone (705) 642-3244 FAX (705) 642-3300

Swastika Laboratories

Established 1928

A Division of TSL/Assayers Inc.

Assaying - Consulting - Representation

Assay Certificate

5W-3791-RA1

Company: **R. MORIN**

Date: OCT-03-95

Project:

Attn: R. Morin

We hereby certify the following Assay of 1 Rock samples submitted SEP-28-95 by .

Sample Number	Au oz/ton
26562	0.001

Certified by G. Leboff

P.O. Box 10, Swastika, Ontario P0K 1T0

Telephone (705) 642-3244 FAX (705)642-3300

Swastika Laboratories

A Division of TSL/Assayers Inc.

Assaying - Consulting - Representation

Established 1928

Assay Certificate

5W-4309-RA1

Company: **R.MORIN**

Date: NOV-09-95

Project:

Attn: R.Morin

We hereby certify the following Assay of 3 Rock samples submitted NOV-06-95 by .

Sample Number	Au oz/ton	Au Check oz/ton
26563	0.010	-
26566	2.070	2.072
26567	0.568	0.552

Certified by _____

P.O. Box 10, Swastika, Ontario P0K 1T0

Telephone (705)642-3244 FAX (705)642-3300

Appendix 2

A REPORT ON A

MAGNETOMETER AND VLF-ELECTROMAGNETIC SURVEY

MORIN PROPERTY

MALLARD TOWNSHIP, ONTARIO

N.T.S. 41-O/9

By: Raymond L. Lashbrook
LASHEX LTD.
Aug. 29, 1995

INDEX

INTRODUCTION

Lashex Ltd. was contracted to perform a linecutting and geophysical survey over a portion of the Morin Property in Mallard Township. The following report describes the work performed, the results of the magnetometer and vlf-electromagnetic surveys and gives recommendations for further work.

LOCATION AND ACCESSS

The property is located in the Township of Mallard approximately 115 kilometers southwest of the city of Timmins.
Access is gained off of highway 144, west on the Sultan Industrial Road for 45 kilometers and then northerly for 25 kilometers on an all weather gravel road. The property starts immediately east of the Opeepeesway River bridge.

PROPERTY

The property consists of the following claims and units:

Claim Number	Units
1084655	1
1084656	1
1084657	1
1084659	1
1084660	1
1154723	3
1177541	1
1177542	1
1177543	1
1177545	1
1177546	1
TOTAL	13

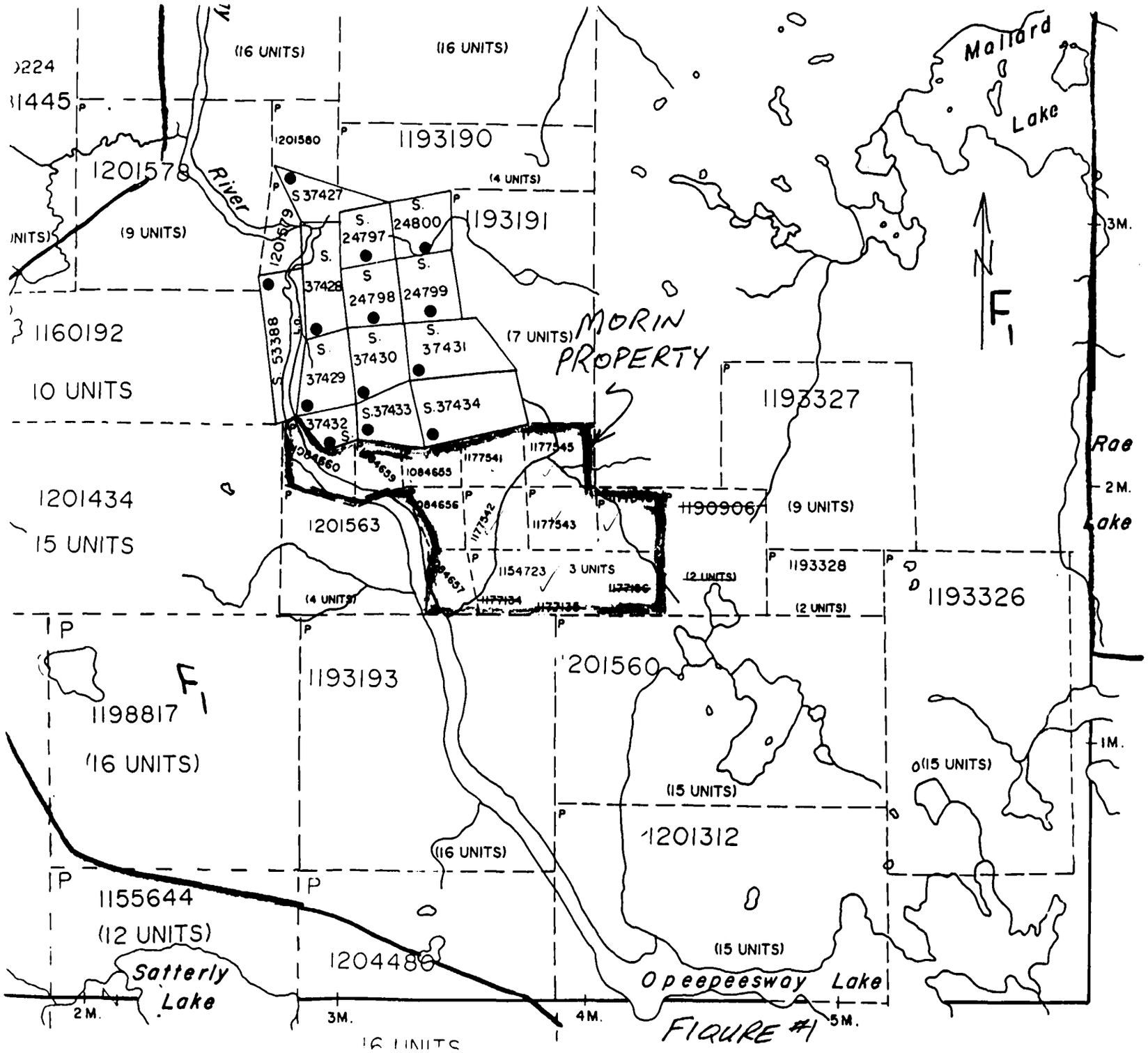


FIGURE #1

ERIC TWP.

Property Map.

SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000

METRES 0 200 1000 (1 KM) 2000 (2 KM)

ACRES	HECTARES
40	16

TOWNSHIP OF

MALLARD

DISTRICT OF

SUDBURY

MINING DIVISION

PORCUPINE

Ministry of Natural Resources

Ministry of Northern Develop and Mines

OWNERSHIP

The property is held by the following people:

Richard Morin
Dennis Morin
Roger Denomme
Fred Ross
George Ross

PREVIOUS WORK

No work, prior to the staking of this property by the present owners, is on file in the regional assessment office in Timmins. The present owners have performed the following work - backhoe stripping, trenching and sampling in the spring of 1991.
In Sept.-Oct. of 1991 Copperquest Inc. performed more stripping and washing of outcrops along with sampling by moil and sawing. During the summer of 1992 the owners had Norex Diamond Drilling of Timmins put down 6 holes.

GENERAL GEOLOGY

The property is located within the Swayze Volcanic Complex of the Abitibi Subprovince. The Swayze belt is east-west trending and is 25 kilometers wide at the eastern edge and 74 kilometers long. It is terminated against the Kapuskasing Structural Zone by a north-south trending fault.
The property is located along the east cental portion of the Swayze belt and is mainly underlain by southeast trending pillowed, massive and tuffaceous mafic volcanics. Recent mapping in the Swayze belt

by K. B. Heather, et al, of the G.S.C. shows that these rocks are part of the October Lake mafic volcanics.

Intercalated with the mafic volcanics are minor felsic to intermediate tuffs and fragmentals. These were only noted south of the baseline (e.g. L6E / 270S, L1E / 290S). The fragmentals had pinkish weathering fragments to 10 cm. x 30 cm. in a finer grained light greenish matrix.

Intruding into all of the above are diabase dykes or sills and pinkish weathering porphyry dykes.

The main showing on the property is located at L2E / 0+30-to 0+50 S. It is a carbonate altered shear zone striking about 135 degrees. with quartz-carbonate veins carrying disseminated pyrite and occassional masses of tourmaline. A pinkish weathering felsic dyke has intruded along the north edge of the zone. Specks of visible gold have been found at this location.

Other carbonate altered zones subparallel to the above were noted on the grid.

LINECUTTING

A baseline was established by the applicant using an azimuth of 125 degrees and starting at the north boundary approximately 200 merters southwest of post #1 of claim 1084655.
Crosslines were turned by the applicant, at 90 degrees to the baseline, and spaced 100 meters apart. Stations were located every 25 meters along the crosslines. Another baseline at L6W / 7+00S, also established by the applicant, had lines 7W and 8W turned and cut north to the claim line. A total of 1.8 kilometers of baselines and 17.5 kilometers of crosslines were established. The grid was cut from July 04-30th, 1995.

GEOPHYSICS

The property was subjected to a combined magnetometer- vlf electromagnetic survey. Stations were read every 12.5 meters with the magnetometer and every 25 meters with the vlf.
A total of 1400 magnetometer and 700 vlf stations were read.
A magnetometer base station was set up at the camp area just west of the Opeepeesway bridge and about 200 meters west of the baseline 700 south at 800 west. The base station value used was 58,000 gammas.
The VLF station used for this survey was Annapolis, Maryland with a frequency of 21.4 KHz.
The geophysical survey was conducted using a Scintrex IGS-2, MP-4/VLF-4; Model No.781010; Serial No.8707309.
The base station magnetometer used was a Geometrics Unimag II, Model No. G-846. Readings were taken every 5 minutes.
The geophysical survey was conducted Aug. 3rd, 16th & 17th. 1995.

The operator was - Raymond Lashbrook
973 Pine Creek Road
Callander, Ontario
1(705) 752-3242

MAGNETOMETER SURVEY

In general the contoured values depict a very regular strike of the underlying rocks of about 130 degrees.

Several magnetic anomalies are quite apparent on the map.

The longest extends across the grid from L6W / 187.5S to L7E /3+25S. This 1,300 meter long anomaly is due to a diabase dyke or sill that outcropped in several locations.

An anomaly that starts at L4W / 2+25N is semi-continuous to L7E / 0+12.5N and has an associated electromagnetic conductor. This anomaly is covered by overburden for its entire length. The possible cause of this anomaly is an interflow sedimentary horizon locally mineralized with pyrite / pyrrhotite and magnetite.

