2006 Assessment Report

Airborne Geophysical Survey on the Mount Bisson Property

Omineca Mining Division
North-central British Columbia

55°32'25"N 123°58'23"W
NTS 93N/9, 93O/5, 93O/12

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February 15th, 2007

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1 Introduction

The Mount Bisson Property, in the Munro Creek area west of Williston Lake, hosts rare earth mineralization in alkali syenites. The property was acquired in May 2006 by Paget Resources Corporation and is 100% owned by the company. This report describes the results of an airborne radiometric and magnetic survey conducted over the property in October 2006 and recommends that further work be carried out on the property in 2007.

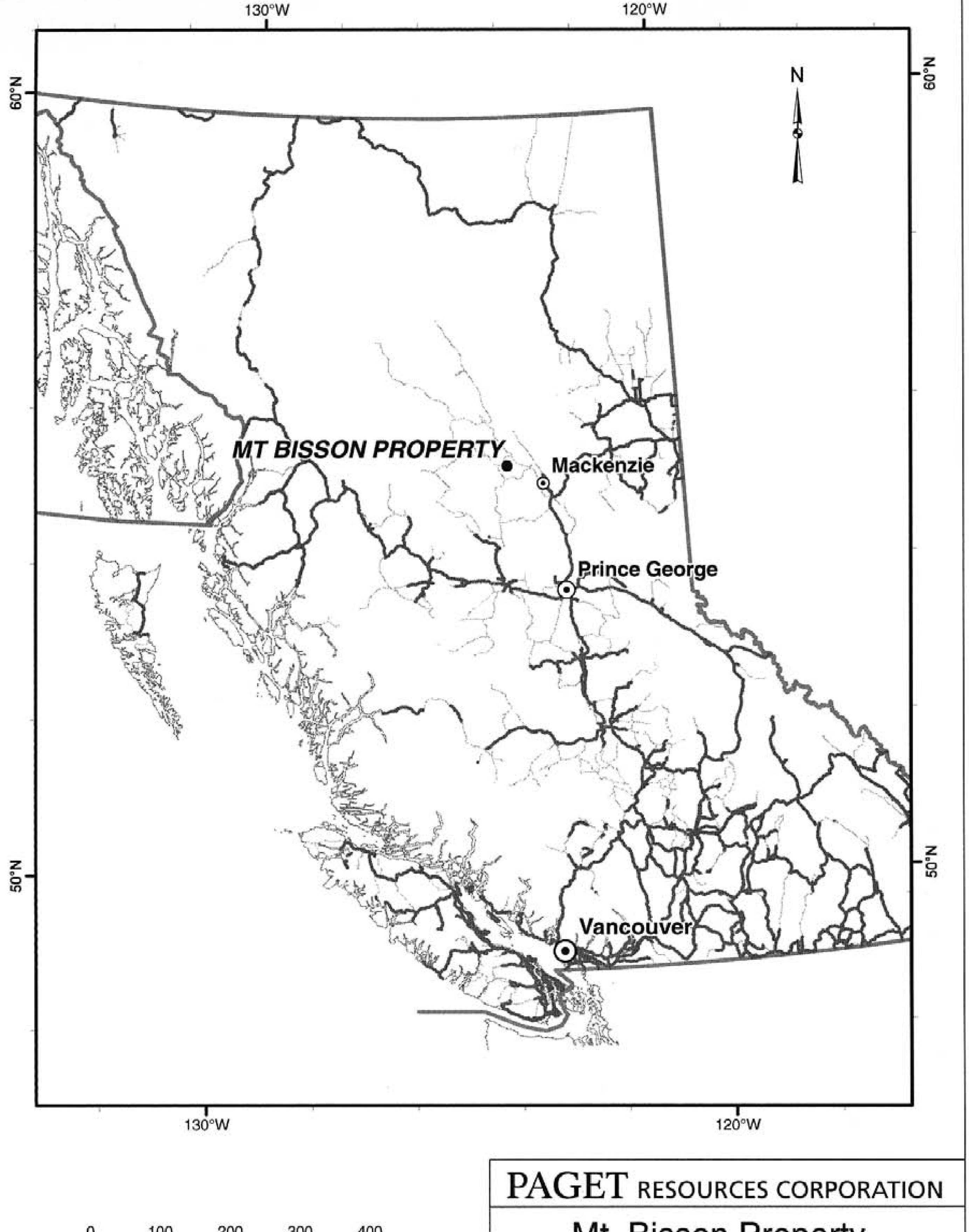
2 Property Location and Access

The Mount Bisson Property is located in north-central British Columbia (Figure 1), approximately 58 kilometers northwest of Mackenzie and 36 kilometers southeast of Manson Creek. It straddles a series of roughly east-trending ridges west of Mount Bisson and east of Munro Creek and the Manson River. Elevations range from approximately 1000 to 1600 meters. Numerous logging roads provide access to the southern and western margins of the property. The property is accessible via the Fort St James-Manson Creek logging road or the Finlay-Nation forestry road from Mackenzie.

3 Claim Status

The Mount Bisson Property (Figure 2) consists of eight claims in the Omineca Mining Division. Mineral tenure numbers and details are as follows:

Tenure Number	Claim Name	Owner	Map Number	Good To Date	Area (ha)
522745	BISS 1	201036 (100%)	093O	2010/nov/25	366.3
522746	BISS 2	201036 (100%)	093O	2010/nov/25	439.2
522747	BISS 3	201036 (100%)	093N	2010/nov/25	457.2
522749	BISS 4	201036 (100%)	093O	2010/nov/25	237.7
522751	LAURA 1	201036 (100%)	093O	2010/nov/25	457.9
522753	LAURA 2	201036 (100%)	093O	2010/nov/25	457.7
522755	LAURA 3	201036 (100%)	093O	2010/nov/25	458.1
522756	LAURA 4	201036 (100%)	093O	2010/nov/25	274.9
				Total	3149.0



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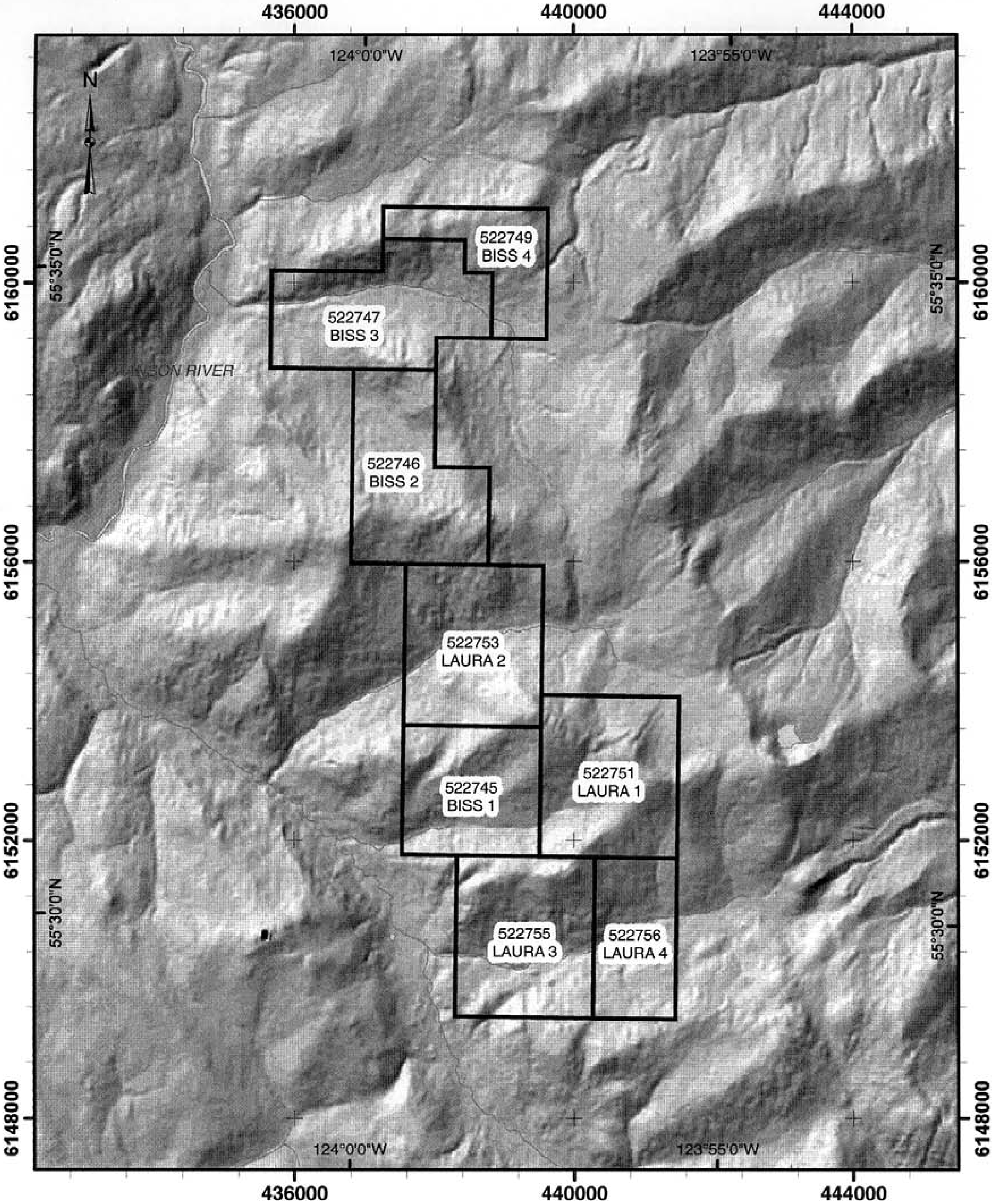
Mt. Bisson Property
General Location Map

British Columbia

Date: January 2007	Figure: 1



0 1,000 2,000 3,000 4,000

meters

NAD83 UTM Zone 10N

PAGET RESOURCES CORPORATION

Mt. Bisson Property
Claim Map

North-central British Columbia

Date: January 2007	Figure: 2

4 Geology

Regional geology has been described in several references (McConnell, 1896; Dolmage, 1927; Armstrong, 1949; Muller, 1961; Tipper *et al*, 1974; Ferri and Melville, 1988). The property lies within the Omineca crystalline belt, which is comprised of schists, micaceous quartzite and crystalline limestone and Proterozoic Wolverine Complex metamorphic rocks, consisting of amphibolite and calcsilicate gneiss. These units strike northwest and dip to the southwest and are intruded by monzonites, syenites and associated pegmatites as dikes and stocks.

Detailed geologic descriptions of the property are available in Halleran and Russell (1990) and in a number of Assessment Reports completed on showings covered by the Mount Bisson Property. Rare earth mineralization on the Mount Bisson Property is hosted by alkalic dikes and pegmatites and within large metasomatic alteration halos within the rocks of the Wolverine Complex. Allanite and monazite are the primary rare earth element (REE) bearing minerals, and are often found as large (2 cm) crystals.

5 Previous Work

Recorded mineral exploration and discovery in the area commenced with a graphite showing discovered along Munro Creek (Halleran, 1985). The Ursa #1 REE showing was found in 1986 along a logging road in the upper reaches of Munro Creek (AR 16781, Halleran, 1988). This was followed by the discovery of the Laura showing in 1987 (AR 17734, Halleran, 1988). In 1988, the Will showings were discovered and detailed mapping, soil sampling and scintillometer surveys were conducted over four small grids on the Laura, Ursa and Will showings (AR 17872, Halleran, 1988). Follow-up mapping and sampling on the Laura grid was completed in 1989 (AR 19404, Halleran, 1989; Halleran and Russell, 1989). Further work in the area was non-existent until 1996 when a short review of the property took place (AR 24861, Leighton, 1997) and several check samples were taken.

Rare earth mineralization is distributed within several rock units on the property, and REE's are contained primarily in the minerals allanite and monazite. Two units contain the highest grade and most widespread mineralization, an allanite pegmatite and a secondary alkalic unit. The pegmatite has been found in exposures 2 to 5 meters wide and up to 75 meters in length. Allanite crystals up to 2 centimeters in length make up to 35 per cent of the mineral content of the pegmatite in isolated zones. Perthite, sphene, plagioclase, apatite and minor aegrine-augite, quartz, zircon and opaques constitute the remainder of the pegmatite's mineral assemblage. Assays (ICP-MS) of the the allanite pegmatite have returned total cerium, lanthanium, neodymium, samarium and praseodymium (LREE) of 0.3 to 13.5 per cent. Total heavy rare earth element (HREE) concentrations are up to hundreds of parts per million. High thorium and uranium concentrations are associated with high REE concentrations (AR19404, Halleran, 1989). The secondary alkalic unit consists of Wolverine amphibolite gneisses that have been metasomatized and are marked by an increase in allanite, apatite, feldspar, aegirine-augite and sphene and a decrease in quartz, hornblende and biotite. The original fabric of the gneisses is often recognizable. LREE content of this unit ranges from 0.15 to 0.64 per cent, HREE content is up to tens of parts per million.

6 Airborne Geophysical Survey

A 595 line-kilometer airborne geophysical survey was conducted over the Mt. Bisson Property from October 2nd to 8th, 2006 in an attempt to delineate subsurface structure and identify areas with radiometric signatures that might relate to zones of rare earth mineralization.

The survey logistical details and equipment specifications are presented in Appendix A, "Helicopter-borne Stinger-mounted Magnetic and Airborne Gamma-ray Spectrometry Survey for Paget Resources Corporation, Mt. Bisson Property, British Columbia, Canada", by Fugro Airborne Surveys.

6.1 Total Field Magnetics

The contour map (Figure 3) of the total field magnetic response indicates that there is a northwest trending belt of internally complex, intermediate to strongly magnetic rocks occupying the northeastern half of the survey area, presumably gneisses of the Wolverine Complex. Several local highs are apparent within this belt, and there appears to be a north-south fault cutting through the belt along the eastern edge of the survey block. The southeast corner of the survey area is dominated by magnetically quiet rocks that may be quartzites and limestones within the Omineca crystalline belt. Several narrow, northeast trending dykes crosscut the entire survey area.

