Open File Envelope
No. 12,056

EL 3044, EL 3270, EL 3300 AND EL 3554

MULGATHING, JUMBUCK, MOBELLA AND BLOWOUT
[URANIUM EXPLORATION JOINT VENTURE]

DATA RELEASE AT SUBSEQUENT LICENCES' SURRENDER : FARMINEE ANNUAL REPORTS FOR THE PERIOD 1/7/2006 TO 30/6/2008

Submitted by
Deep Yellow Ltd
2008

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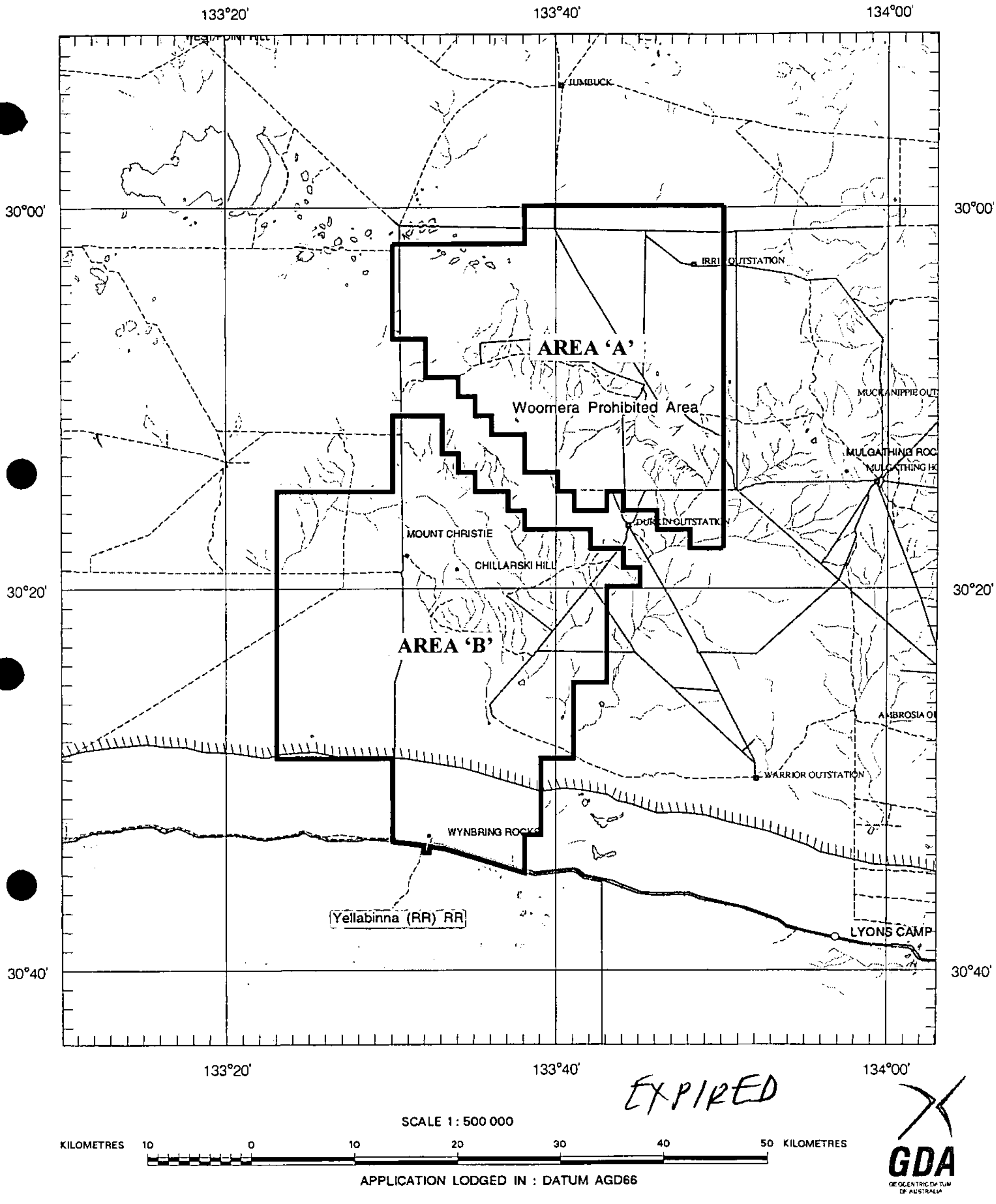
Government of South Australia
Primary Industries and Resources SA

SCHEDULE A



APPLICANT : **DOMINION GOLD OPERATIONS PTY LTD**

FILE REF : **126/02** TYPE : **MINERAL ONLY** AREA : **1704** km² (approx.)

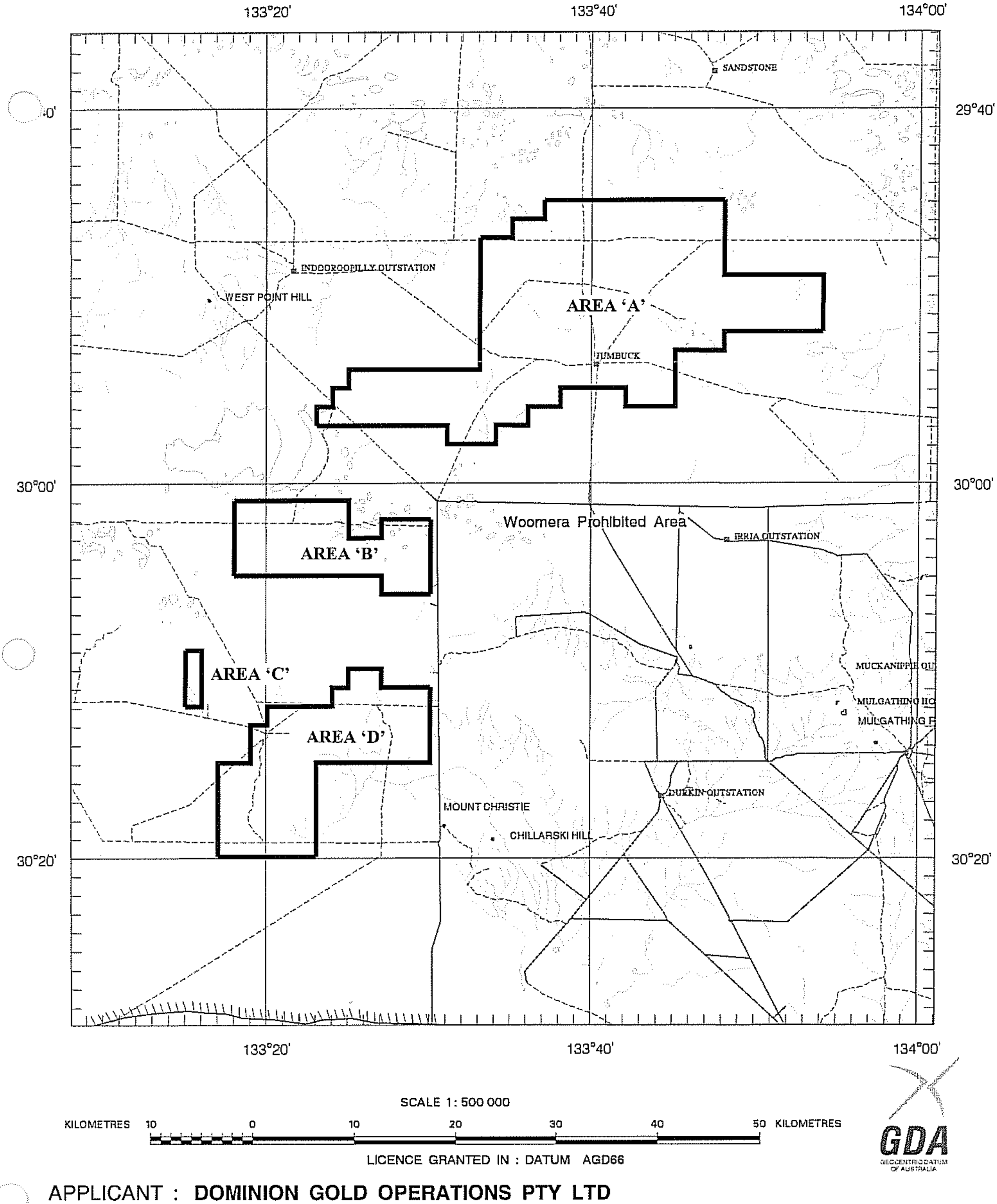
1:250000 MAPSHEETS : **COOBER PEDY BARTON TARCOOLA**

LOCALITY : **MULGATHING AREA - Approximately 80 km northwest of Tarcoola**

DATE GRANTED : **19 November 2002** DATE EXPIRED : **18 November ~~2003~~** **EL No : 3044**

~~2004~~ 2005

SCHEDULE A



LICENCE GRANTED IN : DATUM AGD66

APPLICANT : **DOMINION GOLD OPERATIONS PTY LTD**

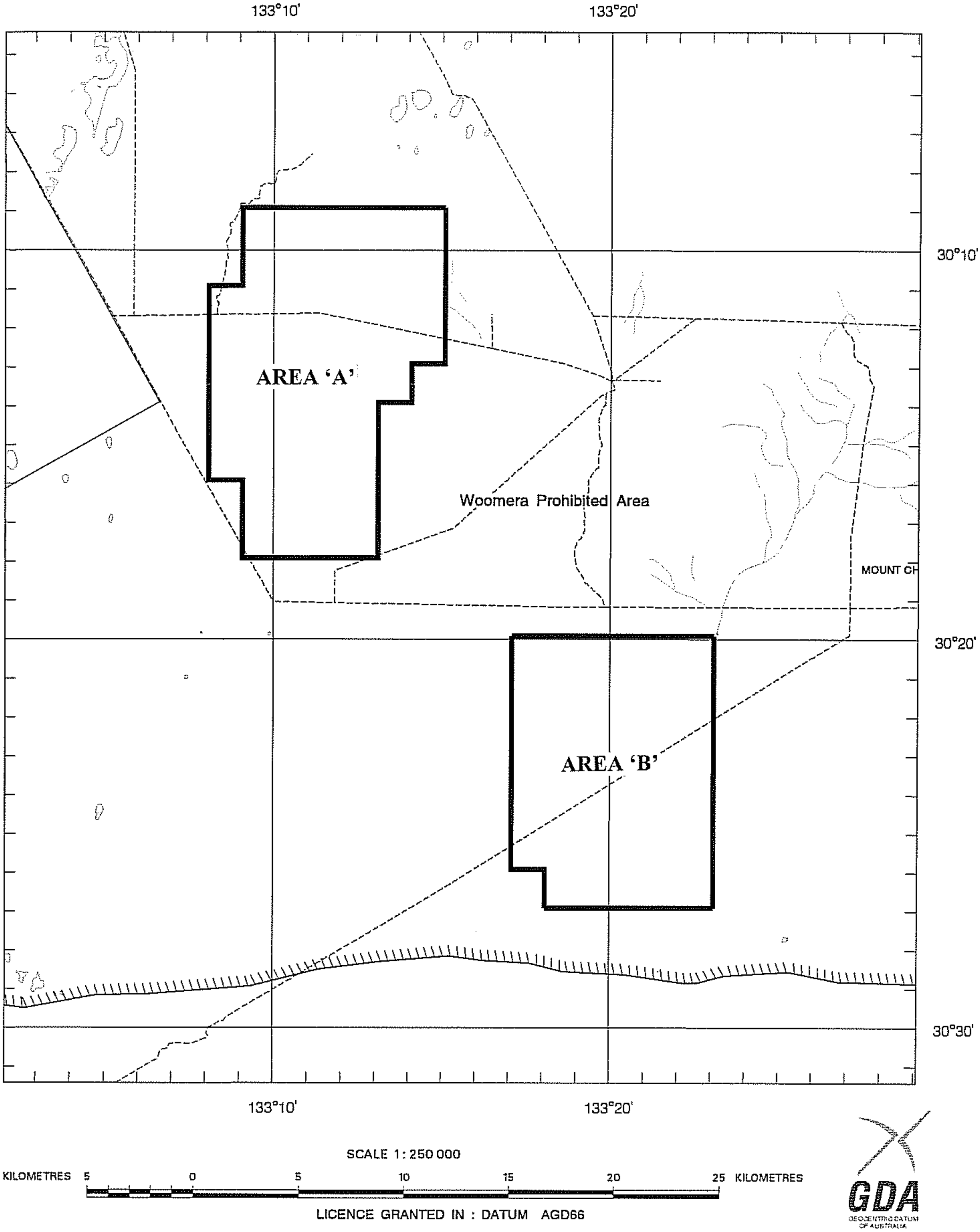
FILE REF : **420/04** TYPE : **MINERAL ONLY** AREA : **933** km² (approx.)

1:250000 MAPSHEETS : **TALLARINGA COOBER PEDY BARTON TARCOOLA**

LOCALITY : **JUMBUCK AREA - Approximately 140 km southwest of Coober Pedy**

DATE GRANTED : **27-Oct-2004** DATE EXPIRED : **26-Oct-~~2005~~** 2006 EL NO : **3270**

SCHEDULE A



APPLICANT : **DOMINION GOLD OPERATIONS PTY LTD**

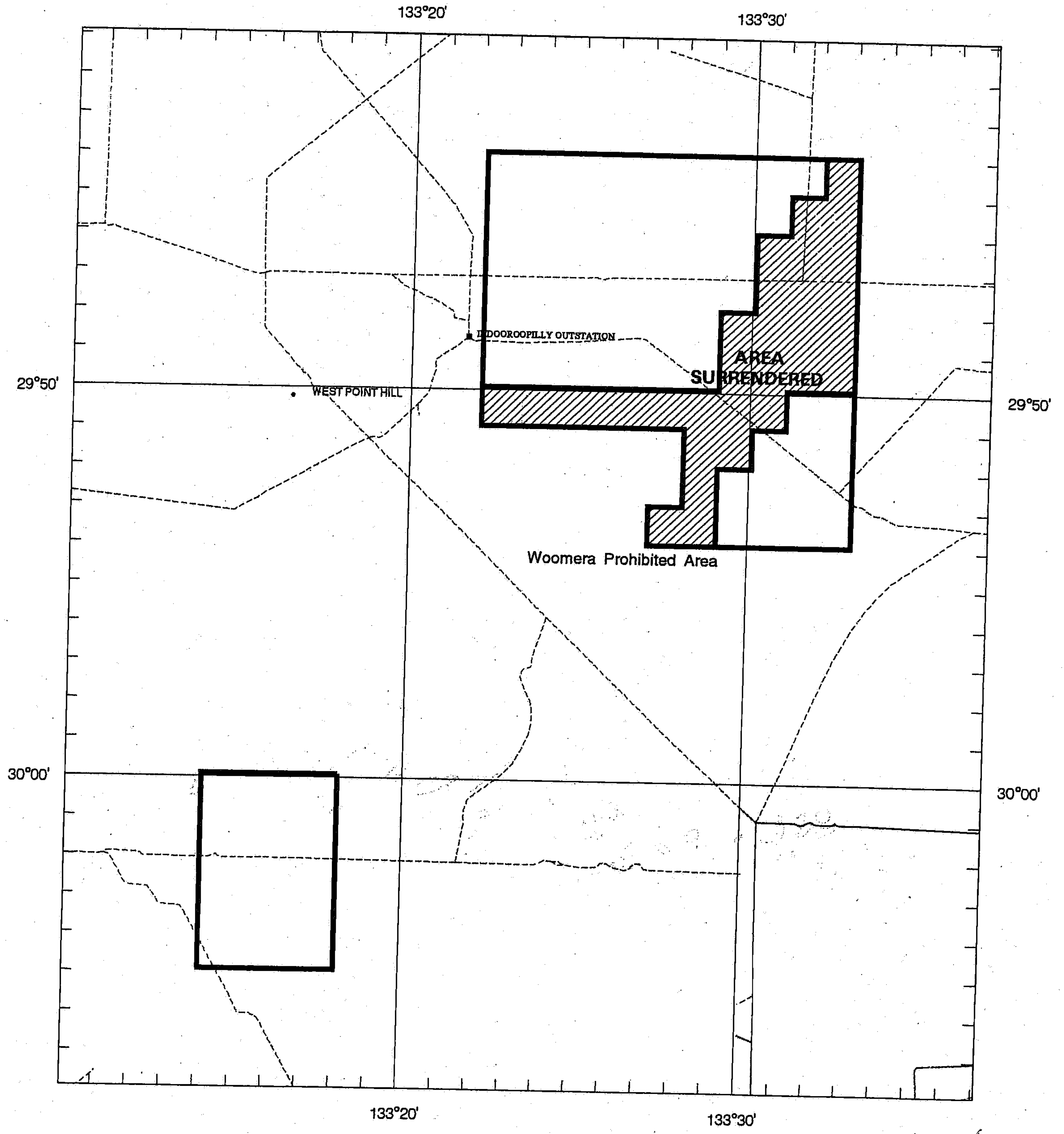
FILE REF : **709/04** TYPE : **MINERAL ONLY** AREA : **270** km² (approx.)

1:250000 MAPSHEETS : **BARTON**

LOCALITY : **MOBELLA AREA - Approximately 140 km WNW of Tarcoola**

DATE GRANTED : **24-Jan-2005** DATE EXPIRED : **23-Jan-2006** EL NO : **3300**

SCHEDULE A



SCALE 1 : 250 000

KILOMETRES 5 0 5 10 15 20 25 KILOMETRES

LICENCE GRANTED IN : DATUM AGD66

GDA

APPLICANT : **DOMINION GOLD OPERATIONS PTY LTD**

FILE REF : **736/05** TYPE : **MINERAL ONLY** AREA : **244** km² (approx.)

1:250000 MAPSHEETS : **TALLARINGA COOBER PEDY BARTON**

LOCALITY : **BLOWOUT AREA - Approximately 160 km northwest of Tarcoola**

DATE GRANTED : **08-May-2006** DATE EXPIRED : **07-May-2009** EL NO : **3554**

DEEP YELLOW LIMITED

ABN 97 006 391 948

ANNUAL REPORT

EXPLORATION LICENCES
3044, 3270, 3300 AND 3554

WESTERN GAWLER JV

BARTON SHEET SH 53-9
TALLERINGA SHEET SH 53-5
TARCOOLA SHEET SH 53-10
COOBER PEDY SH

1 July 2006 – 30 June 2007

Holders: Dominion Gold Operations Pty Ltd

Operator: Deep Yellow Ltd

Author: G Gee

Date: September 2007

Distribution:
- ☐ Primary Industries and Resources, SA (1)
- ■ Dominion Gold Operations Pty Ltd (1)
- ☐ Deep Yellow Limited (1)

CONTENTS

1.0 SUMMARY

The Western Gawler Joint Venture tenements are located 800 kilometres northwest of Adelaide, and overlie the Gawler Craton (see Figure 1). Deep Yellow Limited (DYL) has been conducting exploration under the terms of an agreement dated 22 February 2006 with the registered holder, Dominion Gold Operations Pty Ltd (DGO).

This report covers exploration conducted by DYL on Exploration Licences 3044, 3270, 3300 and 3554 during the period ending 30 June 2007.

Access to the tenement area is via the Challenger Mine Access Road, from the Stuart Highway. Numerous Station tracks traverse the area; being parts of Commonwealth Hill, Mulgathing and Mobella Pastoral Leases.

Previous exploration within the tenements has been directed chiefly toward gold and base metal exploration. Shallow but extensive calcrete sampling datasets exist, with ongoing multi-element re-analysis in progress by PIRSA. Regionally, both past and present exploration of paleodrainage uranium targets has taken place, though not within the JV tenements

To better delineate palaeochannel development within the tenement, a 2,840 line kilometre Airborne Electromagnetic (AEM) survey was flown over the tenement area. Interpretation of the preliminary data confirmed the presence of meandering conductive traces indicative of paleodrainage development. Previous regional exploration has shown these paleochannels have potential for redox-style uranium traps associated with the Tertiary Pidinga Formation. The AEM data also outlined the junction of the target drainage with the major paleodrainage elements known as the Garford and Anthony Paleochannels.

Following drill site clearance by the Antakirinja Native Title Claimants, a 10,000 metre, 140 hole air-core drill programme is planned for July 2007. The proposed budget for the 12 months to 1 December 2007 is $185,000.