A one line anomaly located on L '0' / 5+00N has a coinciding vlf conductor. This anomaly is located at a the base of a 20 foot high hill. At the top at 5+20 N, sheared and chloritized mafic volcanics and a large quartz vein are exposed. The magnetic anomaly may be caused by magnetite or pyrrhotite while the vlf conductor may be due in part to sulfides and in part to the effect of the hill.

The other magnetic highs on the property have no associated vlf conductors. The probable cause of these are weak magnetite concentrations in the mafic flows or along interflow sedimentary horizons.

VLF-ELECTOMAGNETIC SURVEY

This survey located numerous vlf conductors throughout the property. The most pronounced and longest conductor extends across the entire property from L4W / 2+25N to L10E / 0+75S. It has a coinciding magnetic expression of varying intensities. The anomaly for the most part is located in a low, swampy area. The fact that it has a coincidental magnetic anomaly gives the conductor credence. The anomaly is probably due to sulfides (pyrrhotite and pyrite) in and along an interflow sedimentary horizon or at the top of a more iron rich mafic flow. An obvious deflection in this anomaly located at L3E / 0+50N is probably due to a fault or cross-cutting dyke.

An anomaly located at L `0'/ 5+00 N is at the lower edge of a 20' hill and has a coincidental magnetic anomaly. At the top of the hill at 5+20 north sheared and chloritized mafic volcanics with a large quartz vein is exposed. The cause of this anomaly may in part be due to the sharp hill and in part to a shear zone containing disseminated pyrite/ pyrrhotite and possibly some magnetite.

A conductor located at L7E / 2+00N has a coinciding magnetic anomaly. This conductor is probably due to sulfides.

Numerous other conductors are located throghout the property. The cause of most of these are swamp contacts. One conductor from L1W, 3+50N to L4E / 3+00N appears to parallel the strike of the rock units and could be caused from a graphitic / pyritic horizon as there is no coinciding magnetic expression.

CONCLUSIONS

The combined magnetic-vlf electromagnetic surveys conducted over the Morin Property located several coincidental anomalies. These anomalies are probably due in part to sulfides (pyrrhotite, pyrite) and magnetite in and along interflow sedimentary horizons. Some of the vlf conductors are caused by differences in resistivity along wet swamp contacts and possibly some graphitic horizons. One magnetic anomaly is caused from a diabase dyke or sill. The carbonated gold zone did not respond to this mag-vlf geophysical survey. Other surveys will be required to trace this zone.

RECOMMENDATIONS

The following work is recommended as follow-up to the geophysical survey.

(i) The property should be mapped an prospected. Special attention should be paid along the coincidental mag-vlf conductors to try and explain them.

(ii) Areas other than the cut-over sites could be subjected to a humus sampling program to try and identify anomalous gold zones. This may trace the carbonated gold zone located at L2E at 0+35S as this zone had no geophysical response.

(iii) An I.P. survey could be performed over the carbonated zones as these zones should show up as a higher resistivity.

(iv) Diamond drilling will ultimately be required to fully explain some of the anomalies.

APPENDIX

CERTIFICATE

I, RAYMOND LASHBROOK do hereby declare that

(a) I have no beneficial interest in this property nor do Iexpect to get any.

(b) I graduated from Haileybury School of Mines in 1969 and I have been practising my profession ever since.

(c) I own a company called Lashex Ltd.

(d) I reside at 973 Pinecreek Road, R.R.#1, Callander, Ontario, P0H 1H0.

Raymond L. Lashbrook

Aug 29/95

necessary, therefore, to take continuous readings of the geomagnetic field with a base station magnetometer while the magnetic survey is being done. An alternative field procedure is to make periodic repeat measurements at convenient traverse points, although this is a very unreliable method during active magnetic storms when it is important to have proper reference data.

The intensity of magnetization induced in rocks by the geomagnetic field F is given by:

$$I = kF$$

where I is the induced magnetization
k is the volume magnetic susceptibility
F is the strength of the geomagnetic field

For most materials, k is very much less than 1. If k is negative, the body is said to be diamagnetic. Examples are quartz, marble, graphite and rock salt. If k is a small positive value, the body is said to be paramagnetic, examples of which are gneiss ($k = 0.002$), pegmatite, dolomite and syenite. If k is a large positive value, the body is strongly magnetic and it is said to be ferromagnetic, for example, magnetite ($k = 0.3$), ilmenite and pyrrhotite.

The susceptibilities of rocks are determined primarily by their magnetite content since this mineral is so strongly magnetic and so widely distributed in the various rock types. (Of considerable importance, as well, is the pyrrhotite content.)

The remanent magnetization of rocks depends both on their composition and their previous history. Whereas the induced magnetization is nearly always parallel to the direction of the geomagnetic field, the natural remanent magnetization may bear no relation to the present direction and intensity of the earth's field. The remanent magnetization is related to the direction of the earth's field at the time the rocks were last magnetized. Movement of the body through folding, etc., and the chemical history since the previous magnetization are additional factors which affect the magnitude and direction of the remanent magnetic vector.

Thus, the resultant magnetization M of a rock is given by:

$$M = M_n + kF$$

where M_n is the natural remanent magnetization, and F is a vector which can be completely specified by its horizontal (H) and vertical (Z) components and by the declination (D) from true north. Similarly, M_n is specified when its magnitude and direction are known. Thus, considerable simplification results if $M_n = 0$, whereupon M merely reduces to kF. In the early days of magnetic

THE MP-3/4 MAGNETOMETER

1.0 INTRODUCTION

1.1 General Outline

This section of the manual describes in detail the proton magnetometer method.

A theoretical explanation of the magnetic method is given first. Then the table MAG SETUP MENUS is presented for reference. After this, the following topics are dealt with in detail:

1) method enabling procedures,
2) measuring procedures,
3) warning messages,
4) equipment setup procedures,
5) troubleshooting information,
6) specifications and
7) parts list.

1.2 The Magnetic Method

The magnetic method consists of measuring the magnetic field of the earth as influenced by rock formations having different magnetic properties and configurations. The measured field is the vector sum of induced and remanent magnetic effects. Thus, there are three factors, excluding geometrical factors, which determine the magnetic field. These are the strength of the earth's magnetic field, the magnetic susceptibilities of the rocks present and their remanent magnetism.

The earth's magnetic field is similar in form to that of a bar magnet's. The flux lines of the geomagnetic field are vertical at the north and south magnetic poles where the strength is approximately 60,000 nT. In the equatorial region, the field is horizontal and its strength is approximately 30,000 nT.

The primary geomagnetic field is, for the purposes of normal mineral exploration surveys, constant in space and time. Magnetic field measurements may, however, vary considerably due to short term external magnetic influences. The magnitude of these variations is unpredictable. In the case of sudden magnetic storms, it may reach several hundred gammas over a few minutes. It may be

prospecting, it was usually assumed that there was no remanent magnetization. However, it has now been established that both igneous and sedimentary rocks possess remanent magnetization, and that the phenomenon is a widespread one.

1.3 Magnetometer Setup Menus

The Magnetometer Setup Menus are presented on the next page for easy reference as you read the next chapter, entitled "Enabling the Survey Method".

8.0 SPECIFICATIONS

8.1 Magnetometry Specifications

Total Field Operating Range	20,000 to 100,000 nT (1 nT = 1 gamma).
Gradient Tolerance For Total Field:	±5000 nT/m.
Total Field Absolute Accuracy	±1 nT at 50,000 nT ±2 nT over total field operating and temperature range.
Resolution	0.1 nT.
Tuning	Fully solid-state. Manual or automatic mode is keyboard selectable.
Reading Time	2 seconds. For portable readings this is the time taken from the push of a button to the display of the measured value.
Continuous Cycle Times	Keyboard selectable in 1 second increments upwards from 2 seconds to 999 seconds.
Operating Temperature Range	-40°C to +50°C provided optional Display Heater is used below -20°C.

8.2 Sensor Options

In the following options the actual sensors are identical; however, mountings and cables vary.

Portable Total Field Sensor Option	Includes sensor, staff, two 2 m cables and backpack sensor harness. Weight of sensor, cable and staff is 1.9 kg.

1.2 Theory of Operation

The Very Low Frequency (VLF) electromagnetic method measures variations in the components of the electromagnetic fields, set up by communication stations operating in the 15 to 25 kHz frequency range. These stations, located around the world, generate signals [1] for the purposes of navigation and communication with submarines.

In far field, above uniform earth, the groundwave of the vertically polarized VLF radiowave has three field components:

1. a radial, horizontal electrical field
2. a vertical electrical field, and
3. a tangential, horizontal magnetic field.

When these three fields meet conductive bodies in the ground, eddy currents are induced causing secondary fields to radiate outwards from these conductors. In the Magnetic Field mode, the VLF-3 measures the horizontal field and two components of the vertical field, normalized by the horizontal field measurement. In the Electrical Field mode, it measures the horizontal magnetic and electrical fields.

1.3 What the VLF-3 Measures

As its primary measurement, the VLF-3 employs two mutually orthogonal receive coils to determine three parameters of the VLF-magnetic field. These are: 1) the horizontal amplitude vector in a direction perpendicular to a line joining the operator to the station, 2) the amplitude of the component of the vertical field vector which is in phase with the horizonatal vector, and 3) the amplitude of the component of the vertical field vector which is 90° out of phase with the horizontal vector. These three parameters, for the given VLF transmitter, are recorded simultaneously. Since the vertical components are expressed as a percentage of the horizontal vector, they are automatically normalized for any changes in the amplitude of the transmitted primary field.

The primary field from a VLF station can in fact, vary considerably. Figure 2 is a recording of the horizontal field strength from the Annapolis VLF station made in Toronto, Canada. For the most part, the field fluctuates moderately during the course of the day due to changes in atmospheric conditions. There are, however, more dramatic changes indicated on the recording. Towards evening there is a large upwards swing in the field strength, and at several points during the day, both partial and total drops in the field amplitude can be observed. In the light of these irregularities, the horizontal field data should always be considered with reservation as it is difficult to know whether changes are caused by conductors or by variations in the station's signal.

If the primary field strength is constant, changes in the amplitude of the horizontal magnetic field mainly reflect variations in the conductivity of the earth. Normally there will be no vertical magnetic field. However, near a conductor, a vertical field will be observed. The relative amplitudes of the in-phase and quadrature components may be used to interpret the conductivity-size characteristics of the conductor.

