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MEMORANDUM

To: Dr. Gerry Carlson
Copper Ridge Exploration

Date: Oct 20, 2009

From: Dave Hildes

Re: Clear Lake 2009 IP & Gravity survey – Field report

This memorandum is a field report describing a linecutting, IP and gravity survey conducted on the Clear Lake property, approximately 70 km east of Pelly Crossing, Yukon between July 17 and August 14, 2009. A total of 224 gravity points, and 11.1 line-km of IP were completed on three target areas. The surveys were based out of camp 1 (494692E, 6957079N) for targets 1 & 3 and from camp 2 (492006E, 6958902N) for target 2. All coordinates are in the NAD83 datum using a UTM Zone 8N projection. Mobilization and demobilization of the camps were by air (both fixed wing and helicopter) from Mayo. Some resupplies were from Carmacks which is equidistant to the property as Mayo.

The line-cutting production was low as the conditions were challenging. Some of the lines had to be altered or curtailed because of extensive and deep swamp.

A full survey log including daily production is attached to this report

Crew and equipment:

The surveys were conducted by the following personnel:

Ian Kickbush	Crew Chief (Jul 17 – Aug 14, 2009)
Earl Zimmer	Linecutter / helper (Jul 17 – Aug 14, 2009)
Louis Bissonnette	Linecutter / helper (Aug 6 – Aug 14, 2009)
JP Lemire	Linecutter / helper (Jul 23 – Aug 14, 2009)
Rafe Etzel	Linecutter / helper (Jul 17 – Jul 23, 2009)
Alex Poitras	Helper (Jul 17 – Aug 6, 2009)

The crew was equipped with the following instruments and equipment:

1	Elrec- Pro IP receiver (S/N: 2315-2023534501-122)
1	GDD – TXII IP Transmiter (S/N: 242)
6 km	18 gauge wire
26	50m 10pin IP cables with electrodes
1	Ez 5000 Honda generator
1	CG-5 Autograv Gravimeter (S/N: 49349)
1	Topcon RTK Differential GPS systems, with base.
1	Pacific Crest PDL radio link with antenna (S/N: 6080810)
2	Non-differential GPS receiver
1	Laptop with Geosoft package
3	Power saws with tools and appropriate PPE

Survey specifications:

The gravity survey was conducted according to the following specifications:

Readings	Stacked for 60 seconds. Standard deviation< 0.05 mGal otherwise repeated 3 times.
Seismic Filter	OFF
Gravity Base readings	Repeated 3 times twice daily.
Near terrain	20m surrounding in 6 zones with a handheld clinometer.
Datum/ Projection	NAD 83 Canada, UTM Zone 8N.
Geoid model	EGM96 15’
Grid	Cut lines with 50m station interval. The stations were marked with a nail and tag with flagging.

The IP survey was conducted according to the following specifications:

Readings	Stacked 15 times. Standard deviation< 5 mV/V otherwise repeated several times until repeatability assured.

Array	Modified Pole-Dipole Array
Dipole spacing	50m on all lines
Dipoles Read	N=1 through 10
TX	Time domain, 50 % duty cycle, reversing polarity 0.125 Hz
Grid registration	Handheld GPS points at line ends and every 200m, averaged 60 s or until estimated accuracy <10m. All coordinates in NAD83 UTM Zone 8N

Gravity survey notes:

GPS base station

Two GPS base station positions were used. The first was positioned on the ridge west of camp at 494486E, 6957311N NAD83, UTM zone 8N, marked with a cairn, flagging and labeled Clear Lake Grav 2009 - GPS BASE 1. It was used from Jul 27 to Aug 03 2009 and was used to survey Target 1 and 3.

The second base station position was located at camp2 at 0492002E, 6958913N NAD83, UTM zone 8N. This position was used from Aug 4 to Aug 14, also marked with a cairn, a nail and flagging and labeled Clear Lake Grav 2009 - GPS BASE 2. This GPS base station was used to survey Target 2.

GPS Elevation Geoid:

The program Oasis Montaj was used to convert the elevations from ellipsoid heights, used during data collection, to geoid heights using the world geoid model EGM96 15'.

