Marsh Creek, Queensland
Airborne Magnetic and Radiometric Geophysical Survey

Acquisition and Processing Report

for

NGM Resources Limited

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Authorised for release by : ……..

……..

Survey flown: June 2007

by

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FAS JOB # 1879

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1. SURVEY OPERATIONS AND LOGISTICS

1.1 Introduction

Between the 8th of June 2007 and the 17th of June 2007, Fugro Airborne Surveys Pty. Ltd. (FAS) undertook an airborne magnetic and radiometric survey for NGM Resources Limited, over the Marsh Creek Project area, in Queensland. The survey consisted of one area and was flown in 17 flights. Total coverage of the survey area amounted to 3751.6 line kilometres. The survey was flown using an Aerocommander Shrike 500-S aircraft, registration VH-EXS 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 Townsville, Queensland. The survey aircraft was operated from Townsville airport with the aircraft fuel available on site. A temporary office was set up at the Summit Motel, Townsville, where all survey operations were run and the post-flight data verification was performed.

1.3 Survey Personnel

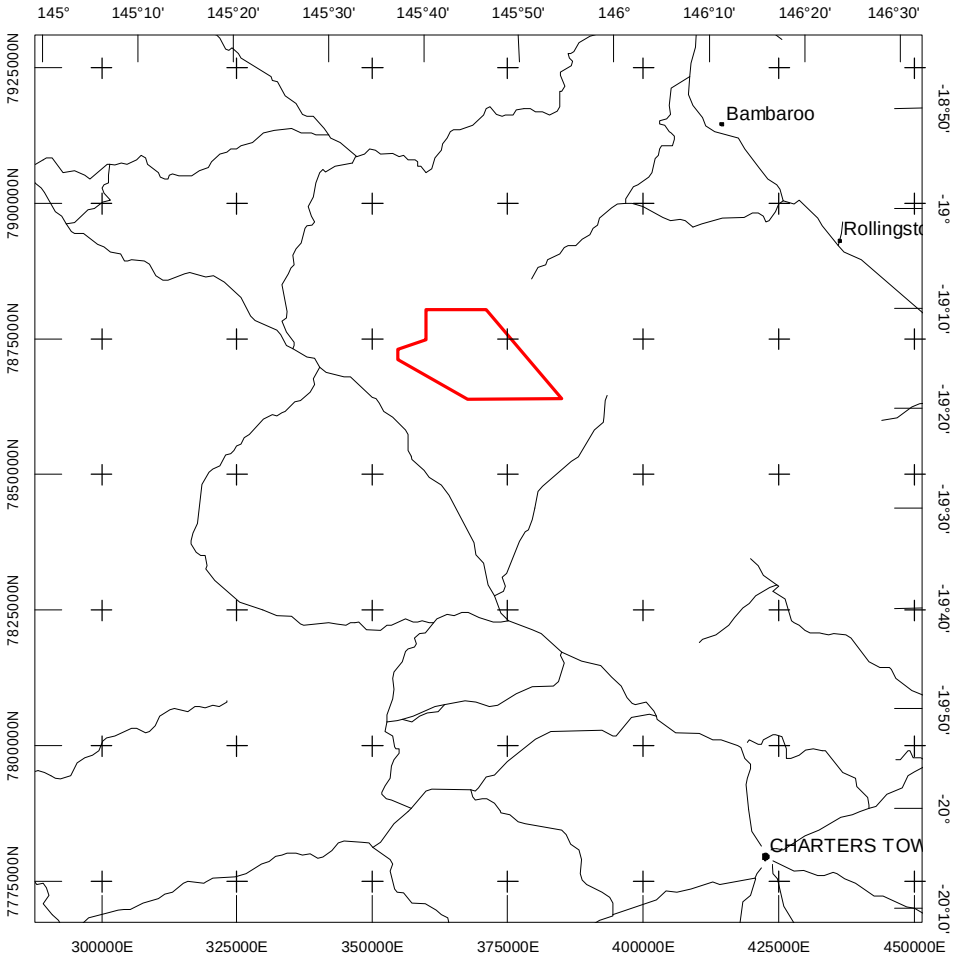
The following personnel were involved in this project:

Project Supervision - Acquisition	Rod Pullin
- Processing	Kathlene Oliver, Matthew Owers
On-site Crew Leader	Annette James
Pilot/s	Til Ribarich, Tim Masefield
System Operator/s	Annette James
Data Processing	Stuart Baron Hay

1.4 Survey Equipment

Survey Platform	-	Aerocommander Shrike 500-S VH-EXS
Data Acquisition System	-	FAS digital acquisition system
Total Field Magnetometer	-	Scintrex CS-2 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	-	2 x Scintrex Envi Mag
Altimeter	-	Sperry Stars AA-200 radio altimeter
Barometer	-	Vaisala PMB100 pressure sensor
Thermometer	-	Honeywell PT1000 temperature and humidity sensor

1.5 Area Map



NGM Resources Limited
Marsh Creek, Queensland
Airborne Magnetic and Radiometric Survey

Datum : GDA94
Projection : MGA
Zone : 55

2. SURVEY SPECIFICATIONS AND PARAMETERS

2.1 Area Co-ordinates

The survey area was located within MGA Zone 55, Central Meridian = 147
(Note - Co-ordinates in WGS84 Zone 55)

Easting	Northing
354743	7872991
359982	7874822
359982	7880348
370998	7880419
384885	7863949
367517	7863877
354779	7871233
354743	7872956

2.2 Survey Area Parameters

Job Number	-	1879
Survey Company	-	Fugro Airborne Surveys Pty Ltd
Date Flown	-	8th June 2007 – 17th June 2007
Client	-	NGM Resources Limited
Area Name	-	Marsh Creek, QLD
Nominal Terrain Clearance	-	60 m
Traverse Line Spacing	-	100 m
Traverse Line Direction	-	045 – 225 deg
Traverse Lines	-	100010 – 102940
Tie Line Spacing	-	1000 m
Tie Line Direction	-	135 – 315 deg
Tie Lines	-	190010 – 190190
Total Line Kilometres	-	3751.6 km

2.3 Data Sample Intervals

Nominal data sample intervals.

