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# MEXIVADA MINING CORP.

# Magnetometer and VLF EM Surveys Over the

**GUIDOCCIO PROPERTY Hislop Township, Ontario** 



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### 1. SURVEY DETAILS

### 1.1 PROJECT NAME

This project is known as the Guidoccio property.

### 1.1 CLIENT

Mexivada Mining Corp. 801-1166 Alberni Street Vancouver, BC V6E 3Z3

### 1.2 LOCATION

The Guidoccio property is located in Hislop Township approximately 3 km north of Ramore, Ontario. The survey area covers a mining of claim numbered 4251933 located in Hislop Township within the Larder Lake Mining Division.

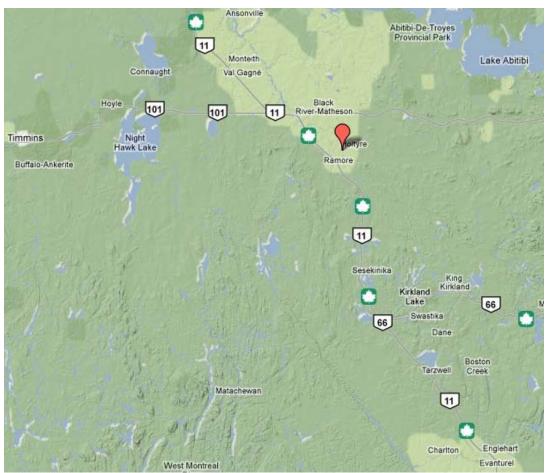


Figure 1: Location of Guidoccio Property



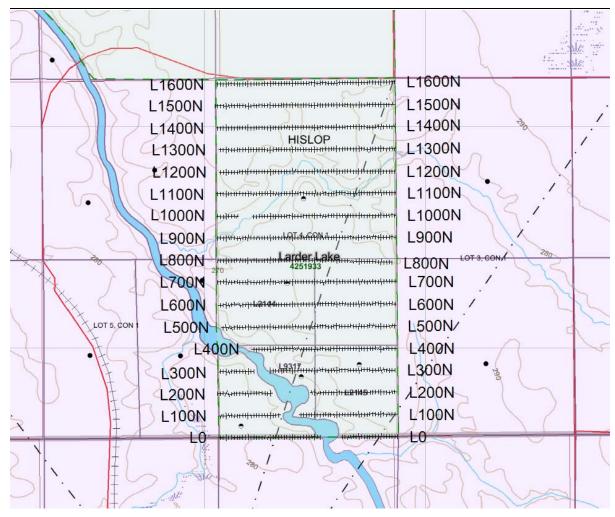


Figure 2: Claim Map with Guidoccio Property Traverses

### 1.3 Access

Access to the property was attained with a 4x4 truck via highway 572. Approximately 2.5k kilometers east of Holtyre along highway 572 a powerline crosses the road. This powerline was travelled south by ATV for 0.5 to 1.5km where the survey area crossed the powerline.

### 1.4 SURVEY GRID

The traversed lines were established using a GPS in conjunction with the execution of the survey. The GPS operator would establish sample locations while remaining approximately 12.5m in front of the magnetometer operator. GPS waypoints and magnetic samples were taken every 12.5m along these controlled traverses. The GPS used was a Garmin GPSMAP 62s with an external antenna for added accuracy.



### 2. SURVEY WORK UNDERTAKEN

### 2.1 SURVEY LOG

Date	Description	Line	Min Extent	Max Extent	Total Survey (m)
12 October 2011	Locate survey area and access.				
	Begin survey.	1600N	0	812.5E	812.5
		1500N	0	812.5E	812.5
		1400N	0	812.5E	812.5
		1300N	0	800E	800
13 October 2011	Continue survey.	1200N	0	787.5E	787.5
	·	1100N	0	812.5E	812.5
		1000N	0	812.5E	812.5
		900N	0	812.5E	812.5
14 October 2011	Continue survey. Heavy rain slows progress.	800N	0	812.5E	812.5
		700N	0	812.5E	812.5
17 October 2011	Continue survey.	600N	0	800E	800
		500N	0	800E	800
		400N	150E	800E	
		300N	237.5E	800E	
18 October 2011	Locate access to west side of river. Complete survey.	300N	0	162.5E	162.5
	Complete survey.	200N	0	800E	800
		100N	0	800E	800
		0	0	800E	800

Table 1: Survey Log

### 2.2 PERSONNEL

Harley Harkin of Kirkland Lake, Ontario conducted all the magnetic data collection with Chris Prest of Swastika, Ontario responsible for the GPS control and GPS waypoint collection.

