

Monto, Queensland
Airborne Magnetic and Radiometric
Geophysical Survey

Acquisition and Processing Report

for

Aussie Q Resources Limited

Prepared by :

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Authorised for release by :

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.....

Survey flown: March - April 2009

by



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FAS JOB # 2043

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1. SURVEY OPERATIONS AND LOGISTICS

1.1 Introduction

Between the 31st of March 2009 and the 15th of April 2009, Fugro Airborne Surveys Pty. Ltd. (FAS) undertook an airborne magnetic and radiometric survey for Aussie Q Resources Limited, over the Monto Project area, in Queensland. The survey consisted of two areas, flown in 12 flights. Total coverage of the survey area amounted to 4173.7 line kilometres. The survey was flown using an Aerocommander Shrike 500-S aircraft, registration VH-FGZ owned and operated by FAS. This report summarises the procedures and equipment used by FAS in the acquisition, verification and processing of the airborne geophysical data.

1.2 Survey Base

The survey was based out of Monto, Queensland. The survey aircraft was operated from the Monto airport with the aircraft fuel available on site. A temporary office was set up at the Three Moons Motel, Monto, where all survey operations were run and the post-flight data verification was performed.

1.3 Survey Personnel

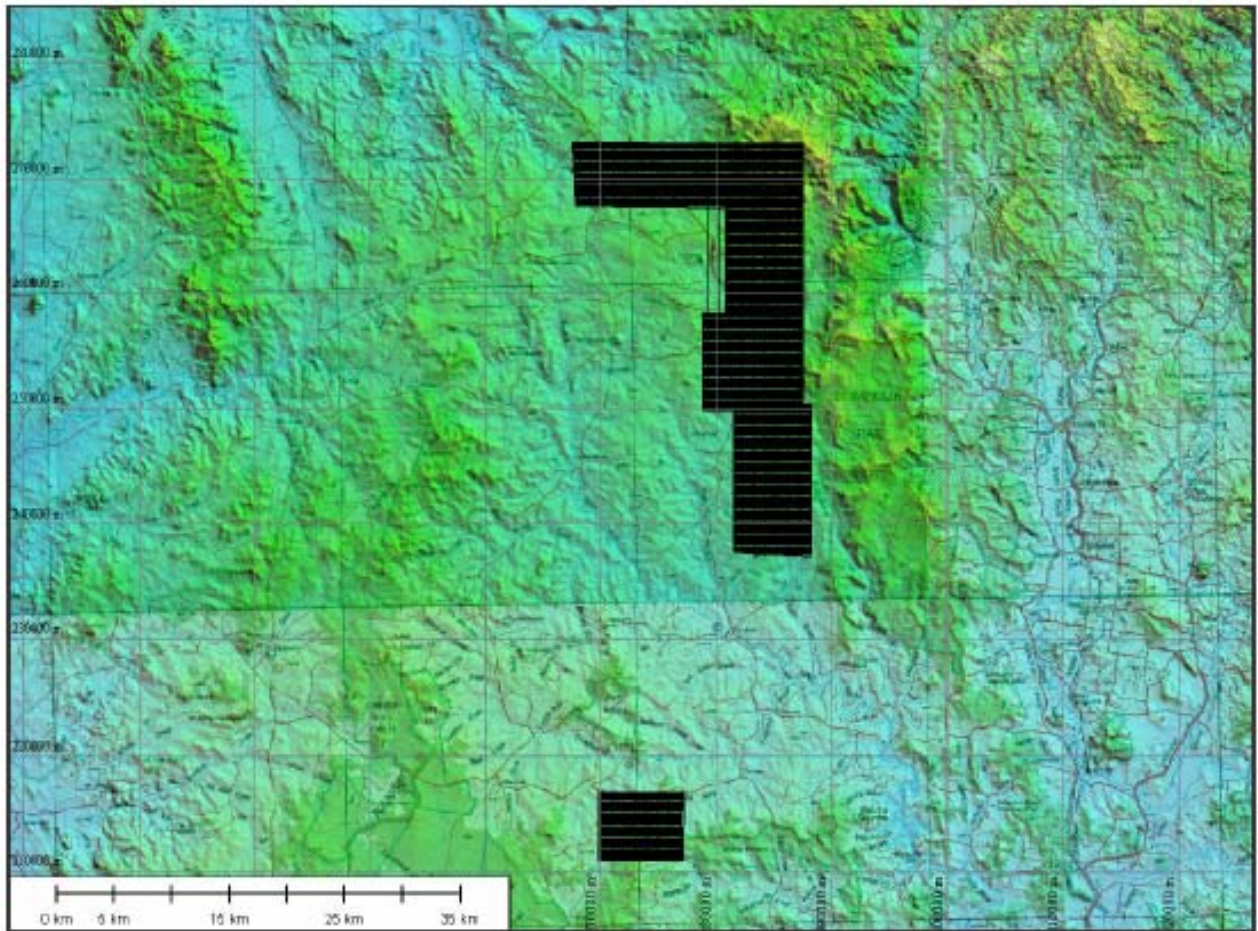
The following personnel were involved in this project:

Project Supervision - Acquisition	Bart Anderson
- Processing	Adam Shales
On-site Crew Leader	Richard Butterfield
Pilot/s	Marcus Tapp, Robert Jack
System Operator/s	Richard Butterfield, Phillip Lehman, Peter Brough
Aircraft Engineer	John O'Reilly
Data Processing	Sheryl Launer

1.4 Survey Equipment

Survey Platform	- Aerocommander Shrike 500-S VH-FGZ
Data Acquisition System	- FAS digital acquisition system
Total Field Magnetometer	- Geometrix G-822A Caesium vapour
Vector Magnetometer	- Billingsley TFM100-1E 3-axis
Magnetometer Compensator	- Fugro FASDAS Mag Decoupler Unit Aeromagnetic Digital
Gamma-ray Spectrometer	- Exploranium GR820 256 Channels
Gamma-ray Detector	- 8 NaI(Tl) crystals; 33.56 L down
Navigation System GPS	- Fugro Omnistar in VBS (Virtual Base Station) mode, Novatel OEM4 GPS receiver
Base Station Magnetometers	- 1 x CFI and 1 x Scintrex Envi Mag
Altimeter	- Sperry Stars RT-220 radio altimeter
Barometer	- Paroscientific Digibaro altimeter
Thermometer	- Vaisala HMY 133 temperature and humidity sensor

1.5 Area Map



**MONTO, QLD
MGA56**

1.6 General Disclaimer

It is Fugro Airborne Survey's understanding that the data and report provided to the client is to be used for the purpose agreed between the parties. That purpose was a significant factor in determining the scope and level of the Services being offered to the Client. Should the purpose for which the data and report is used change, the data and report may no longer be valid or appropriate and any further use of, or reliance upon, the data and report in those circumstances by the Client without Fugro Airborne Survey's review and advice shall be at the Client's own or sole risk.

The Services were performed by Fugro Airborne Survey exclusively for the purposes of the Client. Should the data and report be made available in whole or part to any third party, and such party relies thereon, that party does so wholly at its own and sole risk and Fugro Airborne Survey disclaims any liability to such party.

Where the Services have involved Fugro Airborne Survey's use of any information provided by the Client or third parties, upon which Fugro Airborne Survey was reasonably entitled to rely, then the Services are limited by the accuracy of such information. Fugro Airborne Survey is not liable for any inaccuracies (including any incompleteness) in the said information, save as otherwise provided in the terms of the contract between the Client and Fugro Airborne Survey.

2. SURVEY SPECIFICATIONS AND PARAMETERS

2.1 Area Co-ordinates

The survey area was located within MGA Zone 56, Central Meridian = 153
(Note - Co-ordinates in GDA94/MGA Zone 56)

Area 1 (Northern Area)

Easting	Northing
267731	7273035
280523	7272912
287359	7272896
287359	7250215
288103	7250215
288103	7237325
281658	7237624
281658	7249967
278900	7249967
278931	7258147
280915	7258147
280950	7267587
267949	7267723

Area 3 (Southern Area)

Easting	Northing
269977	7216689
277041	7216751
276979	7211112
269977	7211112

2.2 Survey Area Parameters

Job Number	-	2043
Survey Company	-	Fugro Airborne Surveys Pty Ltd
Date Flown	-	31 st March 2009 – 15 th April 2009
Client	-	Aussie Q Resources Limited
Project Name	-	Monto, Queensland
Area Names	-	1 (Northern Area), 3 (Southern Area)
Nominal Terrain Clearance	-	60 m
Traverse Line Spacing	-	100 m
Traverse Line Direction	-	090 – 270 deg
Traverse Lines	-	100010 – 103590, 300010 – 300590
Tie Line Spacing	-	1000 m
Tie Line Direction	-	000 – 180 deg
Tie Lines	-	190010 – 190280, 390010 – 390080
Line Kilometres	-	Area 1 = 3694.7 km Area 3 = 479 km
Total Line Kilometres	-	4173.7 km

2.3 Data Sample Intervals

Nominal data sample intervals.

Magnetometer	-	7 m (@10 Hz)
Radar Altimeter	-	7 m (@10 Hz)
Thermometer	-	70 m (@1 Hz)
Barometer	-	70 m (@1 Hz)
GPS	-	70 m (@1 Hz)
Spectrometer	-	70 m (@1 Hz)
Magnetic Base Station (ENVI Mag)	-	2 s
(CF1)	-	0.5 s

2.4 Survey Tolerances

As specified in the contract the following tolerances were used:

Traverse line deviation	-	+/- 50% of nominated line spacing over 1 km or more
Tie line deviation	-	+/- 50% of nominated tie line spacing over 1 km or more
Terrain clearance deviation	-	+/-10 m of nominal terrain clearance over 1 km or more, except where such lines breach air regulations, or in the opinion of the pilot, put aircraft and crew at risk.
Total magnetometer system noise	-	More than 0.1 nT continuously for more than 1 km
Magnetic diurnal variation	-	More than 10 nT in 10 minutes non-linear either on flight lines or tie lines.

3. AIRCRAFT EQUIPMENT AND SPECIFICATIONS

3.1 Aircraft

Manufacturer	-	Aerocommander
Model	-	Shrike 500S
Registration	-	VH-FGZ
Ownership	-	Fugro Airborne Surveys Pty Ltd

3.2 Navigation System

The GPS receiver was integrated as part of the acquisition system. Navigation displays were generated by the acquisition system software that displayed to the pilot a graphical representation of the line being flown. A pre-defined flight plan, with area boundaries and the start and end of the line co-ordinates, was loaded into memory and used for real-time navigation information. Position co-ordinates and other relevant GPS information were output and recorded by the acquisition computer.

3.3 Aircraft Magnetometers

The survey was flown using a Geometrix G-822A ultra-high sensitivity Caesium vapour magnetometer sensor with the sensor mounted in the tail stinger of the aircraft. The sensor provides a Larmor signal that is processed by high precision counters embedded within the FASDAS to provide an operating range of 20,000 to 100,000 nT.

Specifications

Nominal Sensitivity:	-	0.001 nT
Still Air RMS Noise:	-	0.05 nT
Digital Recording Resolution:	-	0.001 nT
Magnetic Gradient Tolerance	-	>20,000 nT/m

3.4 Automatic Compensator

The magnetometer data, together with data from the 3-axis fluxgate, was integrated in the acquisition system to produce real time compensation for the effects of the aircraft's motion, i.e. from changes in attitude and heading. The compensation coefficients were calculated from compensation flights carried out before the survey commenced. The compensated output data, with a resolution and sensitivity of 0.001 nT at a sampling rate of 10 times per second, were recorded digitally.

