Cameco Australia Pty Ltd

Exploration Licences ELs 2505, 2506, 2516, 2517, 7029, 9354

Tin Camp Creek – Northern Territory

Final and Annual Report
for the period September 12 2004 to September 11 2005

CONFIDENTIAL

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SUMMARY

Exploration Licences (ELs) 2505, 2506, 2507, 2516, 2517, 7029, and 9354 with a total area of 330.6 km^2 form the Tin Camp Creek project located in Arnhem Land about 250 km east of Darwin. The ELs were granted on 12 September 1995 for six years. Two by two-year extensions were subsequently granted and the tenements expired on 11 September 2005. Three Substitution Exploration Licences (SELs) were applied for on the 8 September 2005 covering all but four blocks of the former ELs.

The tenements were explored by a joint venture comprising AFmeco Mining and EXploration Pty Ltd (AFMEX –former operator), SAE Australia Pty Ltd and Cameco Australia Pty Ltd (Cameco Australia) from 1995-2002. Cameco Australia assumed management of this project following the withdrawal of AFMEX from active uranium exploration in the Northern Territory and the dissolution of the joint venture on 1 March 2003.

Work on the Tin Camp Creek tenements has focused on exploration for unconformity–style uranium deposits and in 2005 has consisted of: -

- Helicopter supported diamond drilling; four holes for 1,336 m at three prospect areas
    - **Algodo** (two holes)
    - **TEMPEST** basement conductor (one hole)
    - **EM** anomaly (one hole)
- Truck supported diamond drilling; four holes for 1,211 m at the **NE Myra** prospect.
- RAB/Aircore drilling; 144 holes for 3,179 m at the NE Myra prospect.
- Helicopter supported reconnaissance and rock chip sampling (n= 58) of:
    - Anomalies and inferred structures identified in TEMPEST data at **Gurrigarri** northeast;
    - Previously identified targets, (**Robbie's West**, EM, Algodo).
- Helicopter supported stream sediment sampling (n = 25), as a check of previous sampling conducted by AFMEX in 1996-1997.
- Petrography (n= 93) of selected core and outcrop samples
- Geophysics
    - A SAM (Sub-Audio Magnetics) ground survey over the NE Myra Prospect.
    - TEMPEST over NE Myra
    - Interpretation of the Hymap survey over the Algodo tenements flown in 2004.
- Digital data compilation and review, primarily for the South Horn Prospect.

Total eligible expenditure for these programmes was $1,350,746.

Highest uranium values in rock chips were from Robbie's West with a best result of 52.3 ppm U (4.1 ppm Th) from a possible weathered altered amphibolite immediately below the unconformity. There is 11 ppb Au, 681 ppm Li, and 251 ppm Ni in the same sample. Several other samples from Robbie's West are anomalous in Zn (9280 ppm) and W (196 ppm). Sandstone immediately above the unconformity at Robbie's West also reported weakly anomalous Ag (0.65 ppm) and As (10.5ppm). There are no anomalous results in sandstone samples collected from the vicinity of TEMPEST anomalies in the northeast of EL2516.

Drill hole TCD3001 tested for possible uranium mineralisation associated with the northwest trending Bulman Fault in the Algodo prospect area. There are no anomalies in any element apart from up to 107 ppm Cu in two basement samples. Drill hole TCD3002 tested the east-west trending Beatrice Fault at Algodo where up to 499 ppm U had been obtained in dolerite

outcrop in 2004. TCD300 2is now interpreted to have drilled parallel to the structure and did not provide an optimum test of the target, although did intersect 21 ppm U in altered dolerite.

Drill hole TCD3003 was drilled to test an east dipping strong basement conductor at the intersection with the unconformity. The hole is ~400 m from TCTPD0001 drilled in 2004, which intersected minor graphite but no uranium. Slightly more graphite was intersected in TCD3003but no significant mineralisation or alteration was encountered.

Drill hole TCD3004 tested a radiometric anomaly 400 m from a previously drilled basement conductor with minor sulfide mineralisation but no uranium. Weak uranium to 23.4 ppm in the weathered zone and up to 87.5 ppm further down hole explains the surface anomaly, but downgrades the potential for substantial uranium mineralisation in the area.

Three of four holes drilled at the NE Myra prospect in EL 2505 intersected anomalous uranium intervals and complex shear and fault zones. Drill hole TCD3005 intersected a pervasively chloritised psammopelite immediately above the faulted contact to sandstone at 34 m. There is up to 2 m @ 240 ppm U from 31.1-33.1 m and 429 ppb Au from 32.1 –32.6 m. Drill hole TCD3006 was drilled to a depth of 332.8 m to test the target structure down-dip of hematite breccia in sandstone outcrop immediately to the north. There is a wide zone of anomalous uranium with spotty gold from 35.5–69.5 m, with a maximum value of 0.3 m @ 339 ppm U from 47.7 –48 m. Drill hole TCD3007 was drilled to a depth of 310.5 m to test a structurally complex part of the main fault. This hole had the best intersection to date at NE Myra with **2.5 m @ 0.085% U3O8** from 172.75 –175.25 m, in a chlorite-sericite altered quartz-feldspar-biotite phyric rhyodacite. TCD3008 was drilled to a depth of 364.2 m to test a weak conductor at the unconformity in the footwall of the reverse fault target structure. Several faults and breccias were intersected but the best result is only 11.5 ppm U.

RAB/aircore drilling at NE Myra intersected anomalous uranium to a maximum of 132 ppm in 18 of the holes drilled. Other anomalies are up to 154 ppb Au, 3.4 ppm Ag, 815 ppm Cu, 1140 ppm Zn, 747 ppm Pb, 156 ppm Li, 35 ppb Pt and 141 ppb Pd. The anomalies show a broader distribution than those from core, but do not highlight any new targets away from the known hangingwall zone of the fault. However the higher copper and zinc is distal to the known uranium anomalies, and the possibility of a metal halo that might vector the uranium needs investigation.

Main features of the NE Myra mineralisation are:

- Located in the hangingwall of the fault zone with no obvious relationship to faulting.
- No clear relationship to host rock-type. Hosts are variably amphibolite, psammopelite and rhyodacite.
- Appears to dip south broadly parallel to the main structure based on geometries determined from limited RAB and core data.
- Varies from proximal to the faulted contact with sandstone (TCD3005, TCD3007) to up to 150 m in the hangingwall (TCNMD0003, TCD3006) to absent (TCD3008).
- Alteration is chlorite dominant with minor white mica locally. Minor hematite is developed in the footwall to the anomalous intervals, and also does not necessarily have a direct relationship with faulting.

Target areas identified for follow-up in 2006 in order of priority and work proposed are:-

- NE Myra
  - land based drilling of six RC/(core) holes;
  - 1700 m RAB holes (80 holes);
  - additional follow-up sampling, mapping and reconnaissance;

- down hole EM;
- ground-based gravity survey.