### 2.3 SURVEY SPECIFICATIONS

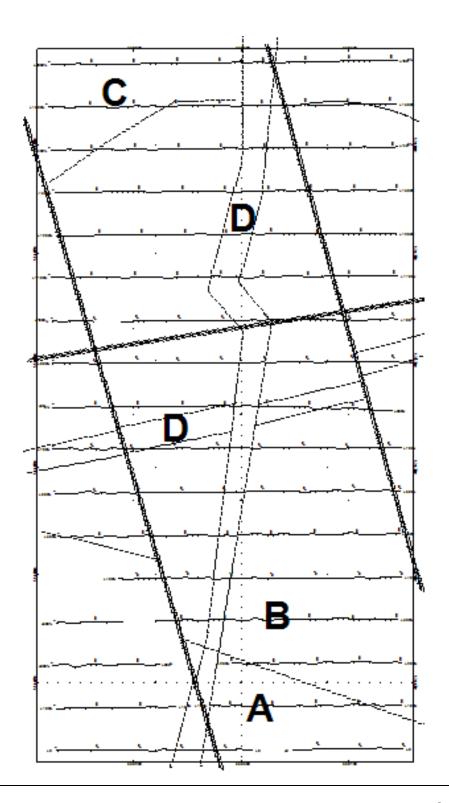
The survey was conducted with a GSM-19 v7 Overhauser magnetometer with a second GSM-19 magnetometer for a base station mode for diurnal correction.

A total of 12.250 line kilometers of magnetometer and VLF EM was read over the Guidoccio Property between October 12<sup>th</sup> and October 18<sup>th</sup>, 2011. This consisted of 1000 magnetometer samples taken at a 12.5m sample interval.



### 3. OVERVIEW OF SURVEY RESULTS

### 3.1 SUMMARY INTERPRETATION





The magnetic signature indicates that the river appears to be the contact between two geologic units. The south side of the river represents a magnetically subdued region. This may represent a volcanic flow within the pile. North of the river appears an average magnetic unit(A). This unit most likely indicates the presence of another unit within the volcanic pile (B).

The extreme northern end of the survey area appears to be underlain by a sharply increasing magnetic region. This may indicate layer of the volcanic pile such as an ultramafic. This may also indicate an intrusive, such as a porphyry occurring (C).

Through this appears to later linear intrusive features. These two features most likely represent regional dikes (D).

The VLF survey results appear to be contaminated by culture. This survey appears to highlight the powerline corridors through the survey area. No other significant axis occur.

Throughout the survey area, lateral offsets appear to occur. Two of these offsets appear north-south and one appears east-west. The intersection of these offset features with potential contacts may be targets of merit to follow up on.



### **APPENDIX A**

### STATEMENT OF QUALIFICATIONS

- I, C. Jason Ploeger, hereby declare that:
- 1. I am a geophysicist (non-professional) with residence in Larder Lake, Ontario and am presently employed as president of Larder Geophysics Ltd. of Larder Lake, Ontario.
- 2. I graduated with a Bachelor of Science degree in geophysics from the University of Western Ontario, in London Ontario, in 1999.
- 3. I have practiced my profession continuously since graduation in Africa, Bulgaria, Canada, Mexico and Mongolia.
- 4. I am a member of the Ontario Prospectors Association, a director of the Northern Prospectors Association and a member of the Society of Exploration Geophysicists.
- 5. I do not have an interest in the properties and/or securities of Mexivada Mining Corp.
- 6. I am responsible for the final processing and validation of the survey results and the compilation of the presentation of this report. The statements made in this report represent my professional opinion based on my consideration of the information available to me at the time of writing this report.

