

# **2012 ASSESSMENT WORK REPORT**

## **AIRBORNE MAGNETIC-RADIOMETRIC SURVEY REPORT ON GROUT, QUO CLAIM GROUPS**

**AT DOYLE CREEK AREA**

**NTS Map Sheet No: 115J10, 115J11, 115J14**

**Latitude: 62°45' N Longitude: 139°13' W**

**Whitehorse Mining District  
YUKON TERRITORY**

**Work date: June 01, 2012 to Dec 05, 2012**

**Claims Owner: Canadian Dehua International Mines Group Inc.**

**By: Raymond Xie  
Date: Dec.10, 2012**

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### **Appendix I** Statement of Expenditure for Grout, Quo claim Groups

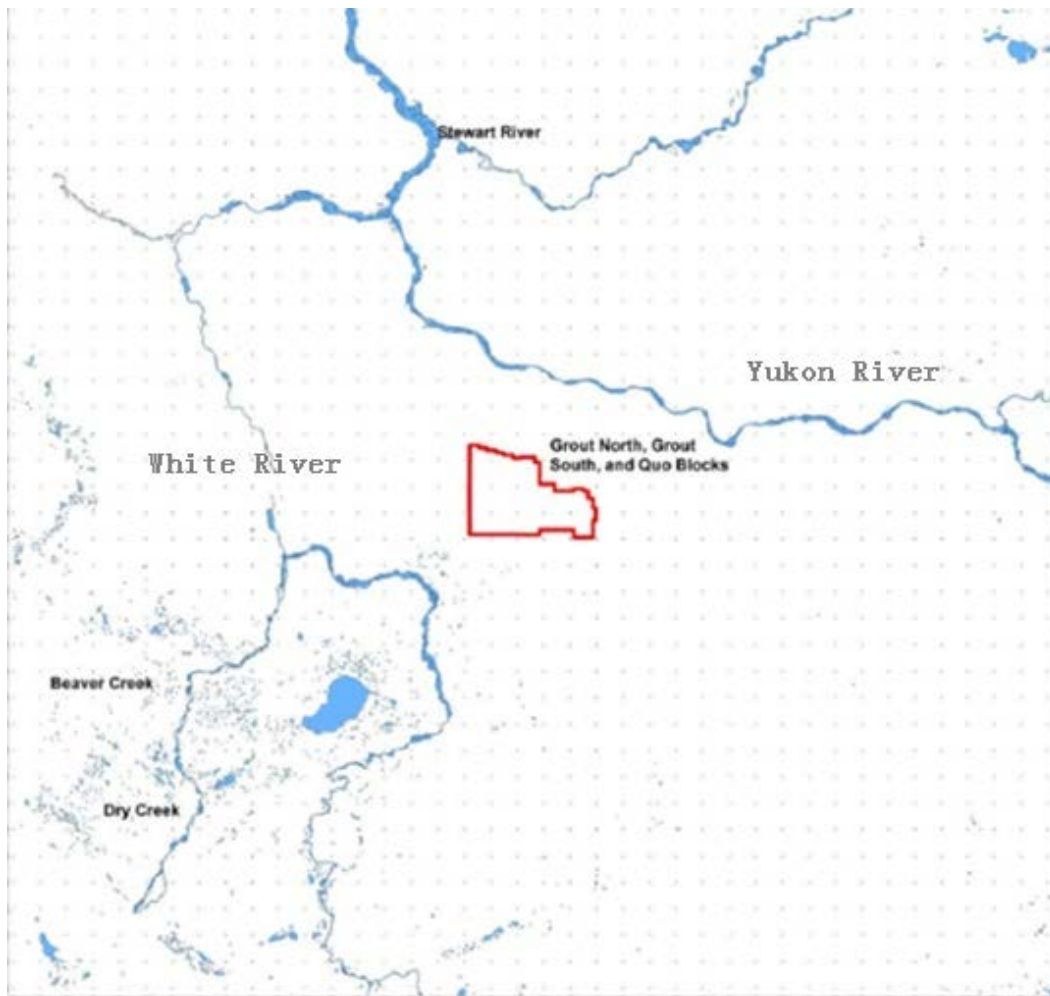
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## 1. INTRODUCTION

Grout, Quo Claim Groups, including 1249 claims, located at east of the White River and south of the Yukon River (Figure 1). The blocks are approximately 145 km south of Dawson, 85 km northeast of Beaver Creek, Yukon Territory, total area 270 square kilometers. NTS map sheets of Grout are 115J11, 115J14. NTS map sheets of Quo are 115J10, 115J11, 115J14. The property is 100 % held by Canadian Dehua International Mines Group Inc. (Dehua Mines), in Whitehorse Mining District. Its Latitude and Longitude are 62°45' N, 139°13' W respectively.

