Logistics Report

for a

DETAILED HELICOPTER ELECTROMAGNETIC AND MAGNETIC GEOPHYSICAL SURVEY

for the

KING RIVER PROJECT

carried out on behalf of

PNC EXPLORATION (AUSTRALIA) PTY LTD

by

UTS GEOPHYSICS

(UTS Job #A338)

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1 GENERAL SURVEY INFORMATION

In October 1999, UTS Geophysics conducted a helicopter borne electromagnetic and magnetic geophysical survey in the King River region of the Northern Terrritory for PNC Exploration (Australia) Pty Ltd.

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

The survey commenced on the 2nd October 1999 and was completed on the 3rd October 1999.

UTS Geophysics provided the described survey for the following company:

PNC Exploration (Australia) Pty Ltd
Suite 603, 83 York Street
SYDNEY NSW 2000

2 SURVEY LOCATION

The area surveyed was approximately 50km north east of Oenpelli 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 132 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 onto a Squirrel helicopter operated by Rotor Services Pty Ltd.

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

General Survey Equipment

- Aerospatiale AS350B helicopter
- UTS proprietory flight planning and survey navigation system.
- UTS proprietory 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-10 radar altimeter

Magnetic Data Acquisition Equipment

- UTS towed bird magnetometer installation
- Scintrex Cesium Vapour CS-2 total field magnetometer.
- RMS Aeromagnetic Automatic Digital Compensator (AADC II).
- Diurnal monitoring magnetometer (Scintrex Envimag).

Electromagnetic Data Acquisition Equipment

- Digitally controlled, frequency domain electromagnetic sensor.
- Multi-frequency operation, allowing user selectable frequencies across a 425Hz to 18KHz range.
- Bird mounted sensor, including all tow cables for helicopter operations.
- UTS towed bird magnetometer installation.

3.1 Survey Aircraft

The helicopter used for the electromagnetic and magnetic survey work was a single engine (Jet Turbine) Eurocopter AS350B Ecurreil (Squirrel) helicopter owned and operated by Rotor Services Pty Ltd.

Performance specifications for this helicopter are provided below.

Power Ratings

Max takeoff power:	641shp
Max continuous power	591shp

Performance

Service ceiling	4755m
Rate of climb, oblique	475m/min
Cruise speed	121Kn
Maximum speed	147Kn

Range

With maximum fuel	732Km
Endurance (no reserves)	4.40 hours
Fuel capacity (Jet A1)	534L

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-10A
- Accuracy — 0.5 metres
- Resolution — 0.1 metres
- Range — 0 - 750 metres
- Sample rate — 0.1 Seconds (10Hz)

3.5 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^{o}C to +50^{o}C

3.6 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^{o}C to +50^{o}C

3.7 Frequency Domain Electromagnetic Sensor

The electromagnetic system used for the survey was a digital, broad band multifrequency sensor providing simultaneous measurements at user selectable frequencies.

The system utilises the latest in high speed digital current switching technology and high sensitivity signal processing to measure multiple, simultaneous frequencies across a bandwidth of 425Hz to 18kHz from a single transmit-receive coil set.

Electromagnetic Sensor Specifications

System Component	Specification
Frequency bandwidth	425Hz to 18kHz
Measured frequencies	User selectable (3-5 frequencies typical)
Bird length	6.4m
Bird weight	107kg
Tx-Rx separation	5.10m
Tx-Bx separation	3.57m
Coil configuration	Horizontal coplanar
Number of Tx-Rx coil pairs	1
Tx moment	410 Am2 (maximum @ 400Hz)
Tx waveform	Programmable (composite sinusoidal waveform standard)
Rx coil turn-area product	285.92
Bx coil turn-area product	92.21
Sample rate	25Hz
Sample interval	1-2m along line
Sensitivity	0.1 ppm
Drift rates	<40 ppm per hour
Primary measurement	Inphase and quadrature

4 PERSONNEL

4.1 Field Operations

UTS Geophysics operators	Nino Tufilli
UTS Geophysics data processors	Russell McChesney
UTS Survey Pilot # 1	Des Rose

4.2 Project Management

Preston Resources Limited	Stewart Williams
UTS Geophysics Perth Office	Neil Goodey

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
King River Project	250m	090-270	2500m	000-180	25m	803
TOTAL						**803**

Electromagnetic Frequencies Measured

Coplanar	725Hz
Coplanar	1525Hz
Coplanar	6125Hz
Coplanar	12975Hz

The total number of line kilometres of survey data collected over the survey area specified in the above table was 803.