3.5 Gamma Ray Spectrometer System

The radiometric acquisition system consisted of a 256 channel gamma-ray spectrometer and detector system with the following specifications:

Manufacturer:	Exploranium Inc.
Model:	GR-820
Number of channels:	256
Crystal Volume:	33.56 L downward looking (thermally insulated)
Sampling interval:	1 s
Windows (keV):	Potassium: 1370 to 1570
	Uranium: 1660 to 1860
	Thorium: 2410 to 2810
	Total Count: 410 to 2810
	Cosmic: 4000 to >6000

Data checking in the survey system was carried out by the use of resolution procedures using known radiometric sources. To verify the system, real time display of individual crystal resolutions and system resolutions, real time display peak channel tracking information, real time display of the energy spectrum showing counts, cosmic level and system livetime were available. The survey system displayed to the operator any errors encountered in the spectrometer system.

3.6 Radar Altimeter

A Sperry Stars RT-220 radio altimeter system was used to measure ground clearance. The radio altimeter indicator provides an absolute altitude display from 0 - 750 metres (0 - 2,500 feet) with a sensitivity of 4 mV/ft. Radar altimeter data were digitally recorded every 0.1 seconds.

Specifications

Range:	-	0 - 2500 ft
Accuracy:	-	1%
Resolution:	-	4 mV/ft

3.7 Barometric Altimeter

The output of the Paroscientific pressure transducer was used for calculating the barometric altitude of the aircraft. The atmospheric pressure was taken from a probe and fed to the transducer. The transducer uses a precise quartz crystal resonator whose frequency of oscillation varies with pressure induced stress. The temperature of the pressure sensor was also recorded. In conjunction with the area QNH pressure and ambient temperature, the barometric altitude was calculated.

Specifications

Range:	-	sea level to 10,000 ft
Accuracy:	-	5 ft
Resolution:	-	1 mV/ft

3.8 Flight Data Recording

All data recorded by the data acquisition system were stored in a digital format on the removable media drive located in the DAS. This data were then transferred to the field office computers for post-flight quality control examination.

3.9 Flight Following

An integral part of the Safety Management System provides for the installation of a Flight Following System that transmits a position via satellite at pre determined intervals. The Fugro OmniTRACK system is fitted to the aircraft and position information is transmitted every 4 minutes to the Omnistar Network control centre. This information can be monitored by accessing the Fugro web page where the updated flight path is displayed. The aircraft is also fitted with an emergency switch and activation of this by the pilot or crew will notify the Omnistar Network control centre immediately. They in turn will contact FAS personnel as per the Emergency Response Plan

4. GROUND DATA ACQUISITION EQUIPMENT AND SPECIFICATIONS

4.1 Magnetic Base Station

A CF1 and a Scintrex Envi Mag magnetometer were used to measure the daily variations of the Earth's magnetic field. The base stations were established in an area of low gradient, away from cultural influences. The base stations were run continuously throughout the survey flying period with a sampling interval of 0.5 and 2 seconds respectively at a sensitivity of 0.01 nT. The base station data were closely examined after each day's production flying to determine if any data had been acquired during periods of out-of-specification diurnal variation. The base stations were located either side of the access road to Monto Airport approximately 100 m apart.

4.2 GPS Base Station

A GPS base logging station was set up at the Three Moons Motel, Monto. The GPS antenna was located in the back garden of the complex.

The GPS base system was comprised of a GPS receiver, a logging computer, an antenna and a power supply. Data was logged and displayed in real time on the logging computer screen. The logged base data was processed with the airborne GPS data to calculate the differentially post-processed position of the aircraft.

The GPS base station position was calculated by logging data continuously at the base position over a period of approximately 60 hours. These data were then statistically averaged to obtain the position of the base station.

The calculated GPS base position was (in WGS84):

24° 51' 58.71527" S, 151° 7' 34.24271" E, 292.764 m.

5. EQUIPMENT CALIBRATIONS AND DATA ACQUISITION CHECKS

5.1 Survey Calibrations

A series of calibrations were performed as follows:

5.1.1 Dynamic Magnetometer Compensation

Carrying a magnetometer through a varying field in a non-uniform orientation produces manoeuvre noise. To compensate for this manoeuvre noise a standard compensation test flight called a “comp box” was flown. The compensation file produced also removed the majority of the heading error. Aircraft compensation tests were flown on the 4 survey line headings and also at +/- 7½ and 15° to the line headings (to accommodate for cross wind flying conditions). The data for each heading consists of a series of aircraft manoeuvres with large angular excursions: specifically pitches, rolls and yaws. This was done to artificially create the worst possible attitudes and rates of attitudinal change likely to be encountered while on line and compensate for any magnetic noise created by the aircraft’s motion within the earth’s magnetic field. The data was processed to obtain the real-time compensation terms. These coefficients were applied in real-time or later during post-processing if required. Note that this form of compensation will only remove those noise effects modelled in the manoeuvre test flight. Random motions of the stinger with respect to the aircraft airframe generally establish the noise floor for this type of installation. Details of the comp boxes flown for this survey are shown in the table below.

Flown	Flights covered
1/4/2009	All Flights

Table 1: Magnetometer Compensation Details

5.1.2 Parallax

Parallax error is caused by the physical difference in distance between the various sensors, the electronic delay and software timing in the acquisition system. Hence all variables are subjected to a displacement from the GPS co-ordinates. If these variables are processed without a position offset a parallax error will usually occur. The most suitable way to treat this problem is to use the 1 second radiometric data as a base with a zero correction. This will prevent interpolation of important variables (a filtering process). The co-ordinates were moved by linear interpolation and other data variables were displaced onto the radiometric data, without change.

Data	Parallax
Radiometrics	0 second
GPS	0.5 second
Magnetics	0.5 second
Radar Altitude	0.5 second
Pressure	0 second
Temperature	0 second

Table 2: Parallax Values

5.1.3 Pad Calibrations

A series of tests were taken using a set of radiometric pads of known concentrations of Potassium, Uranium and Thorium. Each crystal pack was tested individually, with data accumulated for 15 minutes. The pad calibration data were processed to determine the radiometric stripping coefficients for each crystal pack. Where aircraft had more than one crystal pack installed, the average of the stripping coefficients were used in final data processing.

5.1.4 Background and Cosmic Calibration Stacks

High-level stacks were flown over the ocean away from the effects of any land based radon. Data were collected for ten minutes at altitudes starting at 1000 feet above sea level and incrementing to 10000 feet above sea level. The high-level stack data were processed to determine the cosmic and aircraft background coefficients.

5.1.5 Height Attenuation Calibrations

Low-level stacks were flown over the Carnamah Dynamic Test Range, Western Australia. Data were collected at altitudes of 130 feet above sea level (asl), 200 ft asl, 260 ft asl, 330 ft asl, 400 ft asl and 650 ft asl. The neighbouring salt lake was flown at the same altitudes, and the data were used as a radon test. A ground survey was carried out on the same day using a calibrated gamma-ray spectrometer.

The airborne and ground data were processed to determine radioelement sensitivity and height attenuation coefficients.

5.1.6 Daily Calibrations

A set of calibrations were performed each survey day as follows:

- Magnetic base station time check
- Spectrometer resolution test
- Spectrometer button test
- Low level test line

5.1.6.1 Magnetic Base Station Time Check

Prior to each day's survey all magnetic base stations were time checked and synchronised with the time on the aircraft survey system GPS receiver.

5.1.6.2 Spectrometer Resolution Test

Once the spectrometer had stabilised a Thorium source resolution check was carried out by placing the source in a cradle specially designed to ensure precisely repeatable locations.

5.1.6.3 Spectrometer Button Test

Thorium sample checks were performed on the spectrometer before and after each day's survey acquisition. Each sample was placed in a predetermined location and data recorded for 180 sec. Relative count rates above background were within +/- 5% of the average sample checks for the duration of the survey.

5.1.6.4 Low Level Test line

To monitor the effects of soil moisture and radon and to verify the system was functioning correctly a low level test line was flown at survey altitude prior to and after each day's production. The collected data were checked by the operator to ensure the Thorium for the low level test line was within +/- 10% of the initial average. The location of the low level test line was along the runway at Monto Airport and extending north.

A 307974E 7246926N
B 309374E 7240944N
(Coordinates in GDA94 MGA56)

6. DATA VERIFICATION AND FIELD PROCESSING

All data verification was conducted at the field office in Monto for the duration of the survey. At the conclusion of each days survey all magnetic, radiometric, altimeter, flight path and diurnal data were downloaded onto the field office computer for preliminary verification. All raw aircraft data were backed up at the end of each day's survey. One copy was sent to the FAS office in Perth, the other copy remaining at the field office.

6.1 Magnetic Diurnal Data

Diurnal data recorded from the primary base station was downloaded onto the field office computer. The data was checked for spikes and erroneous readings. If invalid diurnal data occurred whilst survey data was being acquired the affected section was re-flown. The diurnal data was also checked to see that the change in diurnal readings during the course of the survey did not exceed the specified tolerances. When this occurred the affected part of the survey line was re-flown. The diurnal data was merged with the aircraft data and used in the verification of the magnetic data. Diurnal data recorded on the secondary base station was also downloaded onto the field office computer.

6.2 Height Data

Radar altimeter, barometric altimeter and GPS height data from the aircraft was transferred onto the field office computer.

6.2.1 Radar Altimeter Data

The radar altimeter data was verified to check that a reasonably constant height above the terrain was flown, readings during the course of the survey did not exceed the specified tolerances and for equipment reliability.

6.2.2 GPS Height Data

The aircraft's height above the WGS84 ellipsoid each second was determined by differentially post-processing the synchronised GPS data from the aircraft and GPS base station data. The GPS height of the aircraft was verified to check for data masking and for equipment reliability.

6.2.3 Barometric Altimeter Data

As a backup to the aircraft's GPS height, barometric height was also recorded. The barometric height of the aircraft was verified to check for equipment reliability. The barometric data were also used in the processing of the radiometric data.

6.2.4 Topographical Data

After verification parallax corrections were applied, the radar altitude was subtracted from the GPS height to give the elevation of the terrain above the WGS84 ellipsoid. It was not considered necessary to make any further corrections as this data was for verification purposes only.

6.2.5 Gridding and Inspection

The topographical data was gridded and grid image enhancements were computed and displayed on screen. These were inspected for inconsistencies and errors.

6.3 Flight Path Data

The flight path data from the aircraft and the GPS base station were transferred onto the field office computer. The aircraft's precise location each second was determined by differentially post-processing the synchronised GPS data from the aircraft and GPS base station data. The flight path was recovered and plotted daily to ensure it was within specification. Any data not within specification was re-flown. The flight path data was then merged with the rest of the aircraft and diurnal data. Both the aircraft and GPS base station recorded the data in the WGS84 datum.

6.4 Magnetic Data

The real-time compensated and uncompensated magnetic data from the aircraft recorded every 0.1 second were transferred onto the field office computer. The raw magnetic data was checked to identify noise and spikes. If the noise exceeded the specified tolerances the part of the line affected was re-flown. After the magnetic data were merged with the digital flight path the following sequence of operations were carried out to allow inspection and verification of the data:

6.4.1 Diurnal Correction

The synchronised digital diurnal data collected by the base station was first subtracted from the corresponding airborne magnetic readings to calculate a difference. The resultant difference was then subtracted from the base value to produce diurnally corrected magnetic data.

6.4.2 Parallax Correction

The diurnally corrected magnetic data was corrected for system parallax using the calculated value.

6.4.3 Preliminary Gridding and Inspection

The magnetic data were gridded and grid image enhancements were computed and displayed on screen. These were inspected for inconsistencies and errors.

6.5 Spectrometer Data

Spectrometer data from the aircraft were transferred onto the field office computer. The data was verified to check that readings during the course of the survey did not exceed the specified tolerances and for equipment reliability.