In summer of 2010, an airborne survey was carried out by Precision GeoSurveys Inc. Airborne magnetic and radiometric data were collected to serve in the exploration of the Grout, Quo blocks which has geological settings that are prospective for porphyry-type copper, molybdenum, and gold ore deposits. The survey was suspended due to weather and other conditions. It was resumed by Precision GeoSurveys Inc. and completed in summer of 2012.



**Fig.1 Location of Grout, Quo Claims**

Magnetic and radiometric data in required formats was collected used for post geological and mineral exploration targeting interpretation. The data is interpreted by Aurora Geosciences to select ground exploration targets for next step of work.

## 2. GROUT, QUO CLAIM GROUPS

Grout, Quo Claim Groups including 1249 claims (Table 1, Fig 2). There is no ground access to property.

**Table1 List of Grout (600 claims)**

CLAIM NAME AND NO.	GRANT NO.	EXPIRY DATE	RENEW TO
GROUT 1-359	YD20541-YD20899	18/12/2012	18/12/2013
GROUT 360-367	YD54501-YD54508	18/12/2012	18/12/2013
GROUT 368-375	YD54510-YD54517	18/12/2012	18/12/2013
GROUT 378-381	YD54519-YD54522	13/01/2013	18/12/2013
GROUT 382-403	YD54523-YD54544	18/12/2012	18/12/2013
GROUT 404-425	YD54545-YD54566	13/01/2013	18/12/2013
GROUT 426-430	YD54567-YD54571	18/12/2012	18/12/2013
GROUT 431-452	YD54572-YD54593	13/01/2013	18/12/2013
GROUT 453-466	YD54594-YD54607	18/12/2012	18/12/2013
GROUT 467-496	YD54608-YD54637	13/01/2013	18/12/2013
GROUT 497-559	YD54638-YD54700	18/12/2012	18/12/2013
GROUT 560-602	YD22301-YD22343	18/12/2012	18/12/2013

\* Extension period : 1 year

**Quo Claims (624 claims)**

CLAIM NAME AND NO.	GRANT NO.	EXPIRY DATE	RENEW TO
QUO 1-5	YD57925-YD57929	13/04/2013	15/01/2014
QUO 6-19	YD57930-YD57943	21/04/2013	15/01/2014
QUO 20-37	YD57944-YD57961	13/04/2013	15/01/2014
QUO 38-53	YD57962-YD57977	21/04/2013	15/01/2014
QUO 54-127	YD57978-YD58051	13/04/2013	15/01/2014
QUO 128-143	YD58052-YD58067	21/04/2013	15/01/2014
QUO 144-155	YD58068-YD58079	13/04/2013	15/01/2014
QUO 156-349	YD58080-YD58273	21/04/2013	15/01/2014
QUO 350-357	YD58274-YD58281	12/05/2013	15/01/2014
QUO 358-624	YD57625-YD57891	13/04/2013	15/01/2014
QUO 625-637	YD57891-YD57904	13/04/2013	15/01/2014
QUO 638-649	YD57905-YD57916	21/04/2013	15/01/2014