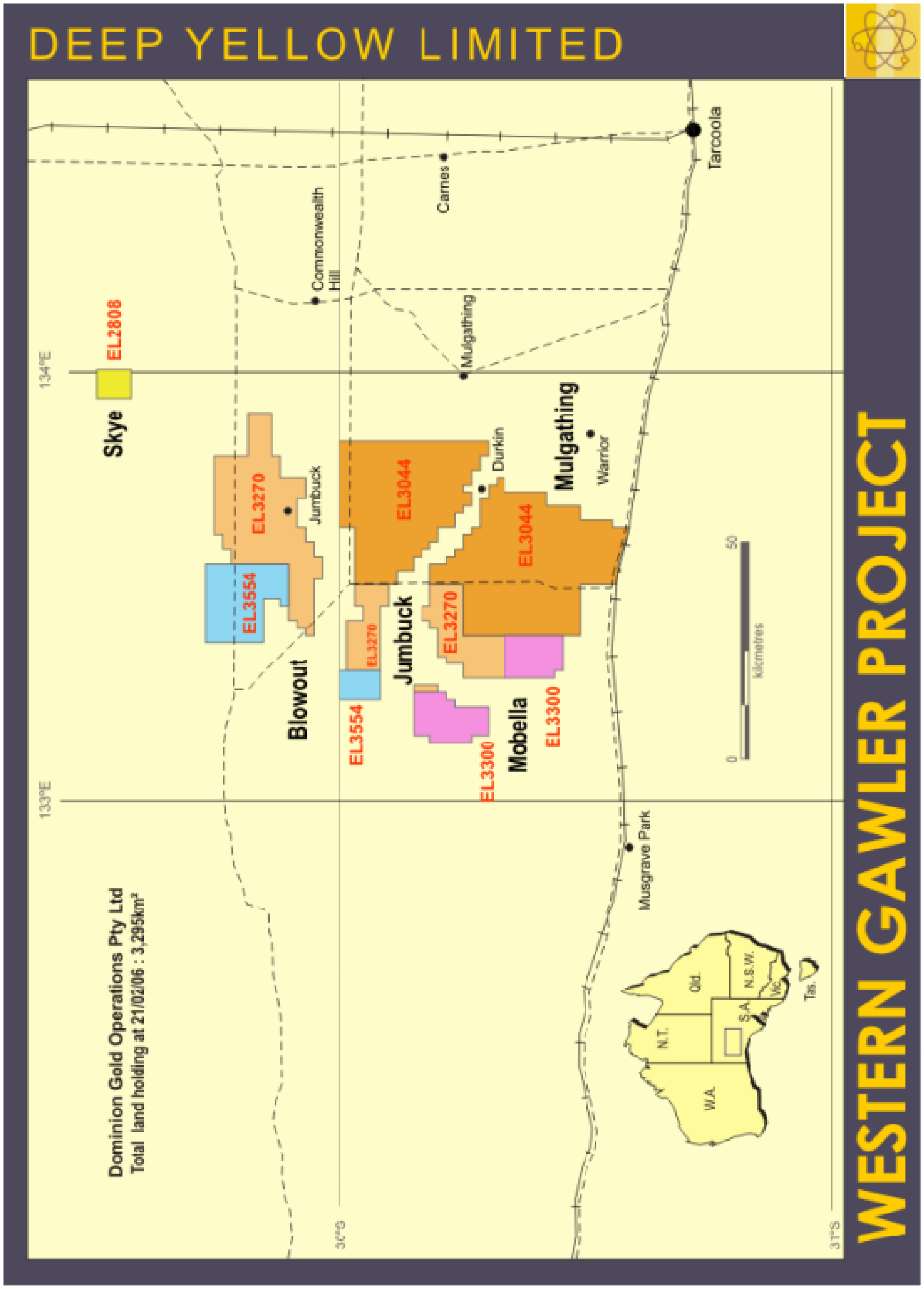


Figure 1. Tenement Location Plan

2.0 EXPLORATION INDEX MAP

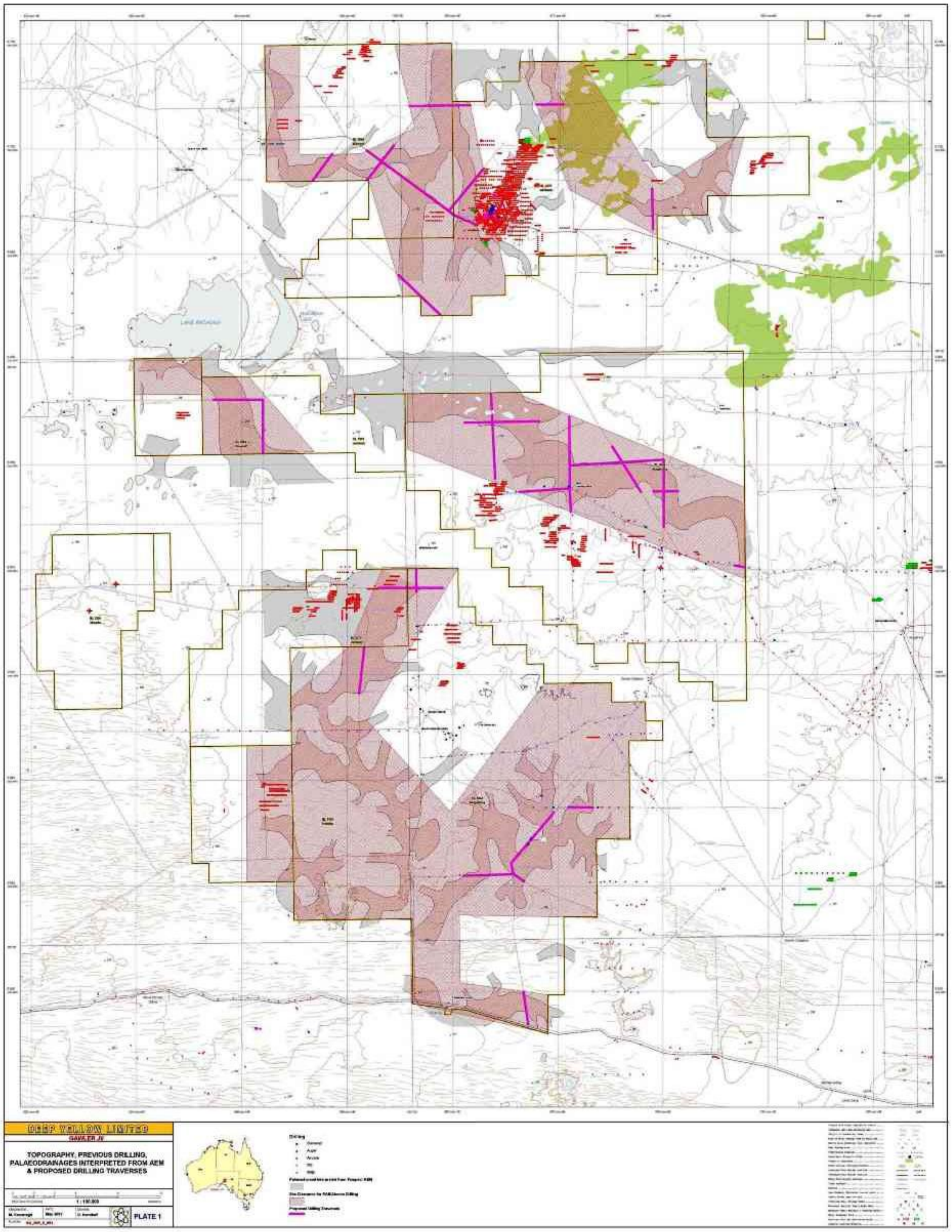


Figure 2. Exploration Index Map

3.0 KEYWORDS

Paleochannel hosted uranium, Gawler Craton, Anthony Paleochannel, Sand/Lignite/Calcrete Hosts, Pidinga Formation.

4.0 INTRODUCTION, PREVIOUS EXPLORATION AND EXPLORATION RATIONALE

4.1 Introduction

The Western Gawler Joint Venture tenements are located 800 kilometres northwest of Adelaide, and some 167 kilometres to the east of the Stuart Highway. Under the terms of the Heads of Agreement dated 22 February 2006, DYL is able to acquire 100% of the uranium rights to DGO's Western Gawler tenements.

Exploration in the area targets tabular and roll-front uranium mineralisation developed within palaeochannels. Target host lithologies include lignite, sands and calcrete.

This report covers exploration conducted by DYL on Exploration Licences 3044, 3270, 3300 and 3554 during the period ending 30 June 2007. Details of these Exploration Licences are shown in Table 1 below.

Table 1: Tenement Details

EL No.	Name	Grant Date	Expiry Date	Area Km^2
3044	Mulgathing	19 Nov 2002	18 Nov 2007	1,704
3270	Jumbuck	27 Oct 2004	26 Oct 2007	933
3300	Mobella	24 Jan 2005	23 Jan 2008	270
3554	Blowout	8 May 2006	7 May 2008	336

To better delineate palaeochannel development within the tenement prior to drilling, a 2,840 line kilometre Airborne Electromagnetic (AEM) survey was flown over the tenement area in August 2006. Interpretation of the preliminary data indicates the presence of major and subsidiary paleodrainage across the tenement area. Scout aircore drilling is planned to delineate any uranium-anomalous areas within these channels.

4.2 Previous Exploration

Previous exploration over these tenements has been primarily targeted at gold and base metals. This drilling/surface sampling included considerable shallow calcrete sampling and some follow-up RC drilling over gold-in-calcrete anomalies. Regionally, some historic paleochannel-uranium drilling has also overlapped onto the JV ground; targeting repetitions of the *Warrior-style* mineralisation, without success. Unfortunately, most of the calcrete sampling was directed at in-situ calcrete over shallow basement subcrop and not toward paleochannel sediments. Some of the calcrete sampling has been re-assayed for multi-elements including uranium, but only low tenor values indicative of a low regional background were returned.

4.3 Exploration Rationale

Initially it was anticipated that the extensive calcrete sample- pulp library could be easily accessed and re-assayed for uranium; and thus generate drill targets. PIRSA are the custodians of these pulps and they are generating multi-element assays from these pulps as and when their resources permit. A more expedited approach of paleochannel delineation via airborne EM survey and aircore drilling has been executed, which it is anticipated, will lead to definition of follow-up drill targets.

5.0 GEOLOGY AND MINERALISATION

5.1 Regional Geology

The JV tenements overlie the Gawler Craton; Archaean/Proterozoic Mulgathing Complex forms much of the crystalline basement. Phanerozoic sediments comprising elements of the Officer, Arckaringa and Eromanga basins either blanket or exist as down-faulted remnants within the older basement. Cainozoic paleodrainages have been incised into the Phanerozoic and Precambrian rocks.

5.2 Local Geology

Metasediments of the Christie Gneiss are expected to be the dominant crystalline basement type encountered. Fluvial surficial sediments of highly variable thickness are expected to overlie fluvio-lacustrine Tertiary Pidinga or Garfield Formation carbonaceous sediments in paleovalley settings. Deeper Permo-Carboniferous basinal sediments are also likely to underlie the thicker Tertiary sections.

5.3 Uranium Mineralisation and Targets

Whilst there is no uranium mineralisation known within the JV tenements, there are isolated anomalous assays recorded adjacent to the regional saline drainage sumps associated with surficial sediments. A significant uranium-in-lignite prospect (the *Warrior* prospect) occurs southeast of the JV ground, within paleochannel-hosted, Eocene ?Pidinga Formation.

Repetitions of *Warrior-style* mineralisation are the most plausible conceptual targets presenting. They are likely to be at shallow depth; tabular; located on paleodrainage flanks and close to trunk drainage intersections or terminal drainage sumps.

Sand or sandstone U roll-front targets are possible at greater depths where marginal or terminal oxidation fronts extend down the drainage axis. Sheeted or shoestring sand geometries might be expected.

Calcrete or calcareous-deltaic targets may exist in proximity to saline drainage sumps. Unfortunately, this type of play presents few opportunities within the JV leases, and in any case, the Aboriginal sites survey has proscribed any activity within one kilometre of significant-sized lake or saline flats.

6.0 GEOPHYSICS

Fugro Airborne Surveys were contracted to fly an Airborne Electromagnetic (AEM) survey over the entire tenement area in August 2006, amounting to 2,840 line-km. The breakdown of line-km versus tenement is as follows:

Tenement	*Line-km Flown*
EL 3554	288
EL 3044	1,438
EL 3270	1,086
EL 3300	28

A full technical report on the survey specifications is given in Appendix 1.

(AEM data - see Government of South Australia Mineral Resources

Website) Flight line coverage is shown in Figure 3.

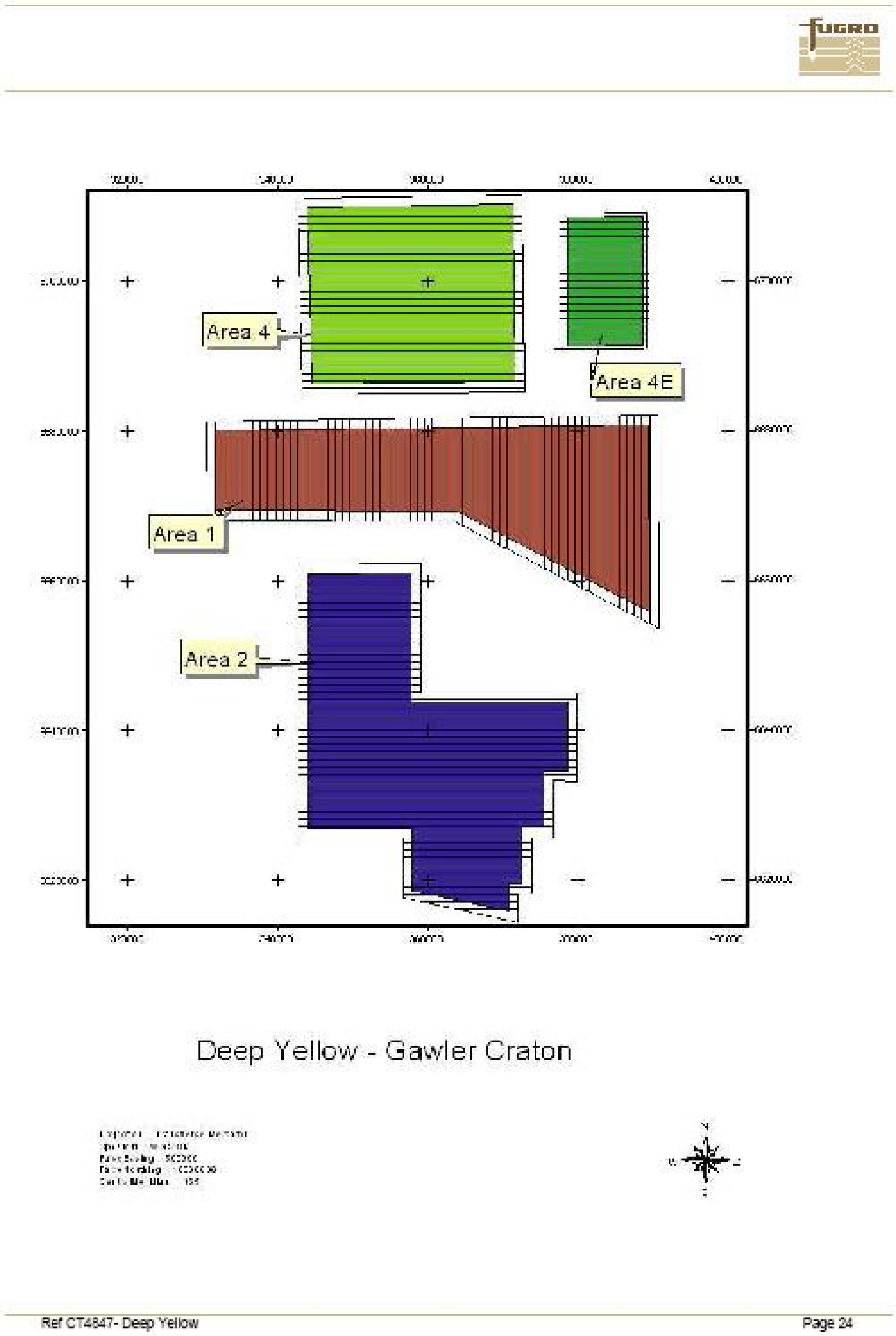


Figure 3. AEM Flight Line Coverage

7.0 ENVIRONMENTAL MANAGEMENT

No ground disturbing activities have been conducted to date by DYL, although an aircore drill rig had been mobilised to site ready to start a programme of scout drilling, using only existing natural access.

8.0 CONCLUSIONS

Various exploration plays exist within the tenements; all paleochannel-related. Initially, calcrete, lignite and sand hosted U targets will be sought. Scout aircore drilling will investigate the drainages down to 100 metres depth. Downhole gamma probing and assaying of selected intervals will focus follow-up infill drilling.

9.0 REFERENCES

Information relating to past exploration, regional geology, tenement geology, mineralisation styles was compiled from DYL database files.

APPENDIX I

FUGRO GAWLER TEMPEST SURVEY

Deep Yellow, South Australia
TEMPEST
Geophysical Survey

Acquisition and Processing Report

for

Deep Yellow Ltd

Prepared by : M. Noteboom …………………………..

L. Stenning …………………………..

Authorised for release by : …………………………..

…………………………..

Survey flown: August 2006

by

Fugro Airborne Surveys
65 Brockway Road, Floreat. WA 6014, Australia
Tel: (61-8) 9273 6400 Fax: (61-8) 9273 6466

FAS JOB # 1811

CONTENTS

1. SURVEY OPERATIONS AND LOGISTICS

1.1 Introduction

Between the 11th of August 2006 and the 18th of August 2006, Fugro Airborne Surveys Pty. Ltd. (FAS) undertook an airborne TEMPEST electromagnetic and magnetic survey for Deep Yellow Ltd, over four areas of the Gawler Craton, South Australia. Total coverage of the survey area amounted to 3043 line kilometres flown in 5 flights. The survey was flown using a CASA C212-200 Turbo Prop aircraft, registration VH-TEM, 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 Coober Pedy, South Australia. The survey aircraft was operated from the Coober Pedy airport with the aircraft fuel available on site. A temporary office was set up in a room at the Opal Inn, Coober Pedy, where all survey operations were run and the post-flight data verification was performed.

1.3 Survey Personnel

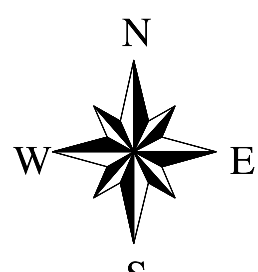
The following personnel were involved in this project:

Project Supervision - Acquisition	Bart Anderson
- Processing	Kathlene Oliver
On-site Crew Leader	John Stewart
Pilot/s	Tim Haldane, Max Eichorn
System Operator/Technician	John Stewart
Field Data Processing	Matthew Noteboom, Nadir Halim
Office Data Processing	Stephen Carter, Matthew Noteboom, Alex Low

1.4 Area Maps

Deep Yellow Limited
Deep Yellow Areas 1, 2, 4, 4E, South Australia
Tempest Survey

Datum: GDA94
Projection: MGA
Zone: 53



2. SURVEY SPECIFICATIONS AND PARAMETERS

2.1 Area Co-ordinates

The survey area was located within UTM Zone 53S, Central Meridian = 135
(Note - Co-ordinates in WGS84 Zone 53)

Area 1

Easting	Northing
387829	6681144
387970	6655370
362025	6668973
329575	6669113
329431	6680445

Area 2

Easting	Northing
373849	6634339
373849	6626690
370871	6626690
370871	6619246
369170	6619246
369170	6615566
355761	6618447
355761	6626584
341828	6626584
341828	6661198
356088	6661308
356088	6644034
377040	6644034
377040	6634232

Area 4

Easting	Northing
342161	6709936
369428	6710352
369705	6686545
342576	6686268
342022	6709798

Area 4E

Easting	Northing
376753	6708593
386785	6708745
386785	6691568
376753	6691416

2.2 Survey Area Parameters

Job Number	-	1811
Survey Company	-	Fugro Airborne Surveys Pty Ltd
Date Flown	-	11th August 2006 – 18th August 2006
Client	-	Deep Yellow Ltd
EM System	-	25 Hz TEMPEST
Navigation	-	Real-time differential GPS
Datum	-	GDA94 (MGA Zone 53)
Area Name	-	Deep Yellow, South Australia
Nominal Terrain Clearance	-	120 m
Total Survey Line Kilometres	-	3043 km

Area	Traverse Line Spacing	Traverse Line Direction	Traverse Line Numbers	Line km
1	1000 m	0 – 180	10010 - 10590	986.6
2	1000 m	90 – 270	20010 - 20460	1104.3
4	1000 m	90 – 270	40010 - 40240	713.2
4E	1000 m	90 – 270	40020 - 40200	238.8

2.3 Flight Plans

The flight plans are given in Appendix I.

2.4 Job Safety Plan

A Job Safety Plan was prepared and implemented in accordance with the Fugro Airborne Surveys Occupational Safety & Health Management System.

3. AIRCRAFT EQUIPMENT AND SPECIFICATIONS

3.1 Aircraft

Manufacturer	-	CASA
Model	-	C212-200 Turbo Prop
Registration	-	VH-TEM
Ownership	-	Fugro Airborne Surveys Pty Ltd

3.2 TEMPEST System Specifications

Specifications of the TEMPEST Airborne EM System (Lane et al., 2000) are:

- Base frequency - 25 Hz
- Transmitter area - 244 m^2
- Transmitter turns - 1
- Waveform - Square
- Duty cycle - 50%
- Transmitter pulse width - 10 ms
- Transmitter off-time - 10 ms
- Peak current - 280 A
- Peak moment - 61880 Am^2
- Average moment - 30940 Am^2
- Sample rate - 75 kHz on X and Z
- Sample interval - 13 microseconds
- Samples per half-cycle - 1500
- System bandwidth - 25 Hz to 37.5 kHz
- Flying height - 120 m (subject to safety considerations)
- EM sensor - Towed bird with 3 component dB/dt coils
- Tx-Rx horizontal separation - 120 m (nominal)
- Tx-Rx vertical separation - 30 m (nominal)
- Stacked data output interval - 200 ms (~12 m)
- Number of output windows - 15
- Window centre times - 13 μs to 16.2 ms
- Magnetometer - Stinger-mounted caesium vapour
- Magnetometer compensation - Fully digital
- Magnetometer output interval - 200 ms (~13 m)
- Magnetometer resolution - 0.001 nT
- Typical noise level - 0.2 nT
- GPS cycle rate - 1 second

3.2.1 EM Receiver and Logging Computer

The EM receiver computer is a Picodas PDAS-1000 data acquisition system. The EM receiver computer executes a proprietary program for system control, timing, data acquisition and recording. Control, triggering and timing is provided to the TEMPEST transmitter and DSP signal processing boards by the timing card, which ensures that all waveform generation and sampling is accomplished with high accuracy. The timing card is synchronised to GPS through the use of the PPS output from the system GPS card. Synchronisation is also provided to the magnetometer processor card for the purpose of accurate magnetic sampling with respect to the EM transmitter waveform.

