

Logistics Report

for a

**DETAILED AIRBORNE
MAGNETIC, RADIOMETRIC AND
DIGITAL ELEVATION SURVEY**

for the

**ARNHEM LAND PROJECT
MAGNETIC AND RADIOMETRIC SURVEY**

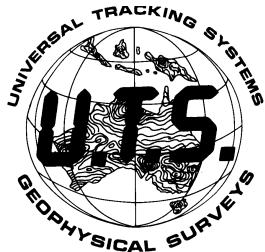
carried out on behalf of

CAMECO AUSTRALIA PTY LTD

by

UTS GEOPHYSICS

(UTS Job #A341)



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Table of Contents

1	GENERAL SURVEY INFORMATION	3
2	SURVEY LOCATION	3
3	AIRCRAFT AND SURVEY EQUIPMENT	4
3.1	SURVEY AIRCRAFT	5
	<i>Power Plant</i>	5
	<i>Performance</i>	5
3.2	DATA POSITIONING AND FLIGHT NAVIGATION	5
3.3	UTS DATA ACQUISITION SYSTEM AND DIGITAL RECORDING	5
3.4	ALTITUDE READINGS	6
3.5	UTS STINGER MOUNTED MAGNETOMETER SYSTEM	6
3.6	TOTAL FIELD MAGNETOMETER	6
3.7	AIRCRAFT MAGNETIC COMPENSATION	7
3.8	DIURNAL MONITORING MAGNETOMETER	7
3.9	BAROMETRIC ALTITUDE	8
3.10	TEMPERATURE AND HUMIDITY	8
3.11	RADIOMETRIC DATA ACQUISITION.....	8
4	PERSONNEL	9
4.1	FIELD OPERATIONS	9
4.2	PROJECT MANAGEMENT	9
5	SURVEY PARAMETERS	10
6	SURVEY LOGISTICS	11
6.1	SURVEY FLIGHT SUMMARY	11
6.2	DIURNAL MAGNETOMETER LOCATIONS.....	12
6.3	SPECTROMETER CALIBRATION RESULTS.....	12
7	DATA PROCESSING PROCEDURES	13
7.1	MAGNETIC DATA PROCESSING	13
7.2	RADIOMETRIC DATA PROCESSING	13
	APPENDIX A - LOCATED DATA FORMATS.....	16
	MAGNETIC LOCATED DATA.....	16
	RADIOMETRIC LOCATED DATA	16
	GRIDDED DATASET FORMATS.....	18
	LINE NUMBER FORMATS.....	18
	UTS FILE NAMING FORMATS	18
	APPENDIX B - COORDINATE SYSTEM DETAILS.....	20
	APPENDIX C - SURVEY BOUNDARY DETAILS	21
	APPENDIX D - PROJECT DATA OVERVIEW – ARNHEM LAND	22
	APPENDIX F – RADIOMETRIC EQUATIONS	25
	STRIPPING RATIOS	25
	HEIGHT ATTENUATION COEFFICIENTS	25
	HEIGHT DATUM	25
	STRIPPING EQUATIONS.....	25
	CONVERSION TO CONCENTRATIONS.....	25

APPENDIX G – SURVEY KILOMETRE REPORT 26**1 GENERAL SURVEY INFORMATION**

In August 1999, UTS Geophysics conducted a low level airborne geophysical survey in the Arnhem Land region of the Northern Territory for Cameco Australia Pty Ltd.

This report summarises the logistics, survey parameters and processing details of the survey.

The survey commenced on the 1st August 1999 and was completed on the 12th August 1999.

UTS Geophysics provided the described survey for the following company:

Cameco Australia Pty Ltd
66 Winnellie Rd
WINNELLIE NT 0820
PO Box 35921 Winnellie NT 0821

2 SURVEY LOCATION

The area surveyed was approximately 85km south east of the Maningrida township in the Northern Territory. A survey location map is provided in Appendix C of this report.

The survey was flown using the AMG84 coordinate system (a Universal Transverse Mercator projection) derived from the AGD66 geodetic datum and was contained within zone 53 with a central meridian of 135 degrees. Details of the datum and project system are provided in Appendix B of this report.

3 AIRCRAFT AND SURVEY EQUIPMENT

The UTS navigation flight control computer, data acquisition system and geophysical sensors were installed into a specialised geophysical survey aircraft.

The list of geophysical and navigation equipment used for the survey is as follows:

General Survey Equipment

FU24-954 fixed wing survey aircraft.
UTS proprietary flight planning and survey navigation system.
UTS proprietary high speed digital data acquisition system.
Novatel 3951R, 12 channel precision navigation GPS.
Satellite transmitted differential GPS correction receiver.
UTS LCD pilot navigation display and external track guidance display.
UTS post mission data verification and processing system.
Bendix King KRA-405 radar altimeter.

Magnetic Data Acquisition Equipment

UTS tail stinger magnetometer installation.
Scintrex Cesium Vapour CS-2 total field magnetometer.
Develco three component vector magnetometer.
RMS Aeromagnetic Automatic Digital Compensator (AADC II).
Diurnal monitoring magnetometer 1 (Geometrics G-856).
Diurnal monitoring magnetometer 2 (Scintrex Envimag).

Radiometric Data Acquisition Equipment

Exploranium GR-820 gamma ray spectrometer.
Exploranium gamma ray detectors (2 x 16 litres).
Barometric altimeter (height and pressure measurements).
Temperature and humidity sensor.