\*624 claims extension period: 9 months

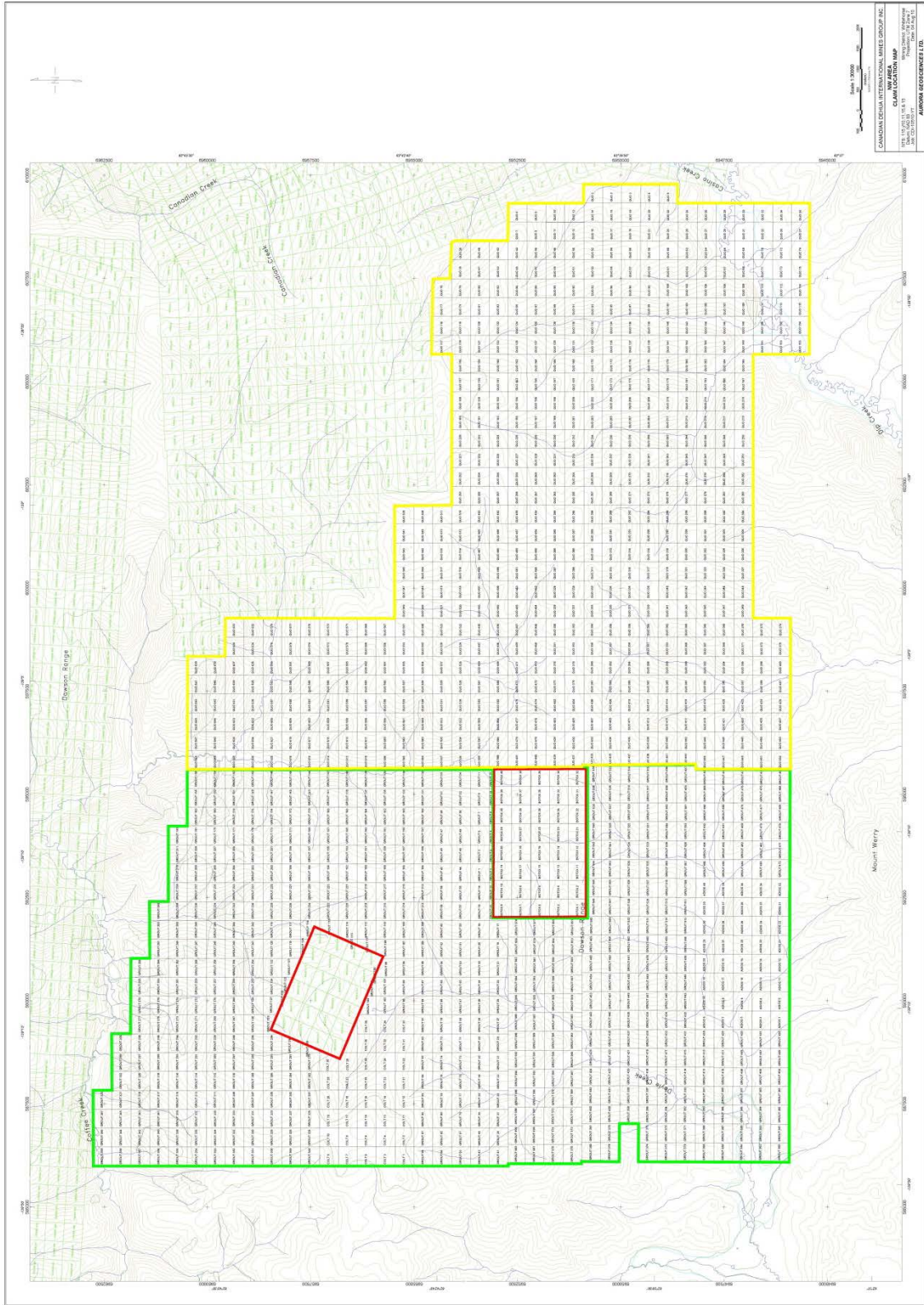


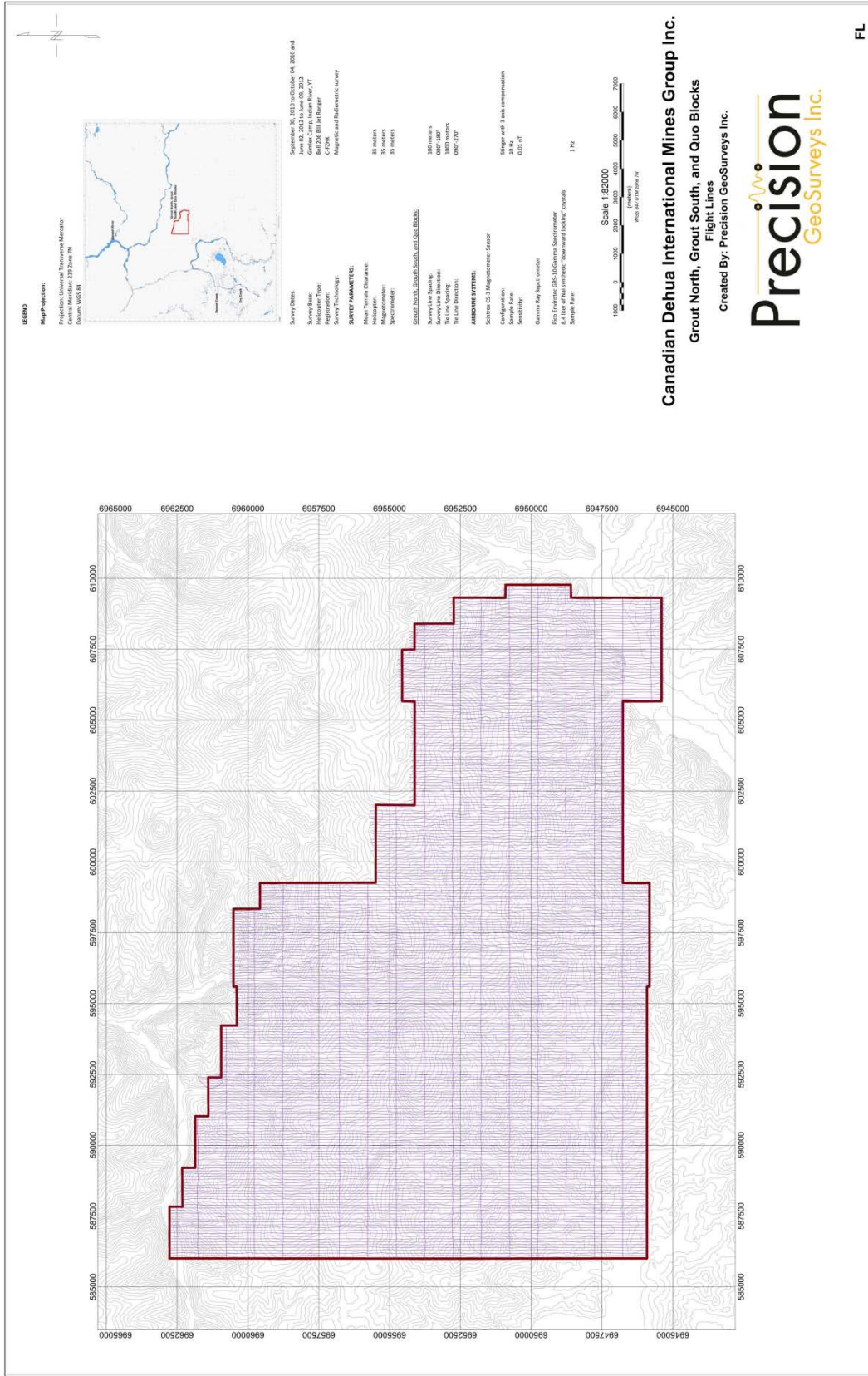
Fig.2 Map of Grout, Quo Claims Distribution

### 3. AIRBORNE MAGNETIC AND RADIOMETRIC SURVEY

Precision GeoSurveys flew the blocks using a Bell 206 BIII Jet Ranger mounted magnetometer, spectrometer and related AGIS equipment. The survey lines were flown at 100 m spacing at N 0/180° heading, and the tie lines were flown at 1 km spacing at a heading EW90°/270° (Figures 3). The average survey elevation was 30 meters vertically above ground surveyed.

The geodetic system used for this survey is WGS 84 and the area is contained in zone 7N.





**Fig.3 Plot of Airborne Survey Lines, Grout and Quo claim Groups**

### 3.1 Base Station Details

Two magnetic base stations were set up before every flight to ensure that diurnal activity is recorded during the survey flights. In this case, the base stations were located in the bushes close to the east side of the property.