Gravity QA/QC:

A gravity control point was taken at least twice a day for each survey day. Labeled L999 St 999, it was located in camp 1 (494679E 6957109N NAD83, UTM zone 8N) for targets 1 &3 and camp 2 (492009E 6968918N NAD83, UTM zone 8N) for target 2. The locations are marked with a nail and flagging with a cairn. The control point drifts are shown below

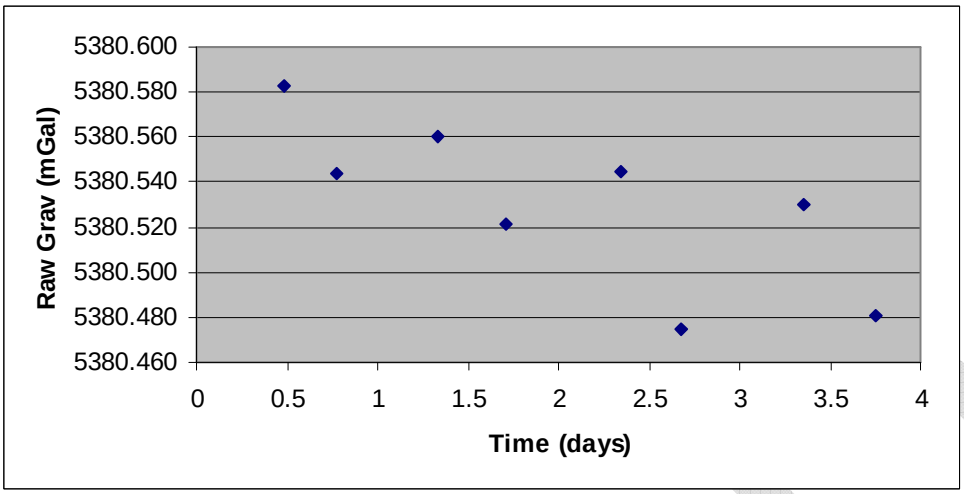

Figure 1: Grid drift graph for Targets 1&3, Control location L 999 St 999 (in camp 1), gravity (mGal) vs. time (days)

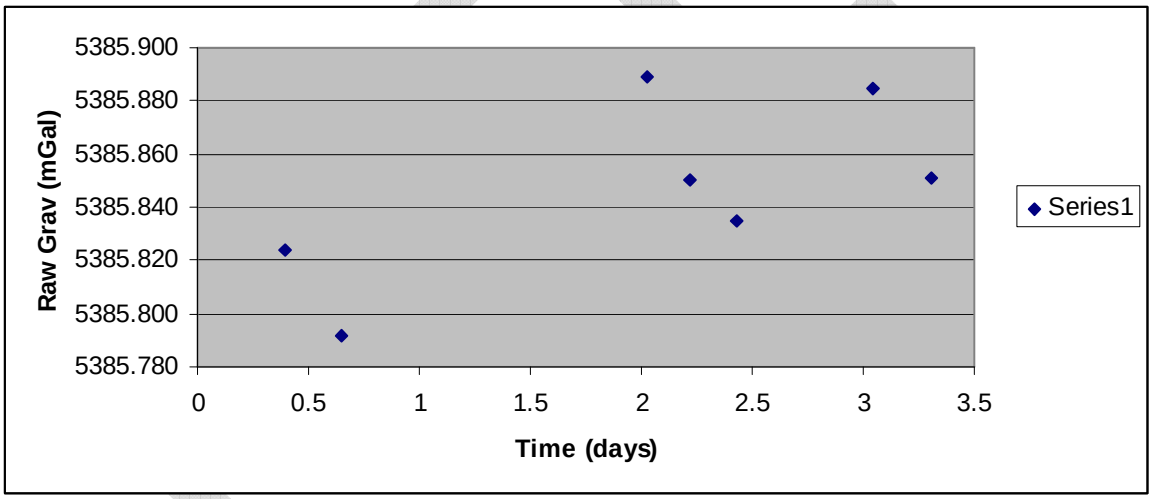

Figure 2: Grid drift graph for Target 2, Control location L 999 St 999 (in camp 2), gravity (mGal) vs. time (days)

Gravity corrections:

The tide corrections were done by the Scintrex on board algorithm with the parameters as 62.4N, 135.1W, GMT diff of 7 hours.

The proprietary software Gravred 2.1 developed by Amerok Geosciences was used to calculate the corrections for each gravity station. The corrections that were performed

on the data were: a drift correction which removes the drift of the gravimeter on a daily basis by linear interpolation between control points, a latitude correction which removes the effect of the latitude on the data , a Free Air correction which removes the effect of elevation on the data, a Bouguer correction which corrects for a effects of a uniform slab on the data, a Bullard B correction which corrects for the curvature of the earth, near terrain corrections which corrects for terrain effects within 20 meters of each data point and far terrain corrections which removes the effects of the terrain beyond 20 meters from each data point. The far terrain correction is done is two stages: the first is a more accurate calculation using a 20 m digital elevation model based on NTDB 1:50000 topographic maps, corrected to fit elevation data collected during survey while the second uses a coarser DEM with a 500 m cell size and a more approximate line-mass method. The finer resolution 20 m DEM had a lower left corner of 481500E, 6946300N and an upper right corner of 505800E, 6970500 giving a 10 km buffer around the survey area. The coarse outer DEM extends to approximately 100 km from the survey area.

A standard specific gravity of 2.67 was used for Bouguer, Bullard-B and all terrain corrections.

