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EL 4432

LAKE LABYRINTH

ANNUAL REPORTS TO LICENCE EXPIRY/SURRENDER, FOR THE PERIOD 2/2/2010 TO 1/2/2012

Submitted by
Doray Minerals Ltd
2012

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April 14, 2011

EL4432 Hicks

Annual Report

For the period 2/02/2010 to 1/02/2011

Heath Hellewell

Summary

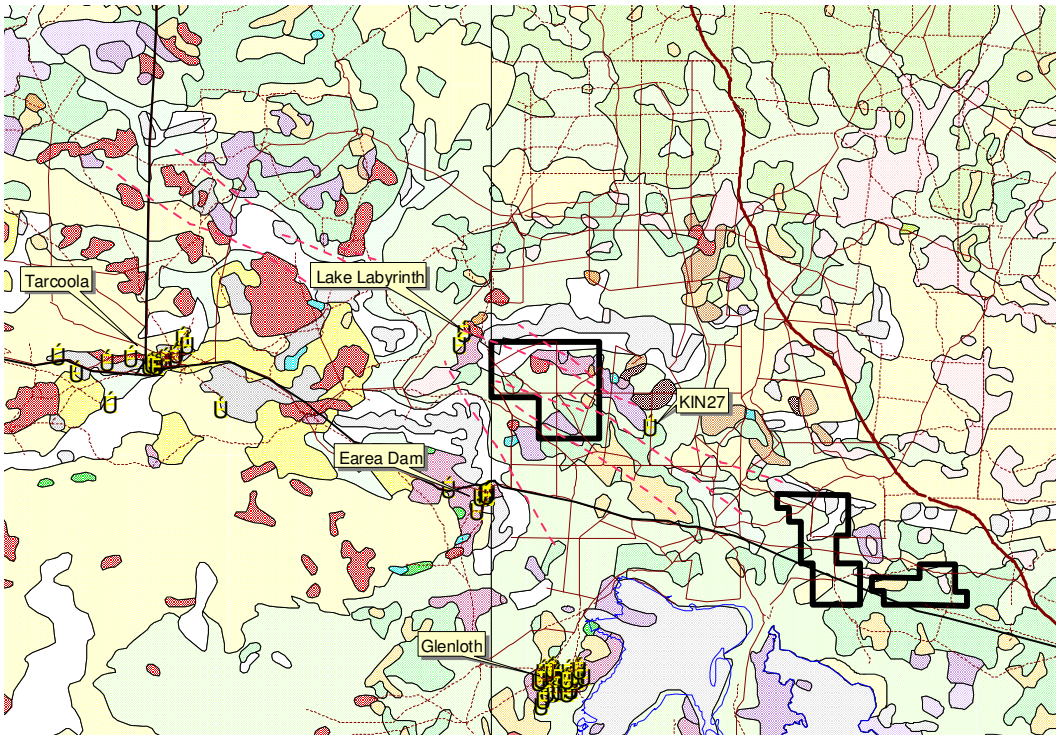
- The Hicks Project consists of one Exploration Licences, EL4432.
- Previous work outlined significant gold mineralisation open at depth and along strike at the North Hicks calcrete geochemical target.
- Work completed during the reporting period comprised data compilation and review.
- An airborne geophysical survey was scheduled for the reporting period but had to be re-scheduled for April 2011 as a result of delays and subsequent adverse weather conditions early in 2011.

1. Introduction

The Hicks gold project is located on the mineralised Labyrinth Shear Zone and has potential for Proterozoic mesothermal gold mineralisation.

2. Location and Regional Setting

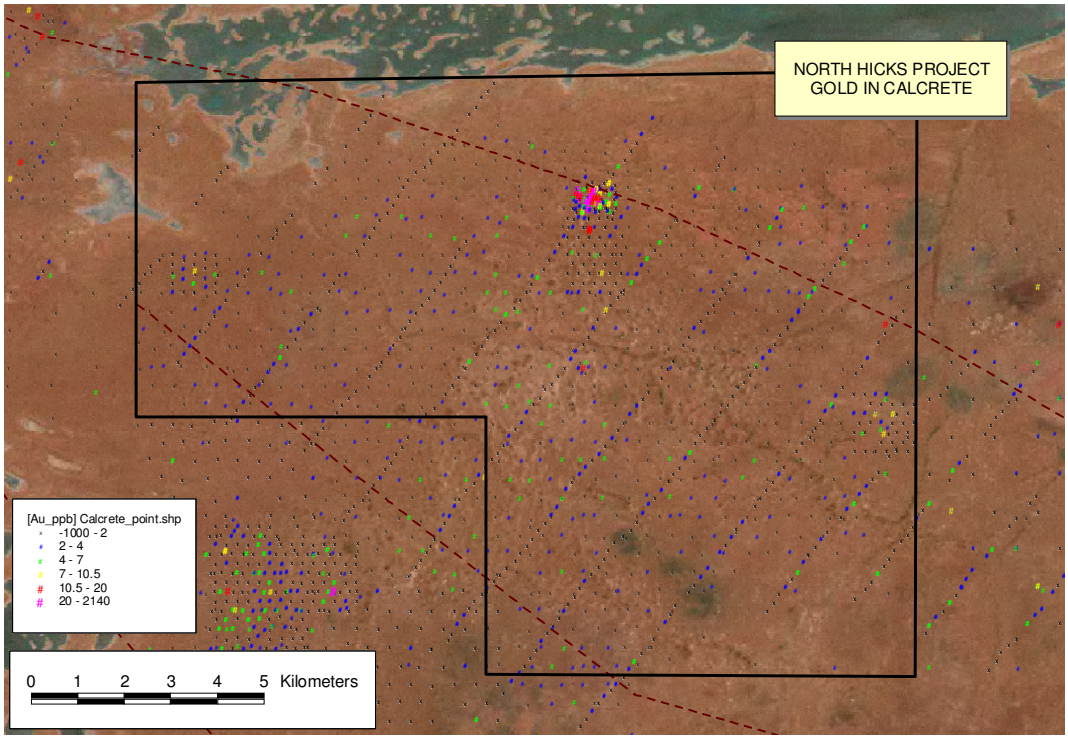
The Hicks project is located 50km west of Tarcoola, in the Central Gawler Gold Province of South Australia. The project, consisting of one EL4432, is located on the Labyrinth Shear Zone, which hosts gold mineralisation at Lake Labyrinth to the north west and KIN27 to the south east.



The Hicks prospect, located between Lake Labyrinth and KIN27, with respect to other gold prospects.

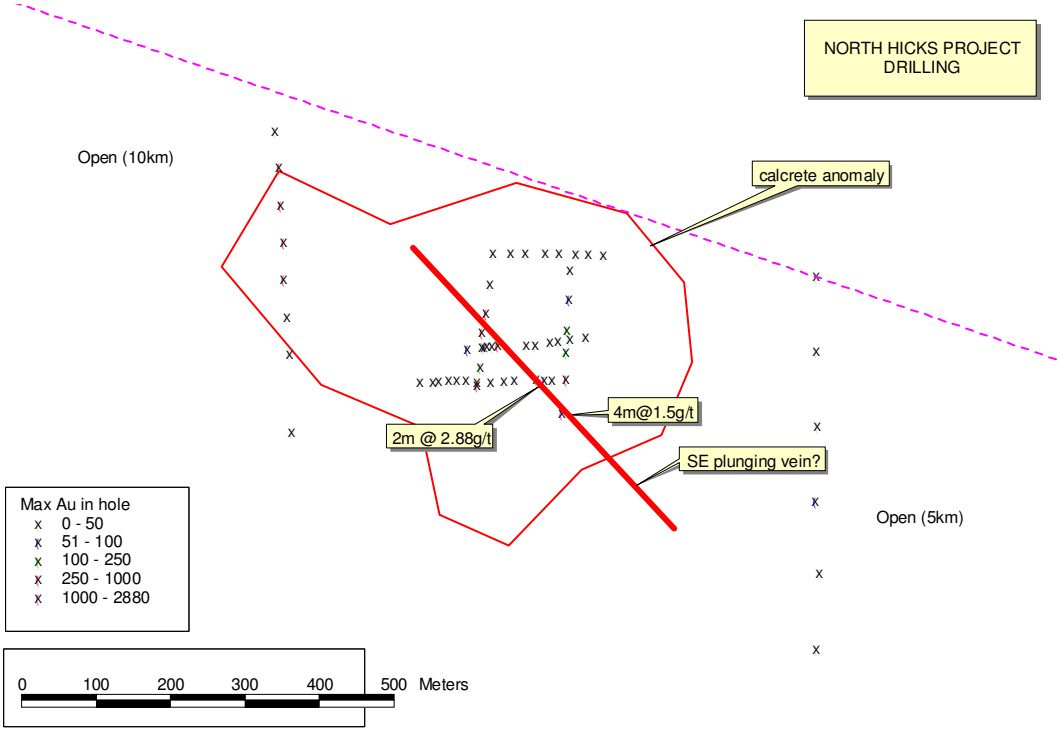
3. Previous Exploration

Dominion conducted calcrete sampling throughout the area in 1998-99 resulting in the discovery of anomalous Au in several samples defining a 500m x 500m anomaly 3.7km north of North Hicks Tank and located within an interpreted shear zone along strike from the Lake Labyrinth workings to the NW and on the other side of Lake Labyrinth itself.



Dominion followed up the calcrete anomalism with aircore and RC drilling and tested approximately 700m of strike with 4 N-S drill traverses. This limited drilling programme defined what appears to be a SE plunging zone of mineralisation intersected in holes 50m apart as shown below. Geological mapping indicates the presence of a parallel quartz vein outcropping to the SW of the drill holes.

The traverse to the NW indicates the mineralisation may continue further to the NW, however at least two holes, NH54 and 55 on 508200mE, define a 100m wide zone of gold anomalism >200ppb at 40m depth, but did not intersect bedrock.



4. Work Completed

A regional aeromagnetic survey was proposed for the reporting period, however the survey originally planned for December 2010 has been delayed due to scheduling delays and more recently the survey was delayed due to adverse weather conditions in February 2011 following mobilisation of the aircraft to Ceduna. The aircraft was stood down and demobilised.

The survey has now been re-scheduled for April 2011 to allow any significant bodies of surface water to dry up as this will affect the quality of the airborne radiometric data.