Base station recordings were reviewed at regular intervals to ensure that no data were collected during periods with high diurnal activity (greater than 5 nT change per minute). The base stations were installed at a magnetically noise-free area, away from metallic items such as steel objects, vehicles, or power lines. The magnetic variations recorded from the stationary base station are removed from the magnetic data recorded in flight to ensure that the anomalies seen are real and not due to solar activity.

Precision GeoSurveys operates two GEM GSM-19T magnetometer base stations continuously throughout the airborne data acquisition survey. The GSM-19T has an accuracy of +/- 0.2 nT at 1 Hz.

### 3.2 Equipment

For this survey, a magnetometer, spectrometer, base stations, laser altimeter, and a data acquisition system were required to carry out the survey and collect quality, high resolution data. The survey magnetometer is carried in an approved “stinger” configuration to enhance flight safety and improve data quality in this mountainous terrain.

#### *AGIS*

The Airborne Geophysical Information System, AGIS, is the main computer used in data recording, data synchronizing, displaying real-time QC data for the geophysical operator, and the generation of navigation information for the pilot display system.

#### *Magnetometer*

The magnetometer used by Precision GeoSurveys is a Scintrex cesium vapor CS-3 magnetometer. The CS-3 is a high sensitivity/low noise magnetometer with automatic hemisphere switching and a wide voltage range, the static noise rating for the unit is +/- 0.01 nT. On the AGIS screen the operator can view the raw magnetic response, the magnetic fourth difference, aircraft position, and the survey altitude for immediate QC of the magnetic data. The magnetic data are recorded at 10 Hz. A magnetic compensator is also used to remove noise created by the movement of the helicopter as it pitches, rolls and yaws within the Earth’s geomagnetic field.

#### *Spectrometer*

The IRIS, or Integrated Radiometric Information System is a fully integrated, gamma radiation detection system containing 8.4 litres of NaI (Tl) downward looking crystals. The IRIS is equipped with upward-shielding high density RayShield® gamma-attenuating material to minimize cosmic and solar gamma noise. Real time data acquisition, navigation and communication tasks are integrated into a single unit that is installed in the rear of the aircraft. Information such as total count, counts of various radioelements (K, U, Th, etc.), temperature, cosmic radiation, barometric pressure, atmospheric humidity and survey altitude can all be monitored on the AGIS screen for immediate QC. All the radiometric data are recorded at 1 Hz.

### *Laser Altimeter*

The pilot is provided with terrain guidance and clearance with an Acuity AccuRange AR3000 laser altimeter. This is attached at the aft end of the magnetometer boom. The AR3000 sensor is a time-of-flight sensor that measures distance by a rapidly modulated and collimated laser beam that creates a dot on the target surface. The maximum range of the laser altimeter is 300 m off of natural surfaces with 90% reflectance and 3 km off special reflectors. Within the sensor unit, reflected signal light is collected by the lens and focused onto a photodiode. Through serial communications and analog outputs, the distance data are transmitted and collected by the AGIS at 10 Hz.

### **3.3 Data Acquisition Magnetometer Checks**

At the start of the survey, airborne magnetometer system tests were conducted. The three tests conducted were the compensation flight, heading error test, and the lag test.

#### *Compensation Flight Test*

During aeromagnetic surveying noise is introduced to the magnetic data by the aircraft itself. Movement in the aircraft (roll, pitch and yaw) and the permanent magnetization of the aircraft parts (engine and other ferric objects) are large contributing factors to this noise. To remove this noise a process called magnetic compensation is implemented. The magnetic compensation process starts with a test flight at the beginning of the survey. These maneuvers provide the data that are required to calculate the necessary parameters for compensating the magnetic data.

#### *Heading Error Test*

To determine the magnetic heading effect a cloverleaf pattern flight test is conducted. The cloverleaf test is flown in the same heading as the survey and tie lines. For each direction, it must fly over a recognizable feature on the ground in order to estimate the heading error.

#### *Lag Test*

Followed by the compensation flight, a lag test is conducted. This is performed to determine the relationship between the time the digital reading was recorded by the instrument and the time for the position fix for fiducial of the reading was obtained by the GPS system.

The test was flown in the four orthogonal headings over an identifiable magnetic anomaly at survey speed and height. A lag of 6 fiducials (0.6 seconds) was determined from the lag test.

