# 2011 Hotstone Control Survey and Continuous Magnetic Survey

# For

# **Gibson and Associates Inc.**

By

**D.L. Gibson** 

February 15, 2012

This report will discuss the practices and procedures used during the 2011 Hotstone GPS Control Survey and Continuous Magnetic Survey performed on Gibson and Associates Hotstone Lake Property.

### Schedule of Events

Dec. 15,2011 – J. Savard traveled to Chapleau, Ontario from North Bay, Ontario to commence programs.

Dec. 16, 2011 – J. Savard began GPS grid lay out on Hotstone Lake.

Dec. 17, 2011 – J. Savard completed GPS grid lay out on Hotstone Lake in the first part of the day and began Continuous Magnetic Survey in the late afternoon.

Dec. 18, 2011 – J. Savard performed line cutting of grid lines over small 400-meter island on Hotstone Lake and Continuous Magnetic Survey on Hotstone Lake.

Dec. 19, 2011 – J. Savard Completed Continuous Magnetic Survey on Hotstone Lake and began mobilizing back to North Bay, Ontario. Struck a dead moose at night, that was lying on the highway and damaged the transmission linkage in his truck.

Dec, 20, 2011 - J. Savard mobilized the remainder of the way back to North Bay, Ontario.

### **Introduction**

The 2011 Hotstone GPS Control Survey and Continuous Magnetic Survey was performed on Hotstone Lake Property on mining claims, 1163945, 1163946, and 4254696 in Greenlaw Twp, in the Porcupine Mining Division.

The 2011 Hotstone Control Survey and Continuous Magnetic Survey was conducted over the ice on Hotstone Lake, mining claim 4254696, and along the western shores of mining claims 1163945 and 1163946. The majority of the GPS Control Survey and Continuous Magnetic Survey was carried out on mining claim 4254696. see 2011 Hotstone Grid Map and 2011 Hotstone Compilation Mag Map.

The GPS Control Survey and Continuous Magnetic Survey utilized differentially corrected GPS surveying methods from the WAAS satellite correction system. The GPS chain surveying commenced on December 16, 2011 and was completed on December 17, 2011 with the magnetic survey commencing on December 17th and completed on December 19, 2011. A total of 15.475 kilometers of GPS survey control grid lines were established on the 2011 Hotstone GPS Control Survey and Continuous Magnetic Survey program oriented UTM north south at 50-meter line separations.

The Continuous Magnetic survey was conducted using GEM GSM-19 version 7 Overhauser Magnetometers, with onboard Differential GPS for line tracking. Continuous magnetic readings were collected at one reading per second.

Contour maps were created by J. Savard using Geosoft software and imported into Arcmap for interpretation and presentation purposes.

## **Property**

The Hotstone Lake Property is held by Gibson and Associates Incorporated and is located within Greenlaw Township, in the Porcupine Mining division. The Property is located approximately 60 kilometers southeast of Chapleau, Ontario, consisting of mining claims 1163944, 1163945, 1163946, 1206533, 4254694, 4254695 and 4254696.

### Access

Access to the Hotstone Lake property was by way of an old logging road-leading north from the Sultan Hwy, past the former settlement of Kormak, Ontario for approximately 20 kilometers. The road is locally known as the "Kormak" road, which is not maintained by any logging companies at the time of writing. A good sand-gravel road reaches to the middle of the property to a launch on Hotstone Lake.

## Purpose of Surveys

The purpose for establishing GPS survey control grid lines on Hotstone Lake was to provide reliable horizontal positioning for the grid points or stations, to enable the high accuracy of the Continuous Magnetic Survey.

The Continuous Magnetic survey was utilized to provide seamless high-resolution magnetic data for the purposes of identifying subtle and detailed anomalies associated with geological contacts and structures, known in the program area to have an association with gold mineralization.

## **Personnel**

Personnel for the program consisted of J. Savard who performed the field surveys, data processing and presentation.

D.Gibson provided report writing and interpretation of the Magnetic Data.

## **GPS Survey Control Grid**

#### **Survey Control**

GPS Survey Control Grid lines were established on Hotstone Lake, using the on-board differential GPS within the GEM GSM-19 Magnetometer. The purpose for the GPS grid line placement was to provide high accurate horizontal locations of the grid lines to be traversed by the Continuous Magnetic Survey.

