FINAL REPORT

EL-25406 FOG BAY
&
EL-27512 FINNISS RIVER

NORTHERN TERITORY

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Summary
Hapsburg Exploration Pty Ltd held two tenements (EL-25406 & 27512) located at Fog Bay, about 60 km south-west of Darwin. The tenements lie on the north side of the mouth of the Finniss River, and are bordered by 5 Mile Beach on the west, Wagait Aboriginal Reserve on the south, the residential areas of Dundee Beach and Fog Bay Road on the north and north-east. The eastern boundary is bordered by tenements held by Uranex NL.

Geologically, the Fog Bay tenements are located in the northern part of the Litchfield Province, which is described as a medium to high grade metamorphic terrane comprising metasedimentary and igneous rocks of Archean(?) to Lower Proterozoic age. This basement block (or province) lies on the west side of the Pine Creek Orogen and extends for several hundred kilometres in a north-south direction, and is up to 60 km wide. The Litchfield Province is also cut by (and in part bound by) several major faults which appear to be part of the Halls Creek Mobile Zone fault system.

Within Hapsburg's tenements, the main rock exposure is a linear outcrop of mildly metamorphosed ferruginous sandstone and pebbly sandstone which is correlated with the Depot Creek Sandstone which forms the Tolmer Plateau. Another prominent north-south ridge in the south central part of the tenement consists of faulted quartz veined and silicified sheared sandstone. This represents a major fault structure cutting the Depot Creek Sandstone. The exploration significance of this major fault structure is the periodic occurrence of magnetic highs along the trend. These magnetic units are not seen in outcrop, so the actual cause of the magnetic response is not known. However, it is reasonable to assume that the magnetic response is derived from mafic rocks, presumably mafic intrusives into the fault structure. This has positive implications for the possible reduction and precipitation of uranium mineralisation within and adjacent to the mafic rock (c.f. the Westmorland Uranium Field in NW Qld).

Exploration by Hapsburg in 2009: A geophysicist (Dave McInnes) was commissioned to evaluate the radiometric data from the UTS 2007 airborne magnetic-radiometric survey (see Appendix 2). The evaluation of the radiometric data outlined several areas with elevated uranium, especially on the new tenement (EL-27512). These airborne radiometric uranium anomalies were examined during the 2009 field season (see Fig 7 & Appendix 1). Dave McInnes was also commissioned to evaluate and compare the UTS airborne magnetic survey with the Terra Search ground magnetic surveys (Appendix 3).The comparison of airborne and ground magnetic surveys has allowed for the more accurate selection of magnetic anomalies for drill targets. Other field work in 2009 included the GPS location of proposed drill sites for magnetic targets A, B, C & D.

Conclusion: The presence of a major N-S fault structure ("Fog Bay Fault") with related magnetic anomalies and strong alteration (silicification) forms a new and completely untested target for uranium mineralisation. In May 2010, it was recommended that an initial program of four drill holes be used to test the magnetic anomalies along (and adjacent to) the major structure. It was also recommended that the area containing the high uranium radiometric anomaly located on Hapsburg's new tenement application (EL-27512) should also be tested by shallow drilling. However, a recent corporate decision to cut-back on uranium exploration has led to the relinquishment of both tenements (EL-25406 & 27512). If circumstances change in the future, we may re-visit these areas (if available).

Contents

Introduction

Hapsburg Exploration Pty Ltd was granted EL-25406 (Fog Bay) on the 10th of April 2007, for a period of six years. EL-25406 (Fog Bay) tenement consisted of 25 sub-blocks and covers an area of 77 km^2. On the second anniversary of grant (10th April 2009), EL-25406 was reduced by about half, to 13 sub-blocks covering about 40 km^2.