5. Mineral Potential and proposed work

The limited drilling completed to date by previous explorers indicates the presence of a number of NW striking, SE plunging zones of mineralisation that are open to the NW under shallow drilling and at least 500m long. Section 508400mE tends to suggest a shallow northerly dip with the mineralisation open down dip.

The project requires follow up drilling on the westernmost section under NH54 and 55, along with at least two holes on section 508500mE to follow up the 4m @ 1.5g/t in NH44 and the 2m @ 2.88g/t 30m to the west.

Aeromagnetics will be used to define potential drill targets in areas where calcrete geochemical sampling is thought to have been ineffective.

Heath Hellewell

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Hicks Project

Annual Report

EL4432

21st March 2012

Compiled by Bradley Drabsch

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Appendix 1: Airborne Geophysics Data, Survey B23501 - Hicks

for full dataset see Government of South Australia Mineral Resources Website

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1. Summary

The Hicks Project was the subject of an airborne magnetics survey as part of a more regional survey conducted in 2011 by Doray. The survey was completed by UTS Geophysics and was flown on 100m spaced flight lines at a 40m sensor height.

A reconnaissance visit to the area was completed during 2011 with access to the area investigated and initial landholder liaison conducted. No samples were taken at this time.

The results of the airborne survey are being used at present, in conjunction with historic data to compile a suitable exploration strategy and define target areas for more detailed exploration.

2. Introduction

The Hicks Project contains the Lake Labyrinth licence, EL4432, which covers a 150 square kilometre area in the Harris Greenstone Domain, 5 km east of the old Lake Labyrinth Goldfield and 35 km north of the Glenloth Goldfield, in the central Gawler Craton of South Australia.

The area is located approximately 50km east of Tarcoola on the Trans Australia Railway Line and accessed via Ceduna in South Australia with part of the tenement encroaching on the Woomera Protected Area.

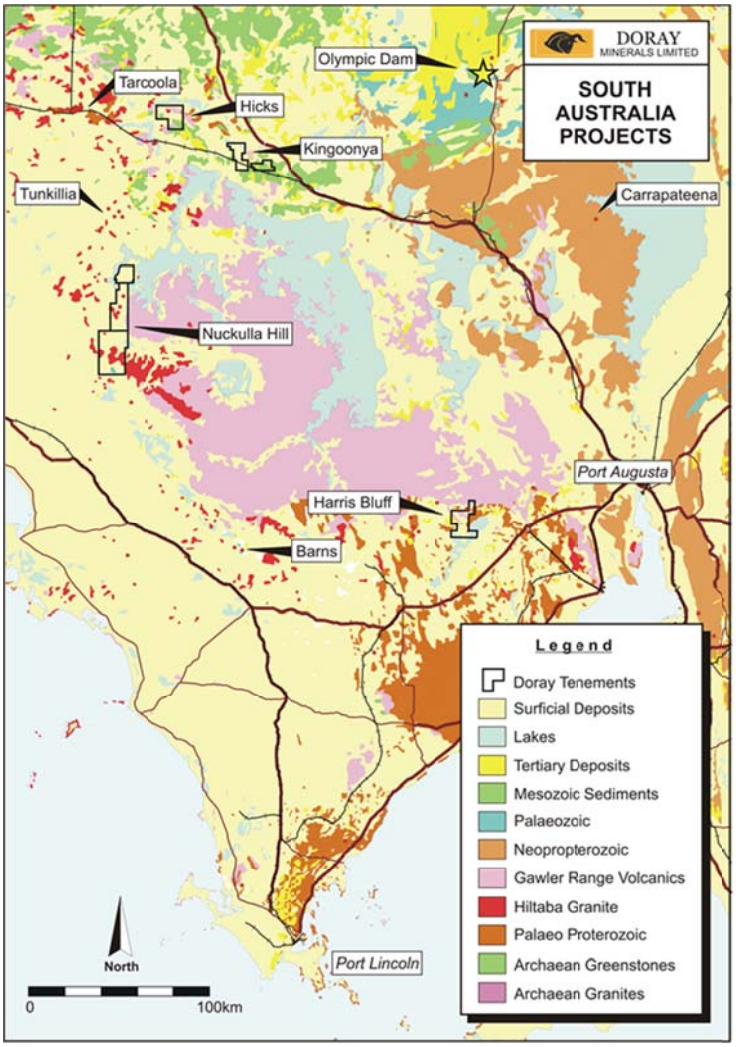

Figure 1: Hicks Project Area - Regional Location Plan

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3. Exploration Potential

The Hicks Project has the potential for structurally controlled gold deposits associated with granitic intrusives of the Hiltaba Suite. There may also be potential for IOCG style copper, gold and uranium mineralisation, related to high-level Hiltaba Suite intrusions in the sub-volcanic igneous environment preserved beneath the lower Gawler Range Volcanics.

The Hicks Project straddles an interpreted north-west trending fracture system, which can be recognised in aeromagnetic imagery, and is referred to in various company reports as the Labyrinth Shear Zone. Gold mineralisation is spatially associated with this shear zone at Lake Labyrinth Goldfield 4 km west of Hicks Project, at North Hicks Prospect within the Project, and at KIN 27 Prospect 10 km east of Hicks Project.

The Lake Labyrinth Goldfield was worked intermittently between 1912 and 1940, producing around 5 kg of gold from quartz veins in Archaean gneiss. The KIN 27 Prospect was discovered more recently by Dominion and lies within ground still held by that company. Between those points, Dominion also intersected gold mineralisation at the North Hicks Prospect in 1998, following up anomalous results from surficial calcrete geochemistry. Drill intercepts included 2 m @ 2.88 g/t Au from 42 m in hole NH 32, which has not been followed up. More than 50 m away hole NH 44 intersected 4 m @ 1.5 g/t Au from 103 m depth. A line of RAB holes (drilled to refusal) sited 300 m to the west of these holes indicated a zone 150 m wide and containing more than 200 ppb gold, beneath a surface calcrete anomaly. At Tunkillia and Nuckulla Hill, such coincident calcrete and RAB refusal gold anomalies are known to be associated with bedrock gold mineralisation. There is no further drilling west of this line until the old Lake Labyrinth workings, which lie 10 km away along the strike of the shear zone. Six calcrete samples outline a gold anomaly 750 m long, containing up to 10 ppb Au.

A Hiltaba Suite granite intrusion in the western part of the Hicks Project represents a potential source of mineralising fluids. A layer of Gawler Range Volcanics covers the Lake Labyrinth Shear zone where it cuts the underlying Archaean rocks and the volcanics could have acted as a confining layer, funnelling and concentrating mineralising fluids derived from the granite to create an ideal environment for the deposition of large, fracture-controlled gold deposits within the Labyrinth Shear Zone.

This environment may also be prospective for IOCG style copper, gold and uranium deposits.

The Hicks Project lies on the northern margin of the Gawler Range Volcanics Domain, where a sub-volcanic, high-level igneous environment is preserved. This is a similar geological setting to the Olympic Dam IOCG deposit, which prompted past explorers to see potential for IOCG deposits in this region.

4. Regional Geology

The Hicks Project lies mainly in the Harris Greenstone Domain, an Archaean belt of ultramafic and mafic volcanics, aluminous metasediments and felsic igneous rocks, which comprise the oldest rocks of this region. Overlying the Archaean are the more mafic to intermediate dominated lower Gawler Range Volcanics, of Mesoproterozoic age. Hiltaba Suite granitoids, which are co-magmatic with the Gawler Range Volcanics, intrude in the north-western section of Hicks Project.

Geological interpretations indicate that redbeds of the Pandurra Formation overlie the Gawler Range Volcanics in parts of the Hicks Project. The Pandurra Formation is made up principally of oxidised sandstones deposited in the Mesoproterozoic Cariewerloo Basin. Tertiary channels of the Kingoonya Palaeochannel System traverse the region and partly overlie sections of the Project area.

Interpretation of aeromagnetic data shows the older basement rocks are cut by major fault systems, which tend to control the emplacement of greenstone bodies and granitoid intrusions.

Precambrian outcrop is sparse, largely concealed by a veneer of Quaternary aeolian sands, clays and playa lake sediments, as well as the Tertiary palaeochannels. In places there is also a thin cover of Jurassic sediments.

5. Previous Exploration

Since the first company exploration in 1977, several major companies have explored the Hicks Project area for gold, base metals and uranium, including searches for IOCG deposits.

Dampier Mining Company Ltd (Dampier) explored an area lying mainly north and east of the Kingoonya Project in 1977-78, searching for Olympic Dam or Mount Gunson style deposits.

Amoco Minerals Australia Co. (Amoco) and several joint venture partners, including BHP Minerals Ltd (BHP) and CRA Exploration Pty Ltd, explored a large land package in the region between1979 and 1984, in search of stratiform base and precious metals or Olympic Dam style IOCG deposits. Amoco conducted detailed aeromagnetic and radiometric surveys plus ground magnetic and gravity surveys, prior to drilling 6 rotary percussion holes, to test 5 coincident gravity/magnetic anomalies. Hole KRP 2 was drilled in the Hicks Project area. Amoco concluded that the gravity anomalism reflected basic-intermediate volcanics, possibly associated with a major volcanic vent. BHP conducted a separate farm-in program exploring for diamonds in 1982-83. BHP identified 20 magnetic anomalies from re-processed aeromagnetic data and ground magnetic surveys, which they tested by drilling 38 RAB holes, without intersecting kimberlites. Three of the holes (PK6-PK8) were sited in Hicks Project.

Between 1986 and 19990, CRA Exploration Pty Ltd (CRAE) explored for shallowly buried, intrusive-related epithermal or hydrothermal gold or base metal deposits, searching a large area that included Hicks Project area. Uranium was also a target, either as possible Witwatersrand style gold-uranium deposits hosted by conglomerates of the Tarcoola Formation, or as possible Alligator River style hydrothermal uranium deposits associated with apparently disrupted aeromagnetic anomalies. CRAE carried out airborne magnetic and radiometric surveys, followed by gridded ground magnetic and gravity surveys, geological mapping, rock chip sampling and trenching. In addition, CRAE re-assayed historic bedrock and drill core samples for gold. Two inclined diamond holes tested a gravity-magnetic anomaly located 2 km north of Hicks Project. Results suggested that the anomaly is probably caused by mafic igneous rocks.

ACM Gold Operations Pty Ltd (ACM) explored around the old Lake Labyrinth gold workings 3 km west of Hicks Project in 1991, searching for gold and base metal deposits. Limited BLEG stream geochemical sampling detected weakly anomalous gold in watercourses draining known mineralised areas.