6.2 Radiometrics

Contour maps of total counts of potassium, thorium and uranium (Figures 4-6) were generated from the results of the radiometric survey. Inspection of the contour maps shows that in general, counts for each element are closely related, particularly for thorium and uranium. The total count contour map (Figure 7) shows that the main zones of high radiometric counts are in the central portion of the survey block. A large, 750 meter diameter high on the eastern boundary of claim 522746 dominates the center of the map. This zone is flanked on the east and west by smaller zones of local highs. On the eastern, central edge of the survey, the western edge of a 500 meter long zone of high counts is apparent. These areas have had no surface work conducted on them. A 500 meter wide by two kilometer belt of moderate to high counts, trending east-northeast cuts across the top half of claim 522751 and trends onto claim 522753. The Laura grid (AR17872, Halleran, 1988) was located on a small section of this zone, and samples with the highest REE assays have been collected from this grid. There are a few smaller areas (up to 500 meters in diameter) of moderate to high total counts scattered throughout the survey block: the northeast corner of claim 522755 and the northwest corner of claim 522745, both never sampled, and the northeast corner of 522747 (partially covered by the Will #1 Grid, Halleran, 1988).

7 Summary and Recommendations

The Mount Bisson Property has had several small scale mapping and sampling programs conducted over it. It has been shown that rare earth elements are contained in allanite and monazite in pegmatites and metasomatized alkalic units. Historical sampling has been focused on four small grids and samples of economic interest have been collected from these grids. Samples with the highest REE assays have been collected from a grid in a zone of moderate to high radiometric counts according to the results of the 2006 airborne radiometric survey. Zones with similar or higher counts exist throughout the property and have not been sampled. Inspection of historical assays (AR 19404, Halleran, 1989) reveals that high concentrations of REE's are tightly coupled with high levels of thorium and uranium.

It is recommended that mapping and sampling be conducted over the areas of high total count in the central area of the property (claims 522746, 522751, 522753). Success in this program should be followed up by mapping and sampling of the smaller zones of moderate to high counts (claims 522745, 522755, 522747). The property has been expanded to cover the area of high counts on the eastern central edge of the survey and expansion of the radiometric survey to the east should be considered pending positive assay results from the zones of high radiometric counts.

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Appendix A

Helicopter-borne Stinger-mounted Magnetic and Airborne Gamma-ray Spectrometry Survey for Paget Resources Corporation, Mt. Bisson Property, British Columbia, Canada

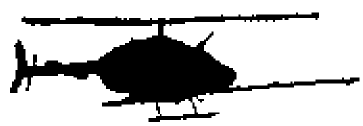
Fugro Airborne Surveys

FUGRO AIRBORNE SURVEYS

Report #06043-3

HELICOPTER-BORNE STINGER-MOUNTED MAGNETIC
AND
AIRBORNE GAMMA-RAY SPECTROMETRY SURVEY
FOR
PAGET RESOURCES CORPORATION
MT. BISSON PROPERTY, BRITISH COLUMBIA, CANADA

NTS: 93N/8,9; 93O/5,12



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SUMMARY

This report describes the logistics, data acquisition, processing and presentation of results of an airborne magnetic and gamma-ray spectrometry geophysical survey carried out for Paget Resources Corporation over their Mt. Bisson Property in British Columbia, Canada. The portion of the total survey was flown from October 2 to October 8, 2006 with the total coverage of the survey block amounting to 595.0 km.

The purpose of the survey was to provide information that could be used to map the geology and structure of the survey area. This was accomplished by using a high sensitivity cesium magnetometer mounted on a stinger in front of the helicopter paired with a 256-channel gamma-ray spectrometer. The information from these sensors was used to produce maps that display the magnetic and radiometric properties of the survey area. A GPS electronic navigation system ensured accurate positioning of the geophysical data with respect to the base maps. A GPS electronic navigation system ensured accurate positioning of the geophysical data with respect to the base map.

The survey data were processed and compiled in the Fugro Airborne Surveys Toronto office. Map products and digital data were provided in accordance with the scales and formats specified in the Survey Agreement.

On review of the survey results areas of interest may be assigned priorities on the basis of supporting geophysical, geochemical and/or geological information. After initial

investigations have been carried out, it may be necessary to re-evaluate the remaining anomalies based on information acquired from the follow-up program.

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1. INTRODUCTION

A magnetic and radiometric survey was flown for Paget Resources Corporation, from October 2 to October 8, 2006, over their Mt. Bisson Property in British Columbia, Canada. The survey areas can be located on map sheets NTS: 93N/8,9; 93O/5,12 (Figure 2).

Survey coverage consisted of approximately 595.0 line-km, including 57.4 line-km of tie lines. Flight lines were flown in an azimuthal direction of 000°/180° with a line separation of 100 metres. Tie lines were flown orthogonal to the traverse lines with a line separation of 1000 metres.

The survey employed a stinger mounted magnetometer and a 256-channel gamma-ray spectrometer. Other ancillary equipment included laser, radar and barometric altimeters, video camera, digital recorders, and an electronic navigation system. The instrumentation was installed in an AS350B2 turbine helicopter (Registration C-GNGK) that was provided by Great Slave Helicopters Ltd. The helicopter flew at an average airspeed of 83 km/h with a sensor height of approximately 55 metres.

Figure 1
Fugro Airborne Surveys Stinger Mag System with AS350-B3

2. SURVEY OPERATIONS

The base of operations for the survey was established at Mackenzie, British Columbia, Canada. The survey area can be located on map sheets NTS: 93N/8,9; 93O/5,12 (Figure 2).

Table 2-1 lists the corner coordinates of the survey area in NAD 83, UTM Zone 10, and Central Meridian 123° west.

Table 2-1

Nad83 Utm zone 10

Block	Corners	X-UTM (E)	Y-UTM (N)
06043-3	1	435600	6161100
Mt.Bisson	2	439700	6161100
Property	3	439700	6156000
	4	441700	6156000
	5	441700	6149300
	6	437200	6149300
	7	437200	6155900
	8	435600	6155900

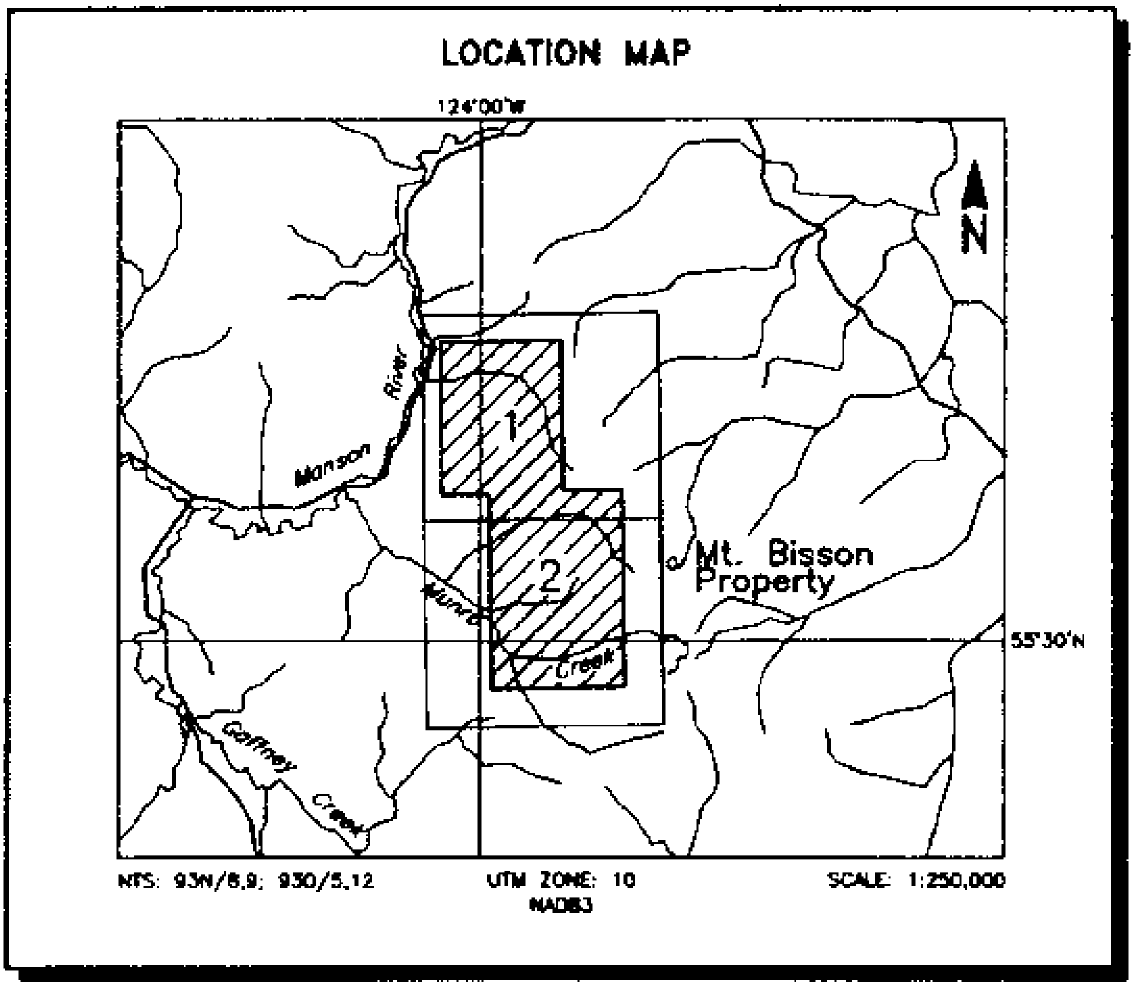

Figure 2
Location Map and Sheet Layout
Mt. Bisson Property, British Columbia, Canada
NTS: 93N/8,9; 93O/5,12
Job # 06043

The survey specifications were as follows:

Parameter	Specifications
Traverse line direction	000°/180°
Traverse line spacing	100 m
Tie line direction	090°/270°
Tie line spacing	1000 m
Sample interval	10 Hz, 2.5 m @ 85 km/h
Aircraft mean terrain clearance	55 m
Mag sensor mean terrain clearance	55 m
Average speed	83 km/h
Navigation (guidance)	±5 m, Real-time GPS
Post-survey flight path	±2 m, Differential GPS

3. SURVEY EQUIPMENT

This section provides a brief description of the geophysical instruments used to acquire the survey data and the calibration procedures employed. The geophysical equipment was installed in an AS350B2 helicopter. This aircraft provides a safe and efficient platform for surveys of this type.

Airborne Magnetometer

Model:	Scintrex CS2 sensor with FUGRO D1344 magnetic counter
Type:	Optically pumped cesium vapour
Sensitivity:	0.01 nT
Sample rate:	10 per second

The magnetometer sensor is mounted on a boom attached to the skid gear of the helicopter.

Spectrometer

Manufacturer:	Exploranium
Model:	GR-820
Type:	256 Multichannel, Potassium stabilized
Accuracy:	1 count/sec.
Update:	1 integrated sample/sec.

The GR-820 Airborne Spectrometer employs two downward looking crystals (512 cu.in.- 16.8 L) and one upward looking crystal (256 cu.in.- 4.2 L). The downward crystal records the radiometric spectrum from 410 KeV to 3 MeV over 256 discrete energy windows, as well as a cosmic-ray channel that detects photons with energy levels above 3.0 MeV. From these 256 channels, the standard Total Count, Potassium, Uranium and Thorium channels are extracted. The upward crystal is used to measure and correct for Radon.

The shock-protected Sodium Iodide (Thallium) crystal package is unheated, and is automatically stabilized with respect to the Potassium peak. The GR-820 provides raw or Compton stripped data that has been automatically corrected for gain, base level, ADC offset and dead time.

The system is calibrated before and after each flight using three accurately positioned hand-held sources. Additionally, fixed repeat test lines are flown to determine if there are any differences in background. This procedure allows corrections to be applied to each survey flight, to eliminate any differences that might result from changes in temperature or humidity.

Magnetic Base Station

Primary

Model: Fugro CF1 base station with timing provided by integrated GPS

Sensor type:	Scintrex CS-3	
Counter specifications:	Accuracy:	±0.1 nT
	Resolution:	0.01 nT
	Sample rate	1 Hz
GPS specifications:	Model:	Marconi Allstar
	Type:	Code and carrier tracking of L1 band, 12-channel, C/A code at 1575.42 MHz
	Sensitivity:	-90 dBm, 1.0 second update
	Accuracy:	Manufacturer's stated accuracy for differential corrected GPS is 2 metres

Environmental Monitor specifications: Temperature:

- ξ Accuracy: ±1.5°C max
- ξ Resolution: 0.0305°C
- ξ Sample rate: 1 Hz
- ξ Range: -40°C to +75°C

Barometric pressure:

- ξ Model: Motorola MPXA4115A
- ξ Accuracy: ±3.0° kPa max (-20°C to 105°C temp. ranges)
- ξ Resolution: 0.013 kPa
- ξ Sample rate: 1 Hz
- ξ Range: 55 kPa to 108 kPa

Backup

Model:	GEM Systems GSM-19T
Type:	Digital recording proton precession
Sensitivity:	0.10 nT
Sample rate:	3 second intervals

A digital recorder is operated in conjunction with the base station magnetometer to record the diurnal variations of the earth's magnetic field. The clock of the base station is synchronized with that of the airborne system, using GPS time, to permit subsequent removal of diurnal drift. The Fugro CF1 was the primary magnetic base station. It was located at latitude 55° 18' 09.3917" North, longitude 123° 08' 06.1034" West at an elevation 671.903 m above the WGS 84 ellipsoid.