Magnetometer	-	7 m (@10 Hz)
Radar Altimeter	-	7 m (@10 Hz)
Temperature	-	70 m (@1 Hz)
Pressure	-	70 m (@1 Hz)
GPS	-	70 m (@1 Hz)
Spectrometer	-	70 m (@1 Hz)
Magnetic Base Station (Envi Mag)	-	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-EXS
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 Scintrex CS-2 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 deadtime was available. The survey system displayed to the operator any errors encountered in the spectrometer system.

3.6 Radar Altimeter

A Sperry Stars AA-200 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 Barometer

The output of the Vaisala pressure transducer was used to provide atmospheric pressure data. 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.

Specifications

Range:	-	800 hPa to 1100 hPa (sea level to 6,700 ft)
Accuracy:	-	1 hPa at 20°C
Resolution:	-	0.1 hPa

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 Omnistar Flight Following System was fitted to the aircraft and for this survey, position information was transmitted every 2 minutes to Fugro's premises in Perth. This information can be monitored by accessing the Fugro web page where the updated flight path is displayed. The aircraft was 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.

Aircraft are also fitted with Thrane & Thrane Inmarsat C reporting units which report every 5 minutes directly to the FAS office. A similar Emergency alarm system is in place.

4. GROUND DATA ACQUISITION EQUIPMENT AND SPECIFICATIONS

4.1 Magnetic Base Station

Two Scintrex Envi Mag magnetometers 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 5 seconds 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 at Townsville Airport, approximately 100 m apart.

The calculated magnetometer base position was (in WGS84):

Townsville Airport – Base A: 19° 15' 17" S, 146° 46' 31" E
Townsville Airport – Base B: 19° 15' 18" S, 146° 46' 37" E

4.2 GPS Base Station

A GPS base logging station was set up at The Summit Motel, Townsville. The GPS antenna was positioned on the corner of the first floor balcony, above room 30 of the accommodation.

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 22 hours. These data were then statistically averaged to obtain the position of the base station.

The calculated GPS base position was (in WGS84):

Townsville Base: 19° 15' 22.0890" S, 146° 48' 44.5290" E, 116.026 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^{o} 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
8/6/2007	1 – 17

***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 second
Radar altitude	0 second
Pressure	0.3 second
Temperature	1.0 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 that 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 form 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 low level test line was located east of the survey area along the following coordinates.

The calculated test line locations were (in GDA94 MGA55):

Point A	438390 E	7893270 N
Point B	448710 E	7885060 N

6. DATA VERIFICATION AND FIELD PROCESSING

All data verification was conducted at the field office in Townsville 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
Marsh Creek	49111 nT

***Table 3**: Diurnal Base Value*

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
Marsh Creek	2007.6	49235 nT

***Table 4**: IGRF Base Value*

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 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.
h) 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 20 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) Following this, a Fugro proprietary micro-levelling process was applied in order to more subtly level the data.

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. Eigenvectors and statistics on the NASVD processing results were used for analysis.

7.3.2 Energy Recalibration

The spectral drift was checked by monitoring the position of the Potassium, Uranium and Thorium peaks on average spectra along flight lines. The peak positions were determined by using a Gaussian fitting method. Energy recalibration was not required on any data.

7.3.3 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.

7.3.4 STP Altitude

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

STPAlt = RAlt * (P/1013) * (273 / (T+273))
where:

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

7.3.5 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	57.8	0.8700
Potassium	9.1	0.0511
Uranium	2.7	0.0401
Thorium	0.55	0.0530

***Table 5**: Aircraft Background and Cosmic Stripping Ratios*

7.3.6 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*

7.3.7 Radon Correction

Radon corrections were applied using the spectral ratio method.

Stripping	Value
Total Count	13.1501
Potassium	0.7824
Thorium	0.061
Radon	1.8613
Ground	0.4730

***Table 7**: Radon Stripping Values*

7.3.8 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	0.2657	0.00049
Beta	0.4192	0.00065
Gamma	0.7963	0.00069
A	0.0621	0
B	0.0016	0
G	-0.0166	0

***Table 8**: Spectral Stripping Ratios*

7.3.9 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	-0.0070
Potassium	-0.0090
Uranium	-0.0099
Thorium	-0.0075

***Table 9**: STP Altitude Coefficients*

7.3.10 Gridding

The final radiometric data were gridded using a minimum curvature algorithm. A grid cell size of 20 m was used.

7.4 Digital Elevation 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-levelling process was applied in order to more subtly level the data.
i) An N-Value is subtracted to correct the final data to the Australian Height Datum (AHD).

7.4.1 Gridding

The final levelled elevation data were gridded using a bi-directional spline algorithm. A grid cell size of 20 m was used.