- Algodo
  - One helicopter supported core hole to test the Beatrice Fault.
- South Horn
  - One helicopter supported core hole if new targets can be identified (tentative).
  - Additional follow-up sampling and reconnaissance;
- Caramal
  - Possible orientation SAM survey

Prospect, Target and 2005 Diamond Drill Hole Locations

Tin Camp Creek Project 2005 Work Summary

Activity	Details	Location
Drilling (heli-supported core)	1 hole for 337 m 1 hole for 401.8 m 1 hole for 339.3 m 1 hole for 257.7 m 23 petrographic samples 282 geochemical samples	Algodo, Bulman Fault (TCD3001) Algodo, Beatrice Fault (TCD3002) TEMPEST conductor (TCD3003) EM (TCD3004)
Drilling (truck-supported core)	4 holes for 1,211 m 23 petrographic samples 312 geochemical samples	NE Myra (TCD3005-3008)
Drilling (RAB/aircore)	144 holes for 3179m 279 geochemical samples	NE Myra (TCB3009-0152)
Outcrop Sampling, prospecting, geological reconnaissance	90 field stations visited. 55 geochemical samples 25 stream sediment samples 47 petrographic samples	NE Myra Robbie's West EM Z17, TEMPEST 04-07 Algodo Miscellaneous radiometric anomalies.
SAM Survey TEMPEST survey	2 x 1 km, for 20.7 line km 294 line km 200 m line spacing, 120 m height	NE Myra

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INTRODUCTION

Exploration Licences (ELs) 2505, 2506, 2516,2517, 7029 and 9354, which form the Tin Camp Creek Project were explored since grant in 1995 to 2002 in joint venture by AFmeco Mining and EXploration Pty Ltd (AFMEX, operator), Cameco Australia Pty Ltd (Cameco Australia) and SAE Australia Pty Ltd (SAE). Cameco Australia assumed control of the Tin Camp Creek Project following the dissolution of the joint venture on 1 March 2003 and withdrawal of AFMEX and SAE.

The tenements are located within the Arnhem Land Aboriginal Reserve and are subject to a Consent Deed with the Northern Land Council (NLC) on behalf of the Traditional Owners. Clearance was given by the NLC on behalf of the Traditional Owners following the Exploration and Liaison Committee Meetings held on 18 March 2005 at Gunbalanya. Fieldwork commenced with the re-establishment of the base camp at Myra in mid May. Following completion of exploration activities on these and adjacent tenements the camp was demobilised at the end of September. All access and track re-establishment and rehabilitation was carried out by Wildman River Stock Contractors Pty Ltd.

This report is a combined Annual and Final Report for the Tin Camp Creek tenements. The report details exploration for uranium conducted during 2005 on the tenements. This comprised:

- helicopter supported core drilling,
- truck supported core drilling,
- Aircore/RAB drilling at NE Myra,
- Geophysics -a SAM survey at NE Myra, and a TEMPEST survey at NE Myra
- Helicopter supported target and anomaly follow-up, with reconnaissance mapping and sampling.

Previous work is summarised here, but details and all data are contained in the previous nine Annual Reports previously submitted to the Department.

Location and Access

The tenements are located in West Arnhem Land about 250 km east of Darwin in the Northern Territory of Australia.

Location Plan

Access is either by air to the Nabarlek airstrip, which is located about 10 km north of the tenements or by road via the Arnhem Highway to Jabiru and then via Cahill's Crossing and unsealed roads to the Myra Base Camp located on Tin Camp Creek. The rugged terrain of the Myra Falls Inlier and flanking sandstone escarpment country is mainly only accessible by helicopter or foot. There are some disused tracks in the east parts of the tenements, which have not been upgraded since the withdrawal of AFMEX apart from portions of some tracks in the northeast to provide access to NE Myra in 2005.

Tenure

ELs 2505, 2506, 2516, 2517, 7029 and 9354 were granted to Queensland Mines Pty Ltd (QML) on 12 September 1995 for a period of six years. The tenements were acquired by Cameco Australia (49%), SAE (24.5%), AFMEX (24.5%) and West Arnhem Land Corporation Pty Ltd (2%) and explored in joint venture with AFMEX as operator. AFMEX and SAE withdrew from the joint venture on 1 March 2003 and Cameco Australia subsequently acquired their interests in the Tin Camp Creek tenements and now controls 98 % of the project. The remaining 2% remains with the West Arnhem Land Corporation Pty Ltd. A two-year extension of the ELs was approved by the Mines Department in November 2001. A further two-year extension was approved in August 2003, and the tenements expired on 11 September 2005. The tenements cover a total area of 99 blocks or 330.6 sq km.

Applications were lodged on 8 September 2005 for Substitution Exploration Licences (SEL) 24920, 24921 and 24922 to cover the same areas as Els 2505,2506,2516, 2517, 7029 and 9354. Due to the requirement for SELs to incorporate at least two adjoining exploration licences the four isolated sub-blocks of EL2505 located to the south of EL2516 could not be incorporated into the SELs and these are now subject to a separate EL Application 25002.

GEOLOGY

Regional Geology

The regional geology of West Arnhem Land has been described in detail in previous reports and by Needham (1984): only a brief overview is given here.

The oldest rocks exposed in the area are gneisses belonging to the Mount Howship Gneiss of the Kakadu Group of lower Palaeoproterozoic age, which is interpreted to overlie Archaean Nanambu Complex. The Mt Howship Gneiss is overlain by the Kudjumarndi Quartzite, which is one of the main marker horizons in the region.

The psammitic rocks of the Kakadu Group are overlain by the Cahill Formation also of lower Palaeoproterozoic age, which is the host of the uranium ore bodies in the area. The Lower Cahill Formation consists of a basal calcareous unit that is overlain by a sequence of pelitic schists, meta-psammite and amphibolite. A well-defined amphibolitic unit near the top of the Lower Cahill Formation hosts the Nabarlek uranium deposit. The Upper Cahill Formation and Nourlangie Schist consist of a monotonous sequence of meta-psammite, schist and amphibolite.

East and south of the area of the Palaeoproterozoic sediments lie the granitoid rocks of the Nimbuwah Complex. These granitoids were extensively migmatised during the Top End Orogeny, which is dated at about 1800 Ma. The relationship between the Cahill Formation and the Nimbuwah Formation is little known. Limited field observations show the contact to be migmatitic and gradational.

Later post-orogenic Proterozoic granites (1780-1820 Ma) such as the Nabarlek and Tin Camp Creek Granites have intruded the metasediments in the east of the area.

Post-orogenic, distal, airfall felsic volcanics and associated sediments of the Edith River Group occur mainly to the southwest but there are minor localised exposures in the south and southwest of the tenements.