Navigation (Global Positioning System)

Airborne Receiver for Real-time Navigation & Guidance and Flight Path Recovery

Model:	Novatel OEM IV
Type:	Code and carrier tracking of L1 band, 12-channel, dual frequency C/A code at 1575.2 MHz, and L2 P-code 1227 MHz, WAAS enabled for real time correction
Sample rate:	0.5 second update.
Accuracy:	Manufacturer's stated accuracy for differential corrected GPS is better than 1 metre.
Antenna:	Mounted on tail of Aircraft.

Primary Base Station for Post-Survey Differential Correction

Model:	Novatel OEM IV
Type:	Code and carrier tracking of L1 band, 12-channel, dual frequency C/A code at 1575.2 MHz, and L2 P-code 1227 MHz
Sample rate:	1 second update
Accuracy:	Manufacturer's stated accuracy for differential corrected GPS is better than 1 metre

The Novatel OEM IV is a line of sight, satellite navigation system that utilizes time-coded signals from at least four of forty-eight available satellites. A similar system was used as the primary base station receiver. The mobile and base station raw latitude, longitude and height above ellipsoid data were recorded, thereby permitting post-survey differential corrections for theoretical accuracies of better than 2 metres. A Marconi Allstar GPS unit, part of the CF-1, was used as a secondary (back-up) base station.

Each base station receiver is able to calculate it's own latitude and longitude. For this survey, the primary GPS station was located at latitude 55° 18' 15.65787" N, longitude 123° 08' 04.75577" W at an elevation of 682.181 metres above the ellipsoid. The GPS records data relative to the WGS84 ellipsoid, which is the basis of the revised North American Datum (NAD83). Conversion software is used to transform the WGS84 coordinates to the NAD83 UTM system displayed on the maps.

Radar Altimeter

Manufacturer:	Honeywell/Sperry
Model:	AA 330 or RT220
Type:	Short pulse modulation, 4.3 GHz
Sensitivity:	0.3 m
Sample rate:	2 per second

The radar altimeter measures the vertical distance between the helicopter and the ground.

Barometric Pressure and Temperature Sensors

Model:	DIGHEM D 1300	
Type:	Motorola MPX4115AP analog pressure sensor AD592AN high-impedance remote temperature sensors	
Sensitivity:	Pressure:	150 mV/kPa
	Temperature:	100 mV/°C or 10 mV/°C (selectable)
Sample rate:	10 per second	

The D1300 circuit is used in conjunction with one barometric sensor and up to three temperature sensors. Two sensors (baro and temp) are installed in the EM console in the aircraft, to monitor pressure (1KPA) and internal operating temperatures (2TDC).

Laser Altimeter

Manufacturer:	Optech
Model:	ADMGPA100
Type:	Fixed pulse repetition rate of 2 kHz (First/Last pulse)
Sensitivity:	±5 cm from 10°C to 30°C ±10 cm from -20°C to +50°C
Sample rate:	10 per second

The laser altimeter is mounted on the helicopter, and measures the distance from the aircraft to ground.

Digital Data Acquisition System

Manufacturer:	Fugro Airborne Surveys
Model:	HELIDAS
Recorder:	San Disk CF-II

The stored data are downloaded to the field workstation PC at the survey base, for verification, backup and preparation of in-field products.

Video Flight Path Recording System

Type:	Axis 2420 Digital
Recorder:	Tablet Computer
Format:	NTSC (DVD)

Fiducial numbers are recorded continuously and are displayed on the margin of each image. This procedure ensures accurate correlation of data with respect to visible features on the ground.

4. QUALITY CONTROL AND IN-FIELD PROCESSING

Digital data for each flight were transferred by FTP to Fugro Airborne Surveys Toronto's office, in order to verify data quality and completeness. A database was created and updated using Geosoft Oasis Montaj and proprietary Fugro Atlas software. This allowed the personnel to calculate, display and verify both the positional (flight path) and geophysical data on the field computer screen. Records were examined as a preliminary assessment of the data acquired for each flight.

Preliminary processing of Fugro survey data consists of differential corrections to the airborne GPS data, spike rejection and filtering of all geophysical and ancillary data, verification of flight videos, diurnal correction, and leveling of magnetic data.

All data, including base station records, were checked on a daily basis, to ensure compliance with the survey contract specifications. Reflights were required if any of the following specifications were not met.

Navigation - Positional (X,Y) accuracy of better than 10 m, with a CEP (circular error of probability) of 95%.

Flight Path - No lines to exceed ±25% departure from planned flight path over a continuous distance of more than 1 km, except for reasons of safety.

Clearance - Mean terrain sensor clearance of 50 m, except where precluded by safety considerations, e.g., restricted or populated areas, severe topography, obstructions, tree canopy, aerodynamic limitations, etc.

Airborne Mag - Figure of Merit for the magnetometer not to exceed 2.0 nT. None-normalized 4^{th} difference not to exceed 1.6 nT over a continuous distance of 1 km excluding areas where this specification is exceeded due to natural anomalies

Base Mag - Diurnal variations not to exceed 10 nT over a straight-line time chord of 1 minute.

5. DATA PROCESSING

Flight Path Recovery

Both the base and mobile GPS units simultaneously record raw range data from at least four satellites. The geographic positions of both units, relative to the model ellipsoid, are calculated from this information. Differential corrections, which are obtained from the base station, are applied to the mobile unit data to provide a post-flight track of the aircraft, accurate to within 2 m. Speed checks of the flight path are also carried out to determine if there are any spikes or gaps in the data.

The corrected WGS84 latitude/longitude coordinates are transformed to the coordinate system used on the final maps. Images or plots are then created to provide a visual check of the flight path.

Total Magnetic Field

A fourth difference editing routine is applied to the magnetic data to remove any spikes. The aeromagnetic data is corrected for diurnal variation using the magnetic base station data. The results are then levelled using tie and traverse line intercepts. Manual adjustments are applied to any lines that required levelling, as indicated by shadowed images of the gridded magnetic data. The manually levelled data are then subjected to a microlevelling filter.

Calculated Vertical Magnetic Gradient

The diurnally corrected total magnetic field data is subjected to a processing algorithm that enhances the response of magnetic bodies in the upper 500 m and attenuates the response of deeper bodies. The resulting vertical gradient map provides better definition and resolution of near-surface magnetic units. It also identifies weak magnetic features that may not be evident on the total field map. However, regional magnetic variations and changes in lithology may be better defined on the total magnetic field map.

Digital Elevation

The radar altimeter values (ALTR - aircraft ground clearance) are subtracted from the differentially corrected and de-spiked GPS height above ellipsoid (Z) values to produce profiles of the height above the ellipsoid along the survey lines. These values are gridded to produce contour maps showing approximate elevations within the survey area. Any remaining subtle line-to-line discrepancies are manually removed. After the manual corrections are applied, the digital terrain data are filtered with a microleveling algorithm.

The accuracy of the elevation calculation is directly dependent on the accuracy of the two input parameters, ALTR and Z. The ALTR value may be erroneous in areas of heavy tree cover, where the altimeter reflects the distance to the tree canopy rather than the ground. The Z value is primarily dependent on the number of available satellites. Although post-processing of GPS data will yield X and Y accuracies in the order of 1-2 metres, the accuracy of the Z value is usually much less, sometimes in the ±10 metre range. Further inaccuracies may be introduced during the interpolation and gridding process.

Because of the inherent inaccuracies of this method, no guarantee is made or implied that the information displayed is a true representation of the height above sea level. Although this product may be of some use as a general reference, THIS PRODUCT MUST NOT BE USED FOR NAVIGATION PURPOSES.

Contour, Colour and Shadow Map Displays

The magnetic geophysical data are interpolated onto a regular grid using a bi-directional Akima spline technique. The resulting grid is suitable for image processing and generation of contour maps. The grid cell size is 20% of the line interval.

Due to inherent statistical variations, standard gridding algorithms used in airborne geophysics are often unsuited when applied to airborne gamma-ray spectrometry data. The method chosen for presentation of AGS data was a modified version of minimum curvature gridding with a cell size that 25% of the line spacing.

Colour maps are produced by interpolating the grid down to the pixel size. The parameter is then incremented with respect to specific amplitude ranges to provide colour "contour" maps.

Monochromatic shadow maps or images are generated by employing an artificial sun to cast shadows on a surface defined by the geophysical grid. There are many variations in the shadowing technique. These techniques can be applied to total field or enhanced magnetic data, magnetic derivatives, resistivity, etc. The shadowing technique is also used as a quality control method to detect subtle changes between lines.

Radiometrics

All radiometric data reductions performed by Fugro rigorously follow the procedures described in the IAEA Technical Report[1].

All processing of radiometric data was undertaken at the natural sampling rate of the spectrometer, i.e., one second. The data were not interpolated to match the fundamental 0.1 second interval of the EM and magnetic data.

The following sections describe each step in the process.

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1 Exploranium, I.A.E.A. Report, Airborne Gamma-Ray Spectrometer Surveying, Technical Report No. 323, 1991.

Pre-filtering

The radar altimeter data were processed with a 3-point hanning filter to remove spikes.

Reduction to Standard Temperature and Pressure

The radar altimeter data were converted to effective height (h_e) in feet using the acquired temperature and pressure data, according to the following formula:

$$h_e = h * \frac{273.15}{T + 273.15} * \frac{P}{1013.25}$$

where: *h* is the observed crystal to ground distance in feet

T is the measured air temperature in degrees Celsius

P is the barometric pressure in millibars

Live Time Correction

The spectrometer, an Exploranium GR-820, uses the notion of "live time" to express the relative period of time the instrument was able to register new pulses per sample interval. This is the opposite of the traditional "dead time", which is an expression of the relative period of time the system was unable to register new pulses per sample interval.

The GR-820 measures the live time electronically, and outputs the value in milliseconds. The live time correction is applied to the total count, potassium, uranium, thorium, upward uranium and cosmic channels. The formula used to apply the correction is as follows:

$$C_{lt} = C_{raw} * \frac{1000.0}{L}$$

where: C_{lt} is the live time corrected channel in counts per second

C_{raw} is the raw channel data in counts per second

L is the live time in milliseconds

Intermediate Filtering

Two parameters were filtered, but not returned to the database:

- Radar altimeter was smoothed with a 5-point Hanning filter (h_{ef}).
- The Cosmic window was smoothed with a 29-point Hanning filter (Cos_f).

Aircraft and Cosmic Background

Aircraft background and cosmic stripping corrections were applied to the total count, potassium, uranium, thorium and upward uranium channels using the following formula:

$$C_{ac} = C_{lt} - (a_c + b_c * Cos_f)$$

where: C_{ac} is the background and cosmic corrected channel

C_{lt} is the live time corrected channel

a_c is the aircraft background for this channel

b_c is the cosmic stripping coefficient for this channel

Cos_f is the filtered Cosmic channel

Radon Background

The determination of calibration constants that enable the stripping of the effects of atmospheric radon from the downward-looking detectors through the use of an upward-looking detector is divided into two parts:

1) Determine the relationship between the upward- and downward-looking detector count rates for radiation originating from the ground.

2) Determine the relationship between the upward- and downward-looking detector count rates for radiation due to atmospheric radon.

The procedures to determine these calibration factors are documented in IAEA Report #323 on airborne gamma-ray surveying. The calibrations for the first part were determined as outlined in the report.

The latter case normally requires many over-water measurements where there is no contribution from the ground. Where this is not possible, it is standard procedure to establish a test line over which a series of repeat measurements are acquired. From these repeat flights, any change in the downward uranium window due to variations in radon background would be directly related to variations in the upward window and the other downward windows.

The validity of this technique rests on the assumption that the radiation from the ground is essentially constant from flight to flight. Inhomogeneities in the ground, coupled with deviations in the flight path between test runs, add to the inaccuracy of the accumulated results. Variations in flying heights and other environmental factors also contribute to the uncertainty.

The use of test lines is a common solution for a fixed-wing acquisition platform. The ability of rotary wing platforms to hover at a constant height over a fixed position eliminates a number of the variations that degrade the accuracy of the results required for this calibration.

A test site was established in or near the survey area. The tests were carried out at the start and end of each day, and at the end of each flight. Data were acquired over a four-minute period at the nominal survey altitude (60 m). The data were then corrected for live time, aircraft background and cosmic activity.

Once the survey was completed, the relationships between the counts in the downward uranium window and in the other four windows due to atmospheric radon were determined using linear regression for each of the hover sites. The following equations were used:

$$u_r = a_u Ur + b_u$$

$$K_r = a_K U_r + b_K$$

$$T_r = a_T U_r + b_T$$

$$I_r = a_I U_r + b_I$$

where: u_r is the radon component in the upward uranium window

K_r, U_r, T_r and I_r are the radon components in the various windows of the downward detectors

the various "a" and "b" coefficients are the required calibration constants

In practice, only the "a" constants were used in the final processing. The "b" constants, which are normally near zero for over-water calibrations, were of no value as they reflected the local distribution of the ground concentrations measured in the five windows.