The EM receiver computer displays information on the main screen during system calibrations and survey line acquisition to enable the airborne operator to assess the data quality and performance of the system.

3.2.2 TEMPEST Transmitter

The transmitted waveform is a square wave of alternating polarity, which is triggered directly from the EM receiver computer. The nominal transmitter base frequency was 25 Hz with a pulse width of 10ms (50 % duty cycle). Loop current waveform monitoring is provided by a current transformer located directly in the loop current path to allow for full logging of the waveform shape and amplitude, which is sampled by the EM receiver.

3.2.3 TEMPEST 3-Axis Towed Bird Assembly

The TEMPEST 3-axis towed bird assembly provides accurate low noise sampling of the X (horizontal in line), Y (horizontal transverse) and Z (vertical) components of the electromagnetic field. The receiver coils measure the time rate of change of the magnetic field (dB/dt). Signals from each axis are transferred to the aircraft through a tow cable specifically designed for its electrical and mechanical properties.

3.3 PDAS 1000 Survey Computer

The SURVEY computer is a PICODAS PDAS 1000 data acquisition system. The SURVEY computer executes a proprietary program for acquisition and recording of location, magnetic and ancillary data. Data are presented both numerically and graphically in real time on the VGA LCD display, which provides an on-line display capability. The operator may alter the sensitivity of the displays on-line to assist in quality control. Selected EM data are transferred from the EM receiver computer to the SURVEY computer for QC display.

3.3.1 Caesium Vapour Magnetometer Sensor

A caesium vapour magnetometer sensor is utilised on the aircraft and consists of the sensor head and cable, and the sensor electronics. The sensor head is housed at the end of a composite material tail stinger.

3.3.2 Magnetometer Processor Board

A Picodas magnetometer processor board is used for de-coupling and processing the Larmor frequency output of the magnetometer sensor. The processor board interfaces with the PDAS 1000 survey computer, which initiates data sampling and transfer for precise sample intervals and also with the EM receiver computer to ensure that the magnetic samples remain synchronised with the EM system.

3.3.3 Fluxgate Magnetometer

A tail stinger mounted Bartington MAG-03MC three-axis fluxgate magnetometer is used to provide information on the attitude of the aircraft. This information is used for compensation of the measured magnetic total field.

3.3.4 GPS Receiver

A Novatel GPScard 951R is utilised for airborne positioning and navigation. Satellite range data are recorded for generating post processed differential solutions.

3.3.5 Differential GPS Demodulator

The OMNISTAR differential GPS service provides real time differential corrections.

3.4 Navigation System

A Picodas PNAV 2001 Navigation Computer is used for real-time navigation. The PNAV computer loads a pre-programmed flight plan from disk which contains boundary co-ordinates, line start and end co-ordinates, local co-ordinate system parameters, line spacing, and cross track definitions. The WGS-84 latitude and longitude positional data received from the Novatel GPScard contained in the SURVEY computer is transformed to the local co-ordinate system for calculation of the cross track and distance to go values. This information, along with ground heading and ground speed, is displayed to the pilot numerically and graphically on a two line LCD display, and on an analog HSI indicator. It is also presented on a LCD screen in conjunction with a pictorial representation of the survey area, survey lines, and ongoing flight path.

The PNAV is interlocked to the SURVEY computer for auto selection and verification of the line to be flown. The GPS information passed to the PNAV 2001 navigation computer is corrected using the received real time differential data, enabling the aircraft to fly as close to the intended track as possible.

3.5 Altimeter System

3.5.1 Radar Altimeter

Model:	Sperry RT-200 radio altimeter system
Sample interval:	1.0 second
Accuracy:	+/- 1.5 % of indicated altitude.

The Sperry radio altimeter is a high quality instrument whose output is factory calibrated. It is fitted with a test function which checks the calibration of a terrain clearance of 100 feet, and altitudes which are multiples of 100 feet. The aircraft radio altitude is recorded onto digital tape as well as displayed on the aircraft chart recorder. The recorded value is the average of the altimeters output during the previous second.

3.5.2 Barometric Altimeter

Output of a Digiquartz 215A-101pressure transducer is used for calculating the barometric altitude of the aircraft. The atmospheric pressure is taken from a gimbal-mounted probe projecting 0.5 metres from the wing tip of the aircraft and fed to the transducer mounted in the aircraft wingtip.

3.6 Video Tracking System

The video tape recorded by a PAL VHS colour video system is synchronised with the geophysical record by a digital fiducial display, which is recorded along with GPS latitude and longitude information and survey line number.

3.7 Data Recorded by the Airborne Acquisition Equipment

Raw EM data including fiducial, local time, X, Y, Z axis sensor response, current monitor and bird auxiliary sensor output are recorded on the EM receiver computer as "**G**" EM files.

The Survey computer records all other survey data including aeromagnetic and GPS data using as "**S**" Survey files, and "**R**" Rover files containing GPS raw range data for post processing.

4. GROUND DATA ACQUISITION EQUIPMENT AND SPECIFICATIONS

4.1 Magnetic Base Station

Two Geometrics G856 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 approximately 80 m apart at Coober Pedy airport.

4.2 GPS Base Station

A GPS base logging station was set up at the survey base office. The GPS antenna was positioned on the roof of the Opal Inn, Coober Pedy, near room 42.

The GPS base system was comprised of a Novatel GPS PC card mounted in a portable Toshiba computer. The computer is connected to a mains UPS backup, with a reserve capacity of approximately 100 minutes, to ensure continuous data logging in the event of mains power interruptions.

The GPS base station position was calculated by logging data continuously at the base position over a period of 24 hours. These data were then statistically averaged to obtain the position of the base station using GrafNav software.

The calculated GPS base position was (in WGS84):

Lat: 29° 00' 52.49651" S
Long: 134° 45' 15.27791" E
Height: 236.222 m. (WGS84 Ellipsoidal Height)

5. EM AND OTHER CALIBRATIONS AND MONITORING

At the beginning and end of each individual survey flight, the EM system is checked for background noise levels and performance. All of these checks are conducted at a nominal terrain clearance of 600 m (2000 ft) to eliminate ground response.

These checks include:

5.1 Pre-Flight Barometer Calibration: Line C1511

A recording of the barometer output at a known elevation is carried out before take-off to assist with calibration and determination of drift during the flight. The barometer is used as a back-up to the GPS for aircraft altitude.

5.2 Pre-Flight Zero: Line C9001

This manoeuvre is performed once the aircraft is established en route to the survey area. Background EM levels are recorded and assessed by the airborne operator to determine if:-

a. the system noise level is acceptable,
b. the response had not varied significantly from previous flights, and
c. the sferic level is acceptable.

These data are recorded for approximately 90 seconds.

5.3 Pre-Flight Swoops: Line C9002

This manoeuvre is conducted immediately after the pre sortie zero. During this manoeuvre the relative position of the towed sensor is deliberately made to vary relative to the aircraft. The EM data are monitored by the airborne operator to confirm correct operation of the system during the manoeuvre.

5.4 Post-Flight Zero: Line C9003

This calibration is performed immediately following the completion of the survey sorties. Background EM levels are recorded to characterise any changes occurred in the system over the duration of the flight. These data are recorded for approximately 90 seconds.

5.5 Post-Flight Barometer Calibration: Line C1611

A recording of the barometer output is repeated following landing at the end of the flight to assist with calibration and determination of drift during the flight.

5.6 Additive EM Measurements: Lines C9004, C9005, and C9007

A recording of the background signal through the X, Y and Z receiver coil inputs is carried out before and/or after acquisition of data for survey lines on each flight. These measurements may be made with the transmitter on (C9004, C9005) or with the transmitter off (C9007). The signal from the receiver coils is removed from the signal pathway by disconnecting the power to the bird at the winch inside the aircraft.

5.7 Dynamic Magnetometer Compensation

To limit aircraft manoeuvre effects on the magnetic data that can be of the same spatial wavelength as the signals from geological sources, compensation calibration lines are flown in a low magnetic gradient area close to the survey. This involves flying a series of tests on the survey line heading and approximately 15 degrees either side to accommodate small heading variations whilst flying survey lines. The data for each heading consists of a series of aircraft manoeuvres, including pitches, rolls and yaws. This is done to artificially create the most extreme possible attitude the aircraft may encounter whilst on survey. Data from these lines are used to derive compensation coefficients for removing magnetic noise induced by the aircraft's attitude in the naturally occurring magnetic field.

Compensation data were acquired on the 16^{th} of June 2006.

5.8 Parallax Checks

Due to the relative positions of the EM towed bird and the magnetometer instruments on the aircraft and to processing / recording time lags, raw readings from each vary in position. To correct for this and to align selected anomaly features on lines flown in opposite directions, magnetics, EM data and the altimeters are 'parallaxed' with respect to the position information. System parallax is checked occasionally or following any major changes in the aircraft system which are likely to affect the parallax values.

5.9 Radar Altimeter Calibration

The radar altimeter is checked for accuracy and linearity every 12 months or when any change in a key system component requires this procedure to be carried out. This calibration allows the radar altimeter data to be compared and assessed with other height data (GPS and barometric) to confirm the accuracy of the radar altimeter over it's operating range.

Absolute radar and barometric altimeter calibration was carried out over water at Mandurah, WA and was successful in calibrating the radar altimeter to information provided by the GPS and barometer instrument. Calibration factors were as expected. The calibration procedure also provides parallax information required for positional correction of the radar and GPS altimeters.

5.10 Heading Error Checks

Historically, heading error checks have been part of the aeromagnetic data acquisition procedure but they are no longer used. Fugro Airborne Surveys now calculates these effects using the aircraft magnetic compensation system and specially developed software. The precision to which these effects are now calculated and corrected for is far in excess of the manual methods used in the past.

6. DATA PROCESSING

6.1 Field Data Processing

6.1.1 Quality Control Specifications

6.1.1.1 Navigation Tolerance

The re-flight specifications applied for the duration of the survey were:

Electronic Navigation - absence of electronic navigation data (e.g. GPS base station fails).

Traverse Lines Separation - actual flight line spacing exceeds 125% of the nominal spacing over a continuous distance exceeding 5 kilometres or where lines cross.

Altitude - terrain clearance continuously exceeds the nominal terrain clearance by plus or minus 30 m over a distance of 5 km or more unless to do so would, in the sole opinion of the pilot, jeopardise the safety of the aircraft or the crew or the equipment or would be in contravention of the Civil Aviation Safety Authority regulation such as those pertaining to built up areas.

6.1.1.2 Electromagnetic Data

The quality control checks on the electromagnetic data were:

Noise - where RMS noise in the last channel of the raw EM data exceeds 0.1 fT over 3 km for B-field (assessed in a resistive region) or where FAS believes an important anomaly is rendered un-interpretable.

6.1.2 In-Field Data Processing

Following acquisition, multiple copies of the EM data are made onto DVDs or CDs. The EM, location, magnetic and ancillary data are then processed at the field base to the point that the quality of the data from each flight can be fully assessed. Copies of the raw and processed data are then transferred to Perth for final data processing. A more comprehensive statement of EM data processing is given in section 6.2.3.

6.1.3 Base Magnetometer Data

The quality control checks on the electromagnetic data were:

Where the departure from a chord, 10 minutes in length, exceeds 10nT.

6.2 Final Data Processing

6.2.1 Magnetics

Magnetic data were compensated for aircraft manoeuvre noise using coefficients derived from the appropriate compensation flight. Base station data are edited so that all significant spikes, level shifts and null data are eliminated.

A diurnal base value was then added.

Area	Base Value
All areas	56110 nT

A lag was applied to synchronise the magnetic data with the navigation data (see section 6.2.5.2).

The International Geomagnetic Reference Field (IGRF) 2005 model (updated for secular variation 2006.7) was removed from the levelled total field magnetics. An IGRF base value was then added to the data.

Area	Base Value
All areas	56814 nT

6.2.2 Derived Topography

Aircraft navigation whilst in survey mode is via real time differential GPS, obtained by combining broadcast differential corrections with on-board GPS measurements. Terrain clearance is measured with a radar altimeter.

The ground elevation, relative to the WGS84 spheroid used by GPS receiver units, is obtained by subtracting the terrain clearance from the aircraft altitude, noting the vertical separation between the GPS antenna and the radar altimeter, and applying suitable parallax corrections between the two measurements (see section 6.2.3.2).

The digital elevation model derived from this survey can be expected to have an absolute accuracy of +/- several metres in areas of low to moderate topographic relief. Sources of error include uncertainty in the location of the GPS base station, variations in the radar altimeter characteristics over ground of varying surface texture, and the finite footprint of the radar altimeter.

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.

6.2.3 Electromagnetic Data Processing

Details of the pre-processing applied to TEMPEST data can be found in Lane et al. (2000).

6.2.3.1 Standard EM Processing

Calibration
High altitude calibration data are used to characterise the system response in the absence of any ground response.

Cleaning and Stacking
Routines to suppress sferic noise, powerline noise, VLF noise, coil motion noise (collectively termed "cleaning") and to stack the data are applied to the survey line data. Output from the stacking filter is drawn at 0.2 second intervals. The stacked data are saved to file as an internal data management practice.

Deconvolution and Binning
The survey height stacked data are deconvolved using the high altitude reference waveform. The effect of currents in the transmitter loop and airframe ("primary") are then removed, leaving a "pure" ground response. The deconvolved ground response data are then transformed to B-field response for a perfect 100% duty cycle square wave. Finally, the evenly spaced samples are binned into a number of windows.

Table of TEMPEST window information for 25Hz base frequency

Window #	Start sample	End sample	No of samples	start time (s)	End time (s)	centre time (s)	centre time (ms)
1	1	2	2	0.000007	0.000020	0.000013	0.013
2	3	4	2	0.000033	0.000047	0.000040	0.040
3	5	6	2	0.000060	0.000073	0.000067	0.067
4	7	10	4	0.000087	0.000127	0.000107	0.107
5	11	16	6	0.000140	0.000207	0.000173	0.173
6	17	26	10	0.000220	0.000340	0.000280	0.280
7	27	42	16	0.000353	0.000553	0.000453	0.453
8	43	66	24	0.000567	0.000873	0.000720	0.720
9	67	102	36	0.000887	0.001353	0.001120	1.120
10	103	158	56	0.001367	0.002100	0.001733	1.733
11	159	246	88	0.002113	0.003273	0.002693	2.693
12	247	384	138	0.003287	0.005113	0.004200	4.200
13	385	600	216	0.005127	0.007993	0.006560	6.560
14	601	930	330	0.008007	0.012393	0.010200	10.200
15	931	1500	570	0.012407	0.019993	0.016200	16.200

The data are reviewed after windowing. Any decisions involving re-flights due to AEM factors are made at this point.

Raw and Final EM Data

The “raw” or “uncorrected” EM amplitudes reflect not only the variations in ground conductivity, but the variations in geometry of the various parts of the EM measurements (ie transmitter loop pitch, roll and terrain clearance, transmitter loop to receiver coil horizontal longitudinal separation, transmitter loop to receiver coil horizontal transverse separation, and transmitter loop to receiver coil vertical separation) during the survey. For example, the largest influence on the early time EM amplitude is the terrain clearance of the transmitter loop. The larger the terrain clearance, the smaller the amplitude. Later window times (larger window number) show diminished variations due to terrain clearance.

“Final” or “geometry-corrected” located data are produced for optimum presentation of the EM amplitude data in image format (eg window amplitude images, principal component analysis images derived from the window amplitudes (Green,1998b)). Between “raw” and “final” states, the ground response data undergo an approximate correction to produce data from a nominated standard geometry. A dipole-image method (Green, 1998a) is used to adjust the data to the response that would be expected at a standard terrain clearance (120m), standard transmitter loop pitch and roll (zero degrees), and a standard transmitter loop to receiver coil geometry (120m behind and 30m below the aircraft). These variables have been set to their respective standard values in the “final” located data (whereas the “raw” located data file contains the variable field data). Zero parallax is applied to transmitter loop pitch, roll, terrain clearance, X component EM and Z component EM data prior to geometry correction. Over extremely conductive ground (e.g. > 100 S conductance), the estimates for transmitter loop to receiver coil separation determined from the primary field coupling factors may be in error at the metre scale due to uncertainty in the estimation of the primary field. This will influence the accuracy of very early time window amplitude information in the “geometry-corrected” located data. Receiver coil pitch has a significant effect on early time Z component response and late time X component response (Green and Lin, 1996). Receiver coil roll impacts early time Z component response.

Levelling

Limited range micro-levelling may be applied to the final window amplitudes for presentation purposes, principally for multi-flight surveys or when isolated re-flight lines are present.

6.2.3.2 Factors and Corrections

Geometric Factor
The geometric factor gives the ratio of the strength of the primary field coupling between the transmitter loop and the receiver coil at each observation relative to the coupling observed at high altitude during acquisition of reference waveform data. Variations in this factor indicate a change in the attitude and/or relative separation of the transmitter loop and the receiver coil.

Transmitter-Receiver Geometry
Transmitter to receiver geometry values for each observation are derived from the high altitude reference waveforms and knowledge of the system characteristics. These data are available in the located data (see section 6.2.6.1 for "standardised" values)

GPS Antenna, Laser Altimeter and Transmitter Loop Offset Corrections
The transmitter loop is mounted 0.1m above the GPS antenna on the aircraft. The GPS antenna is 2.3m above the belly of the aircraft. The laser altimeter sensor is mounted in the belly of the aircraft. Therefore a total of 2.4m (0.1m + 2.3m) was added to the laser altimeter data to determine the transmitter loop height above the ground.

Transmitter Loop Pitch and Roll Correction
Measured vertical gyro aircraft pitch and roll attitude measurements are converted to transmitter loop pitch and roll by adding -0.9 degrees for pitch and -0.1 degrees for roll. Nose up is positive for pitch, and left wing up is positive for roll.

6.2.3.3 Primary Sources of EM Noise

A number of "monitor" values are calculated during processing to assist with interpretation. They generally represent quantities that have been removed as far as is practical from the data, but may still be present in trace amounts. These are more significant for interpretation of discrete conductors than for general mapping applications.

Sferic Monitor
Sferics are the electromagnetic signals associated with lightning activity. These signals travel large distances around the Earth. Background levels of sferics are recorded at all times from lightning activity in tropical areas of the world (eg tropical parts of Asia, South America and Africa). Additional higher amplitude signals are produced by "local" lightning activity (ie at distances of kilometres to hundreds of kilometres).

The sferic monitor is the sum of the absolute differences brought about by the sferic filter operations, summed over 0.2 second intervals, normalised by the receiver effective area. It is given in units of uV/sq.m/0.2s. Many sferics have a characteristic form that is well illustrated by figure 2 in Garner and Thiel (2000). The high frequency, initial part of a sferic event can be detected and filtered more easily than the later, low frequency portion. The sferic monitor indicates where at least the high frequency portion of a sferic has been successfully removed, but it is quite possible that lower frequency elements of the sferic event may have eluded detection, passing through to the window amplitude data. Thus, discrete anomalies coincident with sferic activity as indicated by the sferic monitor should be down-weighted relative to features clear of any sign of sferic activity.

Low Frequency Monitor
The Low Frequency Monitor (LFM) makes use of amplitudes at frequencies below the base frequency which are present in the streamed data to estimate the amplitude of coil motion (Earth magnetic field) noise at the base frequency in log10(pV/sqrt(Hz)/sq.m). The coil motion noise below the base frequency is rejected through the use of tapered stacking, but the coil motion noise at the base frequency itself is not easily removed. A sharp spike in the LFM can be an indicator of a coil motion event (eg the bird passing through extremely turbulent air). Note that the LFM will also respond to sferic events with an appreciable low frequency (sub-base frequency) component. This situation can be inferred when both the LFM and sferic monitors show a discrete kick.

Powerline Monitor
The powerline monitor gives the amplitude of the received signal at the powerline frequency (50 or 60 Hz) in log10(pV/sqrt(Hz)/sq.m). Careful selection of the base frequency (such that the powerline frequency is an even harmonic of the base frequency) and tapered stacking combine to strongly attenuate powerline signals. When passing directly over a powerline, the rapid lateral variations in the strength and direction of the magnetic fields associated with the powerline can result in imperfect cancellation of the powerline response during stacking. Some powerline-related interference can manifest itself in a form that is similar to the response of a discrete conductor. The exact form of the monitor profile over a powerline depends on the line direction, powerline direction, powerline current, and receiver component, but the monitor will show a general increase in amplitude approaching the powerline.