Dominion Gold Operations Pty Ltd (Dominion) explored for gold and copper in crystalline Precambrian basement throughout the region between 1992 and 1999, joining with several joint venture partners including Resolute Resources Ltd, Mount Isa Mines Ltd (MIM), Minotaur Operations Pty Ltd (Minotaur), BHP Billiton Minerals Pty Ltd (BHP Billiton) and Toro Energy Ltd (Toro). This exploration was part of the successful, ongoing programs that discovered the Challenger Gold Mine about 150 km to the northwest.

Dominion and partners operated the Lake Labyrinth Join Venture over the current Hicks Project area, targeting deposits associated with Hiltaba Suite granitoids and in older mafic to ultramafic intrusions. Following interpretation of available aeromagnetic data to identify prospective structures, Dominion undertook regional calcrete sampling on 1.6 km spacing, with later infill sampling to confirm detected gold anomalies. Targeting of the gold-bearing Earea Dam fault system detected a gold anomaly at a prospect called North Hicks 2.

MIM subsequently farmed into the former EL 1955 and became the operator. After re-assessing the data, MIM carried out a regional power auger bedrock sampling program on a staggered 400 m x 400 m grid, obtaining a best gold assay of only 9 ppb Au. Subsequent work focussed mainly on the North Hicks Prospect, where MIM drilled 35 aircore and percussion holes. Some of the deeper holes intersected the best mineralisation, e.g. 2 m @ 3.46 g/t Au from 42 m in hole NH 32. Geological investigation showed that the gold mineralisation is associated with a 20 m wide quartz vein cutting chloritised Archaean gneiss on a WNW trend, accompanied by a parallel dolerite intrusion. Subsequent deeper RC drilling at North Hicks (9 angled holes) returned a best result of 17 m @ 0.78

g/t Au from 103 m, in hole NH 44. Later drilling of 14 shallow RC holes at North Hicks tested the correlation between low grade gold mineralisation and a low-order calcrete anomaly.

MIM subsequently searched for similar dilational zones, which might also host gold mineralisation, along the Kingsnag B North Hicks trend. Power auger bedrock and calcrete sampling detected only low-order gold anomalies. MIM also investigated the large Lake Labyrinth gravity anomaly, following up detailed gravity and magnetic surveys with a MIMDAS electrical geophysical survey. Gravity modelling indicated a deeper source body at more than 1,200 m depth and a shallower source coincident with the Kingsnag magnetic anomaly. However, resistivity and magnetotelluric data from the MIMDAS survey over Kingsnag were not encouraging and MIM withdrew from the Joint Venture.

Minotaur farmed into the Lake Labyrinth Joint Venture and assumed operation, focussing on possible IOCG targets. Together with BHP Billiton, Minotaur carried out detailed gravity infill surveys, which delineated 7 anomalies that were nominated as drill targets. Minotaur drilled 3 RC holes and 2 diamond holes to test residuals on the major 20-mgal Bouguer gravity feature. The drilling, to a maximum depth of 420 m, intersected deformed Palaeoproterozoic metasediments, but no evidence of IOCG mineralisation. The rocks intersected did not account for the regional gravity high, but Minotaur considered the probable source depth was too great to hold economic potential.

Minotaur subsequently conducted further regional and infill gravity surveys across the entire Join Venture area, defining gravity anomalies at Gosse North (2-3 mgal), Kingsnag East (2 mgal), Labyrinth South (5.5 mgal) and Labyrinth West (4 mgal). The Kingsnag East appeared to reflect shallow Wilgena Jaspilite banded iron formation (BIF). Minotaur drilled one RC hole at Labyrinth South, where the strongest gravity anomaly is flanked by strong magnetic anomalies, on the margin of the Harris Greenstone Belt. The hole intersected probable Archaean mafic rocks, which would account for the gravity anomaly.

In the western part of the Joint Venture area, Minotaur sought gold mineralisation related to Hiltaba Suite granite bodies along a N-S fault terminating the Harris Greenstone Belt. A program of 19 aircore holes yielded a maximum of only 2 ppb Au and no anomalous base metal assays. However, one hole yielded anomalous silver and two holes yielded anomalous rare earth elements (REE) in saprolitic granite.

In 2006, Minotaur associated company Toro Energy secured the uranium rights over the Lake Labyrinth Joint Venture area. A review of drill hole data revealed the presence of reducing carbonaceous material in sediments of the Kingoonya Palaeochannel. Toro drilled 31 aircore holes across the Palaeochannel headwaters to determine whether uranium is present in sufficient quantities to form economic concentrations. Drill cutting and groundwater samples yielded very low concentrations of uranium. Toro concluded that the degree of transport of uranium cations is too low to allow the formation of an economic uranium deposit, and withdrew from the Joint Venture.

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6. Work Completed in previous 12 months

The Hicks Project was the subject of an airborne magnetics survey as part of a more regional survey conducted in 2011 by Doray. The survey was completed by UTS Geophysics and was flown on 100m spaced flight lines at a 40m sensor height. An image of the survey area over the Hicks Project is included as Figure 2. Full details of the survey including logistics report are provided as appendix 1.

A reconnaissance visit to the area was completed during 2011 with access to the area investigated and initial landholder liaison conducted. No samples were taken at this time.

The results of the airborne survey are being used at present, in conjunction with historic data to compile a suitable exploration strategy and define target areas for more detailed exploration. This process is necessarily slow due to the access restrictions in place within the Woomera Protected Area and the compliance requirements for work in that area.

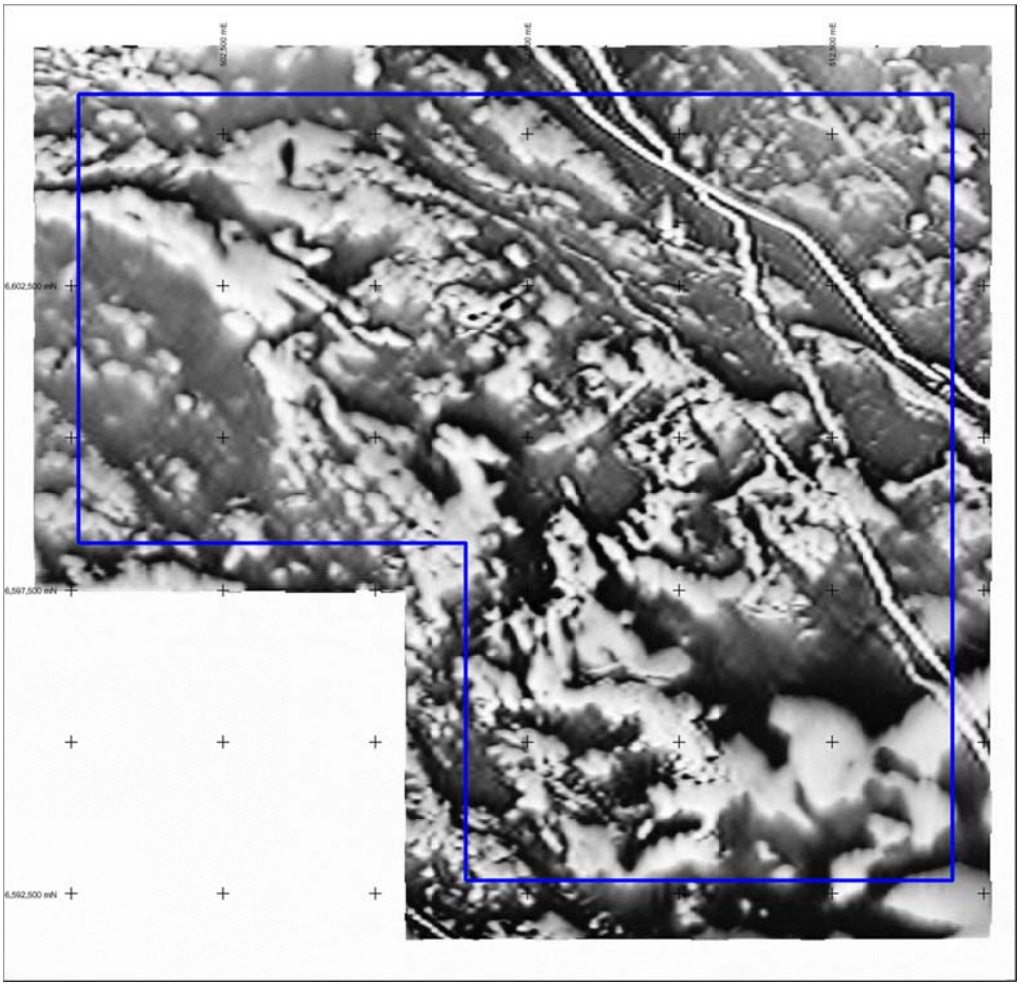

Figure 2: 1vd TMI RTP Aeromagnetic Image over the Hicks Project Area

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7. Expenditure Summary

Table 1 below details expenditure for this reporting period and the life of the tenement.