To permit measurement of the VLF-electric field, a dipole consisting of two capacitive electrodes and 5 meters of wire is used. When this dipole is correctly laid out, the VLF-3 measures the in-phase and quadrature components of the horizontal electric field in the direction of the line joining the operator and the transmitter station. The phase reference is the horizontal magnetic field.

The VLF-3 uses the magnetic and electric field measurements to automatically calculate the apparent resistivity of the earth as well as the phase angle between the magnetic and electric field components. If the earth is uniform (not layered) within the depth of the VLF measurement, the phase angle between the horizontal magnetic and electric VLF fields will be 45 degrees. A nonuniform earth will give rise to other phase angles.

The following formulae are used for resistivity and phase calculations:

Apparent Resistivity Calculation:

$$\rho = \frac{1}{2\pi f \mu_o} \left| \frac{E_x}{H_y} \right|^2$$

where:

ρ = apparent resistivity in ohm-meters
E_x = horizontal electric amplitude, calculated
$E_x = (E_x(I)^2 + E_x(Q)^2)^{\frac{1}{2}}$
H_y = horizontal magnetic amplitude, measured
f = VLF station frequency in Hertz
μ_o = permeability of the ground in Henries/meter, a constant

The resistivity calculation has a range of 1 to 100,000 ohm-meters with a resolution of 1 ohm-meter.

Phase Angle Calculation
The phase angle ϕ is expressed as:

$$\phi = \arctan \frac{E_x(Q)}{E_x(I)}$$

where:

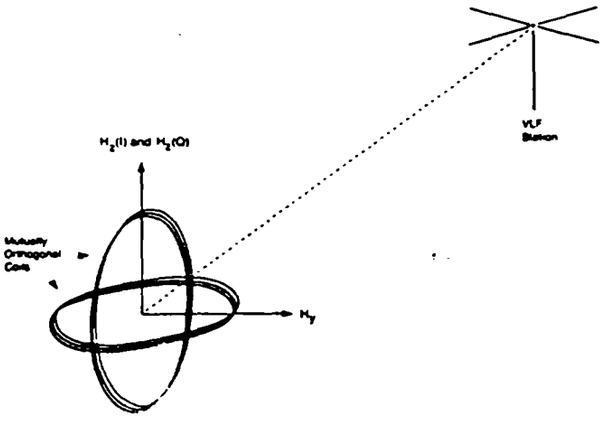
$E_x(Q)$ = horizontal quadrature VLF electric field, measured
$E_x(I)$ = horizontal in-phase VLF electric field, measured.

The phase angle calculation has a range of -180° to +180° with a resolution of 1°. By definition the angle is positive when the electrical field leads the magnetic field.

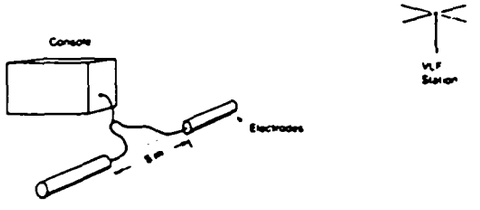
1.4 Features

The features of the VLF-3 are summarized below in point form. A more comprehensive description can be found in the VLF-3 brochure, available from Scintrex.

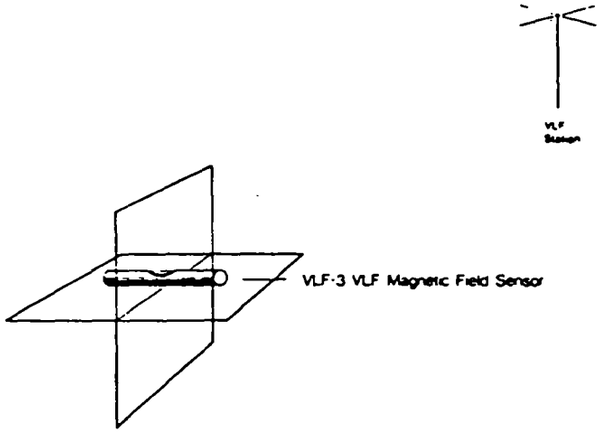
- Measures both VLF-magnetic and VLF-electric fields
- Values are normalized by the horizontal vector amplitude, to overcome errors due to varying primary field strength
- Calculates resistivity and phase angle
- Digital tuning to any VLF station
- Automatic tilt compensation
- Signal/noise enhancement through automatic signal stacking
- Automatic gain adjustment
- Simple operation via keypad
- 32 character LCD display
- Alarm and warning messages ensure data quality
- 'Speaks' any language with Latin characters
- Solid-state memory expandable to hold several days' data
- Records actual coordinates
- Records time
- Records header information
- Records ancillary data
- Permits revision of data
- Outputs to commonly available printers, modems, tape recorders and microcomputers
- Prints data lists and plots profiles directly on a digital printer
- Organizes data by grid, line and station number, regardless of the order in which data were taken
- Several power supply options
- Wide operating temperature range



The VLF-magnetic field measurement comprises: 1) horizontal amplitude H_y, 2) the amplitude of $H_z(I)$ (the vertical field component which is in-phase with H_y) and 3) the amplitude of $H_z(Q)$ (the vertical field component which is 90° out-of-phase with H_y.



The VLF-3 is used to measure the in-phase, $E_x(I)$, and quadrature, $E_x(Q)$, components of the horizontal electric field, E_x, in the line joining the operator and the transmitter station. The phase is referenced to that of the horizontal magnetic field H_y. These components are not recorded but are used in the calculations of resistivity and phase made by the VLF-3.



An electronic level sensor on the axis of the horizontal vector receiver coil provides automatic side-to-side tilt compensation. The error in the vertical in-phase component is less than 1% for tilts up to 15° provided that the operator is facing the VLF station directly. Tilts in any other direction of up to 10° produce no significant error (1%) in the other components and, therefore, require no compensation.

Figure 3
What the VLF-3 Measures

REFERENCE:

56. The Convoluted "Layer-Cake": An Old Recipe With New Ingredients for the Swayze Greenstone Belt, Southern Superior Province, Ontario.

K.B. Heather[1], G.T. Shore[2] and O. van Breemen[1]

[1] Geological Survey of Canada, Ottawa

[2] Department of Geology, University of Western Ontario, London

Appendix 3

LOGISTICAL AND INTERPRETATION REPORT

ON A

INDUCED POLARIZATION SURVEY

ON THE

MALLARD TOWNSHIP PROPERTY

PORCUPINE MINING DIVISION, ONTARIO

FOR

RICHARD MORIN

Submitted by: R.J. Meikle
Rayan Exploration Ltd.
Oct.12, 1995

INTRODUCTION

This report deals with the logistics of and interpretation of an Induced Polarization Survey carried out on the Mallard Township Property. The I.P. Survey was carried out by Rayan Exploration Ltd., Timmins, Ont., on a contract basis for Mr. Richard Morin. This report is intended to be included in a more comprehensive report on the property written by Mr. Morin, which covers property status, previous work, geology, location, etc.

The I.P. Survey was carried out over a previously outlined showing which is reported to have significant gold values. The I.P. Survey was done to determine the response over the zone and delineate it along strike.

PERSONNEL

The following personnel were directly involved in conducting the I.P. Survey on both properties:

S. Anderson	Operator	Timmins, Ontario
A. Durham	Helper	Timmins, Ontario
R. Morin	Helper	North Bay, Ontario
D. Morin	Helper	Folyet, Ontario
R. Dennome	Helper	Timmins, Ontario
G. Ross	Helper	Timmins, Ontario

INDUCED POLARIZATION SURVEY

A total of 4.3km of I.P. Survey was carried out on lines 1w - 3e, on Sept. 26,27, 1995. The following is a brief description of the theory and method used to conduct 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 Dipole-Dipole Array. In this array two current electrodes (C1, C2) and two receiver or potential electrodes are moved down a line in unison. In this case the "a" spacing or distance between each dipole was fixed at 100 feet apart. For an N=1 reading, the closest C1 and P1 were 100 feet apart. The C1-C2 dipole remain in the same place while the potential dipole (P1-P2) moves ahead one "a" spacing and the array is ready for an N=2 reading, etc.

IP Survey Parameters

The IP survey was carried out using the following parameters:

Method: Time Domain
Electrode Array: Dipole-Dipole
"a" spacing: 25 meters
Number of Dipoles Read: 1-4
Pulse Duration: 2 seconds on, 2 seconds off
Delay Time: 310 milliseconds
Integration Time: 140 milliseconds
Receiver: Scintrex IPR-12
Transmitter: Scintrex IPC-9, 200 watt
Data Presentation: Individual Psuedosections (Pocket)

Plate-1 of 1

I.P. SURVEY RESULTS

The I.P. Survey outlined several anomalous zones, some correlating on more than line. The following is a description of the anomalies:

Zone A:

- This anomaly occurs on L1w/162n, L0/130n, and L1e/85n.
- The zone appears to be moderately conductive with a strong chargeability response on Lines 1w and L0.
- It appears to be on a contact between a highly resistive unit and a conductive unit to the north. This resistivity contact continues on L2e and L3e but does not have an apparent chargeability anomaly.
- The I.P. anomaly has a coincident magnetic high on L1w and L0.
- The magnetic anomaly is a narrow continuous zone striking e-se across the grid.

Zone B:

- This is a resistive, strongly chargeable zone on L0/35n.
- The zone is not apparent on either of the adjacent lines.
- It is situated within a broad, highly resistive unit.

Zone C:

- This anomaly runs from L1w to L2e at approx. 275s.
- It is a broad, resistive, highly chargeable zone.
- It is coincident with a narrow magnetic high outlined on the Morin ground magnetic map.

There are several other weaker, isolated anomalies which may be significant after correlation with all other information available.

This interpretation of the I.P. Survey Results should be compiled and correlated with the ground VLF and Magnetic Survey as well as geological information from previous drilling and trenching done by the property owners. At this point, it should be determined if the known gold bearing zones have an I.P. signature which could be used to trace the zones as well as detect new ones.

The I.P. Anomalies described above should be explained, possibly by correlating with the available data and or prospecting. Additional I.P. Survey would be determined based on the results of the above mentioned compilation of 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 1979-1985 (Rayan Exploration Ltd.) and currently with Rayan Exploration Ltd.

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 1995.