Grids (or images) of the powerline monitor reveal the location of the transmission lines. Note that the X component (horizontal receiver coil axis parallel with the flight line direction) does not register any response from powerlines parallel to the flight line direction since the magnetic fields associated with powerlines only vary in a direction perpendicular to the powerline. Note also that the Z component (vertical receiver coil axis) shows a narrow low directly over the powerline where the magnetic fields are purely horizontal.

Very Low Frequency Monitors
Wide area VLF communication signals in the 15 to 25 kHz frequency band are monitored by the TEMPEST system. In the Australian region, signals at 18.2 kHz, 19.8 kHz, 21.4 kHz and 22.2 kHz are monitored as the amplitude of the received signal at these frequencies in log10(pV/sqrt(Hz)/sq.m). The strongest signal comes from North West Cape (19.8 kHz). The signal at 18.2 kHz is often observed to pulse in a regular sequence. These strong narrow band signals have some impact on the high frequency response of the system, but they are strongly attenuated by selection of the base frequency and tapered stacking. The VLF transmissions are strongest in amplitude, in the horizontal direction at right angles to the direction to the VLF transmitter. This directional dependence enables the VLF monitors to be used to indicate the receiver coil attitude.

6.2.3.4 Other Sources of EM Noise

Man-made periodic discharges
If an image of the Z component sferic monitor shows the presence of spatially coherent events, then pulsed cultural interference would be strongly suspected. Since sferic signals are much stronger in the horizontal plane than in the vertical plane, few sferics of significant amplitude are recorded in Z component data. In contrast, evidence of cultural interference is generally swamped by true sferics in X component sferic monitor images.

Electric fences are the most common source of pulsed cultural interference. Periodic discharges (eg every second or so) into a large wire loop (fence) produce very large spikes in raw data. These are attenuated to a large degree by the sferic filter, but a residual artefact can still be present in the processed data.

Coil motion / Earth field noise
A change in coupling between the receiver coil and the ambient magnetic field will induce a voltage in the receiver coil. This noise is referred to as coil motion or Earth field noise. Receiver coils in the towed bird are suspended in a fashion that attempts to keep this noise below the noise floor at frequencies equal to and above the base frequency of the system. Severe turbulence, however, can result in ‘coil knock events’ that introduce noise into the processed data.

Grounded metal objects
Grounded extensive metal objects such as pipelines and rail lines can qualify as conductors and may produce a response that is visible in processed data. Grounded metal objects produce a response similar to shallow, highly conductive, steeply dipping conductors. These objects can sometimes be identified from good quality topographic maps, from aerial photographs, by viewing the tracking video, from their unusual spatial distribution (ie often a series of linear segments) and in some circumstances from their effect on the powerline monitor. A powerline running close to a long metal object will induce a 50 Hz response in the object.

6.2.4 Conductivity Depth Images (CDI)

CDI conductivity sections for TEMPEST data were calculated using EMFlow and then modified to reflect the finite depth of investigation using an in-house routine, *Sigtime*.

The *Sigtime* routine removes many of the spurious conductive features that appear at depth as a result of fitting long time constant exponential decays to very small amplitude features in the late times. For each observation, the time when the response falls below a signal threshold amplitude is determined. This time is transformed into a diffusion depth with reference to the conductivity values determined for that observation. Anomalous conductivity values below this depth are replaced by background values or set to undefined, reflecting the uncertainty in their origin. The settings and options applied are indicated in the appropriate header files for *Sigtime* output. This procedure is different to that which would be obtained by filtering conductivity values using either a constant time or constant depth across the entire line.

The “final” data for each area were input into version 5.10 of EMFlow to calculate Conductivity Depth Images (CDI). Conductivity values were calculated to a depth of 200m below surface at each point, using a depth increment of 2m, then run through *Sigtime.* This processing was completed for the Z component data only.

EMFlow was developed within the CRC-AMET through AMIRA research projects (Macnae et al, 1998, Macnae and Zonghou, 1998, Stolz and Macnae, 1998). The software has been commercialised by Encom Technology Pty Ltd. Examples of TEMPEST conductivity data can be seen in Lane et al. (2000), Lane et al. (1999), and Lane and Pracillio (2000).

6.2.5 System Specifications for Modelling TEMPEST Data

Differences between the specifications for the acquisition system, and those of the virtual system for which processed results are given, must be kept in mind when forward modelling, transforming or inverting TEMPEST data.

Acquisition is carried out with a 50% duty cycle square transmitter current waveform and dB/dt sensors.

During processing, TEMPEST EM data are transformed to the response that would be obtained with a B-field sensor for a 100% duty cycle square waveform at the base frequency, involving a 1A change in current (from -0.5A to +0.5A to -0.5A) in a 1sq.m transmitter. Data are given in units of femtotesla (fT = 10^{-15} Tesla). It is this configuration, rather than the actual acquisition configuration, which must be specified when modelling TEMPEST data.

Window timing information is given above (see section 6.2.3).

6.2.5.1 Standard Height and Geometry

The “final” EM data have been standardised through an approximate transformation to a standard transmitter loop terrain clearance, transmitter loop pitch and roll of zero degrees, and a fixed transmitter loop to receiver coil geometry (roughly equal to the average “raw” geometry values). Transmitter loop pitch, transmitter loop roll and transmitter loop terrain clearance values for each observation have been modified to reflect the standard values. Hence, the “final” (fixed) geometry values should be used if modelling with the final X- and Z-component amplitude data - the following table summarises the values to which the transmitter height/pitch/roll/geometry were corrected.

Table of values used to standardise transmitter loop height, pitch, roll and geometry

Variable	Standardised value
Transmitter loop pitch	0 degrees
Transmitter loop roll	0 degrees
Transmitter loop terrain clearance	120 metres
Transmitter loop – to – receiver coil geometry	120m behind and 30m below the aircraft

6.2.5.2 Parallax

The located data files utilise the following parallax values :-

- magnetics = 0.6 fiducials (3 observations from the zero parallax position),
- radar altimeter = 0.6 fiducials (3 observations from the zero parallax position),
- EM X-component = 0.2 fiducials (1 observation from the zero parallax position),
- EM Z-component = 1.4 fiducials (7 observations from the zero parallax position),

These EM parallax values are optimised for aligning the EM response amplitudes for horizontal or broad steeply dipping conductors, which account for the majority of responses in regolith-dominated terrains such as this.

For optimum gridded display of the response for discrete vertical or narrow conductors, the following EM parallax values are appropriate :-

- EM X-component = 1.8 fiducials (9 observations from the zero parallax position, or 8 observations from the "horizontal" parallax position),
- EM Z-component = 0.6 fiducials (3 observations from the zero parallax position, or -4 observations from the "horizontal" parallax position).

(NB Positive parallax values are defined in this case as shifting the indicated quantity back along line to smaller fiducial values. Location information remains in the zero parallax state.)

6.2.6 Delivered Products

Appendix V contains a complete list of all data supplied digitally.

Digital located data in flat ascii format and AMIRA format, and Geosoft GDB format files were produced, containing the raw and final X and Z EM amplitude data, Z EM conductivity data as well as magnetics and digital elevation. The header files can be found in Appendix IV.

Stacked CDI sections and CDI-multiplots (of Z-component) were produced and delivered as digital png images and hpg plotfiles. Stacked CDI sections were also delivered as hardcopies.

Grids of DTM, TMI, 1VD TMI, X & Z time constants, EM amplitude (15 windows each X & Z) and Depth to Resistive Basement were supplied in ER-Mapper grid format. Maps of DTM, TMI, 1VD TMI, Time Constant for both components, Depth to Resistive Basement and a selection of EM windows were also supplied as hardcopies.

A flight path map was also produced and delivered as a digital png image, prn plotfile and hardcopy.

Acquisition and processing report in hardcopy and digital pdf format.

7. REFERENCES

Garner, S.J., Thiel, D.V., 2000, Broadband (ULF-VLF) surface impedance measurements using MIMDAS: Exploration Geophysics, 31, 173-178.

Green, A., 1998. Altitude correction of time domain AEM data for image display and geological mapping, using the Apparent Dipole Depth (ADD) method. Expl. Geoph. 29, 87-91.

Green, A., 1998. The use of multivariate statistical techniques for the analysis and display of AEM data. Expl. Geoph. 29, 77-82.

Green, A., Lin, Z., 1996. Effect of uncertain or changing system geometry on airborne transient electromagnetic data: CSIRO Expl. and Mining Research News No. 6, August 1996, 9-11, CSIRO Division of Exploration and Mining.

Lane, R., 2000, Conductive unit parameters : summarising complex conductivity distributions: Paper accepted for presentation at the SEG Annual Meeting, August 2000.

Lane, R., Green, A., Golding, C., Owers, M., Pik, P., Plunkett, C., Sattel, D., Thorn, B., 2000, An example of 3D conductivity mapping using the TEMPEST airborne electromagnetic system: Exploration Geophysics, 31, 162-172.

Lane, R., Leeming, P., Owers, M., Triggs, D., 1999, Undercover assignment for TEMPEST: Preview, Issue 82, 17-21.

Lane, R., Pracilio, G., 2000: Visualisation of sub-surface conductivity derived from airborne EM, SAGEEP 2000, 101-111.

APPENDIX I – Flight Plans

AREA 1

```
JOB_Number  1811                                                                   *
CLIENT      Deep Yellow Ltd                                                        *
AREA_NAME   Deep Yellow                                                            *
PLANNED_BY  gps2                                                                   *
|                                                                                  *
SPHEROID    22  W.G.S_1984 6378137.0 298.257223563 0.9996                          *
DELTAXYZ    0.0 0.0 0.0 0.0 0.0 0.0 0.0                                            *
HEMISPHERE  SOUTH                                                                  *
UTM_ORIGIN  53   135   135                                                         *
BOUNDARY    1   387829  6681144 -29.995506 +133.837063 -295943.8 +1335013.4 12 *
BOUNDARY    2   387970  6655370 -30.228067 +133.835811 -301341.0 +1335008.9 12 *
BOUNDARY    3   362025  6668973 -30.102670 +133.568032 -300609.6 +1333404.9 12 *
BOUNDARY    4   329575  6669113 -30.097306 +133.231397 -300550.3 +1331353.0 12 *
BOUNDARY    5   329431  6680445 -29.995068 +133.231712 -295942.2 +1331354.2 12 *
SQUARE_KMS  863.596                                                                *
|                                                                                  *
NAVTYPE     NOVATEL                                                                *
NAVMODE     U.T.M                                                                  *
PLAN_TYPE   Normal                                                                 *
LINE_TYPE   S.LINE    X.LINE    0         0                                        *
HEADING     0         90                                                           *
SPACING     1000      100000    1000      1000                                     *
OVER_LINE   1         1                                                            *
OVERFLY     0         0                                                            *
MIN_LENGTH  12        12                                                           *
FIRST_LINE  10        10                                                           *
INCREMENT   1         1                                                            *
X_TRACK     100       100                                                          *
MASTER_PT   1   387829  6681144 -29.995506 +133.837063                             *
MASTER_NEW  0  Not implemented.                                                    *
KM_IN_AREA  888       0                                                            *
KM+OVERFLY  888       0                                                            *
```

AREA 2

```
JOB_Number  1811                                                                   *
CLIENT      Deep Yellow Ltd                                                        *
AREA_NAME   Deep Yellow                                                            *
PLANNED_BY  gps2                                                                   *
|                                                                                  *
SPHEROID    22  W.G.S_1984 6378137.0 298.257223563 0.9996                          *
DELTAXYZ    0.0 0.0 0.0 0.0 0.0 0.0 0.0                                            *
HEMISPHERE  SOUTH                                                                  *
UTM_ORIGIN  53   135   135                                                         *
BOUNDARY    1   373849  6634339 -30.416419 +133.686565 -302459.1 +1334111.6 12 *
BOUNDARY    2   373849  6626690 -30.485421 +133.685639 -302907.5 +1334108.3 12 *
BOUNDARY    3   370871  6626690 -30.485104 +133.654618 -302906.4 +1333916.6 12 *
BOUNDARY    4   370871  6619246 -30.552259 +133.653693 -303308.1 +1333913.3 12 *
BOUNDARY    5   369170  6619246 -30.552075 +133.635962 -303307.5 +1333809.5 12 *
BOUNDARY    6   369170  6615566 -30.585273 +133.635498 -303507.0 +1333807.8 12 *
BOUNDARY    7   355761  6618447 -30.557743 +133.496087 -303327.9 +1332945.9 12 *
BOUNDARY    8   355761  6626584 -30.484341 +133.497217 -302903.6 +1332950.0 12 *
BOUNDARY    9   341828  6626584 -30.482588 +133.352102 -302857.3 +1332107.6 12 *
BOUNDARY   10   341828  6661198 -30.170355 +133.357322 -301013.3 +1332126.4 12 *
BOUNDARY   11   356088  6661308 -30.171133 +133.505388 -301016.1 +1333019.4 12 *
BOUNDARY   12   356088  6644034 -30.326965 +133.503027 -301937.1 +1333010.9 12 *
BOUNDARY   13   377040  6644034 -30.329277 +133.720920 -301945.4 +1334315.3 12 *
BOUNDARY   14   377040  6634232 -30.417714 +133.719768 -302503.8 +1334311.2 12 *
SQUARE_KMS  976.009                                                                *
|                                                                                  *
NAVTYPE     NOVATEL                                                                *
NAVMODE     U.T.M                                                                  *
PLAN_TYPE   Normal                                                                 *
```

```
LINE_TYPE   S.LINE    X.LINE    0         0                                         *
HEADING     90        180                                                           *
SPACING     1000      100000    1000      1000                                      *
OVER_LINE   1         1                                                             *
OVERFLY     0         0                                                             *
MIN_LENGTH  12        12                                                            *
FIRST_LINE  10        10                                                            *
INCREMENT   1         1                                                             *
X_TRACK     100       100                                                           *
MASTER_PT   1   373849  6634339 -30.416419 +133.686565                              *
MASTER_NEW  0  Not implemented.                                                     *
KM_IN_AREA  1006      0                                                             *
KM+OVERFLY  1006      0                                                             *
```

AREA 4

```
JOB_Number  1811                                                                    *
CLIENT      Deep Yellow Ltd                                                         *
AREA_NAME   Deep Yellow                                                             *
PLANNED_BY  gps2                                                                    *
|                                                                                   *
SPHEROID    22  W.G.S_1984 6378137.0 298.257223563 0.9996                           *
DELTAXYZ    0.0 0.0 0.0 0.0 0.0 0.0 0.0                                             *
HEMISPHERE  SOUTH                                                                   *
UTM_ORIGIN  53   135   135                                                          *
BOUNDARY    1   369695  6710626 -29.727711 +133.652681 -294339.8 +1333909.7 12 *
BOUNDARY    2   369978  6686278 -29.947422 +133.652664 -295650.7 +1333909.6 12 *
BOUNDARY    3   342312  6685995 -29.946728 +133.366028 -295648.2 +1332157.7 12 *
BOUNDARY    4   341749  6709908 -29.730933 +133.363718 -294351.4 +1332149.4 12 *
BOUNDARY    5   342048  6710205 -29.728296 +133.366850 -294341.9 +1332200.7 12 *
SQUARE_KMS  675.218                                                                 *
|                                                                                   *
NAVTYPE     NOVATEL                                                                 *
NAVMODE     U.T.M                                                                   *
PLAN_TYPE   Normal                                                                  *
LINE_TYPE   S.LINE    X.LINE    0         0                                         *
HEADING     90        180                                                           *
SPACING     1000      100000    1000      1000                                      *
OVER_LINE   1         1                                                             *
OVERFLY     0         0                                                             *
MIN_LENGTH  12        12                                                            *
FIRST_LINE  10        10                                                            *
INCREMENT   1         1                                                             *
X_TRACK     100       100                                                           *
MASTER_PT   1   369695  6710626 -29.727711 +133.652681                              *
MASTER_NEW  0  Not implemented.                                                     *
KM_IN_AREA  695       0                                                             *
KM+OVERFLY  695       0                                                             *
```

AREA 4E

```
JOB_Number  1811                                                                    *
CLIENT      Deep Yellow Ltd                                                         *
AREA_NAME   Deep Yellow                                                             *
PLANNED_BY  gps2                                                                    *
|                                                                                   *
SPHEROID    22  W.G.S_1984 6378137.0 298.257223563 0.9996                           *
DELTAXYZ    0.0 0.0 0.0 0.0 0.0 0.0 0.0                                             *
HEMISPHERE  SOUTH                                                                   *
UTM_ORIGIN  53   135   135                                                          *
BOUNDARY    1   387055  6709019 -29.743917 +133.831979 -294438.1 +1334955.1 12 *
BOUNDARY    2   387055  6691302 -29.903777 +133.830119 -295413.6 +1334948.4 12 *
BOUNDARY    3   376483  6691142 -29.904204 +133.720618 -295415.1 +1334314.2 12 *
BOUNDARY    4   376483  6708859 -29.744350 +133.722652 -294439.7 +1334321.5 12 *
SQUARE_KMS  187.304                                                                 *
|                                                                                   *
NAVTYPE     NOVATEL                                                                 *
NAVMODE     U.T.M                                                                   *
PLAN_TYPE   Normal                                                                  *
LINE_TYPE   S.LINE    X.LINE    0         0                                         *
HEADING     90        180                                                           *
```

```
SPACING      1000      10000     1000      1000                                 *
OVER_LINE    1         1                                                        *
OVERFLY      0         0                                                        *
MIN_LENGTH   12        12                                                       *
FIRST_LINE   10        10                                                       *
INCREMENT    1         1                                                        *
X_TRACK      100       100                                                      *
MASTER_PT    1   387055  6709019 -29.743917 +133.831979                         *
MASTER_NEW   0  Not implemented.                                                *
KM_IN_AREA   216       0                                                        *
KM+OVERFLY   216       0                                                        *
```

APPENDIX II – Weekly Acquisition Reports

Week Commencing:	**Monday 12-Jun-06**	Aircraft:	VH-TEM	Operators:	A.C, S.M	Pilots:	T.H, M.C
Job Number:	1788	Base:	Jabiru	Data Proc:	Glen Gooch	Techs:	A.C, S.M
Total km:	4250.0	Country:	Australia	Crew Leader:	Andrew Carpenter	Client:	Cameco
		Area Name:	Jabiru	Accom:	Aurora Kakadu	Contact #:	A.C 08 879 0166 Room 52

Date		Flight	Crew		Time		M/R	Oil		Fuel	This Flight		To Date		Standby	Comments
		Number	Plt(s)	Op	T/O	Land	Hrs	L	R	Burn	Prod	Refly	Prod	Refly	(0, 0.5, 1)	
Monday	12-Jun-06															Weather:
																Remarks:
Julian	11-Jun-00															
Day	1				Hours Today		0.0				0.0	0.0	0.0	0.0		Safety Meeting:
Tuesday	13-Jun-06															Weather:
																Remarks:
Julian	164															
Day	2				Hours Today		0.0				0.0	0.0	0.0	0.0		Safety Meeting:
Wednesday	14-Jun-06															Weather:
																Remarks:
Julian	165															
Day	3				Hours Today		0.0				0.0	0.0	0.0	0.0		Safety Meeting:
Thursday	15-Jun-06	1	T.H, M.C	A.C	7:48	10:26	2.6			3870						Weather:Warm and Humid
																Remarks:Comp Box, Check Box, Rad Alt Cals and Repeat Line Completed
Julian	166															
Day	4				Hours Today		2.6				0.0	0.0	0.0	0.0		Safety Meeting:Please see meeting minutes
Friday	16-Jun-06														1.0	Weather:
																Remarks:Stand Down due to lack of fuel, Pilots day off.
Julian	167															
Day	5				Hours Today		0.0				0.0	0.0	0.0	0.0		Safety Meeting: No new issues
Saturday	17-Jun-06	2	T.H, M.C	A.C	6:20	10:25	4.1			1555						Weather: Warm, Humid
																Remarks: Good production (526 line KM's) achieved despite some severe turbulence.
Julian	168															Entire flight scrubbed due to high noise threshold in Z coil AC and SM to fix.
Day	6				Hours Today		4.1				0.0	0.0	0.0	0.0		Safety Meeting: No new issues
Sunday	18-Jun-06	3	T.H, M.C	A.C	8:30	9:25	0.9			345						Weather:Fine, Humid
																Remarks: The bird is working however the fix is only temporary. AC to contact
Julian	169															Chris golding in regards to urgent spare requirements
Day	7				Hours Today		0.9				0.0	0.0	0.0	0.0		Safety Meeting: Please see safety meeting minutes
Total Job Hours		7.6	Weekly Totals				7.6	0	0	5769	0.0	0.0			1.0	
			Total Aircraft Hours					Ltrs/Hr		756			Total Standby		1.0	
			Hours to Next Periodic				80	Running Avg			0.0 km/day		% Complete		0.0	
			Anticipated Hours Next week								0.0 km/hr		km Remaining		4250.0 km	

Week Commencing: **Monday 19-Jun-06**
Job Number: 1788
Total km: 4250

Aircraft: VH-TEM
Base: Jabiru
Country: Australia
Area Name: Jabiru

Operators: A.C, S.M
Data Proc: Glen Gooch
Crew Leader: Andrew Carpenter
Accom: Aurora Kakadu