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 helicopter and performing in-field quality control and data processing of the survey data. The base location was the PNC Knummargon Exploration Camp(02 October-03 October1999).

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
02/10/99	-	-	Mobilisation to Knummargon Camp. Setup and pre survey testing of equipment.	-	-	-
	1	1	King River Project - Traverse Lines 100010-100110	11	130.9	-
03/10/99	1	2	King River Project - Traverse Lines 100120-100330	22	261.8	-
	1	3	King River Project - Traverse Lines 100340-100550	22	261.8-	-
	1	4	King River Project - Traverse Lines 100560-100000	6	71.4	
	1	T1	King River Project - Traverse Lines 1900010-190050	5	76.5	
04/10/99	-	-	Demobilise from Survey Area	-		
TOTAL				**67**	**802.4**	

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

6.2 Diurnal Magnetometer Locations

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

Area Name	Period	Base Station ID	Location
King River Project	02/10/99 – 03/10/99	01	85m sth of airstrip
	02/10/99 – 03/10/99	02	75m sth of airstrip

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 Electromagnetic Data Processing

The raw electromagnetic 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.

Corrections were applied to the survey data to remove the effects of system drift caused by minor changes in the characteristics of the coils and electronics during the survey. The corrections were derived from the high altitude base line measurements made during the survey flight with a linear interpolation applied on time.

An apparent resistivity channel was calculated for each measured frequency and then gridded to produce a raw drift corrected grid for apparent resistivity.

The data was then corrected to remove any residual parallax errors.

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

Located and gridded data (ER-Mapper and Geosoft formats) was then generated for the final processed resistivity data.

7.3 Apparent Conductivity Interpretation

The model used for deriving apparent conductivity is that of a homogeneous half-space, over which the sensors fly.

Calculations of the response to the magnetic dipole source are carried out with an algorithm that uses plane wave impedance formulas for a half-space (Nabighian, 1987, p183-202) to solve this boundary value problem. As a part of this process, Maxwell's Equations are converted from partial differential equations to ordinary differential equations by a Hankel transform. To speed up the difficult evaluation of the Hankel transforms they are evaluated by a rapid digital filtering technique (Anderson, 1979).

Frequency domain (inphase and quadrature) responses can be calculated with the routines for a half-space of any conductivity at any distance below the transmitter and receiver dipoles. The 'distance' can be treated as the sum of 1. the altitude of the system above ground and 2. the depth below ground of the top of the half-space model. In this way, if we know the altitude of the measurement system above ground (from a radar altimeter measurement) then we use the 'distance' parameter to calculate depth below ground.

A two-dimensional matrix of responses is built up for a range of possible distances and conductivities. For smaller distances to the conductive half-space, inphase and quadrature values are larger. For more conductive half-spaces, responses become more dominantly inphase. Thus, for a given inphase and quadrature response at a given frequency, there is a unique half-space apparent conductivity and distance that can be assigned. Only positive values of inphase and quadrature can be interpreted in this way.

For each measurement of inphase and quadrature response an apparent conductivity and distance value are calculated. Even though only a small number of model responses are calculated for the two-dimensional matrix, conductivities and distances are interpolated in the matrix so that smoothly-varying results are obtained. To make use of the distance information, the radar altitude is subtracted to derive depth below ground of the equivalent half-space.