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

R.J. Meikle
October 12, 1995

APPENDIX 'A'

SCINTREX IPR-12 - I.P. 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

In Canada

222 Snidercroft Rd.
Concord, Ontario
Canada, L4K 1B5

Tel.: (905) 669-2280
Fax: (905) 669-6403
Telex: (905) 06-964570

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 IPC-9 - I.P. TRANSMITTER

INDUCED POLARIZATION AND D.C.
RESISTIVITY TRANSMITTER

2.0 SPECIFICATIONS

Maximum Output Power	200W defined as when current is on and into a resistive load.
Output Voltage	Switch selectable at nominal settings of 15, 150, 210, 300, 425, 600 or 850 V.
Output Current	1.5 A maximum.
Meter Ranges	Switch selectable at 50 mA, 150 mA, 500 mA, 1500 mA full scale with accuracy of ±3% of full scale.
Automatic Cycle Timing	T:T:T:T; on:off:on:off.
Automatic Polarity Change	Each 2T.
Pulse Durations	T is switch selectable at 1, 2, 4, 8, 16 or 32 seconds.
Period Time Stability and Accuracy	Crystal controlled to better than 0.002 percent of the selected pulse duration.
Open Loop Protection	High voltage is automatically turned off if the output power is less than 2 W. This can be overridden manually for testing purposes. This protection is not effective at the 15 V output.
Synchronization Output	Optically isolated, suitable for external synchronization of the IPR-11 multichannel IP Receiver.
Internal Power Sources	Two battery packs are standard, each containing 4 GC 660-1 lead-acid gel-type batteries giving 24 V at 12 Ah.
	One Penlite battery, Eveready E91 or equivalent.
External Power Sources	24 V DC supply at maximum 10A.

Power for Battery Charger	115 or 230 VAC, 50 to 400 Hz, 100 W.
Dimensions and Weights	Transmitters with two battery packs: 140 x 300 x 460 mm; 16.0 kg Single battery pack: 140 x 300 x 150 mm; 6.2 kg Charger: 140 x 300 x 150 mm; 5.5 kg
Operating Temperature Range	-30°C to +55°C.
Standard Equipment	Console, 2 battery packs, battery charger, carrying harness. Two giant banana plugs, minor spare parts kit.
Optional Equipment	Reels, wire, porous pots, electrodes, major spare parts kit, radio transceivers, back pack.
Shipping Weight	46 kg includes reusable wooden shipping case.

Appendix 4

Grid Distances

Line	From	To	Total
8W	700S	250S	450
7W	725S	175S	550
6W	0	825S	825
5W	200N	925S	1125
4W	325N	1025S	1350
3W	350N	1075S	1425
2W	350N	1125S	1475
1W	450N	575S	1025
0	625N	725S	1350
1E	450N	900S	1350
2E	425N	850S	1275
3E	350N	675S	1025
4E	450N	625S	1075
5E	225N	575S	800
6E	225N	425S	650
7E	250N	350S	600
8E	200N	300S	500
9E	150N	250S	400
10E	50N	225S	275
		cross line total	17,525

Baseline CO	1,800
Baseline at 6W/700S	200
Baseline Total	2,000 KM

Total 19.5 km

Appendix 5

KILOMETERS Mallard 1985

		Km
May 17 North Bay to Ivanhoe		480 *
May 29 Ivanhoe To Timmins Return (Re Groceries)		220
May 30 Ivanhoe To Mallard	Establish Baseline	150
May 31 Mallard Local		10
June 1 Mallard Local		10
June 2 Mallard Local		10
June 2 PM Mallard To Ivanhoe		150
		550
June 3 Ivanhoe To North Bay		480
June 13 North Bay To Ivanhoe	Establish Baseline and Line 6 W	480
June 16 Ivanhoe To Mallard		150
June 17 Mallard Local		10
June 18 Mallard Local		10
June 19 PM Mallard To North Bay		360
July 4 North Bay To Mallard	Review project with Lashex Ltd. and Flag boundary of property.	360
July 5 Mallard Local		10
July 5 PM Mallard To Ivanhoe		150
July 6 Ivanhoe To North Bay		480
		2490
July 17 North Bay To Ivanhoe	Prospecting	480
July 19 Ivanhoe To Mallard		150
July 19 Local Mallard		10
July 19 Mallard To Gogama		100
July 20 Gogama To Mallard		100
July 20 Mallard Local		20
July 21 Mallard Local		20
July 21 PM Mallard To Ivanhoe		150
		1030

"OVER"

July 24 Ivanhoe To Mallard	Prospecting	150	
July 24 Mallard local		10	
July 25 Mallard local		10	
July 25^{PM} Mallard To North Bay		360	530
Sept. 25 North Bay to Ivanhoe		480	
Sept. 26 Ivanhoe to Mallard	I P	150	
Sept. 26 Mallard to Sultan	survey	75	
Sept. 27 Sultan to Mallard		75	
Sept. 28^{PM} Mallard to Ivanhoe		150	930

Total Km. 6,010

NOTE:
I own a cottage at Ivanhoe Lake.
* Mileage deducted Re: Project 480 Km.

Surveys 3970 Km x.30 $1191.

Prospecting 1560 Km x.30 468.

Total 5530 Km 1659

6,010
- 480
Total 5530 Km
x .30
1,659.00

Ministry of Northern Development and Mines
Ontario

Report of Work Conducted After Recording Claim

Mining Act

W966C . CC 364

Personal Information collected on this form is obtained under the authority of the Mining Act. Questions about this collection should be directed to the Provincial Manager, Mining Lands, Sudbury, Ontario, P3E 6A5, telephone (705) 670-7264.

41O09NW0043 2 16677 MALLARD

900

Instructions:
- Please type or print and submit in duplicate.
- Refer to the Mining Act and Regulations for Recorder.
- A separate copy of this form must be completed for each Work Group.
- Technical reports and maps must accompany this form in duplicate.
- A sketch, showing the claims the work is assigned to, must accompany this form.

Recorded Holder(s): J. Richard Morin		Client No. 172554
Address: 133 Shallot cres. North Bay Ont. P1A 3V7		Telephone No. (705) 476-2389
Mining Division: Porcupine	Township/Area: Mallard Twp	M or G Plan No. G 1171
Dates Work Performed: From: May 30th/95	To: Sept. 28th/95	

Work Performed (Check One Work Group Only)

	Work Group	Type
	Geotechnical Survey	
	Physical Work, Including Drilling	
	Rehabilitation	
✓	Other Authorized Work	Prospecting, collecting samples and
✓	Assays	sent for assaying.
	Assignment from Reserve	

RECEIVED
JUL 15 1996
MINING LANDS BRANCH

Total Assessment Work Claimed on the Attached Statement of Costs $ 1826.

Note: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
Richard Morin	133 Shallot cres. North Bay Ont P1A 3V7
Denis Morin	Foleyet Ont P0M 1T0
Swastika Labs	P.O. Box 10 Swastika, Ont. P0K 1T0.

(attach a schedule if necessary)

Certification of Beneficial Interest * See Note No. 1 on reverse side

	Date	Recorded Holder or Agent (Signature)
I certify that at the time the work was performed, the claims covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.	May 17/96	J. Richard Morin

Certification of Work Report

I certify that I have a personal knowledge of the facts set forth in this Work report, having performed the work or witnessed same during and/or after its completion and annexed report is true.

Name and Address of Person Certifying: J. Richard Morin 133 Shallot cres. North Bay Ont. P1A 3V7

Telepone No.	Date	Certified By (Signature)
(705) 476-2389	May 17/96	J. Richard Morin

For Office Use Only

Total Value Cr. Recorded	Date Recorded	Mining Recorder	Received Stamp
1826		Not Dated Gary White	MAY 17 1996 1035 PORCUPINE MINING DIVISION
	Deemed Approval Date: Aug 15/96	Date Approved	
	Date Notice for Amendments Sent		

0241 (03/91)

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
	P1084655	1	140	0	140	
	P1084656	1	140	0	140	
	P1084657	1	140	0	140	
	P1084659	1	140	800	140	
	P1084660	1	140	800	140	
	P1177541	1	140	30	140	
	P1177542	1	140		140	
	P1177543	1	140		140	
	P1177545	1	140		140	
	P1177546	1	140		140	
	P1154723	3	426		230	196
	Total Number of Claims:		Total Value Work Done: 1826	Total Value Work Applied: 1630	Total Assigned From: 1630	Total Reserve: 196

JUL 15 1996
MINING LANDS BRANCH

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark (✓) one of the following:

1. ☐ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☒ Credits are to be cut back equally over all claims contained in this report of work.
3. ☐ Credits are to be cut back as priorized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.

Note 2: If work has been performed on patented or leased land, please complete the following:

I certify that the recorded holder had a beneficial interest in the patented ... the time the work was performed.	Signature	Date

Statement of cost

Direct cost:

9 days Traditional prospecting collecting samples and Forwarding For assaying. 9 x 150.	1350
No. of samples assayed 14	172
Total Direct cost	1522.

Indirect cost:

Transportation		
4x4 Truck + Gas	468	
Food + Lodging 2 Men x 3 dys.	300	
1 Man x 3 dys	150	
sub total / indirect cost	918	
Amount allowable 20% x 1522.		304
Total value of assessment credit		1826

Ministry of Northern Development and Mines

Ontario

Report of Work Conducted After Recording Claim

Mining Act

W960.00363

Personal information collected on this form is obtained under the authority of the Mining Act. This information will be used for correspondence. Questions about this collection should be directed to the Provincial Manager, Mining Lands, Ministry of Northern Development and Mines, Fourth Floor, 159 Cedar Street, Sudbury, Ontario, P3E 6A5, telephone (705) 670-7264.

Instructions:
- Please type or print and submit in duplicate.
- Refer to the Mining Act and Regulations for requirements of filing assessment work or consult the Mining Recorder.
- A separate copy of this form must be completed for each Work Group.
- Technical reports and maps must accompany this form in duplicate.
- A sketch, showing the claims the work is assigned to, must accompany this form.

Recorded Holder(s): J. Richard Morin		Client No.: 172554
Address: 133 Shallot cres. North Bay ONT P1A3V7		Telephone No.: (705) 476-2359
Mining Division: Porcupine.	Township/Area: Mallard Twp.	M or G Plan No.: G1171
Dates Work Performed — From: May 30th/95	To: Sept. 28th/95	

Work Performed (Check One Work Group Only)

	Work Group	Type
✓	Geotechnical Survey	Magnetometer, VLF-electromagnetic, Induced Polarization
	Physical Work, Including Drilling	
	Rehabilitation	
	Other Authorized Work	
	Assays	
	Assignment from Reserve	

RECEIVED
JUL 15 1996
MINING LANDS BRANCH

Total Assessment Work Claimed on the Attached Statement of Costs $ 14,370.

Note: The Minister may reject for assessment work credit all or part of the assessment work submitted if the recorded holder cannot verify expenditures claimed in the statement of costs within 30 days of a request for verification.