Cost Area	Amount
Geological Consultants	$12,549
Airborne Geophysics	$20,884
Tenement Rents	$ 1,161
Administration/Overheads	$ 529
Total this reporting period:	$35,123
Total for life of tenement:	$47,842

Table 1: Expenditure summary for previous exploration year (EL4743)

8. Proposed Work Program for 2012

It is anticipated that during 2012 the following programme of work will be completed at Kingoonya with a total anticipated budget of approximately $195,000 (should drill targets be generated):

- Data compilation and regional targeting completed (March)
- Reconnaissance visit with orientation surface geochemical samples collected (late April)
  - Budget ~ $10,000 (approx.. 100 samples)
- Regional geochemical programme (June – July)
  - Budget ~ $65,000 (approx. 1500 samples)
- Drill targets compiled and drilling approvals sought (Sept)
  - Budget ~ $10,000
- Drilling AC (Oct – Nov)
  - Budget ~ $110,000 (approx. 2000m AC)

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Appendix 1

Airborne Geophysics Data

Survey B23501 - Hicks

(for full dataset see Government of South Australia Mineral Resources Website)

AEROQUEST
AIRBORNE

Logistics Report

for a

DETAILED AIRBORNE MAGNETIC, RADIOMETRIC AND DIGITAL TERRAIN SURVEY

for the

Hicks Kingoonya and Mingah Projects

carried out on behalf of

DORAY MINERALS LTD

(UTS Job # B235)

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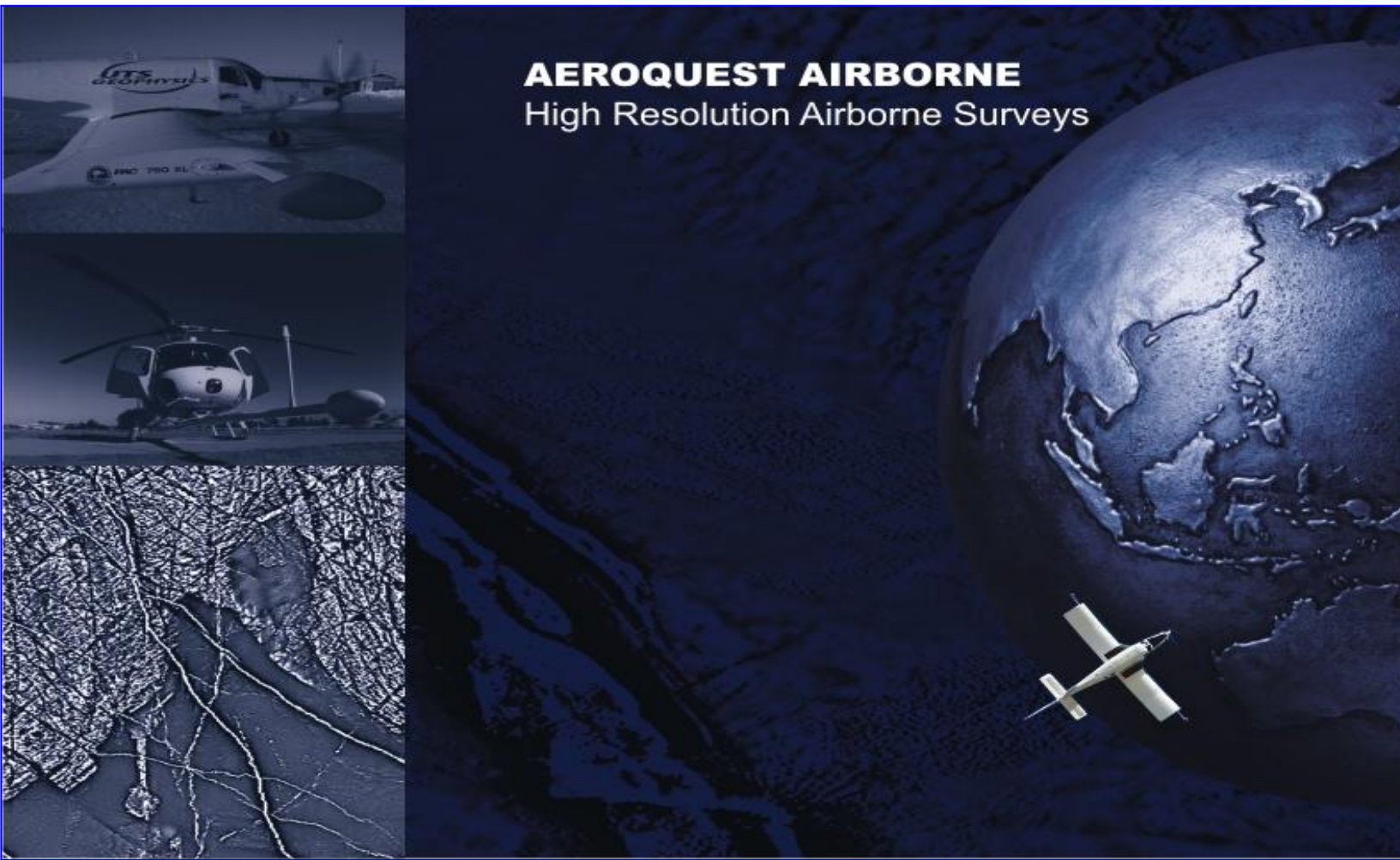

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1 GENERAL SURVEY INFORMATION

Aeroquest Airborne conducted a low level airborne geophysical survey for the following company:

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Level 3, 41-43 Ord Street
West Perth WA
6005

Acquisition for this survey commenced on the 16th January 2011 and was completed on the 30th May 2011. The base location used for operating the aircraft and performing in-field quality control was in Glendambo, South Australia and Meekatharra, Western Australia.

2 SURVEY SPECIFICATIONS

The survey was flown using the MGA94 coordinate system (a Universal Transverse Mercator projection) derived from the Geocentric Datum of Australia and was contained within zone 53 with a central meridian of 141 degrees. Details of the datum and projection system are provided in Appendix B of this report. Survey boundary coordinates are listed in Appendix C.

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

PROJECT NAME	LINE SPACING	LINE DIRECTION	TIE LINE SPACING	TIE LINE DIRECTION	SENSOR HEIGHT	TOTAL LINE KM
Kingoonya-Hicks	100m	000-180	100m	090-270	40m	2,144
Kingoonya-Hicks	100m	000-180	100m	090-270	40m	2,703
Mingah	100m	000-180	100m	090-270	40m	1,992
TOTAL						**6,839**

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

3 AIRCRAFT AND SURVEY EQUIPMENT

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

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

General Survey Equipment

- Cessna 206-H fixed wing survey aircraft.
- Aeroquest Airborne flight planning and survey navigation system.
- Aeroquest Airborne high speed digital data acquisition system.
- Novatel, 12 channel precision navigation GPS.
- OMNISTAR real time differential GPS system.
- Aeroquest Airborne LCD pilot navigation display and external track guidance display.
- Aeroquest Airborne post mission data verification and processing system.
- Bendix/King KRA-405 radar altimeter.

Magnetic Data Acquisition Equipment

- Aeroquest Airborne tail stinger magnetometer installation.
- Cesium Vapour total field magnetometer.
- Fluxgate three component vector magnetometer.
- RMS Aeromagnetic Automatic Digital Compensator (AADC II).
- Diurnal monitoring magnetometer (Scintrex Envimag or Geometrics GR-856).

Radiometric Data Acquisition Equipment

- Exploranium GR-820 advanced digital gamma-ray spectrometer consisting of 8 x 4L NaI(TI) gamma ray detectors.
- Barometric altimeter (height and pressure measurements).
- Temperature and humidity sensor.

3.1 Survey Aircraft

The aircraft used for this survey was a Cessna 206-H fixed wing survey aircraft, operated by UTS Aviation PTY LTD, registration VH-UTQ. The specifications are as follows:

Power Plant

- Engine Type — Textron Lycoming IO-540-AC1A5
- Brake Horse Power — 300 bhp
- Fuel Type — AVGAS

Performance

- Cruise speed — 120 Kn
- Stall speed — 77 Kn
- Range — 1,335 km
- Fuel tank capacity — 395 litres

3.2 Data Positioning and Flight Navigation

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

Navigation was performed using a Aeroquest Airborne designed and built electronic pilot navigation system providing computer controlled digital navigation instrumentation mounted in the cockpit as well as an externally mounted track guidance system.

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

The GPS systems used for the survey were:

- Aircraft GPS Model — Novatel
- Sample rate — 0.5 Seconds (2 Hz)
- GPS satellite tracking channels — 12 parallel
- Typical differentially corrected accuracy — 1-2 metres (horizontal)
3-5 metres (vertical)

3.3 Aeroquest Airborne Data Acquisition System and Digital Recording

All geophysical sensor data and positional information measured during the survey was recorded using a Aeroquest Airborne developed, high speed, precision data acquisition system. Survey data was downloaded onto magnetic tape on completion of each survey flight.

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

3.4 Altitude Readings

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

- Radar altimeter models — Bendix/King KRA-405
- Accuracy — 0.3 metres
- Resolution — 0.1 metres
- Range — 0 - 762 metres
- Sample rate — 0.1 Seconds (10Hz)

The digital terrain model is calculated by subtracting the terrain clearance (radar altimeter) from the GPS height (interpolated to 0.1 Hz), and as such the accuracy is constrained by the differentially corrected GPS position.

3.5 Aeroquest Airborne Stinger Mounted Magnetometer System

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

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

3.6 Total Field Magnetometer

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

- Model Cesium Vapour Magnetometer
- Sample Rate 0.1 seconds (10Hz)
- Resolution 0.001nT
- Operating Range 15,000nT to 100,000nT

3.7 Three Component Vector Magnetometer

Three component vector magnetic data readings for the survey were made using a Fluxgate Magnetometer. This precision sensor has the following specifications:

- Model Fluxgate Magnetometer
- Sample Rate 0.1 seconds (10Hz)
- Resolution 0.1nT
- Operating Range -100,000nT to 100,000nT

3.8 Aircraft Magnetic Compensation

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

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

3.9 Diurnal Monitoring Magnetometer

A base station magnetometer was located in a low gradient area beyond the region of influence of any man made interference to monitor diurnal variations during the survey.

The specifications for the magnetometer used are as follows:

- Model — Scintrex Envimag or Geometrics GR-856
- Resolution — 0.1 nT
- Sample interval — 5 seconds (0.2 Hz)
- Operating range — 20,000nT to 90,000nT
- Temperature — -20^{o}C to +50^{o}C

3.10 Barometric Altitude

An Air DB barometric altimeter was installed in the aircraft so as to record and monitor barometric height and pressure. The data was recorded at 0.10 second intervals and is used for the reduction of the radiometric data.

- Model — Air DB barometric altimeter
- Accuracy — 2 metres
- Height resolution — 0.1 metres
- Height range — 0 - 3500 metres
- Maximum operating pressure: — 1,300 mb
- Pressure resolution: — 0.01 mb
- Sample rate — 10 Hz

3.11 Temperature and Humidity

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

3.12 Radiometric Data Acquisition

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

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

Spectrometer model	Exploranium GR820
• Detector volume	32 litres
• Sample rate	1 Hz

4 PROJECT MANAGEMENT

Doray Minerals LTD	Heath Hellewell
Aeroquest Airborne Perth Office	David Abbott Cameron Johnston Todd Shield

5 DATA PROCESSING PROCEDURES

5.1 Data Pre-processing

The raw survey data was loaded from the field files and the recorded data trimmed to the correct survey boundary extents. Any survey lines subsequently reflown were removed from the dataset.

At the commencement of each acquisition flight, all the instrumentation clocks were synchronized to local time, and the error and latency of each instrument in providing its data measurement calculated. The results of these latency measurements were recorded into a synchronisation file, and the results used to assign GPS positions to the magnetic, radiometric and elevation data.

The synchronized, parallax corrected data was then exported as located ASCII data.