6.5.1 Parallax Correction

The raw window data were corrected for system parallax using the calculated value.

6.5.2 Preliminary Gridding and Inspection

The spectrometer data were gridded and grid image enhancements were computed and displayed on screen. These were inspected for inconsistencies and errors.

7. FINAL DATA PROCESSING

7.1 Aircraft Location

The aircraft's location each second was determined by differentially post-processing the synchronised GPS data recorded on both the aircraft and GPS base station. This data is recorded in the WGS84 datum.

7.2 Magnetic Data Processing

The processing procedures applied to the magnetic data are summarised below:

- a) Apply any spike corrections to the compensated magnetic variables.
- b) Interpolate undefined magnetic values.
- c) Co-ordinate the data with post-processed GPS data.
- d) Filter diurnal values and subtract them from individual compensated magnetic readings.

Area	Base Value
Area 1	52200 nT & 52167.2 nT
Area 3	52200 nT

Table 3: Diurnal Base Values

- e) Apply parallax correction.
- f) Correct for regional effects of the earth's magnetic field by calculating the IGRF value at each fiducial using IGRF model 2005 and secular variation model. A base value was added back.

Area	IGRF Model	Base Value
Area 1 & 3	30/3/2009	52028 nT

Table 4: IGRF Base Values

- g) Height correction applied to area 1 only.
- h) Using the tie lines (flown at 90 degrees to the traverse lines) a set of miss-tie values were determined. These miss-tie values reflected the differences in the magnetic value between the tie lines and traverse lines over the same geographical point. Using a least squares fit algorithm, which also takes into account the statistical variation inherent in DGPS positioning, a series of corrections were applied to the traverse line data. These allowed the data to be levelled to the same base value.
- i) Following this, a FAS proprietary microlevelling process was applied in order to more subtly level the data.

7.2.1 Gridding

The final levelled magnetic data were gridded using a bi-directional spline algorithm. The data was gridded with a cell size of 25 m.

7.3 Radiometric Data Processing

The radiometric data was processed using the standard IAEA window processing technique as summarised below.

- a) Co-ordinate the data with post-processed GPS data.
- b) Apply spike corrections to the radar altimeter, temperature and pressure values.
- c) Apply parallax corrections to altimeter, temperature and pressure values.
- d) Apply NASVD filtering to the 256 channel radiometric data.
- e) Correct for dead time.
- f) Calculate the equivalent terrain clearance at STP (standard temperature and pressure).
- g) Remove aircraft background.
- h) Remove cosmic background.
- i) Window the 256 channel data using the IAEA standard energy windows.
- j) Remove radon background.
- k) Apply stripping ratios.
- l) Apply height corrections.

- m) Tie line levelling was applied to the total count, potassium and uranium data in area 1, and to the uranium data in area 3. Using the tie lines (flown at 90 degrees to the traverse lines) a set of miss-tie values were determined. These miss-tie values reflected the differences in the value between the tie lines and traverse lines over the same geographical point. Using a least squares fit algorithm, which also takes into account the statistical variation inherent in DGPS positioning, a series of corrections were applied to the traverse line data. These allowed the data to be levelled to the same base value.
- n) Following this, a Fugro proprietary micro-levelling process was applied in order to more subtly level the data. Micro-levelling was applied to the total count, potassium, uranium and thorium data for area 1 and to the total count, potassium and thorium data for area 3.

7.3.1 NASVD Filtering

The radiometrics were produced with NASVD smoothing. Using the NASVD technique, the raw spectra were first smoothed using 6 principal components for area 1 and 4 principal components for area 3. Eigenvectors and statistics on the NASVD processing results were used for analysis.

7.3.2 Dead Time

Gamma-ray spectrometers require a finite time to process each pulse from the detectors. While one pulse is being processed, any other pulse that arrives will be rejected. Consequently the 'live time' of a spectrometer is reduced by the time taken to process all pulses reaching the spectrometer. The spectra are normalised to counts per second by dividing by the live time.

7.3.3 STP Altitude

The radar altimeter data was converted to effective height at standard temperature and pressure using the expression:

$$\text{STPAIt} = \text{RAIt} * (\text{P}/1013) * (273 / (\text{T}+273))$$

where:

RAIt = the observed radar altitude in m
 T = the measured air temperature in deg C
 P = the barometric pressure in hPa

7.3.4 Cosmic and Aircraft Background Removal

The 256 channel aircraft and cosmic spectra for the aircraft were calculated from the high-level test data with the aircraft and cosmic backgrounds derived using least squares fitting applied on a channel by channel basis.

The aircraft background was removed by subtracting the computed aircraft background spectra from the dead time corrected spectra. The 256 channel cosmic background spectrum that is removed is calculated by multiplying the 256 channel cosmic factor values by the cosmic counts recorded. The effect of cosmic radiation is removed from the spectra by subtracting the resultant cosmic spectrum.

Window	Aircraft Background	Cosmic Stripping Ratio
Total Count	21.0	0.8900
Potassium	5.6	0.0520
Uranium	0.6	0.0415
Thorium	0.45	0.0510

Table 5: Aircraft Background and Cosmic Stripping Ratios

7.3.5 Window Definitions

The 256 channel data were summed into the standard IAEA windows.

Window	Peak Energy (keV)	Energy Window (keV)	GR-820 Channel Window
Total Count	-	410 - 2810	34 - 234
Potassium	1460	1370 - 1570	115 - 131
Uranium	1765	1660 - 1860	139 - 155
Thorium	2614	2410 - 2810	201 - 234
Cosmic	-	4000 - 6000	-

Table 6: IAEA Window Definitions

7.3.6 Radon Correction

Radon corrections were applied using the spectral ratio method.

Stripping	Value
Total Count	13.153
Potassium	0.782
Thorium	0.061
Radon	1.875
Ground	0.505

Table 7: Radon Stripping Values

7.3.7 Spectral Stripping

Spectral stripping was applied to the Potassium, Uranium and Thorium windows. The stripping coefficients were corrected for STP altitude.

Stripping	Value	STP adjustment (/m)
Alpha	0.2551	0.00049
Beta	0.3752	0.00065
Gamma	0.7480	0.00069
A	0.0596	0
B	0.0002	0
G	-0.0159	0

Table 8: Spectral Stripping Ratios

7.3.8 Height Correction

The background corrected and stripped window data were corrected for variations in the density altitude of the detector.

Window	Attenuation coefficient (m^{-1})
Total Count	-0.0069
Potassium	-0.0095
Uranium	-0.0090
Thorium	-0.0067

Table 9: STP Altitude Coefficients

7.3.9 Gridding

The final radiometric data were gridded using a minimum curvature algorithm. The data was gridded with a cell size of 25 m.

7.4 Digital Terrain Model

The processing procedures applied to the terrain data are summarised below:

- a) Apply any spike corrections to the raw radar altimeter data.
- b) Interpolate undefined values.
- c) Co-ordinate the data with post-processed GPS data.
- d) Apply parallax corrections.
- e) Subtract the aircraft's height above ground from the aircraft's height above the WGS84 ellipsoid and correct for radar altimeter/GPS sensor separation.
- f) Derive surface topography values with respect to mean sea level (referenced to the geoid) by correcting the WGS84 ellipsoid values with geoid-ellipsoid separation values.
- g) Using the tie lines (flown at 90 degrees to the traverse lines) a set of miss-tie values were determined. These miss-tie values reflected the differences in the value between the tie lines and the traverse lines over the same geographical point. Using a least squares fit algorithm, which also takes into account the statistical variation inherent in DGPS positioning, a series of corrections were applied to the traverse line data. These allowed the data to be levelled to the same base value.
- h) Following this, a FAS proprietary micro-leveling process was applied in order to more subtly level the data.

7.4.1 Gridding

The final levelled digital terrain data were gridded using a bi-directional spline algorithm. The data was gridded with a cell size of 25 m.

The accuracy of the elevation calculation is directly dependent on the accuracy of the two input parameters, radar altitude and GPS altitude. The radar altitude 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 GPS altitude 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 altitude value is usually much less, sometimes in the ± 5 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.**

APPENDIX I – Weekly Operations Report

System: **FASDAS**

Aircraft: **VH-FGZ**

16298.5 Hrs - Progressive M/R Hrs at the start of job, prior to mobilisation

Total Job kms: **4173.000** Kms

16403.6 Hrs - The hours the Periodic Inspection is actually due at start of the job

Plan Kms Remain: **3579.579** Kms

% Complete: **14.220** %

Job Number: **2043**
 Contract Number: **CM5923**
 Job Name: **Monto, QLD**
 Area Names: **Monto North and South**
 Client: **Aussie Q Resources LTD**

Date	Flt	Pilot initials	On board Oper initials	Production inc. Reflights Exc. Scrubs	FAS Scrub	Time		Engine Hours on M/R	Hours to Periodic Inspectio	Job Hrs to Date	Prod. to Date	FAS Scrubs to Date	StdbY Days	Activity Contribution	Activity	COMMENTS Weather, Data delivery Aircraft movement, etc
						Start	End									
30-March-2009														1.00	PDO	Pilots due PDO due to 6 days constant duty
Julian Day 89																
Monday									91.0	14.1						
Date 31-Mar														0.50	A	Aircraft grounded jammed tail rudder trim.
Julian Day 90	1	RJ	RB			11:30:00	13:36:00	2.1						0.30	TF	Compbox attempted. Unsatisfactory
Tuesday	Recce	MT	RJ			14:30:00	15:30:00	1.0						0.20	SETUP	Recce flight performed to check for hazards.
															Comment	Panic button test carried out & approved
									87.9	17.2						
Date 1-Apr	2	MT	RB			6:20:00	7:03:00	0.7						0.20	E	Flight abandoned due to mag failure
Julian Day 91	2	MT	RB			10:30:00	11:36:00	1.1						0.20	TF	Compbox successfull Sdcomp= 0.034 and FOM=
Wednesday	3	RJ				12:00:00	14:48:00	2.8						0.30	S	Another mag failure caused the scrub of entire sortie
	3	MT			479.895	15:20:00	17:10:00	1.8						0.30	S	Another mag failure caused the scrub of entire sortie
									81.5	23.6		479.895				
Date 2-Apr														0.10	W	T.O delayed by almost an hour due to fog
Julian Day 92	4	RJ		593.421		7:00:00	12:00:00	5.0						0.50	P & R	Reflights conducted on block3 from flight 3
Thursday	4	MT				13:00:00	13:42:00	0.7						0.40	A	Aircraft grounded due fuel leak causing fumes in
									75.8	29.3	593.421	479.895				
Date 3-Apr	Test	MT	PB			14:04:00	14:10:00	0.1						0.10	TF	Test flight conducted to try and pin point the fuel leak
Julian Day 93														0.90	A	Aircraft grounded due to fuel leak
Friday																
									75.7	29.4	593.421	479.895				
Date 4-Apr														1.00	A	Aircraft grounded awaiting parts
Julian Day 94																
Saturday																
									75.7	29.4	593.421	479.895				
Date 5-Apr	Test	MT	PB			14:47:00	14:53:00	0.1						0.10	TF	Test flight conducted to see if leak had been repaired
Julian Day 95														0.90	A	Aircraft grounded due to fuel leak
Sunday															Comment	Leak appears to have been repaired.
									75.6	29.5	593.421	479.895				
Totals This Week: ▶				593.421	479.895	Week Hours: ▶			15.5	▲: A/C Hrs to Next Service				7.00		

System: FASDAS
Aircraft: VH-FGZ

16298.5 Hrs - Progressive M/R Hrs at the start of job, prior to mobilisation

Job Number: 2043
Contract Number: CM5923
Job Name: Monto, QLD
Area Names: Monto North and South
Client: Aussie Q Resources LTD