The thorium, uranium and upward uranium data for each line were copied into temporary arrays, then smoothed with 21, 21 and 51 point Hanning filters to product Th_f, U_f, and u_f respectively. The radon component in the downward uranium window was then determined using the following formula:

$$U_r = \frac{u_f - a_1 * U_f - a_2 * Th_f + a_2 * b_{Th} - b_u}{a_u - a_1 - a_2 * a_{Th}}$$

where: U_r is the radon component in the downward uranium window

u_f is the filtered upward uranium

U_f is the filtered uranium

Th_f is the filtered thorium

a_1, a_2, a_u and a_{Th} are proportionality factors and

b_u and b_{Th} are constants determined experimentally

The effects of radon in the downward uranium are removed by simply subtracting U_r from U_{ac}. The effects of radon in the total count, potassium, thorium and upward uranium are then removed based upon previously established relationships with U_r. The corrections are applied using the following formula:

$$C_{rc} = C_{ac} - (a_c * U_r + b_c)$$

where: C_{rc} is the radon corrected channel

C_{ac} is the background and cosmic corrected channel

U_r is the radon component in the downward uranium window

a_c is the proportionality factor and

b_c is the constant determined experimentally for this channel

Compton Stripping

Following the radon correction, the potassium, uranium and thorium are corrected for spectral overlap. First, Δ,E and ϑ the stripping ratios, are modified according to altitude. Then an adjustment factor based on a, the reversed stripping ratio, uranium into thorium, is calculated. (Note: the stripping ratio altitude correction constants are expressed in change per metre. A constant of 0.3048 is required to conform to the internal usage of height in feet):

$$\alpha_h = \alpha + h_{ef} * 0.00049$$

$$\alpha_r = \frac{1.0}{1.0 - a * \alpha_h}$$

$$\beta_h = \beta + h_{ef} * 0.00065$$

$$\gamma_h = \gamma + h_{ef} * 0.00069$$

where: Δ, E, ϑare the Compton stripping coefficients

Δ_h, E_h, ϑ_h are the height corrected Compton stripping coefficients

h_{ef} is the height above ground in metres

Δ_r is the scaling factor correcting for back scatter

a is the reverse stripping ratio

The stripping corrections are then carried out using the following formulas:

$$Th_c = (Th_{rc} - a * U_{rc}) * \alpha_r$$

$$K_c = K_{rc} - \gamma_h * U_c - \beta_h * Th_c$$

$$U_c = (U_{rc} - \alpha_h * Th_{rc}) * \alpha_r$$

where: U_c, Th_c and K_c are corrected uranium, thorium and potassium

Δ_h,E_h,$ß_h$ are the height corrected Compton stripping coefficients

U_{rc}, Th_{rc} and K_{rc} are radon-corrected uranium, thorium and potassium

Δ_r is the backscatter correction

Attenuation Corrections

The total count, potassium, uranium and thorium data are then corrected to a nominal survey altitude, in this case 200 feet. This is done according to the equation:

$$C_a = C * e^{\mu(h_{ef} - ho)}$$

where: C_a is the output altitude corrected channel

C is the input channel

e^{Π} is the attenuation correction for that channel

h_{ef} is the effective altitude

h_0 is the nominal survey altitude used to correct

6. PRODUCTS

This section lists the final maps and products that have been provided under the terms of the survey agreement. Other products can be prepared from the existing dataset, if requested.

Base Maps

Base maps of the survey area were produced from digital topography (.dxf files) supplied by Fugro Airborne Surveys. The maps were generated by scanning published topographic maps to a bitmap (.bmp) format. This process provides a relatively accurate, distortion-free base that facilitates correlation of the navigation data to the map coordinate system. The topographic files were combined with geophysical data for plotting the final maps. All maps were created using the following parameters:

Projection Description:

Datum:	NAD 83		
Ellipsoid:	GRS80		
Projection:	UTM (Zone: 10 N)		
Central Meridian:	123° W		
False Northing:	0		
False Easting:	500000		
Scale Factor:	0.9996		
WGS84 to Local Conversion:	Molodensky		
Datum Shifts:	DX: 0	DY: 0	DZ: 0

The following parameters are presented on 2 map sheets at a scale of 1:10 000. All maps include flight lines and topography, unless otherwise indicated. Preliminary products are not listed.

Final Products

	No. of Map Sets		
	Mylar	Blackline	Colour
Total Magnetic Field			2
Calculated Vertical Magnetic Gradient			2
Radiometrics – Total Count			2
– Potassium			2
– Uranium			2
– Thorium			2

Additional Products

Digital Archive (see Archive Description)	1 CD-ROM
Survey Report	2 paper copies, 1 PDF
Flight Path Video (DVD)	1 DVD

7. SURVEY RESULTS

General Discussion

A Fugro CF-1 cesium vapour magnetometer was operated at the survey base to record diurnal variations of the earth's magnetic field. The clock of the base station was synchronized with that of the airborne system to permit subsequent removal of diurnal drift. Base level of 57332.1 nT was used for diurnal removal processing.

The total magnetic field data have been presented as contours on the base map using a contour interval of 5 nT where gradients permit. The maps show the magnetic properties of the rock units underlying the survey area.

The total magnetic field data have been subjected to a processing algorithm to produce maps of the calculated vertical gradient. This procedure enhances near-surface magnetic units and suppresses regional gradients. It also provides better definition and resolution of magnetic units and displays weak magnetic features that may not be clearly evident on the total field maps.

There is some evidence on the magnetic maps that suggests that the survey area has been subjected to deformation and/or alteration. These structural complexities are evident on the contour maps as variations in magnetic intensity, irregular patterns, and as offsets or changes in strike direction.

If a specific magnetic intensity can be assigned to the rock type that is believed to host the target mineralization, it may be possible to select areas of higher priority on the basis of the total field magnetic data. This is based on the assumption that the magnetite content of the host rocks will give rise to a limited range of contour values that will permit differentiation of various lithological units.

The magnetic results, in conjunction with the other geophysical parameters, have provided valuable information that can be used to effectively map the geology and structure in the survey area.

8. CONCLUSIONS AND RECOMMENDATIONS

This report provides a very brief description of the survey results and describes the equipment, data processing procedures and logistics of the survey.

It is also recommended that image processing of existing geophysical data be considered, in order to extract the maximum amount of information from the survey results. Current software and imaging techniques often provide valuable information on structure and lithology, which may not be clearly evident on the contour and colour maps. These techniques can yield images that define subtle, but significant, structural details.

Respectfully submitted,

FUGRO AIRBORNE SURVEYS CORP.

Jeffrey Fleming
Geophysicist

JF/sdp

R06043NOV-3.06

APPENDIX A

LIST OF PERSONNEL

LIST OF PERSONNEL

The following personnel were involved in the acquisition, processing, interpretation and presentation of data, relating to an airborne geophysical survey carried out for Paget Resources Corporation, in British Columbia, Canada.

David Miles	Manager, Helicopter Operations
Emily Farquhar	Manager, Data Processing and Interpretation
Amit Praharaj	Geophysical Operator
William Marr	Geophysical Operator
Bert Wells	Helicopter Pilot
Jeff Lambert	Helicopter Engineer
Brett Robinson	Geophysical Data Processor
Jeffrey Fleming	Geophysical Data Processor
Lyn Vanderstarren	Drafting Supervisor
Susan Pothiah	Word Processing Operator
Albina Tonello	Secretary/Expeditor

The survey consisted of 595.0 km of coverage, flown from October 2 to October 8, 2006.

All personnel are employees of Fugro Airborne Surveys, except for the pilot and engineer who are employees of Great Slave Helicopters Ltd.

APPENDIX B

BACKGROUND INFORMATION

BACKGROUND INFORMATION

Magnetic Responses

The measured total magnetic field provides information on the magnetic properties of the earth materials in the survey area. The information can be used to locate magnetic bodies of direct interest for exploration, and for structural and lithological mapping.

The total magnetic field response reflects the abundance of magnetic material in the source. Magnetite is the most common magnetic mineral. Other minerals such as ilmenite, pyrrhotite, franklinite, chromite, hematite, arsenopyrite, limonite and pyrite are also magnetic, but to a lesser extent than magnetite on average.

In some geological environments, an EM anomaly with magnetic correlation has a greater likelihood of being produced by sulphides than one which is non-magnetic. However, sulphide ore bodies may be non-magnetic (e.g., the Kidd Creek deposit near Timmins, Canada) as well as magnetic (e.g., the Mattabi deposit near Sturgeon Lake, Canada).

Iron ore deposits will be anomalously magnetic in comparison to surrounding rock due to the concentration of iron minerals such as magnetite, ilmenite and hematite.

Changes in magnetic susceptibility often allow rock units to be differentiated based on the total field magnetic response. Geophysical classifications may differ from geological classifications if various magnetite levels exist within one general geological classification. Geometric considerations of the source such as shape, dip and depth, inclination of the earth's field and remanent magnetization will complicate such an analysis.

In general, mafic lithologies contain more magnetite and are therefore more magnetic than many sediments which tend to be weakly magnetic. Metamorphism and alteration can also increase or decrease the magnetization of a rock unit.

Textural differences on a total field magnetic contour, colour or shadow map due to the frequency of activity of the magnetic parameter resulting from inhomogeneities in the distribution of magnetite within the rock, may define certain lithologies. For example, near surface volcanics may display highly complex contour patterns with little line-to-line correlation.

Rock units may be differentiated based on the plan shapes of their total field magnetic responses. Mafic intrusive plugs can appear as isolated "bulls-eye" anomalies. Granitic intrusives appear as sub-circular zones, and may have contrasting rings due to contact metamorphism. Generally, granitic terrain will lack a pronounced strike direction, although granite gneiss may display strike.

Linear north-south units are theoretically not well-defined on total field magnetic maps in equatorial regions due to the low inclination of the earth's magnetic field. However, most stratigraphic units will have variations in composition along strike that will cause the units to appear as a series of alternating magnetic highs and lows.

Faults and shear zones may be characterized by alteration that causes destruction of magnetite (e.g., weathering) that produces a contrast with surrounding rock. Structural breaks may be filled by magnetite-rich, fracture filling material as is the case with diabase dikes, or by non-magnetic felsic material.

Faulting can also be identified by patterns in the magnetic total field contours or colours. Faults and dikes tend to appear as lineaments and often have strike lengths of several kilometres. Offsets in narrow, magnetic, stratigraphic trends also delineate structure. Sharp contrasts in magnetic lithologies may arise due to large displacements along strike-slip or dip-slip faults.

Gamma Ray Spectrometry

Radioelement concentrations are measures of the abundance of radioactive elements in the rock. The original abundance of the radioelements in any rock can be altered by the subsequent processes of metamorphism and weathering.

Gamma radiation in the range that is measured in the thorium, potassium, uranium and total count windows is strongly attenuated by rock, overburden and water. Almost all of the total radiation measured from rock and overburden originates in the upper .5 metres. Moisture in soil and bodies of water will mask the radioactivity from underlying rock. Weathered rock materials that have been displaced by glacial, water or wind action will not reflect the general composition of the underlying bedrock. Where residual soils exist, they may reflect the composition of underlying rock except where equilibrium does not exist between the original radioelement and the products in its decay series.

Radioelement counts (expressed as counts per second) are the rates of detection of the gamma radiation from specific decaying particles corresponding to products in each radioelements decay series. The radiation source for uranium is bismuth (Bi-214), for thorium it is thallium (Tl-208) and for potassium it is potassium (K-40).

The uranium and thorium radioelement concentrations are dependent on a state of equilibrium between the parent and daughter products in the decay series. Some daughter products in the uranium decay are long lived and could be removed by processes such as leaching. One product in the series, radon (Rn-222), is a gas which can easily escape. Both of these factors can affect the degree to which the calculated uranium concentrations reflect the actual composition of the source rock. Because the daughter products of thorium are relatively short lived, there is more likelihood that the thorium decay series is in equilibrium.

Lithological discrimination can be based on the measured relative concentrations and total, combined, radioactivity of the radioelements. Feldspar and mica contain potassium. Zircon, sphene and apatite are accessory minerals in igneous rocks that are sources of uranium and thorium. Monazite, thorianite, thorite, uraninite and uranothorite are also sources of uranium and thorium which are found in granites and pegmatites.

In general, the abundance of uranium, thorium and potassium in igneous rock increases with acidity. Pegmatites commonly have elevated concentrations of uranium relative to thorium. Sedimentary rocks derived from igneous rocks may have characteristic signatures that are influenced by their parent rocks, but these will have been altered by subsequent weathering and alteration.

Metamorphism and alteration will cause variations in the abundance of certain radioelements relative to each other. For example, alterative processes may cause uranium enrichment to the extent that a rock will be of economic interest. Uranium anomalies are more likely to be economically significant if they consist of an increase in the uranium relative to thorium and potassium, rather than a sympathetic increase in all three radioelements.

Faults can exhibit radioactive highs due to increased permeability which allows radon migration, or as lows due to structural control of drainage and fluvial sediments which attenuate gamma radiation from the underlying rocks. Faults can also be recognized by sharp contrasts in radiometric lithologies due to large strike-slip or dip-slip displacements. Changes in relative radioelement concentrations due to alteration will also define faults.

Similar to magnetics, certain rock types can be identified by their plan shapes if they also produce a radiometric contrast with surrounding rock. For example, granite intrusions will appear as sub-circular bodies, and may display concentric zonations. They will tend to lack a prominent strike direction. Offsets of narrow, continuous, stratigraphic units with contrasting radiometric signatures can identify faulting, and folding of stratigraphic trends will also be apparent.

APPENDIX C

DATA ARCHIVE DESCRIPTION

ARCHIVE DESCRIPTION

This CD-ROM contains final data archives of an airborne survey conducted by Fugro Airborne Surveys on behalf of Paget Resources Corporation in British Columbia, Canada.

Fugro Job # 06043-3

The archives contain 3 directories.