To remove a regional trend, the Bouguer anomaly for each target was gridded with 20 m cells and then upward continued for 400 metres. This upward continued grid was subtracted from the Bouguer Anomaly grid leaving the short wavelength features as the residual. The residual grid was resampled along the lines and plotted as profiles in the composite sections.

IP Data Processing:

Data was downloaded nightly from the receiver and imported into Geosoft Oasis Montaj IP package. Every reading was inspected and readings which did not repeat were rejected from the database. Apparent resistivity was recalculated using a four electrode equation assuming a homogeneous earth. Average apparent resistivity and chargeability were calculated using a weighted mean based on the number of stacks and the standard deviation of the chargeability. In those areas that produced a relatively lower signal to noise ratio additional readings as well as greater stacks of averaged readings were taken in order to ensure repeatability.

GPS points were dumped from the handheld units and the coordinates for the stations determined by linear interpolation between GPS units. Elevations were determined from a digital elevation model equivalent to NTS 1:50:000 maps.

Prior to 2D resistivity modelling, errors in the apparent conductance were assigned to the data. There is no means of directly quantifying these errors because neither the transmitter nor receiver records the error in the current or voltage. Errors were assumed to be 0.001 + 5% S/m. Following error assignment, the data were inverted using default initial and reference models based on an average of the apparent

resistivity. After the default run, the data were inverted a second time using initial and reference models of 10000 Ohm-m, a much higher value than the average in the survey area. The purpose of this second run is to generate a model with a background resistivity greatly different than the average values used in the default run. After the second run, the two models were compared and the area where the models differed by a factor more than the DOI cutoff (see the *2D Processing Notes.xls* file for individual line details) was removed from the default run model. These points are not sensitive to the field data and there is no reliable subsurface information. Chi factors were adjusted to to ensure convergence and an appropriate level of structure to the model. Chi factors for individual lines are in the file *2D Processing Notes.xls.*

Prior to 2D chargeability modelling, the observed standard deviation of chargeability was used as a measure of error for apparent chargeability. To avoid zero errors, a minimum of 0.2 mV/V was added to each error measurement. The IP data were first inverted using default values (initial and reference model of a 0 mV/V half-space), with the same mesh as the resistivity modelling, using the default recovered resistivity model. After the first run, the data were inverted a second time using initial and reference models of 100 mV/V (a much higher value than the average in the survey area). The two models were then compared and regions in the default model which varied more than the DOI cutoff (see the *2D Processing Notes.xls* file for individual line details) were removed in the final models. In these regions, the final model is not sensitive to the field data and there is no reliable subsurface information. Chi factors were adjusted to ensure convergence and an appropriate level of structure to the model. Chi factors for individual lines are in the file *2D Processing Notes.xls.*

Composite sections of apparent resistivity, modelled resistivity, apparent chargeability, modelled apparent chargeability, apparent chargeability error, and Bouguer gravity anomaly profiles (both with and without the regional trend removed) were produced with an individual colour scale in PDF format.

Products:

The following data files are appended to the digital version of this report

Raw folder\	RAW - All the instruments dump files
Final data folder\	IP and gravity data in Geosoft database (*.gdb), ASCII (*.xyz) and Excel (*.xls) formats. The *channels.txt files are ASCII files with a description of each channel in the datafiles.
Clear lake target 1 IP.gdb	
Clear lake target 2 IP.gdb	
Clear lake target 3 IP.gdb	
Clear lake target 1 IP.xyz	
Clear lake target 2 IP.xyz	
Clear lake target 2 IP.xyz	
Clear lake IP channels,txt	
Clear lake gravity.xls	

Clear lake gravity.xyz Clear lake gravity channels.txt	
Figures folder\ CL Composite Section T1-L2200.pdf CL Composite Section T1-L2300.pdf CL Composite Section T1-L2400.pdf CL Composite Section T2-L0.pdf CL Composite Section T2-L100.pdf CL Composite Section T2-L200.pdf CL Composite Section T3-L4200.pdf Clear Lake grid map.pdf	Composite sections of models, pseudosections and gravity profiles at a 1:5000 scale in PDF format and a grid map at 1:10000 scale showing the lines relative to topography and hydrology.
2D Inversions folder\ Images\ T1_L2200\ T1_L2300\ T1_L2400\ T2_L0\ T2_L100\ T2_L200 T3_4200\ Processing Notes.xls	2D inversion folders for each line with input and output files. The *Images* folder has images of dc and ip models with convergence curves and images of predicted versus observed values in JPG format, with individual colour scales. There are also JPG format images of the models with a common colour scale. The *Processing Notes.xls* file has line by line details of the inversion parameters.
Clear Lake 2009 – Daily report.pdf	Daily log
Clear Lake 2009 – Field report.pdf	A PFD of this report.

Respectfully submitted,
AURORA GEOSCIENCES LTD.

Dave Hildes