Total Job kms: 4173.000 Kms

16403.6 Hrs - The hours the Periodic Inspection is actually due at start of the job

Plan Kms Remain: 218.464 Kms
% Complete: 94.765 %

Date	Fit	Pilot initials	On board Oper initials	Production inc. Reflights Exc. Scrubs	FAS Scrub	Time		Engine Hours on M/R	Hours to Periodic Inspectio	Job Hrs to Date	Prod. to Date	FAS Scrubs to Date	Stdbys Days	Activity Contribution	Activity	COMMENTS <u>Weather, Data delivery</u> <u>Aircraft movement, etc</u>
						Start	End									
06-April-2009 Julian Day 96														1.00	A	Aircraft grounded fuel leak
Monday									75.6	29.5	593.421	479.895				
Date 7-Apr Julian Day 97														1.00	A	Aircraft grounded due to fuel leak
Tuesday																Comment RB drives to Gladstone to pick up John O'Reilly Comment Phil Lehman and Pete Brough on site to fix fuel
Date 8-Apr Julian Day 98														0.50	A	Aircraft grounded due to fuel leak
Wednesday														0.10	TF	Test flight to check fuel leak and new oscillator
Date 8-Apr Julian Day 98	5	MT		516.306		12:45:00	13:05:00	0.3						0.40	P	
Date 9-Apr Julian Day 99	6	MT				14:17:00	17:17:00	3.0								
Thursday									72.3	32.8	1109.727	479.895				
Date 9-Apr Julian Day 99														1.00	A	Grounded, oil leak still present
Friday																Comment RB drives JOR to Bundaberg to return to Perth
Date 10-Apr Julian Day 100														0.50	A	Fuel Leak
Friday														0.40	P	
Date 10-Apr Julian Day 100	7	RJ		463.524		13:00:00	16:12:00	3.2						0.10	W	Rain caused an early end to operations
Date 11-Apr Julian Day 101																
Saturday									69.1	36.0	1573.251	479.895				
Date 11-Apr Julian Day 101	8	RJ		169.700		6:30:00	8:12:00	1.7						0.10	P	low cloud and rain causing poor visibility
Saturday														0.40	W	Crew had to wait for weather to improve
Date 11-Apr Julian Day 101	8	MT		654.118		12:05:00	17:09:00	5.1						0.50	P	
Date 12-Apr Julian Day 102																
Sunday									62.3	42.8	2397.069	479.895				
Date 12-Apr Julian Day 102	9	MT		652.736		6:28:00	11:33:00	5.1						0.50	P	
Sunday														0.50	P	
Date 12-Apr Julian Day 102	9	RJ		904.731		12:15:00	17:41:00	5.4								
Sunday									51.8	53.3	3954.536	479.895				
Totals This Week:				3361.115		Week Hours:		23.8	▲: A/C Hrs to Next Service					7.00		

System: FASDAS
 Aircraft: VH-FGZ

16298.5 Hrs - Progressive M/R Hrs at the start of job, prior to mobilisation

Job Number: 2043
 Contract Number: CM5923
 Job Name: Monto, QLD
 Area Names: Monto North and South
 Client: Aussie Q Resources LTD

Total Job kms: 4173.000 Kms

16403.6 Hrs - The hours the Periodic Inspection is actually due at start of the job

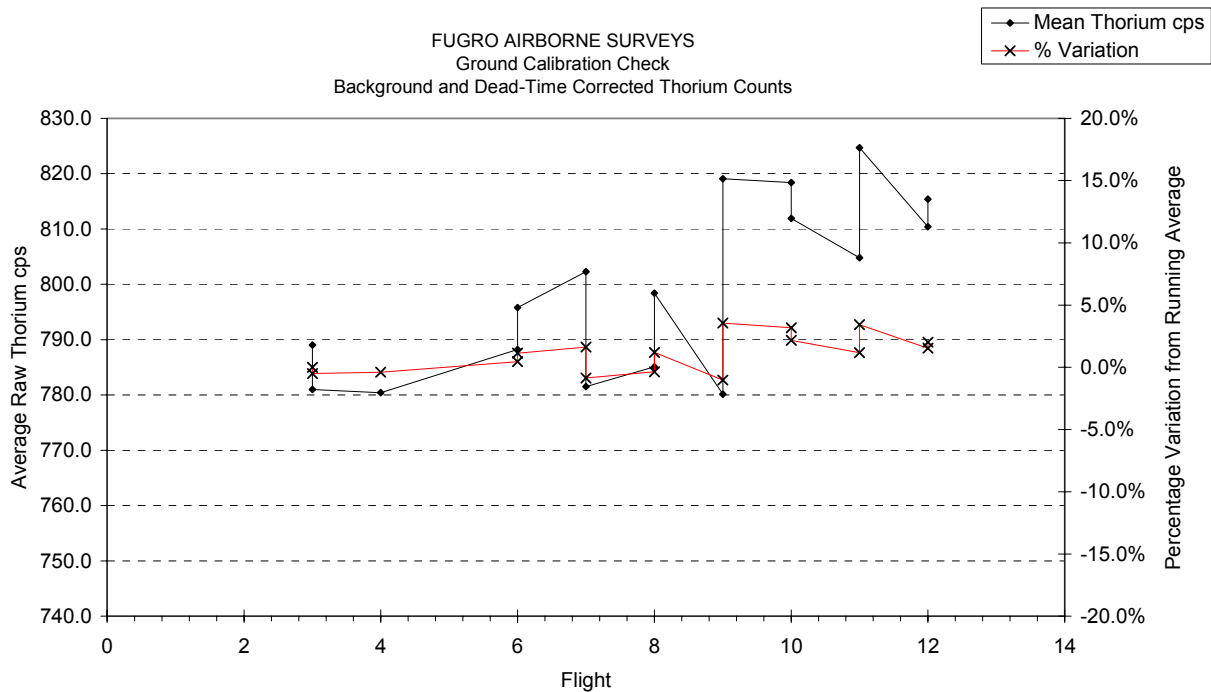
Plan Kms Remain: 0.000 Kms
 % Complete: 100.000 %

Date	Fit	Pilot initials	On board Oper initials	Production inc. Reflights Exc. Scrubs	FAS Scrub	Time		Engine Hours on M/R	Hours to Periodic Inspectio	Job Hrs to Date	Prod. to Date	FAS Scrubs to Date	Stdby Days	Activity Contribution	Activity	COMMENTS <u>Weather, Data delivery</u> <u>Aircraft movement, etc</u>
						Start	End									
13-April-2009														0.50	W	Take off delayed due to low cloud and rain
Julian Day 103	10	RJ		117.024		11:00:00	12:06:00	1.1					1.00	0.10	P	Survey flight abandoned due to weather
Monday									50.7	54.4	4071.560	479.895		0.40	W	Bad weather grounded operations
Date 14-Apr													0.50	0.50	W	Operations grounded am due low cloud rain and
Julian Day 104	11	MT		322.793		14:30:00	17:10:00	2.7						0.50	P	
Tuesday									48.0	57.1	4394.353	479.895				
Date 15-Apr														0.10	W	Fog delayed operations by a couple of hours
Julian Day 105	12	RJ		580.559		7:45:00	12:55:00	5.2						0.50	P	
Wednesday														0.40	P	
																Comment: Survey complete, awaiting permission to demob.
Date 16-Apr																
Julian Day 106									40.6	64.5	5359.094	479.895				
Thursday									40.6	64.5	5359.094	479.895				
Date 17-Apr																
Julian Day 107									40.6	64.5	5359.094	479.895				
Friday									40.6	64.5	5359.094	479.895				
Date 18-Apr																
Julian Day 108									40.6	64.5	5359.094	479.895				
Saturday									40.6	64.5	5359.094	479.895				
Date 19-Apr																
Julian Day 109									40.6	64.5	5359.094	479.895				
Sunday									40.6	64.5	5359.094	479.895				
Totals This Week:				1404.558		Week Hours:		11.1	▲: A/C Hrs to Next Service				1.50	3.00		

APPENDIX II – Button Calibration Data

AIRCRAFT VH-FGZ

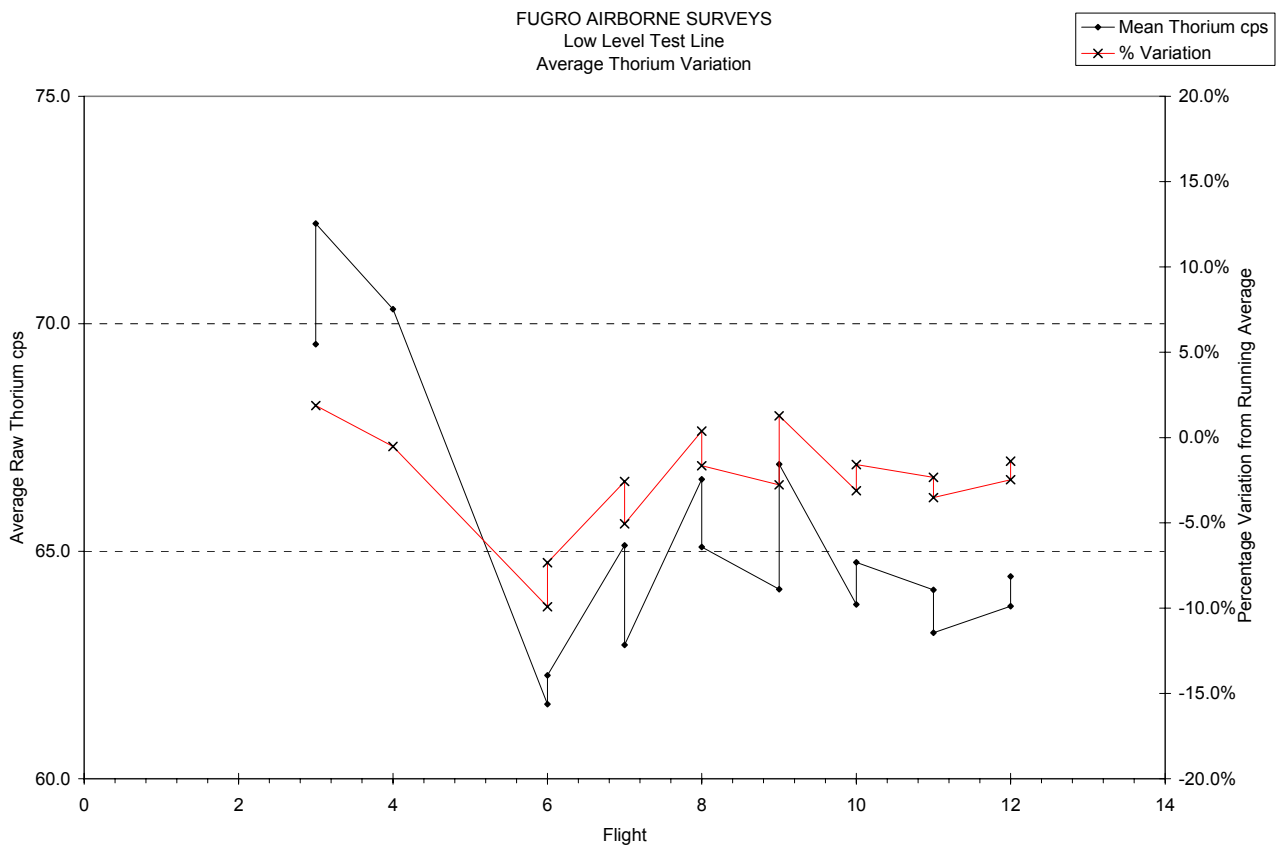
Flt#	Th in 501/601	Th in 502/602	Th Counts Actual	Th Counts Used	Running Average	Allowed Minimum	Allowed Maximum	% Change
3	124.5	913.5	789.0	789.0	789.0	710.1	867.9	0.0%
3	121.1	902.1	781.0	781.0	785.0	706.5	863.5	-0.5%
4	122.4	902.8	780.4	780.4	783.5	705.1	861.8	-0.4%
6	114.6	902.8	788.2	788.2	784.7	706.2	863.1	0.5%
6	112.7	908.5	795.8	795.8	786.9	708.2	865.6	1.1%
7	113.9	916.2	802.3	802.3	789.5	710.5	868.4	1.6%
7	114.4	895.9	781.5	781.5	788.3	709.5	867.1	-0.9%
8	114.6	899.7	785.1	785.1	787.9	709.1	866.7	-0.4%
8	116.4	914.8	798.4	798.4	789.1	710.2	868.0	1.2%
9	117.1	897.2	780.2	780.2	788.2	709.4	867.0	-1.0%
9	117.1	936.2	819.1	819.1	791.0	711.9	870.1	3.6%
10	116.7	935.1	818.4	818.4	793.3	714.0	872.6	3.2%
10	115.2	927.1	811.9	811.9	794.7	715.2	874.2	2.2%
11	113.3	918.1	804.8	804.8	795.4	715.9	875.0	1.2%
11	115.7	940.4	824.7	824.7	797.4	717.6	877.1	3.4%
12	111.8	922.2	810.4	810.4	798.2	718.4	878.0	1.5%
12	115.8	931.2	815.4	815.4	799.2	719.3	879.1	2.0%