1. Database: Geosoft database and XYZ data in Geosoft format, along with format description.

2. Grids: Grids in Geosoft and Maps in PDF format for the following parameters:
   1. Total Magnetic Field
   2. Calculated Vertical Gradient
   3. Radioelement maps: Total Count, Potassium, Uranium, Thorium

3. Report: Project report in PDF format

<u>Projection Description</u>:

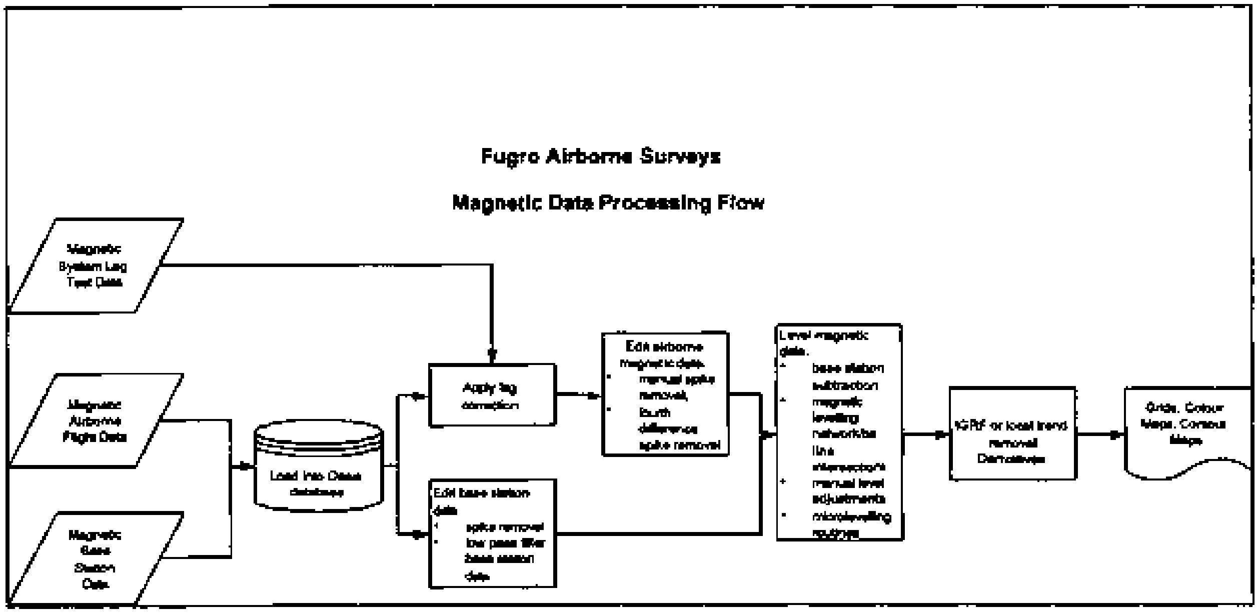
Datum:	NAD 83		
Ellipsoid:	GRS80		
Projection:	UTM (Zone: 10 N)		
Central Meridian:	123° W		
False Northing:	0		
False Easting:	500000		
Scale Factor:	0.9996		
WGS84 to Local Conversion:	Molodensky		
Datum Shifts: DX: 0	DY: 0	DZ: 0	

Geosoft Archive Summary			
Job#: 06043-3 Paget Resources Corporation November, 2006			
Channel Name	**Description**	**Sample Rate**	**Units**
ALTL	Altitude from Laser Altimeter	0.1	m
ALTR	Altitude from Radar Altimeter	0.1	m
DATE	Date of flight	0.1	date
DIURNAL	Magnetic diurnal correction	0.1	nT
DTM	Digital Terrain Model (from Z and Laser Altimeter)	0.1	m
FID	Fiducial	0.1	
GR820_COSMIC	Raw Cosmic Counts	1	counts/s
GR820_DOWN	256 Channel Spectrum (array)	1	counts/s
GR820_K_DOWN	Raw Potassium Count Window	1	counts/s
GR820_LIVE_TIME	Spectrometer Live Time	1	ms
GR820_TC_DOWN	Raw Total Count Window	1	counts/s
GR820_TH_DOWN	Raw Thorium Count Window	1	counts/s
GR820_U_DOWN	Raw Downward-looking Uranium Count Window	1	counts/s
GR820_U_UP	Raw Upward-looking Uranium Count Window	1	counts/s
KPA	Pressure	0.1	kilopascals
K_DOWN	Corrected Potassium Count Window	0.1	counts/s
MAG_R	Raw Total Magnetic Field	0.1	nT
TC_DOWN	Corrected Total Count Window	0.1	counts/s
TEMP_EXT	External Temperature	0.1	celcius
TH_DOWN	Corrected Thorium Count Window	0.1	counts/s
TMF	Corrected Total Magnetic Field	0.1	nT
U_DOWN	Corrected Downward-looking Uranium Count Window	0.1	counts/s
X	Easting NAD83 UTM Z10	0.1	m
Y	Northing NAD83 UTM Z10	0.1	m
Z	GPS Height Above Ellipsoid	0.1	m
*** note *** Geosoft ASCII XYZ file does NOT contain the 256 channel spectrum data			

APPENDIX D

DATA PROCESSING FLOWCHARTS

Processing Flow Chart - Magnetic Data



APPENDIX E

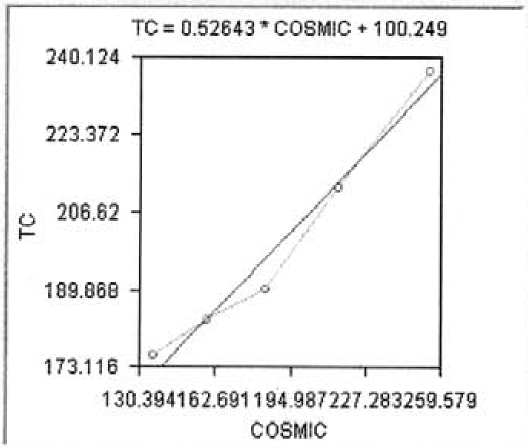
TESTS AND CALIBRATIONS

Cosmic Attenuation Coefficients Calculation

See Section 5.6 for procedure

Total Count Cosmic Dependence

Calculating Cosmic Stripping & Aircraft Background for TC



Line	COSMIC	TC	fit
L6000:...	136.267	176.162	171.984
L7000:...	158.953	183.865	183.927
L8000:...	183.321	190.480	196.755
L9000:...	214.837	212.233	213.346
L1000...	253.707	237.078	233.808

Manually Fix Slope & Intercept?

Slope: 0.52643

Intercept: 100.249

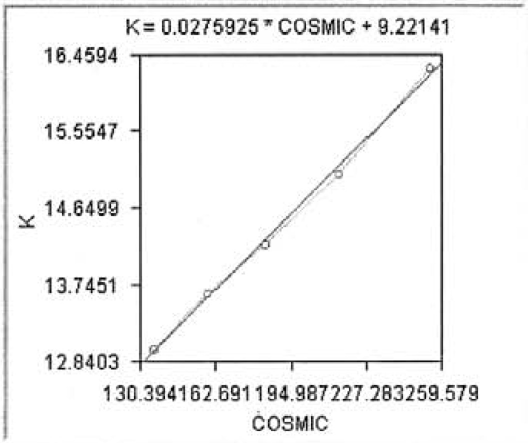
Save to clipboard

Use each data of line

Y = 0.52643X + 100.249
MSE = 4.78741 R_sq = 97.19%

Potassium Cosmic Dependence

Calculating Cosmic Stripping & Aircraft Background for K



Line	COSMIC	K	fit
L6000:...	136.267	13.005	12.981
L7000:...	158.953	13.658	13.607
L8000:...	183.321	14.222	14.280
L9000:...	214.837	15.060	15.149
L1000...	253.707	16.295	16.222

Manually Fix Slope & Intercept?

Slope: 0.0275925

Intercept: 9.22141

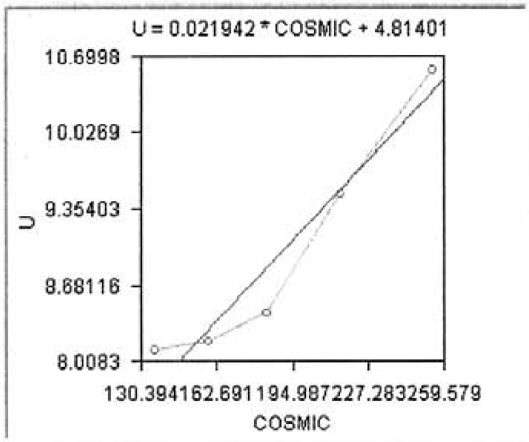
Save to clipboard

Use each data of line

Y = 0.0275925X + 9.22141
MSE = 0.081165 R_sq = 99.70%

Uranium Cosmic Dependence

Calculating Cosmic Stripping & Aircraft Background for U



Line	COSMIC	U	fit
L6000:...	136.267	8.131	7.804
L7000:...	158.953	8.198	8.302
L8000:...	183.321	8.448	8.836
L9000:...	214.837	9.497	9.528
L1000...	253.707	10.577	10.381

Manually Fix Slope & Intercept?

Slope: 0.021942

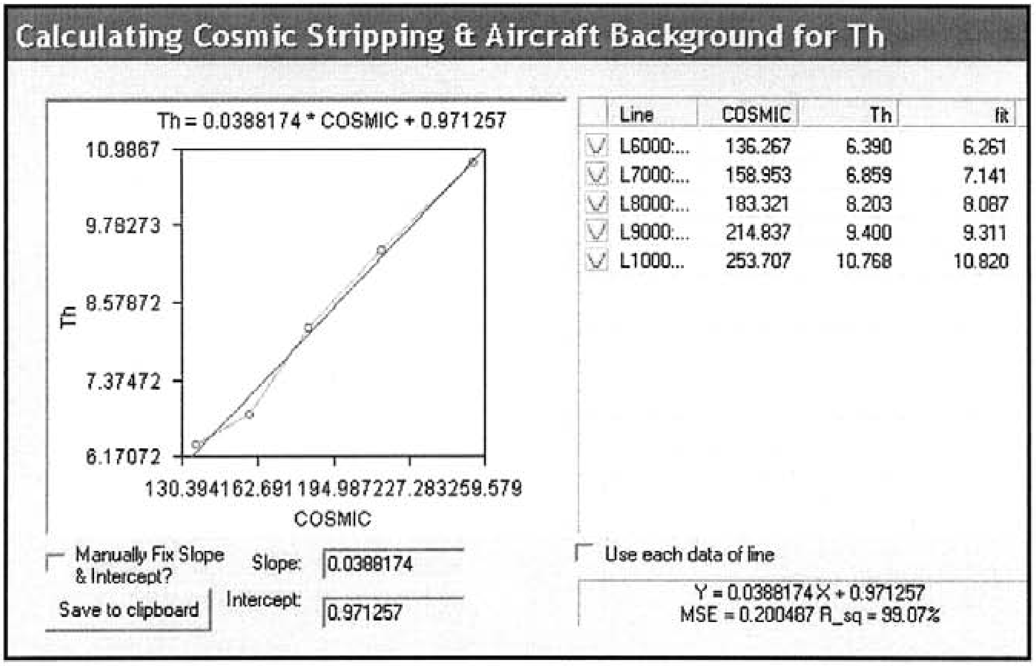
Intercept: 4.81401

Save to clipboard

Use each data of line

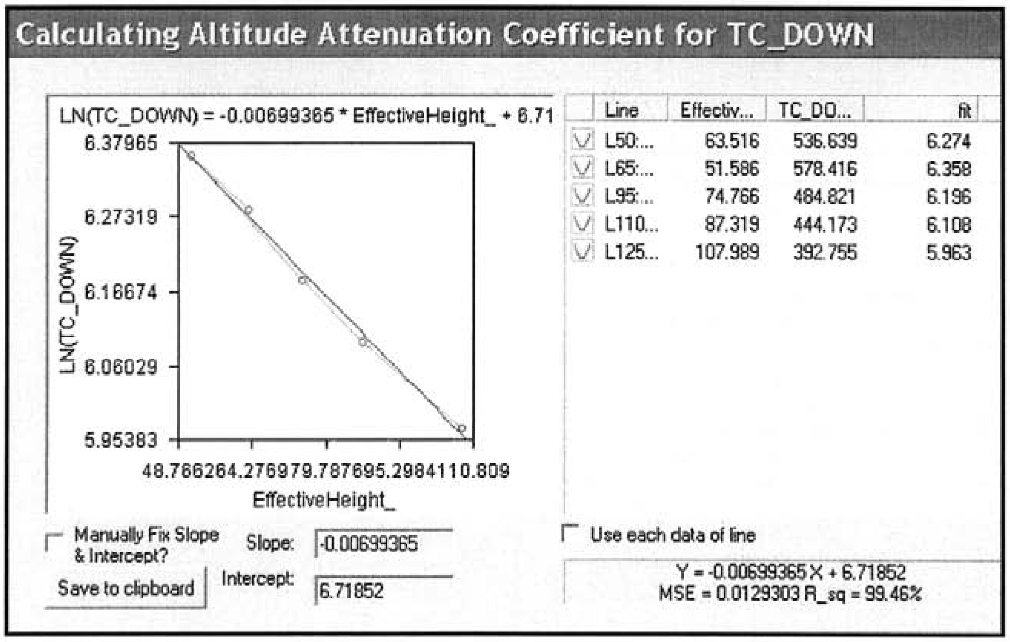
Y = 0.021942X + 4.81401
MSE = 0.320503 R_sq = 93.05%