### **3.4 Data Processing**

After all the data are collected after a survey flight several procedures are undertaken to ensure that the data meet a high standard of quality. All data were processed using Pico Envirotec software and Geosoft Oasis Montaj geophysical processing software.

#### *Magnetic Processing*

Before any processing and editing of the raw magnetic data, the data obtained from the

compensation flight test must be applied to the raw magnetic data first. A computer program called PEIComp is used to create a model from the compensation flight test for each survey to remove the noise induced by aircraft movement; this model is applied to each survey flight so the data can be further processed.

Filtering is applied to the laser altimeter data to remove vegetation clutter and to show the actual ground clearance.

The base station data collected is edited, plotted and merged into a Geosoft (.gdb) database daily. The airborne magnetic data is corrected for diurnal variations by subtracting the observed magnetic base station deviations. Following the diurnal correction was a lag correction. A lag correction of 0.6 seconds was applied to the total magnetic field data to compensate for the lag in the recording system as the magnetometer sensor flies 5.70 m ahead of the GPS antenna. Lastly, a heading correction was applied to the data.

Some filtering of the magnetic data is also required.

The corrected magnetic data from the survey and tie lines was used to level the data all together. Two forms of levelling are applied to the corrected data: conventional leveling and micro-levelling. Lastly, micro-leveling is applied to the corrected conventional leveled data. This will remove any residual line-direction-related noise, and any low amplitude component of flight line noise, that still remains in the data after tie line leveling.

Lastly, the final step in processing was leveling and merging of the survey data from this year to the data collected in 2010. This was accomplished by finding the differences between common data points and taking the average to determine a leveling constant between the data collected at different times.

### *Radiometric Processing*

Calibrating the spectrometer system in the helicopter is the first and vital step before the airborne radiometric data can be processed. Once calibration of the system has been complete, the radiometric data are processed by windowing the full spectrum to create channels for U, K, Th and total count. A 5-point Hanning filter was applied to the Cosmic window before going any further with processing the radiometric data.

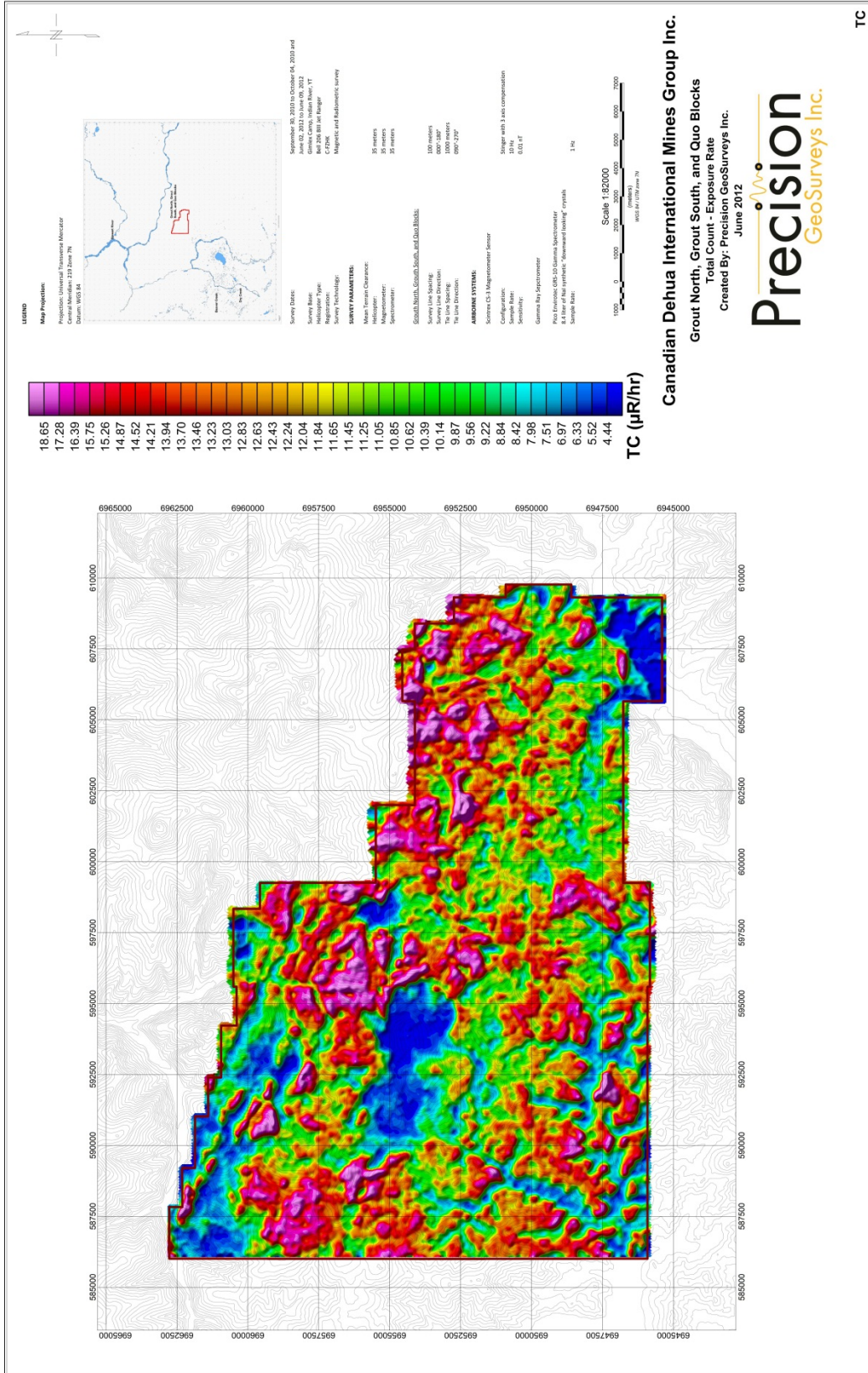
Aircraft background and cosmic stripping corrections were applied to all three elements.