The upper Palaeoproterozoic Kombolgie Formation is paraconformable on the Edith River Group and overlies the older rocks unconformably. This formation consists of sandstones with a prominent basaltic horizon (Nungbalgarri Volcanic Member), which crops out in the northeast of the tenements. The flat-lying sandstones form the Arnhem Land escarpment.

The Oenpelli Dolerite (1723 Ma) intrudes the early Palaeoproterozoic metasediments and the Kombolgie Formation, and forms large lopolithic bodies. It is the youngest Precambrian rock cropping out in the area.

Regional Geology

Project Geology

The tenement area is centrally located over the Myra Falls Inlier and covers Early Proterozoic metasediments assigned mainly to the Myra Falls Metamorphics. Ridges of Kudjumarndi Quartzite occur extensively in the southern part of EL2516 and adjacent areas. There are also good exposures of the stratigraphically lower Mt Howship Gneiss, which overlies the quartzite to the immediate south of EL2516. This area is interpreted to be part of the southern limb of the large overturned Oenpelli Syncline (Needham, 1988).

In general, metamorphic grade increases to the east and southeast within the tenements, and similarly deeper parts of the stratigraphy are encountered in the same directions. Petrography shows rocks in the west of the tenements are mid-amphibolite and those in the northeast are upper amphibolite. Correlations with units of the Cahill Formation are generally problematic however some units, namely carbonaceous schist and psammitic schist in the west mainly around the historic prospects of Gurrigarri, Gorrunghar and Mordijimuk (MGG) are assigned to the basal part of the Lower Cahill Formation. In the Myra Falls area, which lies central to the Tin Camp Creek tenements, the lowermost Cahill Formation member comprising calc-silicate gneiss and carbonaceous schist has been intersected in drilling. The Lower Cahill Formation in this area is characterised by up to ~5% sulfides. Similar sulfidic weakly carbonaceous lithologies and minor calc-silicate have been intersected in a single hole drilled 16 km to the west in the west of EL2516 and is interpreted to be the stratigraphic equivalent of the units at Two Rocks.

In the Caramal area in the southeast of EL2505 government mapping shows the rocks to be Myra Falls Metamorphics. However both quartzite and quartz-feldspar-(biotite) gneiss interpreted to belong to the Kudjumarndi Quartzite and Mt Howship Gneiss respectively both crop out and have been intersected in drilling. Other units intersected in drilling here are dominantly ‘meta-arkose” but include minor calc-silicate at depth. To the west of Caramal and extending north into the western part of EL7029 there are good exposures of quartzo-feldspathic gneiss along creeks, these exposures include fleck migmatite (Parks and Beckitt, 2003) and coarse grained varieties, and it has been postulated by some workers that some of these exposures are Nanambu Complex.

Needham (1984) interprets these gneisses which locally are more mafic than typical Mt Howhip Gneiss as a partly migmatised equivalent of the Mt Basedow Gneiss and includes it in the Lit-par-lit zone of the Myra Falls Metamorphics.

Drilling at South Horn located about 8 km south of Caramal, has confirmed the presence of Nimbuwah Complex as shown in mapping data, but has also shown that probable Cahill Formation equivalents occur below Kombolgie Formation sandstone to the west of the Beatrice Fault. There is minor graphite locally in these dominantly quartz-biotite-garnet schists/gneisses. The contact between the Nimbuwah Complex and interpreted Cahill Formation is marked by a complex migmatite zone.

In the northeast of the tenements in the NE Myra area correlations are more problematic. There is a prominent ridge of interpreted Kudjumarndi Quartzite to the immediate south of the mineralised zone, with the inference that the overlying rocks are basal (PC_1) Lower Cahill Formation. However calc-silicate rocks and carbonaceous lithologies which characterise PC_1 Lower Cahill Formation and which are well-represented just 6 km to the southwest are rare in the NE Myra area. The psammopelitic gneisses and amphibolite which characterise NE Myra are better correlated with the Lower Arkosic (PC_2) and /or Amphibolitic Unit (PC_3) of the Lower Cahill Formation. To the south of the quartzite ridge lithologies as determined from RAB drilling are dominantly metasediments and amphibolite. Mt Howship Gneiss is only observed 1.6 km south of the ridge. Faulting and folding may explain the absence of Mt Howship Gneiss immediately below the Kudjumarndi Quartzite to the south and apparent absence of PC_1 of the Lower Cahill Formation to the north.

Kudjumarndi Quartzite is not as extensive to the south of EL2516 as indicated by Government mapping. Quartzite in this area is mostly exposed as a gentle south dipping dip-slope, which explains the extensive exposures. However the quartzite does not immediately underlie the unconformity in EL2505. The quartz-mica-(biotite) schists and minor amphibolite in this area is better assigned to the Myra Falls Metamorphics. There is extensive but mostly thin recent cover in this area obscuring lithological contacts.

In Els 2517 and 9354 located in the southwest basement rocks intersected in drilling below sandstone are dominantly quartz-muscovite-biotite garnet –(staurolite) schist and were interpreted by AFMEX to be Nourlangie Schist equivalent. Also in this area several metres of undeformed purple siltstone have been intersected under the sandstone and above the deformed basement rocks. Government mapping shows Edith River Volcanics in this area and the rocks intersected in drilling were interpreted as distal epiclastic sediments of this Group. However more recently, identical siltstone layers have been observed in this area up to 100 m higher in the Kombolgie Formation and there are gradational contacts between the basal siltstone and basal boulder conglomerate of the Kombolgie Formation. These siltstones are now interpreted as a low-energy to lacustrine facies of the Kombolgie Formation and thus the Edith River Group is absent in this area. In drilling by AFMEX to the immediate southwest of the present tenements a thick sequence of unaltered 'banded' amphibolite was intersected.

In the north of EL2505 in an area covered by sandstone, drilling in 2004 intersected rocks unlike any others in the tenement area (see TEMPEST conductor section of this report). There are two main stratigraphic units comprising finely laminated pelitic to psammopelitic schist and a finely laminated para-amphibolite sequence. Graphite is associated with this stratigraphy. It was postulated that these might be stratigraphic equivalents of the Gerowie Tuff and Koolpin Formation, as they appear unlike possible Cahill Formation equivalent rocks. However, this stratigraphy also appears comparable to the 'banded amphibolite' with associated graphite described by QML from several prospects in the Nabarlek tenement to the north. The para-amphibolite is typically about 60-70 m thick.

The distribution of Tin Camp Granite as shown by industry work is slightly different to that indicated by government mapping. In particular in the Caramal area and to the north along the east-west structure ~2 km north of Caramal this unit is less extensive in outcrop than shown on government maps. However, near the northeastern boundary of EL2505 it is more extensive to the north than government mapping shows. There is an excellent exposure of sandstone unconformably overlying granite in this locality, and xenoliths of Kudjumarndi Quartzite in the granite nearby. There are also quartz-feldspar porphyries in this area, which spatially appear to be part of the Tin Camp Granite.

