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## Report of Max Min Electromagnetic Surveys

On the North, South and West Grids
Currie Bowman Property
Currie and Bowman Townships, Ontario
Surveyed During September 2008
Larder Lake Mining Division
Claims Nos. 1201076121077 and 121083

For

Metals Creek Resources Corp.

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## Introduction

The Currie-Bowman property Metals Creek Resources Corp. consists of 30 claims ( 134 units) that are divided into several blocks, a southern block and northern block. The property lies approximately 55 kilometers east of Timmins, Ontario within Currie and Bowman Townships. The work described in this report occurred within 3 unpatented claims numbered 121076, 121077, and 121083, Larder Lake Mining Division, as well as several mining patents currently under option to Metals Creek Resources Corporation.

During September of 2008, a program of line-cutting and geophysical surveys was conducted over a portion of this claim group on the North, South and West grids (see figure 2). The geophysical program consisted of Max Min horizontal loop electromagnetic (EM) surveying.

Hussey Geophysics Inc. of Timmins, Ontario carried out the geophysical surveys and the line cutting and grid establishment. These surveys were carried out in order to map any discrete conductive anomalies that may be associated with economic concentrations of massive sulphide or gold mineralization.

### 2.0 Location And Access

The Currie-Bowman claims ( 134 units) are situated from the western boundary of Currie Township, east to the center of Bowman Township. The western boundary of the property is approximately 50 kilometers east of the city of Timmins. The eastern boundary of the property lies approximately 4 kilometers south of the town of Matheson.

The claims are readily accessible by a number of all season gravel roads south from Highway 101 between the towns of Shillington and Matheson. All of the work in this report takes place within claims of the north block located near the eastern boundary of Currie Township. Access to this portion of the property is via the Currie-Bowman Road. All of the work conducted in this report was done on claims 1201076, 1201077 and 121083 (See figures $1 \& 2$ ).



### 3.0 Summary of 2008 Geophysical and Line Cutting Program

The line cutting on the North grid consisted of a 1.2-kilometer long baseline striking at 90 degrees. The grid lines were cut every 100 meters along and perpendicular to this baseline at an azimuth of 0 degrees and were cut to lengths of between 500 and 1000 meters. The line cutting on the South grid consisted of a 0.8 -kilometer long baseline striking at 35 degrees. The grid lines were cut every 100 meters along and perpendicular to this baseline at an azimuth of 125 degrees and were cut to lengths of between 100 and 800 meters. The line cutting on the West grid consisted of a 1.25 -kilometer long baseline striking at 95 degrees. The grid lines were cut every 100 meters along and perpendicular to this baseline at an azimuth of 5 degrees and were cut to lengths of between 450 and 800 meters. The grid lines were spaced at 100 meter intervals with pickets chained at 25 meter intervals along all lines on all grids.

The Max Min horizontal loop electromagnetic survey was conducted utilizing the Apex Parametrics Max Min II instrument; with the coil separation of 100 meters and in phase and quadrature measurements recorded for 444,1777 and 3555 Hz . transmitting frequencies. A total of 27.2 kilometers of Max Min electromagnetic data was collected at 25 -meter station intervals (North Grid -8.75 km ., West Grid - 9.8 km ., South Grid 8.6 km ).

A description of the instrument and survey methods can be found in appendix $A$.

### 4.0 Discussion of Results

The Max Min horizontal loop electromagnetic survey (HLEM) over the North, South and West grids was successful in mapping seven anomalous responses interpreted to reflect bedrock conductive sources. The responses have been grouped into seven conductive axes identified as C 5 and C9 located on the South Grid, C8 and C13 located on the North Grid, and C10, C11, and C12, located on the West Grid. The interpreted locations of the vertical projection of the conductor axes are displayed and shown on the maps of the 1777 Hz . HLEM profiles. The conductive responses mapped are all weakly conductive bedrock sources with interpreted conductivities of 5 S or less.

The conductive responses mapped on all of the grids are weak bedrock conductive trends characterized by little to no in-phase and quadrature responses at the 444 Hz . frequency. These anomalies are estimated to have conductivities less than 5 S and occur at depths of 25 to 50 meters below surface.

### 5.0 Conclusions and Recommendations

The HLEM surveys over the North, South and West grids mapped seven conductive trends thought to arise from bedrock sources, which would be prospective for further mineral exploration.