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

Total Job kms:	3721.101 Kms			Area Names:	Marsh Creek
Proc. Reflight Kms:	Kms	3721.101 Kms	- Total Job Kms including Proc. Reflights	Accommodation:	Summit Motel, Townsville
Kms Remain:	3309.569 Kms	3309.569 Kms	- Kms remaining including Proc. Reflights	Flying Base:	Townsville
% Complete:	11.06 %			Client:	NGM Resources
Acraft	VH-EXS			Job Number	1879

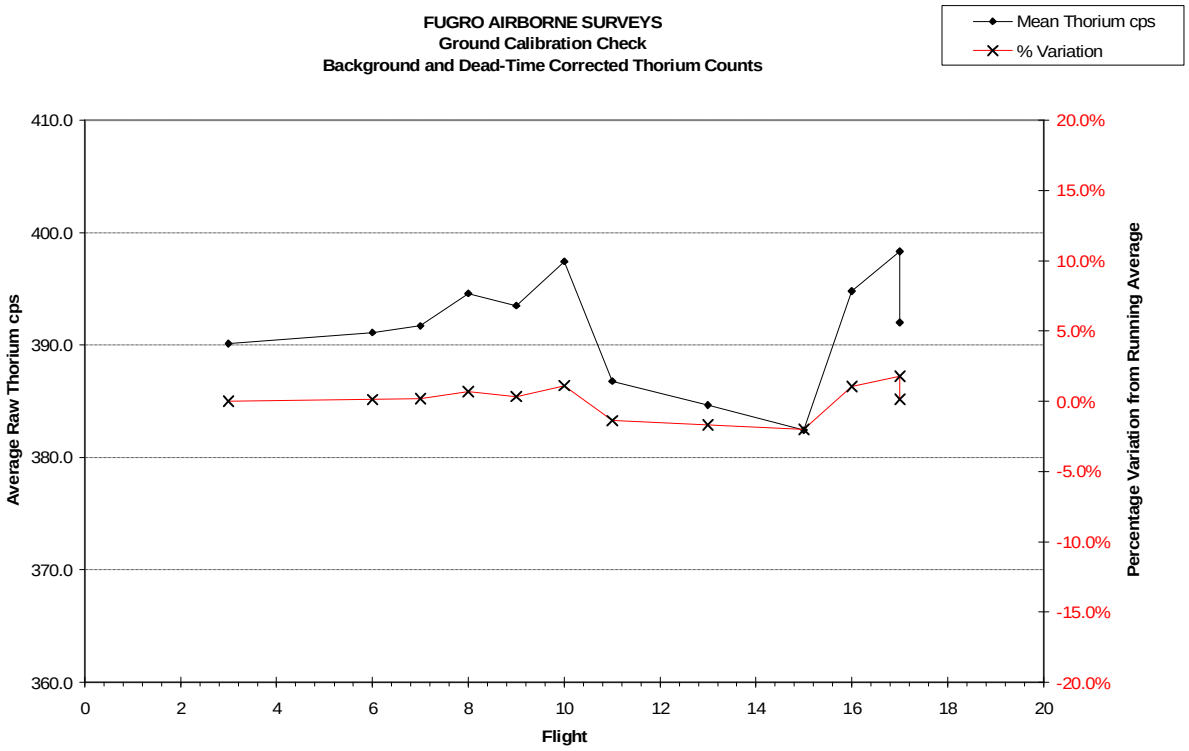
Date	Flt	Pilot initials	On board Oper initials	Production excludes Scrubs & Reflights	Processing Reflights flown today	Fugro Scrub	Time Take Off	Time Land	Flt Hrs on M/R	Hours to Periodic Inspection	Job Hrs to Date	Prod. to Date	Proc. Reflights to Date	Scrubs to Date	Stdby Days	Lost Days	Activity	COMMENTS Weather, Data delivery, Safety Meetings Crew movements etc
Date 4-Jun																		
Julian Day 155																		
Monday																		
										120.0							Weather►	
Date 5-Jun																		
Julian Day 156																		
Tuesday																		
										120.0							Weather►	
Date 6-Jun																		
Julian Day 157																		
Wednesday																		
										120.0							Weather►	low cloud, heavy rain all afetrnoon
Date 7-Jun		TR		0.000	Ferry from Isa		8:45	11:00	2.3									No survey due weather
Julian Day 158																		
Thursday																		
									2.3	117.7	2.3						Weather►	fine, turbulent in hills
Date 8-Jun	1	AJ		0.000	Comp Flight		7:20	10:15	2.9								comp	compensation below spec (return for fuel)
Julian Day 159	2	AJ		0.000	Comp Flight2		12:00	12:55	0.9								comp	comp flight ok
Friday	3	TR		221.321	Survey		14:30	18:00	3.5								survey	
				221.321					7.3	110.4	9.6	221.321					Weather►	fine
Date 9-Jun	4	TR		0.000	survey		7:00	7:20	0.3								survey	lock up on test line after 30 min ferry (returned base)
Julian Day 160	4	TR		0.000	survey		8:00	11:55	3.9								survey	data unusable - mag sensor inoperable
Saturday																		
									4.2	106.2	13.8	221.321					Weather►	fine
Date 10-Jun	5	TM		0.000	maintenance		6:45	8:45	2.0								ferry	ferry to Winton (mag testing on return leg)
Julian Day 161					ferry		10:45	12:30	1.7									replaced tail sensor
	6	TR		0.000	comp flight		13:40	15:05	1.4								comp	comp flight ok
Sunday	7	TR		190.211	survey		15:50	18:00	2.2								survey	reflights for flight 4
				190.211					7.3	98.9	21.1	411.532					Weather►	
Totals This Week: ►				**411.532**	**0.000**	**0.000**	Week Hours:►		**21.1**	▲: A/C Hrs to Next Service					**0.0**	**0.0**		

