Report of Magnetic and Electromagnetic Surveys

On the

Clam Lake Property

Chester Township, Ontario

Porcupine Mining Division

Claims 4220425 and 4223880

For

Pierre Robert

February 11, 2010
Timmins, Ontario

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1.0 Introduction

The Clam Lake property of Mr. Pierre Robert consists of two mining claims, which this work program occurs on. The unpatented claims numbered 4220425 and 4223880, are located in Chester Township, Porcupine Mining Division. During February 2010, a program of geophysical surveys was conducted over this claim group. The geophysical program consisted of total field magnetic, and VLF-EM electromagnetic surveying. Ranger Exploration of Timmins, Ontario, carried out the geophysical surveys.

2.0 Location and Access

The Clam Lake property is located approximately 130 kilometers south of the city of Timmins, Ontario. The claim group can be accessed from Timmins by driving west along highway 101 to the intersection of highway 101 and highway 14. Travel south on highway 144 for approximately 100 kilometers to the Sultan forestry road. Travel approximately 3 kilometers west on the Sultan forestry road to the Chester Road. The claims can be accessed from this road by truck, ATV, or snowmobile (see figures 1 and 2).

3.0 Summary of 2010 Geophysical Program

The geophysical grid totaled 4.4 kilometers, which consisted of a 0.9 kilometer long baseline striking at approximately 90 degrees. The line were established every 100 meters along this baseline and surveyed to a lengths of between of 125 and 750 meters. The base line, grid lines, and all geophysical measurement locations were established via hand held GPS. The grid lines were measured every 100 meters with measurements recorded at 25-meter intervals along all lines.

The geophysical program consisted of total field magnetic surveying, and VLF-EM electromagnetic surveying. The total magnetic field survey and VLF-EM survey, using a GEM GSM-19 magnetometer/VLF system, totaled 4.4 kilometers with readings collected every 25 meters along all lines. The VLF-EM survey was conducted utilizing
Clam Lake Grid
Magnetic and VLF-EM Surveys

Chester Twp.
the transmitting station located in Cutler, Maine; which transmits at a frequency of 24.0 kHz. A total of 4.4 kilometers of VLF data was collected at 25-meter station intervals.

The geophysical data has been presented on plan maps at a scale of 1:5000, showing the profiles and postings of the VLF-EM survey, and contours and postings of the magnetic data (see maps in pocket).

4.0 Discussion of Results

The magnetic survey on the Clam Lake grid indicates a relatively quiet magnetic background disrupted by moderate anomalous magnetic anomalies with magnetic values ranging between 56579 and 57722 nT. The background magnetic field strength is 57118 nT. The overall magnetic pattern is disrupted by several linear anomalous magnetic highs. The isomagnetic contour pattern suggests an underlying lithology striking in an east-west direction. The most significant magnetic anomalies on the Clam Lake grid are two moderate magnetic highs; labeled M1 and M2 striking in a generally east-west direction with a possible folded formation indicated by anomaly M1. All of the anomalies are easily identified on the contour map. Anomalies M1 and M2 are interpreted to reflect diabase dikes that are common in this area. None of the magnetic anomalies shows any direct correlation to the mapped VLF-EM responses. In addition to the magnetic anomalies in the grid area, several fault zones have been interpreted within the grid area. These anomalies may represent major lithological contacts or structural anomalies which may be significant in this area. These anomaly locations are indicated and shown on the contour map.

The VLF-EM survey over the Clam Lake grid was successful in mapping two electromagnetic conductive trends. Two moderate strength conductive trends were mapped and are labeled as V1 and V2. Each of the VLF-EM conductive trends are displayed on the magnetic contour map. These conductive trends may be indicative of mineralized faults or structures which may have significance to the present exploration program.
5.0 Conclusions and Recommendations

The VLF and magnetic surveys over the Clam Lake grid were successful in mapping several anomalies that may be prospective for further mineral exploration. The most significant anomalies appear to be the VLF-EM anomalies. Anomalies V1 and V2 may reflect steeply dipping, weakly mineralized bedrock conductive horizons.