7.4 Electromagnetic Sensor Calibration

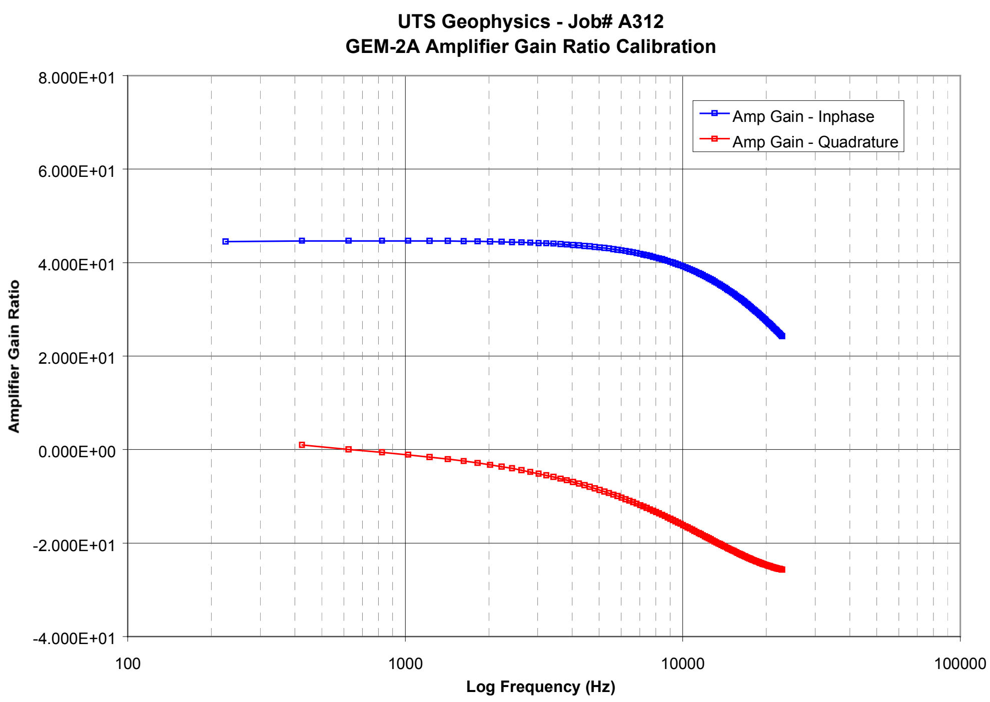
Inversion of GEM-2A data for subsurface conductivity requires that the system response be calibrated. The object of this calibration is to obtain the amplitude and phase response to a well-characterized target, and to then use these calibration factors to correct subsequent measured data. Calibration of the GEM-2A involves measuring the following four calibration factors.

Amplifier Gains

This is the ratio of the gain of the receiver and bucking channel amplifiers. This factor must be known to accurately convert the output of the receiver coil to a ppm value that is related to the strength of the secondary magnetic field induced by a target. While the gains of the amplifiers are carefully designed, there exist frequency-dependent variations in each of the three stages of amplifications.

The gain calibration factor is obtained by injecting a common, known signal into the front end of the amplifier chain. By sweeping the input frequency over the entire usable range of the GEM-2A, a complete calibration versus frequency is collected. Both the in-phase and quadrature (real and imaginary) components are measured.

The graph below shows the in-phase and quadrature components of the gain ratio factors as measured prior to commencement of survey work Subsequent selection of frequencies during the survey work will access the appropriate correction value.