Thorium Cosmic Dependence

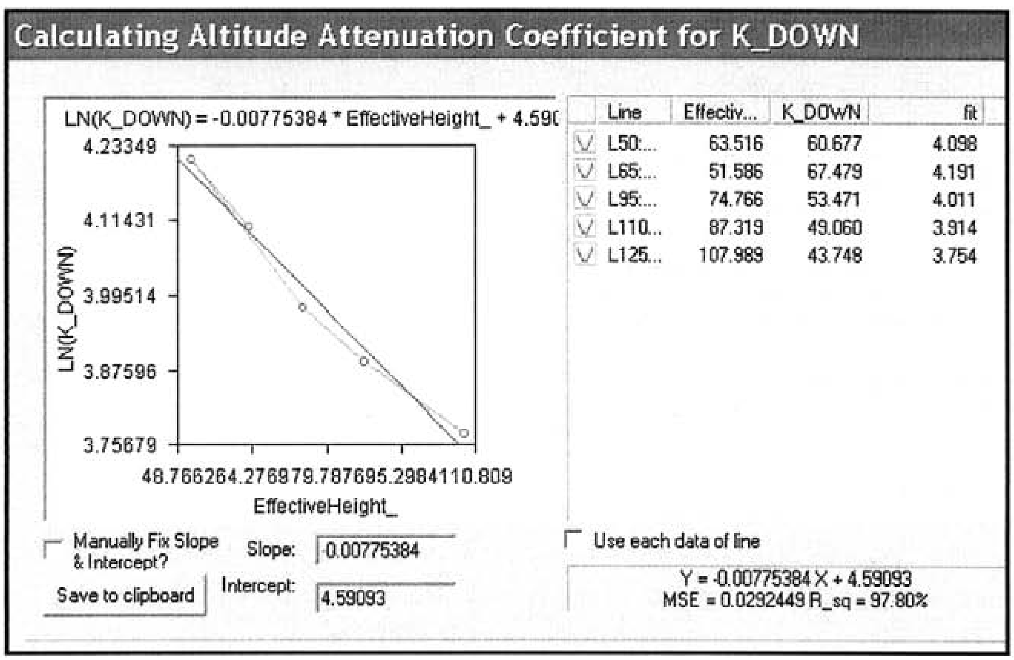


Altitude Attenuation Coefficients Calculation

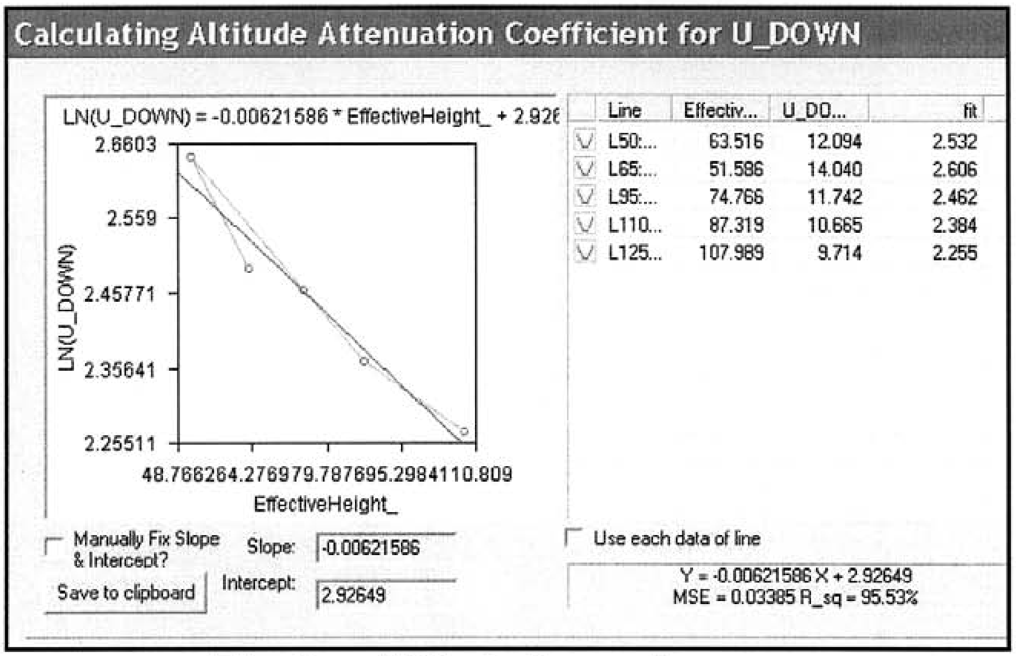
Total Count Altitude Dependence



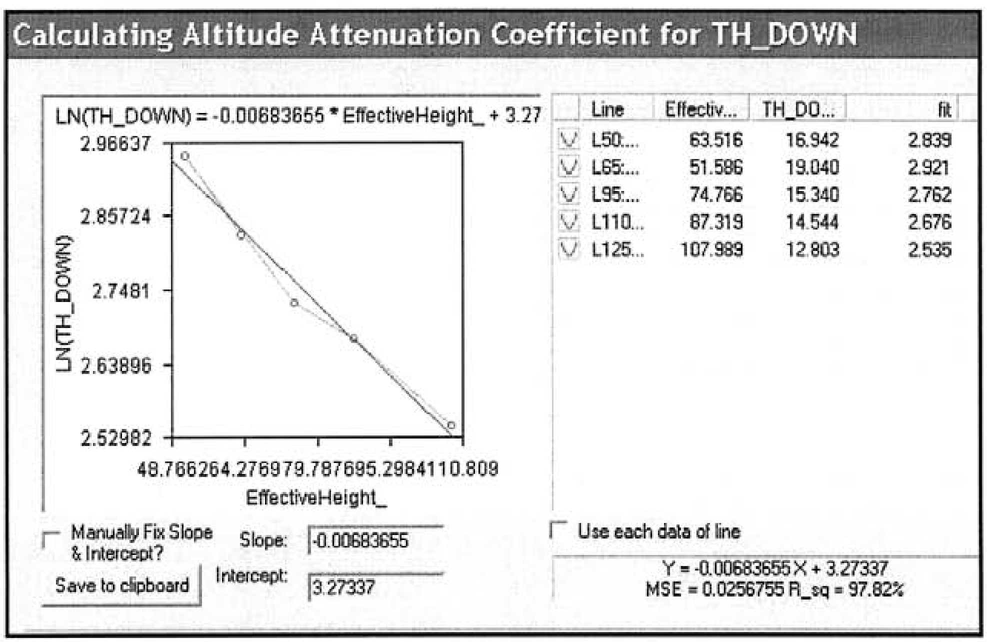
Potassium Altitude Dependence



Uranium Altitude Dependence



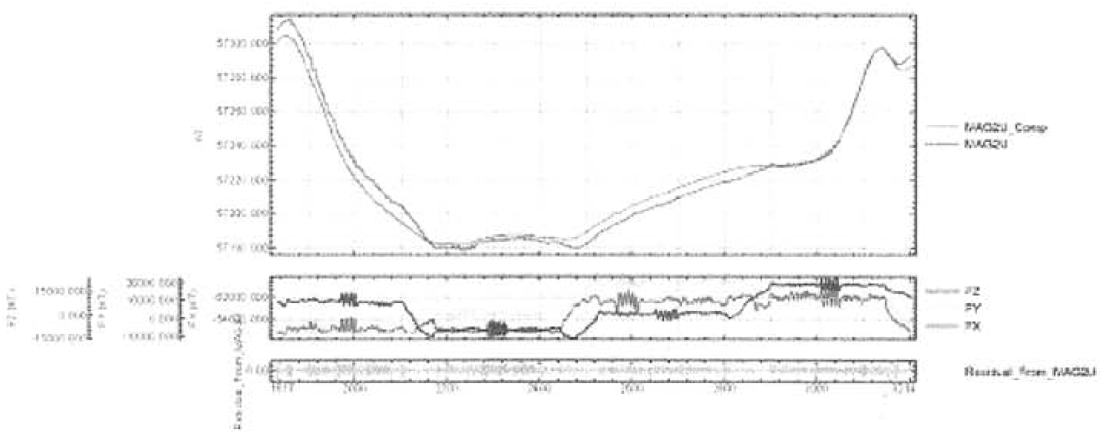
Thorium Altitude Dependence



Compensation Flight

A compensation flight was performed to determine the compensation required on the magnetic sensor due to the aircraft movement. By using this compensation, the magnetic effects from the helicopter and its associated manoeuvres are removed. The Figure of Merit (FOM) is calculated by summing the amplitude of residual for each manoeuvre in all 4 directions of the survey. A value of 1.38 nT was calculated from the FOM and is acceptable for survey. A graph of residual values, fluxgate component amplitude, and compensated and un-compensated total magnetic field from the compensation flight is shown below.

Figure of Merit



APPENDIX F

RADIOMETRIC PROCESSING CONTROL FILE

RADIOMETRIC PROCESSING
CONTROL FILE

```
////////////////////////////////////////
// Atlas Control/Workspace File
// # or // for commment
////////////////////////////////////////

CONTROL_BEGIN

 PROGRAM  = AGSCorrection
 VERSION  = 1.4.0

  ### Process or Calibration? ###
    WhatToDo = Process Survey Line

  ### Corrections to apply ###
    CorrectionType = Yes  Filtering
    CorrectionType = Yes  LiveTimeCorrection
    CorrectionType = Yes  CosmicAircraftBGRemove
    CorrectionType = Yes  CalcEffectiveHeight
    CorrectionType = Yes  RadonBGRemove
    CorrectionType = Yes  ComptonStripping
    CorrectionType = Yes  HeightCorrection
    CorrectionType = Yes  ConvertToConcentration


  ### Main I/O settings ###
    MainChannelIO|TC       = TC_DOWN_R --> TC_DOWN_
    MainChannelIO|K        = K_DOWN_R --> K_DOWN_
    MainChannelIO|U        = U_DOWN_R --> U_DOWN_
    MainChannelIO|Th       = TH_DOWN_R --> TH_DOWN_
    MainChannelIO|UpU      = U_UP_R --> U_UP_
    MainChannelIO|Cosmic   = COSMIC_R --> COSMIC_

  ### Control Channel I/O settings ###
    ControlChannel|RadarAltimeter      = ALTR_M     [metres]
    ControlChannel|Pressure/Barometer = KPA        [kPa]
    ControlChannel|Temperature         = TEMP_EXT


  ### Input for correction ###
    InputForCorrection    = ROIs


  ### Pre-filtering settings ###
    Filtering|TC      = 0
    Filtering|K       = 0
    Filtering|U       = 0
    Filtering|Th      = 0
    Filtering|UpU     = 0
    Filtering|Cosmic  = 9
    Filtering|RadarAltimeter     = 3
    Filtering|Pressure/Barometer = 3
    Filtering|Temperature        = 3

  ### Live-time correction settings ###
    LiveTimeChannel           = LIVE_TIME_R
    LiveTimeUnits             = milli-seconds
    ApplyLiveTimeCorrToUpU    = Yes
```

```
### Cosmic correction settings ###
   CosmicCorrParam|TC      = 0.525846,  100.347116
   CosmicCorrParam|K       = 0.027779,  9.189915
   CosmicCorrParam|U       = 0.026237,  3.859267
   CosmicCorrParam|Th      = 0.038854,  0.969958
   CosmicCorrParam|UpU     = 0.006772,  1.142743

### Effective-Height settings ###
   EffectiveHeightOutputChannel = EffectiveHeight
   EffectiveHeightOutputUnits   = metres

### Radon correction settings ###
   RadonCorrMethod                    = UpU
   RadonCorrParam_FilterWidth          = 71
   RadonOutputChannel                  = Radon
   RadonCorrParam_UgInUpU(A1) = 0.000000
   RadonCorrParam_ThInUpU(A2) = 0.000000
   RadonCorrParam|TC      = 10.297960,  -1.326470
   RadonCorrParam|K       = 0.458281,  -0.089325
   RadonCorrParam|Th      = 0.139119,  -0.045135
   RadonCorrParam|UpU     = 0.219662,  -0.021899

### Special Stripping (Compton Stripping) ###
   ComptonCorrParam_Stripping_Alpha     = 0.223000
   ComptonCorrParam_Stripping_Beta      = 0.385000
   ComptonCorrParam_Stripping_Gamma     = 0.686000
   ComptonCorrParam_AlphaPerMetre       = 0.000010
   ComptonCorrParam_BetaPerMetre        = 0.000010
   ComptonCorrParam_GammaPerMetre       = 0.000010
   ComptonCorrParam_GrastyBackscatter_a = 0.053000
   ComptonCorrParam_GrastyBackscatter_b = 0.000010
   ComptonCorrParam_GrastyBackscatter_g = 0.008000

### Height Correction settings ###
   SurveyHeightDatum     = 0.000000
   AttenuationCorrControl = 0
   HeightCorrParam|TC      = -0.008793, 300.000000
   HeightCorrParam|K       = -0.008646, 300.000000
   HeightCorrParam|U       = -0.011277, 300.000000
   HeightCorrParam|Th      = -0.008341, 300.000000

### Concentration settings ###
  ConcentrationParam|K      = Concentration_K,  0.000000
  ConcentrationParam|U      = Concentration_U,  0.000000
  ConcentrationParam|Th     = Concentration_Th,  0.000000
  AirAbsorbedDoseRateParam   = DoseRate,  0.000000
  NaturalAirAbsorbedDoseRateParam = NaturalDoseRate,  0.000000, 0.000000, 0.000000

CONTROL_END
```

APPENDIX G

GLOSSARY

APPENDIX G

GLOSSARY OF AIRBORNE GEOPHYSICAL TERMS

Note: The definitions given in this glossary refer to the common terminology as used in airborne geophysics.

altitude attenuation: the absorption of gamma rays by the atmosphere between the earth and the detector. The number of gamma rays detected by a system decreases as the altitude increases.

apparent- : the ***physical parameters*** of the earth measured by a geophysical system are normally expressed as apparent, as in "apparent ***resistivity***". This means that the measurement is limited by assumptions made about the geology in calculating the response measured by the geophysical system. Apparent resistivity calculated with ***HEM***, for example, generally assumes that the earth is a ***homogeneous half-space*** – not layered.

amplitude: The strength of the total electromagnetic field. In ***frequency domain*** it is most often the sum of the squares of ***in-phase*** and ***quadrature*** components. In multi-component electromagnetic surveys it is generally the sum of the squares of all three directional components.

analytic signal: The total amplitude of all the directions of magnetic ***gradient***. Calculated as the sum of the squares.

anisotropy: Having different ***physical parameters*** in different directions. This can be caused by layering or fabric in the geology. Note that a unit can be anisotropic, but still **homogeneous**.

anomaly: A localized change in the geophysical data characteristic of a discrete source, such as a conductive or magnetic body: something locally different from the **background**.