Larder Lake, ON October 2011

C. Jason Ploeger, B.Sc. (geophysics)
Geophysics Manager
Canadian Exploration Services



### **APPENDIX B**

### THEORETICAL BASIS AND SURVEY PROCEDURES

### TOTAL FIELD MAGNETIC SURVEY

Base station corrected Total Field Magnetic surveying is conducted using at least two synchronized magnetometers of identical type. One magnetometer unit is set in a fixed position in a region of stable geomagnetic gradient, and away from possible cultural effects (i.e. moving vehicles) to monitor and correct for daily diurnal drift. This magnetometer, given the term 'base station', stores the time, date and total field measurement at fixed time intervals over the survey day. The second, remote mobile unit stores the coordinates, time, date, and the total field measurements simultaneously. The procedure consists of taking total magnetic measurements of the Earth's field at stations, along individual profiles, including Tie and Base lines. A 2 meter staff is used to mount the sensor, in order to optimally minimize localized near-surface geologic noise. At the end of a survey day, the mobile and base-station units are linked, via RS-232 ports, for diurnal drift and other magnetic activity (ionospheric and sferic) corrections using internal software.

For the gradiometer application, two identical sensors are mounted vertically at the ends of a rigid fiberglass tube. The centers of the coils are spaced a fixed distance apart (0.5 to 1.0m). The two coils are then read simultaneously, which alleviates the need to correct the gradient readings for diurnal variations, to measure the gradient of the total magnetic field.

### VLF Electromagnetic

The frequency domain VLF electromagnetic survey is designed to measure both the vertical and horizontal inphase (IP) and Quadrature (OP) components of the anomalous field from electrically conductive zones. The sources for VLF EM surveys are several powerful radio transmitters located around the world which generate EM radiation in the low frequency band of 15-25kHZ. The signals created by these long-range communications and navigational systems may be used for surveying up to several thousand kilometres away from the transmitter. The quality of the incoming VLF signal can be monitored using the field strength. A field strength above 5pT will produce excellent quality results. Anything lower indicates a weak signal strength, and possibly lower data quality. A very low signal strength (<1pT) may indicate the radio station is down.

The EM field is planar and horizontal at large distances from the EM source. The two components, electric (E) and magnetic (H), created by the source field are orthogonal to each other. E lies in a vertical plane while H lies at right angles to the direction of propagation in a horizontal plane. In order to ensure good coupling, the strike of possible conductors should lie in the direction of the transmitter to allow the H vector to pass through the anomaly, in turn, creating a secondary EM field.

The VLF EM receiver has two orthogonal aerials which are tuned to the frequency of the transmitting station. The direction of the source station is located by rotating the sensor around a vertical axis until a null position is found. The VLF EM survey procedure consists of taking measurements at stations along each line on the grid. The receiver is rotated about a horizontal axis, right angles to the traverse and the tilt recorded at the null position.



### **APPENDIX C**

### **GSM 19**



### **Specifications**

### Overhauser Performance

Resolution: 0.01 nT

Relative Sensitivity: 0.02 nT Absolute Accuracy: 0.2nT Range: 20,000 to 120,000 nT

Gradient Tolerance: Over 10,000nT/m Operating Temperature: -40°C to +60°C

### **Operation Modes**

Manual: Coordinates, time, date and reading stored automatically at min. 3 second interval.

Base Station: Time, date and reading stored at 3 to 60 second intervals. Walking Mag: Time, date and reading stored at coordinates of fiducial. Remote Control: Optional remote control using RS-232 interface.

Input/Output: RS-232 or analog (optional) output using 6-pin weatherproof connector.

### Operating Parameters

Power Consumption: Only 2Ws per reading. Operates continuously for 45 hours on standby.

Power Source: 12V 2.6Ah sealed lead acid battery standard, other batteries available

Operating Temperature: -50°C to +60°C

### Storage Capacity

Manual Operation: 29,000 readings standard, with up to 116,000 optional. With 3 VLF stations: 12,000 standard and up to 48,000 optional.

Base Station: 105,000 readings standard, with up to 419,000 optional (88 hours or 14 days uninterrupted operation with 3 sec. intervals)

Gradiometer: 25,000 readings standard, with up to 100,000 optional. With 3 VLF stations: 12,000, with up to 45,000 optional.