It is recommended that a program of induced polarization surveying would greatly aid in better defining any possible mineralized zones indicated by the magnetic and VLF survey results. The VLF-EM surveys which may be reflecting disseminated or semi-massive accumulations of sulphide minerals. The IP surveys would greatly enhance the understanding these zones as they are often prospective for gold and base metal deposits. A limited program of either dipole-dipole or pole-dipole IP surveying with an 'a' spacing of 25 or 50 meters and reading levels of n=1 to 6 is recommended in order to further evaluate the Clam Lake property.

All of the responses should be investigated further in order to determine the priority of follow-up needed. The anomalies should be further screened utilizing any data available from previous types of geophysical surveys that may have been undertaken on the Clam Lake grid in past exploration programs. This would aid greatly in further refining the interpretation of the current geophysical surveys.

Any existing geological, diamond drilling or geochemical information that may exist in the mining recorder assessment files for this area should be investigated and compiled prior to further exploration of the anomalies in order to accurately assess the follow-up exploration method for these anomalies.

Respectively Submitted,

Matthew Johnston
Consulting Geophysicist
Statement of Qualifications

This is to certify that: MATTHEW JOHNSTON

I am a resident of Timmins; province of Ontario since June 1, 1995.

I am self-employed as a Consulting Geophysicist, based in Timmins, Ontario.

I have received a B.Sc. in geophysics from the University of Saskatchewan; Saskatoon, Saskatchewan in 1986.

I have been employed as a professional geophysicist in mining exploration, environmental and other consulting geophysical techniques since 1986.

Signed in Timmins, Ontario, this February 11, 2010

[Signature]

Matthew Johnston
Introduction

The GSM-19 v7.0 Overhauser instrument is the total field magnetometer / gradiometer of choice in today’s earth science environment - representing a unique blend of physics, data quality, operational efficiency, system design and options that clearly differentiate it from other quantum magnetometers.

With data quality exceeding standard proton precession and comparable to costlier optically pumped cesium units, the GSM-19 is a standard (or emerging standard) in many fields, including:

* Mineral exploration (ground and airborne base station)
* Environmental and engineering
* Pipeline mapping
* Unexploded Ordinance Detention
* Archeology
* Magnetic observatory measurements
* Volcanology and earthquake prediction

Taking Advantage of the Overhauser Effect

Overhauser effect magnetometers are essentially proton precession devices except that they produce an order-of-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.

And the latest v7.0 technology upgrades provide even more value, including:

- Data export in standard XYZ (i.e. line-oriented) format for easy use in standard commercial software programs
- Programmable export format for full control over output
- GPS elevation values provide input for geophysical modeling
- <1.5m standard GPS for high-resolution surveying
- <1.0 OmniStar GPS
- <0.7m for Newly introduced CDGPS
- Multi-sensor capability for advanced surveys to resolve target geometry
- Picket marketing / annotation for capturing related surveying information on the go.

And all of these technologies come complete with the most attractive prices and warranty in the business!
Maximizing Your Data Quality with the GSM-19

Data quality is a function of five key parameters that have been taken into consideration carefully in the design of the GSM-19. These include sensitivity, resolution, absolute accuracy, sampling rates and gradient tolerance.

**Sensitivity** is a measure of the signal-to-noise ratio of the measuring device and reflects both the underlying physics and electronic design. The physics of the Overhauser effect improves sensitivity by an order of magnitude over conventional proton precession devices. Electronic enhancements, such as high-precision precession frequency counters enhance sensitivity by 25% over previous versions. The result is high quality data with sensitivities of 0.022 nT / vHz. This sensitivity is also the same order-of magnitude as costier optically pumped cesium systems.

**Resolution** is a measure of the smallest number that can be displayed on the instrument (or transmitted via the download process). The GSM-19 has unmatched resolution (0.01mT)

This level of resolution translates into well-defined, characteristic anomalies; improved visual display; and enhanced numerical data for processing and modeling.

**Absolute accuracy** reflects the closeness to the "real value" of the magnetic field -- represented by repeatability of readings either at stations or between different sensors. With an absolute accuracy of +/- 0.1 nT, the GSM-19 delivers repeatable station-to-station results that are reflected in high quality total field results.

Similarly, the system is ideal for gradient installations (readings between different sensors do not differ by more than +/- 0.1 nT) -- maintaining the same high standard of repeatability.