APPENDIX III – Low Level Test Line Data

AIRCRAFT VH-FGZ

Flt No.	Mean TC (cps)	Mean K (cps)	Mean U (cps)	Mean Th (cps)	Mean Th DTC	Running Average	% Change	Min	Max
3	1774.34	189.96	46.79	69.55	74.96	69.55		62.6	76.5
3	1811.99	196.08	49.48	72.20	77.87	70.88	1.87%	63.8	78.0
4	2012.30	202.81	65.97	70.32	76.48	70.69	-0.53%	63.6	77.8
6	1553.49	168.56	38.21	61.64	65.90	68.43	-9.92%	61.6	75.3
6	1585.78	176.01	41.22	62.27	66.64	67.20	-7.33%	60.5	73.9
7	1587.87	173.73	40.41	65.13	69.70	66.85	-2.58%	60.2	73.5
7	1580.24	172.47	41.11	62.94	67.33	66.29	-5.06%	59.7	72.9
8	1689.78	178.86	47.03	66.58	71.56	66.33	0.38%	59.7	73.0
8	1738.93	183.21	53.62	65.09	69.94	66.19	-1.66%	59.6	72.8
9	1707.88	178.48	49.48	64.16	68.96	65.99	-2.77%	59.4	72.6
9	1661.56	179.78	43.37	66.92	71.72	66.07	1.27%	59.5	72.7
10	1628.13	176.78	42.94	63.83	68.43	65.89	-3.12%	59.3	72.5
10	1681.55	180.59	47.77	64.76	69.53	65.80	-1.58%	59.2	72.4
11	1561.66	167.04	40.89	64.15	68.60	65.68	-2.33%	59.1	72.3
11	1638.98	175.72	45.43	63.21	67.71	65.52	-3.52%	59.0	72.1
12	1613.98	168.91	43.53	63.79	68.36	65.41	-2.47%	58.9	72.0
12	1673.59	177.40	49.32	64.45	69.16	65.35	-1.39%	58.8	71.9



APPENDIX IV – Final Located Data Formats

Headers for final data files

AREA 1 – Northern Area

Description File for 0.1 sec Magnetics and Digital Terrain Data

```

COMM JOB NUMBER:                2043
COMM AREA NUMBER:                1
COMM SURVEY COMPANY:            Fugro Airborne Surveys
COMM CLIENT:                    Aussie Q Resources Limited
COMM SURVEY TYPE:               Magnetic and Radiometric
COMM AREA NAME:                 Monto
COMM STATE:                     Qld
COMM COUNTRY:                   Australia
COMM SURVEY FLOWN:              April 2009
COMM LOCATED DATA CREATED:     May 2009
COMM
COMM DATUM:                      GDA94
COMM PROJECTION:                 MGA
COMM ZONE:                       56
COMM
COMM SURVEY SPECIFICATIONS
COMM
COMM TRAVERSE LINE SPACING:      100 m
COMM TRAVERSE LINE DIRECTION:   090 - 270 deg
COMM TIE LINE SPACING:          1000 m
COMM TIE LINE DIRECTION:        000 - 180 deg
COMM NOMINAL TERRAIN CLEARANCE: 60 m
COMM FINAL LINE KILOMETRES:     3694.7 km
COMM
COMM LINE NUMBERING
COMM
COMM TRAVERSE LINE NUMBERS:      100010 - 103590
COMM TIE LINE NUMBERS:          190010 - 190280
COMM
COMM AREA BOUNDARY
COMM
COMM 267731      7273035
COMM 280523      7272912
COMM 287359      7272896
COMM 287359      7250215
COMM 288103      7250215
COMM 288103      7237325
COMM 281658      7237624
COMM 281658      7249967
COMM 278900      7249967
COMM 278931      7258147
COMM 280915      7258147
COMM 280950      7267587
COMM 267949      7267723
COMM
COMM SURVEY EQUIPMENT
COMM
COMM AIRCRAFT:                   Aerocommander Shrike 500S VH-FGZ
COMM
COMM MAGNETOMETER:               Geometrics G-822A CV
COMM INSTALLATION:               Stinger
COMM RESOLUTION:                 0.001 nT
COMM RECORDING INTERVAL:         0.1 s
COMM
COMM RADAR ALTIMETER:            Sperry RT220

```

COMM RECORDING INTERVAL: 0.1 s
 COMM
 COMM NAVIGATION: real-time differential GPS
 COMM RECORDING INTERVAL: 1.0 s
 COMM
 COMM ACQUISITION SYSTEM: Fugro DAS
 COMM
 COMM BASE MAGNETOMETER: Envimag
 COMM RECORDING INTERVAL: 2 s
 COMM
 COMM DATA PROCESSING
 COMM
 COMM CO-ORDINATES
 COMM PARALLAX CORRECTION APPLIED 0.5 s
 COMM
 COMM MAGNETIC DATA
 COMM DIURNAL CORRECTION APPLIED base value 52200 and 52167.2 nT
 COMM PARALLAX CORRECTION APPLIED 0.5 s
 COMM IGRF CORRECTION APPLIED base value 52028 nT
 COMM IGRF MODEL 2005 extrapolated to 2009/03/30
 COMM HEIGHT CORRECTED TO 60 m AGL
 COMM DATA HAVE BEEN TIE LINE LEVELLED
 COMM DATA HAVE BEEN MICROLEVELLED
 COMM
 COMM RADAR ALTITUDE DATA
 COMM PARALLAX CORRECTION APPLIED 0.5 s
 COMM
 COMM GPS ALTITUDE DATA
 COMM PARALLAX CORRECTION APPLIED 0.5 s
 COMM
 COMM DIGITAL TERRAIN DATA
 COMM DTM CALCULATED [DTM = GPS ALTITUDE - (RADAR ALTITUDE + SENSOR
 SEPARATION)]
 COMM DATA CORRECTED TO AUSTRALIAN HEIGHT DATUM
 COMM DATA HAVE BEEN TIE LINE LEVELLED
 COMM DATA HAVE BEEN MICROLEVELLED
 COMM
 COMM -----
 COMM DISCLAIMER
 COMM -----
 COMM It is Fugro Airborne Survey's understanding that the data provided to
 COMM the client is to be used for the purpose agreed between the parties.
 COMM That purpose was a significant factor in determining the scope and
 COMM level of the Services being offered to the Client. Should the purpose
 COMM for which the data is used change, the data may no longer be valid or
 COMM appropriate and any further use of, or reliance upon, the data in
 COMM those circumstances by the Client without Fugro Airborne Survey's
 COMM review and advice shall be at the Client's own or sole risk.
 COMM
 COMM The Services were performed by Fugro Airborne Survey exclusively for
 COMM the purposes of the Client. Should the data be made available in whole
 COMM or part to any third party, and such party relies thereon, that party
 COMM does so wholly at its own and sole risk and Fugro Airborne Survey
 COMM disclaims any liability to such party.
 COMM
 COMM Where the Services have involved Fugro Airborne Survey's use of any
 COMM information provided by the Client or third parties, upon which
 COMM Fugro Airborne Survey was reasonably entitled to rely, then the
 COMM Services are limited by the accuracy of such information. Fugro
 COMM Airborne Survey is not liable for any inaccuracies (including any
 COMM incompleteness) in the said information, save as otherwise provided
 COMM in the terms of the contract between the Client and Fugro Airborne
 COMM Survey.
 COMM

COMM With regard to DIGITAL TERRAIN DATA, the accuracy of the elevation
 COMM calculation is directly dependent on the accuracy of the two input
 COMM parameters, radar altitude and GPS altitude. The radar altitude value
 COMM may be erroneous in areas of heavy tree cover, where the altimeter
 COMM reflects the distance to the tree canopy rather than the ground. The
 COMM GPS altitude value is primarily dependent on the number of available
 COMM satellites. Although post-processing of GPS data will yield X and Y
 COMM accuracies in the order of 1-2 metres, the accuracy of the altitude
 COMM value is usually much less, sometimes in the ±5 metre range. Further
 COMM inaccuracies may be introduced during the interpolation and gridding
 COMM process. Because of the inherent inaccuracies of this method, no
 COMM guarantee is made or implied that the information displayed is a true
 COMM representation of the height above sea level. Although this product
 COMM may be of some use as a general reference,
 COMM THIS PRODUCT MUST NOT BE USED FOR NAVIGATION PURPOSES.

COMM -----
 COMM

COMM LINE DATA FORMAT

COMM A space is left between fixed fields so that a field of, for example,
 COMM A8 should only ever have a maximum of 7 characters in it, even when it
 COMM is a null, thus:

COMM FIELD	UNITS	NULL	FORMAT
COMM Line Number		-99999	I7
COMM Flight Number		-99	I4
COMM Date (yyyymmdd)		-99999999	I9
COMM Fiducial Number	s	-9999.9	F8.1
COMM Time (local)	s	-9999.9	F8.1
COMM Easting	m	-99999.99	F10.2
COMM Northing	m	-999999.99	F11.2
COMM Longitude	deg	-999.9999999	F13.7
COMM Latitude	deg	-99.9999999	F12.7
COMM GPS Altitude	m	-999.99	F8.2
COMM Radar Altitude	m	-999.99	F8.2
NOTE: Radar Altitude has been extensively despiked due to trees			
COMM Compensated TMI	nT	-99999.999	F11.3
COMM Diurnal	nT	-9999.99	F9.2
COMM Final TMI	nT	-99999.999	F11.3
COMM Digital Terrain Model	m	-999.99	F8.2

Description File for 1.0 sec Windowed Radiometrics Data

COMM JOB NUMBER: 2043
 COMM AREA NUMBER: 1
 COMM SURVEY COMPANY: Fugro Airborne Surveys
 COMM CLIENT: Aussie Q Resources Limited
 COMM SURVEY TYPE: Magnetic and Radiometric
 COMM AREA NAME: Monto
 COMM STATE: Qld
 COMM COUNTRY: Australia
 COMM SURVEY FLOWN: April 2009
 COMM LOCATED DATA CREATED: May 2009
 COMM
 COMM DATUM: GDA94
 COMM PROJECTION: MGA
 COMM ZONE: 56
 COMM
 COMM SURVEY SPECIFICATIONS
 COMM
 COMM TRAVERSE LINE SPACING: 100 m
 COMM TRAVERSE LINE DIRECTION: 090 - 270 deg
 COMM TIE LINE SPACING: 1000 m
 COMM TIE LINE DIRECTION: 000 - 180 deg

