
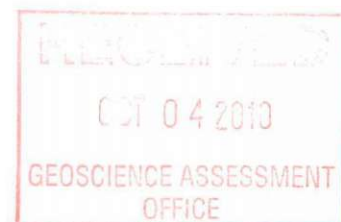


**GEOPHYSICAL REPORT**  
**FOR 2.46282**  
**RIO TINTO MINERALS (LUZENAC INC.)**  
ON THE  
**NAT RIVER PROPERTY**  
PENHORWOD AND REEVES TOWNSHIPS  
PORCUPINE MINING DIVISION  
NORTHEASTERN, ONTARIO

2.46282

  
Prepared by: J. C. Grant, CET, FGAC  
September 2010



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**INTRODUCTION:**

The services of Exsics Exploration Limited were retained by Mr. David Marek, on behalf of the Company, Rio Tinto Minerals, (Luzenac Inc.), to complete a detailed total field magnetic and VLF-EM survey over a cut grid, (the Nat River Property), that represents a portion of their claim holdings in Penhorwood and Reeves Townships. The program was completed in two phases that commenced with the cutting of a detailed metric grid that was then covered by the Total Field Magnetic survey that was done in conjunction with a VLF-EM survey. The entire ground program was completed by Exsics Exploration Limited.

**PROPERTY LOCATION AND ACCESS:**

The Nat River Property is situated approximately 75 kilometers west of the City of Timmins. The claim block is situated in the south central section of Reeves Township and the north central section of Penhorwood Township.

More specifically the claim block lies between the Groundhog River which runs north-south across the western edge of the property, Jehann Lake to the south and Highway 101 west that cuts across the northern section of the property. The Nat River also cuts across the western section of the grid area. Penhorwood and Reeves Township are within the Porcupine Mining Division, Northeastern, Ontario. Refer to Figures 1 and 2 of this report.

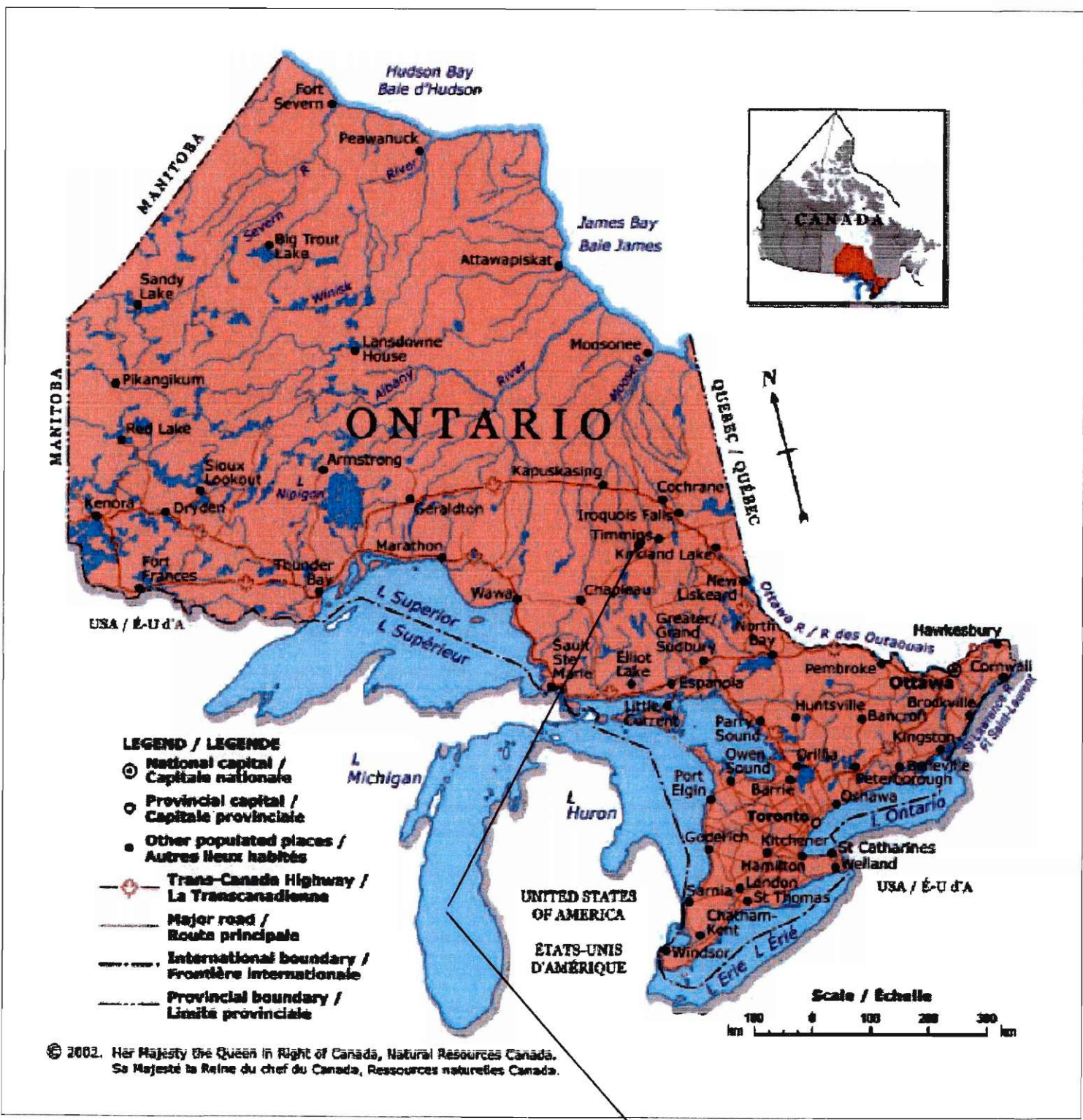
Access to the grid during the survey period was ideal. Highway 101 travels west from Timmins to the Town of Foleyet and runs east to west across the northern section of the grid. There are a number of good gravel roads that run north and south off of this Highway that provided good drivable access to the western, southern and eastern sections of the grid with either 4 wheel drive vehicles and or ATV units. Traveling time from Timmins to the grid is about 1.5 hours.