On the 23rd of April 2008, Hapsburg was granted EL-26420 (Fog Bay East) consisting of 7 sub-blocks totalling about 17 km^2. The sub-blocks of EL-26420 occur along the north and east side of EL-25406. This tenement (EL-26420) was relinquished in mid 2009. In August of 2009 a new application (EL-27512 Finniss River) was made for a larger area to the east of EL-25406. The NT Department of Resources granted this new application (EL-27512) on the 9th of February 2010 for a period of six years.

These two tenements (EL-25406 & 27512) are located on the north side of the mouth of the Finniss River, about 60 km south-west of Darwin (Figs 1 & 2). These tenements are bordered by 5 Mile Beach on the west, Wagait Aboriginal Reserve on the south, the residential areas of Dundee Beach and Fog Bay Road on the north and north-east. The eastern boundary is bordered by tenements held by Uranex NL (Fig 3).

Topography & Vegetation

The Fog Bay tenements contain a variety of physiographic terranes:
A north – south trending ridge occurs through the middle part of EL-25406. This ridge is made up of the Middle Proterozoic Depot Creek Sandstone. The highest point is recorded as 47 metres. Paludal and estuarine plains (black soil plains and swamp) occur in the central and southern parts of both tenements (associated with the Finniss River). Lateritic soil cover occurs over the northern and eastern parts of the tenements. Beaches and sand dune ridges along the coastline occur to the west of EL-25406. Tidal mudflats and mangroves fringe the coastline and Finniss River.

Tenement Information

The following are descriptions of the two Exploration Licences: EL-25406 & 27512.

EL-25406 Fog Bay (After first reduction – 10th April 2009)

1:1,000,000 Map Series SD52 - Darwin

Block	Sub-Blocks
701	N, S, T, X, Y (5).
773	C, D, H, J, K, N, O, P (8)

Total Sub-blocks = 13

EL-27512 Finniss River (Granted 9th of February 2010)

1:1,000,000 Map Series SD52 - Darwin

Block	Sub-Blocks
701	O, P, U, Z (4)
702	Q, V, W, X (4)
773	E (1)
774	A, B, C, F, G, H, M (7)

Total Sub-blocks = 16

Geology

The Fog Bay tenements are located in the northern part of the Litchfield Province, which is described as a medium to high grade metamorphic terrane comprising metasedimentary and igneous rocks of Archean(?) to Lower Proterozoic age. This basement block (or province) lies on the west side of the Pine Creek Orogen and extends for several hundred kilometres in a north-south direction, and is up to 60 km wide. The Litchfield Province is also cut by (and in part bound by) several major faults which appear to be part of the Halls Creek Mobile Zone fault system. The Litchfield Province contains a centrally located syn-orogenic granitoid of presumed Lower Proterozoic age. This granitoid is enveloped by a suite of recrystallised carbonate rocks, calc-silicate rocks, amphibolite, biotite quartzofeldspathic gneiss, graphitic schist/gneiss, quartzite, sideritic iron formation and ultramafic rocks. This suite of rocks forms the Sweets Unit of the Welltree Metamorphics, and corresponds with pronounced aeromagnetic and radiometric anomalies. This unit has been correlated (by some) with the Cahill Formation of the East Alligator Rivers Uranium Field (the Cahill Formation is host to the Jabiluka, Koongarra, Nabarlek and Ranger Uranium Province).

Within Hapsburg's tenements, the main rock exposure is a linear outcrop of mildly metamorphosed ferruginous sandstone and pebbly sandstone (Figs 4 & 5) which is correlated with the Depot Creek Sandstone which forms the Tolmer Plateau. This ridge is described as a tight syncline and is believed to be fault bound on both the east and west sides. Another prominent north-south ridge in the south central part of the tenement consists of faulted quartz veined and silicified sandstone (sheared). This represents a major fault structure cutting what is thought to be Depot Creek Sandstone. Cretaceous age lateritic sandstone (Bathurst Island Formation) covers the northern and eastern parts of the tenements to a depth of up to 60m.