3.1 Survey Aircraft

The aircraft used was a FU24-954 fixed wing survey aircraft owned by UTS Geophysics, registration VH-CYU.

Power Plant

- Engine Type Single engine, Lycoming, IO-720
- Brake Horse Power 400 bhp
- Fuel Type AV-GAS

Performance

- Cruise speed 105 Kn
- Survey speed 100 Kn
- Stall speed 45 Kn
- Range 970 Km
- Endurance (no reserves) 5 hours
- Fuel tank capacity 490 litres



3.2 Data Positioning and Flight Navigation

Survey data positioning and flight line navigation was derived using real-time differential GPS (Global Positioning System).

Navigation was provided through a UTS designed and built electronic pilot navigation system providing computer controlled digital navigation instrumentation mounted in the cockpit as well as an externally mounted track guidance system.

GPS derived positions were used to provide both aircraft navigation and survey data location information.

The GPS systems used for the survey were:

- Aircraft GPS Model Novatel 3951R
- GPS satellite tracking channels 12 parallel
- Typical differentially corrected accuracy 2-3 metres (horizontal)
- Real-time differential service RACAL Landstar

3.3 UTS Data Acquisition System and Digital Recording

All geophysical sensor data and positional information measured during the survey was recorded using a UTS developed, high speed, precision data acquisition system.

Survey data was downloaded onto magnetic tape on completion of each survey flight.

Instrument synchronisation times were measured and removed in real-time by the UTS data acquisition system.

3.4 *Altitude Readings*

Accurate survey heights above the terrain were measured using a King radar altimeter installed in the aircraft. The height of each survey data point was measured by the radar altimeter and stored by the UTS data acquisition system.

- | | |
|-------------------------|--------------------------------------|
| • Radar altimeter model | King KRA-405, twin antenna altimeter |
| • Accuracy | 0.3 metres |
| • Resolution | 0.1 metres |
| • Range | 0 - 500 metres |
| • Sample rate | 0.1 Seconds (10Hz) |

3.5 *UTS Stinger Mounted Magnetometer System*

The installation platform used for the acquisition of magnetic data was a tail mounted stinger. This proprietary stinger system was constructed of carbon fibre and designed for maximum rigidity and stability.

Both the total field magnetometer and three component vector magnetometer were located within the tail stinger.



3.6 *Total Field Magnetometer*

Total field magnetic data readings for the survey were made using a Scintrex Cesium Vapour CS-2 Magnetometer. This precision sensor has the following specifications:



- | | |
|---------------------|--|
| • Model | Scintrex Cesium Vapour CS-2 Magnetometer |
| • Sample Rate | 0.1 seconds (10Hz) |
| • Resolution | 0.001nT |
| • Operating Range | 15,000nT to 100,000nT |
| • Temperature Range | -20°C to +50°C |

3.7 Aircraft Magnetic Compensation

At the start of the survey, the system was calibrated for reduction of magnetic heading error. The heading and manoeuvre effects of the aircraft on the magnetic data was removed using an RMS Automatic Airborne Digital Compensator (AADC II).

Calibration of the aircraft heading effects were measured by flying a series of pitch, roll and yaw manoeuvres at high altitude while monitoring changes in the three axis magnetometer and the effect on total field readings. A 26 term model of the aircraft magnetic noise covering permanent, induced and eddy current fields was determined. These coefficients were then applied to the data collected during the survey in real-time.

UTS static compensation techniques were also employed to reduce the initial magnetic effects of the aircraft upon the survey data.

3.8 Diurnal Monitoring Magnetometer

Two base station magnetometers were located in a low gradient area beyond the region of influence by any man made interference to monitor diurnal variations during the survey.

The specifications for the magnetometers used are as follows:



- | | |
|-------------------|----------------------|
| • Model | Scintrex Envimag |
| • Resolution | 0.1 nT |
| • Sample interval | 5 seconds (0.2Hz) |
| • Operating range | 20,000nT to 90,000nT |
| • Temperature | -20°C to +50°C |
| • Model | Geometrics G-856 |
| • Resolution | 0.1 nT |
| • Sample interval | 10 seconds (0.1Hz) |
| • Operating range | 20,000nT to 90,000nT |
| • Temperature | -20°C to +50°C |

3.9 *Barometric Altitude*

An Air DB barometric altimeter was installed in the aircraft so as to record and monitor barometric height and pressure. The data was recorded at 0.33 second intervals and is used for the reduction of the radiometric data.

- Model Air DB barometric altimeter
- Accuracy 2 metres
- Height resolution 0.1 metres
- Height range 0 - 3500 metres
- Maximum operating pressure: 1,300 mb
- Pressure resolution: 0.01 mb
- Sample rate 3 Hz

3.10 *Temperature and Humidity*

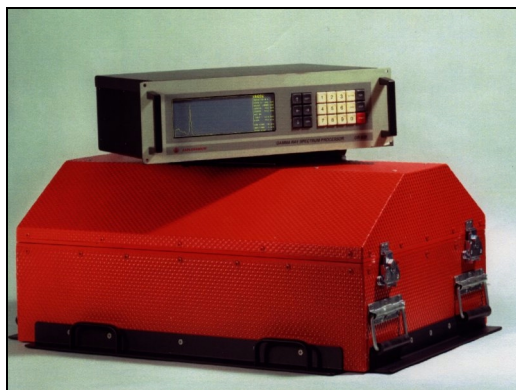
Temperature and humidity measurements were made during the survey at a sample rate of 10Hz. Ambient temperature was measured with a resolution of 0.1 degree Celsius and ambient humidity to a resolution of 0.1 percent.