### Omnidirectional VLF

Performance Parameters: Resolution 0.5% and range to ±200% of total field. Frequency 15 to 30 kHz.

Measured Parameters: Vertical in-phase & out-of-phase, 2 horizontal components, total field coordinates, date, and time.

Features: Up to 3 stations measured automatically, in-field data review, displays station field strength continuously, and tilt correction for up to ±10° tilts.

Dimensions and Weights: 93 x 143 x 150mm and weighs only 1.0kg.

### **Dimensions and Weights**

Dimensions:

Console: 223 x 69 x 240mm

Sensor: 170 x 71mm diameter cylinder

Weight:

Console: 2.1kg

Sensor and Staff Assembly: 2.0kg



### Standard Components

GSM-19 magnetometer console, harness, battery charger, shipping case, sensor with cable, staff, instruction manual, data transfer cable and software.

### Taking Advantage of a "Quirk" of Physics

Overhauser effect magnetometers are essentially proton precession devices except that they produce an orderof magnitude greater sensitivity. These "supercharged" quantum magnetometers also deliver high absolute accuracy, rapid cycling (up to 5 readings / second), and exceptionally low power consumption.

The Overhauser effect occurs when a special liquid (with unpaired electrons) is combined with hydrogen atoms and then exposed to secondary polarization from a radio frequency (RF) magnetic field. The unpaired electrons transfer their stronger polarization to hydrogen atoms, thereby generating a strong precession signal-- that is ideal for very high-sensitivity total field measurement. In comparison with proton precession methods, RF signal generation also keeps power consumption to an absolute minimum and reduces noise (i.e. generating RF frequencies are well out of the bandwidth of the precession signal).

In addition, polarization and signal measurement can occur simultaneously - which enables faster, sequential measurements. This, in turn, facilitates advanced statistical averaging over the sampling period and/or increased cycling rates (i.e. sampling speeds).

The unique Overhauser unit blends physics, data quality, operational efficiency, system design and options into an instrumentation package that ... exceeds proton precession and matches costlier optically pumped cesium capabilities.



### **APPENDIX D**

### LIST OF MAPS (IN MAP POCKET)

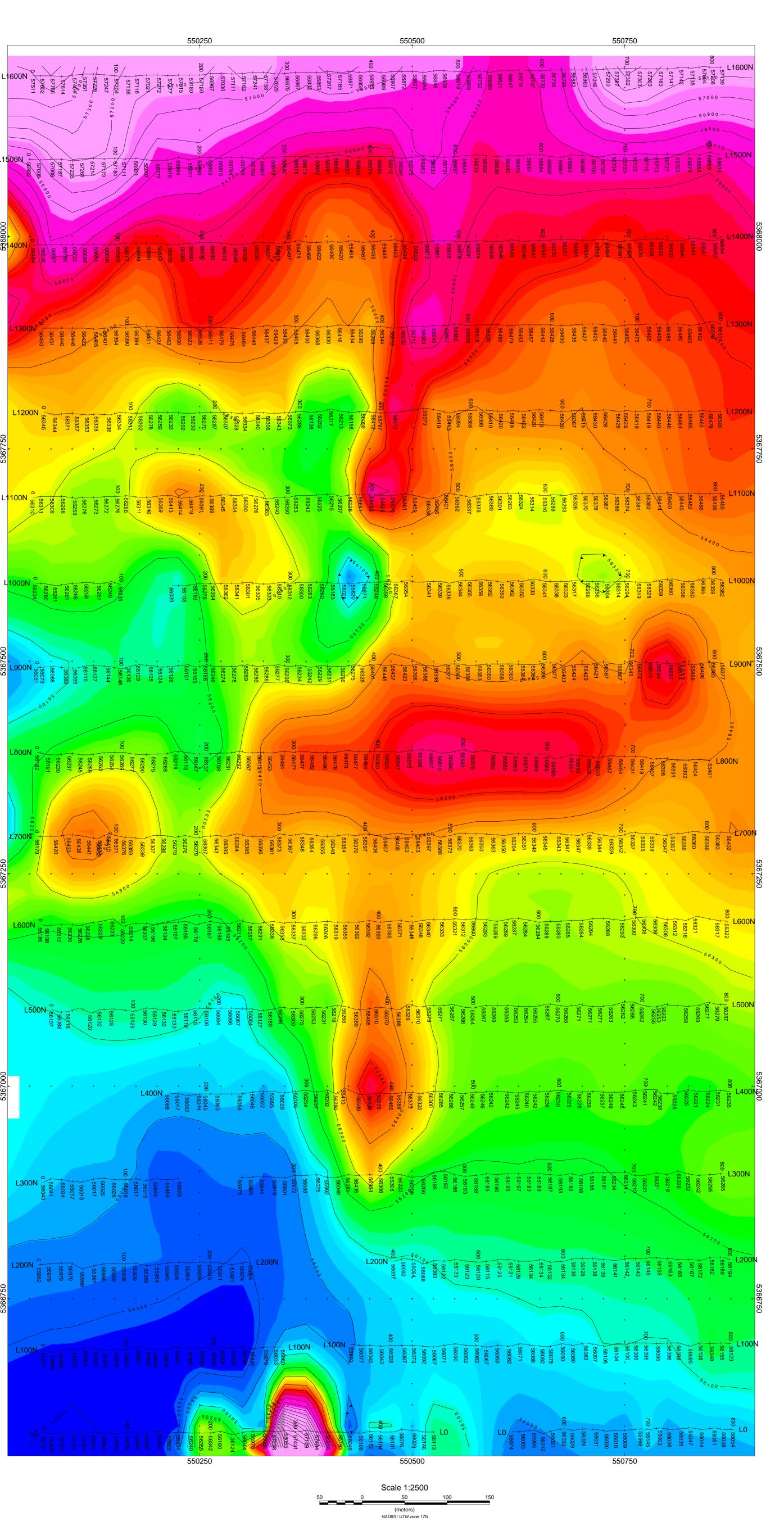
Posted contoured TFM plan map (1:2500)