5.2 Magnetic Data Processing

The diurnal base station data was checked for spikes and steps, and suitably filtered prior to the removal of diurnal variations from the aircraft magnetic data.

The filtered diurnal measurements were subtracted from the diurnal base field and the residual corrections applied to the survey data by synchronising the diurnal data time and the aircraft survey time. The average diurnal base station value was added to the survey data.

The X and Y positioning of the data was then checked for spikes before applying the IGRF correction. Any spikes in the positions were manually edited. The updated IGRF 2010 correction was calculated at each data point (taking into account the height above sea level).

This regional magnetic gradient was subtracted from the survey data points.

Tie line levelling was applied to the data by least squares minimisation, using a polynomial fit of order 0, of the differences in magnetic values at the crossover points of the survey traverse and tie line data.

In order to remove any residual long wavelength variations in the tie line levelled data along the traverse lines, polynomial levelling was then applied.

Final micro-levelling techniques were then selectively applied to the tie line levelled data to remove minor residual variations in profile intensity

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

5.3 Radiometric Data Processing

Statistical noise reduction of the 256 channel data was performed using the Noise Adjusted Singular Variable Decomposition (NASVD) method described by Hovgaard and Grasty (1997).

Noise-adjusted singular value decomposition is performed, and the number of components to be used is determined by inspection of plots of the spectral components and by a statistical analysis of the contributions of the components. If the spectral shapes show any unusual characteristics, further analysis of the concentrations of the spectral components in the line data is performed in order to identify and eliminate any corrupt spectra. If such spectra were eliminated, the NASVD process is re-performed, in order to obtain spectral components free of any bias from corrupt spectra.

Only the dominant spectral shapes (identified as described above) were used in the spectral reconstruction process. The first 8 NASVD components were used for this process.

Channels 30-250 only are spectrally smoothed, as these contain the regions of interest and are not dominated by the lower end of the Compton continuum. The energy spectrum between the potassium and thorium peaks was recalibrated from the spectrally smoothed 256 channel measurements.

The aircraft background spectrum and the scaled unit cosmic spectrum were then subtracted from the 256 channel data. This 256 channel data was then windowed to the 5 primary channels of total count, potassium, uranium, thorium and low-energy uranium. Dead time corrections were then applied to the data. Radon background removal was performed using the Minty Spectral Ratio method (1992).

The radar altimeter data was corrected to standard temperature and pressure, and height corrected spectral stripping was then applied to the windowed data. Height attenuation corrections based on the STP radar altimeter were then performed to remove any altitude variation effects from the data.

The Uranium and Total Count channels were tie-levelled to remove the effects of residual radon background. The tie-levelling process employed was a least-squares/median filter procedure, which generated a single correction for each line of data. Mis-matches were calculated at each tie-traverse intersection and the median mismatch for each flight line was calculated as the residual levelling error for that line.

5.4 Digital Terrain Model Data Processing

The radar altimeter data was subtracted from the GPS altimeter data leaving digital terrain data.

The digital terrain data thus derived was tie line levelled and gridded. Tie line levelled data was then examined and selectively microlevelled to produce a grid without line dependent artifacts.

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

Head Office Address:

Aeroquest Airborne
Fauntleroy Avenue, Perth Airport
REDCLIFFE WA 6104

Tel: +61 8 9479 4232
Fax: +61 8 9479 7361

Postal Address:

Aeroquest Airborne
P.O. Box 126
BELMONT WA 6984

Quoting reference number: B235

6 APPENDIX A - LOCATED DATA FORMATS

MAGNETIC LOCATED DATA

FIELD	FORMAT	DESCRIPTION	UNITS
1	I8	LINE NUMBER	
2	I4	FLIGHT/AREA NUMBER	AAFF (Area/Flight)
3	I9	DATE	YYMMDD
4	F10.1	TIME	sec
5	I8	FIDUCIAL NUMBER	
6	I4	UTM ZONE	
7	F12.6	LATITUDE (GDA94)	degrees
8	F12.6	LONGITUDE (GDA94)	degrees
9	F12.2	EASTING (MGA54)	metres
10	F12.2	NORTHING (MGA54)	metres
11	F8.1	RADAR ALTIMETER HEIGHT	metres
12	F8.1	GPS HEIGHT (WGS84)	metres
13	F8.1	TERRAIN HEIGHT (WGS84)	metres
14	F10.3	RAW MAGNETIC INTENSITY	nT
15	F10.3	DIURNAL CORRECTED TMI	nT
16	F10.3	DIURNAL AND IGRF CORRECTED TMI	nT
17	F10.3	TIE LINE LEVELLED TMI	nT
18	F10.3	FINAL TOTAL MAGNETIC INTENSITY	nT

RADIOMETRIC LOCATED DATA

FIELD	FORMAT	DESCRIPTION	UNITS
1	I8	LINE NUMBER	
2	4	FLIGHT/AREA NUMBER	AAFF (Area/Flight)
3	I9	DATE	YYMMDD
4	F10.1	TIME	sec
5	I8	FIDUCIAL NUMBER	
6	I4	UTM ZONE	
7	F12.6	LATITUDE (WGS84)	degrees
8	F12.6	LONGITUDE (WGS84)	degrees
9	F12.2	EASTING (MGA94)	metres
10	F12.2	NORTHING (MGA94)	metres
11	F8.1	RADAR ALTIMETER HEIGHT	metres
12	F8.1	GPS HEIGHT (WGS84)	metres
13	I5	LIVE TIME	milli sec
14	F8.1	PRESSURE	hPa
15	F6.1	TEMPERATURE	Degrees Celcius
16	F6.1	HUMIDITY	percent
17	I6	TOTAL COUNT (RAW)	Counts/sec
18	I6	POTASSIUM (RAW)	Counts/sec
19	I6	URANIUM (RAW)	Counts/sec
20	I6	THORIUM (RAW)	Counts/sec
21	I6	COSMIC (RAW)	Counts/sec
22	F8.1	TOTAL COUNT (CORRECTED)	Counts/sec
23	F8.1	POTASSIUM (CORRECTED)	Counts/sec
24	F8.1	URANIUM (CORRECTED)	Counts/sec
25	F8.1	THORIUM (CORRECTED)	Counts/sec
26	F9.4	DOSE RATE	nGy/hr
27	F9.4	POTASSIUM GRND CONCENTRATION	%
28	F9.4	URANIUM GRND CONCENTRATION	ppm
29	F9.4	THORIUM GRND CONCENTRATION	ppm

GRIDDED DATASET FORMATS

Gridding was performed using a bicubic spline algorithm.

The following grid formats have been provided:

- ER-Mapper format

LINE NUMBER FORMATS

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

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

Aeroquest Airborne FILE NAMING FORMATS

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

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

JJJJ Aeroquest Airborne Job number

AA Area number if the survey is broken into blocks

BB
- M Magnetic data
- R Radiometric data
- TC Total count data
- K Potassium counts
- U Uranium counts
- Th Thorium counts
- DT Digital terrain data

EEE File name extension
- DAT Located digital data file
- DFN Located data definition file
- ERS Ermapper gridded data header file
Ermapper data portion has no extension
- GRD Geosoft gridded data file

7 APPENDIX B - COORDINATE SYSTEM DETAILS

Locations for the survey data are provided in both geographical latitude and longitude and Universal Transverse Mercator metric projection coordinate systems.

MGA94	Map Grid of Australia 1994
Coordinate type	Universal Transverse Mercator Projection Grid
Geodetic datum	Geocentric Datum of Australia
Semi major axis	6378137m
Flattening	1/298.257222101

8 APPENDIX C - SURVEY BOUNDARY DETAILS

Coordinates

Kingoonya-Hicks

499330.000	6606350.000
515130.000	6606350.000
515130.000	6591840.000
505440.000	6591840.000
505440.000	6597560.000
499330.000	6597560.000
499330.000	6606350.000

Kingoonya-Hicks

538110.000	6585910.000
548590.000	6585910.000
548590.000	6576530.000
564310.000	6576530.000
564310.000	6570110.000
541090.000	6570110.000
541090.000	6577390.000
538110.000	6577390.000
538110.000	6585910.000

Mingah

595990.000	7072730.000
605790.000	7072730.000
605790.000	7078070.000
610360.000	7078070.000
610360.000	7070230.000
602270.000	7056930.000
595990.000	7056930.000
595990.000	7072730.000

9 APPENDIX E – PROCESSING PARAMETERS

Magnetic Processing Parameters

Kingoonya-Hicks

IGRF Date:	IGRF 2011
Average Declination:	6.0558 degrees
Average Inclination:	-63.2348 degrees
Average Field strength:	57,286.04 nT
Average diurnal:	57,609.03 nT

Kingoonya-Hicks

IGRF Date:	IGRF 2011
Average Declination:	6.2353 degrees
Average Inclination:	-63.4059 degrees
Average Field strength:	57,371.51 nT
Average diurnal:	57,614.50 nT

Mingah

IGRF Date:	IGRF 2011
Average Declination:	0.7475 degrees
Average Inclination:	-60.3828 degrees
Average Field strength:	55,525.50 nT
Average diurnal:	56,076.88 nT

Radiometric Processing Parameters

Height Attenuation Coefficients

Total Count:	-0.0074
Potassium:	-0.0094
Uranium:	-0.0084
Thorium:	-0.0074

Cosmic Correction Coefficients

Total Count:	1.0113
Potassium:	0.054
Uranium:	0.0453
Thorium:	0.0491

Aircraft Background Coefficients

Total Count:	118.34
Potassium:	20.265
Uranium:	5.773
Thorium:	0.0363

Sensitivity Coefficients

Total Count:	40.73 cps/dose rate
Potassium:	160.4 cps/%k
Uranium:	14.92 cps/ppm
Thorium:	9.08 cps/ppm