A geology map of the Fog Bay area (by Idemitsu) shows possible Burrell Creek Formation occurring to the east of the Depot Creek Sandstone. Then further to the east is a north to north-east trending unconformity that separates the Burrell Creek Formation from the Port Patterson sequence. To the west of the Depot Creek Formation, the basement rock is interpreted to be the Wagait Granite (however Idemitsu had no drilling in this area).

The NTGS geology of the area shows Wagait Granite occurring on both sides (E & W) of the Depot Creek Sandstone in the south part of Hapsburg's tenement. This is based on two NTGS stratigraphic drill holes in the south part of Hapsburg's tenement. However, the petrographic studies of surface outcrops, done on behalf of Hapsburg, do not support the interpretation of granite occurring in this location. In contrast, the NTGS shows the Depot Creek Sandstone in the northern part of Hapsburg's tenement to be bracketed by Palaeoproterozoic gneissic rocks. This is based on four NTGS stratigraphic drill holes within or adjacent to the northern part of Hapsburg's tenement.

Review of Historic Exploration

See the Annual Report for 2008 for a more “in depth” review of historic exploration.

Only minor surface work has been done directly on Hapsburg’s tenements (EL-25406 & 27512). However, significant exploration for uranium and base metals was done about 15 to 25 km to the east of Hapsburg’s tenements; without success.

The Fog Bay area has seen past exploration for a diverse range of commodities. In the 1960s Placer Limited explored for mineral sands in the beach deposits, without success. Others (including BHP) have explored for base metals (Pb & Zn) in the Proterozoic basement rocks, especially to the east of Hapsburg’s tenements. This work showed only weak Pb-Zn values in fault structures largely cutting carbonate units. Various companies such as Greenbushes have explored pegmatite bodies for tin and tantalum, with several small operators having exploited small deposits.

To the east of Hapsburg’s Fog Bay tenements, there has been substantial uranium exploration conducted by Esso Australia Limited, AOG Minerals Limited in joint venture with Union Oil Development Corporation, and the Urangesellschaft - Idemitsu Joint Venture. Virtually all airborne radiometric anomalies were investigated without any significant uranium responses being found. Much effort was expended on evaluating the stratigraphy in this area, in an effort to show it to be equivalent to the Cahill Formation of the East Alligator Rivers Uranium Field. Despite the apparent success of proving stratigraphic equivalence, the surface surveys and drilling still failed to locate any uranium.

Exploration by Hapsburg

Exploration by Hapsburg in 2007: A government regional geophysical survey had previously been flown in a north-south direction generally parallel to stratigraphy. This limits the full magnetic response, so Hapsburg commissioned a new aeromagnetic survey to be flown with east-west flight lines, 100m spaced lines and a sensor height of 50m. Universal Tracking Systems (UTS) of Perth was awarded the contract, and the survey of 2,210 line kilometres was flown in late December 2007. This resulted in the selection of four areas (A to D) for follow-up by ground magnetic surveys and reconnaissance (Figs 2 & 6).

Exploration by Hapsburg in 2008: During August 2008, a program of ground magnetics and reconnaissance rock chip sampling was undertaken at Hapsburg's Fog Bay tenements. The objective of the ground magnetic survey was to accurately locate the magnetic units (A-D) that had been defined by an airborne magnetic survey in December of 2007, and hence allow the targeting of drill holes to test the edges of these magnetic units. Terra Search Pty Ltd conducted the ground magnetic surveys over the airborne magnetic anomalies, with the use of GEM Systems (GSM-19) Overhauser Magnetometer (walking magnetometer & GPS). Unfortunately Area A was found to lie entirely within a large swamp, and parts of the other areas also had some edges extending into grass or paper bark swamps.

Eight rock chip samples were collected from outcrops of sheared and altered (sericite-quartz) sandstone (Depot Creek Sandstone?) (Fig 8). All samples were analysed by ALS in Alice Springs, for a wide range of elements; none of which showed any significant anomalies. The same eight samples were sent for petrographic examination by Richard England in Perth, who described all samples as meta-sandstone or quartz greywacke.