#### **Discussion**

A total of 15.475 kilometers of survey control grid lines were established on Hotstone Lake for purposes of the survey program. The Lines were preploted or predefined in the GPS system on the GEM Magnetometer and then the end points were marked in the field. The beginnings and the ends of the lines were located along the shore lines of Hotstone Lake and marked in the field with a piece of flagging tape, scribed with the line number. Lines and stations were extended and marked into the bush, up off of the shoreline of Hotstone Lake for 50 to 75 meters depending on the forest canopy and GPS reception. Lines were extended to provide an over-lap onto the land for follow-up surveys during the ice-out seasons.

Grid lines were also extended to the south and outside of the claim boundary of claim 4254696 on Hotstone Lake, onto open ground, in anticipation of acquiring the ground at a later time. A total of 875 meters of additional lines and Magnetic survey were established on the open ground to the south of claim 4254696.

The 875 meters of survey performed on the open ground will be deducted from the total kilometers surveyed and applied for assessment.

At the time of writing a decision was still pending on the acquisition of the open ground to the south.

Portions of the grid lines crossing over a small 400-meter long island in the Center of Hotstone Lake were cut through using an axe. Small trees and brush were cleared over these portions not to impede the time of the survey and to allow the unobstructed operation of the Magnetometer and onboard GPS in the thick bush covering the island.

### **Procedures**

The survey grid lines for the Hotstone Lake grid were preplanned or predefined using the WGS 84/Nad83 UTM Coordinate system, in the onboard GPS of the GEM GSM-19 Magnetometer. The grid lines were oriented north south using the local WGS 84/NAD 83

UTM zone, zone 17N. Beginning and end points for the lines were located along the shoreline of Hotstone Lake and up off of the shore line into the bush for 50 to 75 meters with the onboard GPS system. Each beginning and end point was labeled in the field with flagging tape scribed with the line numbers. See 2011 Hotstone Grid Map for grid line details.

The grid lines were laid out on Hotstone Lake at 50-meter line separations for the survey to achieve high levels of magnetic detailing from the Continuous Magnetic Survey.

### **Survey Findings**

The highest majority of the survey control grid lines were placed on Hotstone Lake, with sub-meter horizontal accuracies. Minor deflections from horizontal precisions were noted yet proved to be within acceptable tolerances for the processing of Continuous Magnetic Survey data.

A Data sheet can be found in the appendix in Excel format of the survey grid lines listing with coordinates the BOL(Beginning of Line) and EOL (End of Line) plus total line length.

### Magnetic Survey

#### <u>Instrument</u>

The magnetic survey was conducted using a GEM GSM-19 version 7 Overhauser Magnetometer. Two units were used for the survey. One roving unit and one unit as a basestation for diurnal corrects for the roving unit.

The GEM GSM-19 Overhauser Magnetometer is capable of measurements in the magnetic field with 0.01 nt resolution and an absolute accuracy of 0.2 nt over its full temperature range from -50 c to +65 c. It has an operating range of 20,000 nt to 120,000 nt with a data storage capacity up to 32 megabytes.

The Overhauser effect within the GSM-19 uses a proton-rich liquid with an added free radical. The use of the free radical ensures the presence of free unbounded electrons within the proton solution. A strong RF field is used to disturb the electron-proton coupling within the solution producing a higher polarization of the protons within the sensor, which relates to stronger signals from smaller sensors using less power. See GEM technical manual in appendix.

### **Discussions and Procedures**

Two GEM GSM-19 magnetometers were used for the survey. One roving unit was used to collect continuous field readings and the other unit as a base station to collect data for diurnal corrections.

The roving unit used a back pack mounted sensor for ease of operation in the field.

The base station unit was setup daily to collect data for diurnal corrections of the roving data.

Daily checks were made between the base unit and the rover unit for proper clock synchronization of time.

Magnetic readings were collected at one-second continuous reading intervals along the control grid lines on Hotstone Lake.

A total of 15.475 kilometers of Continuous Magnetic Survey were performed along the control grid lines on Hotstone Lake, with 875 meters on the open ground at the south end of Hotstone Lake. The total amount to be claimed for the survey program will be 14.6km of control grid lines and Continuous Magnetic Survey.

There was 875 meters of grid lines surveyed using the Continuous Magnetic Survey method on open ground at the south end of Hotstone Lake, south of the southern claim boundary of claim 4254696. This area was surveyed to provide some overlap to the program and in anticipation of the open ground being acquired. This total of 875 meters will be reduced from the total of 15.475 km of surveys performed on the 2011 Hotstone program, totaling 14.6 km, and will be shown accordingly in the assessment submission.

#### **Processing**

Both the base unit and the roving unit were downloaded nightly with the "GEMlink" software. Within the "GEMLink" software diurnal corrections were performed daily to produce the final processed magnetic files for contouring and mapping. The final data was further profiled to remove any spikes within the data.