There has been conjecture about the origin of the Myra Falls Inlier, i.e. a pre-sandstone palaeo-topographic high vs. post-deformation/post-sandstone uplift (perhaps related to diapiric uprise of granite). Evidence to date indicates the latter is correct. Mamadawerre Sandstone flanking the Inlier is of a comparable thickness to Mamadawerre Sandstone elsewhere in western Arnhem Land (at least 250m thick), i.e. there is no evidence for thinning against a basement high.

PREVIOUS WORK

Queensland Mines Ltd, Pre-1995

QML previously explored the area in the early 1970s as part of exploration around the Nabarlek deposit. During this time the Caramal deposit was discovered and tested with 27 core holes. A sub-economic resource of ~700 t of U_3O_8 was outlined at a 0.1% cut-off. Other exploration is poorly documented, but prospects discovered and tested at this time were: -

- Anomaly 12: trenching and rock chip sampling revealed up to 2000 ppm U, 650 ppm Cu and 1400 ppm Pb (as reported subsequently by AFMEX). Mineralisation is hosted within a hematite-quartz-sericite breccia extending up to 4 km north-south along strike and in adjacent schists. Details of the work by QML have not been located.
- Gorrunghar: Up to 3.9m @ 0.61% U_3O_8 in quartz-mica schist was obtained from 1.9 m depth in a percussion hole. Six holes were drilled in an area of 100 x 150 m but it was concluded the mineralisation was supergene and no further work was conducted. (Drill logs are available, but previous trenching and mapping information cannot be located).
- Gurrigarri: Three trenches were excavated in chlorite-muscovite altered amphibolite. (Results not in available documents).
- Mordijimuk. Five costeans were excavated in weakly altered amphibolite and schist (Results not in available documents). Two percussion holes were drilled,

but no uranium mineralisation or significant alteration was intersected. Drill logs and analytical results are the only documentation of this prospect available.

Uranerz 1987-1991

Some work was carried out in the area covered by present tenement EL7029 in the period 1987 to 1989 by Uranerz as part of the programme on former exploration licence EL3418 in the Myra Falls area. Uranerz drilled 53 RAB holes on the south side of a major east-northeast trending fault associated with radon springs. Several holes intersected weakly anomalous uranium to a maximum of 25 ppm and chlorite alteration was noted.

AFMEX, 1995 – 2002

No exploration was carried out in the remainder of the tenement area from September 1973 until September 1995 when the present tenements were granted to QML, and subsequently acquired by the AFMEX operated joint venture. All data pertaining to this work has been submitted to the Department previously by AFMEX in the relevant Annual Reports as follows. Rowe and Thevissen (1996), Alonsos and Kastellorizos (1997), Kastellorizos (1998), Fabray (1999), Ewington (2000), Wollenberg and Bisset (2001), Moreau (2002). A summary of this work is provided below.

An airborne geophysical survey was flown over the tenements in 1996. Dighem, radiometric and magnetic data were acquired. A series of radiometric anomalies were delineated in the South Horn area and some shallow conductors were outlined elsewhere in the tenements.

Stream sediment surveys were conducted through much of the tenements in 1996, 1997 and 1998 apart from the sandstone plateau country. These data should be treated with caution as there are undocumented reports that:

- samples were sieved at the Myra base Camp where there was potential for contamination from numerous sources including drilling of mineralisation at Caramal and South Horn which took place at the same time;
- it was permitted to collect over-bank deposits where there was insufficient sediment in the stream and;
- locational errors were identified in early follow-up.

Reconnaissance was conducted over an estimated 75% of the identified radiometric anomalies, some of which were investigated as part of follow-up of stream sediment anomalies. About 60 rock chip samples were collected, but this is not fully documented. Prospect areas within the current tenements identified as part of this work (including further follow-up at QML prospects) are: -

Prospect and Anomaly Location

- Robbie's: - Up to 110 ppm U and 240 ppm Cu in rock chips from hematitic quartzite, located near the eastern edge of the EL2505 sub-blocks outlier (although the rock chip location is not documented).

- Gibbon: - Up to 32 ppm U in north-south trending quartz-hematite breccias, along the interpreted trace of the Khyber Pass Fault about 2 km northwest of Caramal. There are several stream-sediment anomalies in this area of up to 9.6 ppm U.
- Jacobs: - Up to 300cps was obtained from a lateritic veneer developed near a quartzite ridge interpreted to be in a similar stratigraphic position to Gorrunghar. However due to proximity to an airstrip belonging to one of the Traditional Owners, no further work was conducted.
- Gurrigarri:- Up to 680 ppm U, 170 ppb Au, 2000 ppm P and 550 ppm Cu in reconnaissance rock chips associated with chlorite-white mica altered amphibolite marginal to a quartz-breccia ridge.
- Gorrunghar and Mordijimuk: - The only work conducted was minor reconnaissance as they were within a restricted area until 1998 as there was a proposal to build an outstation in the area.
- Anomaly 12: - Previous anomalies were confirmed, however it was concluded the structure (and mineralisation) was pre-sandstone and of little further interest. A single hole was drilled (SHWD001) to test a geophysical target where the interpreted strike extension of the north-south structure intersects a north-northwest structure. The hole intersected brecciation in the sandstone and basement but no radioactivity.
- EM anomaly 11/12 and Anomaly 6 in EL2516: - Ground EM was conducted at EM anomalies identified in DIGHEM data. Soil surveys designed to test EM anomaly 11/12 and to follow-up stream sediment anomalies were conducted in 1999. Minor base-metal anomalies were detected at Anomaly 11/12.
- Razorback: - This gold prospect was identified from follow-up of gold in stream anomalies. Up to 300 ppb Au was outlined in soils and up to 1.4 g/t Au (plus anomalous copper) was obtained from rock-chips of malachite stained quartz-muscovite-biotite schist.
- South Horn: - This was the main prospect identified from radiometric data. Outcrop sampling and mapping and RAB drilling was conducted initially with follow-up RC/core drilling.
- Gorrunghar West: - This was a radiometric anomaly identified in a rim flight. Field reconnaissance did not locate any anomalies. RAB drilling was conducted on the flats to the south of the anomaly, but there was no anomalous uranium.

RAB drilling was also conducted along the Tin Camp Creek to the south of Gorrunghar and Gurrigarri. The drilling was conducted mainly to map the extent of prospective Lower Cahill Formation lithologies in this area with extensive Quaternary cover. The drilling shows that quartz-muscovite schists and amphibolitic units of interpreted Lower Cahill Formation plus Oenpelli Dolerite dominate in this area. There are no uranium anomalies.