Exploration by Hapsburg in 2009: A geophysicist (Dave McInnes) was commissioned to evaluate the radiometric data from the UTS 2007 airborne magnetic-radiometric survey (see Appendix 2). The evaluation of the radiometric data outlined several areas with elevated uranium, especially on the new tenement (EL-27512). These airborne radiometric uranium anomalies were examined during the 2009 field season (see Fig 7 & Appendix 1).

Dave McInnes was also commissioned to evaluate and compare the UTS airborne magnetic survey with the Terra Search ground magnetic surveys (Appendix 3).The comparison of airborne and ground magnetic surveys has allowed for the more accurate selection of magnetic anomalies for drill targets.

Other field work in 2009 included the GPS location of proposed drill sites for magnetic targets A, B, C & D, so as to ensure suitable access for drilling equipment. Also photographs were taken of the proposed drill sites for future rehabilitation and environmental issues.

Site	**Target Co-ordinates**	**Comments on Access**
A	649,850E / 8,581,950N	Edge of swamp is 375m west of target (no access)
B	649,770E / 8,578,165N	Easy access to site & minimal scrub clearing
Ca	651,500E / 8,577,055N	Reasonable access to site & minor scrub clearing
Cb	651,300E / 8,576,950N	Reasonable access to site & minor scrub clearing
D	650,060E / 8,585,740N	Good access to site & minor scrub clearing

Given the monsoon season can linger until early May, it is suggested that the earliest to take drill equipment into this area would be early to mid July.

Genetic Models for Unconformity Type Uranium Deposits

Over the past 25 years many models have been proposed for the formation of unconformity related uranium deposits of northern Australia and the Athabasca Basin of Canada. Most of these models rely on the following criteria:

1. Age constraints of the basement and overlying source rocks that form the unconformity (Archean to Early Proterozoic basement and Mid Proterozoic unconformity with overlying conglomerate and/or sandstone units),

2. Diagenesis of Mid Proterozoic sandstone units and development of aquitard layers to confine fluid flow,

3. Large scale movement of basin fluids transporting uranium ions from Mid Proterozoic source rocks (and possible older source rocks),

4. Deposition of uranium in dilation zones (fault breccias) within a reducing environment created by the presence of graphite or mafic rock units (amphibolites); normally in the basement rocks below the unconformity (except for the Westmorland Uranium Field).

Age & stratigraphic position

The Fog Bay prospect is located in the Litchfield Block which forms part of the western exposure of the Pine Creek Orogen (or Pine Creek Inlier), which in the Fog Bay area includes strongly metamorphosed (amphibolite-grade) Early Proterozoic basin sediments and granitic intrusives. An outlier of Middle Proterozoic age fluviatile sediments, known as Depot Creek Sandstone, is present in the centre of the tenement (EL-25406). The Depot Creek Sandstone is correlated with the Middle Proterozoic age Kombolgie Sub Group which forms the basal unit of the McArthur Basin in the Alligator Rivers Uranium Field (ARUF). The McArthur Basin is host to most of the major uranium fields in northern Australia (Alligator Rivers Uranium Field and the Westmorland Uranium Field).

The stratigraphy in the area of EL-25406 is poorly known. Most of the basement is not exposed, and apart from ridges of Depot Creek Sandstone, the only rocks described by NTGS are from widely spaced drill holes. The main unit in the project area is reported to be of Early Proterozoic age (2002 +/- 42 Ma – Rb-Sr, and 2280 +/- 40 Ma – Sm-Nd), and consists essentially of biotite gneiss, microgneiss, sillimanite-biotite gneiss, biotite schist, amphibolite, plus minor carbonate rocks and quartzite (Hickey 1985). Intrusive rocks of trondhjemitic composition are also closely associated with the gneissic rocks, particularly the sillimanitic type. Gneissic fabric is moderately to strongly developed in all rock types except the intrusive rocks. The metamorphic rocks represent clastic sediments which have undergone upper greenschist to amphibolite facies regional metamorphism. All rock types apart from the trondhjemite exhibit gradational contacts with each other (Hickey, 1985).