The background radon contribution is first removed followed by Compton stripping. Spectral overlap corrections are applied on to potassium, uranium, and thorium as part of the Compton stripping process. Lastly, attenuation corrections are applied to the data which involves nominal survey altitude corrections.

With all corrections applied to the radiometric data, the final step is to convert the corrected potassium, uranium, and thorium to apparent radioelement concentrations.

Fig. 4 and 5 shows total magnetic intensity and total radioactivity count of Grout, Quo claim groups.





**Fig. 5 Total Radioactivity Count, Grout, Quo block**

The first hand flown data processed by Precision GeoSurveys Inc. has been delivered to Aurora Geosciences for further procession and interpretation combined with geochemical data and geological settings, aimed at defining ground exploration targets. The results will be come out in early 2013.

## Reference

- Precision GeoSurveys Inc. Airborne Geological survey Report Gonzo-Block Property report. 2012

## Appendix I

### Statement of Expenditure for Grout, Quo Claim Groups

Total expenditure applied for Grout, Quo property assessment work in 2012: \$  
**106,944.00**

#### 2012 Working Expenditure on Grout, Quo Claims

item	unit cost	amount
airborne magnetic survey		83307.00
Manpower expense		7500.00
Accommodation		2250.00
helicopter rent		5637.00
Transportation		1750.00
Data interpretation		5250
Supplies		
Consulting		
Sample assay		
Insurance		
Safety and labor protection		
other expenditure		1250.00
<b>Total:</b>		<b>\$106944.00</b>

## Statement of Qualification

I, Rongju Xie, do hereby certify that:

I am a geologist employed by *Canadian Dehua International Mine Group Inc.* and Dehua's Yukon project manager.

I graduated from *Guilin University of Technology*, Guilin, Guangxi, China in 1984, granted B.Sc. in geology.

In 1987, I acquired M.Sc. degree from *China University of Geosciences (Wuhan)*;

In 2000, I acquired PhD in Geosciences from *Central South University*, Changsha, China.

I studied in Geology and worked in mineral prospecting more than 20 years, and have related working experience both in China and Canada.

I involved in Dehua's exploration project in Yukon from the beginning, and carried out data collection, assessment report composition of this one.

Rongju Xie

Geologist  
Canadian Dehua International Mines Group Inc.