B-field: In time-domain **electromagnetic** surveys, the magnetic field component of the (electromagnetic) **field**. This can be measured directly, although more commonly it is calculated by integrating the time rate of change of the magnetic field **dB/dt**, as measured with a receiver coil.

background: The "normal" response in the geophysical data – that response observed over most of the survey area. **Anomalies** are usually measured relative to the background. In airborne gamma-ray spectrometric surveys the term defines the **cosmic**, radon, and aircraft responses in the absence of a signal from the ground.

base-level: The measured values in a geophysical system in the absence of any outside signal. All geophysical data are measured relative to the system base level.

base frequency: The frequency of the pulse repetition for a ***time-domain electromagnetic*** system. Measured between subsequent positive pulses.

bird: A common name for the pod towed beneath or behind an aircraft, carrying the geophysical sensor array.

bucking: The process of removing the strong ***signal*** from the ***primary field*** at the ***receiver*** from the data, to measure the ***secondary field***. It can be done electronically or mathematically. This is done in ***frequency-domain EM***, and to measure ***on-time*** in ***time-domain EM***.

calibration coil: A wire coil of known size and dipole moment, which is used to generate a field of known ***amplitude*** and ***phase*** in the receiver, for system calibration. Calibration coils can be external, or internal to the system. Internal coils may be called Q-coils.

coaxial coils: **[CX]** Coaxial coils in an HEM system are in the vertical plane, with their axes horizontal and collinear in the flight direction. These are most sensitive to vertical conductive objects in the ground, such as thin, steeply dipping conductors perpendicular to the flight direction. Coaxial coils generally give the sharpest anomalies over localized conductors. (See also ***coplanar coils***)

coil: A multi-turn wire loop used to transmit or detect electromagnetic fields. Time varying ***electromagnetic*** fields through a coil induce a voltage proportional to the strength of the field and the rate of change over time.

compensation: Correction of airborne geophysical data for the changing effect of the aircraft. This process is generally used to correct data in ***fixed-wing time-domain electromagnetic*** surveys (where the transmitter is on the aircraft and the receiver is moving), and magnetic surveys (where the sensor is on the aircraft, turning in the earth's magnetic field.

component: In ***frequency domain electromagnetic*** surveys this is one of the two **phase** measurements – ***in-phase or quadrature***. In "multi-component" electromagnetic surveys it is also used to define the measurement in one geometric direction (vertical, horizontal in-line and horizontal transverse – the Z, X and Y components).

Compton scattering: gamma ray photons will bounce off electrons as they pass through the earth and atmosphere, reducing their energy and then being detected by ***radiometric*** sensors at lower energy levels. See also ***stripping***.

conductance: See ***conductivity thickness***

conductivity: [σ] The facility with which the earth or a geological formation conducts electricity. Conductivity is usually measured in milli-Siemens per metre (mS/m). It is the reciprocal of ***resistivity***.

conductivity-depth imaging: see ***conductivity-depth transform***.

conductivity-depth transform: A process for converting electromagnetic measurements to an approximation of the conductivity distribution vertically in the earth, assuming a ***layered earth***. (Macnae and Lamontagne, 1987; Wolfgram and Karlik, 1995)

conductivity thickness: [σt] The product of the ***conductivity***, and thickness of a large, tabular body. (It is also called the "conductivity-thickness product") In electromagnetic geophysics, the response of a thin plate-like conductor is proportional to the conductivity multiplied by thickness. For example a 10 metre thickness of 20 Siemens/m mineralization will be equivalent to 5 metres of 40 S/m; both have 200 S conductivity thickness. Sometimes referred to as conductance.

conductor: Used to describe anything in the ground more conductive than the surrounding geology. Conductors are most often clays or graphite, or hopefully some type of mineralization, but may also be man-made objects, such as fences or pipelines.

coplanar coils: [CP] In HEM, the coplanar coils lie in the horizontal plane with their axes vertical, and parallel. These coils are most sensitive to massive conductive bodies, horizontal layers, and the ***halfspace***.

cosmic ray: High energy sub-atomic particles from outer space that collide with the earth's atmosphere to produce a shower of gamma rays (and other particles) at high energies.

counts (per second): The number of ***gamma-rays*** detected by a gamma-ray ***spectrometer***. The rate depends on the geology, but also on the size and sensitivity of the detector.

culture: A term commonly used to denote any man-made object that creates a geophysical anomaly. Includes, but not limited to, power lines, pipelines, fences, and buildings.

current channelling: See current gathering.

current gathering: The tendency of electrical currents in the ground to channel into a conductive formation. This is particularly noticeable at higher frequencies or early time channels when the formation is long and parallel to the direction of current flow. This tends to enhance anomalies relative to inductive currents (see also ***induction***). Also known as current channelling.

daughter products: The radioactive natural sources of gamma-rays decay from the original "parent" element (commonly potassium, uranium, and thorium) to one or more lower-energy "daughter" elements. Some of these lower energy elements are also radioactive and decay further. ***Gamma-ray spectrometry*** surveys may measure the gamma rays given off by the original element or by the decay of the daughter products.

dB/dt: As the ***secondary electromagnetic field*** changes with time, the magnetic field [B] component induces a voltage in the receiving ***coil***, which is proportional to the rate of change of the magnetic field over time.

decay: In ***time-domain electromagnetic*** theory, the weakening over time of the ***eddy currents*** in the ground, and hence the ***secondary field*** after the ***primary field*** electromagnetic pulse is turned off. In ***gamma-ray spectrometry***, the radioactive breakdown of an element, generally potassium, uranium, thorium, or one of their ***daughter*** products.

decay constant: see time constant.

decay series: In ***gamma-ray spectrometry***, a series of progressively lower energy ***daughter products*** produced by the radioactive breakdown of uranium or thorium.

depth of exploration: The maximum depth at which the geophysical system can detect the target. The depth of exploration depends very strongly on the type and size of the target, the contrast of the target with the surrounding geology, the homogeneity of the surrounding geology, and the type of geophysical system. One measure of the maximum depth of exploration for an electromagnetic system is the depth at which it can detect the strongest conductive target – generally a highly conductive horizontal layer.

differential resistivity: A process of transforming ***apparent resistivity*** to an approximation of layer resistivity at each depth. The method uses multi-frequency HEM data and approximates the effect of shallow layer ***conductance*** determined from higher frequencies to estimate the deeper conductivities (Huang and Fraser, 1996)

dipole moment: [NIA] For a transmitter, the product of the area of a ***coil***, the number of turns of wire, and the current flowing in the coil. At a distance significantly larger than the size of the coil, the magnetic field from a coil will be the same if the dipole moment product is the same. For a receiver coil, this is the product of the area and the number of turns. The sensitivity to a magnetic field (assuming the source is far away) will be the same if the dipole moment is the same.

diurnal: The daily variation in a natural field, normally used to describe the natural fluctuations (over hours and days) of the earth's magnetic field.

dielectric permittivity: [ε] The capacity of a material to store electrical charge, this is most often measured as the relative permittivity [H], or ratio of the material dielectric to that of free space. The effect of high permittivity may be seen in HEM data at high frequencies over highly resistive geology as a reduced or negative ***in-phase***, and higher ***quadrature*** data.

drape: To fly a survey following the terrain contours, maintaining a constant altitude above the local ground surface. Also applied to re-processing data collected at varying altitudes above ground to simulate a survey flown at constant altitude.

drift: Long-time variations in the base-level or calibration of an instrument.

eddy currents: The electrical currents induced in the ground, or other conductors, by a time-varying ***electromagnetic field*** (usually the ***primary field***). Eddy currents are also induced in the aircraft's metal frame and skin; a source of ***noise*** in EM surveys.

electromagnetic: [EM] Comprised of a time-varying electrical and magnetic field. Radio waves are common electromagnetic fields. In geophysics, an electromagnetic system is one which transmits a time-varying ***primary field*** to induce ***eddy currents*** in the ground, and then measures the ***secondary field*** emitted by those eddy currents.

energy window: A broad spectrum of ***gamma-ray*** energies measured by a spectrometric survey. The energy of each gamma-ray is measured and divided up into numerous discrete energy levels, called windows.

equivalent (thorium or uranium): The amount of radioelement calculated to be present, based on the gamma-rays measured from a **daughter** element. This assumes that the ***decay series*** is in equilibrium -- progressing normally.

exposure rate: in radiometric surveys, a calculation of the total exposure rate due to gamma rays at the ground surface. It is used as a measurement of the concentration of all the **radioelements** at the surface. See also: **natural exposure rate.**

fiducial, or fid: Timing mark on a survey record. Originally these were timing marks on a profile or film; now the term is generally used to describe 1-second interval timing records in digital data, and on maps or profiles.

Figure of Merit: (FOM) A sum of the 12 distinct magnetic noise variations measured by each of four flight directions, and executing three aircraft attitude variations (yaw, pitch, and roll) for each direction. The flight directions are generally parallel and perpendicular to planned survey flight directions. The FOM is used as a measure of the **manoeuvre noise** before and after **compensation.**

fixed-wing: Aircraft with wings, as opposed to "rotary wing" helicopters.

footprint: This is a measure of the area of sensitivity under the aircraft of an airborne geophysical system. The footprint of an ***electromagnetic*** system is dependent on the altitude of the system, the orientation of the transmitter and receiver and the separation between the receiver and transmitter, and the conductivity of the ground. The footprint of a ***gamma-ray spectrometer*** depends mostly on the altitude. For all geophysical systems, the footprint also depends on the strength of the contrasting ***anomaly***.

frequency domain: An ***electromagnetic*** system which transmits a ***primary field*** that oscillates smoothly over time (sinusoidal), inducing a similarly varying electrical current in the ground. These systems generally measure the changes in the ***amplitude*** and ***phase*** of the ***secondary field*** from the ground at different frequencies by measuring the **in-phase** and **quadrature** phase components. See also ***time-domain***.

full-stream data: Data collected and recorded continuously at the highest possible sampling rate. Normal data are stacked (see ***stacking***) over some time interval before recording.

gamma-ray: A very high-energy photon, emitted from the nucleus of an atom as it undergoes a change in energy levels.

gamma-ray spectrometry: Measurement of the number and energy of natural (and sometimes man-made) gamma-rays across a range of photon energies.

gradient: In magnetic surveys, the gradient is the change of the magnetic field over a distance, either vertically or horizontally in either of two directions. Gradient data is often measured, or calculated from the total magnetic field data because it changes more quickly over distance than the ***total magnetic field***, and so may provide a more precise measure of the location of a source. See also ***analytic signal***.

ground effect: The response from the earth. A common calibration procedure in many geophysical surveys is to fly to altitude high enough to be beyond any measurable response from the ground, and there establish ***base levels*** or ***backgrounds***.

half-space: A mathematical model used to describe the earth – as infinite in width, length, and depth below the surface. The most common halfspace models are ***homogeneous*** and ***layered earth***.

heading error: A slight change in the magnetic field measured when flying in opposite directions.

HEM: Helicopter ElectroMagnetic, This designation is most commonly used for helicopter-borne, ***frequency-domain*** electromagnetic systems. At present, the transmitter and receivers are normally mounted in a ***bird*** carried on a sling line beneath the helicopter.

herringbone pattern: A pattern created in geophysical data by an asymmetric system, where the **anomaly** may be extended to either side of the source, in the direction of flight. Appears like fish bones, or like the teeth of a comb, extending either side of centre, each tooth an alternate flight line.

homogeneous: This is a geological unit that has the same ***physical parameters*** throughout its volume. This unit will create the same response to an HEM system anywhere, and the HEM system will measure the same apparent ***resistivity*** anywhere. The response may change with system direction (see ***anisotropy***).

HTEM: Helicopter Time-domain ElectroMagnetic, This designation is used for the new generation of helicopter-borne, ***time-domain*** electromagnetic systems.

in-phase: the component of the measured ***secondary field*** that has the same phase as the transmitter and the ***primary field***. The in-phase component is stronger than the ***quadrature*** phase over relatively higher ***conductivity***.

induction: Any time-varying electromagnetic field will induce (cause) electrical currents to flow in any object with non-zero ***conductivity***. (see ***eddy currents***)

induction number: also called the "response parameter", this number combines many of the most significant parameters affecting the ***EM*** response into one parameter against which to compare responses. For a ***layered earth*** the response parameter is $\mu\omega\sigma h^2$ and for a large, flat, ***conductor*** it is $\mu\omega\sigma t h$, where μ is the ***magnetic permeability***, ω is the angular ***frequency***, σ is the **conductivity**, t is the thickness (for the flat conductor) and h is the height of the system above the conductor.

inductive limit: When the frequency of an EM system is very high, or the **conductivity** of the target is very high, the response measured will be entirely **in-phase** with no **quadrature** (**phase** angle =0). The in-phase response will remain constant with further increase in conductivity or frequency. The system can no longer detect changes in conductivity of the target.

infinite: In geophysical terms, an "infinite' dimension is one much greater than the ***footprint*** of the system, so that the system does not detect changes at the edges of the object.