Idemitsu Uranium Exploration Australia (IUEA) conducted exploration work between 1978 and 1986 in a large area to the east of the Fog Bay prospect. From this work IUEA concluded that the stratigraphy was equivalent to the Early Proterozoic age Upper Cahill Formation of the Alligator Rivers Uranium Field (ARUF). The Lower Cahill Formation is reported to host most of the major uranium deposits of the ARUF (Jabiluka, Ranger 1 and

Koongarra). The ARUF also contains the small but rich Narbarlek deposit which is located in a fault shear/breccia zone hosted within amphibolite-grade, metamorphosed semipelitic sedimentary rocks and amphibolite schist belonging to the Myra Falls Metamorphics, which is correlated to the Cahill Formation. By far the majority of Narbalek uranium mineralisation is hosted in an amphibolite unit known as the Footwall Amphibolite.

At Fog Bay, the outcropping ridge of coarse to medium grade sandstone are reported to be the Depot Creek Sandstone which forms the basal unit of the Tolmer Group of Late to Middle Proterozoic age. The Tolmer Group is equivalent to the Katherine River Group in the ARUF which has an age between 1822 to 1720 Ma. The base of the Katherine River Group consists of sandstones and conglomerates of the Kombolgie Formation (sub-group). Therefore the Kombolgie Formation is the age equivalent of the Depot Creek Sandstone.

Field examination of the Depot Creek Sandstone (by the author) led to the description of strongly foliated (sheared?) rock with fragments of similar rock and quartz vein material entrained in the foliations, including a fault zone with brecciation, silicification and quartz veining up to 100m wide. This led to the speculation that the rock could have originally been a granite or arkose prior to shearing and metamorphism. However, eight rock samples were examine petrographically by Dick England (September 2008), and all samples were described as sandstones (Depot Creek Sandstone). Dick provided the following comments: …… ***"The quite abundant matrix in most samples suggests that prior to silicification, the sandstone could have been an aquifer rather than an aquitard (Polito et al., 2006). Sediments like this can be deposited in fluvial environments. The widespread very minor metamorphic hematite in the more westerly samples indicates oxidising conditions, probably inherited from the original sediment. These properties would permit U and base-metal solubility (mobility) in the formation fluid. There is potential for deposition of these elements in reduced regions, in any reduced (organic-bearing) facies of the sandstone, or around any mafic units (as at the Redtree and Junnagunna deposits where the host sandstone contains chlorite), (Polito et al., 2005)".***

Major structure & magnetic trend

A major north trending fault structure passes through the centre of the Fog Bay tenement. This is shown on the Fog Bay 1:100,000 scale geology map (Hickey 1982) with one mapped exposure and an inferred trend over 20 km long. The airborne magnetic survey flown in 2007 clearly shows a magnetic linear that follows this inferred fault trend, except for a slight westward deviation and splaying in the northern part of the trend. Field mapping and rock chip sampling in 2008 confirmed the presence of a NNW trending fault outcrop consisting of strong shearing, brecciation, silicification and quartz veining over 100m wide. The field exposure and magnetic trend show this is clearly a major fault that has been the loci for hydrothermal fluids which allowed strong silica flooding and precipitation of quartz veins.