Conventional RC/core drilling and helicopter supported core drilling mainly focused on the South Horn and Caramal prospects with little work elsewhere.

- Caramal (27 holes). Drilling traced the mineralisation to the northeast under sandstone cover, but no new resources were found. The mineralisation is hosted within chlorite-sericite-hematite altered psammopelite and psammite of the Lower Cahill Formation near contacts with Oenpelli Dolerite.

- South Horn (32 holes). Drilling intersected uranium mineralised intervals of up to 1% uranium over 6 m in SHD-04 and narrower intervals of up to 1.4 g/t Au. The mineralisation occurs as uraninite and brannerite and is hosted within altered dolerite in quartz veins with accessory sulfides (dominantly chalcopyrite and molybdenite). There is a selvedge of uranium minerals on the edge of the quartz with hematite – sericite alteration extending up to 3 cm from the vein. Chlorite alteration and alteration of titaniferous magnetite to leucoxene extends several metres from the veins. The mineralisation lacks continuity and no new uranium deposits were discovered. There is also minor anomalous uranium in garnet and graphite bearing schist in the south of the prospect area. Four heli-supported core holes were also drilled to test geophysical and structural targets to the west of South Horn with negative results.
- Algodo (six holes). Three holes are to the west of the present tenement area and intersected unaltered banded amphibolite. There was no significant uranium in the three holes drilled within the present tenement area, which intersected interpreted Nourlangie Schist. One of these holes (ALG-04) was drilled near the northwest trending Bulman Fault and the other two (ALG-02 and 03) were drilled near the east-west trending Beatrice Fault. It appears that none of the holes tested the target structures. Minor alteration was intersected in ALG 04 near the unconformity.
- Gurrigarri. A single hole was drilled near the old trenches. Due to rugged terrain the hole was not sited in the optimum position to test the target. There was a best intercept of 0.05 m @ 0.51% U.
- NE Myra. A single hole was drilled to test a subtle radiometric anomaly near the east- northeast tending NE Myra Fault. The hole was collared on sandstone 100 m to the north of the fault and drilled at 340° away from the fault. The hole intersected extensive silicification-desilicification and chlorite alteration in the sandstone and moderated to strong hematite-chlorite alteration in mostly psammitic rocks below the unconformity, which is at 264 m. There is +200 m vertical displacement, (north side down) on the east-northeast structure. The drill hole did not test the major east-northeast structure.
- EM anomaly in the western part of EL2516. A single hole was drilled targeting EM anomaly 11/12 which had been confirmed by a TEMPEST survey conducted in 2001. The drilling intersected sulfidic metasediments, confirmed in petrography to be similar to those at Two Rocks. Analytical results show up to 1330 ppm Zn and 536 ppm Cu, but no anomalous uranium. The sediments locally contain trace graphite, and unaltered staurolite bearing schist was intersected at the end of the hole.

In 2001 a detailed airborne magnetic and radiometric survey was flown above part of Els 2505 and 7029. This survey targeted the northwest tending structural corridor which hosts the Nabarlek uranium mine to the northwest of the survey area. TEMPEST surveys were also flown over the South Horn area, EM Anomaly 11/12 and the northeastern part of EL2505. This survey successfully delineated the EM conductor and the unconformable horizon in the South Horn area, but was unsuccessful in EL2505 in determining the depth to basement due to near surface conductive Nungbalgarri Volcanics.

Several ground-based geophysical surveys were conducted primarily over the Caramal and South Horn Prospect areas. These included Protem, nanoTEM, Max-min, CSAMT and gravity. Other work at South Horn included regional outcrop sandstone sampling and PIMA studies at South Horn, Caramal and NE Myra.

Cameco Australia Pty Ltd (2003 – 2004)

All data pertaining to work conducted by Cameco in the Tin Camp Creek tenements since March 2003 following dissolution of the joint venture operated by AFMEX has been submitted to the Department in the two preceding Annual Reports, i.e. Parks and Beckitt, (2003) for the period 12 September 2002 – 11 September 2003 and Parks, Potter and Beckitt (2005) for the period 12 September 2003 to 11 September 2004.

<u>Exploration</u> <u>Target</u>

The focus of the exploration strategy is the discovery of unconformity-related uranium deposits. The nearby economic deposits at Ranger, Jabiluka, Koongarra and the now depleted Nabarlek Mine serve as models for this strategy. The presence of gold, palladium and platinum in these deposits plus the economic gold-platinum resource at Coronation Hill in the South Alligator Valley, indicates an additional potential for this deposit style.

Despite local variations in geological setting (structure, host rock, element association), all the occurrences appear to have a common position relative to the base of the middle Proterozoic unconformity, or to its erosional margin. In several examples, down-faulted blocks of Kombolgie sandstone (reverse faults), as at Ranger No 3 orebody and the Hades Flat Prospect between Ranger and Jabiluka, are present adjacent to the mineralisation. These and other recognised features are considered to be indicative of a favourable setting for the concentration of mineralising fluids.

The deposits of the South Alligator Valley (SAV) and the Rum Jungle-Waterhouse region also exhibit a spatial relationship to Proterozoic sandstone cover. Where undisturbed, the SAV deposits are 'capped' by the Coronation Sandstone as at Coronation Hill, or in the case of El Sherana, are in faulted contact with it. Of note is the igneous affiliation of these deposits with the presence of rhyolitic volcanics, volcano-sedimentary rocks and, in the case of the former, dolerite. Another distinguishing feature is that they tend to be gold enriched and are characterised by the presence of palladium and platinum selenides. The Sargeants and Kylie styles of mineralisation, located south of Rum Jungle on the fringe of the Archaean Waterhouse Complex, have some similarities to the SAV with Au-PGE enrichments in association with uranium. The Depot Creek Sandstone, the basal unit of the Tolmer Group, unconformably overlies the host rocks to these deposits, which are hosted in a carbonate-carbonaceous schist sequence.

The spatial, and in some cases, the intimate association of Oenpelli Dolerite or its equivalents with uranium mineralisation has been recognised in several places in Arnhem Land. Doleritic intrusives host the mineralisation at Coronation Hill.