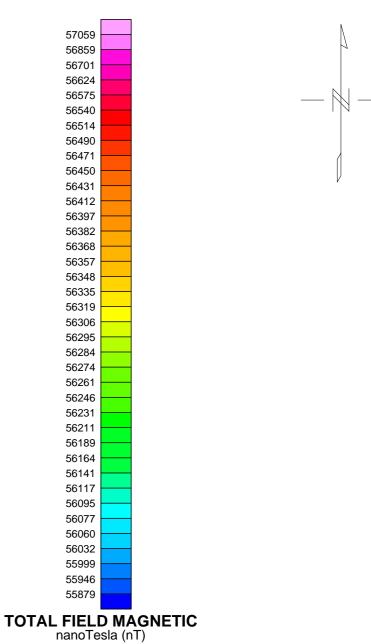
1) MEXIVADA-GUIDOCCIO-MAG-CONT

Posted VLF EM profiles with contoured fraser filter plan map (1:2500)

2) MEXIVADA-GUIDOCCIO-VLF-NML

**TOTAL MAPS=2** 





# EXIVADA MINING CORP.

**GUIDOCCIO PROPERTY Hislop Township, Ontario** 

TOTAL FIELD MAGNETIC CONTOURED PLAN MAP Base Station Corrected

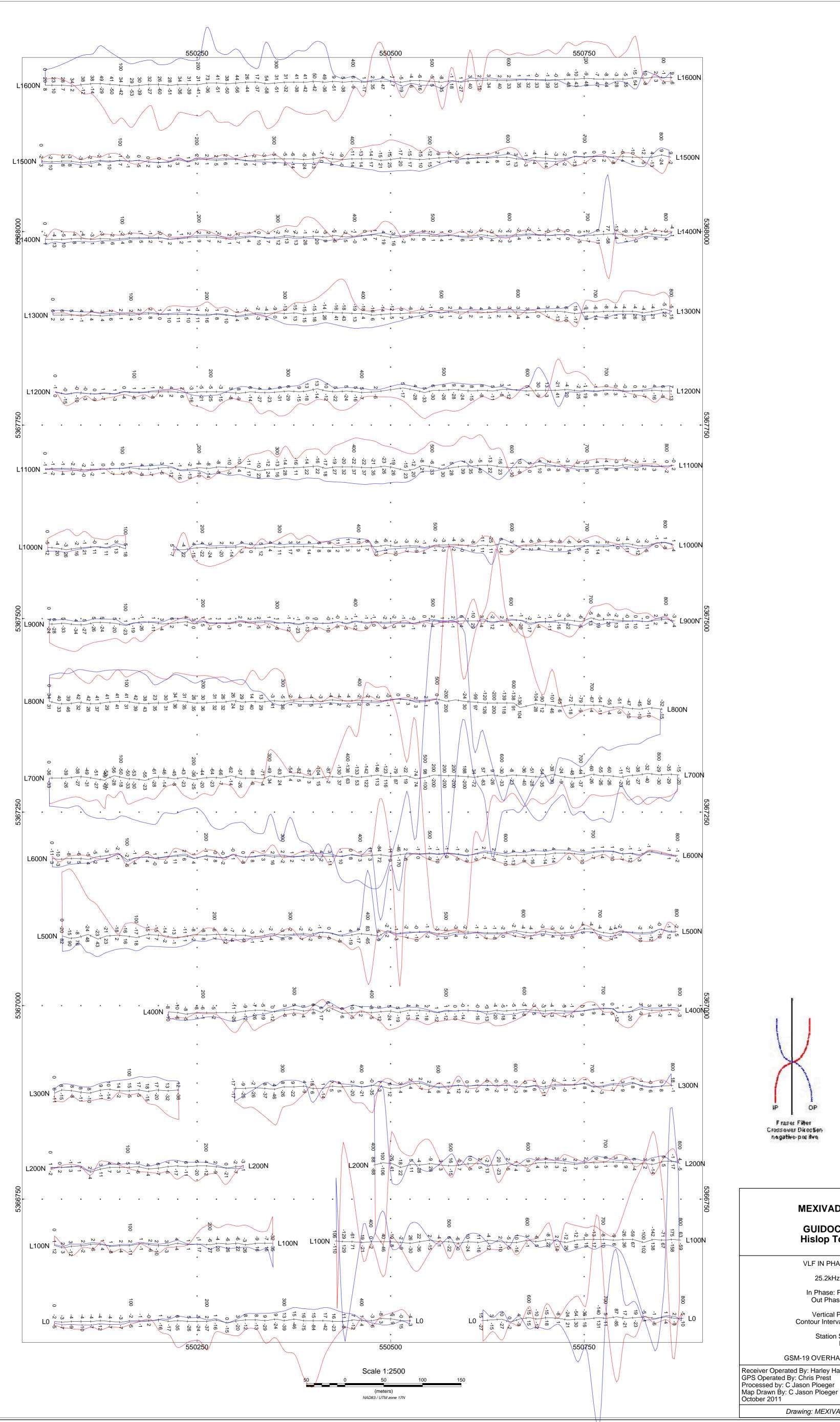
Posting Level: 0nT
Field Inclination/Declination: 74degN/12degW
Station Seperation: walkmag 12.5 meters
Total Field Magnetic Contours: 100nT

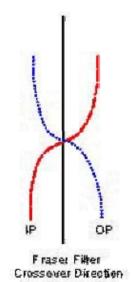
GSM-19 OVERHAUSER MAGNETOMETER/VLF v7

Receiver Operated By: Harley Harkin GPS Operated By: Chris Prest Processed by: C Jason Ploeger Map Drawn By: C Jason Ploeger October 2011



Drawing: MEXIVADA-GUIDOCCIO-MAG-CONT





# **MEXIVADA MINING CORP.**

**GUIDOCCIO PROPERTY Hislop Township, Ontario** 

VLF IN PHASE/OUT PHASE PROFILE PLAN MAP 25.2kHz NML - LAMORRE USA

In Phase: Posted Right/Bottom (Red) Out Phase: Posted Left/Top (Blue)

Vertical Profile Scales: 2.5 %/mm Contour Interval: 0, 5, 10, 15, 20, 25, 50, 100

Station Seperation: 12.5 meters Posting Level: 0 GSM-19 OVERHAUSER MAGNETOMETER/VLF v7

Receiver Operated By: Harley Harkin GPS Operated By: Chris Prest Processed by: C Jason Ploeger

GEOPHYSICS LTD.

Drawing: MEXIVADA-GUIDOCCIO-VLF-NML