Persons and Survey Company Who Performed the Work (Give Name and Address of Author of Report)

Name	Address
Richard Morin	133 Shallot Cres. North Bay Ont P1A 3V7
Denis Morin	Fabyet Ont. P0M 1T0
Roger Denommee	P.O. Box 1625 Timmins Ont.
George Ross	Fabyet Ont. P0M 1T0
Fred. Ross	Timmins Ont.
Lashex Ltd.	473 Pine Creek Rd. Callander Ont.
Rayan Exploration Ltd.	676 Murray St. Timmins Ont. P4N 7B2

(attach a schedule if necessary)

Certification of Beneficial Interest * See Note No. 1 on reverse side

	Date	Recorded Holder or Agent (Signature)
I certify that at the time the work was performed, the claims covered in this work report were recorded in the current holder's name or held under a beneficial interest by the current recorded holder.	May 17/96	J. Richard Morin

Certification of Work Report

I certify that I have a personal knowledge of the facts set forth in this Work report, having performed the work or witnessed same during and/or after its completion and annexed report is true.

Name and Address of Person Certifying: J. Richard Morin 133 Shallot Cres. North Bay Ont. P1A 3V7

Telepone No.	Date	Certified By (Signature)
(705) 476-2359	May 17/96	J. Richard Morin

For Office Use Only

Total Value Cr. Recorded	Date Recorded	Mining Recorder	Received Stamp
14370		Not Dated	MAY 17 1996
	Deemed Approval Date: Aug. 15/96	Date Approved	16:35
	Date Notice for Amendments Sent		

0241 (03/91)

Work Report Number for Applying Reserve	Claim Number (see Note 2)	Number of Claim Units	Value of Assessment Work Done on this Claim	Value Applied to this Claim	Value Assigned from this Claim	Reserve: Work to be Claimed at a Future Date
	P1084655	1	1306.	1200	106.	
	P1084656	1	1306.	1200	106.	
	P1084657	1	1306.	1200	106.	
	P1084659	1	0	0		
	P1084660	1	0	0		
	P1177541	1	1306.	1570	106.	
	P1177542	1	1306.	1600	106.	
	P1177543	1	1306.	1600	106.	
	P1177545	1	1306.	1200	106.	
	P1177546	1	1306.	1200	106.	
	P1154723	3	3922	3600	322.	
	Total Number of Claims		14,370 Total Value Work Done	14,370 Total Value Work Applied	1170. Total Assigned From	Total Reserve

0241 (03/91)

RECEIVED
JUL 15 1996
MINING LANDS BRANCH

Credits you are claiming in this report may be cut back. In order to minimize the adverse effects of such deletions, please indicate from which claims you wish to priorize the deletion of credits. Please mark (✓) one of the following:

1. ☐ Credits are to be cut back starting with the claim listed last, working backwards.
2. ☒ Credits are to be cut back equally over all claims contained in this report of work.
3. ☐ Credits are to be cut back as priorized on the attached appendix.

In the event that you have not specified your choice of priority, option one will be implemented.

Note 1: Examples of beneficial interest are unrecorded transfers, option agreements, memorandum of agreements, etc., with respect to the mining claims.

Note 2: If work has been performed on patented or leased land, please complete the following:

I certify that the recorded holder had a beneficial interest in the patented or leased land at the time the work was performed.

Signature

Date

Ontario

Ministry of Northern Development and Mines

Ministère du Développement du Nord et des mines

Statement of Costs for Assessment Credit

État des coûts aux fins du crédit d'évaluation

Mining Act/Loi sur les mines

Transaction No./N° de transaction
W9660.00363

JUL 15 1996
MINING LANDS BRANCH

Personal information collected on this form is obtained under the authority of the **Mining Act**. This information will be used to maintain a record and ongoing status of the mining claim(s). Questions about this collection should be directed to the Provincial Manager, Minings Lands, Ministry of Northern Development and Mines, 4th Floor, 159 Cedar Street, Sudbury, Ontario P3E 6A5, telephone (705) 670-7264.

Les renseignements personnels contenus dans la présente formule sont recueillis en vertu de la **Loi sur les mines** et serviront à tenir à jour un registre des concessions minières. Adresser toute question sur la collecte de ces renseignements au chef provincial des terrains miniers, ministère du Développement du Nord et des Mines, 159, rue Cedar, 4e étage, Sudbury (Ontario) P3E 6A5, téléphone (705) 670-7264.

1. Direct Costs/Coûts directs

Type	Description	Amount Montant	Totals Total global
Wages Salaires	Labour Main-d'oeuvre		
	Field Supervision Supervision sur le terrain		
Contractor's and Consultant's Fees Droits de l'entrepreneur et de l'expert-conseil	Type		
Supplies Used Fournitures utilisées	Type		
Equipment Rental Location de matériel	Type		
	Total Direct Costs Total des coûts directs		

See reverse / Se reporter au verso

2. Indirect Costs/Coûts indirects

** **Note:** When claiming Rehabilitation work Indirect costs are not allowable as assessment work.
Pour le remboursement des travaux de réhabilitation, les coûts indirects ne sont pas admissibles en tant que travaux d'évaluation.

Type	Description	Amount Montant	Totals Total global
Transportation Transport	Type		
Food and Lodging Nourriture et hébergement			
Mobilization and Demobilization Mobilisation et démobilisation			
	Sub Total of Indirect Costs Total partiel des coûts indirects		
	Amount Allowable (not greater than 20% of Direct Costs) Montant admissible (n'excédant pas 20 % des coûts directs)		
	Total Value of Assessment Credit (Total of Direct and Allowable Indirect costs) / **Valeur totale du crédit d'évaluation (Total des coûts directs et indirects admissibles**		14,370.

See reverse / Se reporter au verso

Note: The recorded holder will be required to verify expenditures claimed in this statement of costs within 30 days of a request for verification. If verification is not made, the Minister may reject for assessment work all or part of the assessment work submitted.

Note : Le titulaire enregistré sera tenu de vérifier les dépenses demandées dans le présent état des coûts dans les 30 jours suivant une demande à cet effet. Si la vérification n'est pas effectuée, le ministre peut rejeter tout ou une partie des travaux d'évaluation présentés.

Filing Discounts

. Work filed within two years of completion is claimed at 100% of the above Total Value of Assessment Credit.

. Work filed three, four or five years after completion is claimed at 50% of the above Total Value of Assessment Credit. See calculations below:

Total Value of Assessment Credit	Total Assessment Claimed
× 0.50 =	

Remises pour dépôt

1. Les travaux déposés dans les deux ans suivant leur achèvement sont remboursés à 100 % de la valeur totale susmentionnée du crédit d'évaluation.

2. Les travaux déposés trois, quatre ou cinq ans après leur achèvement sont remboursés à 50 % de la valeur totale du crédit d'évaluation susmentionné. Voir les calculs ci-dessous.

Valeur totale du crédit d'évaluation	Évaluation totale demandée
× 0,50 =	

Certification Verifying Statement of Costs

I hereby certify:
that the amounts shown are as accurate as possible and these costs were incurred while conducting assessment work on the lands shown on the accompanying Report of Work form.

that as Recorded Holder I am authorized
(Recorded Holder, Agent, Position in Company)

to make this certification

Attestation de l'état des coûts

J'atteste par la présente :
que les montants indiqués sont le plus exact possible et que ces dépenses ont été engagées pour effectuer les travaux d'évaluation sur les terrains indiqués dans la formule de rapport de travail ci-joint.

Et qu'à titre de _____ je suis autorisé
(titulaire enregistré, représentant, poste occupé dans la compagnie)

à faire cette attestation.

Signature	Date
	May 17/96

Statement of Cost

Grid:

Baseline 20km
Crosslines 17.5km
Total 19.5

Direct Cost

19.5 km of line cutting + Picket @ $250.		4875.
17.5 km of Mag and VLF combined @ $130.		2275.
Mag / VLF Report and Maps - Mylars		1000.
4.3 km of Induced Polarization (2 days)		
Report Maps - Mylars		3500
Consumable Supplies chain saw chain, Gas + oil, Equip. sharpening, propane, spray paint, Flagging tape, tickets Maps photocopying.		325
Total Direct Cost		11,975.

Indirect Cost

Transportation

2-4x4 Trucks + Gas		1191.
Food + Lodging	4 Men x 4 dys	800.
	2 Men x 3 dys	300.
	1 Man x 6 dys	300
Sub Total indirect cost		2591.
Amount Allowable 20% x 11,975		2395
Total Value of Assessment credit		14370

Ontario

Ministry of Northern Development and Mines
Ministère du Développement du Nord et des Mines

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

Telephone: (705) 670-5853
Fax: (705) 670-5863

August 08, 1996

Our File: 2.16677
Transaction #: W9660.00363
W9660.00364

Mining Recorder
Ministry of Northern Development & Mines
60 Wilson Avenue, 1st Floor
Timmins, Ontario
P4N 2S7

Dear Mr. White:

SUBJECT: APPROVAL OF ASSESSMENT WORK CREDIT ON MINING LAND, CLAIM(S) 1084655 ET AL. IN MALLARD TOWNSHIP

Assessment work credit has been approved as outlined on the Declaration of Assessment Work Form accompanying this submission. The credit has been approved under Section 9, Prospecting, and Section 14, Geophysics (MAG,VLF,IP), of the Assessment Work Regulation.

The approval date is August 08, 1996. Please indicate this approval on the claim record.

If you have any questions regarding this correspondence, please contact Steven Beneteau at (705) 670-5855.

Yours sincerely,
ORIGINAL SIGNED BY:

for Ron C. Gashinski
Senior Manager, Mining Lands Section
Mines and Minerals Division

SBB/jf

cc: Resident Geologist
Timmins, Ontario

Assessment Files Library
Sudbury, Ontario

DISPOSITION OF CROWN LANDS

TYPE OF DOCUMENT	SYMBOL
PATENT, SURFACE & MINING RIGHTS	●
" , SURFACE RIGHTS ONLY	◒
" , MINING RIGHTS ONLY	◒
LEASE, SURFACE & MINING RIGHTS	■
" , SURFACE RIGHTS ONLY	■
" , MINING RIGHTS ONLY	■
LICENCE OF OCCUPATION	▼
ORDER-IN-COUNCIL	OC
RESERVATION	(R)
CANCELLED	⊗
SAND & GRAVEL	(S)

NOTE: MINING RIGHTS IN PARCELS PATENTED PRIOR TO MAY 6, 1913, VESTED IN ORIGINAL PATENTEE BY THE PUBLIC LANDS ACT, R.S.O. 1970, CHAP. 380, SEC. 63, SUBSEC 1.