Final maps were created using Geosoft and postings map creations were finalized in ArcMap 10. Maps can be found within the appendix.

### **Magnetic Findings**

Within the magnetic survey there were a number of structures anomalies observed. These signatures are believed to be coincidental with large structural fault that trends north-south and alteration zones bisected and remobilized by the fault within the area. A number of smaller features were found coincidental with existing or known gold showings on land near the shoreline of Hotstone Lake.

#### Magnetic Survey Recommendations

Within the program area three magnetic signatures or anomaly areas were noted from the survey. These anomalies will be discussed in detail in the final recommendations and conclusions section of the report. See 2011 Hotstone Anomaly Map

Additional magnetic detailing within these areas with minor signatures should be followed up with detailing on land and over Hotstone Lake.

It is recommended that a high-resolution Airborne EM and Magnetic survey be flown over the entire claim holdings to further define or identify any geological structures, which may be in association with gold mineralization in the area.

## **2011 Hotstone Control Survey and Continuous Magnetic Survey Program Recommendations and Conclusions**

Three distinct magnetic features, Anomalies "A" thru "C", were identified from the survey. see 2011 Hotstone Lake Grid Magnetic Anomaly Map. Other structural features were observed in the magnetic data, in particular the definition of a north-south break, within Hotstone Lake and the easterly extension of a known east-west quartz-carbonate alteration shear zone on the east side of Hotstone Lake. The shear zone on the western shore of Hotstone Lake and trending westerly into claims 1163944, 1163945, and 1206533 is host to a number of gold showings and occurrences.

<u>Anomaly "A"</u> represent a north-south break that exists within Hotstone Lake known as part of the "Wakami High-Strain Zone'. Breaks or faults have been identified as planes of weakness within the Porcupine mining camp, and Abitibi Greenstone belt where gold rich silica solutions can permeate along and collect in. Given the elongated features of the magnetic signature of Anomaly "A", the signatures are indicative of dilation points along a break where gold bearing quartz lenses may form. En echelon quartz lenses have been identified to the west of this break within the alteration shear zone that carries significant gold mineralization. This anomaly is a good exploration that requires further investigation.

<u>Anomaly "B"</u> represents the easterly extension of the quartz carbonate fuchsite alteration shear zone, identified on the southwestern shore of Hotstone Lake. The quartz carbonate fuchsite alteration shear zone trending westerly into claims 1163944, 1163945, and 1206533 has been the focus in the area since the 1930's. Within the alteration zone there are a number of known gold occurrences.

<u>Anoamly "C"</u> represents a bisecting north-south break and an east-west trending flow or alteration. Where anomaly "C" exists, Noranda in 1985 drilled over 90 feet of well-mineralized porphyry. Given that there is a large ultra-mafic unit that appears just to the

south of the alteration shear structure, and a mineralized porphyry unit discovered by Noranda in 1985, this present a classic geological environment model for the discovery of gold mineralized zones.

It is recommended that additional work be performed on the Anomaly areas, discovered within Hotstone Lake. Additional geophysical surveys over Hotstone Lake and the entire property package, should be carried out, such as a high resolution Airborne EM and Magnetic Surveys and ground IP survey. Detailed geological mapping of Hotstone Lake and properties, should be performed and compiled with the all the geophysical data.

A drill program is also recommended to test the anomalies found in Hotstone Lake, for the presents of gold mineralization.

## **Listing of Expenditures**

GPS surveying and grid construction, establishing of survey control,	
14.6 km @ \$150/km	\$2,190.00
Magnetic Survey 14.6 km @ \$170/km	\$2,482.00
Travel for J. Savard from North Bay, Ontario to Chapleau, Ontario,	
520km one way for 1040 km return @ \$0.40/km, July 2 <sup>nd</sup> , 2007	\$416.00
Meals and Accommodations	\$1.286.41
Fuel for Truck and Quad	\$541.64
Truck and Quad Rental	\$1243.00
Truck Repairs for hitting the moose	\$377.99
Four days of mapping and report writing @ \$750/day	<u>\$3000.00</u>
Total expenditures for the McNeil Survey Control and	
Magnetic Survey Program	\$11,536.40

## **Appendix**

2011 Hotstone Lake Property Claim Map
2011 Hotstone Lake Grid Property Compilation Map
2011 Hotstone Lake Grid Map

2011 Hotstone Lake Grid Magnetic Contour Map

2011 Hotstone Lake Grid Magnetic Anomaly Map

2011 Hotstone Lake Grid Line Lengths and BOL EOL Coordinates

Gibson and Associates Hotstone Lake Property Claim Map

GEM GSM-19 Technical Manual