Total Job kms:	3721.101 Kms			Area Names:	Marsh Creek
Proc. Reflight Kms:	0.000 Kms	3721.101 Kms	- Total Job Kms including Proc. Reflights	Accommodation:	Summit Motel, Townsville
Plan Kms Remain:	169.946 Kms	169.946 Kms	- Kms remaining including Proc. Reflights	Flying Base:	Townsville
% Complete:	95.43 %			Client:	NGM Resources

Date	Flt	Pilot initials	On board Oper initials	Production excludes Scrubs & Reflights	Processing Reflights flown today	Fugro Scrub	Time Take Off	Time Land	Flt Hrs on M/R	Hours to Periodic Inspection	Job Hrs to Date	Prod. to Date	Proc. Reflights to Date	Scrubs to Date	Stdby Days	Lost Days	Activity	COMMENTS Weather, Data delivery, Safety Meetings Crew movements etc
Date 11-Jun	8	TR		675.139			7:00	12:00	5.0								**survey**	
Julian Day 162	9	TM		626.565			13:00	17:35	4.6								**survey**	
									0.0									
Monday									0.0									
									0.0									
				1301.704	0.000	0.000			9.6	89.3	30.7	1713.236	0.000	0.000			Weather►	fog in hills
Date 12-Jun	10	TM		339.767			7:00	12:05	5.1								**survey**	orbited in survey area until fog had cleared
Julian Day 163	11	TR		703.616			12:50	17:55	5.1								**survey**	
									0.0									
Tuesday									0.0									
									0.0									
				703.616	0.000	0.000			10.2	79.1	40.9	2416.852	0.000	0.000			Weather►	fine
Date 13-Jun	12	TR		comp flight			7:00	8:30	1.5								**comp**	
Julian Day 164	13	TR		217.012			9:20	11:30	2.2								**survey**	
	14	TM		122.000			13:00	15:40	2.7								**survey**	returned to base after continuous FASDAS lockups
Wednesday									0.0									
									0.0									
				339.012	0.000	0.000			6.4	72.7	47.3	2755.864	0.000	0.000			Weather►	Rain, low cloud
Date 14-Jun				maintenance					0.0									oil change and transponder replacement in morning
Julian Day 165									0.0									
				bad weather					0.0									no afternoon flight due weather
Thursday									0.0									
									0.0									
				0.000	0.000	0.000			0.0	72.7	47.3	2755.864	0.000	0.000			Weather►	Rain, low cloud
Date 15-Jun				bad weather					0.0									
Julian Day 166									0.0									
									0.0									
Friday									0.0									
									0.0									
				0.000	0.000	0.000			0.0	72.7	47.3	2755.864	0.000	0.000			Weather►	
Date 16-Jun	15	TR		15.063			6:45	10:35	3.8								**survey**	remained in survey area waiting for wx improvement
Julian Day 167	16	TM		352.354			13:30	17:30	4.0								**survey**	
									0.0									
Saturday									0.0									
									0.0									
				367.417	0.000	0.000			7.8	64.9	55.1	3123.281	0.000	0.000			Weather►	
Date 17-Jun	17	TM		427.874					0.0								**survey**	
Julian Day 168									0.0									
									0.0									
Sunday									0.0									
									0.0									
				427.874	0.000	0.000			0.0	64.9	55.1	3551.155	0.000	0.000			Weather►	
	Totals This Week: ►			**3139.623**	**0.000**	**0.000**	Week Hours:►		**34.0**	▲: A/C Hrs to Next Service					**0.0**	**0.0**		