AREAS WITHDRAWN FROM DISPOSITION

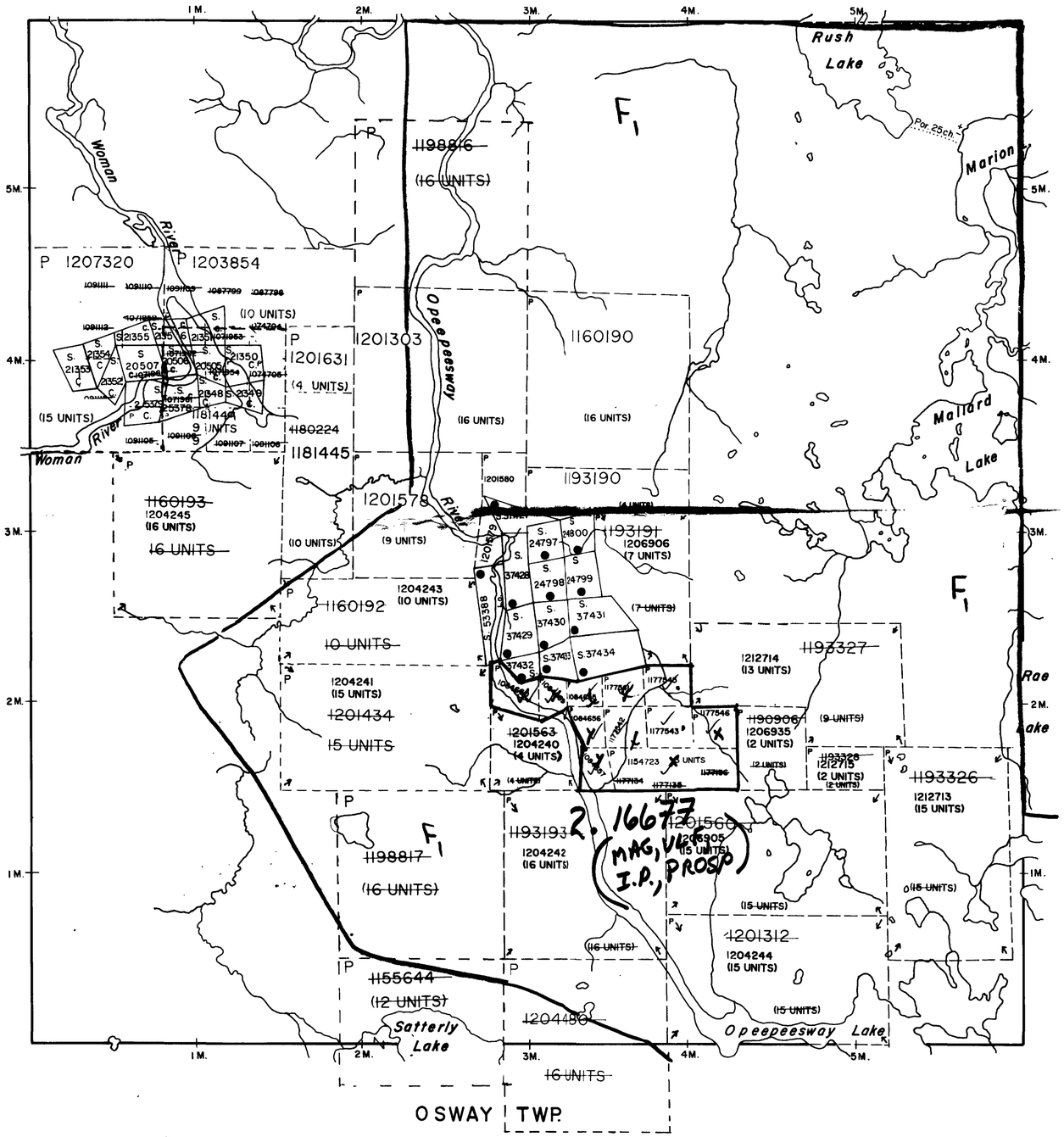
M.R.O. – MINING RIGHTS ONLY

S.R.O. – SURFACE RIGHTS ONLY

M.+ S. – MINING AND SURFACE RIGHTS

Description	Order No.	Date	Disposition	File

F_1 - SUBJECT TO FORESTRY ACTIVITY IN 1994/95, 1995/96



2. 16677 (MAG, VLF, I.P., PROSP)

LEGEND

- HIGHWAY AND ROUTE No.
- OTHER ROADS
- TRAILS
- SURVEYED LINES:
  - TOWNSHIPS, BASE LINES, ETC.
  - LOTS, MINING CLAIMS, PARCELS, ETC.
- UNSURVEYED LINES:
  - LOT LINES
  - PARCEL BOUNDARY
  - MINING CLAIMS ETC.
- RAILWAY AND RIGHT OF WAY
- UTILITY LINES
- NON-PERENNIAL STREAM
- FLOODING OR FLOODING RIGHTS
- SUBDIVISION OR COMPOSITE PLAN
- RESERVATIONS
- ORIGINAL SHORELINE
- MARSH OR MUSKEG
- MINES
- TRAVERSE MONUMENT

SCALE: 1 INCH = 40 CHAINS

FEET 0 1000 2000 4000 6000 8000

METRES 0 200 1000 (1 KM) 2000 (2 KM)

ACRES	HECTARES
40	16

TOWNSHIP OF

MALLARD

DISTRICT OF SUDBURY

MINING DIVISION PORCUPINE

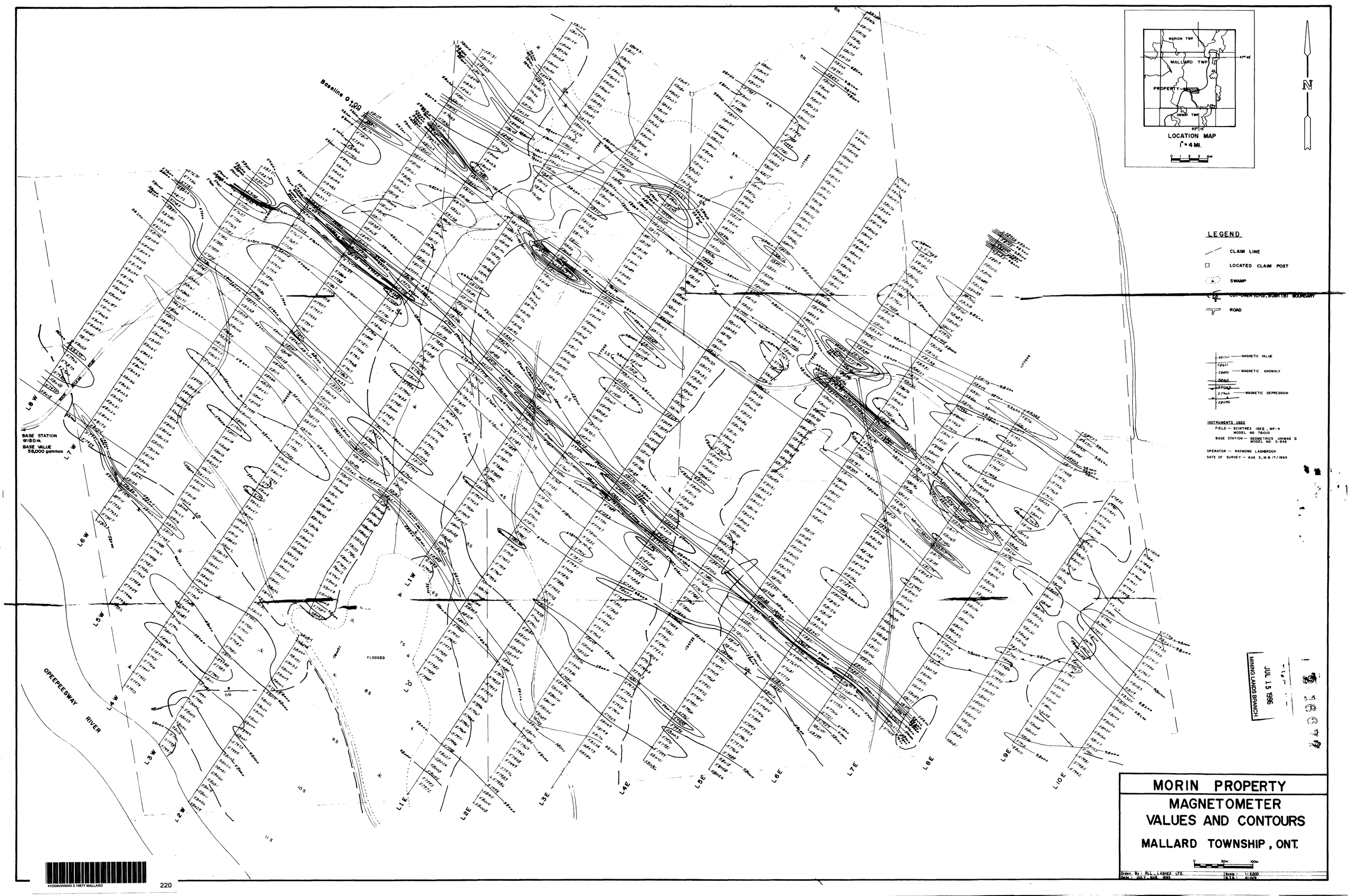
2. 16677

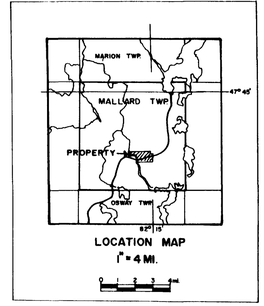
Ontario Ministry of Natural Resources | Ministry of Northern Development and Mines

Date	Plan No.
JULY 1986	G-1171
National Topographic Series	
ACTIVATED 94-MAR-01 BG	

41O09NW0043 2.16577 MALLARD

210





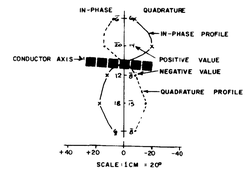
LOCATION MAP
1" = 4 MI.