Pilots: T.H, M.C
Techs: A.C, S.M
Client: Cameco
Contact #: A.C 08 879 0166 Room 52

Date		Flight	Crew		Time		M/R	Oil		Fuel	This Flight		To Date		Standby	Comments
		Number	Plt(s)	Op	T/O	Land	Hrs	L	R	Burn	Prod	Refly	Prod	Refly	(0, 0.5, 1)	
Monday	19-Jun-06	4	T.H, M.C	A.C,S.M	6:34	9:05	2.5			996						Weather:Fine but Turbulent
																Remarks:Production of 266.1km lost due to poor Bird Performance.
Julian	170															S.M and A.C to rectify by replacing tow loom and various connectors.
Day	8				Hours Today		2.5				0.0	0.0	0.0	0.0		Safety Meeting:No New Issues
Tuesday	20-Jun-06														1.0	Weather:Warm humid
																Remarks:Standby
Julian	171															
Day	9				Hours Today		0.0				0.0	0.0	0.0	0.0		Safety Meeting:No new issues
Wednesday	21-Jun-06															Weather:Warm, Humid
															1.0	Remarks:Standby
Julian	172															S.M, A.C performing repaairs to system including replacement of the tow cable
Day	10				Hours Today		0.0				0.0	0.0	0.0	0.0		Safety Meeting: No new issues.
Thursday	22-Jun-06	5	T.H, M.C	A.C,S.M	6:26	7:36	1.2			328						Weather:Warm, Humid Gusty Wind
		6	T.H, M.C	A.C,S.M	9:15	10:20	1.5			589	64.6					Remarks:FLT 005 test flight all ok
Julian	173															FLT 006 short flight due to turbulence, 53.4kms scrubed due to coil knocks.
Day	11				Hours Today		2.7				64.6	0.0	64.6	0.0		Safety Meeting:No new issues
Friday	23-Jun-06	7	T.H, M.C	S.M	6:35		-6.6				452.9					Weather:Fine Some Cloud
		8	T.H, M.C	S.M	15:00		-15.0				186.7					Remarks: Scott Miller operating, AC in Darwin to pick up spares.
Julian	174															System operating well.
Day	12				Hours Today		-21.6				639.6	0.0	704.2	0.0		Safety Meeting: No new issues.
Saturday	24-Jun-06	9	T.H, M.C	A.C	6:27	10:40	4.2			1589	452.9					Weather:Fine Some Cloud
																Remarks: AC operating, S.M demobing to Perth via Darwin
Julian	175															
Day	13				Hours Today		4.2				452.9	0.0	1157.1	0.0		Safety Meeting: No New issues
Sunday	25-Jun-06	10	T.H, M.C	A.C	6:40	9:31	2.9			1090	137.6					Weather:Fine some cloud
																Remarks: Heavy turbulence several area's tried for best production.
Julian	176															
Day	14				Hours Today		2.9				137.6	0.0	1294.7	0.0		Safety Meeting: Please see safety meeting minutes.
Total Job Hours		-1.7	Weekly Totals				-9.3	0	0	4591	1294.7	0.0			2.0	
			Total Aircraft Hours					Ltrs/Hr		-492			Total Standby		3.0	
			Hours to Next Periodic					Running Avg			185.0 km/day		% Complete		30.5 %	
			Anticipated Hours Next week								-138.7 km/hr		km Remaining		2955.3 km	

Week Commencing: **Monday 26-Jun-06**
Job Number: 1788
Total km: 4250

Aircraft: VH-TEM
Base: Jabiru
Country: Australia
Area Name: Jabiru

Operators: A.C, S.M
Data Proc: Glen Gooch
Crew Leader: Andrew Carpenter
Accom: Aurora Kakadu

Pilots: T.H, M.C
Techs: A.C, S.M
Client: Cameco
Contact #: A.C 08 879 0166 Room 52

Date		Flight	Crew		Time		M/R	Oil		Fuel	This Flight		To Date		Standby	Comments
		Number	Plt(s)	Op	T/O	Land	Hrs	L	R	BURN	Prod	Refly	Prod	Refly	(0, 0.5, 1)	
Monday	26-Jun-06	11	T.H, M.C	A.C	6:44	10:24	3.7			1400	351.0					Weather: Hot, Humid, Some Cloud, wind building up
																Remarks:Ops normal
Julian	177															
Day	15				Hours Today		3.7				351.0	0.0	1645.7	0.0		Safety Meeting: No new issues.
Tuesday	27-Jun-06	12	T.H, G.K	AC												Weather:Fine no cloud some wind turning gusty by 10:30
																Remarks:Flight aborted due to faulty Tourque gauge on right hand engine.
Julian	178															Issue resolved and tested, T.H and G.T completed pilot handover
Day	16				Hours Today		0.0				0.0	0.0	1645.7	0.0		Safety Meeting:No new issues, pilot handover completed.
Wednesday	28-Jun-06	12.1	G.K, M.C	A.C	6:49	10:26	3.6			1409	344.4					Weather:Some cloud warm with increasing wind
																Remarks:data looks good still pending QC
Julian	179															
Day	17				Hours Today		3.6				344.4	0.0	1990.1	0.0		Safety Meeting:no new issues
Thursday	29-Jun-06	13	G.K, M.C	A.C	6:39	11:11	4.5			1752	355.7	30.5				Weather:Fine some clouds
																Remarks:Production pending QC
Julian	180															
Day	18				Hours Today		4.5				355.7	30.5	2345.8	30.5		Safety Meeting:No new issues
Friday	30-Jun-06	14	G.K, M.C	A.C	6:44	10:34	3.8			1498	269.5	37.8				Weather:Fine some clouds
																Remarks:Flight cut short due to omnistar account running out
Julian	181															
Day	19				Hours Today		3.8				269.5	37.8	2615.3	68.3		Safety Meeting:No new issues
Saturday	1-Jul-06	15	G.K, M.C	A.C	6:43	9:42	3.0			1155	186.1					Weather:Fine, strong winds
																Remarks: Flight cut short due to turbulence
Julian	182															
Day	20				Hours Today		3.0				186.1	0.0	2801.4	68.3		Safety Meeting:No new issues
Sunday	2-Jul-06	16	G.K, M.C	A.C	6:40	11:02	4.4			1672	413.3					Weather:Fine Some Winds building during morning
																Remarks: Survey went well despite turbulance, (pending QC)
Julian	183															
Day	21				Hours Today		4.4				413.3	0.0	3214.7	68.3		Safety Meeting:Please see safety meeting minutes
Total Job Hours		21.3	Weekly Totals				23.0	0	0	8885	1920.0	68.3			0.0	
			Total Aircraft Hours					Ltrs/Hr		386				Total Standby	3.0	
			Hours to Next Periodic					Running Avg			274.3 km/day			% Complete	75.6 %	
			Anticipated Hours Next week								83.5 km/hr			km Remaining	1035.3 km	

Week Commencing: **Monday 3-Jul-06**
Job Number: 1788
Total km: 4250

Aircraft: VH-TEM
Base: Jabiru
Country: Australia
Area Name: Jabiru

Operators: A.C, S.M
Data Proc: Glen Gooch
Crew Leader: Andrew Carpenter
Accom: Aurora Kakadu

Pilots: T.H, M.C
Techs: A.C, S.M
Client: Cameco
Contact #: A.C 08 879 0166 Room 52

Date		Flight	Crew		Time		M/R	Oil		Fuel	This Flight		To Date		Standby	Comments
		Number	Plt(s)	Op	T/O	Land	Hrs	L	R	BURN	Prod	Refly	Prod	Refly	(0, 0.5, 1)	
Monday	3-Jul-06															Weather:
																Remarks:PDO Andrew Carpenter in Darwin to pick up freight.
Julian	184															
Day	22				Hours Today		0.0				0.0	0.0	3214.7	68.3		Safety Meeting:No new issues.
Tuesday	4-Jul-06	17	G.K, M.C	A.C	6:41	9:42	3.0			1117	212.6					Weather:Warm gusty winds
																Remarks: Flight cut short due to turbulence and resulting coil knocks
Julian	185															
Day	23				Hours Today		3.0				212.6	0.0	3427.3	68.3		Safety Meeting: No new issues.
Wednesday	5-Jul-06	18	G.K, M.C	A.C	6:45	11:04	4.3			1687	363.2	14.8				Weather:Warm gusty wind
																Remarks:Very turbulent conditions
Julian	186															
Day	24				Hours Today		4.3				363.2	14.8	3790.5	83.1		Safety Meeting:No new issues
Thursday	6-Jul-06	19	G.K, M.C	A.C	3:15	6:23	3.1			1239	242.4	0.0				Weather:Warm and strong winds
																Remarks:Morning flight cancled due to extreme turbulence
Julian	187															
Day	25				Hours Today		3.1				242.4	0.0	4032.9	83.1		Safety Meeting:No new issues
Friday	7-Jul-06	20	G.K, M.C	A.C	6:39	9:49	3.2			1205	216.7	39.6				Weather:Warm and strong winds
																Remarks: Job completed pending QC
Julian	188															
Day	26				Hours Today		3.2				216.7	39.6	4249.6	122.7		Safety Meeting:See meeting minutes
Saturday	8-Jul-06	Mobilisation			8:30	16:20	7.8									Weather:Warm Windy
																Remarks:Job completed crew to mobilise to Coober Pedy
Julian	189															
Day	27				Hours Today		7.8				0.0	0.0	4249.6	122.7		Safety Meeting:No new updates
Sunday	9-Jul-06															Weather:
																Remarks:
Julian	190															
Day	28				Hours Today		0.0				0.0	0.0	4249.6	122.7		Safety Meeting:

Total Job Hours	42.8	Weekly Totals	21.5	0	0	5248	1034.9	54.4	0.0
		Total Aircraft Hours		Ltrs/Hr		244		Total Standby	3.0
		Hours to Next Periodic		Running Avg			147.8 km/day	% Complete	100.0 %
		Anticipated Hours Next week					48.2 km/hr	km Remaining	0.4 km

APPENDIX III – Flight Summary (Line Listing)

AREA 1

COMM Total number of lines : 59

COMM

	Flt	Line	Start X	Start Y	End X	End Y	Kms
COMM							
COMM	1	10010	329693	6668076	329697	6681454	13.38
COMM	1	10020	330645	6681494	330665	6668118	13.38
COMM	1	10030	331685	6668101	331703	6681452	13.35
COMM	1	10040	332687	6681520	332685	6668096	13.42
COMM	1	10050	333667	6668081	333733	6681466	13.39
COMM	1	10060	334704	6681540	334700	6668134	13.41
COMM	1	10070	335652	6668083	335699	6681431	13.35
COMM	1	10080	336743	6681585	336699	6668118	13.47
COMM	1	10090	337691	6668076	337700	6681454	13.38
COMM	1	10100	338708	6681560	338699	6668088	13.47
COMM	1	10110	339686	6668073	339710	6681327	13.25
COMM	1	10120	340706	6681635	340703	6668173	13.46
COMM	1	10130	341695	6668054	341701	6681546	13.49
COMM	1	10140	342731	6681649	342696	6668279	13.37
COMM	1	10150	343684	6668044	343700	6681416	13.37
COMM	1	10160	344695	6681673	344699	6668299	13.37
COMM	1	10170	345697	6668004	345705	6681490	13.49
COMM	1	10180	346696	6681651	346699	6668277	13.37
COMM	1	10190	347694	6667986	347693	6681380	13.39
COMM	1	10200	348620	6681722	348700	6668147	13.58
COMM	1	10210	349706	6667992	349690	6681640	13.65
COMM	1	10220	350696	6681719	350702	6668329	13.39
COMM	1	10230	351691	6667991	351697	6681385	13.39
COMM	1	10240	352684	6681751	352718	6668275	13.48
COMM	1	10250	353666	6667991	353725	6681418	13.43
COMM	1	10260	354601	6681766	354720	6668246	13.52
COMM	1	10270	355672	6667987	355696	6681362	13.38
COMM	1	10280	356654	6681758	356692	6668213	13.55
COMM	1	10290	357687	6667984	357703	6681315	13.33
COMM	1	10300	358629	6681629	358695	6668322	13.31
COMM	1	10310	359706	6667937	359688	6681801	13.86
COMM	1	10320	360681	6681847	360695	6668289	13.56
COMM	1	10330	361690	6667938	361704	6681430	13.49
COMM	3	10340	362703	6681843	362712	6667541	14.30
COMM	3	10350	363686	6666982	363684	6681843	14.86
COMM	3	10360	364697	6681922	364702	6666647	15.28
COMM	4	10372	365697	6665887	365697	6681357	15.47
COMM	3	10380	366776	6681856	366642	6665428	16.43
COMM	3	10390	367711	6664820	367655	6681801	16.98
COMM	3	10400	368728	6681640	368680	6664618	17.02
COMM	3	10410	369739	6663774	369713	6681593	17.82
COMM	3	10420	370656	6681764	370688	6663528	18.24
COMM	3	10430	371701	6662748	371694	6681690	18.94
COMM	3	10440	372683	6681940	372693	6662269	19.67
COMM	2	10450	373701	6661724	373707	6681880	20.16
COMM	2	10460	374639	6681901	374699	6661246	20.66
COMM	2	10470	375739	6660646	375705	6681893	21.25
COMM	2	10480	376631	6681875	376712	6660530	21.35
COMM	2	10490	377708	6659603	377725	6681789	22.19
COMM	2	10500	378686	6682029	378713	6659284	22.75
COMM	2	10510	379694	6658553	379707	6681952	23.40
COMM	2	10520	380706	6682057	380703	6658072	23.99
COMM	2	10530	381699	6657505	381694	6682000	24.50
COMM	2	10540	382707	6682057	382696	6657274	24.78

```
COMM     2   10550    383694   6656455    383735   6682080    25.63
COMM     2   10560    384675   6682120    384718   6656247    25.87
COMM     2   10570    385692   6655443    385698   6682090    26.65
COMM     2   10580    386720   6682177    386712   6654895    27.28
COMM     2   10590    387702   6654375    387693   6682088    27.71
COMM
COMM  Total Kilometres :       986.61
```

AREA 2

```
COMM  Total number of lines :   46
COMM
COMM   Flt    Line   Start X   Start Y     End X     End Y       Kms
COMM
COMM     1   20010    340820   6660982    357014   6661001    16.19
COMM     1   20020    357107   6660048    341085   6660012    16.02
COMM     1   20030    340799   6659015    356894   6659009    16.10
COMM     1   20040    357100   6658024    340943   6658014    16.16
COMM     1   20050    340822   6657024    357047   6657006    16.23
COMM     1   20061    357138   6656005    340950   6656005    16.19
COMM     1   20070    340798   6655022    356887   6655004    16.09
COMM     3   20080    357079   6654002    340834   6654023    16.25
COMM     3   20090    341536   6653010    357069   6653005    15.53
COMM     3   20100    357106   6652018    341018   6652004    16.09
COMM     3   20110    340787   6651017    357074   6650997    16.29
COMM     3   20120    357082   6650020    340830   6650001    16.25
COMM     3   20130    340820   6648985    357024   6649005    16.20
COMM     3   20140    357105   6647998    340956   6647996    16.15
COMM     3   20150    340820   6647028    356920   6647011    16.10
COMM     3   20160    357103   6646025    341068   6646004    16.04
COMM     3   20170    340778   6645046    357285   6644997    16.51
COMM     3   20180    378087   6644039    340969   6643992    37.12
COMM     3   20190    340838   6643039    377832   6643000    36.99
COMM     3   20200    378083   6642061    340844   6641976    37.24
COMM     3   20210    340791   6640990    377930   6641006    37.14
COMM     3   20220    378028   6640077    340965   6639953    37.06
COMM     3   20230    340838   6639025    377838   6639005    37.00
COMM     3   20240    378082   6637931    340847   6637987    37.24
COMM     3   20250    340773   6636802    377936   6637014    37.16
COMM     3   20260    378070   6635985    341005   6636006    37.07
COMM     3   20270    340779   6634933    377987   6635006    37.21
COMM     3   20280    377302   6634012    341054   6634009    36.25
COMM     2   20290    340814   6633019    374840   6633013    34.03
COMM     2   20300    374863   6631977    340870   6631996    33.99
COMM     2   20310    340830   6631086    374860   6630992    34.03
COMM     2   20320    374868   6630033    340943   6630000    33.93
COMM     2   20330    340827   6628999    374635   6629001    33.81
COMM     2   20340    374851   6628037    340869   6627983    33.98
COMM     2   20350    340919   6626980    374594   6626997    33.68
COMM     2   20360    372218   6626006    341239   6626010    30.98
COMM     2   20370    354790   6625016    371713   6625001    16.92
COMM     2   20380    371887   6624024    354769   6624004    17.12
COMM     2   20390    354748   6622967    371878   6623000    17.13
COMM     2   20400    371901   6621938    354986   6622003    16.92
COMM     2   20410    354749   6621023    371629   6621008    16.88
COMM     2   20420    371916   6620017    354988   6620017    16.93
COMM     2   20430    354846   6618891    371448   6619022    16.60
COMM     2   20440    370182   6618018    355066   6618000    15.12
COMM     2   20450    357533   6617024    370028   6616998    12.50
COMM     2   20460    370199   6616020    362394   6616004     7.81
COMM
COMM  Total Kilometres :      1104.17
```

AREA 4

```
COMM  Total number of lines :   24
COMM
COMM   Flt    Line   Start X   Start Y     End X     End Y       Kms
COMM
COMM     5   40010    340748   6710130    370426   6710112     29.68
COMM     5   40020    370738   6709119    340806   6709122     29.93
COMM     5   40030    340749   6708132    370709   6708107     29.96
COMM     5   40040    370744   6707126    340837   6707131     29.91
COMM     5   40050    340789   6706148    370741   6706103     29.95
COMM     5   40060    370764   6705128    341113   6705097     29.65
COMM     5   40070    340860   6704129    370727   6704130     29.87
COMM     5   40080    370801   6703121    341094   6703120     29.71
COMM     5   40090    340930   6702106    370789   6702123     29.86
COMM     5   40100    370823   6701115    341001   6701132     29.82
COMM     5   40110    340967   6700126    370801   6700120     29.83
COMM     5   40120    370817   6699127    341262   6699134     29.56
COMM     5   40130    341006   6698120    370803   6698112     29.80
COMM     5   40140    370884   6697108    341241   6697107     29.64
COMM     5   40150    341058   6696119    370815   6696112     29.76
COMM     5   40160    370927   6695122    341328   6695122     29.60
COMM     5   40170    341075   6694123    370883   6694137     29.81
COMM     5   40180    370888   6693101    341240   6693103     29.65
COMM     5   40190    341173   6692154    370900   6692137     29.73
COMM     5   40200    370941   6691140    341264   6691117     29.68
COMM     4   40210    341220   6690129    370898   6690125     29.68
COMM     4   40221    370939   6689199    341384   6689124     29.56
COMM     4   40231    341242   6688168    370554   6688123     29.31
COMM     4   40240    370967   6687233    341653   6687129     29.31
COMM
COMM  Total Kilometres :       713.24
```

AREA 4E

```
COMM  Total number of lines :   19
COMM
COMM   Flt    Line   Start X   Start Y     End X     End Y       Kms
COMM
COMM     5   40020    388059   6709120    375535   6709120     12.52
COMM     5   40030    375494   6708104    388061   6708114     12.57
COMM     5   40040    388099   6707170    375532   6707139     12.57
COMM     5   40050    375458   6706129    388063   6706123     12.61
COMM     5   40060    388059   6705143    375505   6705123     12.55
COMM     5   40070    375481   6704129    388035   6704138     12.55
COMM     5   40080    388057   6703086    375484   6703116     12.57
COMM     5   40090    375488   6702133    388032   6702125     12.54
COMM     5   40100    388097   6701126    375486   6701123     12.61
COMM     5   40110    375475   6700123    388039   6700128     12.56
COMM     5   40120    388064   6699142    375491   6699115     12.57
COMM     5   40130    375463   6698122    388017   6698134     12.55
COMM     5   40140    388049   6697125    375522   6697137     12.53
COMM     5   40150    375486   6696117    388022   6696137     12.54
COMM     5   40160    388114   6695122    375469   6695121     12.65
COMM     5   40170    375458   6694121    388020   6694135     12.56
COMM     5   40180    388084   6693149    375506   6693132     12.58
COMM     5   40190    375479   6692114    388063   6692106     12.58
COMM     5   40200    388082   6691121    375533   6691130     12.55
COMM
COMM  Total Kilometres :       238.77
```