Cameco, 2003

Work conducted by Cameco in 2003 (Parks and Beckitt, 2003) consisted of:

- Data acquisition, compilation and review, and target identification. There were several problems with locating and acquiring all the old QML data, and some data could not be located. The only historical data incorporated into the AFMEX database was drill data for Caramal. Digital surface sample and RAB data sets for work conducted by AFMEX are also incomplete. A lot of data-entry, recoding and other database work was required to manipulate available digital data into a format compatible with the Cameco database.
- Helicopter supported reconnaissance and rock chip sampling (n=44) primarily of known prospects and environs with limited follow-up of weak radiometric anomalies associated with stream sediment anomalies.
- Relogging of selected core holes to provide familiarisation with the style(s) of mineralisation and nature of alteration in the project area in order to assist targeting.
- Petrography (n=13)
- Geophysical surveys
  - airborne radiometrics and magnetics at 50 m line spacing for a total of 1108 line km over the Gorrunghar, Mordijimuk and Gurrigarri prospect areas located in EL2505 and EL2516.
  - airborne TEMPEST (Time Domain Electromagnetics) over the Algodo prospect area (EL2517 and 9354), the northern part of EL2505, the Caramal Prospect (EL2505) and the south of South Horn (EL2506). A total of 688 line-km were flown at 200 m line spacing, and 400 m spacing at South Horn.
  - airborne gravity at 2 km spacing over the entire tenement area as part of a larger regional survey
  - reprocessing and re-interpretation of regional (200 m line spacing) radiometric data and anomaly identification

There is anomalous uranium (U:Th>2:1) in four of the rock chip samples with a best result of 709 ppm U_3O_8 in TC03C10081 from altered amphibolite at Mordijimuk (plus 193 ppm Cu, 171 ppm Pb and 502 ppm Zn). Other anomalous samples are from Gurrigarri from a newly discovered 'hotspot' located ~300 m from previous work (51 ppm U_3O_8 plus 150 ppm Cu), Gibbon (57 ppm U_3O_8), and 74 ppm U_3O_8 from altered Oenpelli Dolerite at Algodo. Geochemistry shows that a hematite-chlorite altered 'hotspot' on the eroded access track to Caramal is thorium dominant. Petrography shows that the high thorium (max 2450 ppm) and uranium (max 104 ppm) in altered thorium rich samples from Caramal is detrital and is associated with up to 5% monazite in heavy mineral bands. There was no observed reason for the high zinc (up to 1050 ppm) in the same samples, and the zinc is interpreted to be in chlorite or iron oxide minerals. Petrography also shows alteration (phengite?) associated with the Bulman Fault in the Algodo prospect area.

Target areas identified for follow-up in 2004 in order of priority were:-

- Mordijimuk-Gorrunghar- Gurrigarri. Widespread anomalous uranium in basement to 3.9m @ 0.61% at Gorrunghar. It was postulated that uranium mineralisation could be concealed by widespread sandstone to the north and east of these prospects.

- NE Myra where a single hole drilled by AFMEX had failed to test a major east-northeast trending fault with ~250 m of vertical displacement. There are radon springs along the fault, and up to 25 ppm U in old Uranerz RAB holes.
- TEMPEST anomaly. A strong subunconformity conductor located to the north of Myra in the north of EL2505 and dipping gently east. In the area where the conductor is strongest there are a series of radon springs along an east-west valley that is inferred to be fault controlled.
- Algodo. The Bulman and Beatrice Faults that cut through this area have never been drill tested. 63 ppm U was obtained from altered dolerite in the Beatrice Fault.

Cameco, 2004

Work completed in 2004 as detailed in Parks et al (2005) consisted of:

- Helicopter supported drilling, five holes for 1151.8 m at three prospect areas
    - the NE Myra Prospect (three holes)
    - TEMPEST Anomaly (one hole)
    - Gurrigarri East (one hole)
- Helicopter supported reconnaissance and rock chip sampling (n=198), to follow-up:
    - low priority radiometric anomalies identified from 2003 detailed data and reprocessed 1996 regional data.
    - anomalies and inferred structures identified in TEMPEST data
    - previously identified targets
- Relogging and sampling of selected core holes:
    - to determine geochemical signature of the South Horn and Caramal mineralisation.
    - confirm geology.
- Petrography (n=83)
- Geophysics:
    - detailed interpretation of airborne TEMPEST (Time Domain Electromagnetics) over the Algodo prospect area (EL2517 and 9354), the northern part of EL2505, the Caramal Prospect (EL2505) and the south of South Horn (EL2506) flown in 2003
    - a Hymap survey over the Algodo tenements.

Rock chip sampling and prospecting showed:

- a best result of 1030 ppm U plus 872 ppb Au in TC04C10416 from a north-south trending quartz breccia at **Robbie's West.** However the quartz breccias may be pre-sandstone, which would down-grade the target area.
- Several anomalies in the **Mordijimuk-Gurrigarri** area of up to 467 ppm U at Mordijimuk and 413 ppm U at Gurrigarri East. Radon springs and brecciation in the sandstone just above the unconformity at Gurrigarri East. North-northwest faulting evident as tilted sandstone and silicified milled breccia in sandstone along a valley at Gurrigarri East. Strong desilicification with drusy quartz collapse breccias in sandstone in a north-south valley at Gurrigarri East.

- Up to 50 ppm U in basement at **NE Myra**, but no anomalous uranium in sandstone samples. Identification of hematitic hydraulic breccias in sandstone in the same area.
- At **Algodo** there is up to 499 ppm U from Oenpelli Dolerite outcrop in the Beatrice Fault and weakly anomalous U to 2.4 ppm from sandstone in the Beatrice Fault.
- At **Z16** the northeast trending strong UU/Th anomaly evident in airborne data appears attributable to a poorly defined stratigraphically controlled goethitic zone in the gradational contact between the Mt Howship Gneiss and Kudjumarndi Quartzite which has higher U:Th than the adjacent thorium dominant stratigraphy. No further work warranted.
- At **EM** there is weakly anomalous uranium to 16 ppm and the Pb isotope ratios in one rock chip sample indicate a contribution of uranium source lead to the system. The single hole drilled previously did not test the main radiometric anomaly.

Drilling at NE Myra identified a new zone of anomalous uranium. Drill holes TCNMD002-004 have tested over ~ 3 km strike with weak mineralisation in all three holes to a maximum of **0.5 m @ 453 ppm U** within broader (+10 m) anomalous zones. There is also anomalous gold in these intervals. In particular TCNMD004 which was abandoned at 42 m due to drill problems, ended in **0.5 m @ 282 ppm U plus 268 ppb Au**. The mineralisation is in the immediate hangingwall of a major east-northeast trending reverse fault with ~250 m of vertical displacement. The mineralisation is hosted within chlorite-altered units of the Myra Falls Metamorphics and is spatially related to extensive hematite breccias in both sandstone and basement.

Drill hole TCTPD001 confirmed the conductive basement feature identified in TEMPEST data in the north of EL2505 is due to narrow graphitic shear zones, with a weak uranium anomaly in granitic pegmatoid of 4 m @ 13 ppm U (U/Th= 6.13). There is also 0.36 m @ 23 ppm U, 7 m below the unconformity. However, this hole did not test the strongest portions of the conductive feature and further work is proposed.