0 1 2 3 4mi

N

LEGEND

- CLAIM LINE
- LOCATED CLAIM POST
- SWAMP
- CUT-OVER (C/O), BUSH (B) BOUNDARY
- ROAD



STATION — ANNAPOLIS, MARYLAND
FREQUENCY — 21.4 KHz

INSTRUMENT — SCINTREX IGS-2, VLF-4
MODEL NO 781010

OPERATOR — RAYMOND LASHBROOK

DATE OF SURVEY — AUG 3, 16 & 17/1995

Baseline 0+00

L8W L7W L6W L5W L4W L3W L2W L1W L0 L1E L2E L3E L4E L5E L6E L7E L8E L9E L10E

0S 4S 5S 6S 7S 8S 9S 10S 11S

ROAD ACCESS

1084656 1177345 1084723

FLOODED

C/O

OPEEPEESWAY RIVER

JUL 15 1996
MINING LANDS BRANCH

2.16677

MORIN PROPERTY

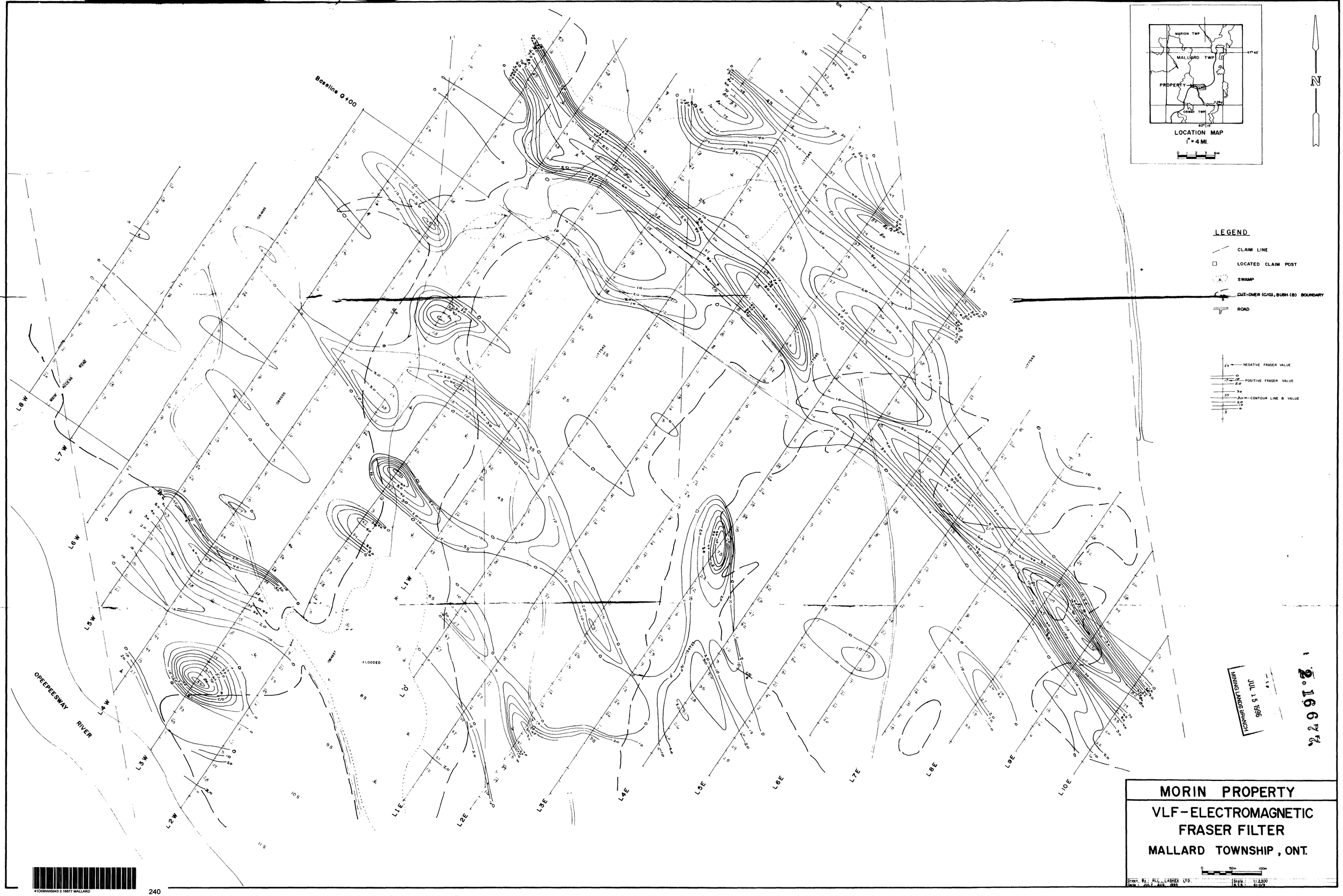
VLF-ELECTROMAGNETIC VALUES AND PROFILES

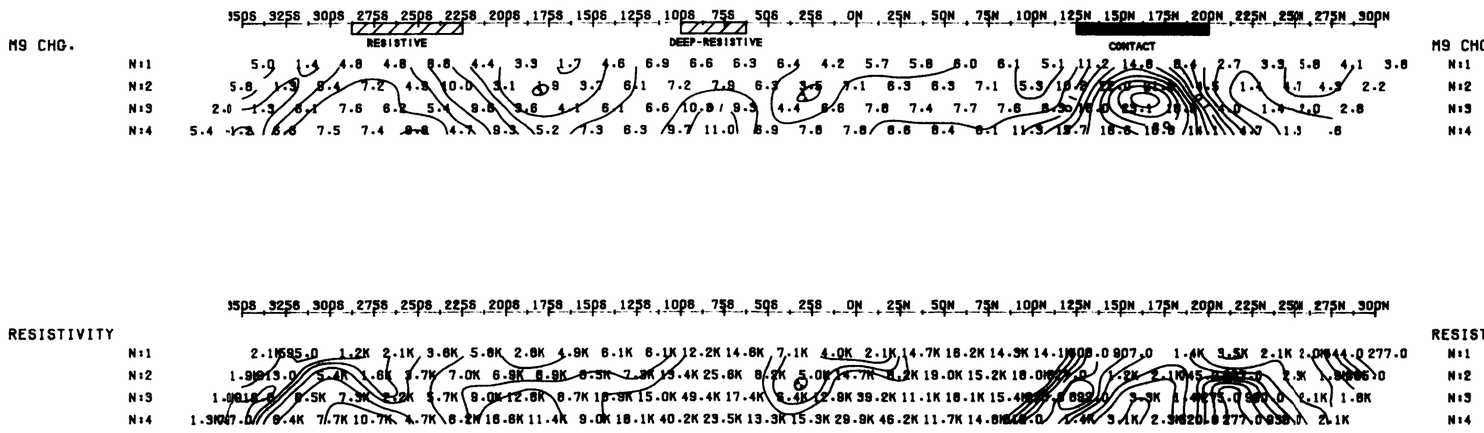
MALLARD TOWNSHIP, ONT.

0 50m 100m

Drawn By: RLL, LASHEK LTD.
Date: JULY, AUG 1995
Scale: 1:2,500
N.T.S.: 41-O/9

41O09NW0043 2.16677 MALLARD

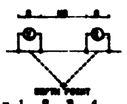




LINE : 100 W

INDUCED POLARIZATION SURVEY

DIPOLE-DIPOLE ARRAY



N = 1, 2, 3, 4, ...
"A" SPACING = 25.0 METRES

RECEIVER: SCINTREX IPR-12 TIME DOMAIN
RX-TX TIMING: 2sec ON 2sec OFF
PLOTTED WINDOW SLICE: #8
TRANSMITTER: SCINTREX IPC-9 200 WATT

RICHARD MORIN

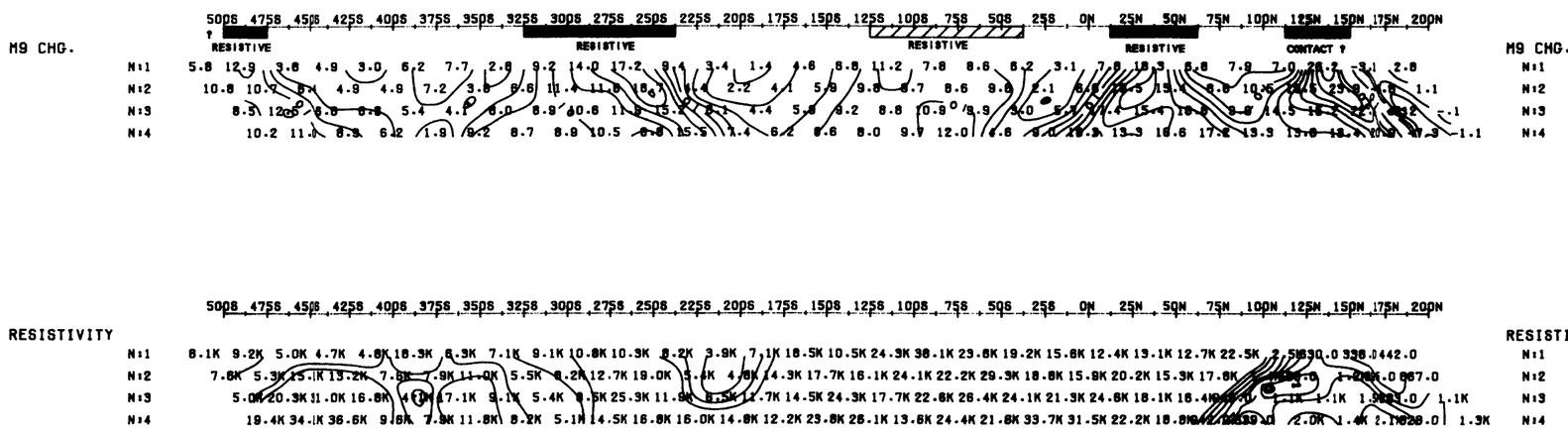
MORIN PROPERTY

MALLARD TOWNSHIP

DATE : SEPT 27/95 | REF : SDA

SCALE = 1: 2500

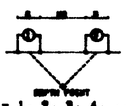
RAYAN EXPLORATION LIMITED



LINE : 0 E

INDUCED POLARIZATION SURVEY

DIPOLE-DIPOLE ARRAY



N = 1, 2, 3, 4, ...
"A" SPACING = 25.0 METRES

RECEIVER: SCINTREX IPR-12 TIME DOMAIN
RX-TX TIMING: 2sec ON 2sec OFF
PLOTTED WINDOW SLICE: #8
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RICHARD MORIN