**CLAIM BLOCK:**

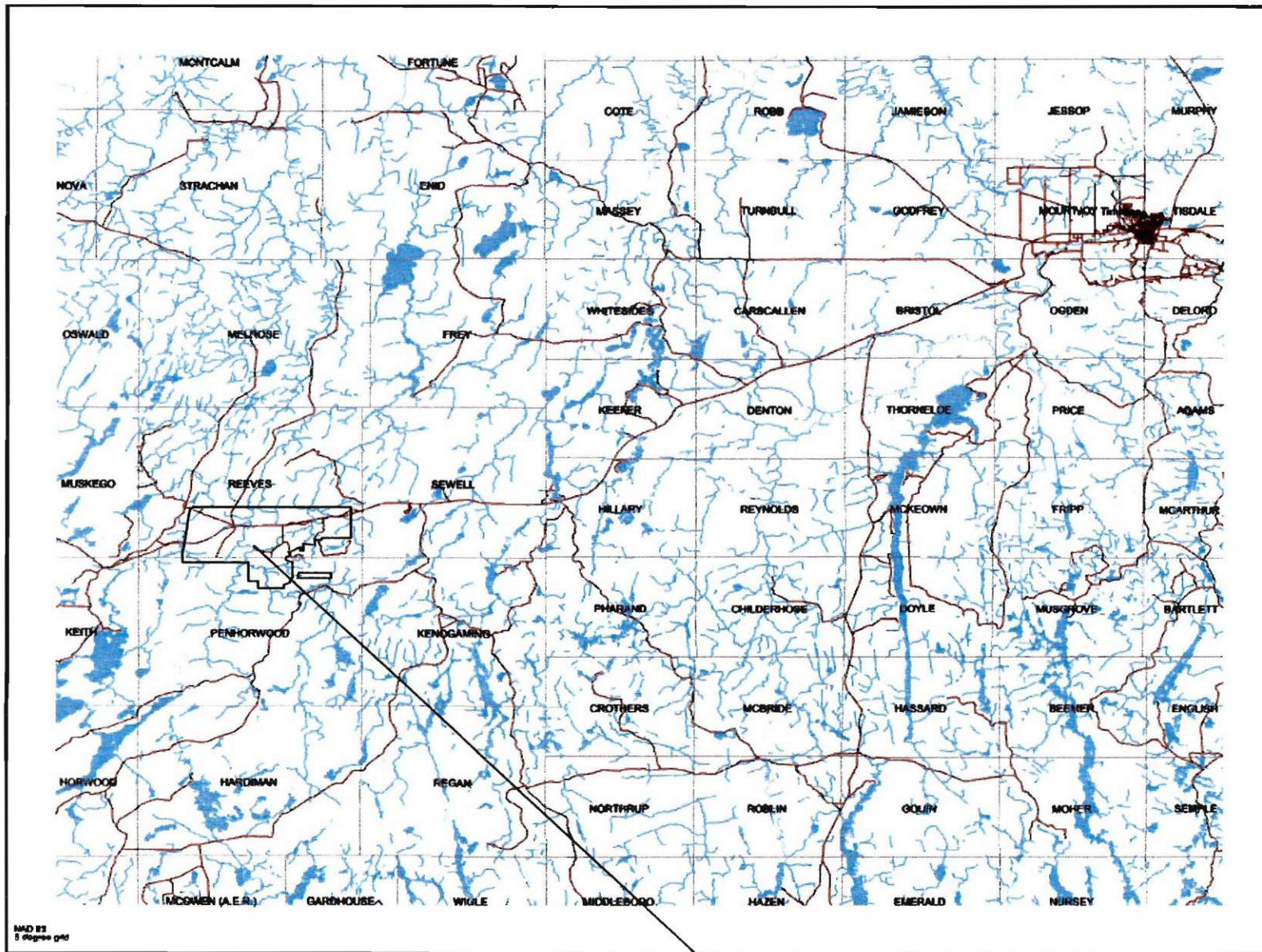
The claim numbers that represent the Nat River Property are listed below.

**Penhorwood Township:**

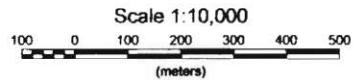
4242446	1 units
4247080	3 units
4247081	9 units



RIO TINTO MINES LTD.  
 NAT RIVER PROJECT-PENHORWOOD TOWNSHIP  
 LOCATION MAP  
 JULY 2010 EXS91CS EXPLORATION LIMITED



MAD 83  
5 00000 010



**RIO TINTO MINES LTD.**  
**NAT RIVER PROJECT-PENHORWOOD TOWNSHIP**  
**PROPERTY LOCATION MAP**  
**JULY 2010 EXS91CS EXPLORATION LIMITED**