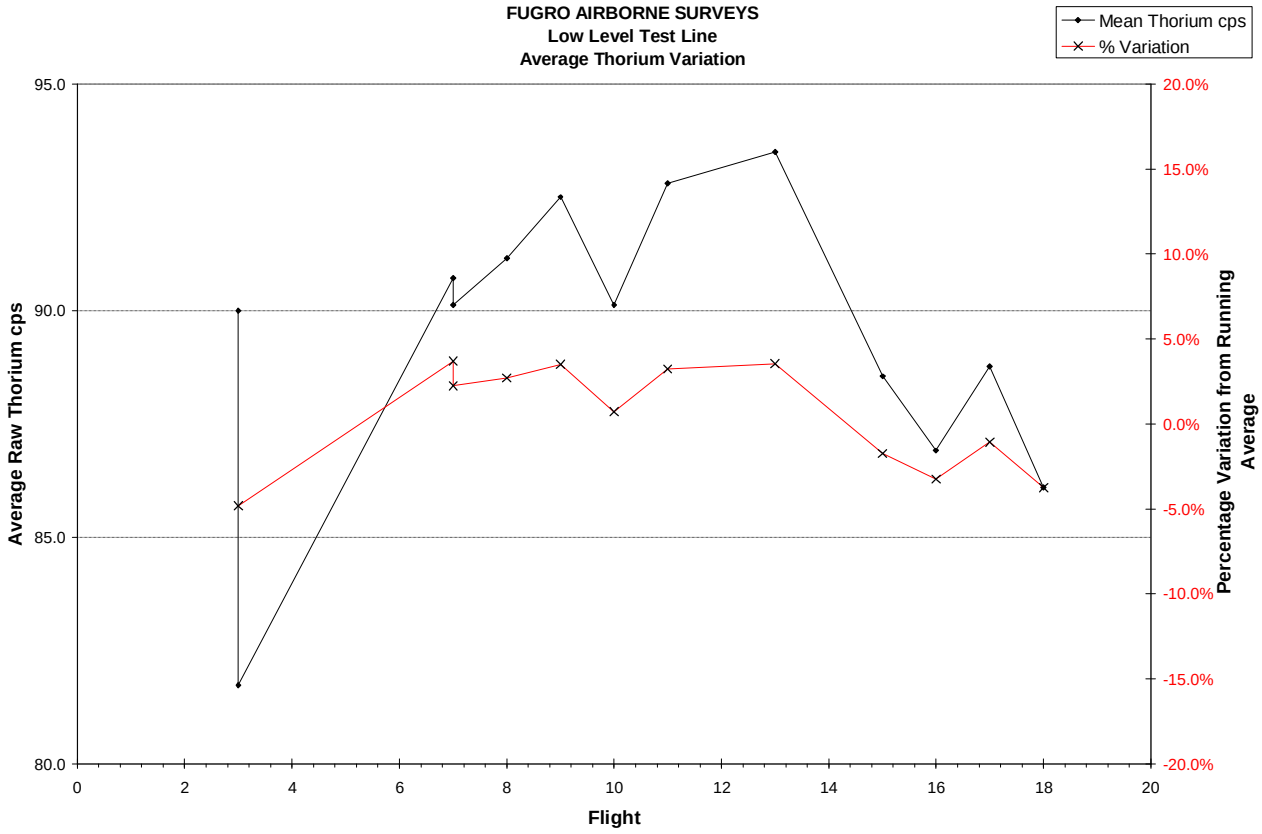
APPENDIX II – Button Calibration Data

Flt#	Th in 501/601	Th in 502/602	Th Counts Actual	Th Counts Used	Running Average	Allowed Minimum	Allowed Maximum	% Change
3	132.07	522.22	390.1	390.1	390.1	370.6	409.7	0.0%
6	131.09	522.20	391.1	391.1	390.6	371.1	410.2	0.1%
7	130.38	522.07	391.7	391.7	391.0	371.4	410.5	0.2%
8	131.88	526.47	394.6	394.6	391.9	372.3	411.5	0.7%
9	125.35	518.87	393.5	393.5	392.2	372.6	411.8	0.3%
10	124.90	522.33	397.4	397.4	393.1	373.4	412.7	1.1%
11	161.52	548.31	386.8	386.8	392.2	372.6	411.8	-1.4%
13	160.73	545.37	384.6	384.6	391.2	371.7	410.8	-1.7%
15	156.42	538.82	382.4	382.4	390.3	370.7	409.8	-2.0%
16	130.31	525.08	394.8	394.8	390.7	371.2	410.2	1.0%
17	127.60	525.90	398.3	398.3	391.4	371.8	411.0	1.8%
17	135.13	527.14	392.0	392.0	391.4	371.9	411.0	0.1%



APPENDIX III – Low Level Statistics

Flt No.	Mean TC (cps)	Mean K (cps)	Mean U (cps)	Mean Th (cps)	USED Th (cps)	Running Average	% Change	Min	Max
3	2675.53	330.51	59.86	90.00	90.00	90.00		81.0	99.0
3	2492.66	297.72	60.26	81.73	81.73	85.87	-4.81%	77.3	94.5
7	2757.54	338.38	63.98	90.72	90.72	87.48	3.70%	78.7	96.2
7	2756.25	328.12	70.63	90.12	90.12	88.14	2.24%	79.3	97.0
8	2798.25	340.55	67.66	91.15	91.15	88.74	2.71%	79.9	97.6
9	2794.39	334.50	70.75	92.51	92.51	89.37	3.51%	80.4	98.3
10	2713.82	327.42	65.47	90.12	90.12	89.48	0.72%	80.5	98.4
11	2789.22	343.56	64.82	92.80	92.80	89.89	3.23%	80.9	98.9
13	2775.40	342.71	64.04	93.49	93.49	90.29	3.54%	81.3	99.3
15	2716.78	326.05	67.49	88.55	88.55	90.12	-1.74%	81.1	99.1
16	2649.45	318.89	65.99	86.91	86.91	89.83	-3.25%	80.8	98.8
17	2665.53	326.78	63.28	88.77	88.77	89.74	-1.08%	80.8	98.7
18	2716.41	323.88	71.44	86.10	86.10	89.46	-3.75%	80.5	98.4