APPENDIX IV – Located Data Formats

Headers for final data files

AREA 1

```
COMM JOB NUMBER:                                              1811
COMM AREA NUMBER:                                                1
COMM SURVEY COMPANY:                          Fugro Airborne Surveys
COMM CLIENT:                                       Deep Yellow Ltd
COMM SURVEY TYPE:                               25Hz TEMPEST Survey
COMM AREA NAME:                                      Deep Yellow 1
COMM STATE:                                                     SA
COMM COUNTRY:                                            Australia
COMM SURVEY FLOWN:                                    August, 2006
COMM LOCATED DATA CREATED:                                Oct 2006
COMM
COMM DATUM:                                                  GDA94
COMM PROJECTION:                                               MGA
COMM ZONE:                                                      53
COMM
COMM SURVEY SPECIFICATIONS
COMM
COMM TRAVERSE LINE SPACING:                                 1000 m
COMM TRAVERSE LINE DIRECTION:                          000-180 deg
COMM NOMINAL TERRAIN CLEARANCE:                              120 m
COMM FINAL LINE KILOMETRES:                               986.6 km
COMM
COMM LINE NUMBERING
COMM
COMM TRAVERSE LINE NUMBERS:                          10010 - 10590
COMM
COMM AREA BOUNDARY (WGS84, UTM53)
COMM
COMM 387829  6681144
COMM 387970  6655370
COMM 362025  6668973
COMM 329575  6669113
COMM 329431  6680445
COMM
COMM
COMM SURVEY EQUIPMENT
COMM
COMM AIRCRAFT:                                Casa 212-200, VH-TEM
COMM
COMM MAGNETOMETER:                     Scintrex CS-2 Caesium Vapour
COMM INSTALLATION:                                   stinger mount
COMM RESOLUTION:                                          0.001 nT
COMM RECORDING INTERVAL:                                     0.2 s
COMM
COMM ELECTROMAGNETIC SYSTEM:                           25Hz TEMPEST
COMM INSTALLATION:            Transmitter loop mounted on the aircraft
COMM                                    Receiver coils in a towed bird
COMM COIL ORIENTATION:                                          X,Z
COMM RECORDING INTERVAL:                                     0.2 s
COMM SYSTEM GEOMETRY:
COMM RECEIVER DISTANCE BEHIND THE TRANSMITTER:              -120 m
COMM RECEIVER DISTANCE BELOW THE TRANSMITTER:                -30 m
COMM
COMM RADAR ALTIMETER:                                 Sperry RT-220
COMM RECORDING INTERVAL:                                     0.2 s
COMM
COMM NAVIGATION:                           real-time differential GPS
COMM RECORDING INTERVAL:                                     1.0 s
COMM
COMM ACQUISITION SYSTEM:                                 PDAS-1000
COMM
```

```
COMM DATA PROCESSING
COMM
COMM MAGNETIC DATA
COMM DIURNAL BASE VALUE APPLIED                                    56110 nT
COMM PARALLAX CORRECTION APPLIED                                      0.6 s
COMM IGRF BASE VALUE APPLIED                                       56814 nT
COMM IGRF MODEL 2005 EXTRAPOLATED TO                                 2006.7
COMM
COMM ELECTROMAGNETIC DATA
COMM SYSTEM PARALLAX REMOVED, AS FOLLOWS
COMM X-COMPONENT EM DATA                                              0.2 s
COMM Z-COMPONENT EM DATA                                              1.4 s
COMM DATA CORRECTED FOR TRANSMITTER HEIGHT, PITCH AND ROLL
COMM DATA CORRECTED FOR TRANSMITTER-RECEIVER GEOMETRY VARIATIONS
COMM
COMM CONDUCTIVITY DEPTH INVERSION CALCULATED                   EMFlow V5.10
COMM CONDUCTIVITIES CALCULATED USING corrected EM DATA
COMM
COMM DIGITAL TERRAIN DATA
COMM PARALLAX CORRECTION APPLIED TO RADAR ALIMETER DATA               0.6 s
COMM PARALLAX CORRECTION APPLIED TO GPS ALIMETER DATA                 0.0 s
COMM DTM CALCULATED [DTM = GPS ALTITUDE - RADAR ALTITUDE]
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 ELECTROMAGNETIC SYSTEM
COMM
COMM TEMPEST IS A TIME-DOMAIN SQUARE-WAVE SYSTEM,
COMM TRANSMITTING AT A BASE FREQUENCY OF 25Hz,
COMM WITH 2 ORTHOGONAL-AXIS RECEIVER COILS IN A TOWED BIRD.
COMM FINAL EM OUTPUT IS RECORDED 5 TIMES PER SECOND.
COMM THE TIMES (IN MILLISECONDS) FOR THE 15 WINDOWS ARE:
COMM
COMM WINDOW      START       END      CENTRE
COMM    1        0.007      0.020      0.013
COMM    2        0.033      0.047      0.040
COMM    3        0.060      0.073      0.067
COMM    4        0.087      0.127      0.107
COMM    5        0.140      0.207      0.173
COMM    6        0.220      0.340      0.280
COMM    7        0.353      0.553      0.453
COMM    8        0.567      0.873      0.720
COMM    9        0.887      1.353      1.120
COMM   10        1.367      2.100      1.733
COMM   11        2.113      3.273      2.693
COMM   12        3.287      5.113      4.200
COMM   13        5.127      7.993      6.560
COMM   14        8.007     12.393     10.200
COMM   15       12.407     19.993     16.200
COMM
COMM PULSE WIDTH: 10 ms
COMM
COMM TEMPEST EM data are transformed to the response that would be
COMM obtained with a B-field sensor for a 100% duty cycle square
COMM waveform at the base frequency, involving a 1A change in
```

```
COMM current (from -0.5A to +0.5A to -0.5A) in a 1sq.m transmitter.
COMM It is this configuration, rather than the actual acquisition
COMM configuration, which must be specified when modelling TEMPEST data.
COMM
COMM
COMM
COMM LOCATED DATA FORMAT
COMM
COMM  Output field format : DOS  - Flat ascii
COMM  Number of fields    : 198
COMM
COMM Field  Channel         Description                       Units  Undefined Format
COMM -----  -------         -----------                       -----  --------- ------
COMM
COMM     1  LINE            Line                                      -9999999  i6
COMM     2  FLIGHT          Flight                                    -9999999  i4
COMM     3  FID             Fiducial                            (s)   -9999999  f8.1
COMM     4  LATITUDE        Latitude  GDA94                    (deg)  -9999999  f13.6
COMM     5  LONGITUDE       Longitude GDA94                    (deg)  -9999999  f13.6
COMM     6  EASTING         Easting   MGA53                     (m)   -9999999  f11.2
COMM     7  NORTHING        Northing  MGA53                     (m)   -9999999  f12.2
COMM     8  TxHeight        GPS height                          (m)   -9999999  f8.2
COMM     9  Baro            Barometric Altitude                 (m)   -9999999  f8.2
COMM    10  TxRalt_raw      Raw Radar Altimeter                 (m)   -9999999  f8.2
COMM    11  TxRalt_final    Final Radar Altimeter               (m)   -9999999  f8.2
COMM    12  DTM             DTM                                 (m)   -9999999  f8.2
COMM    13  MAG             Compensated TMI                    (nT)   -9999999  f10.3
COMM    14  MAG_1VD         Levelled TMI 1VD                 (nT/m)   -9999999  f12.5
COMM    15  Pitch_Raw       Raw Tx loop pitch                  (deg)  -9999999  f10.5
COMM    16  Roll_Raw        Raw Tx loop roll                   (deg)  -9999999  f10.5
COMM    17  HSep_Raw        Raw Tx-Rx horizontal separation     (m)   -9999999  f8.2
COMM    18  VSep_Raw        Raw Tx-Rx vertical separation       (m)   -9999999  f8.2
COMM    19  Pitch_Final     Final Tx loop pitch                (deg)  -9999999  f10.5
COMM    20  Roll_Final      Final Tx loop roll                 (deg)  -9999999  f10.5
COMM    21  HSep_Final      Final Tx-Rx horizontal separation   (m)   -9999999  f8.2
COMM    22  VSep_Final      Final Tx-Rx vertical separation     (m)   -9999999  f8.2
COMM    23  EMX_Raw[1]      Raw EMX01 Window                   (fT)   -9999999  f12.6
COMM    24  EMX_Raw[2]      Raw EMX02 Window                   (fT)   -9999999  f12.6
COMM    25  EMX_Raw[3]      Raw EMX03 Window                   (fT)   -9999999  f12.6
COMM    26  EMX_Raw[4]      Raw EMX04 Window                   (fT)   -9999999  f12.6
COMM    27  EMX_Raw[5]      Raw EMX05 Window                   (fT)   -9999999  f12.6
COMM    28  EMX_Raw[6]      Raw EMX06 Window                   (fT)   -9999999  f12.6
COMM    29  EMX_Raw[7]      Raw EMX07 Window                   (fT)   -9999999  f12.6
COMM    30  EMX_Raw[8]      Raw EMX08 Window                   (fT)   -9999999  f12.6
COMM    31  EMX_Raw[9]      Raw EMX09 Window                   (fT)   -9999999  f12.6
COMM    32  EMX_Raw[10]     Raw EMX10 Window                   (fT)   -9999999  f12.6
COMM    33  EMX_Raw[11]     Raw EMX11 Window                   (fT)   -9999999  f12.6
COMM    34  EMX_Raw[12]     Raw EMX12 Window                   (fT)   -9999999  f12.6
COMM    35  EMX_Raw[13]     Raw EMX13 Window                   (fT)   -9999999  f12.6
COMM    36  EMX_Raw[14]     Raw EMX14 Window                   (fT)   -9999999  f12.6
COMM    37  EMX_Raw[15]     Raw EMX15 Window                   (fT)   -9999999  f12.6
COMM    38  EMX_Final[1]    Final EMX01 Window                 (fT)   -9999999  f12.6
COMM    39  EMX_Final[2]    Final EMX02 Window                 (fT)   -9999999  f12.6
COMM    40  EMX_Final[3]    Final EMX03 Window                 (fT)   -9999999  f12.6
COMM    41  EMX_Final[4]    Final EMX04 Window                 (fT)   -9999999  f12.6
COMM    42  EMX_Final[5]    Final EMX05 Window                 (fT)   -9999999  f12.6
COMM    43  EMX_Final[6]    Final EMX06 Window                 (fT)   -9999999  f12.6
COMM    44  EMX_Final[7]    Final EMX07 Window                 (fT)   -9999999  f12.6
COMM    45  EMX_Final[8]    Final EMX08 Window                 (fT)   -9999999  f12.6
COMM    46  EMX_Final[9]    Final EMX09 Window                 (fT)   -9999999  f12.6
COMM    47  EMX_Final[10]   Final EMX10 Window                 (fT)   -9999999  f12.6
COMM    48  EMX_Final[11]   Final EMX11 Window                 (fT)   -9999999  f12.6
COMM    49  EMX_Final[12]   Final EMX12 Window                 (fT)   -9999999  f12.6
COMM    50  EMX_Final[13]   Final EMX13 Window                 (fT)   -9999999  f12.6
COMM    51  EMX_Final[14]   Final EMX14 Window                 (fT)   -9999999  f12.6
COMM    52  EMX_Final[15]   Final EMX15 Window                 (fT)   -9999999  f12.6
COMM    53  X_Sferics       X_Sferics                                 -9999999  f10.3
COMM    54  X_Lowfreq       X_Lowfreq                                 -9999999  f10.3
COMM    55  X_Powerline     X_Powerline                               -9999999  f10.3
COMM    56  X_VLF1          X_18.2kHz                                 -9999999  f10.3
COMM    57  X_VLF2          X_19.8kHz                                 -9999999  f10.3
```

COMM	58	X_VLF3	X_21.4kHz			-9999999	f10.3
COMM	59	X_VLF4	X_22.2kHz			-9999999	f10.3
COMM	60	X_Geofact	X_Geometric factor			-9999999	f10.3
COMM	61	EMZ_Raw[1]	Raw EMZ01 Window		(fT)	-9999999	f12.6
COMM	62	EMZ_Raw[2]	Raw EMZ02 Window		(fT)	-9999999	f12.6
COMM	63	EMZ_Raw[3]	Raw EMZ03 Window		(fT)	-9999999	f12.6
COMM	64	EMZ_Raw[4]	Raw EMZ04 Window		(fT)	-9999999	f12.6
COMM	65	EMZ_Raw[5]	Raw EMZ05 Window		(fT)	-9999999	f12.6
COMM	66	EMZ_Raw[6]	Raw EMZ06 Window		(fT)	-9999999	f12.6
COMM	67	EMZ_Raw[7]	Raw EMZ07 Window		(fT)	-9999999	f12.6
COMM	68	EMZ_Raw[8]	Raw EMZ08 Window		(fT)	-9999999	f12.6
COMM	69	EMZ_Raw[9]	Raw EMZ09 Window		(fT)	-9999999	f12.6
COMM	70	EMZ_Raw[10]	Raw EMZ10 Window		(fT)	-9999999	f12.6
COMM	71	EMZ_Raw[11]	Raw EMZ11 Window		(fT)	-9999999	f12.6
COMM	72	EMZ_Raw[12]	Raw EMZ12 Window		(fT)	-9999999	f12.6
COMM	73	EMZ_Raw[13]	Raw EMZ13 Window		(fT)	-9999999	f12.6
COMM	74	EMZ_Raw[14]	Raw EMZ14 Window		(fT)	-9999999	f12.6
COMM	75	EMZ_Raw[15]	Raw EMZ15 Window		(fT)	-9999999	f12.6
COMM	76	EMZ_Final[1]	Final EMZ01 Window		(fT)	-9999999	f12.6
COMM	77	EMZ_Final[2]	Final EMZ02 Window		(fT)	-9999999	f12.6
COMM	78	EMZ_Final[3]	Final EMZ03 Window		(fT)	-9999999	f12.6
COMM	79	EMZ_Final[4]	Final EMZ04 Window		(fT)	-9999999	f12.6
COMM	80	EMZ_Final[5]	Final EMZ05 Window		(fT)	-9999999	f12.6
COMM	81	EMZ_Final[6]	Final EMZ06 Window		(fT)	-9999999	f12.6
COMM	82	EMZ_Final[7]	Final EMZ07 Window		(fT)	-9999999	f12.6
COMM	83	EMZ_Final[8]	Final EMZ08 Window		(fT)	-9999999	f12.6
COMM	84	EMZ_Final[9]	Final EMZ09 Window		(fT)	-9999999	f12.6
COMM	85	EMZ_Final[10]	Final EMZ10 Window		(fT)	-9999999	f12.6
COMM	86	EMZ_Final[11]	Final EMZ11 Window		(fT)	-9999999	f12.6
COMM	87	EMZ_Final[12]	Final EMZ12 Window		(fT)	-9999999	f12.6
COMM	88	EMZ_Final[13]	Final EMZ13 Window		(fT)	-9999999	f12.6
COMM	89	EMZ_Final[14]	Final EMZ14 Window		(fT)	-9999999	f12.6
COMM	90	EMZ_Final[15]	Final EMZ15 Window		(fT)	-9999999	f12.6
COMM	91	Z_Sferics	Z_Sferics			-9999999	f10.3
COMM	92	Z_Lowfreq	Z_Lowfreq			-9999999	f10.3
COMM	93	Z_Powerline	Z_Powerline			-9999999	f10.3
COMM	94	Z_VLF1	Z_18.2kHz			-9999999	f10.3
COMM	95	Z_VLF2	Z_19.8kHz			-9999999	f10.3
COMM	96	Z_VLF3	Z_21.4kHz			-9999999	f10.3
COMM	97	Z_VLF4	Z_22.2kHz			-9999999	f10.3
COMM	98	Z_Geofact	Z_Geometric factor			-9999999	f10.3
COMM	99	CNDZ[1]	Conductivity_Z001	0- 5 m	(mS/m)	-9999999	f10.3
COMM	100	CNDZ[2]	Conductivity_Z002	5- 10 m	(mS/m)	-9999999	f10.3
COMM	101	CNDZ[3]	Conductivity_Z003	10- 15 m	(mS/m)	-9999999	f10.3
COMM	102	CNDZ[4]	Conductivity_Z004	15- 20 m	(mS/m)	-9999999	f10.3
COMM	103	CNDZ[5]	Conductivity_Z005	20- 25 m	(mS/m)	-9999999	f10.3
COMM	104	CNDZ[6]	Conductivity_Z006	25- 30 m	(mS/m)	-9999999	f10.3
COMM	105	CNDZ[7]	Conductivity_Z007	30- 35 m	(mS/m)	-9999999	f10.3
COMM	106	CNDZ[8]	Conductivity_Z008	35- 40 m	(mS/m)	-9999999	f10.3
COMM	107	CNDZ[9]	Conductivity_Z009	40- 45 m	(mS/m)	-9999999	f10.3
COMM	108	CNDZ[10]	Conductivity_Z010	45- 50 m	(mS/m)	-9999999	f10.3
COMM	109	CNDZ[11]	Conductivity_Z011	50- 55 m	(mS/m)	-9999999	f10.3
COMM	110	CNDZ[12]	Conductivity_Z012	55- 60 m	(mS/m)	-9999999	f10.3
COMM	111	CNDZ[13]	Conductivity_Z013	60- 65 m	(mS/m)	-9999999	f10.3
COMM	112	CNDZ[14]	Conductivity_Z014	65- 70 m	(mS/m)	-9999999	f10.3
COMM	113	CNDZ[15]	Conductivity_Z015	70- 75 m	(mS/m)	-9999999	f10.3
COMM	114	CNDZ[16]	Conductivity_Z016	75- 80 m	(mS/m)	-9999999	f10.3
COMM	115	CNDZ[17]	Conductivity_Z017	80- 85 m	(mS/m)	-9999999	f10.3
COMM	116	CNDZ[18]	Conductivity_Z018	85- 90 m	(mS/m)	-9999999	f10.3
COMM	117	CNDZ[19]	Conductivity_Z019	90- 95 m	(mS/m)	-9999999	f10.3
COMM	118	CNDZ[20]	Conductivity_Z020	95-100 m	(mS/m)	-9999999	f10.3
COMM	119	CNDZ[21]	Conductivity_Z021	100-105 m	(mS/m)	-9999999	f10.3
COMM	120	CNDZ[22]	Conductivity_Z022	105-110 m	(mS/m)	-9999999	f10.3
COMM	121	CNDZ[23]	Conductivity_Z023	110-115 m	(mS/m)	-9999999	f10.3
COMM	122	CNDZ[24]	Conductivity_Z024	115-120 m	(mS/m)	-9999999	f10.3
COMM	123	CNDZ[25]	Conductivity_Z025	120-125 m	(mS/m)	-9999999	f10.3
COMM	124	CNDZ[26]	Conductivity_Z026	125-130 m	(mS/m)	-9999999	f10.3
COMM	125	CNDZ[27]	Conductivity_Z027	130-135 m	(mS/m)	-9999999	f10.3
COMM	126	CNDZ[28]	Conductivity_Z028	135-140 m	(mS/m)	-9999999	f10.3
COMM	127	CNDZ[29]	Conductivity_Z029	140-145 m	(mS/m)	-9999999	f10.3
COMM	128	CNDZ[30]	Conductivity_Z030	145-150 m	(mS/m)	-9999999	f10.3