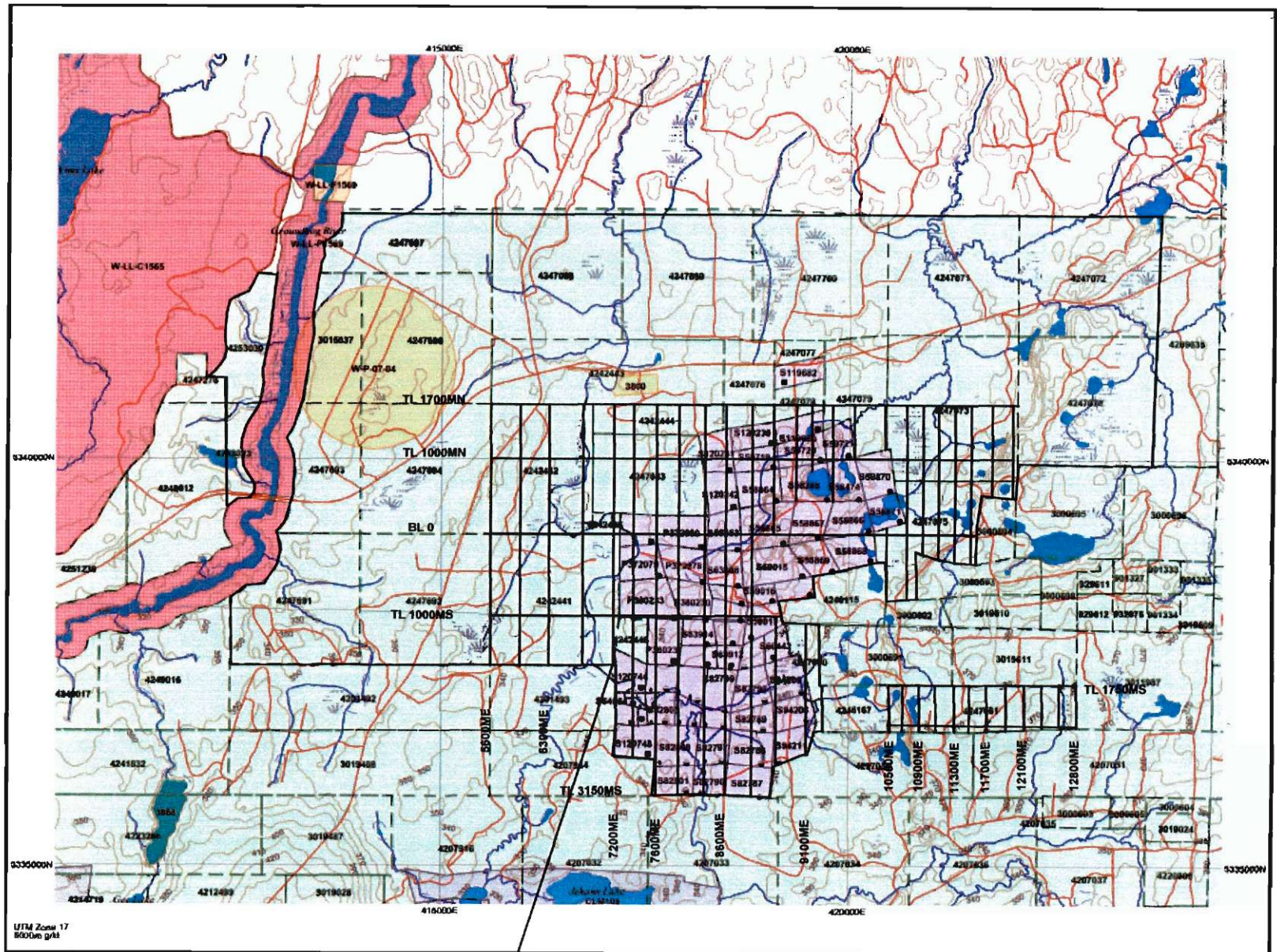
**Reeves Township:**

3015837	5 units	4247071	16 units
4242441	16 units	4247072	16 units
4242442	12 units	4247073	16 units
4242443	14 units	4247074	15 units
4242444	4 units	4247075	10 units
4242445	1 unit	4247076	8 units
4247663	7 units	4247077	1 unit
4247691	12 units	4247078	2 units
4247692	16 units	4247079	6 units
4247693	9 units	4247698	16 units
4247694	16 units	4247699	16 units
4247696	16 units	4247700	16 units
4247697	9 units	4253023	2 units
425303	4 units		

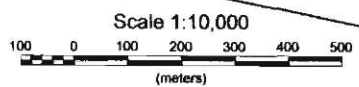
**Patented Claims:**

S58866	S60442	S120231	P372078
S59721	S59017	S120230	P372079
S58871	P380233	S119682	P372080
S58870	P380230	S119680	S63908
S58869	P380231	S59719	S59015
S58868	S63914	S59720	S59016
S58867	S63912	P380231	S82804
P380231	S58865	S120744	S63909
S58864	S82805	S120242	S120244
S58863	S82799	S120747	S82803
S58288	S82790	S58474	S94205
S94211	S94206	S120748	S82800
S82801	S82796	S82787	S82797
S82788	S82789	S63910	S82802
S63911	S63913	S59018	S82791
S82798	S64064		

Refer to Figure 3 copied from MNM Plan Map G-3244 of Penhorwood Township and G-1206 of Reeves Township for the positioning of the grid and the claim numbers.



UTM Zone 17  
8000m gM



**RIO TINTO MINES LTD.**  
**NAT RIVER PROJECT-PENHORWOOD TOWNSHIP**  
**CLAIM MAP GRID MAP**  
**JULY 2010 EXS91CS EXPLORATION LIMITED**

**PERSONNEL:**

The field crew directly responsible for the collection of all the raw field data were as follows.

M. Cayen	Timmins, Ontario
J. Francoeur	Timmins, Ontario
R. Bradshaw	Timmins, Ontario
D. Poirier	Timmins, Ontario

The work was completed under the direct supervision of J. C. Grant of Exsics.