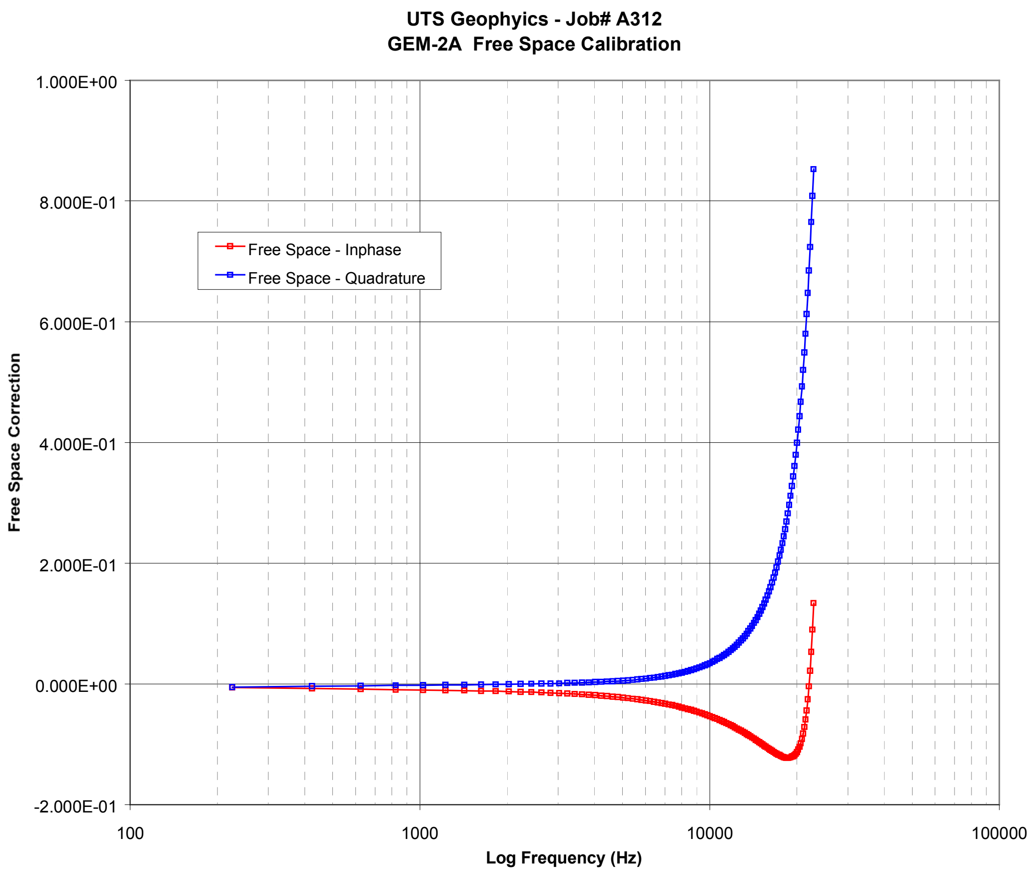


Free Space Corrections

This calibration factor involves the residual offset (or error voltage) in the absence of any target. Theoretically, a coil and amplifier system may be designed that has zero output when there are no targets in the vicinity. In practice, however, imperfections introduced in the construction process limit the ability to attain this goal requiring a small frequency-dependent offset to be applied.

This error signal is measured by raising the instrument to a height of at least 200m so as to be absent of any secondary field and recording the output over the bandwidth of the GEM-2A. The result is a set of "free-space" correction factors that must be subtracted from the measured data during a survey.

The graph bellow shows the in-phase and quadrature components for these free space corrections as measured during calibration prior to commencement of this survey work.



Q-Coil Calibration

The third calibration factor involves measuring the amplitude and phase of a signal induced by a "Q-coil". A Q-coil is a multi-turn coil with known characteristics that is placed along the axis of the GEM-2A. This coil must be characterized in terms of its number of turns, radius, inductance, and resistance. Using elementary electromagnetic theory, the theoretical values for the induced secondary field (in-phase and quadrature) components may be computed. Knowing these theoretical values and the observed ppm anomalies from the GEM-2A, the frequency dependent calibration factor is:

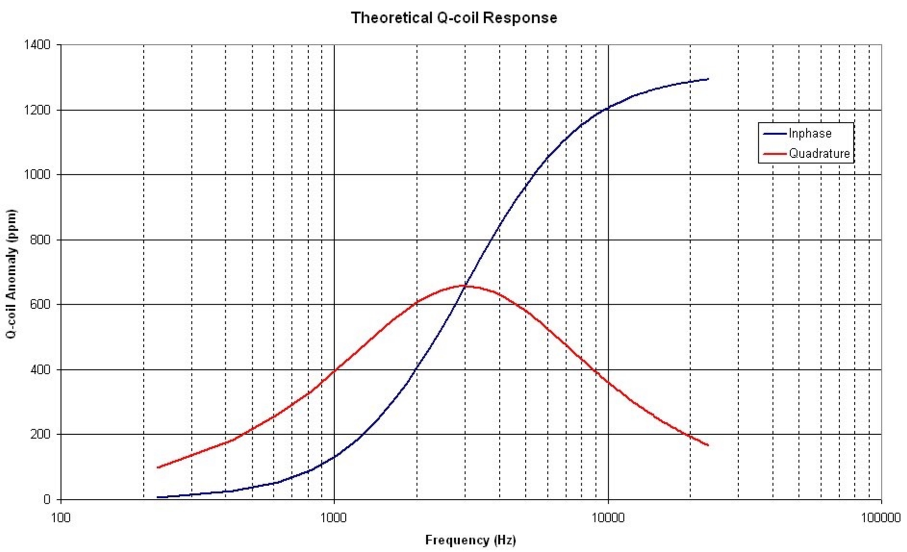
$$\widetilde{C} = \frac{theoretical\ Q - coil\ anomaly}{observed\ Q - coil\ anomaly} = \frac{I_{PPM-Q} + iQ_{PPM-Q}}{I_{PPM-O} + iQ_{PPM-O}} = C_i + iC_q \qquad (1)$$

Knowing the theoretical Q-coil anomaly in terms of it's in-phase and quadrature components and the observed Q-coil anomaly, a complex factor, C, is calculated that corrects the field observations. Calibrated data are then obtained by performing a complex multiplication of the measured data (raw data in ppm) and correction factor, C.

The Q-coil used in the calibration process has the following electrical characteristics and location:

Coil radius	0.24m
Number of turns	14 turns
Inductance	209.2 microhenry
Resistance	5.52 ohm
Qx-Tx separation	6.10m
Qx-Rx separation	1.00m

The theoretical response for the Q-coil defined above is described in the following graph.