3.11 *Radiometric Data Acquisition*

The gamma ray spectrometer used for the survey was capable of recording 256 channels and was self stabilising in order to minimise spectral drift. The detectors used contain thallium activated sodium iodide crystals.

Thorium, cesium and uranium source measurements were made each survey day to monitor system resolution and sensitivity. A calibration line was also flown at the start and end of each survey day to monitor ground moisture levels and system performance.

- Spectrometer model Exploranium, GR820
- Detector volume 33 litres



4 PERSONNEL

4.1 *Field Operations*

UTS Geophysics operators	Steve Whelan
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UTS Geophysics data processors	Steve Whelan
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UTS Survey Pilot # 1	Mike Officer
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4.2 *Project Management*

Cameco Australia Pty Ltd	Geoff Beckitt
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UTS Geophysics Perth Office	Nino Tufilli
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5 SURVEY PARAMETERS

The survey data acquisition specifications for each area flown are specified in the following table:

PROJECT NAME	LINE SPACING	LINE DIRECTION	TIE LINE SPACING	TIE LINE DIRECTION	SENSOR HEIGHT	TOTAL LINE KM
Arnhem Land Project	200m	000-180	2000m	090-270	60m	6,535
TOTAL						6,535

The total number of line kilometres of survey data collected over the survey areas specified in the above table was 6,535

The specified sensor height for the magnetic samples is as stated in the above table. This sensor height may be varied where topographic relief or laws pertaining to built up areas do not allow this altitude to be maintained, or where the safety of the aircraft and equipment is endangered.

The coordinate boundaries for the survey area flown is detailed in Appendix C.

6 SURVEY LOGISTICS

One base location was used for operating the aircraft and performing in-field quality control and data processing of the survey data. The base location was the Maningrida Motel 1st August-12th August 1999.

6.1 Survey Flight Summary

The following table summarises the flight logs for the survey area flown:

Flight Date	Area No	Flt No	Survey Progress / Flight Details	Lines Flown	Km Flown	Stand-by
01/08/99	-	-	Mobilisation to Maningrida. Setup and pre survey testing of equipment.	-	-	-
02/08/99	01	T1	Arnhem Land – Tie Lines 190010-190190	19	468.4	-
03/08/99	-	-	Morning Flight aborted due to bad weather conditions	-	-	.5
	01	T2	Arnhem Land – Tie Lines 190200-190260	6	110.0	-
	01	01	Arnhem Land – Traverse Lines 100720-100810	10	475.4	-
04/08/99	01	02	Arnhem Land – Traverse Lines 100580-100710	14	555.0	-
	01	03	Arnhem Land – Traverse Lines 100400-100570	18	588.3	-
05/08/99	-	-	Ferry to Darwin for 100hrly Scheduled Maintenance	-	-	-
06/08/99	-	-	100hrly Scheduled Maintenance	-	-	-
07/08/99	-	-	100hrly Scheduled Maintenance Ferry From Darwin	-	-	-
08/08/99	01	04	Arnhem Land – Traverse Lines 100010-100390 Traverse Lines 100820-100850	44	473.1	-
	-	-	Afternoon Flight Abandoned due bad weather	-	-	0.5
09/08/99	01	05	Arnhem Land – Traverse Lines 100860-100950	10	496.3	-
	01	06	Arnhem Land – Traverse Lines 100960-101010	6	297.8	-
10/08/99	01	07	Arnhem Land – Traverse Lines 101020-101110	10	496.5	-
	01	08	Arnhem Land – Traverse Lines 101120-101230	12	596.0	-
11/08/99	01	09	Arnhem Land – Traverse Lines 101240-101390	16	571.7	-
	01	10	Arnhem Land – Traverse Lines 101400-101590	20	400.4	-
12/08/99	01	11	Arnhem Land – Traverse Lines 101780-102010	24	544.1	-
	01	12	Arnhem Land – Traverse Lines 101770-101600	18	388.9	-
	-	-	Survey Complete Demobilise from Survey Area	-	-	-
TOTAL				227	6,505	

A complete survey kilometre report is contained in Appendix G of this report.

6.2 *Diurnal Magnetometer Locations*

The following table contains the approximate locations where the diurnal base station magnetometer was located for each survey area.

Area Name	Period	Base Station ID	Location
Arnhem Land Project	01/08/99- 12/08/99	01	Maningrida Airport

6.3 *Spectrometer Calibration Results*

Appendix E contains the results of the daily spectrometer calibration procedures.

7 DATA PROCESSING PROCEDURES

7.1 *Magnetic Data Processing*

The raw magnetic survey data was loaded from the field tapes and the recorded data trimmed to the correct survey boundary extents. Any reflight lines required were removed from the data.

The diurnal base station data was loaded, checked and suitably filtered for application to the aircraft magnetic data. The diurnal measurements were then subtracted from a diurnal base field value and the corrections removed from the survey data by synchronising the diurnal data time and the aircraft survey time.

The regional magnetic gradient was subtracted from the data by application of the IGRF model calculated at the date of the survey and interpolated on position and time.

The data was then corrected to remove any residual parallax errors. Tie line levelling was applied to the data by measuring tie line crossover points with the survey traverse line data.

Final microlevelling techniques were then applied to the data to remove minor residual variations in profile intensities.