**GROUND PROGRAM:**

The ground program was completed in two phases. The first phase was to establish a detailed metric grid across the property. This was done by first establishing a tie line labeled 1000MS that was cut at 090 degrees from line 5600ME, the western edge of the grid to and including 12100ME which represents the eastern edge of the grid. Cross lines were turned off of this tie line at 100 meter intervals from 5600ME to 12100ME and each line was cut to tie line 1700MN, that represents the northern boundary of the grid, and to a series of base lines and tie lines that parallel the main 1000MS tie line. These parallel tie lines and base line have been labeled 1000MN, 0+00, 1550MS, 2300MS, 2750MS and 3200MS and were cut to control all of the cross lines.

Claim number 4247081 represents the only claim block that is isolated from the entire property and thus had a number of lines cut across it that ran from line 10500ME to 12800ME and from tie line 1750MS to tie line 2250MS. All of these cut lines were then chained with 25 meter picket intervals that have been metal tagged.

In all a total of 225.0 kilometers of grid lines were cut across the claim block between the months of February 1<sup>st</sup> and March 15<sup>th</sup> 2010

The cut grid was then covered by a total field magnetic survey that was done in conjunction with a VLF-EM survey using the Scintrex ENVI mag system. Specifications for this unit can be found as Appendix A of this report. The geophysical surveys were completed between February 20<sup>th</sup> and June 30<sup>th</sup> 2010 due to an early winter breakup that hampered the coverage of the grid during the early snow melt. The following parameters were kept constant throughout the survey.



**MAGNETIC SURVEY:**

Line spacing	100 meters
Station spacing	25 meters
Reading intervals	12.5 meters
Diurnal monitoring	base station recorder
Record interval	30 seconds
Reference field	56500 nT
Datum subtracted	56000 nT

Once the survey was completed the collected magnetic data was merged with the base station data, corrected and then plotted onto a base map at a scale of 1:5000. A datum of 56000nT has been removed from the readings for ease in plotting only. The plotted results were then contoured at 50 gamma intervals wherever possible. A copy of this colored contoured map is included in the back pocket of this report.

**VLF-EM SURVEY:**

Line spacing	100 meters
Station spacing	25 meters
Reading intervals	12.5 meters
Transmitter station	Cutler, Maine, 24.0Khz
Parameters measured:	Inphase and Quadrature components, Field strength and Tilt angle.
Parameter plotted	Inphase component of the secondary field.

Once this survey was completed the collected inphase data was plotted directly onto a base map at a scale of 1:5000 and then profiled at 1cm= +/- 20%. Any and all conductor axis were then interpreted and placed onto this base map. A copy of this profiled base map is included in the back pocket of this report.

**MAGNETIC & VLF-EM SURVEY RESULTS:**

Generally the magnetic and VLF-EM surveys outlined the underlying geological characteristics of the grid area. The most predominant magnetic structure on the grid is a wide magnetic high that generally strikes northeast to southwest and covers the central south section of the grid lines between lines 7200ME to 8700ME in Penhorwood Township and can be followed into the central north section of the grid between lines 9450ME and 10400ME in Reeves Township. The northern section of this structure appears to either terminate or has been cut off by a possible fault like unit striking northwest across lines 9800ME to 9300ME. This fault zone may be represented by the magnetic low striking across the above mentioned grid lines.

The large magnetic high unit represents the mafic to ultramafic intrusive unit that covers most of the southern section of the grid in Penhorwood Township and extends northward into the central north section of the grid in Reeves Township. This unit is host to the Talc deposit in Reeves as well as several showings of graphite, asbestos and gold in Penhorwood Township.

There a number of VLF-EM zones associated with the edges of the intrusive as well as a number of moderate to strong VLF zones associated with the unit itself.

There also appears to be several diabase dike like units cutting across the intrusive. The dikes appear to strike north to northwest and in turn have been cross cut by several east-west to northeast-southwest striking fault zones. One such dike like unit may be represented by a series of magnetic high that can be followed from the magnetic high on line 7800ME just to the south of the 1000MS tie line that continues north-northeast to the spot highs on lines 7800ME, 7900ME and 8000ME. The dike like unit then appears to follow line 8000ME north and then strikes slightly northwest and across lines 7900ME and 7800ME to at least tie line 1000MN.

Another of these dike like units may be represented by a second set of magnetic spot highs striking northwest from line 7700ME/600MS to line 7100ME at 500MN where it seems to have been faulted to the northeast and then continues in a northwest direction from line 7200ME/650MN to line 6500ME at 1600MN. This portion of the dike also appears to have interrupted the strike of the long narrow magnetic high that is striking west across the northern sections of lines 9200ME to 6700ME. There are several good VLF zones associated with the edges of this narrow magnetic high that may suggest that the unit is a possible contact between the sediments to the south and the mafic volcanics to the north.

There is another magnetic structure striking west-southwest that can be followed from line 8100ME at 350MN to 7700ME at 350MN where it appears to have been faulted by the dike like unit cross cutting the grid in a northwest direction. This zone then seems to continue from line 7300ME at 250MN to 6900ME at 150Mn where it again seems to have been faulted off by a structure that has interrupted the flow direction of the Nat River. This magnetic unit then continues across lines 6700ME to 5800ME between 200MS and 300MS. Again there are several VLF zones associated with the edges of this magnetic high unit suggesting a possible contact between the sediments to the north and the felsic intrusives to the south.

Another magnetic structure can be followed from line 8400ME at 600MS to 8000ME at 600MS where it also seems to have been cut off by the dike like unit striking north across the grid. There is a good VLF zone associated directly with this magnetic high.

There is an isolated magnetic high unit lying between lines 6100ME and 6700ME from 1200MS to 1400MS that may represent a possible contact between the sediments to the south and the felsic to the north or it may be indicative of a possible porphyry within the sediments. Two VLF zones lie along the north and south shoulders of this magnetic unit.