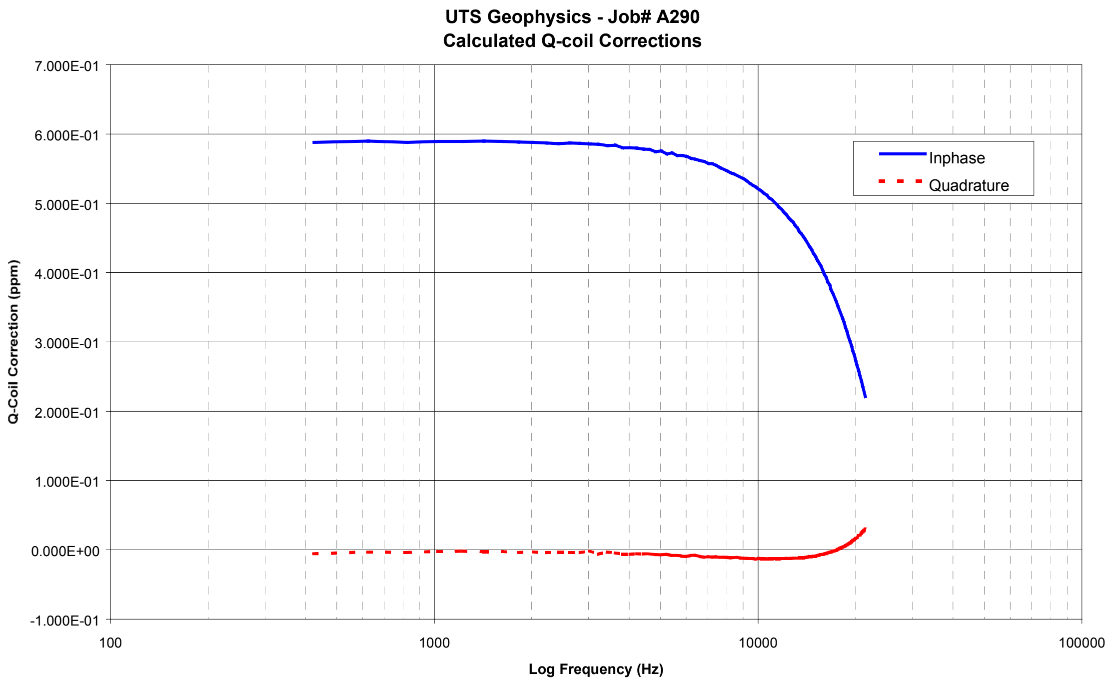


The calibration measurements across the sensor bandwidth are made with the bird sitting on ground stands and with the Q-coil both present and removed in order to remove the background response and calculate the actual Q-coil anomaly.

The measurement bandwidth for a standard Q-coil calibration is 200Hz to 23kHz stepping at 200Hz increments. The time required to sweep this bandwidth is less than 2 minutes.

Each bandwidth sweep (present and removed) is plotted to monitor repeatability and stability of measurement and then averaged to derive a single response for each state. The measured Q-coil anomaly is then calculated by subtracting the background data from the Q-coil present data.

The phase and amplitude of the measured Q-coil anomaly is compared to the theoretical anomaly and then used to derive Q-coil corrections using equation (1) above. The Q-coil corrections derived for the system and used during the survey work are shown in the following graph.



Base Line (Drift) Measurements

Even with the above corrections accurately measured, temperature and pressure changes will cause minor variations in the systems calibration. These changes are monitored during the survey by periodically flying the sensor to a high altitude (usually greater than 200m above ground) and recording the difference from zero of the inphase and quadrature channels at each frequency. The measured offsets from zero are then used to correct the survey data using a linear interpolation with time.