Located and gridded data were generated for the final processed magnetic data.

7.2 *Radiometric Data Processing*

The raw radiometric survey data was loaded from the field tapes and the recorded data trimmed to the correct survey boundary extents. Any reflight lines were removed from the data.

Statistical noise reduction of the 256 channel data was performed using the MNF method. The energy spectrum between the potassium and thorium peaks was recalibrated from the 256 channel measurements. The 256 channel data was then reduced to the 5 primary channels of total count, potassium, uranium, thorium and low-uranium. Dead time corrections were then applied to the data.

Cosmic and aircraft background corrections were applied. Radon background removal was performed using the Minty Spectral Ratio method (1992). Spectral stripping was then applied to the windowed data.

The altimeter data was corrected and converted to standard temperature and pressure altitude. Height corrections for the stripped windows was performed to remove any altitude variation effects from the data (refer to Appendix E for stripping ratios and equations).

The corrected count rate data was then converted to ground concentrations for total count, potassium, uranium and thorium.

Final microlevelling of the total count, potassium, uranium and thorium data was then applied to remove minor residual variations in profile intensities.

For further information concerning the survey flown, please contact the following office:

Head Office Address:

UTS Geophysics
Valentine Road, Perth Airport
REDCLIFFE WA 6104

Tel: +61 8 9479 4232

Fax: +61 8 9479 7361

Postal Address:

UTS Geophysics
P.O. Box 126
BELMONT WA 6104

APPENDIX A - LOCATED DATA FORMATS

MAGNETIC LOCATED DATA

FIELD	FORMAT	DESCRIPTION	UNITS
1	I6	LINE NUMBER	
2	I5	FLIGHT/AREA NUMBER	AAFF (Area/Flight)
3	I8	DATE	YYMMDD
4	F11.1	TIME	sec
5	I8	FIDUCIAL NUMBER	
6	I3	UTM/AMG ZONE	
7	F10.2	EASTING (AMG84)	metres
8	F11.2	NORTHING (AMG84)	metres
9	F13.7	LATITUDE (WGS84)	degrees
10	F13.7	LONGITUDE (WGS84)	degrees
11	F7.1	RADAR ALTIMETER HEIGHT	metres
12	F7.1	GPS HEIGHT (WGS84)	metres
13	F7.1	TERRAIN HEIGHT (CORRECTED)	metres
14	F10.2	RAW MAGNETIC INTENSITY	nT
15	F10.2	DIURNAL CORRECTION	nT
16	F10.2	LEVELLED MAGNETIC INTENSITY	nT
17	F10.2	IGRF CORRECTION	nT
18	F10.2	LEVELLED, IGRF CORRECTED	nT

RADIOMETRIC LOCATED DATA

FIELD	FORMAT	DESCRIPTION	UNITS
1	I6	LINE NUMBER	
2	I5	FLIGHT/AREA NUMBER	AAFF (Area/Flight)
3	I8	DATE	YYMMDD
4	F11.1	TIME	sec
5	I8	FIDUCIAL NUMBER	
6	I3	UTM/AMG ZONE	
7	F10.2	EASTING (AMG84)	metres
8	F11.2	NORTHING (AMG84)	metres
9	F13.7	LATITUDE (WGS84)	degrees
10	F13.7	LONGITUDE (WGS84)	degrees
11	F7.1	RADAR ALTIMETER HEIGHT	metres
12	F7.1	GPS HEIGHT (WGS84)	metres
13	I5	LIVE TIME	milli sec
14	F7.1	PRESSURE	hPa
15	F5.1	TEMPERATURE	Degrees Celcius
16	F8.1	TOTAL COUNT (RAW)	Counts/sec
17	F7.1	POTASSIUM (RAW)	Counts/sec
18	F7.1	URANIUM (RAW)	Counts/sec
19	F7.1	THORIUM (RAW)	Counts/sec
20	F7.1	COSMIC (RAW)	Counts/sec
21	F7.1	URANIUM LOW (RAW)	Counts/sec
22	F7.1	URANIUM UP (RAW)	Counts/sec
23	F8.1	TOTAL COUNT (CORRECTED)	Counts/sec
24	F7.1	POTASSIUM (CORRECTED)	Counts/sec
25	F7.1	URANIUM (CORRECTED)	Counts/sec

26	F7.1	THORIUM (CORRECTED)	Counts/sec
27	F7.3	POTASSIUM GRND CONCENTRATION	ppm
28	F7.3	URANIUM GRND CONCENTRATION	ppm
29	F7.3	THORIUM GRND CONCENTRATION	ppm

GRIDDED DATASET FORMATS

Gridding was performed using a bicubic spline algorithm.

The following grid formats have been provided:

- ER-Mapper format

LINE NUMBER FORMATS

Line numbers are identified with a six digit composite line number and have the following format - ALLLLB, where:

A	Survey area number
LLLL	Survey line number
	0001-8999 reserved for traverse lines
	9001-9999 reserved for tie lines
B	Line attempt number, 0 is attempt 1, 1 is attempt 2 etc..

UTS FILE NAMING FORMATS

Located and gridded data provided by UTS Geophysics uses the following 8 character file naming convention to be compatible with PC DOS based systems.