The exploration significance of this major fault structure is the periodic occurrence of magnetic highs along the trend. These magnetic units are not seen in outcrop, so the actual cause of the magnetic response is not known. However, it is reasonable to assume that the magnetic response is derived from mafic rocks, presumably mafic intrusives into the fault structure. This has positive implications for the possible reduction and precipitation of uranium mineralisation within the mafic rock material. See Dick England's comments above regarding the Redtree and Junnagunna deposits in the Westmorland Uranium Field. These uranium deposits occur along the edges of vertical basic dykes that intruded fault structures that cut the Westmoreland Conglomerate. These mafic dykes and the related alteration mineralogy created a reducing environment for the later precipitation of uranium from basin brines flowing through the conglomerate and sandstone.

Strong recrystallization and silicification along the structure

At Fog Bay, three petrographic samples from the silicified shear/breccia zone (major fault) show strong straining and recrystallisation (re-texturing) of the original sandstone, including probable replacement of some white mica. Quartz veining post dates the recrystallisation and silicification. Therefore it is reasonable to assume that this fault structure was originally quite porous, and could have allowed large volumes of hydrothermal fluids to pass along the structure. If these fluids were derived from the Depot Creek Sandstone, it is possible that uranium ions could have been present. If so, where such uraniferous fluids encountered altered mafic rocks (chloritised) or graphitic material, the reducing environment would have precipitated uranium. Hence the magnetic anomalies (mafics?) along this major fault structure are significant exploration targets for uranium.

Uranium & Thorium Radiometric Anomalies

A contract geophysicist (David McInnes) produced several scenes showing individual uranium, thorium and potassium plots, plus some combinations of the three (Appendix 2). In essence the uranium data shows a weak to moderate response over magnetic target D and just to the north of target C. Thorium is weakly responsive near target D and very weak north of target C. A narrow stratigraphic unit in the Depot Creek Sandstone is moderately responsive. Potassium is not responsive anywhere on the tenement. The combined U-T-K data produces a similar response to the Uranium response. Given that targets A and part of B are under water, it is expected that no radioactivity will be detected. The important result from the radiometric data is the presence of a uranium anomaly (2 km x 0.5 km) occurring just to the east of Hapsburg's eastern boundary of EL-25406 (Fig 7). This area was examined in the field in July 2009, and a tenement application has been lodged for a large area surrounding this anomaly (EL-27512). See Appendix 1 for the report on this anomaly.

Summary & Recommendations

The area encompassing Hapsburg's Fog Bay tenement has had very little past exploration. The sand dune area has been examined for mineral sands and there has been some exploration for peat and shell grit. The exploration for uranium and other metals has all been done to the east and south of Hapsburg's tenement. No exploration drilling or surface work has been recorded on the N-S fault structure; and no previous effort has been made to delineate or follow-up on magnetic anomalies. Some stratigraphic drilling has been done by the NT Geological Survey, but no testing was reported for uranium or other metals.

The presence of a major N-S fault structure ("Fog Bay Fault") with related magnetic anomalies and strong alteration (silicification) forms a new and completely untested target for uranium mineralisation. This was the basis for an initial program of four drill holes to test the magnetic anomalies along (and adjacent to) the major structure. The area containing the high uranium radiometric anomaly located on Hapsburg's new tenement application (EL-27512) was also recommended for testing by shallow drilling. However, a recent corporate decision to cut-back on uranium exploration has led to the relinquishment of both tenements (EL-25406 & 27512). If circumstances change in the future, we may re-visit these areas (if available).

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APPENDIX 1

Examination of Airborne Uranium Anomalies

Geophysical interpretation of Hapsburg's airborne radiometric data by Dave McInnis (contract geophysicist) has shown a zone of higher uranium response about two kilometres long and up to 500m wide. This north-south trending anomaly is located just to the east of the Fog Bay tenement (EL-25406), and is centred at about 655800mE & 8579800mN. Other weaker uranium responses also occur over wide areas to the east, south-east and north-west of the Fog Bay tenement. These uranium anomalies are now held by Hapsburg under EL-27512 (Finniss River).