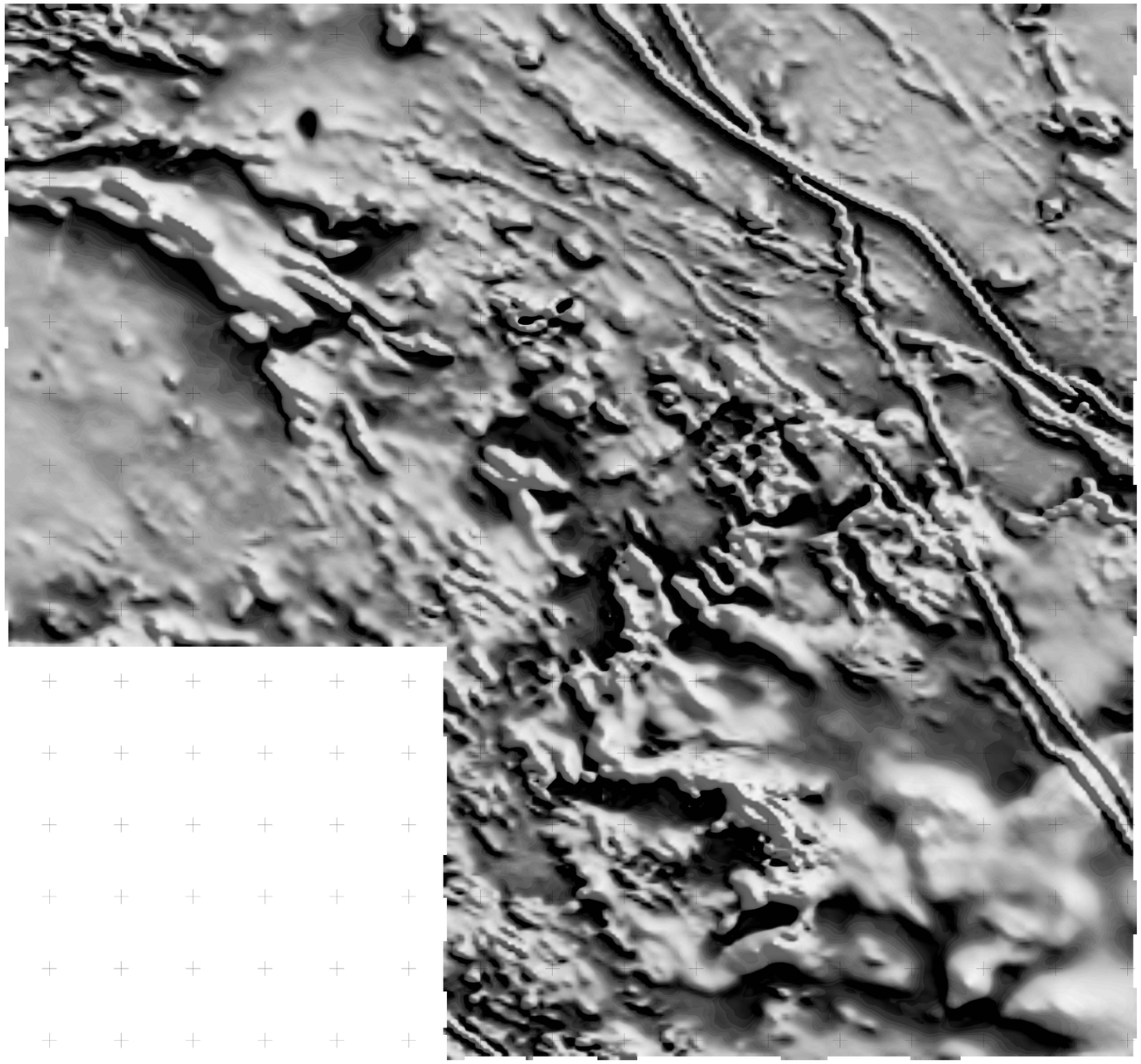
Radiometric Stripping Coefficients

Alpha:	0.2317
Beta:	0.3706
Gamma:	0.7184
a:	0.0619

Final Reduction - All data reduced to STP height datum 40m

Kingoonya-Hicks

1VD of Total Magnetic Intensity



SURVEY SPECIFICATIONS

Flight Line Direction:	000-180
Flight Line Spacing:	100m
Tie Line Direction:	090-270
Tie Line Spacing:	1000m
Survey Height:	40m
Line Navigation:	Real Time DGPS
Survey Flown:	May 2011

EQUIPMENT SPECIFICATIONS

PLATFORM	
Aircraft Type:	CESSNA 206
Aircraft Registration:	VH-UTQ
Data Acquisition:	Aerequest Airborne ACQSYS V3.74
GPS System:	Novatel 12 Channel
Height Datum:	EGM96
Radar Altimeter:	Bendix King KRA-405
MAGNETICS	
Magnetometer:	Cesium Vapour
Compensation:	RMS AADC-II
Resolution:	Resolution-0.001 nT
Recording Interval:	0.1 seconds
RADIOMETRICS	
Spectrometer:	Exploranium GR-820
Detector Volume:	33.6 litres, NaI
Recording Interval:	1.0 seconds

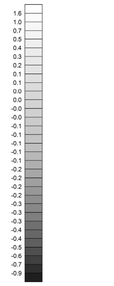
PROCESSING SPECIFICATIONS

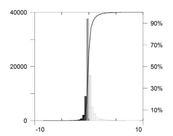
MAGNETICS
The magnetic data has been corrected and levelled using the following processes:
- Diurnal variations were removed through subtraction of the diurnal field measured at the base station magnetometer.
- The regional magnetic gradient has been removed through subtraction of the IGRF computed at the time of the survey.
- System parallax was corrected.
- The magnetic data was levelled using the survey tie line data.
- The final magnetic data was microlevelled to remove minor residual variations in profile intensities.

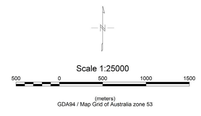
The following IGRF parameters were used during processing.

IGRF Model Year: 2011.40
Total Field: 57286.04 nT
Declination: 6.0558 °
Inclination: -63.2348 °
Height: 179.7902 m

RADIOMETRICS
The radiometric data has been corrected and levelled using the following processes:
- System parallax was corrected.
- Statistical noise reduction was performed using the 256 channel data.
- The energy apectrum between the K and Th peaks was recalibrated using the 256 channel data.
- Dead time corrections were applied.
- Cosmic and aircraft background was removed.
- Radon background was removed using the Minty-Grasty Radon method.
- Stripping coefficients were applied.
- Height attenuation corrections were applied.
- Conversion to radioelement concentrations were performed.
- The four primary channels data were microlevelled to remove minor residual variations in their profile intensities.







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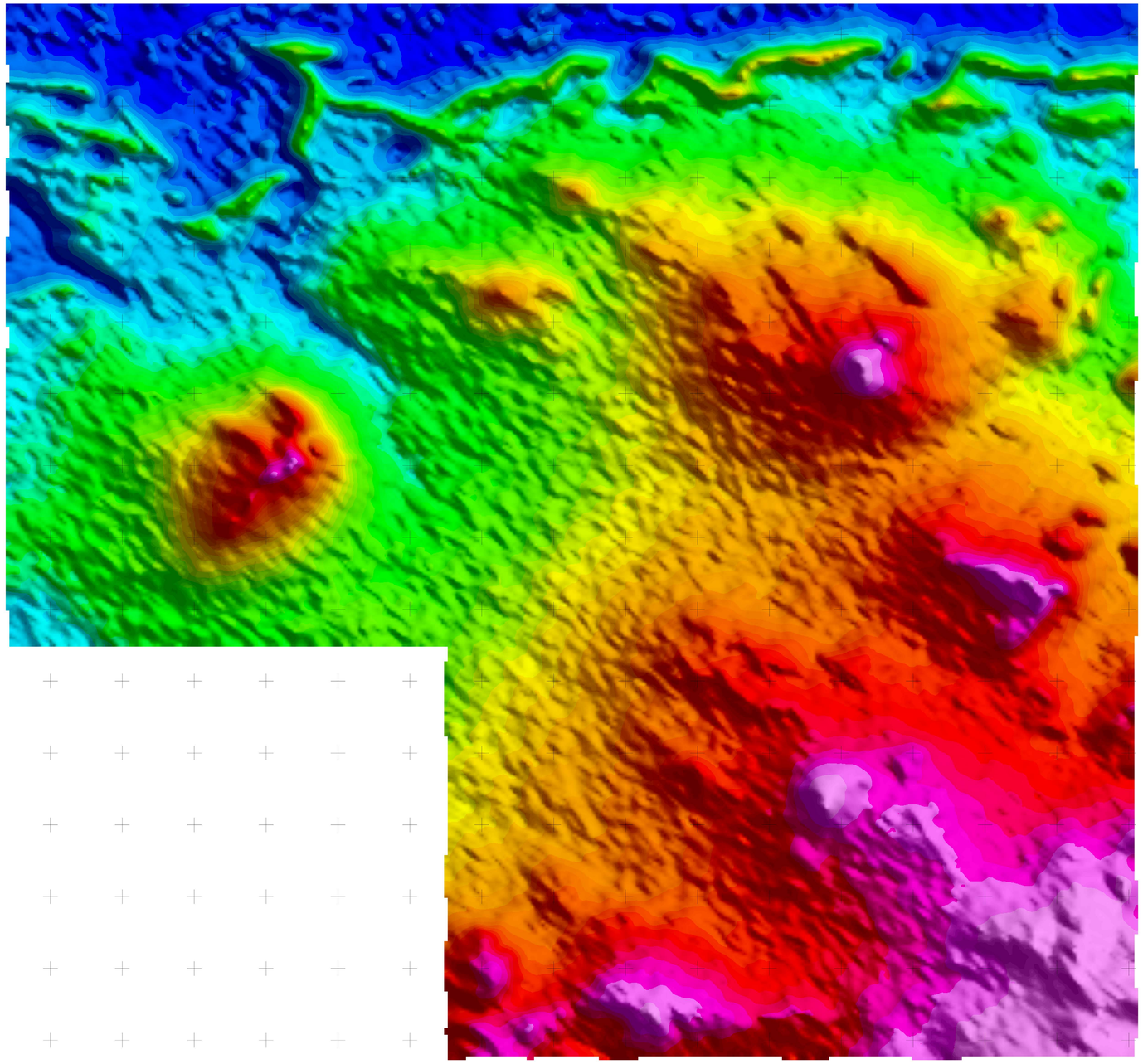
Doray Minerals LTD

Kingoonya-Hicks
AIRBORNE GEOPHYSICAL SURVEY
1VD of Total Magnetic Intensity

UTS Job # B23501

Kingoonya-Hicks

Digital Terrain Model



SURVEY SPECIFICATIONS

Flight Line Direction:	000-180
Flight Line Spacing:	100m
Tie Line Direction:	090-270
Tie Line Spacing:	1000m
Survey Height:	40m
Line Navigation:	Real Time DGPS
Survey Flown:	May 2011

EQUIPMENT SPECIFICATIONS

PLATFORM

Aircraft Type:	CESSNA 206
Aircraft Registration:	VH-UTQ
Data Acquisition:	Aeroquest Airborne ACQSYS V3.74
GPS System:	Novatel 12 Channel
Height Datum:	EGM96
Radar Altimeter:	Bendix King KRA-405

MAGNETICS

Magnetometer:	Cesium Vapour
Compensation:	RMS AADC II
Resolution:	Resolution-0.001 nT
Recording Interval:	0.1 seconds

RADIOMETRICS

Spectrometer:	Exploranium GR-820
Detector Volume:	33.6 litres, NaI
Recording Interval:	1.0 seconds

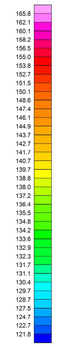
PROCESSING SPECIFICATIONS

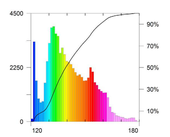
MAGNETICS
The magnetic data has been corrected and levelled using the following processes:
- Diurnal variations were removed through subtraction of the diurnal field measured at the base station magnetometer.
- The regional magnetic gradient has been removed through subtraction of the IGRF computed at the time of the survey.
- System parallax was corrected.
- The magnetic data was levelled using the survey tie line data.
- The final magnetic data was microlevelled to remove minor residual variations in profile intensities.