**Sampling rates** are defined as the fastest speed at which the system can acquire data. This is a particularly important parameter because high sampling rates ensure accurate spatial resolution of anomalies and increase survey efficiency.

The GSM-19 Overhauser system is configured for two “measurement modes” or maximum sampling rates -- “Standard” (3 seconds / reading), and “Walking” (0.2 seconds / reading). These sampling rates make the GSM-19 a truly versatile system for all ground applications (including vehicle-borne applications).

**Gradient tolerance** represents the ability to obtain reliable measurements in the presence of extreme magnetic field variations. GSM-19 gradient tolerance is maintained through internal signal counting algorithms, sensor design and Overhauser physics. For example, the Overhauser effect produces high amplitude, long-duration signals that facilitate measurement in high gradients.

The system’s tolerance (10,000 nT / meter) makes it ideal for many challenging environments -- such as highly magnetic rocks in mineral exploration applications, or near cultural objects in environmental, UXO or archeological applications.

The GSM-19 gradiometer data are consistently low in noise and representative of the geologic environment under investigation.

Total Field and Stationary Vertical Gradient showing the gradient largely unaffected by diurnal variation. Absolute accuracy is also shown to be very high (0.2 nT/meter).

Much like an airborne acquisition system, the GSM-19 “Walking” magnetometer option delivers very highly-sampled, high sensitivity results that enable very accurate target location and/or earth science decision-making.
Increasing Your Operational Efficiency

Many organizations have standardized their magnetic geophysical acquisition on the GSM-19 based on high performance and operator preference. This preference reflects performance enhancements such as memory capacity; portability characteristics; GPS and navigation; and dumping and processing.

Memory capacity controls the efficient daily acquisition of data, acquisition of positioning results from GPS, and the ability to acquire high resolution results (particularly in GSM-19’s “Walking” mode).

V7.0 upgrades have established the GSM-19 as the commercial standard for memory with over 1,465,623 readings (based on a basic configuration of 32 Mbytes of memory and a survey with time, coordinate, and field values).

Portability characteristics (ruggedness, light weight and power consumption) are essential for operator productivity in both normal and extreme field conditions.

GSM-19 Overhauser magnetometer is established globally as a robust scientific instrument capable of withstanding temperature, humidity and terrain extremes. It also has the reputation as the lightest and lowest power system available -- reflecting Overhauser effect and RF polarization advantages.

GPS and navigation options are increasingly critical considerations for earth science professionals.

GPS technologies are revolutionizing data acquisition -- enhancing productivity, increasing spatial resolution, and providing a new level of data quality for informed decision-making.

The GSM-19 is now available with real-time GPS and DGPS options in different survey resolutions. For more details, see the GPS and DGPS section.

The operator then simply performs the survey using the way points as their survey guide. This capability decreases survey errors, improves efficiency, and ensures more rapid survey completion.

Dumping and processing effectiveness is also a critical consideration today. Historically, up to 60% of an operator’s “free” time can be spent on low-return tasks, such as data dumping.

Data dumping times are now significantly reduced through GEM’s implementation of high-speed, digital data links (up to 115 kBaud).

This functionality is facilitated through a new RISC processor as well as the new GSM-19 data acquisition / display software. This software serves as a bi-directional RS-232 terminal. It also has integrated processing functionality to streamline key processing steps, including diurnal data reduction. This software is provided free to all GSM-19 customers and regular updates are available.
Adding Value through Options

When evaluating the GSM-19 as a solution for your geophysical application, we recommend considering the complete range of options described below. These options can be added at time of original purchase or later to expand capabilities as your needs change or grow.

Our approach with options is to provide you with an expandable set of building blocks:

- Gradiometer
- Walking Fast Magnetometer / Gradiometer
- VLF (3 channel)
- GPS (built-in and external)

GSM-19G Gradiometer Option

The GSM-19 gradiometer is a versatile, entry level system that can be upgraded to a full-featured “Walking” unit (model GSM-19WG) in future.

The GSM-19G configuration comprises two sensors and a “Standard” console that reads data to a maximum of 1 reading every three seconds.

Similar to an airborne survey in principle, the system records data at discrete time intervals (up to 5 readings per second) as the instrument is carried along the line.