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

ELECTROMAGNETIC 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                        metres
 12     F7.1  GPS HEIGHT (WGS84)                     metres
 13     F8.2  FREQUENCY 1 INPHASE                       ppm
 14     F8.2  FREQUENCY 1 QUADRATURE                    ppm
 15     F8.2  FREQUENCY 1 APPARENT CONDUCTIVITY  mS/m
 16     F8.2  FREQUENCY 2 INPHASE                       ppm
 17     F8.2  FREQUENCY 2 QUADRATURE                    ppm
 18     F8.2  FREQUENCY 2 APPARENT CONDUCTIVITY  mS/m
 19     F8.2  FREQUENCY 3 INPHASE                       ppm
 20     F8.2  FREQUENCY 3 QUADRATURE                    ppm
 21     F8.2  FREQUENCY 3 APPARENT CONDUCTIVITY  mS/m
 22     F8.2  FREQUENCY 4 INPHASE                       ppm
 23     F8.2  FREQUENCY 4 QUADRATURE                    ppm
 24     F8.2  FREQUENCY 4 APPARENT CONDUCTIVITY  mS/m
-------------------------------------------------------------
-----
```

GRIDDED DATASET FORMATS

Gridding was performed using a bicubic spline algorithm.

The following grid formats have been provided:
- ER-Mapper format
- Geosoft 2 byte integer 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	Radiometric total count data
	K	Radiometric potassium data
	U	Radiometric uranium data
	Th	Radometric thorium data
	DT	Digital terrain data
	_FFFF	Electromagnetic data, where FFFF = frequency
EEE	File name extensions	
	LDT	Located digital data file
	FMT	Located data format definition file
	ERS	ER-Mapper gridded data file
	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

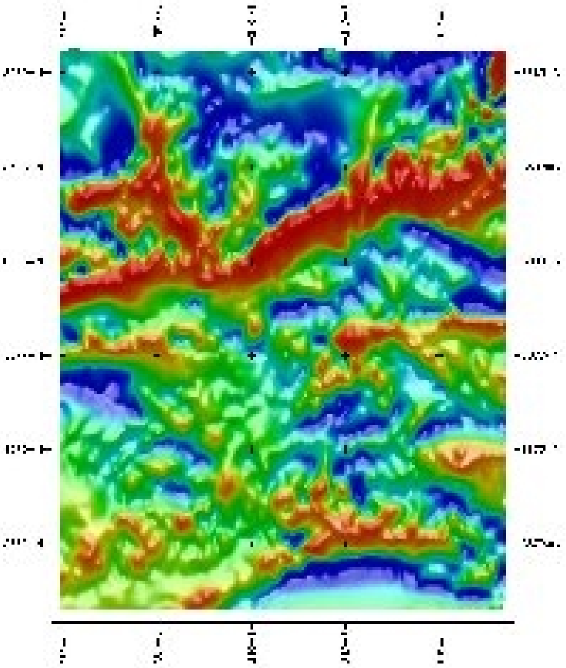
APPENDIX C - SURVEY BOUNDARY DETAILS

Job ID code: A3380101
Client: PNC Exploration (Australia) Pty Ltd
Job: King River Project
Zone 53Grid Zone: 53
Include Point: 0.0 0.00

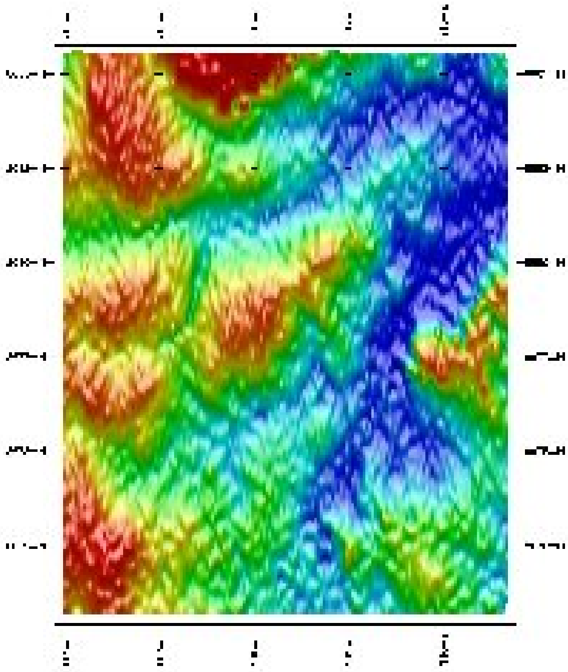
Surround King River

304800.000	8685700.000
316700.000	8685700.000
316700.000	8670400.000
304800.000	8670400.000