A final magnetic high unit is located between lines 11300ME and 11600ME and centered at 2000MS. This unit may represent a cross structure striking northwest or a structure cut off by a northwest striking structure. A moderate to strong VLF zone is associated with the northern edge of the high.

The modest magnetic high paralleling line 10700ME between 2300MS and 1750MS also represents the western shore of a north striking lake. This may suggest that the high correlates to a dike like unit. This magnetic high seems to have interrupted the VLF zone striking across the central south section of lines 11300ME to 11000ME and appearing again across lines 10600ME and 10500ME that continues off of the grid to the west.

### **CONCLUSIONS AND RECOMMENDATIONS:**

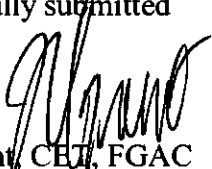
The ground program was successful in locating and outlining the geological characteristics of the grid area. The most predominant structure outlined on the grid correlates to an ultramafic intrusive that is host to the Talc mine operating in the central north section of the grid as well as a number of graphitic zones, carbonate zones and at least one documented gold showing in the southwest section of the southern portion of the grid. It would seem that this unit could have a major roll in the deposition of potential gold mineralization especially along the edges of the intrusive. The VLF survey suggest that the majority of the zones tend to strike east-west which is also the suspected strike of most of the fault structures cross cutting the grid area in Penhorwood Township. Several of the narrow and isolated magnetic high units appear to correlate to geological contacts between the sediments, felsics and mafic volcanics and all of these units have good VLF zones associated with their edges.

The VLF and magnetic survey methods are very good tools for the interpretation of the underlying geological trends of a survey area. This is quite evident in the results obtained to date on this grid area. A number of the VLF zones correlate to geological contacts, creeks, rivers and potentially conductive horizons.

Gold mineralization as well as areas of carbonatization is known to exist on the grid in a number of locations, (Map 2231, Penhorwood and Kenogaming Townships, scale 1:31,680). A recommended follow up program of Induced Polarization, (IP), surveys should be considered as a method to better define the areas of interest that have been outlined by the magnetic and VLF-EM surveys.

At the time of this writing the area is being mapped in detail to correlate the ground geophysical results with the mapped results. Once these two surveys have been plotted and correlated then the IP coverage can be defined as to the best potential targets that will require further surveys.

Respectfully submitted

  
J. C. Grant, C.E.T., FGAC  
September 2010

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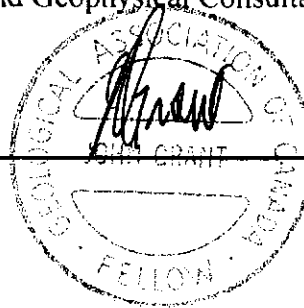
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**CERTIFICATION**

I, John Charles Grant, of 108 Kay Crescent, in the City of Timmins, Province of Ontario, hereby certify that:

- 1). I am a graduate of Cambrian College of Applied Arts and Technology, 1975, Sudbury Ontario Campus, with a 3 year Honors Diploma in Geological and Geophysical Technology.
- 2). I have worked subsequently as an Exploration Geophysicist for Teck Exploration Limited, (5 years, 1975 to 1980), and currently as Exploration Manager and Chief Geophysicist for Exsics Exploration Limited, since May, 1980.
- 3). I am a member in good standing of the Certified Engineering Technologist Association, (CET), since 1984.
- 4). I am in good standing as a Fellow of the Geological Association of Canada, (FGAC), since 1986.
- 5). I have been actively engaged in my profession since the 15<sup>th</sup> day of May, 1975, in all aspects of ground exploration programs including the planning and execution of field programs, project supervision, data compilation, interpretations and reports.
- 6). I have no specific or special interest nor do I expect to receive any such interest in the herein described property. I have been retained by the property holders and or their Agents as a Geological and Geophysical Consultant and Contract Manager.

John Charles Grant, CET., FGAC.



APPENDIX A

# SCINTREX

## ENVI-MAG Environmental Magnetometer/Gradiometer

### Locating Buried Drums and Tanks?

The ENVI-MAG is the solution to this environmental problem. ENVI-MAG is an inexpensive, lightweight, portable "WALKMAG" which enables you to survey large areas quickly and accurately.

ENVI-MAG is a portable, proton precession magnetometer and/or gradiometer, for geotechnical, archaeological and environmental applications where high production, fast count rate and high sensitivity are required. It may also be used for other applications, such as mineral exploration, and may be configured as a total-field magnetometer, a vertical gradiometer or as a base station.

#### The ENVI-MAG

- easily detects buried drums to depths of 10 feet or more
- more sensitive to the steel of a buried drum than EM or radar
- much less expensive than EM or radar
- survey productivity much higher than with EM or radar

### Features and Benefits

#### "WALKMAG"

##### Magnetometer/Gradiometer

The "WALKMAG" mode of operation (sometimes known as "Walking Mag") is user-selectable from the keyboard. In this mode, data is acquired and recorded at the rate of 2 readings per second as the operator walks at a steady pace along a line. At desired intervals, the operator "triggers" an event marker by a single key stroke, assigning coordinates to the recorded data.

#### True Simultaneous Gradiometer

An optional upgrade kit is available to configure ENVI-MAG as a gradiometer to make true, simultaneous gradiometer measurements. Gradiometry is useful for geotechnical and archaeological surveys where small near surface magnetic targets are the object of the survey.

#### Selectable Sampling Rates

0.5 second, 1 second and 2 second reading rates user selectable from the keyboard.