At each survey picket (fiducial), the operator touches a designated key. The system automatically assigns a picket coordinate to the reading and linearly interpolates the coordinates of all intervening readings (following survey completion during post-processing).

A main benefit is that the high sample density improves definition of geologic structures and other targets (UXO, archeological relics, drums, etc.).

It also increases survey efficiency because the operator can record data almost continuously. Another productivity feature is the instantaneous recording of data at pickets. This is a basic difference between the “Walking” version and the GSM-19 / GSM-19G (the “Standard” mode version which requires 3 seconds to obtain a reading each time the measurement key is pressed).

3rd Party Software - A One-Stop Solution for Your Potential Field Needs

As part of its complete solution approach, Terraplus offers a selection of proven software packages. These packages let you take data from the field and quality control stage right through to final map preparation and modeling.

Choose from the following packages:

- Contouring and 3D
  Surface Mapping
- Geophysical Data
  Processing & Analysis
- Semi-Automated
  Magnetic Modeling
- Visualization and
  Modeling / Inversion

GSM-19 "Hands-Free" Backpack Option

The "Walking" Magnetometer and Gradiometer can be configured with an optional backpack-supported sensor. The backpack is uniquely constructed - permitting measurement of total field or gradient with both hands free.

This option provides greater versatility and flexibility, which is particularly valuable for high-productivity surveys or in rough terrain.

GSM-19GV "VLF" Option

With its omnidirectional VLF option, up to 3 stations of VLF data can be acquired without orienting. Moreover, the operator is able to record both magnetic and VLF data with a single stroke on the keypad.

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Version 7 -- New Milestones in Magnetometer Technology

The recent release of v7.0 of the GSM-19 system provides many examples of the ways in which we continue to advance magnetics technologies for our customers.

**Enhanced data quality:**

- 25% improvement in sensitivity (new frequency counting algorithm)
- New intelligent spike-free algorithms (in comparison with other manufacturers, the GSM-19 does not apply smoothing or filtering to achieve high data quality)

**Improved operational efficiency:**

- Enhanced positioning (GPS engine with optional integrated / external GPS and real-time navigation)
- 16 times increase in memory to 32 Mbytes
- 1000 times improvement in processing and display speed (RISC microprocessor with 32-bit data bus) 2 times faster digital data link (115 kBaud through RS-232)

**Innovative technologies:**

- Battery conservation and survey flexibility (base station scheduling option with 3 modes - daily, flexible and immediate start)
- Survey pre-planning (up to 1000 programmable waypoints that can be entered directly or downloaded from PC for greater efficiency)
- Efficient GPS synchronization of field and base units to Universal Time (UTC)
- Cost saving with firmware up grades that deliver new capabilities via Internet

More About the Overhauser System

In a standard Proton magnetometer, current is passed through a coil wound around a sensor containing a hydrogen-rich fluid. The auxiliary field created by the coil (>100 Gauss) polarizes the protons in the liquid to a higher thermal equilibrium.

When the current, and hence the field, is terminated, polarized protons precess in the Earth's field and decay exponentially until they return to steady state. This process generates precession signals that can be measured as described below.

Overhauser magnetometers use a more efficient method that combines electronproton coupling and an electron-rich liquid (containing unbound electrons in a solvent containing a free radical). An RF magnetic field -- that corresponds to a specific energy level transition -- stimulates the unbound electrons.

Instead of releasing this energy as emitted radiation, the unbound electrons transfer it to the protons in the solvent. The resulting polarization is much larger, leading to stronger precession signals.

Both Overhauser and proton precession, measure the scalar value of the magnetic field based on the proportionality of precession frequency and magnetic flux density (which is linear and known to a high degree of accuracy). Measurement quality is also calculated using signal amplitude and its decay characteristics. Values are averaged over the sampling period and recorded.

With minor modifications (i.e. addition of a small auxiliary magnetic flux density while polarizing), it can also be adapted for high sensitivity readings in low magnetic fields. (ex. for equatorial work)

GPS - Positioning You for Effective Decision Making

The use of Global Positioning Satellite (GPS) technology is increasing in earth science disciplines due to the ability to make better decisions in locating and following up on anomalies, and in improving survey cost effectiveness and time management.