Reconnaissance was conducted over the higher uranium response plus several of the lower responses. All areas of uranium response were found to be areas of exposed laterite surface. Where the laterite is covered by soil and vegetation, the uranium response is diminished. Scintillometer readings over the laterite with a Saphymo SRAT scintillometer showed background readings over soil and vegetation areas of about 50 to 70 counts per second (cps), while exposed laterite was around 70 to 90 cps. In contrast, the exposed laterite over the airborne uranium radiometric anomaly was between 130 and 160 cps.

Two scintillometer traverses were run over the higher uranium anomaly. Traverses were run east – west and 200m apart.

Line: 8579900N: 120 to 160 cps between 655670E and 655860E (190m wide).
Line: 8579700N: 120 to 160 cps between 655730E and 655900E (170m wide).

Four rock samples and one pisolitic gravel sample were collected from the anomalous laterite zone. Results from these samples did not show any anomalous uranium, thorium or potassium. Given the fact that these are well drained laterites, it is not surprising that mobile elements are not present in the immediate surface material.

As noted above, other areas of exposed laterite were tested with the scintillometer and found to be considerably lower in their response. Therefore the cause of the higher uranium response is not fully explained. It is possible that radiogenic material could have been concentrated in a localised area during the weathering (and lateritic) process, such as a paleo-drainage channel or porous rock unit. Or, it may be related to a primary source below the laterite profile. The only way to answer these questions is to drill beneath the laterite with shallow angle holes.

The presence of anomalous radiometric "uranium" in the laterite throughout the Fog Bay area has a positive aspect from an exploration point of view (D. McInnis). The uranium may well have been released from basement rocks in the area during weathering and lateritization. Therefore it is possible that an economic concentration of uranium may still exist in a nearby favourable host; such as the Depot Creek Sandstone and mafic dykes intruding major fault structures.

The following are photos of the anomalous laterite at Fog Bay (Finniss River Station):

Photo 1: Exposed laterite with anomalous cps, at site of airborne uranium anomaly.

Photo 2: Close up of the laterite surface.

Appendix 2

Radiometric Images from Dave McInnes

The following six radiometric images were produced by Dave McInnes, a consultant geophysicist.

Image 1	Potassium Channel
Image 2	Thorium Channel
Image 3	Uranium Channel
Image 4	Uranium, Thorium, Potassium (Red-Green-Blue)
Image 5	RGB (Uranium Anomaly Image) Uranium Channel : Red Uranium squared on Thorium : Green Uranium Squared on Potassium - inverted : Blue
Image 6	RGB Uranium Channel : Red Uranium squared on Thorium : Green Uranium Squared on Potassium : Blue

Appendix 3

<u>Comparison of Airborne and Ground Magnetics by Dave McInnes</u>

Plate 1: Comparison of Air & Ground Magnetics over Area B & C

Plate 2: Comparison of Air & Ground Magnetics over Area D

Comments (in an email) by Dave McInnes (June 4th, 2009):

Attached are some PDFs that display a stack of magnetic images for the two areas (areas B & C and area D).

For the comparison I extracted from the UTS dataset the exact same areas.
I have included ground magnetic data that has little or no processing so you can see what the actual collected data looks like.

Area B & C

In general the Air-mag and Ground-mag show similar things (ie anomalies in NW and SE). However the Ground-mag has some stronger features in the NE (of area where data is collected) that is a lot stronger than the UTS data.

In the UTS data you can see that regional structure that strikes NE (also visible in ground data but not much data collected in area).

The ground magnetic data in the SE has a lot more structure visible than in the UTS data.

Area D

What is most striking about this stack of images is the strong feature in the ground magnetics, not seen in the UTS data (air mag) SW part.

Also the strong structure that strikes through the ground data in a NNE direction.
This is cross-cut by a NNW structure in the south (at the area with a bit of magnetic complexity.

Pers Com from Dave McInnes: the ground magnetic highs in the west and SW of area D are due to laterite; that is why these do not show up on the UTS airborne magnetics.