International Geomagnetic Reference Field: **[IGRF]** An approximation of the smooth magnetic field of the earth, in the absence of variations due to local geology. Once the IGRF is subtracted from the measured magnetic total field data, any remaining variations are assumed to be due to local geology. The IGRF also predicts the slow changes of the field up to five years in the future.

inversion, or **inverse modeling**: A process of converting geophysical data to an earth model, which compares theoretical models of the response of the earth to the data measured, and refines the model until the response closely fits the measured data (Huang and Palacky, 1991)

layered earth: A common geophysical model which assumes that the earth is horizontally layered – the ***physical parameters*** are constant to ***infinite*** distance horizontally, but change vertically.

magnetic permeability: **[μ]** This is defined as the ratio of magnetic induction to the inducing magnetic field. The relative magnetic permeability [Π] is often quoted, which is the ratio of the rock permeability to the permeability of free space. In geology and geophysics, the ***magnetic susceptibility*** is more commonly used to describe rocks.

magnetic susceptibility: **[k]** A measure of the degree to which a body is magnetized. In SI units this is related to relative ***magnetic permeability*** by k=Π-1, and is a dimensionless unit. For most geological material, susceptibility is influenced primarily by the percentage of magnetite. It is most often quoted in units of 10^{-6}. In HEM data this is most often apparent as a negative ***In-phase*** component over high susceptibility, high ***resistivity*** geology such as diabase dikes.

manoeuvre noise: variations in the magnetic field measured caused by changes in the relative positions of the magnetic sensor and magnetic objects or electrical currents in the aircraft. This type of noise is generally corrected by magnetic **compensation**.

model: Geophysical theory and applications generally have to assume that the geology of the earth has a form that can be easily defined mathematically, called the model. For example steeply dipping **conductors** are generally modeled as being **infinite** in horizontal and depth extent, and very thin. The earth is generally modeled as horizontally layered, each layer infinite in extent and uniform in characteristic. These models make the mathematics to describe the response of the (normally very complex) earth practical. As theory advances, and computers become more powerful, the useful models can become more complex.

natural exposure rate: in radiometric surveys, a calculation of the total exposure rate due to natural-source gamma rays at the ground surface. It is used as a measurement of the concentration of all the natural **radioelements** at the surface. See also: **exposure rate**.

noise: That part of a geophysical measurement that the user does not want. Typically this includes electronic interference from the system, the atmosphere (***sferics***), and man-made sources. This can be a subjective judgment, as it may include the response from geology other than the target of interest. Commonly the term is used to refer to high frequency (short period) interference. See also ***drift***.

Occam's inversion: an ***inversion*** process that matches the measured ***electromagnetic*** data to a theoretical model of many, thin layers with constant thickness and varying resistivity (Constable et al, 1987).

off-time: In a ***time-domain electromagnetic*** survey, the time after the end of the ***primary field pulse***, and before the start of the next pulse.

on-time: In a ***time-domain electromagnetic*** survey, the time during the ***primary field pulse***.

overburden: In engineering and mineral exploration terms, this most often means the soil on top of the unweathered bedrock. It may be sand, glacial till, or weathered rock.

Phase, phase angle: The angular difference in time between a measured sinusoidal electromagnetic field and a reference – normally the primary field. The phase is calculated from $\tan^{-1}$(***in-phase / quadrature***).

physical parameters: These are the characteristics of a geological unit. For electromagnetic surveys, the important parameters are ***conductivity, magnetic permeability*** (or ***susceptibility***) and ***dielectric permittivity***; for magnetic surveys the parameter is magnetic susceptibility, and for gamma ray spectrometric surveys it is the concentration of the major radioactive elements: potassium, uranium, and thorium.

permittivity: see ***dielectric permittivity***.

permeability: see ***magnetic permeability***.

primary field: the EM field emitted by a transmitter. This field induces ***eddy currents*** in (energizes) the conductors in the ground, which then create their own ***secondary* fields**.

pulse: In time-domain EM surveys, the short period of intense ***primary*** field transmission. Most measurements (the ***off-time***) are measured after the pulse. **On-time** measurements may be made during the pulse.

quadrature: that component of the measured ***secondary field*** that is phase-shifted 90θ from the ***primary field***. The quadrature component tends to be stronger than the ***in-phase*** over relatively weaker ***conductivity***.

Q-coils: see ***calibration coil***.

radioelements: This normally refers to the common, naturally-occurring radioactive elements: potassium (K), uranium (U), and thorium (Th). It can also refer to man-made radioelements, most often cobalt (Co) and cesium (Cs)

radiometric: Commonly used to refer to ***gamma ray*** spectrometry.

radon: A radioactive daughter product of uranium and thorium, radon is a gas which can leak into the atmosphere, adding to the non-geological background of a gamma-ray spectrometric survey.

receiver: the ***signal*** detector of a geophysical system. This term is most often used in active geophysical systems – systems that transmit some kind of signal. In airborne ***electromagnetic*** surveys it is most often a ***coil***. (see also, ***transmitter***)

resistivity: **[ρ]** The strength with which the earth or a geological formation resists the flow of electricity, typically the flow induced by the ***primary field*** of the electromagnetic transmitter. Normally expressed in ohm-metres, it is the reciprocal of ***conductivity***.

resistivity-depth transforms: similar to ***conductivity depth transforms***, but the calculated ***conductivity*** has been converted to ***resistivity***.

resistivity section: an approximate vertical section of the resistivity of the layers in the earth. The resistivities can be derived from the ***apparent resistivity***, the ***differential resistivities***, ***resistivity-depth transforms***, or ***inversions***.

Response parameter: another name for the **induction number**.

secondary field: The field created by conductors in the ground, as a result of electrical currents induced by the ***primary field*** from the ***electromagnetic*** transmitter. Airborne ***electromagnetic*** systems are designed to create and measure a secondary field.

Sengpiel section: a ***resistivity section*** derived using the ***apparent resistivity*** and an approximation of the depth of maximum sensitivity for each frequency.

sferic: Lightning, or the ***electromagnetic*** signal from lightning, it is an abbreviation of "atmospheric discharge". These appear to magnetic and electromagnetic sensors as sharp "spikes" in the data. Under some conditions lightning storms can be detected from hundreds of kilometres away. (see ***noise***)

signal: That component of a measurement that the user wants to see – the response from the targets, from the earth, etc. (See also ***noise***)

skin depth: A measure of the depth of penetration of an electromagnetic field into a material. It is defined as the depth at which the primary field decreases to 1/e of the field at the surface. It is calculated by approximately 503 x (resistivity/frequency). Note that depth of penetration is greater at higher ***resistivity*** and/or lower ***frequency***.

spectrometry: Measurement across a range of energies, where ***amplitude*** and energy are defined for each measurement. In gamma-ray spectrometry, the number of gamma rays are measured for each energy ***window***, to define the ***spectrum***.

spectrum: In ***gamma ray spectrometry***, the continuous range of energy over which gamma rays are measured. In ***time-domain electromagnetic*** surveys, the spectrum is the energy of the **pulse** distributed across an equivalent, continuous range of frequencies.

spheric: see ***sferic***.

stacking: Summing repeat measurements over time to enhance the repeating ***signal***, and minimize the random ***noise***.

stripping: Estimation and correction for the gamma ray photons of higher and lower energy that are observed in a particular ***energy window***. See also ***Compton scattering***.

susceptibility: See ***magnetic susceptibility***.

tau: [τ] Often used as a name for the ***time constant***.

TDEM: ***time domain electromagnetic***.

thin sheet: A standard model for electromagnetic geophysical theory. It is usually defined as a thin, flat-lying conductive sheet, ***infinite*** in both horizontal directions. (see also ***vertical plate***)

tie-line: A survey line flown across most of the ***traverse lines***, generally perpendicular to them, to assist in measuring ***drift*** and ***diurnal*** variation. In the short time required to fly a tie-line it is assumed that the drift and/or diurnal will be minimal, or at least changing at a constant rate.

time constant: The time required for an ***electromagnetic*** field to decay to a value of 1/e of the original value. In ***time-domain*** electromagnetic data, the time constant is proportional to the size and ***conductance*** of a tabular conductive body. Also called the decay constant.

Time channel: In ***time-domain electromagnetic*** surveys the decaying ***secondary field*** is measured over a period of time, and the divided up into a series of consecutive discrete measurements over that time.

time-domain: ***Electromagnetic*** system which transmits a pulsed, or stepped ***electromagnetic*** field. These systems induce an electrical current (***eddy current***) in the ground that persists after the ***primary field*** is turned off, and measure the change over time of the ***secondary field*** created as the currents ***decay***. See also ***frequency-domain***.

total energy envelope: The sum of the squares of the three ***components*** of the ***time-domain electromagnetic secondary field***. Equivalent to the ***amplitude*** of the secondary field.

transient: Time-varying. Usually used to describe a very short period pulse of ***electromagnetic*** field.

transmitter: The source of the ***signal*** to be measured in a geophysical survey. In airborne ***EM*** it is most often a **coil** carrying a time-varying electrical current, transmitting the ***primary field***. (see also ***receiver***)

traverse line: A normal geophysical survey line. Normally parallel traverse lines are flown across the property in spacing of 50 m to 500 m, and generally perpendicular to the target geology.

vertical plate: A standard model for electromagnetic geophysical theory. It is usually defined as thin conductive sheet, ***infinite*** in horizontal dimension and depth extent. (see also ***thin sheet***)

waveform: The shape of the ***electromagnetic pulse*** from a ***time-domain*** electromagnetic transmitter.

window: A discrete portion of a ***gamma-ray spectrum*** or ***time-domain electromagnetic decay***. The continuous energy spectrum or ***full-stream*** data are grouped into windows to reduce the number of samples, and reduce ***noise***.

Version 1.5, November 29, 2005
Greg Hodges,

Chief Geophysicist
Fugro Airborne Surveys, Toronto

Common Symbols and Acronyms

k Magnetic susceptibility
ε Dielectric permittivity
μ, μ_r Magnetic permeability, relative permeability
ρ, ρ_a Resistivity, apparent resistivity
σ, σ_a Conductivity, apparent conductivity
σt Conductivity thickness
τ Tau, or time constant
Ωm ohm-metres, units of resistivity
AGS Airborne gamma ray spectrometry.
CDT Conductivity-depth transform, conductivity-depth imaging (Macnae and Lamontagne, 1987; Wolfgram and Karlik, 1995)
CPI, CPQ Coplanar in-phase, quadrature
CPS Counts per second
CTP Conductivity thickness product
CXI, CXQ Coaxial, in-phase, quadrature
FOM Figure of Merit
fT femtoteslas, normal unit for measurement of B-Field
EM Electromagnetic
keV kilo electron volts – a measure of gamma-ray energy
MeV mega electron volts – a measure of gamma-ray energy 1MeV = 1000keV
NIA dipole moment: turns x current x Area
nT nanotesla, a measure of the strength of a magnetic field
nG/h nanoGreys/hour – gamma ray dose rate at ground level
ppm parts per million – a measure of secondary field or noise relative to the primary or radioelement concentration.
pT/s picoteslas per second: Units of decay of secondary field, dB/dt
S siemens – a unit of conductance
x: the horizontal component of an EM field parallel to the direction of flight.
y: the horizontal component of an EM field perpendicular to the direction of flight.
z: the vertical component of an EM field.

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Appendix B
Statement of Qualifications

I, Nigel Luckman, certify that:

1. I am a geological engineer employed as a consultant for Paget Resources Corporation, with offices located at:
   920-1040 West Georgia Street
   Vancouver, BC

2. I graduated from the University of British Columbia in 1988 with a Bachelor of Applied Science, Geological Engineering.

3. Since 1988 I have been continuously employed in mineral exploration in North and South America.

4. I have prepared all sections of this report with the assistance of Paget Resources consultants.

Dated this 15th day of February, 2007

N Luckman

Signature

Nigel Luckman

Appendix C
Statement of Expenditures

Professional Fees and Wages	
Nigel Luckman 5 days @ $600/day	3000.00
Survey Costs	
Mt Bisson prorated cost of mob/demob	6422.39
Mt Bisson magnetics & radiometrics 564.4 kms @ $105/km	59262.00
Standby on Mt Bisson survey 1 day @ $3000/day	3000.00
Expenses	
Report printing, map plotting	400.00
Total	**72084.39**

Scale 1:12500

250 0 250 500 750

metres

NAD83 / UTM zone 10N

PAGET RESOURCES CORPORATION

MOUNT BISSON PROPERTY
North-central British Columbia
Total Magnetic Field

NAD 83 UTM Zone 10N
Figure 3

Survey flown by Fugro Airborne Surveys, Job 06043


K count (50 interval)
K count (5 interval)
Flight line
515085
Mineral Tenure
Stream
436000
437000
438000
439000
440000
441000
442000
6161000
6160000
6159000
6158000
6157000
6156000
6155000
6154000
6153000
6152000
6151000
6150000
6149000
522749
522747
522746
547760
547761
522753
522751
522745
522755
522756
GEOLOGICAL SURVEY BRANCH
28,677
Scale 1:12500
250
0
250
500
750
metres
NAD83 / UTM zone 10N
PAGET RESOURCES CORPORATION
MOUNT BISSON PROPERTY
North-central British Columbia
Total Potassium Count
NAD 83 UTM Zone 10N
Figure 4
Survey flown by Fugro Airborne Surveys, Job 06043

Th count (20 interval)
Th count (5 interval)
Flight line
515085
Mineral Tenure
Stream
436000
437000
438000
439000
440000
441000
442000
6161000
6160000
6159000
6158000
6157000
6156000
6155000
6154000
6153000
6152000
6151000
6150000
6149000
522749
522747
522746
547760
547761
522753
522745
522751
522755
522756
GEOLOGICAL SURVEY BRANCH
28,877
Scale 1:12500
250 0 250 500 750
metres
NAD83 / UTM zone 10N
PAGET RESOURCES CORPORATION
MOUNT BISSON PROPERTY
North-central British Columbia
Total Thorium Count
NAD 83 UTM Zone 10N
Figure 5
Survey flown by Fugro Airborne Surveys, Job 06043

PAGET RESOURCES CORPORATION

MOUNT BISSON PROPERTY
North-central British Columbia
Total Uranium Count

NAD 83 UTM Zone 10N
Figure 6

Survey flown by Fugro Airborne Surveys, Job 06043

PAGET RESOURCES CORPORATION

MOUNT BISSON PROPERTY
North-central British Columbia
Total Count

NAD 83 UTM Zone 10N
Figure 7

Survey flown by Fugro Airborne Surveys, Job 06043