A program of pole-dipole IP surveying with an 'a' spacing of 25 or 50 meters and $\mathrm{n}=1$ to 6 levels measured might also better delineate the anomalous conductive trends identified by the current surveys; as well as map any potential disseminated mineralization prospective for hosting gold or disseminated sulphide mineralization.

Prior to drill testing any of the anomalies it is recommended that a program of geological mapping, prospecting and possibly trenching be undertaken in order to attempt to identify the sources of the magnetic anomalies.

Any existing geological, diamond drilling or geochemical information that may exist in the mining recorder assessment files should be investigated and compiled prior to further exploration of the Currie-Bowman property in order to accurately assess the area of the current geophysical surveys and to determine the most effective follow-up exploration method for this property.

Respectively Submitted,


Matthew Johnston

## 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.

I am registered as professional geophysicist (P.Geoph.) with the Association of Professional Engineers, Geologists and Geophysicists of the N.W.T and Nunavut (L1438).


Signed in Timmins, Ontario, this December 23, 2008

Appendix A

## Theory of Operation:

## Apex MaxMin l-5

-The MaxMin II ground Horizontal Loop ElectroMagnetic (HLEM) systems are designed for mineral \& water exploration and for geoengineering applications. The frequency range (in Hz ) is extended to 5 octaves. The ranges and numbers of coil separations are increased and new operating modes are added. The receiver can also be used independently for measurements with power line sources. The advanced spheric and powerline noise rejection is further improved, resulting in faster and more accurate surveys, particularly at large coil separations. Several receivers may be operated along a single reference scale. Mating plug in data acquisition computer is available for use with MaxMin II for automatic digital acquisition and processing. The computer specifications are in separate data sheets.

## Specifications

- Frequencies $222,444,888,1777,3520 \mathrm{~Hz}$ plus $50 / 60 \mathrm{~Hz}$ power line frequency (receiver only).
- Modes MAX1: HL mode, Tx \& Rx coil planes horizontal and coplanar. MAX2: V coplanar loop mode, Tx \& Rx coil planes V \& coplanar
MAX3: V coaxial loop mode, $\mathrm{Tx} \& \mathrm{Rx}$ coil planes V \& coaxial
MIN1: P loop mode 1 ( $T x$ coil plane $H \& R x$ coil plane $V$.
MIN2: P loop mode 2 ( Tx coil plane V \& Rx coil plane H .
- Coil Separation $12.5,25,50,75,100,125,150,200,300,400$ meters standard $10,20,40,60,80,100,120,160,200,240,320 \mathrm{~m}$, internal option
$50,100,200,300,400,500,600,800,1000,1200,1600 \mathrm{ft}$ internal opt -Parameters IP and Q components of the secondary magnetic field, in \% Measured of primary (Tx) fld. Fld amplitude and/or tilt of PL fld.
- Readouts Analog direct readouts on edgewise panel meters for IP, Q and tilt, and for $50 / 60 \mathrm{~Hz}$ amplitude. Additional digital readouts when using the DAC, for which interfacing and controls are provided for plug-in.
- Range of A nalog IP and Q scales; $0 \pm 20 \%, 0 \pm 2-\%, 0$ Readouts $\pm 100 \%$, switch activated. Analogue tilt scale $0 \pm 75 \%$ grade (digital IP \& Q $0 \pm 102.4 \%$ ).
- Readability Analogue IP and $Q 0.05 \%$ to $0.5 \%$, analogue tilt $1 \%$ grade (digital IP\& Q 0.1\%).
- Repeatability $\pm 0.05 \%$ to $\pm 1 \frac{1}{\%}$ normally, depending on frequency, coil spacing \& conditions.
-Signal Powerline comb filter, continuous spherics noise
clipping, Filtering autoadjusting time constants and other
filtering.
- Warning Lights $R x$ signal and reference warning lights to indicate potential errors.
- Survey Depth Erom surface down to 1.5 times coil separation used.
-Transmitter $110 \mathrm{~Hz}: 220 \mathrm{~atm} 220 \mathrm{~Hz}: 215 \mathrm{~atm} 440 \mathrm{~Hz}: 210 \mathrm{~atm} 880 \mathrm{~Hz}:$
200 atm
Dipole moments $1760 \mathrm{~Hz}: 160 \mathrm{~atm} 3520 \mathrm{~Hz}:$

Reference Cable Light weight unshielded $4 / 2$ conductor teflon cable for maximum temperature range and for minimum friction.