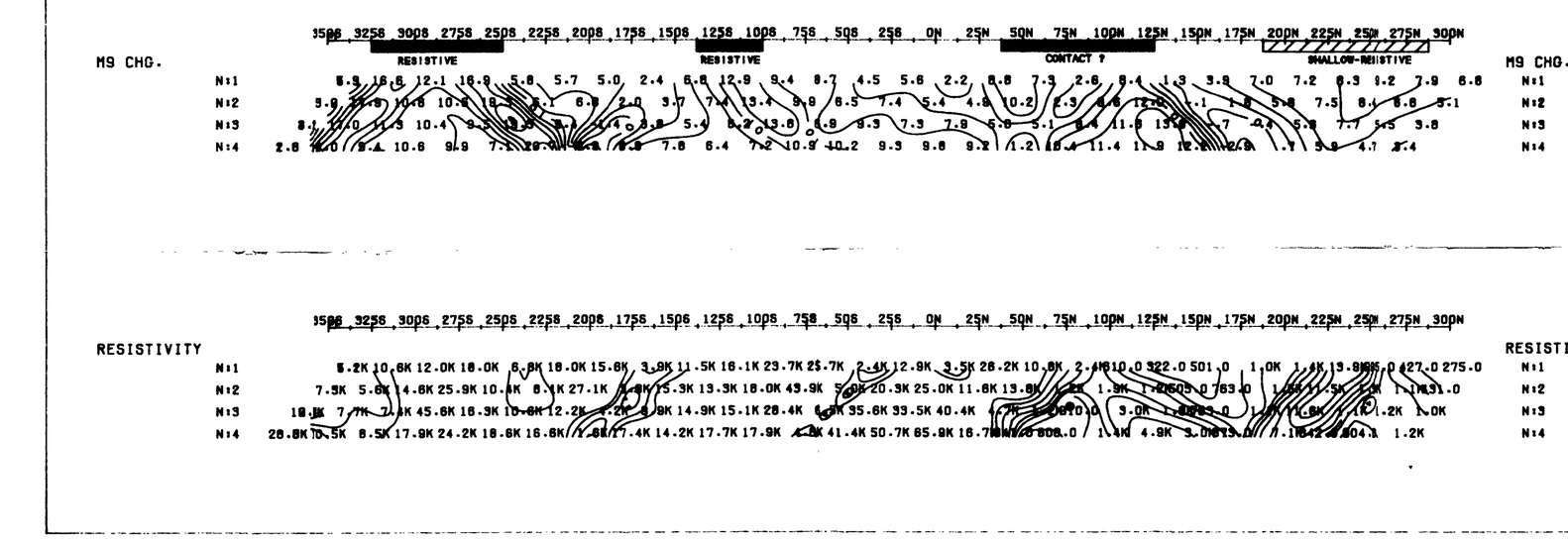
MORIN PROPERTY

MALLARD TOWNSHIP

DATE : SEPT 27/95 | REF : SDA

SCALE = 1: 2500

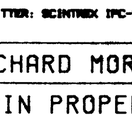
RAYAN EXPLORATION LIMITED



LINE : 100 E

INDUCED POLARIZATION SURVEY

DIPOLE-DIPOLE ARRAY



N = 1, 2, 3, 4, ...
"A" SPACING = 25.0 METRES

RECEIVER: SCINTREX IPR-12 TIME DOMAIN
RX-TX TIMING: 2sec ON 2sec OFF
PLOTTED WINDOW SLICE: #8
TRANSMITTER: SCINTREX IPC-9 200 WATT

RICHARD MORIN

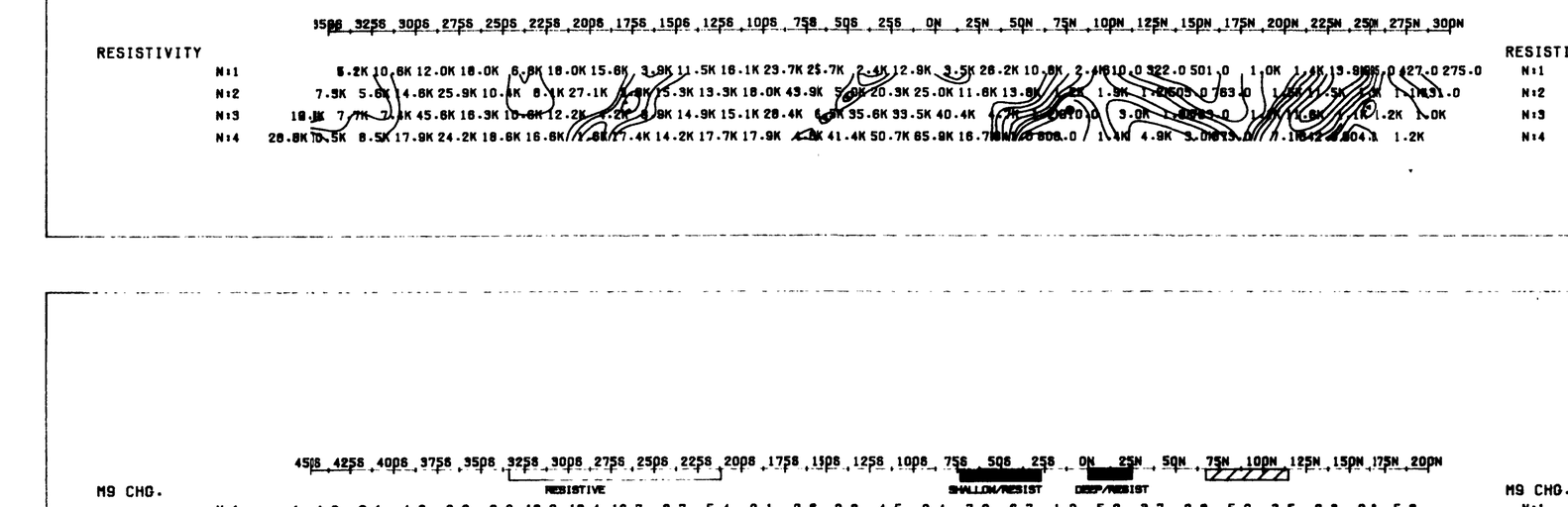
MORIN PROPERTY

MALLARD TOWNSHIP

DATE : SEPT 26/95 | REF : SDA

SCALE = 1: 2500

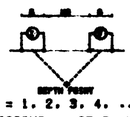
RAYAN EXPLORATION LIMITED



LINE : 200 E

INDUCED POLARIZATION SURVEY

DIPOLE-DIPOLE ARRAY



N = 1, 2, 3, 4, ...
"A" SPACING = 25.0 METRES

RECEIVER: SCINTREX IPR-12 TIME DOMAIN
RX-TX TIMING: 2sec ON 2sec OFF
PLOTTED WINDOW SLICE: #8
TRANSMITTER: SCINTREX IPC-9 200 WATT

RICHARD MORIN

MORIN PROPERTY

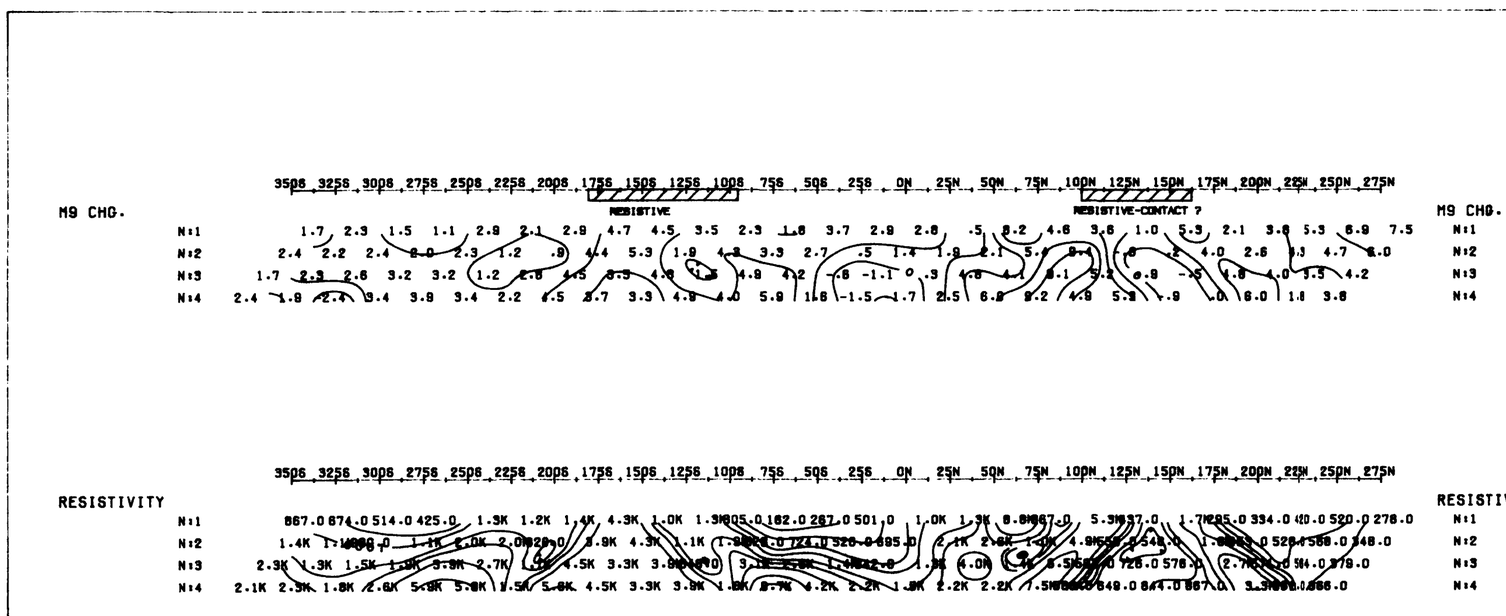
MALLARD TOWNSHIP

DATE : SEPT 26/95 | REF : SDA

SCALE = 1: 2500

RAYAN EXPLORATION LIMITED

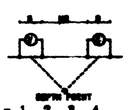
2.16677



LINE : 300 E

INDUCED POLARIZATION SURVEY

DIPOLE-DIPOLE ARRAY



N = 1, 2, 3, 4, ...
"A" SPACING = 25.0 METRES

RECEIVER: SCINTREX IPR-12 TIME DOMAIN
RX-TX TIMING: 2sec ON 2sec OFF
PLOTTED WINDOW SLICE: #8
TRANSMITTER: SCINTREX IPC-9 200 WATT

RICHARD MORIN

MORIN PROPERTY

MALLARD TOWNSHIP

DATE : SEPT26/95 | REF : SDA

SCALE = 1: 2500

RAYAN EXPLORATION LIMITED

RICHARD MORIN
MORIN PROPERTY
MALLARD TOWNSHIP
IP PSUEDOSECTIONS