TCGUD002 drilled at Gurrigarri East to test the inferred north-south structure with strong desilicification closest to the radon springs and strongest outcrop anomaly intersected weakly anomalous uranium (5 m @ 64 ppm, U/Th =5.6) immediately below the unconformity. However, the controls on anomalous uranium in outcrop (up to 413 ppm U) remain unresolved, and no further drill targets have been defined.

WORK COMPLETED 2005

Work in 2005 comprised: -

- Continued data compilation and review.
- A Sub Audio Magnetic (SAM) ground survey at **NE Myra**.
- TEMPEST at **NE Myra**
- Helicopter supported anomaly and target follow-up surface sampling and reconnaissance mapping (n=58).
- Stream sediment sampling mainly to check reliability of results from the AFMEX stream sediment sampling conducted in 1996-1997 (n=25)

- Core drilling (8 holes for 2546.8 m) at the **NE Myra, EM, Algodo** and the **TEMPEST** basement conductor anomaly.
- Aircore/RAB drilling 144 holes for 3,179 m at the **NE Myra** prospect.

All digital data have been submitted on CD/DVD with this report. In some cases geophysical data over culturally sensitive "NoGo" zones have been excised from figures and data in accordance with requests by Traditional Owners.

Data Compilation

Continued data compilation and review did not result in the location of any more data. In particular, details of the early work conducted by QML are mostly missing from the large number of miscellaneous reports obtained from AFMEX who in turn obtained the data from QML. This includes all mapping, sampling, trenching and surface geochemistry data. Percussion drill hole logs and sample geochemistry are the only complete data set. Other data compilation in 2005 mainly involved data entry for South Horn drilling to enable generation of cross sections and assist targeting.

Target and Anomaly Reconnaissance and Sampling

Comprehensive follow-up of targets identified in 2004 was planned for 2005, primarily in the NE Myra, Robbie's West and the larger Gurrigarri area. However due to lack of personnel/time little of this work was completed. The few low-order radiometric anomalies from the reprocessed data that had not been ground truthed in 2004 were deemed low priority as they lack other geological support –eg proximity to faults etc. Only radiometric anomalies in identified target areas were deemed warranting ground-follow-up.

A total of 63 field stations (TC05001-0010, TC050013-0028, TC050030-0032, TC050200-TC050233, TC050400-0414) were visited, data recordings made and sampled where warranted. This work was helicopter supported. An Exploranium GR110 scintillometer was used to collect radiometric data.

TC05_Field Station Descriptions
TC05_Sample Descriptions

Station Locations are shown on individual target scale maps in the results section. A total of 58 surface rock chip samples (prefix TC050001-0010, 0013-0022, 0025-0028, 0200-0213, 0215-0219,0222-0231, 0233) were collected from selected stations for geochemical analysis. Sample TC050210 is a field duplicate of TC05209. (Sample number protocols are explained in the 'Explanation of data' file.)

Abbreviations used and logging codes are in the Appendices

Logging Codes
Codes for Competency and Grain Size

Geochemistry Methodology

All samples were submitted to NTEL in Darwin for sample preparation and multi-element analysis (G400 and G950 analyses). A split of each pulp was submitted to North Australian Laboratories Pty Ltd in Pine Creek for Au, Pt and Pd analysis using Fire Assay with an ICPMS or ICPOES finish (either method is suitable). In total, four separate methods were used to analyse up to 65 elements and four isotopes as follows. In the initial batches of samples SiO_2 was also determined from a peroxide fusion digest, in order to get more accurate data than the present method of calculating silica from the other major elements and LOI. However these analyses appeared to be no more accurate than those calculated (i.e. total majors were 100% +/- 5%), so analyses for SiO_2 were abandoned.

Prior to 2005 basement samples and sandstone samples were prepared separately by different methods (see eg Parks et al., 2005). However due to problems with repeatability in the sandstone data (Garnett, 2005), a total preparation method for all samples was considered the preferred option. NTEL installed a preparation facility in early 2005 and this is now routinely used for all samples. Basement and sandstone samples are generally still submitted in separate batches to minimise risk of contamination in sandstone samples from the generally higher background levels of many elements in the basement samples. Sample preparation at NTEL involves initial drying at 110°C. The entire sample is crushed to a nominal 2 mm in a Boyd Crusher, then divided using a Rotary Sample Divider to give a ~300-400 g split. The split is milled in a Whisper ring mill to a nominal 75 µm. The material used on the crushing surfaces was selected to be free of contaminant trace metals (the major contaminant is iron) and this was confirmed in tests conducted by Cameco prior to submitting field samples. The Boyd Crusher is flushed with barren blue metal and the ring mills are flushed with garnet sand before and after each sample. The RSD is vacuum cleaned.

The pulp is digested using a mixed acid digest (G400 nitric, hydrochloric, perchloric and hydrofluoric) with a double dehydration with perchloric acid. The digest is read for a suite of elements listed in the appendix including total U, Th, Pb- isotopes chalcophile and rare-earth elements (REE) using either ICPMS (G400M) or ICPOES (G400I) depending on the element. LOI is measured at 1000°C. Boron is measured following peroxide fusion digest. A portion of each sample is then subject to a weak acid leach (Method G950), which is a dilute nitric acid digest. The sample is read using ICPMS for labile uranium and lead isotopes. It is important to note that with these weak partial leaches the data should not be used in an absolute sense

1. as the analyses are sensitive to length of time the sample is left in the digest
2. a small speck of uraninite in the sample will result in a very high result, that might not be repeatable

and should only be used relatively as ratios.. Details of analytical methodology are in the Appendices.

Geochemistry Methods_NTEL

TC05_Outcrop Sample Geochemistry Results

PIMA (Reflectance Spectroscopy)

Reflectance spectroscopy (PIMA) analysis was completed using the PIMA II short-wave infrared spectrometer on all samples collected. This instrument measures the reflected energy from a sample in the short wave infrared (SWIR) region of the energy spectrum. The sampling area on the rock specimen that is measured is permanently marked. Multiple measurements are taken on some samples, particularly if variations in spectral features are noted. The spectra are converted to an ASCII format and processed using "The Spectral Geologist" (TSG) developed by AusSpec International. The processed SWIR spectra provide a mineral identification using internal software pattern matching algorithms called "The Spectral Assistant" (TSA).

Unprocessed spectra are included as *.fos files in the Data Folder. Minerals identified using TSG are tabulated.

TC05_Outcrop_PIMA_TSA

Petrography

Forty-seven outcrop samples were submitted to Pontifex and Associates Pty Ltd in Adelaide for petrography.