APPENDIX IV – Final Located Data Formats

Headers for final data files

Description File for 0.1 sec Magnetics and Elevation Data

```
COMM JOB NUMBER:                    1879
COMM AREA NUMBER:                   1
COMM SURVEY COMPANY:                Fugro Airborne Surveys
COMM CLIENT:                        NGM Resources Limited
COMM SURVEY TYPE:                   Magnetic and Radiometric
COMM AREA NAME:                     Marsh Creek
COMM STATE:                         Queensland
COMM COUNTRY:                       Australia
COMM SURVEY FLOWN:                  June 2007
COMM LOCATED DATA CREATED:          19 June 2007
COMM
COMM DATUM:                         GDA94
COMM PROJECTION:                    MGA
COMM ZONE:                          55
COMM
COMM SURVEY SPECIFICATIONS
COMM
COMM TRAVERSE LINE SPACING:         100 m
COMM TRAVERSE LINE DIRECTION:       045-225 deg
COMM TIE LINE SPACING:              1000 m
COMM TIE LINE DIRECTION:            135-315 deg
COMM NOMINAL TERRAIN CLEARANCE:     60 m
COMM FINAL LINE KILOMETRES:         3751.6 km
COMM
COMM LINE NUMBERING
COMM
COMM TRAVERSE LINE NUMBERS:         100010 - 102940
COMM TIE LINE NUMBERS:              190010 - 190190
COMM
COMM AREA BOUNDARY (WGS84 UTM55)
COMM
COMM Eastings  :  354743  359982  359982  370998  384885  367517  354779
COMM              354743
COMM
COMM Northings : 7872991 7874822 7880348 7880419 7863949 7863877 7871233
COMM             7872956
COMM
COMM SURVEY EQUIPMENT
COMM
COMM AIRCRAFT:               VH-EXS Aerocommander Shrike 500S
COMM
COMM MAGNETOMETER:                          Scintrex CS-2
COMM INSTALLATION:                           Stinger
COMM RESOLUTION:                             0.001 nT
COMM RECORDING INTERVAL:                     0.1 s
COMM
COMM RADAR ALTIMETER:                       Sperry Stars AA-200
COMM RECORDING INTERVAL:                     0.1 s
COMM
COMM NAVIGATION:                            real-time differential GPS
COMM RECORDING INTERVAL:                     1.0 s
COMM
COMM ACQUISITION SYSTEM:                    FASDAS
COMM
COMM BASE MAGNETOMETER:                     Scintrex Envi-mag
COMM RECORDING INTERVAL:                     5 s
COMM
```

```
COMM DATA PROCESSING
COMM
COMM CO-ORDINATES
COMM PARALLAX CORRECTION APPLIED              -0.50 s
COMM
COMM MAGNETIC DATA
COMM DIURNAL CORRECTION APPLIED               base value 49111 nT
COMM PARALLAX CORRECTION APPLIED              0.0 s
COMM IGRF CORRECTION APPLIED                  base value 49235 nT
COMM IGRF MODEL 2005 EXTRAPOLATED TO          June 2007
COMM DATA HAVE BEEN TIE LINE LEVELLED
COMM DATA HAVE BEEN MICROLEVELLED
COMM
COMM RADAR ALTITUDE DATA
COMM PARALLAX CORRECTION APPLIED              0.0 s
COMM
COMM GPS ALTITUDE DATA
COMM PARALLAX CORRECTION APPLIED              -0.50 s
COMM
COMM DIGITAL TERRAIN DATA
COMM DTM CALCULATED [DTM = GPS ALTITUDE - (RADAR ALT + SENSOR SEPARATION)]
COMM DATA CORRECTED TO AUSTRALIAN HEIGHT DATUM
COMM DATA HAVE BEEN TIE LINE LEVELLED
COMM DATA HAVE BEEN MICROLEVELLED
COMM ------------------------------------------------------------------------
COMM The accuracy of the elevation calculation is directly dependent on
COMM the accuracy of the two input parameters, radar altitude and GPS
COMM altitude.  The radar altitude value may be erroneous in areas of heavy
COMM tree cover, where the altimeter reflects the distance to the tree
COMM canopy rather than the ground.  The GPS altitude value is primarily
COMM dependent on the number of available satellites. Although
COMM post-processing of GPS data will yield X and Y accuracies in the
COMM order of 1-2 metres, the accuracy of the altitude value is usually
COMM much less, sometimes in the ±5 metre range.  Further inaccuracies
COMM may be introduced during the interpolation and gridding process.
COMM Because of the inherent inaccuracies of this method, no guarantee is
COMM 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
COMM FIELD                                    UNITS           NULL  FORMAT
COMM Line Number                                             -99999      I7
COMM Flight Number                                             -99      I4
COMM Date (yyyymmdd)                                       -9999999      I9
COMM Fiducial                                               -999999      I8
COMM Time (local seconds of day)                 s           -9999.9    F8.1
COMM Easting, PROJECTION: MGA ZONE: 55           m          -99999.99   F10.2
COMM Northing, PROJECTION: MGA ZONE: 55          m         -999999.99   F11.2
COMM Longitude, DATUM: GDA94                   deg       -999.9999999   F13.7
COMM Latitude, DATUM: GDA94                    deg        -99.9999999   F12.7
COMM GPS Height, DATUM: GDA94                    m            -999.99    F8.2
COMM Radar Altitude                              m            -999.99    F8.2
COMM Raw Compensated Magnetics                  nT         -99999.999   F11.3
COMM Magnetic Diurnal                           nT         -99999.999   F11.3
COMM Final Total Magnetic Intensity             nT         -99999.999   F11.3
COMM Derived Elevation Model, AHD                m            -999.99    F8.2
```