COMM	129	CNDZ[31]	Conductivity_Z031	150–155 m	(mS/m)	-9999999	f10.3
COMM	130	CNDZ[32]	Conductivity_Z032	155–160 m	(mS/m)	-9999999	f10.3
COMM	131	CNDZ[33]	Conductivity_Z033	160–165 m	(mS/m)	-9999999	f10.3
COMM	132	CNDZ[34]	Conductivity_Z034	165–170 m	(mS/m)	-9999999	f10.3
COMM	133	CNDZ[35]	Conductivity_Z035	170–175 m	(mS/m)	-9999999	f10.3
COMM	134	CNDZ[36]	Conductivity_Z036	175–180 m	(mS/m)	-9999999	f10.3
COMM	135	CNDZ[37]	Conductivity_Z037	180–185 m	(mS/m)	-9999999	f10.3
COMM	136	CNDZ[38]	Conductivity_Z038	185–190 m	(mS/m)	-9999999	f10.3
COMM	137	CNDZ[39]	Conductivity_Z039	190–195 m	(mS/m)	-9999999	f10.3
COMM	138	CNDZ[40]	Conductivity_Z040	195–200 m	(mS/m)	-9999999	f10.3
COMM	139	CNDZ[41]	Conductivity_Z041	200–205 m	(mS/m)	-9999999	f10.3
COMM	140	CNDZ[42]	Conductivity_Z042	205–210 m	(mS/m)	-9999999	f10.3
COMM	141	CNDZ[43]	Conductivity_Z043	210–215 m	(mS/m)	-9999999	f10.3
COMM	142	CNDZ[44]	Conductivity_Z044	215–220 m	(mS/m)	-9999999	f10.3
COMM	143	CNDZ[45]	Conductivity_Z045	220–225 m	(mS/m)	-9999999	f10.3
COMM	144	CNDZ[46]	Conductivity_Z046	225–230 m	(mS/m)	-9999999	f10.3
COMM	145	CNDZ[47]	Conductivity_Z047	230–235 m	(mS/m)	-9999999	f10.3
COMM	146	CNDZ[48]	Conductivity_Z048	235–240 m	(mS/m)	-9999999	f10.3
COMM	147	CNDZ[49]	Conductivity_Z049	240–245 m	(mS/m)	-9999999	f10.3
COMM	148	CNDZ[50]	Conductivity_Z050	245–250 m	(mS/m)	-9999999	f10.3
COMM	149	CNDZ[51]	Conductivity_Z051	250–255 m	(mS/m)	-9999999	f10.3
COMM	150	CNDZ[52]	Conductivity_Z052	255–260 m	(mS/m)	-9999999	f10.3
COMM	151	CNDZ[53]	Conductivity_Z053	260–265 m	(mS/m)	-9999999	f10.3
COMM	152	CNDZ[54]	Conductivity_Z054	265–270 m	(mS/m)	-9999999	f10.3
COMM	153	CNDZ[55]	Conductivity_Z055	270–275 m	(mS/m)	-9999999	f10.3
COMM	154	CNDZ[56]	Conductivity_Z056	275–280 m	(mS/m)	-9999999	f10.3
COMM	155	CNDZ[57]	Conductivity_Z057	280–285 m	(mS/m)	-9999999	f10.3
COMM	156	CNDZ[58]	Conductivity_Z058	285–290 m	(mS/m)	-9999999	f10.3
COMM	157	CNDZ[59]	Conductivity_Z059	290–295 m	(mS/m)	-9999999	f10.3
COMM	158	CNDZ[60]	Conductivity_Z060	295–300 m	(mS/m)	-9999999	f10.3
COMM	159	CNDZ[61]	Conductivity_Z061	300–305 m	(mS/m)	-9999999	f10.3
COMM	160	CNDZ[62]	Conductivity_Z062	305–310 m	(mS/m)	-9999999	f10.3
COMM	161	CNDZ[63]	Conductivity_Z063	310–315 m	(mS/m)	-9999999	f10.3
COMM	162	CNDZ[64]	Conductivity_Z064	315–320 m	(mS/m)	-9999999	f10.3
COMM	163	CNDZ[65]	Conductivity_Z065	320–325 m	(mS/m)	-9999999	f10.3
COMM	164	CNDZ[66]	Conductivity_Z066	325–330 m	(mS/m)	-9999999	f10.3
COMM	165	CNDZ[67]	Conductivity_Z067	330–335 m	(mS/m)	-9999999	f10.3
COMM	166	CNDZ[68]	Conductivity_Z068	335–340 m	(mS/m)	-9999999	f10.3
COMM	167	CNDZ[69]	Conductivity_Z069	340–345 m	(mS/m)	-9999999	f10.3
COMM	168	CNDZ[70]	Conductivity_Z070	345–350 m	(mS/m)	-9999999	f10.3
COMM	169	CNDZ[71]	Conductivity_Z071	350–355 m	(mS/m)	-9999999	f10.3
COMM	170	CNDZ[72]	Conductivity_Z072	355–360 m	(mS/m)	-9999999	f10.3
COMM	171	CNDZ[73]	Conductivity_Z073	360–365 m	(mS/m)	-9999999	f10.3
COMM	172	CNDZ[74]	Conductivity_Z074	365–370 m	(mS/m)	-9999999	f10.3
COMM	173	CNDZ[75]	Conductivity_Z075	370–375 m	(mS/m)	-9999999	f10.3
COMM	174	CNDZ[76]	Conductivity_Z076	375–380 m	(mS/m)	-9999999	f10.3
COMM	175	CNDZ[77]	Conductivity_Z077	380–385 m	(mS/m)	-9999999	f10.3
COMM	176	CNDZ[78]	Conductivity_Z078	385–390 m	(mS/m)	-9999999	f10.3
COMM	177	CNDZ[79]	Conductivity_Z079	390–395 m	(mS/m)	-9999999	f10.3
COMM	178	CNDZ[80]	Conductivity_Z080	395–400 m	(mS/m)	-9999999	f10.3
COMM	179	CNDZ[81]	Conductivity_Z081	400–405 m	(mS/m)	-9999999	f10.3
COMM	180	CNDZ[82]	Conductivity_Z082	405–410 m	(mS/m)	-9999999	f10.3
COMM	181	CNDZ[83]	Conductivity_Z083	410–415 m	(mS/m)	-9999999	f10.3
COMM	182	CNDZ[84]	Conductivity_Z084	415–420 m	(mS/m)	-9999999	f10.3
COMM	183	CNDZ[85]	Conductivity_Z085	420–425 m	(mS/m)	-9999999	f10.3
COMM	184	CNDZ[86]	Conductivity_Z086	425–430 m	(mS/m)	-9999999	f10.3
COMM	185	CNDZ[87]	Conductivity_Z087	430–435 m	(mS/m)	-9999999	f10.3
COMM	186	CNDZ[88]	Conductivity_Z088	435–440 m	(mS/m)	-9999999	f10.3
COMM	187	CNDZ[89]	Conductivity_Z089	440–445 m	(mS/m)	-9999999	f10.3
COMM	188	CNDZ[90]	Conductivity_Z090	445–450 m	(mS/m)	-9999999	f10.3
COMM	189	CNDZ[91]	Conductivity_Z091	450–455 m	(mS/m)	-9999999	f10.3
COMM	190	CNDZ[92]	Conductivity_Z092	455–460 m	(mS/m)	-9999999	f10.3
COMM	191	CNDZ[93]	Conductivity_Z093	460–465 m	(mS/m)	-9999999	f10.3
COMM	192	CNDZ[94]	Conductivity_Z094	465–470 m	(mS/m)	-9999999	f10.3
COMM	193	CNDZ[95]	Conductivity_Z095	470–475 m	(mS/m)	-9999999	f10.3
COMM	194	CNDZ[96]	Conductivity_Z096	475–480 m	(mS/m)	-9999999	f10.3
COMM	195	CNDZ[97]	Conductivity_Z097	480–485 m	(mS/m)	-9999999	f10.3
COMM	196	CNDZ[98]	Conductivity_Z098	485–490 m	(mS/m)	-9999999	f10.3
COMM	197	CNDZ[99]	Conductivity_Z099	490–495 m	(mS/m)	-9999999	f10.3
COMM	198	CNDZ[100]	Conductivity_Z100	495–500 m	(mS/m)	-9999999	f10.3

AREA 2

```
COMM JOB NUMBER:                                                       1811
COMM AREA NUMBER:                                                         2
COMM SURVEY COMPANY:                                 Fugro Airborne Surveys
COMM CLIENT:                                                Deep Yellow Ltd
COMM SURVEY TYPE:                                       25Hz TEMPEST Survey
COMM AREA NAME:                                               Deep Yellow 2
COMM STATE:                                                              SA
COMM COUNTRY:                                                     Australia
COMM SURVEY FLOWN:                                             August, 2006
COMM LOCATED DATA CREATED:                                         Oct 2006
COMM
COMM DATUM:                                                           GDA94
COMM PROJECTION:                                                        MGA
COMM ZONE:                                                               53
COMM
COMM SURVEY SPECIFICATIONS
COMM
COMM TRAVERSE LINE SPACING:                                          1000 m
COMM TRAVERSE LINE DIRECTION:                                   090-270 deg
COMM NOMINAL TERRAIN CLEARANCE:                                       120 m
COMM FINAL LINE KILOMETRES:                                       1104.3 km
COMM
COMM LINE NUMBERING
COMM
COMM TRAVERSE LINE NUMBERS:                                   20010 - 20460
COMM
COMM AREA BOUNDARY (WGS84, UTM53)
COMM
COMM 373849  6634339
COMM 373849  6626690
COMM 370871  6626690
COMM 370871  6619246
COMM 369170  6619246
COMM 369170  6615566
COMM 355761  6618447
COMM 355761  6626584
COMM 341828  6626584
COMM 341828  6661198
COMM 356088  6661308
COMM 356088  6644034
COMM 377040  6644034
COMM 377040  6634232
COMM
COMM SURVEY EQUIPMENT   <as for Area 1>
```

AREA 4

```
COMM JOB NUMBER:                                                       1811
COMM AREA NUMBER:                                                         4
COMM SURVEY COMPANY:                                 Fugro Airborne Surveys
COMM CLIENT:                                                Deep Yellow Ltd
COMM SURVEY TYPE:                                       25Hz TEMPEST Survey
COMM AREA NAME:                                               Deep Yellow 4
COMM STATE:                                                              SA
COMM COUNTRY:                                                     Australia
COMM SURVEY FLOWN:                                             August, 2006
COMM LOCATED DATA CREATED:                                         Oct 2006
COMM
COMM DATUM:                                                           GDA94
COMM PROJECTION:                                                        MGA
COMM ZONE:                                                               53
COMM
```

```
COMM SURVEY SPECIFICATIONS
COMM
COMM TRAVERSE LINE SPACING:                                    1000 m
COMM TRAVERSE LINE DIRECTION:                             090-270 deg
COMM NOMINAL TERRAIN CLEARANCE:                                 120 m
COMM FINAL LINE KILOMETRES:                                  713.4 km
COMM
COMM LINE NUMBERING
COMM
COMM TRAVERSE LINE NUMBERS:                             40010 - 40240
COMM
COMM AREA BOUNDARY (WGS84, UTM53)
COMM
COMM 342161 6709936
COMM 369428 6710352
COMM 369705 6686545
COMM 342576 6686268
COMM
COMM SURVEY EQUIPMENT   <as for Area 1>
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AREA 4E