Examples of applications include: Surveying in remote locations with no grid system (for example, in the high Arctic for diamond exploration)

- **High resolution exploration mapping**
- **High productivity ferrous ordnance (UXO) detection**
- **Ground portable magnetic and gradient surveying for environmental and engineering applications**
- **Base station monitoring for observing diurnal magnetic activity and disturbances with integrated GPS time**

The GSM-19 addresses customer requests for GPS and high-resolution Differential GPS (DGPS) through both the industry's only built-in GPS (as well as external GPS).

Built-in GPS offers many advantages such as minimizing weight and removing bulky components that can be damaged through normal surveying. The following table summarizes GPS options.
Key System Components

Key components that differentiate the GSM-19 from other systems on the market include the sensor and data acquisition console. Specifications for components are provided on the right side of this page.

Sensor Technology

Overhauser sensors represent a proprietary innovation that combines advances in electronics design and quantum magnetometer chemistry.

Electronically, the detection assembly includes dual pick-up coils connected in series opposition to suppress far-source electrical interference, such as atmospheric noise. Chemically, the sensor head houses a proprietary hydrogen-rich liquid solvent with free electrons (free radicals) added to increase the signal intensity under RF polarization.

From a physical perspective, the sensor is a small size, light-weight assembly that houses the Overhauser detection system and fluid. A rugged plastic housing protects the internal components during operation and transport.

All sensor components are designed from carefully screened non-magnetic materials to assist in maximization of signal-to-noise. Heading errors are also minimized by ensuring that there are no magnetic inclusions or other defects that could result in variable readings for different orientations of the sensor.

Data Acquisition Console Technology

Console technology comprises an external keypad / display interface with internal firmware for frequency counting, system control and data storage / retrieval. For operator convenience, the display provides both monochrome text as well as real-time profile data with an easy to use interactive menu for performing all survey functions.

The firmware provides the convenience of upgrades over the Internet via its software. The benefit is that instrumentation can be enhanced with the latest technology without returning the system to us -- resulting in both timely implementation of updates and reduced shipping / servicing costs.

Performance

Sensitivity: 0.022 nT / VHz@1Hz
Resolution: 0.01 nT
Absolute Accuracy: +/- 0.1 nT
Dynamic Range: 15,000 to 120,000 nT
Gradient Tolerance: > 10,000 nT/m
Sampling Rate: 60+, 3, 2, 1, 0.5, 0.2 sec
Operating Temp: -40C to +55C

Operating Modes

Manual:
Coordinates, time, date and reading stored automatically at minimum 3 second interval.
Base Station:
Time, date and reading stored at 3 to 60 second intervals.
Remote Control:
Optional remote control using RS-232 interface.
Input / Output:
RS-232 or analog (optional) output using 6-pin weatherproof connector

Storage - 32Mbytes (# of Readings)
Mobile: 1,465,623
Base Station: 5,373,951
Gradiometer: 1,240,142
Walking Magnetometer: 2,686,975

Dimensions
Console: 223 x 69 x 240 mm
Sensor: 175 x 75mm diameter cylinder

Weights
Console: 2.1 kg
Sensor and Staff Assembly: 1.0 kg

Standard Components

GSM-19 console, GEMLinkW software, batteries, harness, charger, sensor with cable, RS-232/USB cable, staff, instruction manual and shipping case.

Optional VLF

Frequency Range: Up to 3 stations between 15 to 30.0 kHz
Parameters: Vertical in-phase and out-of phase components as % of total field. 2 components of the horizontal field amplitude and total field strength in pT
Resolution: 0.1% of total field
TOTAL FIELD MAGNETICS - CONTOURS
FEBRUARY 6, 2010

CHESTER TOWNSHIP - PORCUPINE MINING DIVISION
CLAIMS: 4220425 4223880
CONTOUR INTERVAL = 20, 100 nT
INSTRUMENT: GSM SYSTEMS GSM-19 MAGNETOMETER/VLF

SURVEYED BY: RANGER EXPLORATION

Interpreted Magnetic Anomaly Location/Trend
Interpreted VLF-EM Anomaly Location/Trend
Interpreted Magnetic Lineament/Fault Location

LINE KILOMETERS SURVEYED: 4.4