File names have the following general format - JJJJAABB.EEE, where:

JJJJ	UTS Job number
AA	Area number if the survey is broken into blocks
BB	M Magnetic data
	R Radiometric data
	TC Total count data
	K Potassium counts
	U Uranium counts
	Th Thorium counts
	KC Potassium concentration
	UC Uranium concentration
	ThC Thorium concentration
	DT Digital terrain data
EEE	File name extension
	LDT Located digital data file
	FMT Located data format definition file
	ERS Ermapper gridded data header file
	Ermapper data portion has no extension
	GRD Geosoft gridded data file

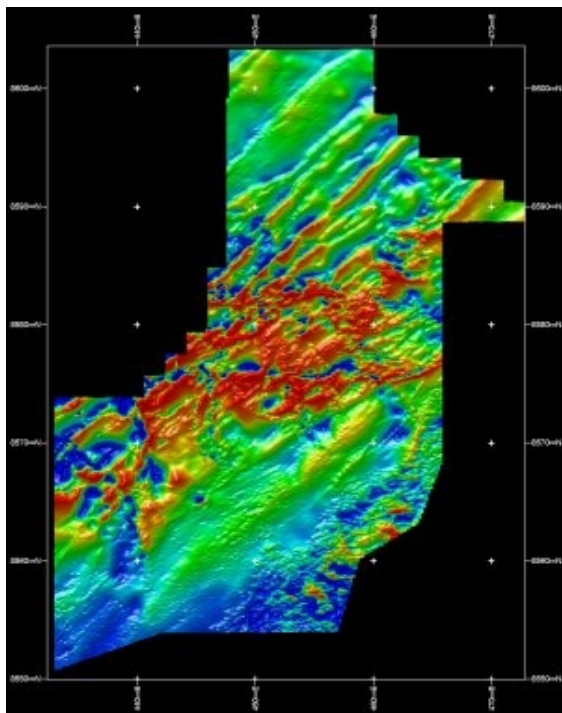
APPENDIX B - COORDINATE SYSTEM DETAILS

Locations for the survey data are provided in both geographical latitude and longitude coordinated as well as a Universal Transverse Mercator metric projection coordinate system.

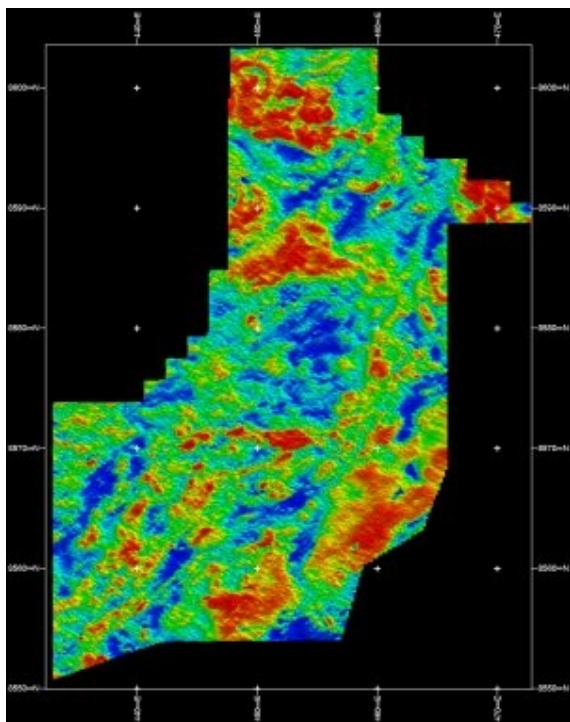
WGS84	World Geodetic System 1984
Height Datum	WGS84
Coordinate Type	Geographical
Semi Major Axis	6378137
Flattening	1/298.257223563
AMG84	Australian Map Grid 1984
Coordinate Type	Universal Transverse Mercator Projection
	Derived from the AGD66 spheroid
Semi Major Axis	6378160
Flattening	1/298.25

APPENDIX C - SURVEY BOUNDARY DETAILS

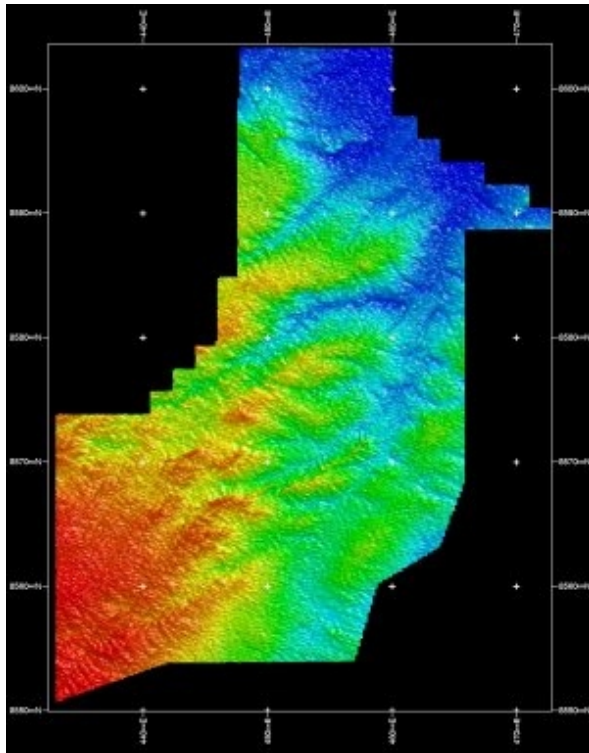
APPENDIX D - PROJECT DATA OVERVIEW – Arnhem Land