Description File for 1.0 sec Windowed Radiometrics Data

```
COMM JOB NUMBER:                    1879
COMM AREA NUMBER:                   1
COMM SURVEY COMPANY:                Fugro Airborne Surveys
COMM CLIENT:                        NGM Resources Limited
COMM SURVEY TYPE:                   Magnetic and Radiometric
COMM AREA NAME:                     Marsh Creek
COMM STATE:                         Queensland
COMM COUNTRY:                       Australia
COMM SURVEY FLOWN:                  June 2007
COMM LOCATED DATA CREATED:          19 June 2007
COMM
COMM DATUM:                         GDA94
COMM PROJECTION:                    MGA
COMM ZONE:                          55
COMM
COMM SURVEY SPECIFICATIONS
COMM
COMM TRAVERSE LINE SPACING:         100 m
COMM TRAVERSE LINE DIRECTION:       045-225 deg
COMM TIE LINE SPACING:              1000 m
COMM TIE LINE DIRECTION:            135-315 deg
COMM NOMINAL TERRAIN CLEARANCE:     60 m
COMM FINAL LINE KILOMETRES:         3751.6 km
COMM
COMM LINE NUMBERING
COMM
COMM TRAVERSE LINE NUMBERS:         100010 - 102940
COMM TIE LINE NUMBERS:              190010 - 190190
COMM
COMM AREA BOUNDARY (WGS84 UTM55)
COMM
COMM Eastings  :  354743  359982  359982  370998  384885  367517  354779
COMM              354743
COMM
COMM Northings : 7872991 7874822 7880348 7880419 7863949 7863877 7871233
COMM             7872956
COMM
COMM SURVEY EQUIPMENT
COMM
COMM AIRCRAFT:               VH-EXS Aerocommander Shrike 500S
COMM
COMM SPECTROMETER:                          256 Channel Exploranium GR820
COMM CRYSTAL VOLUME:                         33.56 l
COMM RECORDING INTERVAL:                     1.0 s
COMM
COMM RADAR ALTIMETER:                       Sperry Stars AA-200
COMM RECORDING INTERVAL:                     0.1 s
COMM
COMM NAVIGATION:                            real-time differential GPS
COMM RECORDING INTERVAL:                     1.0 s
COMM
COMM ACQUISITION SYSTEM:                    FASDAS
COMM
COMM DATA PROCESSING
COMM
COMM CO-ORDINATES
COMM PARALLAX CORRECTION APPLIED            -0.50 s
COMM
COMM RADAR ALTITUDE DATA
COMM PARALLAX CORRECTION APPLIED            0.0 s
COMM
COMM GPS ALTITUDE DATA
COMM PARALLAX CORRECTION APPLIED            -0.50 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 DATA HAVE BEEN MICROLEVELLED
COMM AIRCRAFT BACKGROUND COEFFICIENTS
COMM TOTAL COUNT                                        57.8
COMM POTASSIUM                                          9.1
COMM URANIUM                                            2.7
COMM THORIUM                                            0.55
COMM COSMIC COEFFICIENTS
COMM TOTAL COUNT                                        0.8700
COMM POTASSIUM                                          0.0510
COMM URANIUM                                            0.0401
COMM THORIUM                                            0.0530
COMM STRIPPING COEFFICIENTS
COMM ALPHA                                              0.2657
COMM BETA                                               0.4192
COMM GAMMA                                              0.7963
COMM DELTA                                              0.0621
COMM g                                                  -0.0166
COMM b                                                  0.0016
COMM STRIPPING HEIGHT ATTENUATION COEFFICIENTS
COMM ALPHA                                              0.00049
COMM BETA                                               0.00065
COMM GAMMA                                              0.00069
COMM RADON STRIPPING COEFFICIENTS
COMM TOTAL COUNT                                        13.1501
COMM POTASSIUM                                          0.7824
COMM THORIUM                                            0.0610
COMM SPECTRAL RATIOS
COMM RADON                                              1.8613
COMM GROUND                                             0.4730
COMM ALTITUDE COEFFICIENTS
COMM TOTAL COUNT                                        -0.0070
COMM POTASSIUM                                          -0.0090
COMM URANIUM                                            -0.0099
COMM THORIUM                                            -0.0075
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
COMM FIELD                                  UNITS           NULL  FORMAT
COMM Line Number                                           -99999      I7
COMM Flight Number                                           -99      I4
COMM Date (yyyymmdd)                                     -9999999      I9
COMM Fiducial                                             -999999      I8
COMM Time (local seconds of day)                 s         -9999.9    F8.1
COMM Easting, PROJECTION: MGA ZONE: 55           m       -99999.99   F10.2
COMM Northing, PROJECTION: MGA ZONE: 55          m      -999999.99   F11.2
COMM Longitude, DATUM: GDA94                   deg   -999.9999999   F13.7
COMM Latitude, DATUM: GDA94                    deg    -99.9999999   F12.7
COMM GPS Height, DATUM: GDA94                    m        -999.99    F8.2
COMM Radar Altitude                              m        -999.99    F8.2
COMM Uncorrected Total Count                  counts      -9999.9    F8.1
COMM Uncorrected Potassium                    counts       -999.9    F7.1
COMM Uncorrected Uranium                      counts       -999.9    F7.1
```

```
COMM Uncorrected Thorium                    counts        -999.9    F7.1
COMM Raw Cosmic                             counts          -99      I4
COMM Final Total Count                         cps     -9999.999   F10.3
COMM Final Potassium                           cps        -9.999    F7.3
COMM Final Uranium                             cps        -9.999    F7.3
COMM Final Thorium                             cps        -9.999    F7.3
```