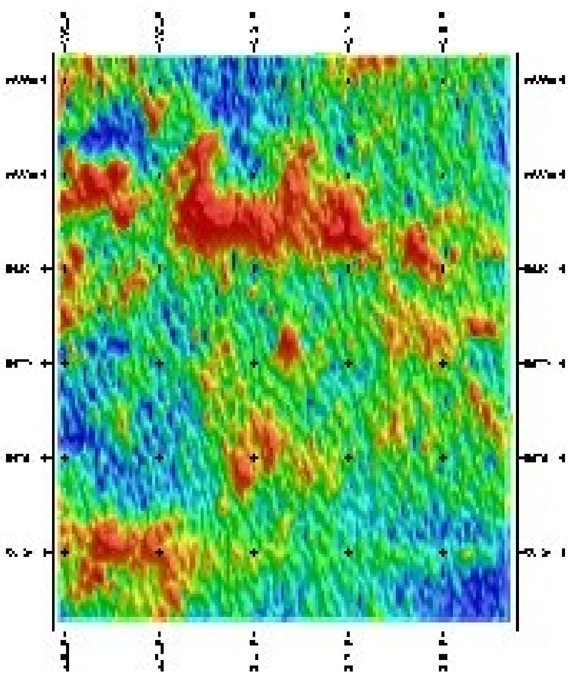
APPENDIX D - PROJECT DATA OVERVIEW – KING RIVER PROJECT



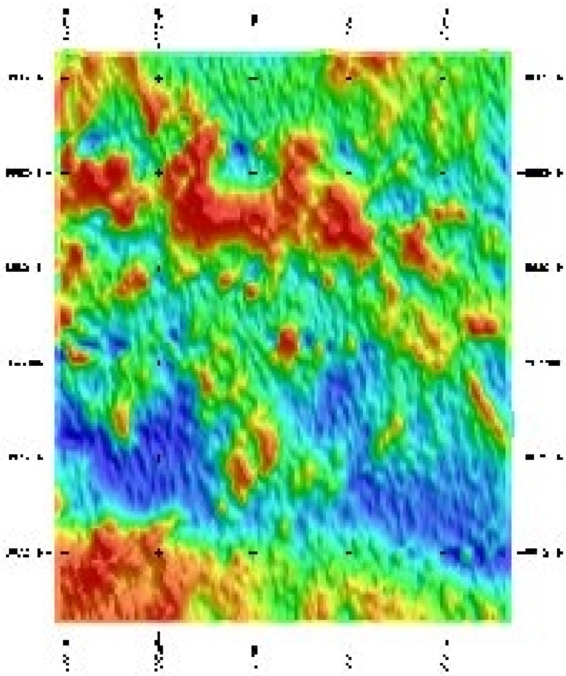
Total Magnetic Intensity



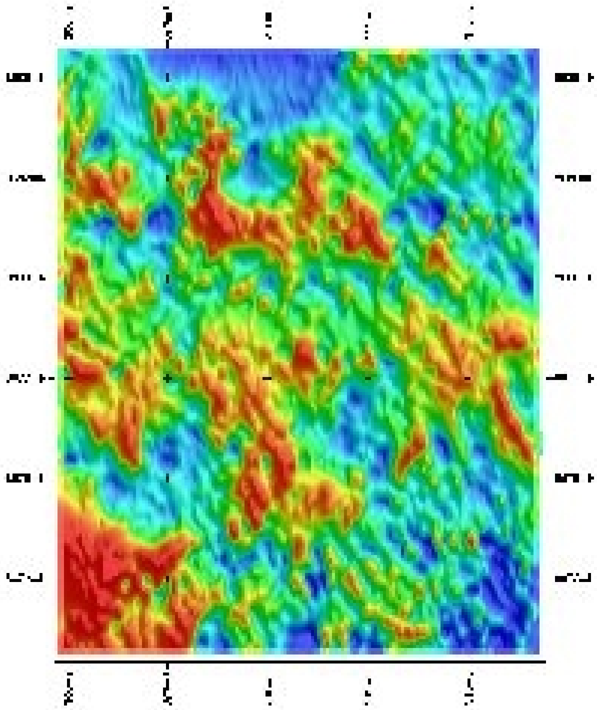
Digital Terrain Model

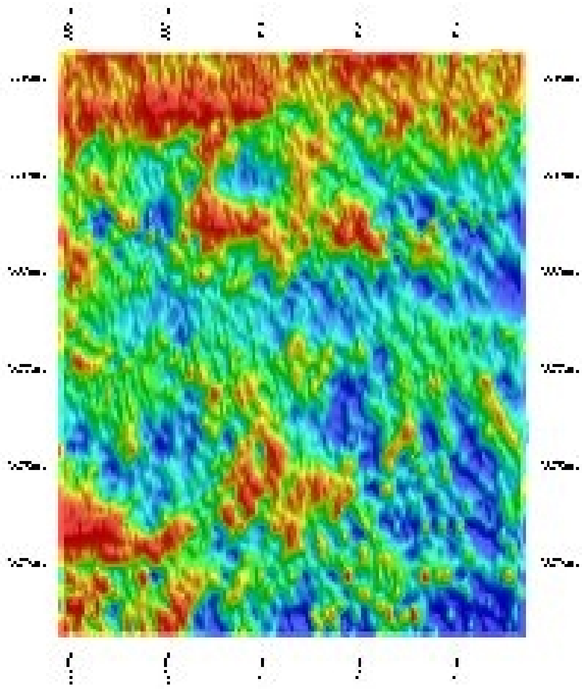


Apparent Conductivity 725Hz



Apparent Conductivity 1525Hz





Apparent Conductivity 6125Hz Apparent Conductivity
12975Hz

APPENDIX E – SURVEY KILOMETRE REPORT

LINE KM REPORT FOR a33801em.ldt

LINE	FLT	DATE	START COORDINATE		END COORDINATE		LINE KM
900020	91	31099	315981	8685795	316003	8670306	15.5
900030	91	31099	313491	8670324	313487	8685790	15.5
900040	91	31099	311030	8685785	310970	8670332	15.5
900050	91	31099	308449	8670317	308526	8685784	15.5
100010	1	21099	306043	8685785	306012	8670351	15.5
100020	1	21099	316756	8670620	304748	8670616	12.0
100030	1	21099	304714	8670863	316763	8670880	12.1
100040	1	21099	316791	8671118	304744	8671129	12.1
100050	1	21099	304739	8671358	316788	8671372	12.1
100060	1	21099	316796	8671600	304728	8671638	12.1
100070	1	21099	304737	8671860	316785	8671869	12.1
100080	1	21099	316780	8672123	304729	8672125	12.1
100090	1	21099	304704	8672340	316760	8672376	12.1
100100	1	21099	316763	8672614	304733	8672615	12.0
100110	1	21099	304729	8672885	316782	8672878	12.1
100120	2	31099	316779	8673109	304708	8673134	12.1
100130	2	31099	304738	8673407	316777	8673378	12.0
100140	2	31099	316769	8673604	304705	8673628	12.1
100150	2	31099	304711	8673880	316772	8673872	12.1
100160	2	31099	316797	8674066	304711	8674130	12.1
100170	2	31099	304708	8674350	316783	8674387	12.1
100180	2	31099	316781	8674612	304709	8674620	12.1
100190	2	31099	304711	8674842	316791	8674872	12.1
100200	2	31099	316788	8675093	304742	8675122	12.1
100210	2	31099	304713	8675398	316764	8675386	12.1
100220	2	31099	316798	8675611	304723	8675628	12.1
100230	2	31099	304743	8675847	316783	8675876	12.0
100240	2	31099	316795	8676101	304735	8676124	12.1
100250	2	31099	304725	8676388	316782	8676388	12.1