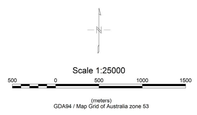
The following IGRF parameters were used during processing.

IGRF Model Year: 2011.40
Total Field: 57286.04 nT
Declination: 6.0558 °
Inclination: -63.2348 °
Height: 179.7902 m

RADIOMETRICS
The radiometric data has been corrected and levelled using the following processes:
- System parallax was corrected.
- Statistical noise reduction was performed using the 256 channel data.
- The energy spectrum between the K and Th peaks was recalibrated using the 256 channel data.
- Dead time corrections were applied.
- Cosmic and aircraft background was removed.
- Radon background was removed using the Minty-Grasty method.
- Stripping coefficients were applied.
- Height attenuation corrections were applied.
- Conversion to radioelement concentrations were performed.
- The four primary channels data were microlevelled to remove minor residual variations in their profile intensities.







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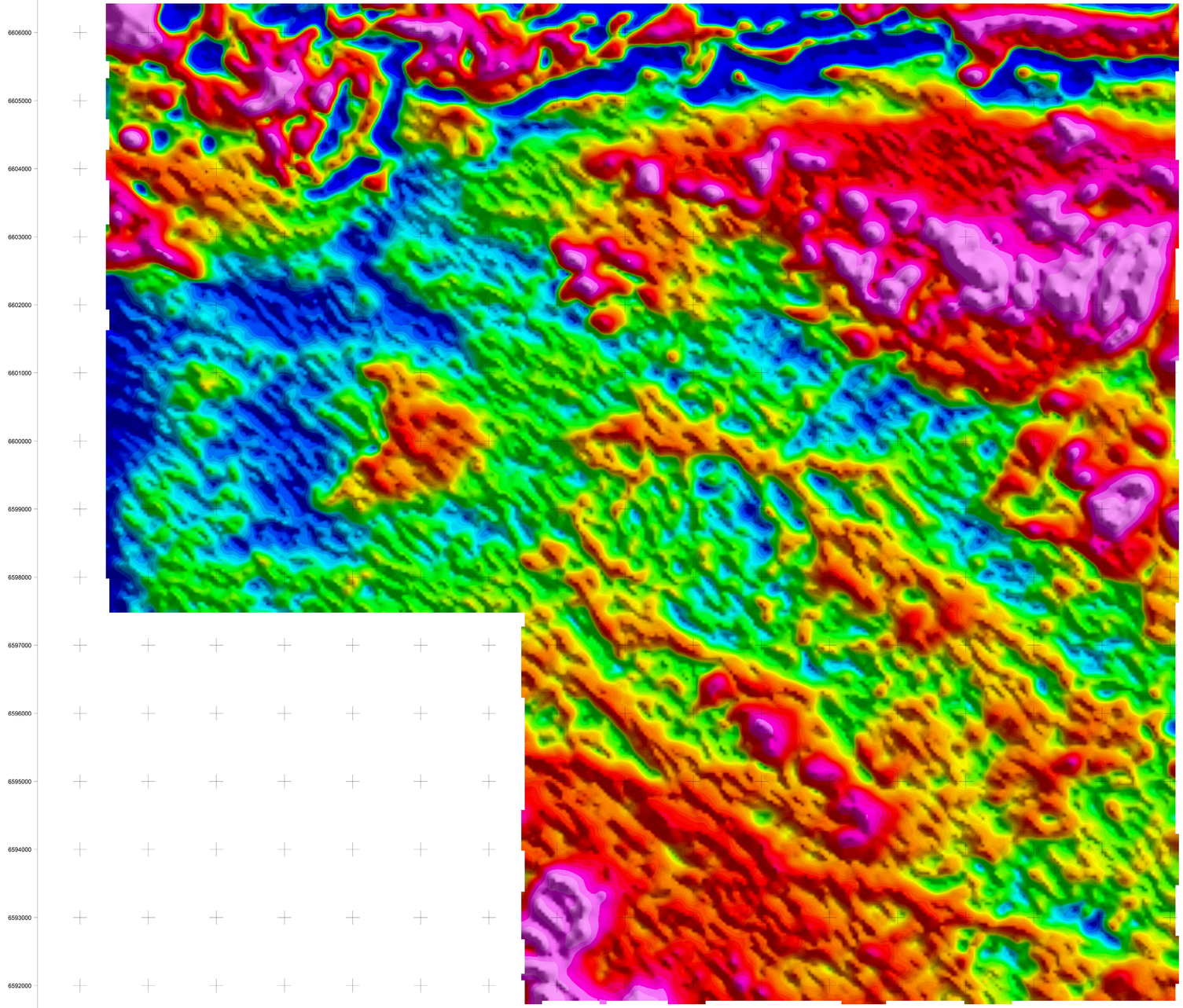
Digital Terrain Model

UTS Job # B23501

Kingoonya-Hicks

Total Count



SURVEY SPECIFICATIONS

Flight Line Direction:	000-180
Flight Line Spacing:	100m
Tie Line Direction:	090-270
Tie Line Spacing:	1000m
Survey Height:	40m
Line Navigation:	Real Time DGPS
Survey Flown:	May 2011

EQUIPMENT SPECIFICATIONS

PLATFORM

Aircraft Type:	CESSNA 206
Aircraft Registration:	VH-UTQ
Data Acquisition:	Aerequest Airborne ACQSYS V3.74
GPS System:	Novatel 12 Channel
Height Datum:	EGM96
Radar Altimeter:	Bendix King KRA-405

MAGNETICS

Magnetometer:	Cesium Vapour
Compensation:	RMS AADC II
Resolution:	Resolution-0.001 nT
Recording Interval:	0.1 seconds

RADIOMETRICS

Spectrometer:	Exploranium GR-820
Detector Volume:	33.6 litres, NaI
Recording Interval:	1.0 seconds

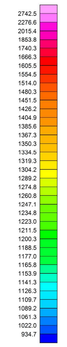
PROCESSING SPECIFICATIONS

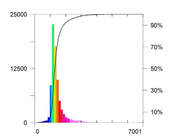
MAGNETICS
The magnetic data has been corrected and levelled using the following processes:
- Diurnal variations were removed through subtraction of the diurnal field measured at the base station magnetometer.
- The regional magnetic gradient has been removed through subtraction of the IGRF computed at the time of the survey.
- System parallax was corrected.
- The magnetic data was levelled using the survey tie line data.
- The final magnetic data was microlevelled to remove minor residual variations in profile intensities.

The following IGRF parameters were used during processing.

IGRF Model Year: 2011.40
Total Field: 57286.04 nT
Declination: 6.0558 °
Inclination: -63.2348 °
Height: 179.7902 m

RADIOMETRICS
The radiometric data has been corrected and levelled using the following processes:
- System parallax was corrected.
- Statistical noise reduction was performed using the 256 channel data.
- The energy spectrum between the K and Th peaks was recalibrated using the 256 channel data.
- Dead time corrections were applied.
- Cosmic and aircraft background was removed.
- Radon background was removed using the Minty-Spratt Radon algorithm.
- Stripping coefficients were applied.
- Height attenuation corrections were applied.
- Conversion to radioelement concentrations were performed.
- The four primary channels data were microlevelled to remove minor residual variations in their profile intensities.





Scale 1:25000

GDA94 / Map Grid of Australia zone 53

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AIRBORNE GEOPHYSICAL SURVEY
Total Count