#### Main features include:

- select sampling rates as fast as 2 times per second
- "WALKMAG" mode for rapid acquisition of data
- large internal, expandable memory
- easy to read, large LCD screen displays data both numerically and graphically
- ENVIMAP software for processing and mapping data

ENVI-MAG comprises several basic modules; a lightweight console with a large screen alphanumeric display and high capacity memory, a staff mounted sensor and sensor cable, rechargeable battery and battery charger, RS-232 cable and ENVIMAP processing and mapping software.

For gradiometry applications an upgrade kit is available, comprising an additional processor module for installation in the console, and a second sensor with a staff extender.

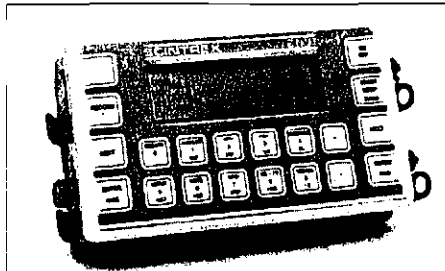


ENVI-MAG Proton Magnetometer in operation

For base station applications a Base Station Accessory Kit is available so that the sensor and staff may be converted into a base station sensor.

#### Large-Key Keypad

The large-key keypad allows easy access for gloved-hands in cold-weather operations. Each key has a multi-purpose function.



Front panel of ENVI-MAG showing a graphic profile of data and large-key keypad

#### Large Capacity Memory

ENVI-MAG with standard memory stores up to 28,000 readings of total field measurements, 21,000 readings of gradiometry data or 151,000 readings as a base station. An expanded memory option is available which increases this standard capacity by a factor of 5.

#### Easy Review of Data

For quality of data and for a rapid analysis of the magnetic characteristics of the survey line, several modes of review are possible. These include the measurements at the last four stations, the ability to scroll through any or all previous readings in memory, and a graphic display of the previous data as profiles, line by line. This feature is very useful for environmental and archaeological surveys.

#### Highly Productive

The "WALKMAG" mode of operation acquires data rapidly at close station intervals, ensuring high-definition results. This increases survey productivity by a factor of 5 when compared to a conventional magnetometer survey.

#### "Datacheck" Quality Control of Data

"Datacheck" provides a feature wherein at the end of each survey line, data may be reviewed as a profile on ENVI-MAG's screen. Datacheck confirms that the instrument is functioning correctly and

allows the user to note the magnetic relief (anomaly) on the line.

#### Large Screen Display

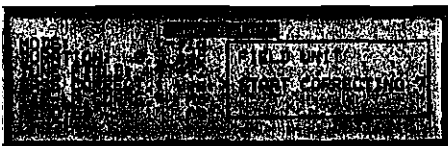
"Super-Twist" 64 x 240 dot (8 lines x 40 characters), LCD graphic screen provides good visibility in all light conditions. A display heater is optionally available for low-temperature operations below 0°C.



Close-up of the ENVI-MAG screen showing data presented after each reading

#### Interactive Menu

The set-up of ENVI-MAG is menu-driven, and minimizes the operator's learning time, and on-going tasks.



Close-up of display of ENVI-MAG showing interactive set-up menu

## Specifications

#### Total Field Operating Range

20,000 to 100,000 nT (gammas)

#### Total Field Absolute Accuracy

+/- 1nT

#### Sensitivity

0.1 nT at 2 second sampling rate

#### Tuning

Fully solid state. Manual or automatic, keyboard selectable

#### Cycling (Reading) Rates

0.5, 1 or 2 seconds, up to 9999 seconds for base station applications, keyboard selectable

#### Gradiometer Option

Includes a second sensor, 20 inch (1/2m) staff extender and processor module

#### "WALKMAG" Mode

0.5 second for walking surveys, variable rates for hilly terrain

#### Digital Display

LCD "Super Twist", 240 x 64 dots graphics, 8 line x 40 characters alphanumeric

#### Display Heater

Thermostatically controlled, for cold weather operations

#### Keyboard Input

17 keys, dual function, membrane type

#### Notebook Function

32 characters, 5 user-defined MACRO's for quick entry

#### Rechargeable Battery and Battery Charger

An "off-the-shelf" lead-acid battery and charger are provided as standard. The low-cost "Camcorder" type battery is available from electronic parts distributors everywhere.

#### HELP-Line Available

Purchasers of ENVI-MAG are provided with a HELP-Line telephone number to call in the event assistance is needed with an application or instrumentation problem.

#### ENVIMAP Processing and Mapping Software

Supplied with ENVI-MAG, and custom designed for this purpose, is easy-to-use, very user-friendly, menu driven data processing and mapping software called ENVIMAP. This unique software appears to the user to be a single program, but is in fact a sequence of separate programs, each performing a specific task. Under the menu system, there are separate programs to do the following:

- read the ENVI-MAG data and reformat it into a standard compatible with the ENVIMAP software
- grid the data into a standard grid format
- create a vector file of posted values

#### Standard Memory

Total Field Measurements: 28,000 readings  
Gradiometer Measurements: 21,000 readings  
Base Station Measurements: 151,000 readings

#### Expanded Memory

Total Field Measurements: 140,000 readings  
Gradiometer Measurements: 109,000 readings  
Base Station Measurements: 750,000 readings

#### Real-Time Clock

Records full date, hours, minutes and seconds with 1 second resolution, +/- 1 second stability over 12 hours

#### Digital Data Output

RS-232C interface, 600 to 57,600 Baud, 7 or 8 data bits, 1 start, 1 stop bit, no parity format. Selectable carriage return delay (0-999 ms) to accommodate slow peripherals. Handshaking is done by X-on/X-off

#### Analog Output

0 - 999 mV full scale output voltage with keyboard selectable range of 1, 10, 100, 1,000 or 10,000 nT full scale

#### Power Supply

Rechargeable "Camcorder" type, 2.3 Ah. Lead-acid battery.