100260	2	31099	316778	8676624	304739	8676636	12.1
100270	2	31099	304713	8676888	316784	8676874	12.1
100280	2	31099	316775	8677074	304743	8677132	12.0
100290	2	31099	304708	8677370	316788	8677376	12.1
100300	2	31099	316759	8677570	304729	8677615	12.1
100310	2	31099	304740	8677873	316791	8677868	12.1
100320	2	31099	316773	8678122	304744	8678123	12.0
100330	2	31099	304744	8678362	316772	8678373	12.0
100340	3	31099	316767	8678617	304715	8678604	12.1
100350	3	31099	304714	8678915	316790	8678867	12.1
100360	3	31099	316797	8679072	304722	8679130	12.1
100370	3	31099	304735	8679397	316771	8679372	12.1
100380	3	31099	316756	8679584	304750	8679634	12.0

100390	3	31099	304718	8679886	316789	8679885	12.1
100400	3	31099	316778	8680128	304727	8680126	12.1
100410	3	31099	304725	8680326	316796	8680366	12.1
100420	3	31099	316775	8680582	304748	8680624	12.0
100430	3	31099	304724	8680879	316789	8680881	12.1
100440	3	31099	316763	8681129	304744	8681119	12.0
100450	3	31099	304704	8681380	316763	8681354	12.1
100460	3	31099	316772	8681611	304744	8681609	12.0
100470	3	31099	304733	8681887	316776	8681915	12.1
100480	3	31099	316785	8682089	304731	8682123	12.1
100490	3	31099	304719	8682371	316782	8682373	12.1
100500	3	31099	316792	8682595	304703	8682613	12.1
100510	3	31099	304710	8682853	316772	8682870	12.1
100520	3	31099	316755	8683114	304717	8683104	12.1
100530	3	31099	304726	8683370	316783	8683377	12.1
100540	3	31099	316762	8683631	304723	8683627	12.0
100550	3	31099	304704	8683840	316778	8683869	12.1
100560	4	31099	316789	8684130	304740	8684126	12.1
100570	4	31099	304716	8684363	316776	8684379	12.1
100580	4	31099	316773	8684658	304722	8684626	12.1
100590	4	31099	304712	8684875	316791	8684893	12.1
100600	4	31099	316780	8685093	304733	8685126	12.1
100610	4	31099	304715	8685338	316783	8685383	12.1
100610	4	31099	316797	8685586	304732	8685619	12.1

TOTALS BY FLIGHT

FLIGHT	LINE KM
1	132.7
2	265.5
3	265.5
4	72.5
91	77.4
TOTAL	813.5