UTS Job # B23501

Kingoonya-Hicks

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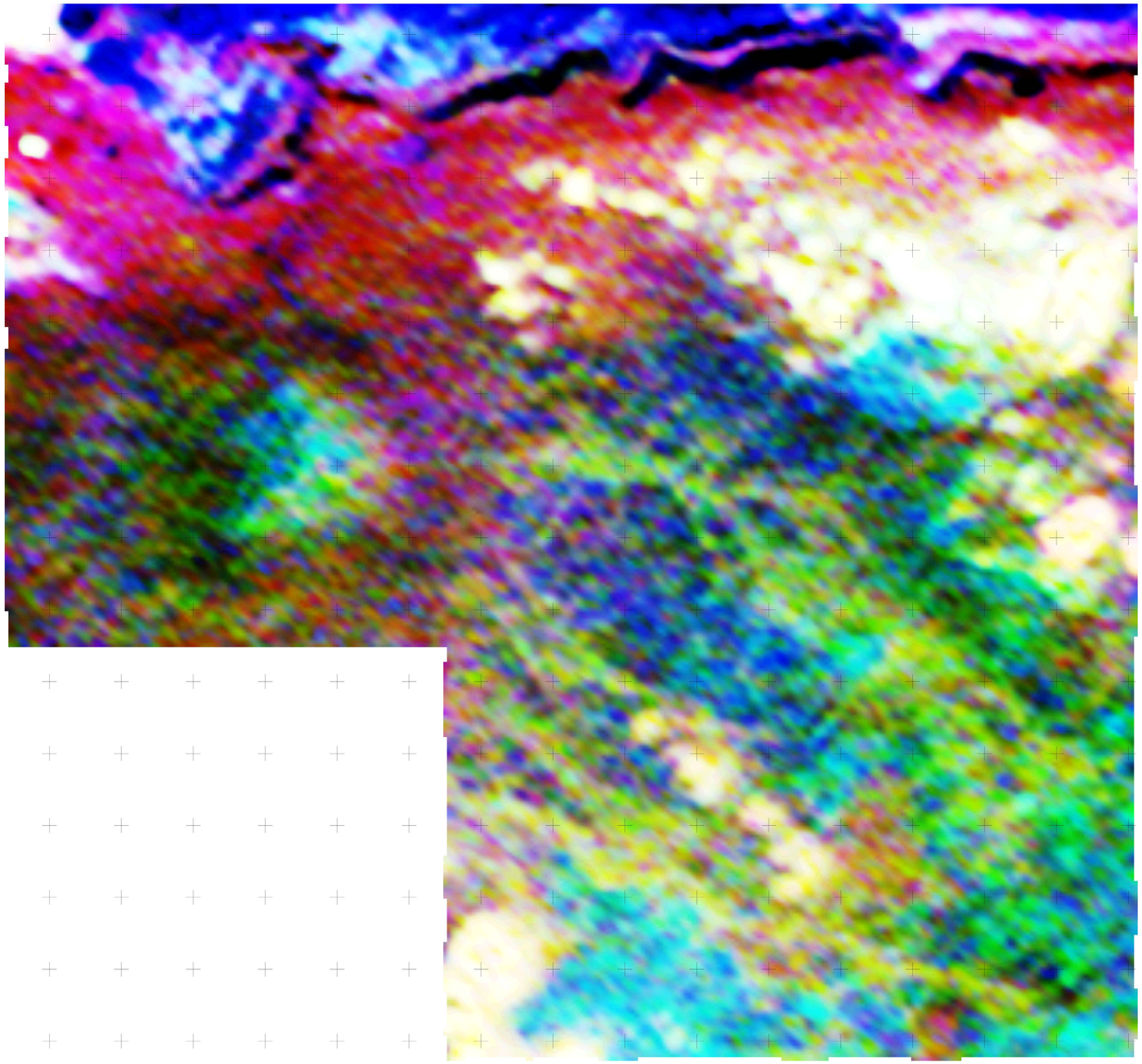

SURVEY SPECIFICATIONS

Flight Line Direction:	000-180
Flight Line Spacing:	100m
Tie Line Direction:	090-270
Tie Line Spacing:	1000m
Survey Height:	40m
Line Navigation:	Real Time DGPS
Survey Flown:	May 2011

EQUIPMENT SPECIFICATIONS

PLATFORM

Aircraft Type:	CESSNA 206
Aircraft Registration:	VH-UTQ
Data Acquisition:	Aerequest Airborne ACQSYS V3.74
GPS System:	Novatel 12 Channel
Height Datum:	EGM96
Radar Altimeter:	Bendix King KRA-405

MAGNETICS

Magnetometer:	Cesium Vapour
Compensation:	RMS AADC II
Resolution:	Resolution:0.001 nT
Recording Interval:	0.1 seconds

RADIOMETRICS

Spectrometer:	Exploranium GR-820
Detector Volume:	33.6 litres, NaI
Recording Interval:	1.0 seconds

PROCESSING SPECIFICATIONS

MAGNETICS
The magnetic data has been corrected and levelled using the following processes:
- Diurnal variations were removed through subtraction of the diurnal field measured at the base station magnetometer.
- The regional magnetic gradient has been removed through subtraction of the IGRF computed at the time of the survey.
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Total Field: 57286.04 nT
Declination: 6.0558 °
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Height: 179.7902 m

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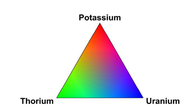
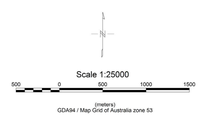
- Stripping coefficients were applied.
- Height attenuation corrections were applied.
- Conversion to radioelement concentrations were performed.
- The four primary channels data were microlevelled to remove minor residual variations in their profile intensities.





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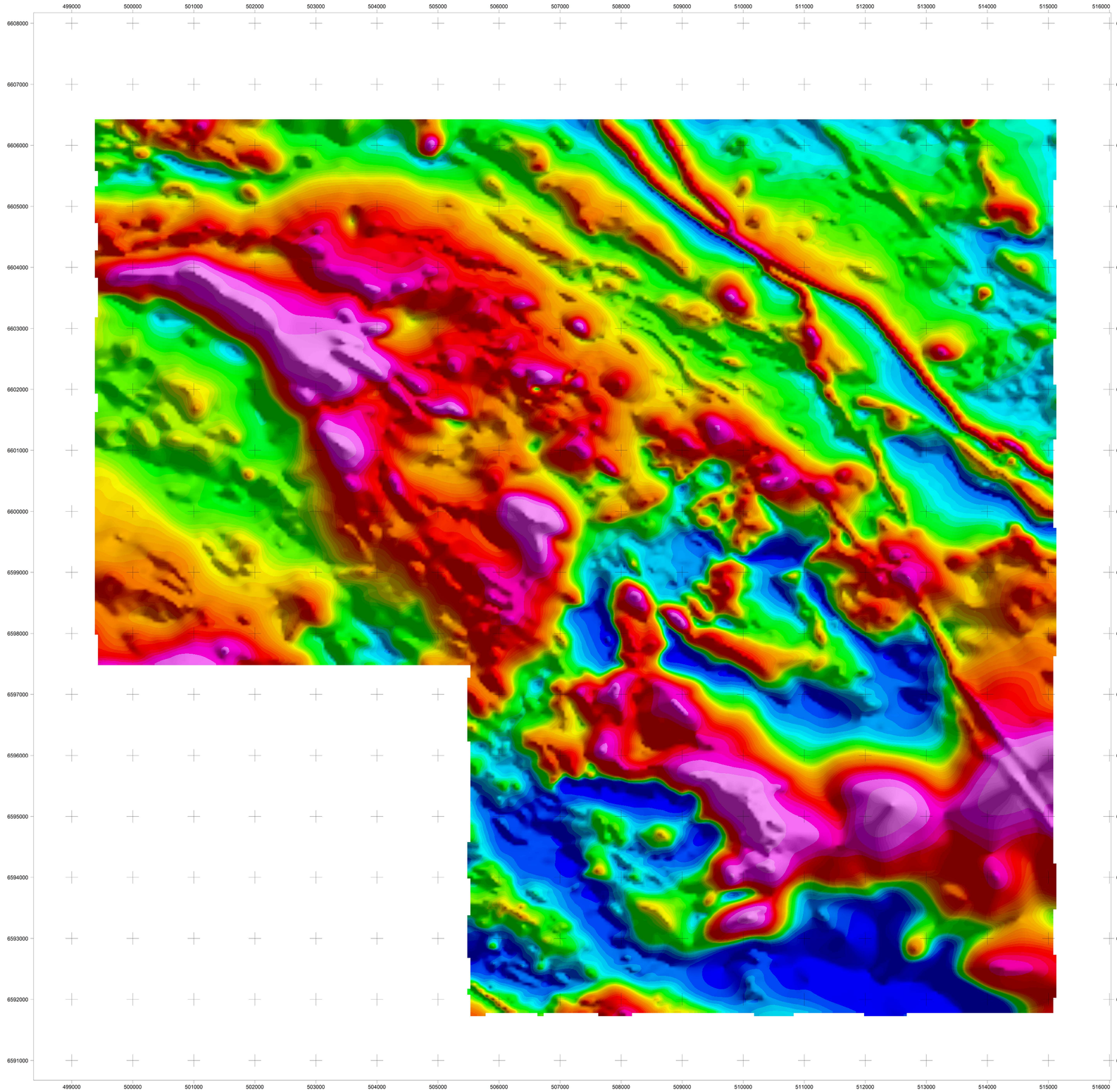
Kingoonya-Hicks
AIRBORNE GEOPHYSICAL SURVEY
Ternary

UTS Job # B23501

Kingoonya-Hicks

Total Magnetic Intensity



SURVEY SPECIFICATIONS

Flight Line Direction:	000-180
Flight Line Spacing:	100m
Tie Line Direction:	090-270
Tie Line Spacing:	1000m
Survey Height:	40m
Line Navigation:	Real Time DGPS
Survey Flown:	May 2011

EQUIPMENT SPECIFICATIONS

PLATFORM

Aircraft Type:	CESSNA 206
Aircraft Registration:	VH-UTQ
Data Acquisition:	Aerequest Airborne ACQSYS V3.74
GPS System:	Novatel 12 Channel
Height Datum:	EGM96
Radar Altimeter:	Bendix King KRA-405

MAGNETICS

Magnetometer:	Cesium Vapour
Compensation:	RMS AADC II
Resolution:	Resolution:0.001 nT
Recording Interval:	0.1 seconds

RADIOMETRICS

Spectrometer:	Exploranium GR-820
Detector Volume:	33.6 litres, NaI
Recording Interval:	1.0 seconds

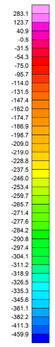
PROCESSING SPECIFICATIONS

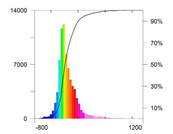
MAGNETICS
The magnetic data has been corrected and levelled using the following processes:
- Diurnal variations were removed through subtraction of the diurnal field measured at the base station magnetometer.
- The regional magnetic gradient has been removed through subtraction of the IGRF computed at the time of the survey.
- System parallax was corrected.
- The magnetic data was levelled using the survey tie line data.
- The final magnetic data was microlevelled to remove minor residual variations in profile intensities.

The following IGRF parameters were used during processing.

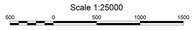
IGRF Model Year: 2011.40
Total Field: 57286.04 nT
Declination: 6.0558 °
Inclination: -63.2348 °
Height: 179.7902 m

RADIOMETRICS
The radiometric data has been corrected and levelled using the following processes:
- System parallax was corrected.
- Statistical noise reduction was performed using the 256 channel data.
- The energy apectrum between the K and Th peaks was recalibrated using the 256 channel data.
- Dead time corrections were applied.
- Cosmic and aircraft background was removed.
- Radon background was removed using the Minty-Grasty Radon method.
- Stripping coefficients were applied.
- Height attenuation corrections were applied.
- Conversion to radioelement concentrations were performed.
- The four primary channels data were microlevelled to remove minor residual variations in their profile intensities.





Scale 1:25000



(metres)
GDA94 / Map Grid of Australia zone 53

AEROQUEST AIRBORNE

Doray Minerals LTD

Kingoonya-Hicks
AIRBORNE GEOPHYSICAL SURVEY
Total Magnetic Intensity

UTS Job # B23501