COMM NOMINAL TERRAIN CLEARANCE: 60 m
 COMM FINAL LINE KILOMETRES: 3669.3 km
 COMM
 COMM LINE NUMBERING
 COMM
 COMM TRAVERSE LINE NUMBERS: 100010 - 103590
 COMM TIE LINE NUMBERS: 190010 - 190280
 COMM
 COMM AREA BOUNDARY
 COMM
 COMM 267731 7273035
 COMM 280523 7272912
 COMM 287359 7272896
 COMM 287359 7250215
 COMM 288103 7250215
 COMM 288103 7237325
 COMM 281658 7237624
 COMM 281658 7249967
 COMM 278900 7249967
 COMM 278931 7258147
 COMM 280915 7258147
 COMM 280950 7267587
 COMM 267949 7267723
 COMM
 COMM SURVEY EQUIPMENT
 COMM
 COMM AIRCRAFT: Aerocommander Shrike 500S VH-FGZ
 COMM
 COMM SPECTROMETER: 256 Channel Exploranium GR820
 COMM CRYSTAL VOLUME: 33.56 L
 COMM RECORDING INTERVAL: 1 s
 COMM
 COMM RADAR ALTIMETER: Sperry RT220
 COMM RECORDING INTERVAL: 0.1 s
 COMM
 COMM NAVIGATION: real-time differential GPS
 COMM RECORDING INTERVAL: 1.0 s
 COMM
 COMM ACQUISITION SYSTEM: Fugro DAS
 COMM
 COMM DATA PROCESSING
 COMM
 COMM CO-ORDINATES
 COMM PARALLAX CORRECTION APPLIED 0.5 s
 COMM
 COMM RADAR ALTITUDE DATA
 COMM PARALLAX CORRECTION APPLIED 0.5 s
 COMM
 COMM GPS ALTITUDE DATA
 COMM PARALLAX CORRECTION APPLIED 0.5 s
 COMM
 COMM RADIOMETRIC DATA
 COMM NASVD FILTERING APPLIED TO 256 CHANNEL DATA
 COMM WINDOW DATA EXTRACTED USING IAEA STANDARD WINDOWS
 COMM PARALLAX CORRECTION APPLIED 0 s
 COMM COSMIC, AIRCRAFT AND RADON BACKGROUNDS REMOVED
 COMM STRIPPING CORRECTIONS APPLIED
 COMM HEIGHT CORRECTED TO 60 m AGL
 COMM TC, K and U DATA HAVE BEEN TIE LINE LEVELLED
 COMM ALL DATA HAVE BEEN MICROLEVELLED
 COMM AIRCRAFT BACKGROUND COEFFICIENTS
 COMM TOTAL COUNT 21.00
 COMM POTASSIUM 5.60
 COMM URANIUM 0.60

COMM THORIUM	0.45
COMM COSMIC COEFFICIENTS	
COMM TOTAL COUNT	0.8900
COMM POTASSIUM	0.0520
COMM URANIUM	0.0415
COMM THORIUM	0.0510
COMM STRIPPING COEFFICIENTS	
COMM ALPHA	0.2551
COMM BETA	0.3752
COMM GAMMA	0.7480
COMM a	0.0596
COMM b	0.0002
COMM c	-0.0159
COMM STRIPPING HEIGHT ATTENUATION COEFFICIENTS	
COMM ALPHA	0.00049
COMM BETA	0.00065
COMM GAMMA	0.00069
COMM RADON STRIPPING COEFFICIENTS	
COMM TOTAL COUNT	13.153
COMM POTASSIUM	0.782
COMM THORIUM	0.061
COMM SPECTRAL RATIOS	
COMM RADON (C1)	1.875
COMM GROUND (C2)	0.505
COMM ALTITUDE COEFFICIENTS	
COMM TOTAL COUNT	-0.0069
COMM POTASSIUM	-0.0095
COMM URANIUM	-0.0090
COMM THORIUM	-0.0067
COMM SENSITIVITY COEFFICIENTS AT 60 m	
COMM TOTAL COUNT	31.32 (cps/(nGy/h))
COMM POTASSIUM	119.24 (cps/%)
COMM URANIUM	9.64 (cps/ppm)
COMM THORIUM	6.99 (cps/ppm)

COMM -----

COMM DISCLAIMER

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 COMM the client is to be used for the purpose agreed between the parties.
 COMM That purpose was a significant factor in determining the scope and
 COMM level of the Services being offered to the Client. Should the purpose
 COMM for which the data is used change, the data may no longer be valid or
 COMM appropriate and any further use of, or reliance upon, the data in
 COMM those circumstances by the Client without Fugro Airborne Survey's
 COMM review and advice shall be at the Client's own or sole risk.

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COMM The Services were performed by Fugro Airborne Survey exclusively for
 COMM the purposes of the Client. Should the data be made available in whole
 COMM or part to any third party, and such party relies thereon, that party
 COMM does so wholly at its own and sole risk and Fugro Airborne Survey
 COMM disclaims any liability to such party.

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COMM Where the Services have involved Fugro Airborne Survey's use of any
 COMM information provided by the Client or third parties, upon which
 COMM Fugro Airborne Survey was reasonably entitled to rely, then the
 COMM Services are limited by the accuracy of such information. Fugro
 COMM Airborne Survey is not liable for any inaccuracies (including any
 COMM incompleteness) in the said information, save as otherwise provided
 COMM in the terms of the contract between the Client and Fugro Airborne
 COMM Survey.

COMM -----

COMM

COMM LINE DATA FORMAT

COMM A space is left between fixed fields so that a field of, for example,
 COMM A8 should only ever have a maximum of 7 characters in it, even when it
 COMM is a null, thus:

COMM FIELD	UNITS	NULL	FORMAT
COMM Line Number		-99999	I7
COMM Flight Number		-99	I4
COMM Date (yyyymmdd)		-9999999	I9
COMM Fiducial Number	s	-999999	I8
COMM Time (local)	s	-9999.9	F8.1
COMM Easting	m	-99999.99	F10.2
COMM Northing	m	-999999.99	F11.2
COMM Longitude	deg	-999.9999999	F13.7
COMM Latitude	deg	-99.9999999	F12.7
COMM GPS Altitude	m	-999.99	F8.2
COMM Radar Altitude	m	-999.99	F8.2

NOTE: Radar Altitude has been extensively despiked due to trees

COMM Uncorrected Total Count	cps	-9999.9	F8.1
COMM Uncorrected Potassium	cps	-999.9	F7.1
COMM Uncorrected Uranium	cps	-999.9	F7.1
COMM Uncorrected Thorium	cps	-999.9	F7.1
COMM Raw Cosmic	cps	-99	I4
COMM Final Total Count	cps	-9999.9	F8.1
COMM Final Potassium	cps	-999.9	F7.1
COMM Final Uranium	cps	-999.9	F7.1
COMM Final Thorium	cps	-999.9	F7.1

Description File for 1.0 sec Raw 256 Channel Radiometrics Data

COMM JOB NUMBER:	2043
COMM AREA NUMBER:	1
COMM SURVEY COMPANY:	Fugro Airborne Surveys
COMM CLIENT:	Aussie Q Resources Limited
COMM SURVEY TYPE:	Magnetic and Radiometric
COMM AREA NAME:	Monto
COMM STATE:	Qld
COMM COUNTRY:	Australia
COMM SURVEY FLOWN:	April 2009
COMM LOCATED DATA CREATED:	May 2009
COMM DATUM:	GDA94
COMM PROJECTION:	MGA
COMM ZONE:	56
COMM SURVEY SPECIFICATIONS	
COMM TRAVERSE LINE SPACING:	100 m
COMM TRAVERSE LINE DIRECTION:	090 - 270 deg
COMM TIE LINE SPACING:	1000 m
COMM TIE LINE DIRECTION:	000 - 180 deg
COMM NOMINAL TERRAIN CLEARANCE:	60 m
COMM FINAL LINE KILOMETRES:	3669.3 km
COMM LINE NUMBERING	
COMM TRAVERSE LINE NUMBERS:	100010 - 103590
COMM TIE LINE NUMBERS:	190010 - 190280
COMM AREA BOUNDARY	
COMM 267731	7273035
COMM 280523	7272912
COMM 287359	7272896

COMM 287359	7250215	
COMM 288103	7250215	
COMM 288103	7237325	
COMM 281658	7237624	
COMM 281658	7249967	
COMM 278900	7249967	
COMM 278931	7258147	
COMM 280915	7258147	
COMM 280950	7267587	
COMM 267949	7267723	
COMM		
COMM SURVEY EQUIPMENT		
COMM		
COMM AIRCRAFT:	Aerocommander Shrike 500S VH-FGZ	
COMM		
COMM SPECTROMETER:	256 Channel Exploranium GR820	
COMM CRYSTAL VOLUME:		33.56 L
COMM RECORDING INTERVAL:		1 s
COMM		
COMM RADAR ALTIMETER:	Sperry RT200	
COMM RECORDING INTERVAL:		0.1 s
COMM		
COMM NAVIGATION:	real-time differential GPS	
COMM RECORDING INTERVAL:		1.0 s
COMM		
COMM ACQUISITION SYSTEM:	Fugro DAS	
COMM		
COMM DATA PROCESSING		
COMM		
COMM CO-ORDINATES		
COMM PARALLAX CORRECTION APPLIED		0.5 s
COMM		
COMM RADAR ALTITUDE DATA		
COMM PARALLAX CORRECTION APPLIED		0.5 s
COMM		
COMM GPS ALTITUDE DATA		
COMM PARALLAX CORRECTION APPLIED		0.5 s
COMM		
COMM BAROMETRIC DATA		
COMM PARALLAX CORRECTION APPLIED		0 s
COMM		
COMM TEMPERATURE DATA		
COMM PARALLAX CORRECTION APPLIED		0 s
COMM		
COMM RADIOMETRIC DATA		
COMM NO PROCESSING APPLIED TO RAW 256 CHANNEL RADIOMETRIC DATA		
COMM		
COMM AIRCRAFT BACKGROUND COEFFICIENTS		
COMM TOTAL COUNT		21.00
COMM POTASSIUM		5.60
COMM URANIUM		0.60
COMM THORIUM		0.45
COMM COSMIC COEFFICIENTS		
COMM TOTAL COUNT		0.8900
COMM POTASSIUM		0.0520
COMM URANIUM		0.0415
COMM THORIUM		0.0510
COMM STRIPPING COEFFICIENTS		
COMM ALPHA		0.2551
COMM BETA		0.3752
COMM GAMMA		0.7480
COMM a		0.0596
COMM b		0.0002
COMM c		-0.0159

```

COMM STRIPPING HEIGHT ATTENUATION COEFFICIENTS
COMM ALPHA                                0.00049
COMM BETA                                  0.00065
COMM GAMMA                                 0.00069
COMM RADON STRIPPING COEFFICIENTS
COMM TOTAL COUNT                          13.153
COMM POTASSIUM                             0.782
COMM THORIUM                               0.061
COMM SPECTRAL RATIOS
COMM RADON (C1)                            1.875
COMM GROUND (C2)                           0.505
COMM ALTITUDE COEFFICIENTS
COMM TOTAL COUNT                          -0.0069
COMM POTASSIUM                             -0.0095
COMM URANIUM                               -0.0090
COMM THORIUM                               -0.0067
COMM SENSITIVITY COEFFICIENTS AT 60 m
COMM TOTAL COUNT                          31.32 (cps/(nGy/h))
COMM POTASSIUM                             119.24 (cps/%)
COMM URANIUM                               9.64 (cps/ppm)
COMM THORIUM                               6.99 (cps/ppm)

```

COMM -----

COMM DISCLAIMER

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 COMM the client is to be used for the purpose agreed between the parties.
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 COMM level of the Services being offered to the Client. Should the purpose
 COMM for which the data is used change, the data may no longer be valid or
 COMM appropriate and any further use of, or reliance upon, the data in
 COMM those circumstances by the Client without Fugro Airborne Survey's
 COMM review and advice shall be at the Client's own or sole risk.