```
COMM JOB NUMBER:                                                 1811
COMM AREA NUMBER:                                                  4E
COMM SURVEY COMPANY:                          Fugro Airborne Surveys
COMM CLIENT:                                         Deep Yellow Ltd
COMM SURVEY TYPE:                                25Hz TEMPEST Survey
COMM AREA NAME:                                       Deep Yellow 4E
COMM STATE:                                                        SA
COMM COUNTRY:                                               Australia
COMM SURVEY FLOWN:                                       August, 2006
COMM LOCATED DATA CREATED:                                   Oct 2006
COMM
COMM DATUM:                                                     GDA94
COMM PROJECTION:                                                  MGA
COMM ZONE:                                                         53
COMM
COMM SURVEY SPECIFICATIONS
COMM
COMM TRAVERSE LINE SPACING:                                    1000 m
COMM TRAVERSE LINE DIRECTION:                             090-270 deg
COMM NOMINAL TERRAIN CLEARANCE:                                 120 m
COMM FINAL LINE KILOMETRES:                                  238.8 km
COMM
COMM LINE NUMBERING
COMM
COMM TRAVERSE LINE NUMBERS:                             40020 - 40200
COMM
COMM AREA BOUNDARY (WGS84, UTM53)
COMM
COMM 376753 6708593
COMM 386785 6708745
COMM 386785 6691568
COMM 376753 6691416
COMM
COMM SURVEY EQUIPMENT   <as for Area 1>
```

APPENDIX V – List of all Supplied Data and Products

Final Located Data:

DeepYellow_Area1_Final.hdr	–	0.2 second electromagnetics, magnetics and digital elevation data
DeepYellow_Area2_Final.hdr	–	0.2 second electromagnetics, magnetics and digital elevation data
DeepYellow_Area4_Final.hdr	–	0.2 second electromagnetics, magnetics and digital elevation data
DeepYellow_Area4E_Final.hdr	–	0.2 second electromagnetics, magnetics and digital elevation data

Final located data are in flat ASCII format. Contents are shown in Appendix IV.

Data also delivered in Geosoft GDB format and AMIRA format.

Final Gridded Data: final grids supplied in ER-mapper format

TMI
1VD TMI
Digital terrain
Depth to Resistive Basement
X & Z time constants
X & Z channel amplitude data

Hardcopy maps:

TMI
1VD TMI
Digital terrain
Depth to Resistive Basement
Flight Path

Final Plotfile and Digital Products:

Flight Path
Z component CDI Multiplots of each line (also as hardcopies)
Z component CDI stacked sections (also as hardcopies)

Digital and hardcopy of Acquisition and Processing Report

APPENDIX 2

AIRBORNE ELECTROMAGNETIC SURVEY DIGITAL DATA FILES

(AEM data - see Government of South Australia Mineral Resources Website)

DEEP YELLOW LIMITED

ABN 97 006 391 948

ANNUAL REPORT

EXPLORATION LICENCES
3044 (4014), 3270, 3300 AND 3554

WESTERN GAWLER JV

BARTON SHEET SH 53-9
TALLERINGA SHEET SH 53-5
TARCOOLA SHEET SH 53-10
COOBER PEDY SH 53-06

1 July 2007 – 30 June 2008

Holders: Dominion Gold Operations Pty Ltd

Operator: Deep Yellow Ltd

Author: G Gee, J. Rohde

Date: July 2008

Distribution:
- ❑ Primary Industries and Resources, SA (1)
- ❑ Dominion Gold Operations Pty Ltd (1)
- ❑ Deep Yellow Limited (1)

CONTENTS

APPENDICES (supplied on CD)

File name		*Description*
Appendix 1	Gawler_COL_2007	Hole Locations
Appendix 2	Gawler_DHGEO_2007	Downhole Geology
Appendix 3	Gawler_DHASSAY_2007	Assay Results
Appendix 4	Gawler_DHGammaLog_LasFiles	Airborne Geophysical Data

1.0 SUMMARY

The Western Gawler Joint Venture tenements are located 800 kilometres northwest of Adelaide, and overlie the Gawler Craton **(Figure 1**). Deep Yellow Limited (DYL) has been conducting exploration under the terms of an agreement dated 22 February 2006 with the registered holder, Dominion Gold Operations Pty Ltd (DGO).

This report covers exploration conducted by DYL on Exploration Licences 3044, 3270, 3300 and 3554 during the period ending 30 June 2008.

Previous exploration within the tenements has been directed chiefly toward gold and base metal exploration. Shallow but extensive calcrete sampling datasets exist, with ongoing multi-element re-analysis in progress by PIRSA. Regionally, both past and present exploration of paleodrainage uranium targets has taken place, though not within the JV tenements. These paleochannels have the potential for redox-style uranium traps associated with the Tertiary Pidinga Formation. The August 2006 Airborne Electromagnetic (AEM) survey provided better delineation of the paleochannels development within the tenements and also outlined the junction of the target drainage with the major paleodrainage elements known as the Garford and Anthony Paleochannels.

Following the heritage clearance by the Antakirinja Native Title Claimants, a 146 hole air-core drill program for 9,885 metres was conducted in July 2007 (**Figure 2**). Unfortunately the more prospective areas, delineated by chains of surface saline lakes, could not be targeted due to restrictions imposed by the Aboriginal Sites Survey. The objectives of this first-pass drilling were to locate bona fide paleochannels, regional redox, calcrete or sand hosts and broad zones of radiometric anomalism.

Details of the exploration activities are summarised in **Table 1**.

Table 1: Western Gawler Project – Summary of Exploration

Tenement	Aircore Drilling
EL 3044	75 holes, 5121m
EL 3270	46 holes, 2923m
EL 3554	25 holes, 1841m
Total	**146 holes, 9,885m, 72 samples**

Most holes were probed downhole for natural gamma response. Unprobed holes were the result of mechanical problems. Drill samples were logged from one metre sample pits and all samples manually scanned with a hand-held scintillometer for radioactivity.

There were no anomalous responses from the downhole probing nor the surface sample scintillometry. The best assay result returned was 43ppm U_3O_8 from a 2m intercept at a depth of 38m – 40m in hole WG 096.

Only one genuine paleochannel was intersected by drilling in the 15 Mile Tank area (EL 3044). This narrow channel, containing pebbly basal gravel, lies in the headwaters of the Wynbring Paleodrainage.

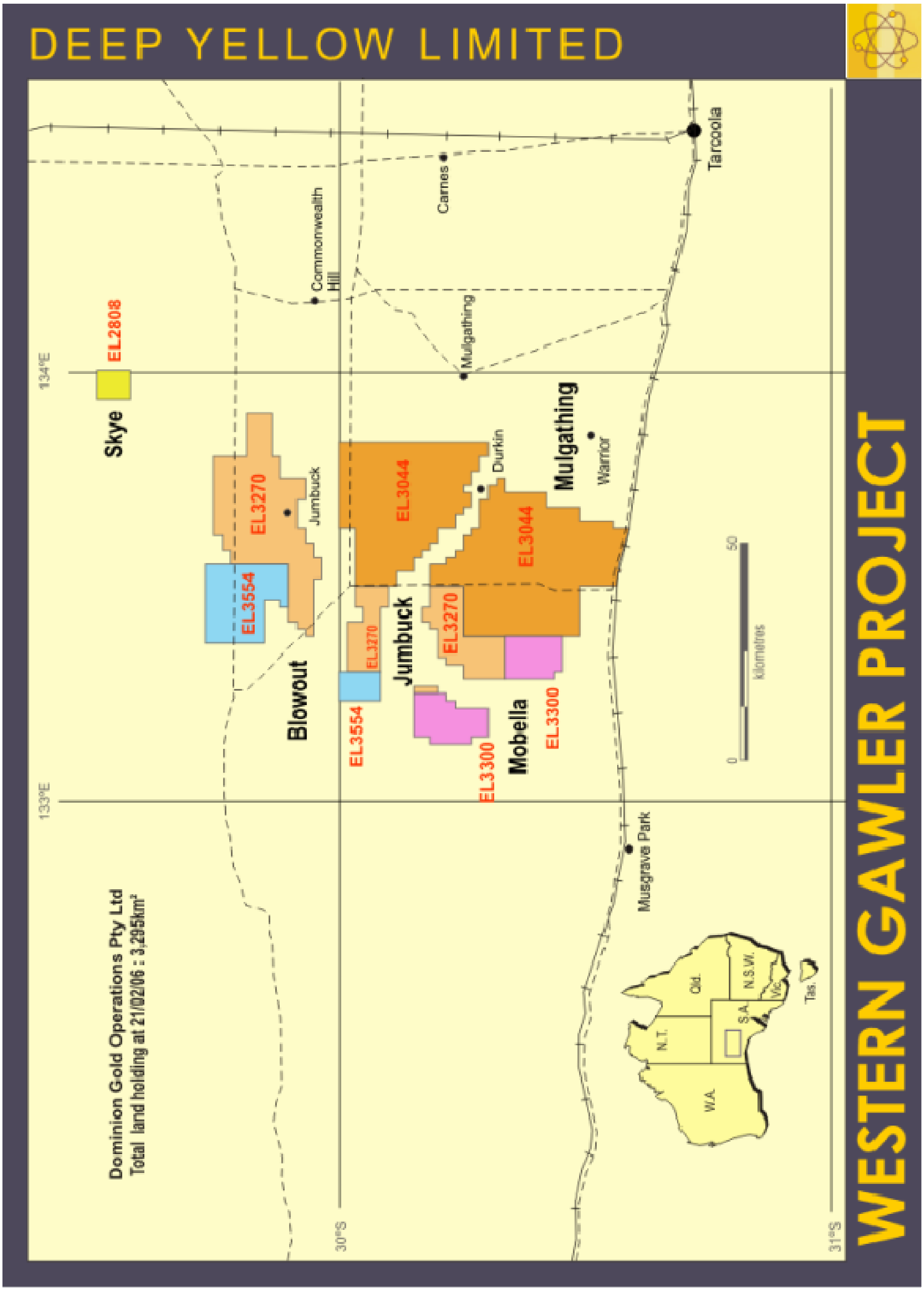


Figure 1. Tenement Location Plan

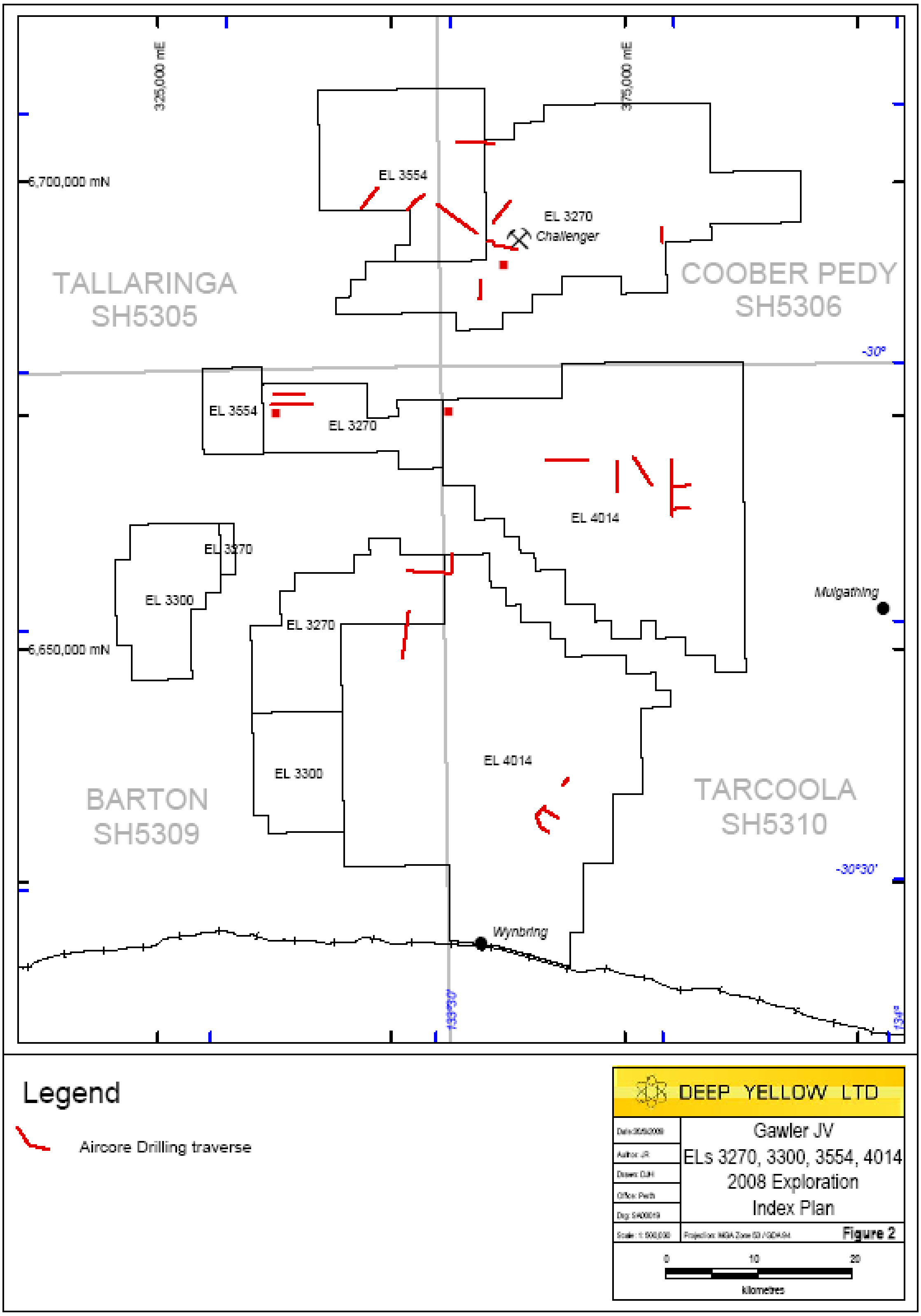


Figure 2. Exploration Index Map

2.0 KEYWORDS

Paleochannel hosted uranium, Gawler Craton, Anthony Paleochannel, Sand/Lignite/Calcrete Hosts, Pidinga Formation.

3.0 INTRODUCTION, PREVIOUS EXPLORATION AND EXPLORATION RATIONALE

3.1 Introduction

The Western Gawler Joint Venture tenements are located 800 kilometres northwest of Adelaide, and some 167 kilometres to the east of the Stuart Highway. Under the terms of the Heads of Agreement dated 22 February 2006, DYL is able to acquire 100% of the uranium rights to DGO's Western Gawler tenements.

Access to the tenement area is via the Challenger Mine Access Road, from the Stuart Highway. Numerous station tracks traverse the area; being parts of Commonwealth Hill, Mulgathing and Mobella Pastoral Leases (**Figure 1**).

Exploration in the area targets tabular and roll-front uranium mineralisation developed within paleochannels. Target host lithologies include lignite, sands and calcrete.

This report covers exploration conducted by DYL on Exploration Licences 3044 (replaced by EL 4014), 3270, 3300 and 3554 during the year ending 30 June 2008. Details of these Exploration Licences are shown in **Table 2**.

Table 2: Tenement Details

EL No.	Name	Grant Date	Expiry Date	Area Km^2
3044 (Replaced by EL 4014)	Mulgathing	19 Nov 2002	18 Nov 2007	1,704
3270	Jumbuck	27 Oct 2004	26 Oct 2007	933
3300	Mobella	24 Jan 2005	23 Jan 2008	270
3554	Blowout	8 May 2006	7 May 2008	336
4014	Mulgathing	2 Jan 2008	1 Jan 2009	1,704

3.2 Previous Exploration

Previous exploration over these tenements has been primarily targeted at gold and base metals. This drilling/surface sampling included considerable shallow calcrete sampling and some follow-up RC drilling over gold-in-calcrete anomalies. Regionally, some historic paleochannel-uranium drilling has also overlapped onto the JV ground; targeting repetitions of the *Warrior-style* mineralisation, without success. Unfortunately, most of the calcrete sampling was directed at in-situ calcrete over shallow basement subcrop and not toward paleochannel sediments. Some of the calcrete sampling has been re-assayed for multi-elements including uranium, but only low tenor values indicative of a low regional background were returned.

3.2.1 Exploration year ending 30.06.2007

To better delineate palaeochannel development within the tenement, a 2,840 line kilometre Airborne Electromagnetic (AEM) survey was flown over the tenement area. The gamma log data is included in the digital appendix. Interpretation of the preliminary data confirmed the presence of meandering conductive traces indicative of paleodrainage development (**Plate 1**). Previous regional exploration has shown these paleochannels have potential for redox-style uranium traps associated with the Tertiary Pidinga Formation. The AEM data also outlined the junction of the target drainage with the major paleodrainage elements known as the Garford and Anthony Paleochannels (**Figure 3**).

3.3 Exploration Rationale

The airborne EM survey completed during the previous reporting period was interpreted to produce a conductivity-based paleodrainage outline, with which to target air core drilling (**Plate 1**). The shapes of these drainages, which varied from dendritic to meandering, were taken to be the tributaries of the Garford, Anthony and Wynbring channels. These drainages were targeted with broadly spaced drill lines with hole spacing mainly at 500 metre intervals. Unfortunately the more prospective areas, delineated by chains of surface saline lakes, could not be targeted due to restrictions imposed by the Aboriginal Sites Survey.

(AEM data - see Government of South Australia Mineral Resources Website)

The objectives of this first-pass drilling were to:

- Locate bona fide paleochannels
- Locate regional redox, calcrete or sand hosts
- Locate broad zones of radiometric anomalism

4.0 GEOLOGY AND MINERALISATION

4.1 Regional Geology

The JV tenements overlie the Gawler Craton; Archaean/Proterozoic Mulgathing Complex forms much of the crystalline basement. Phanerozoic sediments comprising elements of the Officer, Arckaringa and Eromanga basins either blanket or exist as down-faulted remnants within the older basement. Cainozoic paleodrainages have been incised into the Phanerozoic and Precambrian rocks (**Figure 3**).

4.2 Local Geology

Metasediments of the Christie Gneiss are expected to be the dominant crystalline basement type encountered. Fluvial surficial sediments of highly variable thickness are expected to overlie fluvio-lacustrine Tertiary Pidinga or Garfield Formation carbonaceous sediments in paleovalley settings. Deeper Permo-Carboniferous basinal sediments are also likely to underlie the thicker Tertiary sections.

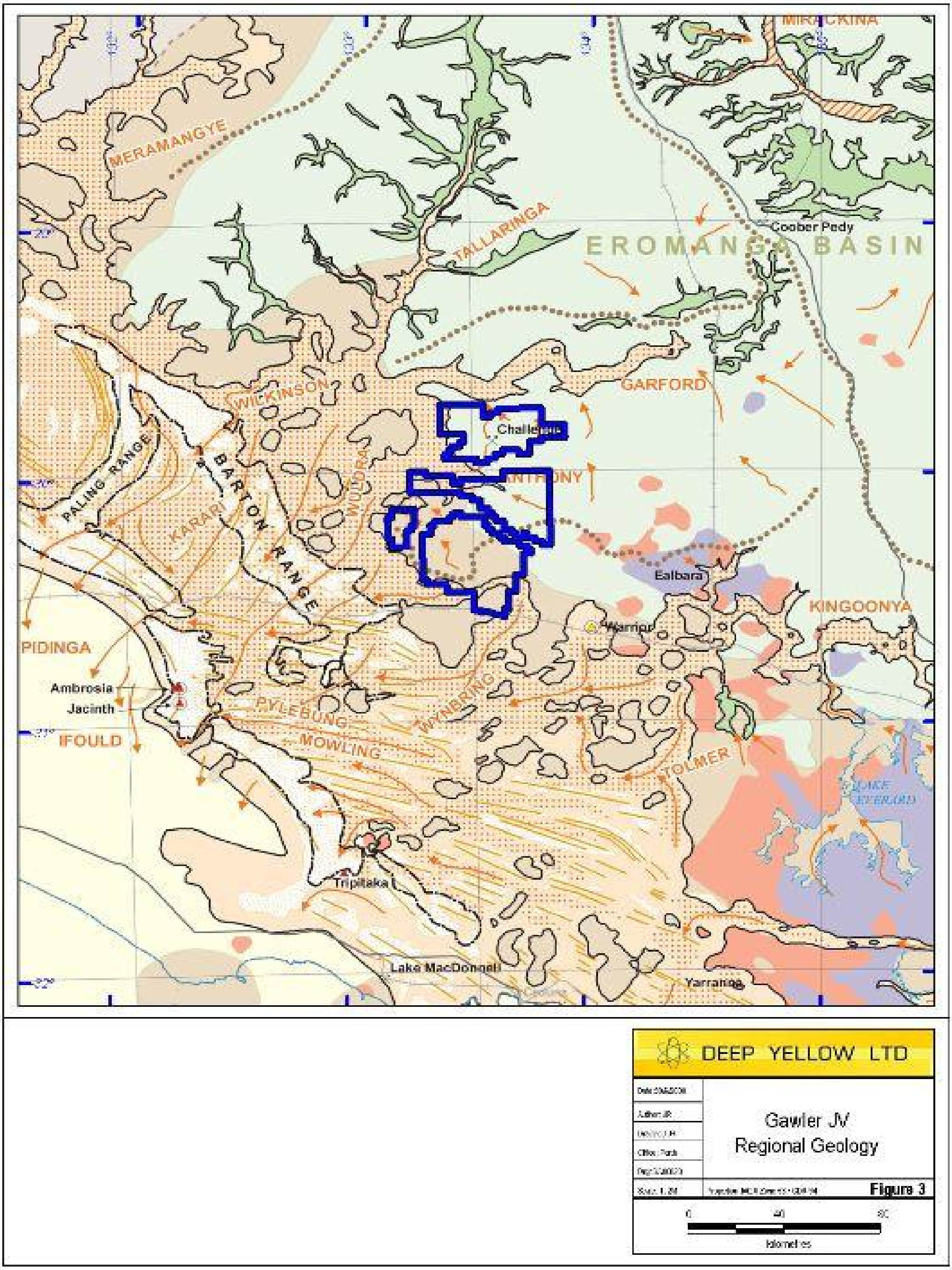


Figure 3. Gawler JV Regional Geology

4.3 Uranium Mineralisation and Targets

Whilst there is no uranium mineralisation known within the JV tenements, there are isolated anomalous assays recorded adjacent to the regional saline drainage sumps associated with surficial sediments. A significant uranium-in-lignite prospect (the *Warrior* prospect) occurs southeast of the JV ground, within paleochannel-hosted, Eocene ? Pidinga Formation.

Repetitions of *Warrior-style* mineralisation are the most plausible conceptual targets presenting. They are likely to be at shallow depth; tabular; located on paleodrainage flanks and close to trunk drainage intersections or terminal drainage sumps.

Sand or sandstone U roll-front targets are possible at greater depths where marginal or terminal oxidation fronts extend down the drainage axis. Sheeted or shoestring sand geometries might be expected.

Calcrete or calcareous-deltaic targets may exist in proximity to saline drainage sumps. Unfortunately, this type of play presents few opportunities within the JV leases, and in any case, the Aboriginal sites survey has proscribed any activity within one kilometre of significant-sized lake or saline flats.

5.0 EXPLORATION COMPLETED

The aircore drilling programme comprised 145 holes for 9885 metres spanning EL's 3044, 3270 and 3554 (**Plate 1)**. Most holes were probed downhole for natural gamma response with a rental Auslog 33mm probe and digital logging system. Unprobed holes were the result of DLS unavailability due to mechanical problems. Drill samples were logged from one metre sample pits and all samples manually scanned with a hand-held Mt Sopris scintillometer for radioactivity. Drill holes were terminated when at refusal; when metamorphic basement was reached; or when a sufficiently useful depth had been reached. One hole was terminated due to excess groundwater being produced (WG-137).

There were no anomalous responses from the downhole probing nor the surface sample scintillometry. A total of 72 samples, composited to 2 or 3 metres, were taken by trowel from the one-metre drill-sample piles. All samples were submitted to ALS-Chemex to be assayed for U_3O_8 with the ME_XRF assay method to a detection limit of 5 ppm. The drill hole and assay data is included in the digital appendices. Drill hole locations are shown on **Plate 1**.

The best analytical result returned was 43 ppm U_3O_8 from a 2m intercept in hole WG-96 between a depth of 38-40m.

Only one genuine paleochannel was intersected by the drilling; this being in the 15 Mile Tank area (EL 3044). This narrow channel, containing pebbly basal gravel, lies in the headwaters of the Wynbring Paleodrainage.

A broad paleobasin containing lignite was intersected south of Lake Anthony (EL 3270). However, the redox top to the lignites was only mildly anomalous, with a best result of 4 metres at 21 ppm U_3O_8 in hole WG-93.

A narrow paleodrainage, defined by the AEM survey, lies just west of the Challenger mine site. Carbonaceous sands at around 40 metres depth mark an indistinct paleochannel fill, which returned the best analytical result (hole WG-96, 2 metres at 43 ppm U_3O_8). The extension of this mineralisation is not closed off to the west. This drainage forms a tributary of the Garford paleochannel.

Most drill holes intersected thick, puggy to dry, sandy clays and claystone from mid hole to bottom hole depths. These sediments resemble deep basinal fill rather than paleovalley fill, and, together with a commonly lithified appearance, are likely to be infaulted Arckaringa Basin sediments. It is likely that these lithified sediments are quite conductive and hence are the deeper sources being modelled by the AEM response. A minority of holes reached metamorphic basement; usually Christie Gneiss, and, in one instance, lamprophyre (WG-9).

6.0 ENVIRONMENTAL MANAGEMENT

Preliminary environmental rehabilitation procedures have been carried out including the plugging of all the holes, the removal of drilling litter and site inspection for oil spills and leaks and removal of those sighted.

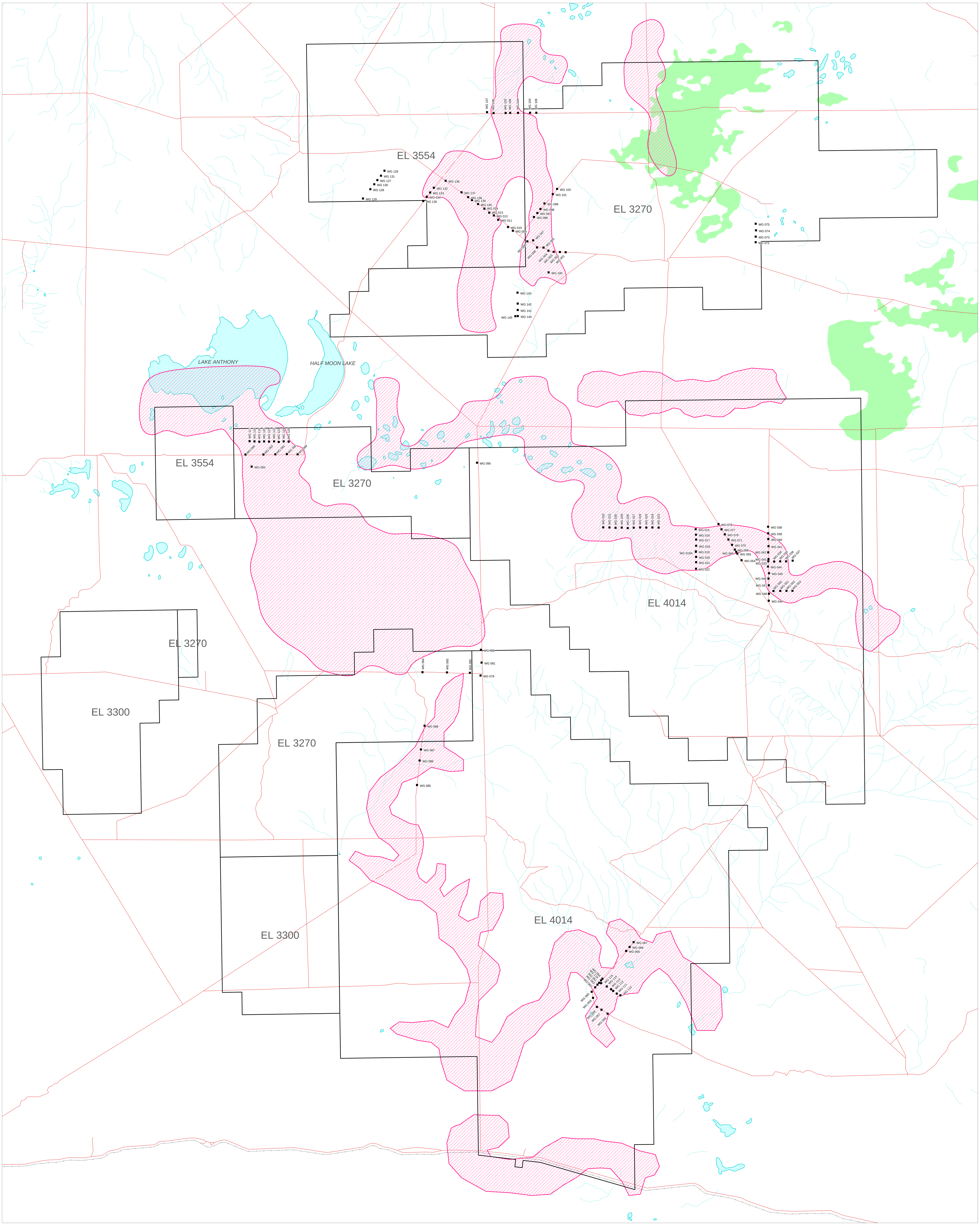
After all exploration activities have been completed and signed off further rehabilitation will commence. This will be followed by regular site monitoring for native plant regeneration and declared weeds to ensure satisfactory outcomes.

No ground disturbing activities, other than drill holes, have been undertaken by DYL to date, as only existing tracks and existing natural access was used for the drilling program.

7.0 REFERENCES

Information relating to past exploration, regional geology, tenement geology, mineralisation styles was compiled from DYL database files.

Gee, G., 2007, Annual Report Exploration Licences 3044, 3270, 3300 and 3554, Western Gawler JV. Report to PIRSA.



Legend

- Drill collar
- Interpreted Palaeochanne
- EL Boundaries
- Roads
- Railway
- Railway
- Railway
- Railway
- Native vegetation
- Creeks
- Salt Lakes

DEEP YELLOW LTD

Date:30/6/2007	Gawler JV ELs 3270, 3300, 3554, 4014 Interpreted Palaeodrainage Channels And Drill Hole Locations
Author: JR	
Drawn: DJH	
Office: Perth	
Drg: SA00016	
Scale: 1: 100,000	Projection: MGA Zone 53 — Plate 1

0 4 8
kilometres

Dominion Gold Operations Pty. Limited
A.C.N. 000 715 882

SA tenements contact:
Pam Robinson
Kelpie Exploration Pty Ltd

Postal Address
PO Box 283
Summertown SA 5141
AUSTRALIA

Phone (61 8) 8390 3254

Our ref: 2010/12/PRLet

24 February 2010

Mineral Tenements
Primary Industries and Resources SA
GPO Box 1671
ADELAIDE 5001

Attention: Nella Petruzzella

Dear Nella,

EL 3262 (Sandstone JV), EL 3270 (Jumbuck), EL 3435 (Sandstone), EL 3554 (Blowout) and EL 3629 (Skye) Partial Surrender and Final Reports

In reply to your email of 17 February 2010, the following information is supplied.

The areas of the above listed exploration licences have been explored since 1994 by Dominion Gold Operations Pty Ltd, Resolute Resources Limited, Deep Yellow Limited, Mithril Resources Limited, Southern Gold Limited and more recently by Iron Road Limited. The current licences are subsequent licences as shown in the table below.

EL No.	Old EL No.	Old EL No.	EL name
EL 3262	EL 2654	EL 2018	Sandstone JV
EL 3270	EL 2637	EL 1971	Jumbuck
EL 3435	EL 2734	EL 2076	Sandstone
EL 3554	EL 2778	EL 2103	Blowout
EL 3629	EL 2808	EL 2120	Skye

Dominion's joint venture partners for exploration of these licences are

JV company	JV ended	Exploration Licences involved
Deep Yellow	9/12/2008	**EL 3262**, **EL 3270**, EL 3300, **EL 3554**, **EL 3629**, EL 3782, EL 4014
Mithril Resources	30/6/2009	**EL 3270**, EL 3300, **EL 3554**, EL 3782, EL 4014
Southern Gold	on going	**EL 3262**, **EL 3270**, EL 3300, **EL 3435**, **EL 3554**, **EL 3629**, EL 3782, EL 4014
Iron Road	on going	EL 3270, EL 3300, **EL 3435**, **EL 3554**, **EL 3629**, EL 4014, EL 4217

Deep Yellow and Mithril will not be submitting any further technical reports. Deep Yellow and Mithril presented technical reports to 30 June 2008 and did not do any field work after that date.

Over the years, Dominion Gold and the joint venture partners have submitted to PIRSA, various individual and combined annual technical reports for the tenements. Please accept the annual technical reports as the partial surrender reports for EL 3262 (Sandstone JV), EL 3270 (Jumbuck), EL 3435 (Sandstone) and EL 3554 (Blowout) and the final technical report for EL 3629 (Skye). These technical reports for open file may in some cases be a combined annual technical report for combinations of the following tenements (or their predeceases) EL 3262, EL 3270, EL 3300, EL 3435, EL 3554, EL 3629, EL 3782 and EL 4014. Dominion Gold and its joint venture partners authorise the release of all jointly reported technical data up to and including the Southern Gold annual technical report for the period ending 30 June 2009. *

While their exploration continues, Southern Gold and Iron Road will continue to submit combined reports to 30th June each year. Iron Road's first report will be submitted after the 30th June 2010.

Yours sincerely

Pam Rob

Pam Robinson
for Dominion Gold Operations Pty Ltd