Total Magnetic Intensity



Radiometric Total Count



Digital Terrain Model

APPENDIX E – RADIOMETRIC CALIBRATION RESULTS

APPENDIX F – RADIOMETRIC EQUATIONS

Stripping Ratios

alpha	0.224
beta	0.395
gamma	0.722
a	0.047
b	0.000
c	0.000

Height Attenuation Coefficients

Total Count	-0.0060
Potassium	-0.0075
Uranium	-0.0039
Thorium	-0.0062

Height Datum

All data reduced to STP height datum 60m

Stripping Equations

alpha	=	$\alpha + \text{STPHeight} * 0.00049$
beta	=	$\beta + \text{STPHeight} * 0.00065$
gamma	=	$\gamma + \text{STPHeight} * 0.00069$
tho`	=	$(\text{tho} - (a * \text{ura})) / (1 - (a * \alpha))$
ura`	=	$(\text{ura} - (\alpha * \text{tho})) / (1 - (a * \alpha))$
pot`	=	$\text{pot} - (\beta * \text{tho}) - (\gamma * \text{ura})$

Conversion to Concentrations

Potassium	=	$\text{k.cps} / 232.1$
Uranium	=	$\text{u.cps} / 33.0$
Thorium	=	$\text{th.cps} / 9.2$

APPENDIX G – SURVEY KILOMETRE REPORT

LINE KM REPORT FOR ARNHEM LAND PROJECT

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LINE	FLT	DATE	START COORDINATE		END COORDINATE		LINE KM
190020	101	990802	438147	8552253	432635	8552252	5.5
190030	101	990802	432660	8554252	457174	8554245	24.5
190040	101	990802	457696	8556208	432618	8556251	25.1
190050	101	990802	432645	8558256	458367	8558247	25.7
190060	101	990802	459308	8560250	432624	8560247	26.7
190070	101	990802	432661	8562251	462742	8562251	30.1
190080	101	990802	464294	8564241	432588	8564256	31.7
190090	101	990802	432610	8566257	465137	8566255	32.5
190100	101	990802	465899	8568249	432599	8568252	33.3
190110	101	990802	432626	8570247	466061	8570246	33.4
190120	101	990802	465992	8572236	432546	8572252	33.5
190130	101	990802	440312	8574253	466075	8574251	25.8
190140	101	990802	466032	8576249	442073	8576247	24.0
190150	101	990802	443914	8578254	466074	8578247	22.2
190160	101	990802	466022	8580225	445715	8580246	20.3
190170	101	990802	445707	8582247	466063	8582251	20.4
190180	101	990802	466035	8584257	445692	8584250	20.3
190190	101	990802	447538	8586247	466069	8586252	18.5
190200	102	990803	466035	8588250	449269	8588238	16.8
190210	102	990803	451116	8590250	472917	8590251	21.8
190220	102	990803	471046	8592245	451075	8592253	20.0
190230	102	990803	451125	8594248	463974	8594249	12.9
190240	102	990803	462043	8596247	449260	8596252	12.8
190250	102	990803	447502	8598245	460262	8598248	12.8
190260	102	990803	460193	8600219	447475	8600250	12.7
100810	101	990803	447477	8602250	460260	8602246	12.8
100800	101	990803	456827	8603395	456806	8553787	49.6
100790	101	990803	457029	8553807	457022	8603449	49.7
100780	101	990803	457227	8603420	457226	8554305	49.1
100770	101	990803	457416	8554975	457427	8603451	48.5
100760	101	990803	457626	8603408	457626	8555633	47.8
100750	101	990803	457821	8556331	457827	8603455	47.1
100740	101	990803	458021	8603383	458024	8556965	46.4
100730	101	990803	458229	8557720	458225	8603444	45.7
100720	101	990803	458427	8603415	458427	8558336	45.1
100710	102	990804	458623	8559056	458627	8603457	44.4
100700	102	990804	458824	8603390	458827	8559691	43.7
100690	102	990804	459034	8560122	459026	8603443	43.3
100680	102	990804	459231	8603416	459222	8560185	43.2
100670	102	990804	459435	8560353	459425	8603449	43.1
100660	102	990804	459627	8603419	459623	8560405	43.0
100650	102	990804	459825	8560570	459827	8603455	42.9
100640	102	990804	460029	8603429	460025	8560646	42.8
100630	102	990804	460228	8560825	460224	8598015	37.2
100620	102	990804	460417	8597883	460428	8560922	37.0
100610	102	990804	460613	8561072	460623	8597938	36.9
100600	102	990804	460824	8597859	460824	8561119	36.7
100590	102	990804	461020	8561325	461023	8597893	36.6
100580	102	990804	461220	8597887	461220	8561380	36.5
100570	103	990804	461422	8561540	461424	8597937	36.4
100560	103	990804	461624	8597865	461623	8561639	36.2
100550	103	990804	461826	8561761	461824	8597938	36.2
100540	103	990804	462030	8597888	462027	8561829	36.1
100530	103	990804	462233	8562002	462229	8596070	34.1
100520	103	990804	462427	8596047	462427	8562108	33.9
100510	103	990804	462615	8562266	462623	8596094	33.8
100500	103	990804	462832	8596046	462821	8562317	33.7