Description File for 1.0 sec Raw 256 Channel Radiometrics Data

```
COMM JOB NUMBER:                    1879
COMM AREA NUMBER:                   1
COMM SURVEY COMPANY:                Fugro Airborne Surveys
COMM CLIENT:                        NGM Resources Limited
COMM SURVEY TYPE:                   Magnetic and Radiometric
COMM AREA NAME:                     Marsh Creek
COMM STATE:                         Queensland
COMM COUNTRY:                       Australia
COMM SURVEY FLOWN:                  June 2007
COMM LOCATED DATA CREATED:          19 June 2007
COMM
COMM DATUM:                         GDA94
COMM PROJECTION:                    MGA
COMM ZONE:                          55
COMM
COMM SURVEY SPECIFICATIONS
COMM
COMM TRAVERSE LINE SPACING:         100 m
COMM TRAVERSE LINE DIRECTION:       045-225 deg
COMM TIE LINE SPACING:              1000 m
COMM TIE LINE DIRECTION:            135-315 deg
COMM NOMINAL TERRAIN CLEARANCE:     60 m
COMM FINAL LINE KILOMETRES:         3751.6 km
COMM
COMM LINE NUMBERING
COMM
COMM TRAVERSE LINE NUMBERS:         100010 - 102940
COMM TIE LINE NUMBERS:              190010 - 190190
COMM
COMM AREA BOUNDARY (WGS84 UTM55)
COMM
COMM Eastings  :  354743  359982  359982  370998  384885  367517  354779
COMM              354743
COMM
COMM Northings : 7872991 7874822 7880348 7880419 7863949 7863877 7871233
COMM             7872956
COMM
COMM SURVEY EQUIPMENT
COMM
COMM AIRCRAFT:               VH-EXS Aerocommander Shrike 500S
COMM
COMM SPECTROMETER:                          256 Channel Exploranium GR820
COMM CRYSTAL VOLUME:                         33.56 l
COMM RECORDING INTERVAL:                     1.0 s
COMM
COMM RADAR ALTIMETER:                       Sperry Stars AA-200
COMM RECORDING INTERVAL:                     0.1 s
COMM
COMM NAVIGATION:                            real-time differential GPS
COMM RECORDING INTERVAL:                     1.0 s
COMM
COMM ACQUISITION SYSTEM:                    FASDAS
COMM
COMM DATA PROCESSING
```

```
COMM
COMM CO-ORDINATES
COMM PARALLAX CORRECTION APPLIED              -0.50 s
COMM
COMM RADAR ALTITUDE DATA
COMM PARALLAX CORRECTION APPLIED              0.0 s
COMM
COMM GPS ALTITUDE DATA
COMM PARALLAX CORRECTION APPLIED              -0.50 s
COMM
COMM BAROMETRIC DATA
COMM PARALLAX CORRECTION APPLIED              0.3 s
COMM
COMM TEMPERATURE DATA
COMM PARALLAX CORRECTION APPLIED              1.0 s
COMM
COMM RADIOMETRIC DATA
COMM NO PROCESSING APPLIED TO RAW 256 CHANNEL RADIOMETRIC DATA
COMM
COMM WINDOW DATA EXTRACTED USING IAEA STANDARD WINDOWS
COMM AIRCRAFT BACKGROUND COEFFICIENTS
COMM TOTAL COUNT                                        57.8
COMM POTASSIUM                                          9.1
COMM URANIUM                                            2.7
COMM THORIUM                                            0.55
COMM COSMIC COEFFICIENTS
COMM TOTAL COUNT                                        0.8700
COMM POTASSIUM                                          0.0510
COMM URANIUM                                            0.0401
COMM THORIUM                                            0.0530
COMM STRIPPING COEFFICIENTS
COMM ALPHA                                              0.2657
COMM BETA                                               0.4192
COMM GAMMA                                              0.7963
COMM DELTA                                              0.0621
COMM g                                                  -0.0166
COMM b                                                  0.0016
COMM STRIPPING HEIGHT ATTENUATION COEFFICIENTS
COMM ALPHA                                              0.00049
COMM BETA                                               0.00065
COMM GAMMA                                              0.00069
COMM RADON STRIPPING COEFFICIENTS
COMM TOTAL COUNT                                        13.1501
COMM POTASSIUM                                          0.7824
COMM THORIUM                                            0.0610
COMM SPECTRAL RATIOS
COMM RADON                                              1.8613
COMM GROUND                                             0.4730
COMM ALTITUDE COEFFICIENTS
COMM TOTAL COUNT                                        -0.0070
COMM POTASSIUM                                          -0.0090
COMM URANIUM                                            -0.0099
COMM THORIUM                                            -0.0075
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
COMM FIELD                                    UNITS           NULL  FORMAT
COMM Line Number                                             -99999      I7
COMM Flight Number                                             -99      I4
COMM Date (yyyymmdd)                                       -9999999      I9
```

COMM Fiducial		-999999	I8
COMM Time (local seconds of day)	s	-9999.9	F8.1
COMM Easting, PROJECTION: MGA ZONE: 55	m	-99999.99	F10.2
COMM Northing, PROJECTION: MGA ZONE: 55	m	-999999.99	F11.2
COMM Longitude, DATUM: GDA94	deg	-999.9999999	F13.7
COMM Latitude, DATUM: GDA94	deg	-99.9999999	F12.7
COMM GPS Height, DATUM: GDA94	m	-999.99	F8.2
COMM Radar Altitude	m	-999.99	F8.2
COMM Raw Cosmic	counts	-99	I4
COMM Barometric Pressure	hPa	-999.99	F8.2
COMM Temperature	deg C	-9.9	F5.1
COMM Live Time	s	-9.999	F7.3
COMM Raw 256 Channel Radiometrics	counts	-999	I5

APPENDIX V – List Of All Supplied Data

Final Located Data

- 0.1 second magnetics and digital elevation 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.

Preliminary Gridded Data

Preliminary gridded data was produced in ERMapper format in GDA94/MGA55

- Total magnetic intensity
- Total count
- Potassium count
- Uranium count
- Thorium count
- Digital elevation model

Final Gridded Data

Final gridded data was produced in ERMapper format in GDA94/MGA55

- Total magnetic intensity
- Total count
- Potassium count
- Uranium count
- Thorium count
- Digital elevation model

Additional Products

Acquisition and Processing report in digital and hardcopy