12 Volts at 0.65 Amp for magnetometer, 1.2 Amp for gradiometer,

External 12 Volt input for base station operations

Optional external battery pouch for cold weather operations

#### Battery Charger

110 Volt - 230 Volt, 50/60 Hz

with line and baseline identification that allows the user to add some title information and build a suitable surround

- contour the gridded data
- autoscale the combined results of the posting/surround step and the contouring step to fit on a standard 8.5 ins. wide dot-matrix printer
- rasterize and output the results of step e) to the printer

ENVIMAP is designed to be as simple as possible. The user is required to answer a few basic questions asked by ENVIMAP, and then simply toggles "GO" to let ENVIMAP provide default parameters for the making of the contour map. The user can modify certain characteristics of the output plot. ENVIMAP'S menu system is both keyboard and mouse operable. HELP screens are integrated with the menu system so that HELP is displayed whenever the user requests it.

#### Options Available

- True simultaneous gradiometer upgrade
- Base station upgrade
- Display heater for low temperature operations
- External battery pouch

#### Operating Temperature Range

Standard 0° to 60°C  
Optional -40°C to 60°C

#### Dimensions

Console - 10 x 6 x 2.25 inches  
(250 mm x 152 mm x 55 mm)

T.F. sensor - 2.75 inches dia. x 7 inches  
(70 mm x 175 mm)

Grad. sensor and staff extender - 2.75 inches dia. x 26.5 inches (70 mm x 675 mm)

T.F. staff - 1 inch dia. x 76 inches (25 mm x 2 m)

#### Weight

Console - 5.4 lbs (2.45 kg)  
with rechargeable battery

T. F. sensor - 2.2 lbs (1.15 kg)

Grad. sensor - 2.5 lbs (1.15 kg)

Staff - 1.75 lbs (0.8 kg)

# SCINTREX

#### Head Office

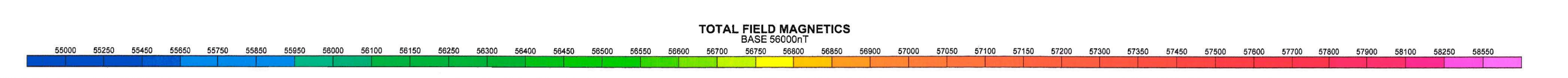
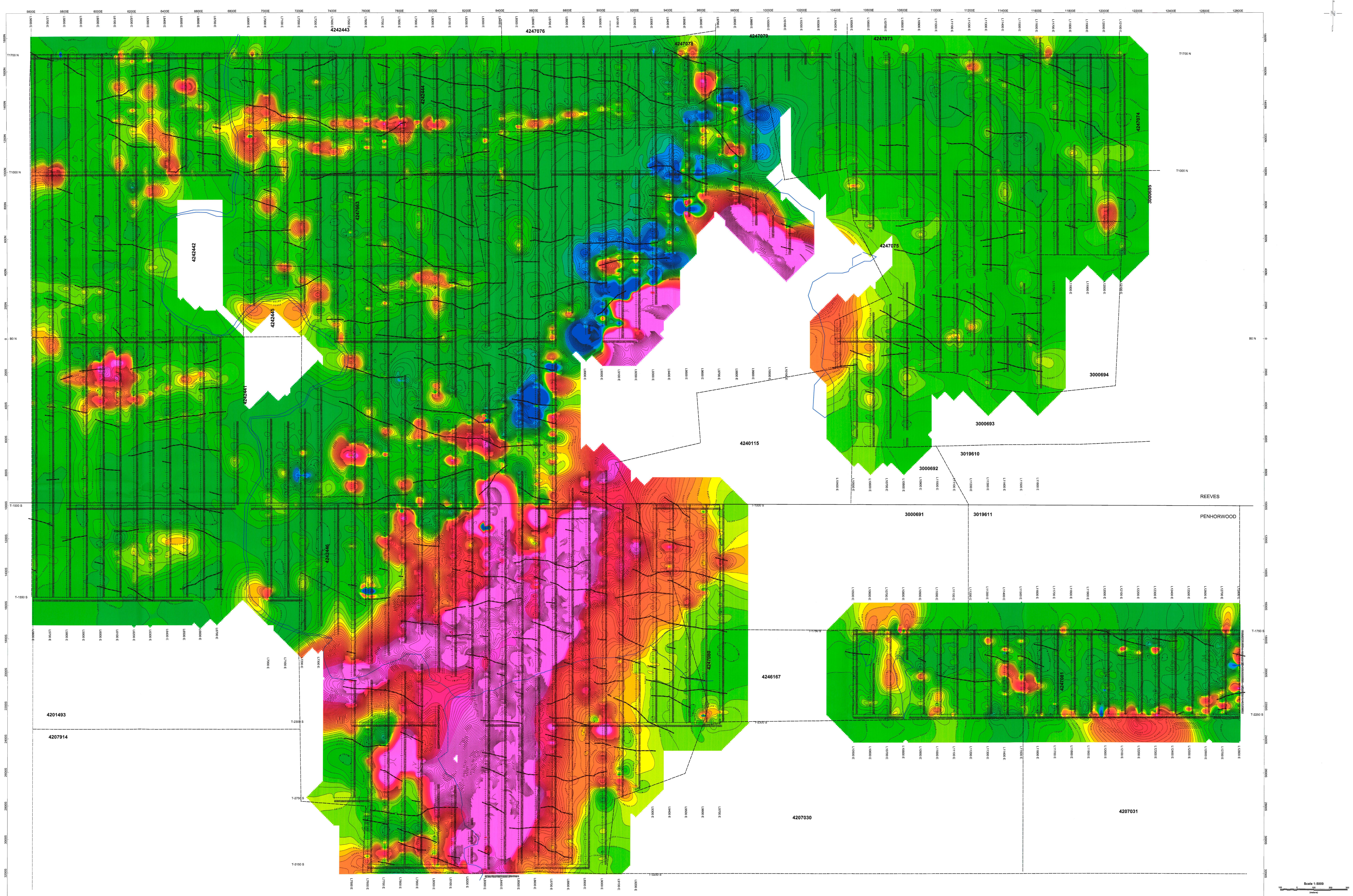
222 Snidercroft Road  
Concord, Ontario, Canada L4K 1B5  
Telephone: (905) 669-2280  
Fax: (905) 669-6403 or 669-5132  
Telex: 06-964570