100490	103	990804	463018	8562501	463023	8596093	33.6
100480	103	990804	463219	8596009	463228	8562570	33.4
100470	103	990804	463432	8562739	463421	8596099	33.4
100460	103	990804	463620	8596058	463625	8562826	33.2
100450	103	990804	463822	8562957	463837	8596094	33.2
100440	103	990804	464019	8594171	464041	8563367	30.8
100430	103	990804	464222	8563848	464219	8594257	30.4
100420	103	990804	464414	8594195	464438	8564381	29.8
100410	103	990804	464626	8564882	464637	8594231	29.4
100400	103	990804	464830	8594197	464825	8565545	28.7
100390	104	990808	465030	8565925	465027	8594244	28.3
100380	104	990808	465232	8594175	465226	8566402	27.8
100370	104	990808	465424	8566940	465421	8594224	27.3
100360	104	990808	465614	8594195	465623	8567437	26.8
100350	104	990808	465829	8568010	465827	8594243	26.2
100340	104	990808	466022	8594179	466032	8588515	5.7
100330	104	990808	466244	8588582	466217	8594237	5.7
100320	104	990808	466427	8594202	466426	8588547	5.7
100310	104	990808	466627	8588603	466629	8594238	5.6
100300	104	990808	466823	8594207	466829	8588566	5.6
100290	104	990808	467022	8588634	467032	8594237	5.6
100280	104	990808	467220	8594216	467224	8588556	5.7
100270	104	990808	467428	8588591	467420	8594214	5.6
100260	104	990808	467627	8592354	467639	8588570	3.8
100250	104	990808	467825	8588629	467814	8592397	3.8
100240	104	990808	468025	8592341	468028	8588564	3.8
100230	104	990808	468219	8588627	468228	8592417	3.8
100220	104	990808	468414	8592369	468422	8588586	3.8
100210	104	990808	468622	8588604	468620	8592411	3.8
100200	104	990808	468826	8592363	468826	8588578	3.8
100190	104	990808	469025	8588590	469029	8592393	3.8
100180	104	990808	469227	8592348	469220	8588548	3.8
100170	104	990808	469425	8588628	469421	8592413	3.8
100160	104	990808	469616	8592383	469628	8588590	3.8
100150	104	990808	469825	8588624	469824	8592417	3.8
100140	104	990808	470023	8592358	470027	8588557	3.8
100130	104	990808	470221	8588614	470223	8592414	3.8
100120	104	990808	470426	8592325	470425	8588556	3.8
100110	104	990808	470641	8588650	470619	8592366	3.7
100100	104	990808	470820	8592367	470827	8588575	3.8
100090	104	990808	471022	8588654	471029	8592412	3.8
100080	104	990808	471224	8590513	471222	8588587	1.9
100070	104	990808	471423	8588651	471423	8590546	1.9
100060	104	990808	471615	8590533	471622	8588573	2.0
100050	104	990808	471819	8588615	471818	8590545	1.9
100040	104	990808	472016	8590522	472032	8588592	1.9
100030	104	990808	472220	8588625	472226	8590526	1.9
100020	104	990808	472424	8590486	472429	8588560	1.9
100010	104	990808	472608	8588658	472626	8590533	1.9
100820	104	990808	472819	8590491	472832	8588608	1.9
100830	104	990808	456619	8603399	456627	8553772	49.6
100840	104	990808	456432	8553806	456431	8603419	49.6
100850	104	990808	456225	8603385	456225	8553786	49.6
100860	105	990809	456009	8553831	456022	8603444	49.6
100870	105	990809	455821	8603373	455822	8553767	49.6
100880	105	990809	455622	8553822	455623	8603420	49.6
100890	105	990809	455437	8603397	455424	8553749	49.7
100900	105	990809	455230	8553811	455226	8603414	49.6
100910	105	990809	455028	8603384	455020	8553759	49.6
100920	105	990809	454826	8553778	454826	8603457	49.7
100930	105	990809	454628	8603380	454631	8553778	49.6
100940	105	990809	454425	8553796	454424	8603411	49.6
100950	105	990809	454230	8603373	454222	8553788	49.6
100960	106	990809	454025	8553799	454020	8603434	49.6
100970	106	990809	453827	8603402	453826	8553771	49.6
100980	106	990809	453623	8553821	453631	8603415	49.6