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 COMM the purposes of the Client. Should the data be made available in whole
 COMM or part to any third party, and such party relies thereon, that party
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 COMM information provided by the Client or third parties, upon which
 COMM Fugro Airborne Survey was reasonably entitled to rely, then the
 COMM Services are limited by the accuracy of such information. Fugro
 COMM Airborne Survey is not liable for any inaccuracies (including any
 COMM incompleteness) in the said information, save as otherwise provided
 COMM in the terms of the contract between the Client and Fugro Airborne
 COMM Survey.

COMM -----

COMM LINE DATA FORMAT
 COMM A space is left between fixed fields so that a field of, for example,
 COMM A8 should only ever have a maximum of 7 characters in it, even when it
 COMM is a null, thus:

COMM FIELD	UNITS	NULL	FORMAT
COMM Line Number		-99999	I7
COMM Flight Number		-99	I4
COMM Date (yyyymmdd)		-9999999	I9
COMM Fiducial Number	s	-9999.9	F8.1
COMM Time (local)	s	-9999.9	F8.1
COMM Easting	m	-99999.99	F10.2
COMM Northing	m	-999999.99	F11.2
COMM Longitude	deg	-999.9999999	F13.7

COMM Latitude	deg	-99.9999999	F12.7
COMM GPS Altitude	m	-999.99	F8.2
COMM Radar Altitude	m	-999.99	F8.2
NOTE: Radar Altitude has been extensively despiked due to trees			
COMM Raw Cosmic	cps	-99	I4
COMM Barometric Pressure	hPa	-999.99	F8.2
COMM Temperature	deg C	-9.9	F5.1
COMM Livetime	s	-9.999	F7.3
COMM Raw 256 Channel Radiometrics counts		-999	256I5

AREA 3 – Southern Area**Description File for 0.1 sec Magnetics and Digital Terrain Data**

COMM JOB NUMBER:		2043
COMM AREA NUMBER:		3
COMM SURVEY COMPANY:		Fugro Airborne Surveys
COMM CLIENT:		Aussie Q Resources Limited
COMM SURVEY TYPE:		Magnetic and Radiometric
COMM AREA NAME:		Monto
COMM STATE:		Qld
COMM COUNTRY:		Australia
COMM SURVEY FLOWN:		April 2009
COMM LOCATED DATA CREATED:		May 2009
COMM		
COMM DATUM:		GDA94
COMM PROJECTION:		MGA
COMM ZONE:		56
COMM		
COMM SURVEY SPECIFICATIONS		
COMM		
COMM TRAVERSE LINE SPACING:		100 m
COMM TRAVERSE LINE DIRECTION:		090 - 270 deg
COMM TIE LINE SPACING:		1000 m
COMM TIE LINE DIRECTION:		000 - 180 deg
COMM NOMINAL TERRAIN CLEARANCE:		60 m
COMM FINAL LINE KILOMETRES:		479 km
COMM		
COMM LINE NUMBERING		
COMM		
COMM TRAVERSE LINE NUMBERS:		300010 - 300590
COMM TIE LINE NUMBERS:		390010 - 390080
COMM		
COMM AREA BOUNDARY		
COMM		
COMM 269977	7216689	
COMM 277041	7216751	
COMM 276979	7211112	
COMM 269977	7211112	
COMM		
COMM SURVEY EQUIPMENT		
COMM		
COMM AIRCRAFT:		Aerocommander Shrike 500S VH-FGZ
COMM		
COMM MAGNETOMETER:		Geometrics G-822A CV
COMM INSTALLATION:		Stinger
COMM RESOLUTION:		0.001 nT
COMM RECORDING INTERVAL:		0.1 s
COMM		
COMM RADAR ALTIMETER:		Sperry RT220
COMM RECORDING INTERVAL:		0.1 s
COMM		
COMM NAVIGATION:		real-time differential GPS
COMM RECORDING INTERVAL:		1.0 s

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COMM
COMM ACQUISITION SYSTEM:                               Fugro DAS
COMM
COMM BASE MAGNETOMETER:                                 Envimag
COMM RECORDING INTERVAL:                               2 s
COMM
COMM DATA PROCESSING
COMM
COMM CO-ORDINATES
COMM PARALLAX CORRECTION APPLIED                       0.5 s
COMM
COMM MAGNETIC DATA
COMM DIURNAL CORRECTION APPLIED                       base value 52200 nT
COMM PARALLAX CORRECTION APPLIED                       0.5 s
COMM IGRF CORRECTION APPLIED                         base value 52028 nT
COMM IGRF MODEL 2005 extrapolated to                  2009/03/30
COMM DATA HAVE BEEN TIE LINE LEVELLED
COMM DATA HAVE BEEN MICROLEVELLED
COMM
COMM RADAR ALTITUDE DATA
COMM PARALLAX CORRECTION APPLIED                       0.5 s
COMM
COMM GPS ALTITUDE DATA
COMM PARALLAX CORRECTION APPLIED                       0.5 s
COMM
COMM DIGITAL TERRAIN DATA
COMM DTM CALCULATED [DTM = GPS ALTITUDE - (RADAR ALTITUDE + SENSOR
SEPARATION) ]
COMM DATA CORRECTED TO AUSTRALIAN HEIGHT DATUM
COMM DATA HAVE BEEN TIE LINE LEVELLED
COMM DATA HAVE BEEN MICROLEVELLED
COMM
COMM -----
COMM DISCLAIMER
COMM -----
COMM It is Fugro Airborne Survey's understanding that the data provided to
COMM the client is to be used for the purpose agreed between the parties.
COMM That purpose was a significant factor in determining the scope and
COMM level of the Services being offered to the Client. Should the purpose
COMM for which the data is used change, the data may no longer be valid or
COMM appropriate and any further use of, or reliance upon, the data in
COMM those circumstances by the Client without Fugro Airborne Survey's
COMM review and advice shall be at the Client's own or sole risk.
COMM
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COMM Fugro Airborne Survey was reasonably entitled to rely, then the
COMM Services are limited by the accuracy of such information. Fugro
COMM Airborne Survey is not liable for any inaccuracies (including any
COMM incompleteness) in the said information, save as otherwise provided
COMM in the terms of the contract between the Client and Fugro Airborne
COMM Survey.
COMM
COMM With regard to DIGITAL TERRAIN DATA, the accuracy of the elevation
COMM calculation is directly dependent on the accuracy of the two input
COMM parameters, radar altitude and GPS altitude. The radar altitude value
COMM may be erroneous in areas of heavy tree cover, where the altimeter
COMM reflects the distance to the tree canopy rather than the ground. The

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COMM GPS altitude value is primarily dependent on the number of available
 COMM satellites. Although post-processing of GPS data will yield X and Y
 COMM accuracies in the order of 1-2 metres, the accuracy of the altitude
 COMM value is usually much less, sometimes in the ±5 metre range. Further
 COMM inaccuracies may be introduced during the interpolation and gridding
 COMM process. Because of the inherent inaccuracies of this method, no
 COMM guarantee is made or implied that the information displayed is a true
 COMM representation of the height above sea level. Although this product
 COMM may be of some use as a general reference,
 COMM THIS PRODUCT MUST NOT BE USED FOR NAVIGATION PURPOSES.

COMM -----
 COMM

COMM LINE DATA FORMAT

COMM A space is left between fixed fields so that a field of, for example,
 COMM A8 should only ever have a maximum of 7 characters in it, even when it
 COMM is a null, thus:

COMM FIELD	UNITS	NULL	FORMAT
COMM Line Number		-99999	I7
COMM Flight Number		-99	I4
COMM Date (yyyymmdd)		-99999999	I9
COMM Fiducial Number	s	-9999.9	F8.1
COMM Time (local)	s	-9999.9	F8.1
COMM Easting	m	-99999.99	F10.2
COMM Northing	m	-999999.99	F11.2
COMM Longitude	deg	-999.9999999	F13.7
COMM Latitude	deg	-99.9999999	F12.7
COMM GPS Altitude	m	-999.99	F8.2
COMM Radar Altitude	m	-999.99	F8.2
NOTE: Radar Altitude has been extensively despiked due to trees			
COMM Compensated TMI	nT	-99999.999	F11.3
COMM Diurnal	nT	-9999.99	F9.2
COMM Final TMI	nT	-99999.999	F11.3
COMM Digital Terrain Model	m	-999.99	F8.2

Description File for 1.0 sec Windowed Radiometrics Data

COMM JOB NUMBER: 2043
 COMM AREA NUMBER: 3
 COMM SURVEY COMPANY: Fugro Airborne Surveys
 COMM CLIENT: Aussie Q Resources Limited
 COMM SURVEY TYPE: Magnetic and Radiometric
 COMM AREA NAME: Monto
 COMM STATE: Qld
 COMM COUNTRY: Australia
 COMM SURVEY FLOWN: April 2009
 COMM LOCATED DATA CREATED: May 2009
 COMM
 COMM DATUM: GDA94
 COMM PROJECTION: MGA
 COMM ZONE: 56
 COMM
 COMM SURVEY SPECIFICATIONS
 COMM
 COMM TRAVERSE LINE SPACING: 100 m
 COMM TRAVERSE LINE DIRECTION: 090 - 270 deg
 COMM TIE LINE SPACING: 1000 m
 COMM TIE LINE DIRECTION: 000 - 180 deg
 COMM NOMINAL TERRAIN CLEARANCE: 60 m
 COMM FINAL LINE KILOMETRES: 474 km
 COMM
 COMM LINE NUMBERING
 COMM