#### In the USA:

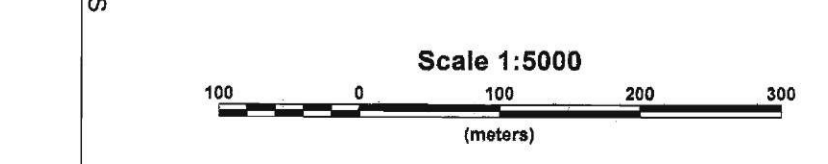
Scintrex Inc.  
85 River Rock Drive  
Unit 202  
Buffalo, NY 14207  
Telephone: (716) 298-1219  
Fax: (716) 298-1317



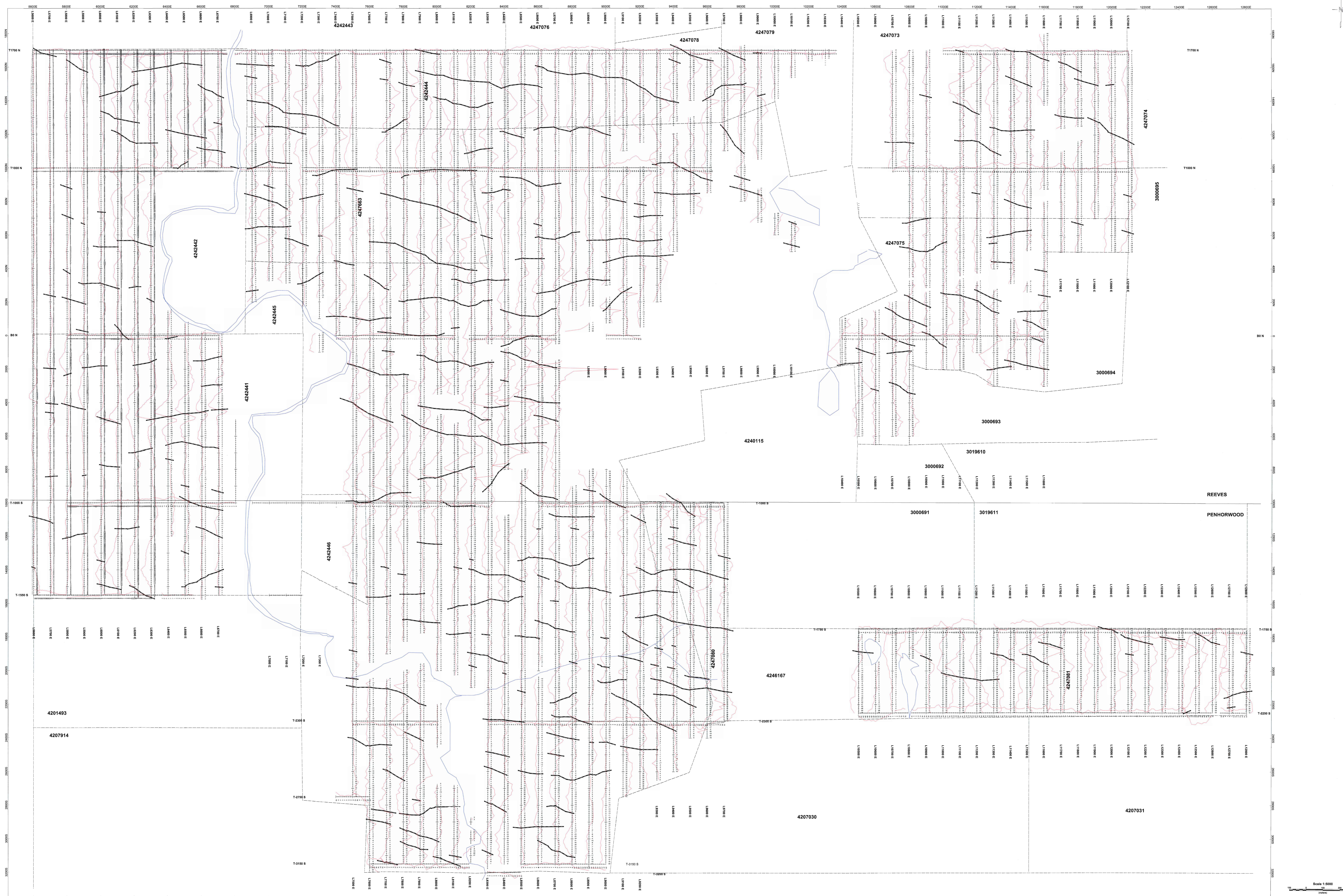




TOTAL FIELD MAGNETICS  
 BASE 6000FT  
 UNIT: GAUSS



RIO TINTO MINES LTD.  
 NAT RIVER PROJECT-PENHORWOOD TOWNSHIP  
 TOTAL FIELD MAGNETIC SURVEY  
 SCITREX ENVIS MAG SYSTEM  
 DATE: 2010-05-20  
 MAY 2010 EXSWS EXPLORATION LIMITED



Scale 1:5000  
10 0 10  
m