100990	106	990809	453428	8603363	453426	8553773	49.6
101000	106	990809	453253	8553805	453221	8603449	49.7
101010	106	990809	453019	8603370	453024	8553770	49.6
101020	107	990810	452828	8553774	452839	8603427	49.7
101030	107	990810	452624	8603405	452623	8553770	49.6
101040	107	990810	452435	8553780	452424	8603435	49.7
101050	107	990810	452222	8603385	452226	8553749	49.6
101060	107	990810	452020	8553764	452033	8603406	49.6
101070	107	990810	451824	8603386	451822	8553756	49.6
101080	107	990810	451625	8553810	451622	8603401	49.6
101090	107	990810	451415	8603374	451420	8553751	49.6
101100	107	990810	451223	8553766	451225	8603442	49.7
101110	107	990810	451019	8603380	451026	8553722	49.7
101120	108	990810	450826	8553806	450825	8603424	49.6
101130	108	990810	450625	8603403	450624	8553725	49.7
101140	108	990810	450438	8553760	450421	8603448	49.7
101150	108	990810	450240	8603375	450219	8553719	49.7
101160	108	990810	450027	8553782	450026	8603438	49.7
101170	108	990810	449828	8603391	449823	8553711	49.7
101180	108	990810	449642	8553766	449633	8603444	49.7
101190	108	990810	449429	8603354	449437	8553734	49.6
101200	108	990810	449234	8553768	449233	8603415	49.7
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101230	108	990810	448614	8603382	448624	8553738	49.7
101240	109	990811	448417	8553756	448437	8603403	49.7
101250	109	990811	448227	8603391	448223	8553734	49.7
101260	109	990811	448022	8553766	448027	8603418	49.7
101270	109	990811	447827	8603381	447828	8553705	49.7
101280	109	990811	447623	8553783	447624	8603408	49.6
101290	109	990811	447429	8599328	447432	8553695	45.6
101300	109	990811	447230	8553779	447214	8584991	31.2
101310	109	990811	447024	8584965	447024	8553729	31.2
101320	109	990811	446822	8553747	446822	8584974	31.2
101330	109	990811	446644	8584942	446622	8553717	31.2
101340	109	990811	446420	8553785	446413	8584983	31.2
101350	109	990811	446243	8584955	446223	8553715	31.2
101360	109	990811	446029	8553760	446028	8585001	31.3
101370	109	990811	445827	8584937	445819	8553713	31.2
101380	109	990811	445627	8553735	445624	8579793	26.1
101390	109	990811	445431	8579437	445426	8553681	25.8
101400	110	990811	445240	8553766	445221	8579458	25.7
101410	110	990811	445028	8579419	445024	8553681	25.7
101420	110	990811	444832	8553754	444821	8579451	25.7
101430	110	990811	444628	8579415	444621	8553709	25.7
101440	110	990811	444441	8553751	444424	8579464	25.7
101450	110	990811	444221	8579394	444221	8553698	25.7
101460	110	990811	443995	8553771	444024	8579438	25.7
101470	110	990811	443823	8577555	443827	8553716	23.9
101480	110	990811	443625	8553741	443628	8577599	23.9
101490	110	990811	443417	8577563	443424	8553709	23.9
101500	110	990811	443226	8553741	443220	8577614	23.9
101510	110	990811	443020	8577555	443024	8553675	23.9
101520	110	990811	442831	8553738	442820	8577627	23.9
101530	110	990811	442621	8577584	442624	8553693	23.9
101540	110	990811	442418	8553750	442428	8577608	23.9
101550	110	990811	442243	8577556	442224	8553674	23.9
101560	110	990811	442026	8553677	442016	8575745	22.1
101570	110	990811	441823	8575700	441826	8553571	22.1
101580	110	990811	441637	8553535	441641	8575788	22.3
101590	110	990811	441431	8575738	441434	8553399	22.3
102010	111	990812	441223	8553365	441228	8575762	22.4
102000	111	990812	432820	8573878	432825	8550371	23.5
101990	111	990812	433026	8550493	433025	8573933	23.4
101980	111	990812	433228	8573890	433230	8550556	23.3
101970	111	990812	433423	8550622	433424	8573929	23.3

101960	111	990812	433629	8573865	433626	8550667	23.2
101950	111	990812	433821	8550786	433827	8573886	23.1
101940	111	990812	434028	8573894	434029	8550839	23.1
101930	111	990812	434216	8550930	434217	8573926	23.0
101920	111	990812	434425	8573890	434428	8550948	22.9
101910	111	990812	434626	8551061	434623	8573898	22.8
101900	111	990812	434822	8573860	434821	8551101	22.8
101890	111	990812	435024	8551189	435026	8573910	22.7
101880	111	990812	435217	8573868	435231	8551214	22.7
101870	111	990812	435424	8551355	435428	8573914	22.6
101860	111	990812	435614	8573871	435615	8551398	22.5
101850	111	990812	435822	8551505	435827	8573886	22.4
101840	111	990812	436020	8573849	436025	8551493	22.4
101830	111	990812	436234	8551622	436231	8573933	22.3
101820	111	990812	436427	8573871	436425	8551660	22.2
101810	111	990812	436613	8551753	436624	8573883	22.1
101800	111	990812	436828	8573851	436823	8551825	22.0
101790	111	990812	437023	8551924	437022	8573909	22.0
101780	111	990812	437227	8573851	437226	8551930	21.9
101770	112	990812	437429	8552070	437420	8573894	21.8
101760	112	990812	437628	8573856	437626	8552101	21.8
101750	112	990812	437835	8552205	437819	8573918	21.7
101740	112	990812	438030	8573880	438020	8552199	21.7
101730	112	990812	438202	8552322	438220	8573932	21.6
101720	112	990812	438449	8573864	438421	8552352	21.5
101710	112	990812	438627	8552481	438628	8573924	21.5
101700	112	990812	438818	8573888	438829	8552531	21.4
101690	112	990812	439014	8552628	439019	8573916	21.3
101680	112	990812	439233	8573876	439229	8552646	21.2
101670	112	990812	439423	8552770	439432	8573920	21.2
101660	112	990812	439630	8573880	439624	8552788	21.1
101650	112	990812	439791	8552906	439826	8573921	21.0
101640	112	990812	440024	8573860	440029	8552936	20.9
101630	112	990812	440217	8553057	440227	8573936	20.9
101620	112	990812	440432	8553116	440421	8575750	22.6
101610	112	990812	440614	8575720	440623	8553148	22.6
101600	112	990812	440835	8553246	440821	8575738	22.5
101600	112	990812	441021	8575695	441025	8553294	22.4

☐

TOTALS BY FLIGHT

☐☐

FLIGHT LINE KM

☐

☐

1 943.8

☐

2 665.0

3 588.3

4 437.1

5 496.3

6 297.8

7 496.5

8 596.0

9 571.7

10 480.4

11 544.1

12 388.9

TOTAL 6505.8