- Intercom Voice communication link via reference cable.
- Rx Power Supply Four standard 9V batt ( 0.5 Ah , alk). Life 30 hrs continuous duty, less in cold wcather. Rechargeable batt optional.
- Tx Power Supply Rechargeable sealed gel type lead acid 12 V - 13 Ahr batt ( $4 \times 6 \mathrm{~V}-61 / 2 \mathrm{Ah}$ ) in canvas belt. Opt I2V-8Ahr light duty belt pack.
- Tx Battery For $110-120 / 220-240 \mathrm{VAC}, 50 / 60 / 400 \mathrm{~Hz}$ and $12-15 \mathrm{VDC}$ supply Charger operation, automatic float charge mode, three charge status indicator lights. Output 14.4 V -1.25A nominal.
- Operating Temp $-40-\mathrm{C}$ to +60 C
$\square \mathrm{Tx}$ weight $\quad 8 \mathrm{~kg} \quad \square \mathrm{Tx}$ weight 16 kg with standard batt.
$\mathrm{IP}=$ In-Phase/ $\mathrm{Q}=$ Quadrature/ $\mathrm{H}=$ Horizontal/ $\mathrm{V}=$ Vertical/ $\mathrm{PL}=$ Powerline


## HLEM Theory

-The MaxMin II is a frequency domain, horizontal loop electromagnetic (HLEM) system, based on measuring the response of conductors to a transmitted, time varying electromagnetic field. The transmitted, or primary EM field is a sinusoidally varying field at any of the eight varying frequencies. This field induces an electromotive force (emf), or voltage, in any conductor through which the field passes (defined by Faraday's Law). The emf causes a secondary current to flow in the conductor in turn generating a secondary electromagnetic field. This changing secondary field induces an emf in the receiver coil (by Faraday's Law) at the same frequency, but which differs from the primary field in magnitude and phase. The difference in phase (phase angle) is a function of the conductance of the conductor(s), both the target and the overburden, and host rock. The magnitude of the secondary field is dependant on the conductance, dimension, depth, geometry as well as on the interference from the overburden and host rock. The two parameters, phase angle and magnitude are measured by measuring the strength of the secondary field in two components; the real field, In-phase with the primary field, and the imaginary field, Quadrature or $90^{\circ}$ out-of-phase from the primary field. The magnitude and phase angle of the response is also a function of the frequency of the primary field. A higher frequency field generates a stronger response to weaker conductors. A low frequency tends to pass through weak conductors and penetrate to a deeper depth. The lower frequency also tends to energize the full thickness of a conductor, and give better measure of it's true conductivity-thick ness " $\alpha$ ", in mho's per meter. For these reasons, two or more frequencies are usually used. A lower frequency for better penetration and a higher frequency for stronger response to weaker conductors. The transmitted primary field also creates an emf in the receiver coil, which is much stronger than that of the secondary and must be corrected for by the receiver. This is done by electronically creating an emf in the receiver, whose magnitude is determined by the distance between the transmitter and receiver. The phase is derived from the receiver via an interconnecting cable.

## Method

The MaxMin II is a two-man continuously portable EM system. Designed to measure
both the vertical and horizontal In-Phase (IP) and Quadrature (QP) components of the anomalous field from electrically conductive zones. The plane of the Transmitter (Tx) was kept parallel to the mean slope between the TX and Receiver ( Rx ) at all times. This ensures a horizontal loop system measuring perpendicular to the anomalous targets. The grid being surveyed should also be secant chained in order to keep a constant separation (between Tx and Rx ) to eliminate anomalous response derived from cable loss over rough terrain. Crews attempted to keep a constant separation for a qualitative survey. Three frequencies; $444 \mathrm{~Hz}, 1777 \mathrm{~Hz}$, and 3520 Hz were selected to resolve complex conductors if/when encountered. The 100 meter coil spacing, chosen to detect possible deep conductors also ensures a more consistent survey overall (a large spread gives better penetration over areas of conductive layers, eg. clay). The crews read the cross-lines only to cut the geology at a perpendicular angle for better cross-over response.