COMM TRAVERSE LINE NUMBERS: 300010 - 300590
 COMM TIE LINE NUMBERS: 390010 - 390080
 COMM
 COMM AREA BOUNDARY
 COMM
 COMM 269977 7216689
 COMM 277041 7216751
 COMM 276979 7211112
 COMM 269977 7211112
 COMM
 COMM SURVEY EQUIPMENT
 COMM
 COMM AIRCRAFT: Aerocommander Shrike 500S VH-FGZ
 COMM
 COMM SPECTROMETER: 256 Channel Exploranium GR820
 COMM CRYSTAL VOLUME: 33.56 L
 COMM RECORDING INTERVAL: 1 s
 COMM
 COMM RADAR ALTIMETER: Sperry RT220
 COMM RECORDING INTERVAL: 0.1 s
 COMM
 COMM NAVIGATION: real-time differential GPS
 COMM RECORDING INTERVAL: 1.0 s
 COMM
 COMM ACQUISITION SYSTEM: Fugro DAS
 COMM
 COMM DATA PROCESSING
 COMM
 COMM CO-ORDINATES
 COMM PARALLAX CORRECTION APPLIED 0.5 s
 COMM
 COMM RADAR ALTITUDE DATA
 COMM PARALLAX CORRECTION APPLIED 0.5 s
 COMM
 COMM GPS ALTITUDE DATA
 COMM PARALLAX CORRECTION APPLIED 0.5 s
 COMM
 COMM RADIOMETRIC DATA
 COMM NASVD FILTERING APPLIED TO 256 CHANNEL DATA
 COMM WINDOW DATA EXTRACTED USING IAEA STANDARD WINDOWS
 COMM PARALLAX CORRECTION APPLIED 0 s
 COMM COSMIC, AIRCRAFT AND RADON BACKGROUNDS REMOVED
 COMM STRIPPING CORRECTIONS APPLIED
 COMM HEIGHT CORRECTED TO 60 m AGL
 COMM Uranium DATA HAVE BEEN TIE LINE LEVELLED
 COMM Total Count, Potassium and Thorium DATA HAVE BEEN MICROLEVELLED
 COMM AIRCRAFT BACKGROUND COEFFICIENTS
 COMM TOTAL COUNT 21.00
 COMM POTASSIUM 5.60
 COMM URANIUM 0.60
 COMM THORIUM 0.45
 COMM COSMIC COEFFICIENTS
 COMM TOTAL COUNT 0.8900
 COMM POTASSIUM 0.0520
 COMM URANIUM 0.0415
 COMM THORIUM 0.0510
 COMM STRIPPING COEFFICIENTS
 COMM ALPHA 0.2551
 COMM BETA 0.3752
 COMM GAMMA 0.7480
 COMM a 0.0596
 COMM b 0.0002
 COMM c -0.0159
 COMM STRIPPING HEIGHT ATTENUATION COEFFICIENTS

```

COMM ALPHA                                0.00049
COMM BETA                                  0.00065
COMM GAMMA                                 0.00069
COMM RADON STRIPPING COEFFICIENTS
COMM TOTAL COUNT                          13.153
COMM POTASSIUM                             0.782
COMM THORIUM                               0.061
COMM SPECTRAL RATIOS
COMM RADON (C1)                            1.875
COMM GROUND (C2)                           0.505
COMM ALTITUDE COEFFICIENTS
COMM TOTAL COUNT                           -0.0069
COMM POTASSIUM                             -0.0095
COMM URANIUM                               -0.0090
COMM THORIUM                               -0.0067
COMM SENSITIVITY COEFFICIENTS AT 60 m
COMM TOTAL COUNT                          31.32 (cps/(nGy/h))
COMM POTASSIUM                             119.24 (cps/%)
COMM URANIUM                               9.64 (cps/ppm)
COMM THORIUM                               6.99 (cps/ppm)

```

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COMM LINE DATA FORMAT

COMM A space is left between fixed fields so that a field of, for example,
COMM A8 should only ever have a maximum of 7 characters in it, even when it
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COMM

COMM FIELD	UNITS	NULL	FORMAT
COMM Line Number		-99999	I7
COMM Flight Number		-99	I4
COMM Date (yyyymmdd)		-9999999	I9
COMM Fiducial Number	s	-999999	I8
COMM Time (local)	s	-9999.9	F8.1
COMM Easting	m	-99999.99	F10.2
COMM Northing	m	-999999.99	F11.2
COMM Longitude	deg	-999.9999999	F13.7
COMM Latitude	deg	-99.9999999	F12.7

COMM GPS Altitude	m	-999.99	F8.2
COMM Radar Altitude	m	-999.99	F8.2
NOTE: Radar Altitude has been extensively despiked due to trees			
COMM Uncorrected Total Count	cps	-9999.9	F8.1
COMM Uncorrected Potassium	cps	-999.9	F7.1
COMM Uncorrected Uranium	cps	-999.9	F7.1
COMM Uncorrected Thorium	cps	-999.9	F7.1
COMM Raw Cosmic	cps	-99	I4
COMM Final Total Count	cps	-9999.9	F8.1
COMM Final Potassium	cps	-999.9	F7.1
COMM Final Uranium	cps	-999.9	F7.1
COMM Final Thorium	cps	-999.9	F7.1

Description File for 1.0 sec Raw 256 Channel Radiometrics Data

COMM JOB NUMBER:		2043
COMM AREA NUMBER:		3
COMM SURVEY COMPANY:	Fugro Airborne Surveys	
COMM CLIENT:	Aussie Q Resources Limited	
COMM SURVEY TYPE:	Magnetic and Radiometric	
COMM AREA NAME:	Monto	
COMM STATE:	Qld	
COMM COUNTRY:	Australia	
COMM SURVEY FLOWN:	April 2009	
COMM LOCATED DATA CREATED:	May 2009	
COMM DATUM:	GDA94	
COMM PROJECTION:	MGA	
COMM ZONE:	56	
COMM SURVEY SPECIFICATIONS		
COMM TRAVERSE LINE SPACING:	100 m	
COMM TRAVERSE LINE DIRECTION:	090 - 270 deg	
COMM TIE LINE SPACING:	1000 m	
COMM TIE LINE DIRECTION:	000 - 180 deg	
COMM NOMINAL TERRAIN CLEARANCE:	60 m	
COMM FINAL LINE KILOMETRES:	474 km	
COMM LINE NUMBERING		
COMM TRAVERSE LINE NUMBERS:	300010 - 300590	
COMM TIE LINE NUMBERS:	390010 - 390080	
COMM AREA BOUNDARY		
COMM 269977	7216689	
COMM 277041	7216751	
COMM 276979	7211112	
COMM 269977	7211112	
COMM SURVEY EQUIPMENT		
COMM AIRCRAFT:	Aerocommander Shrike 500S VH-FGZ	
COMM SPECTROMETER:	256 Channel Exploranium GR820	
COMM CRYSTAL VOLUME:	33.56 L	
COMM RECORDING INTERVAL:	1 s	
COMM RADAR ALTIMETER:	Sperry RT220	
COMM RECORDING INTERVAL:	0.1 s	
COMM NAVIGATION:	real-time differential GPS	

COMM RECORDING INTERVAL:	1.0 s
COMM	
COMM ACQUISITION SYSTEM:	Fugro DAS
COMM	
COMM DATA PROCESSING	
COMM	
COMM CO-ORDINATES	
COMM PARALLAX CORRECTION APPLIED	0.5 s
COMM	
COMM RADAR ALTITUDE DATA	
COMM PARALLAX CORRECTION APPLIED	0.5 s
COMM	
COMM GPS ALTITUDE DATA	
COMM PARALLAX CORRECTION APPLIED	0.5 s
COMM	
COMM BAROMETRIC DATA	
COMM PARALLAX CORRECTION APPLIED	0 s
COMM	
COMM TEMPERATURE DATA	
COMM PARALLAX CORRECTION APPLIED	0 s
COMM	
COMM RADIOMETRIC DATA	
COMM NO PROCESSING APPLIED TO RAW 256 CHANNEL RADIOMETRIC DATA	
COMM	
COMM AIRCRAFT BACKGROUND COEFFICIENTS	
COMM TOTAL COUNT	21.00
COMM POTASSIUM	5.60
COMM URANIUM	0.60
COMM THORIUM	0.45
COMM COSMIC COEFFICIENTS	
COMM TOTAL COUNT	0.8900
COMM POTASSIUM	0.0520
COMM URANIUM	0.0415
COMM THORIUM	0.0510
COMM STRIPPING COEFFICIENTS	
COMM ALPHA	0.2551
COMM BETA	0.3752
COMM GAMMA	0.7480
COMM a	0.0596
COMM b	0.0002
COMM c	-0.0159
COMM STRIPPING HEIGHT ATTENUATION COEFFICIENTS	
COMM ALPHA	0.00049
COMM BETA	0.00065
COMM GAMMA	0.00069
COMM RADON STRIPPING COEFFICIENTS	
COMM TOTAL COUNT	13.153
COMM POTASSIUM	0.782
COMM THORIUM	0.061
COMM SPECTRAL RATIOS	
COMM RADON (C1)	1.875
COMM GROUND (C2)	0.505
COMM ALTITUDE COEFFICIENTS	
COMM TOTAL COUNT	-0.0069
COMM POTASSIUM	-0.0095
COMM URANIUM	-0.0090
COMM THORIUM	-0.0067
COMM SENSITIVITY COEFFICIENTS AT 60 m	
COMM TOTAL COUNT	31.32 (cps/(nGy/h))
COMM POTASSIUM	119.24 (cps/%)
COMM URANIUM	9.64 (cps/ppm)
COMM THORIUM	6.99 (cps/ppm)
COMM	
COMM -----	

COMM DISCLAIMER

COMM -----
 COMM It is Fugro Airborne Survey's understanding that the data provided to
 COMM the client is to be used for the purpose agreed between the parties.
 COMM That purpose was a significant factor in determining the scope and
 COMM level of the Services being offered to the Client. Should the purpose
 COMM for which the data is used change, the data may no longer be valid or
 COMM appropriate and any further use of, or reliance upon, the data in
 COMM those circumstances by the Client without Fugro Airborne Survey's
 COMM review and advice shall be at the Client's own or sole risk.

COMM
 COMM The Services were performed by Fugro Airborne Survey exclusively for
 COMM the purposes of the Client. Should the data be made available in whole
 COMM or part to any third party, and such party relies thereon, that party
 COMM does so wholly at its own and sole risk and Fugro Airborne Survey
 COMM disclaims any liability to such party.

COMM
 COMM Where the Services have involved Fugro Airborne Survey's use of any
 COMM information provided by the Client or third parties, upon which
 COMM Fugro Airborne Survey was reasonably entitled to rely, then the
 COMM Services are limited by the accuracy of such information. Fugro
 COMM Airborne Survey is not liable for any inaccuracies (including any
 COMM incompleteness) in the said information, save as otherwise provided
 COMM in the terms of the contract between the Client and Fugro Airborne
 COMM Survey.

COMM -----
 COMM

COMM LINE DATA FORMAT

COMM A space is left between fixed fields so that a field of, for example,
 COMM A8 should only ever have a maximum of 7 characters in it, even when it
 COMM is a null, thus:

COMM FIELD	COMM UNITS	COMM NULL	COMM FORMAT
COMM Line Number		-99999	I7
COMM Flight Number		-99	I4
COMM Date (yyyymmdd)		-9999999	I9
COMM Fiducial Number	s	-9999.9	F8.1
COMM Time (local)	s	-9999.9	F8.1
COMM Easting	m	-99999.99	F10.2
COMM Northing	m	-999999.99	F11.2
COMM Longitude	deg	-999.9999999	F13.7
COMM Latitude	deg	-99.9999999	F12.7
COMM GPS Altitude	m	-999.99	F8.2
COMM Radar Altitude	m	-999.99	F8.2
NOTE: Radar Altitude has been extensively despiked due to trees			
COMM Raw Cosmic	cps	-99	I4
COMM Barometric Pressure	hPa	-999.99	F8.2
COMM Temperature	deg C	-9.9	F5.1
COMM Livetime	s	-9.999	F7.3
COMM Raw 256 Channel Radiometrics counts		-999	256I5

APPENDIX V – List Of All Supplied Data

Final Located Data

- 0.1 second magnetics and digital terrain data
- 1.0 second windowed radiometrics data
- 1.0 second raw 256 channel radiometric data

Final located data is in ASCII format. Contents of each are shown in Appendix IV.

Raw Initial Products

Raw initial grids were produced in Geo-referenced TIFF format GDA94/MGA56

- Raw Total magnetic intensity (nT)
- Raw Total count (cps)
- Raw Potassium count (cps)
- Raw Uranium count (cps)
- Raw Thorium count (cps)

Preliminary Gridded Data

Preliminary gridded data was produced in ERMapper format in GDA94/MGA56

- Total magnetic intensity (nT)
- Total count (cps)
- Potassium count (cps)
- Uranium count (cps)
- Thorium count (cps)
- Digital terrain model (m AHD)

Final Gridded Data

Final gridded data was produced in ERMapper format in GDA94/MGA56

- Total magnetic intensity (nT)
- Total count (cps)
- Potassium count (cps)
- Uranium count (cps)
- Thorium count (cps)
- Digital terrain model (m AHD)

Additional Products

A logistics and processing report