TC05_Petrographic Report_1

Stream Sediment Geochemistry

A total of 25 stream sediment samples were collected (TC050029, 0034-0043, 0408-0410-0414). This was conducted mostly to check the reliability of previous stream sediment geochemistry conducted by AFMEX, in order to determine if the data could be used as a dependable targeting tool. There were unconfirmed reports of errors in original sample locations and irregularities in sample collection and preparation procedures. Of particular interest in the original data, the highest uranium and gold values were reported from a stream draining from the south of South Horn, i.e. it is not sourced from the known mineralised zone, indicating potential for another target in the area. There were no anomalies in streams draining from the NE Myra area.

In the 2005 programme, bulk –4 mm samples were collected from the active part of the stream, upstream from any risk of any overbank deposits from higher order streams. Samples were subsequently sieved to –40# (due to paucity of –80# fraction in most streams) at the Myra Camp Base. Samples (200 g each) were submitted to NTEL for analysis. It was noted at the stream south of South Horn where the high uranium and gold were obtained that there was a high percentage of organic matter in the sample, as the sample site was effectively a black soil swamp.

Analytical data have not yet been received and these will be provided together with description and location data in the next Annual Report.

Geochemistry Methodology

Sample preparation for the stream sediment samples included sieving to determine the proportions of +212 μm, +106 μm, +75 μm and –75 μm in each sample to enable the raw geochemical data to be normalised. Gold (and it is inferred also uranium) is weakly adsorbed onto clays in active stream sediments. Thus a sample with a high proportion of clay vs. sand is more likely to have anomalous gold. Consequently a sandy sample with low gold may be a more significant result than higher gold in a clayey sample once the data are normalised. The proportion of organic matter in the sample is also considered a factor as this also adsorbs uranium. Therefore LOI will be measured at 100° C (dry moisture), 250° (combined moisture), 550° (organic carbon) and 1000°. LOI of 550°result minus 250° result will give a measure of the organic carbon in the sample. Again a sample with high uranium and also a high LOI in this range is probably less significant than one with lower uranium and lower LOI. (High organic content may explain the high-grade anomaly south of South Horn).

The different size fractions for each sample will be analysed for the same geochemical suite using the same techniques as described for the outcrop samples.

Geophysics

TEMPEST at NE Myra

In May 2005, Cameco contracted Fugro Airborne Surveys Pty Ltd (Fugro) to undertake an airborne electromagnetic TEMPEST survey at the NE Myra prospect. The survey lines were oriented north-south, perpendicular to the main fault zone demarking the escarpment edge. The primary objective for TEMPEST is the identification of structure and conductors; the latter could relate to clays, porosity or graphite; indicative of alteration and/or fluid-rock interaction with potential to precipitate uranium. A flight line spacing of 200 m was used at a flying height of 120 m, for a total of 294 line km. Preliminary data was used during the planning of the 2005 drill campaign.

A logistics report is provided, which outlines the survey specifications and processing in greater detail (Owers and Stenning, 2005). Fugro has supplied the located data, images of stacked CDI (Conductivity Depth Image) sections along with multi-plots. Grids have been provided of the time constants along with time windows.

Logistics Report for TEMPEST Survey by Fugro

Time Constant (TAU) from Z Component
RGB = ZCh 1,4,8
Geology with TEMPEST Flight Lines

The CDIs are simple 1D inversions calculated using EMFlow with some inherent limitations, which can result in artefacts. Nevertheless, CDIs are the primary product used to visualise the TEMPEST response and to compare with plan and section geology. However, Cameco has also undertaken further processing of the CDIs using Profile Analyst software (Encom Pty Ltd) to calculate a 3D voxel, which facilitates the investigation of 3D features. This approach allows conductivity depth slices to be calculated as well as the depth to the first conductive layer, referred to as the "conductive unconformity". The 3D voxel has also been filtered to highlight conductivities greater than 10 mS/m and exclude conductivities within 80 m of the surface, which are likely to relate to cover and weathering rather than features within the basement. A number of these 3D aspects have also been reprojected to plan view to allow comparison with ancillary GIS (Geographical Information System) datasets including geology. The z-component data has been used extensively since it is less prone to noise and couples best with sub-horizontal features such as the sandstone/basement unconformity.

Geophysics – SAM at NE Myra

In August 2005, Gtek Australia Pty Ltd (Gtek) undertook a trial SAM survey over part of the NE Myra prospect. The survey was conducted one week prior to the 2005 RAB programme, which was too late to incorporate any specific targets. The survey was designed to image conductive structures (for the same reasons as TEMPEST) and was considered an orientation survey since it was the first time SAM has been used in Arnhem Land. There are some attractive aspects of SAM:

- High spatial resolution of 5 m along 50 m lines;
- Sensitivity to subtle conductive features due to current channelling (as long as they are sub-parallel to current electrodes);
- The magnetic receiver avoids potential electrodes (which can be time consuming and difficult in highly resistive environments); and
- It is logistically feasible along the escarpment edge (since current electrodes are placed along the structure strike).

The SAM survey was undertaken using a Zonge GGT-10 transmitter (Frequency 4.0 Hz) and a Geometrics G856 magnetometer. Lines were oriented 160 deg (perpendicular to the Myra Fault Zone) and the survey totalled 20.7 line km. The lines were positioned to provide coverage to the southeast (hanging wall side) of the fault and in some places the northwest extent was limited by escarpment topography. The survey was split into two parts with separate transmitters and then merged into the one grid. It is worth noting that the coherency of features within the resulting merge confirms the reliability and repeatability of the system, especially since the surveys had different currents electrodes and vastly different input currents (5 and 1.1 Amps). The logistics report further elaborates on the survey specifications and processing Gtek used to generate the EQMMR (Equivalent Magnetometric Resistivity) response indicative of conductivity and magnetic grids. The EQMMIP (Equivalent Magnetometric Induced Polarisation) was also calculated, however, this aspect of the SAM technology is still under development and the data are extremely noisy. The high quality EQMMR data is sufficient to utilise high-pass filtering methods such as first vertical derivatives, which are usually reserved for magnetics and particularly beneficial when identifying structure.

Logistics Report for SAM survey by GTek

Shortly after completion of the SAM survey Gtek went into receivership. Their demise was largely attributed to the ordinance portion of the business and their technology is likely to be spun-off into a new company.

SAM - EQMMR
SAM – 1st Vertical Derivative of EQMMR
SAM – Magnetics
SAM - EQMMIP

Down-Hole Resistivity

During the year Cameco purchased a resistivity probe from Auslog Pty Ltd (Auslog). The probe (model A614 / serial S599) is called an Electrical Array Log (EAL) with a slight modification to allow for extended ranges of resistivity. An attempt was made to log all the 2005 diamond drill holes at Tin Camp Creek, however, only TCD3003 and TCD3006 were found to be open.

The resistivity response for hole TCD3003 correlates well (inverse) with observed graphitic shears (< 50 ohmm), indicating this tool might be useful for identifying graphite, which in low concentrations is not readily apparent in the drill core. Also, as expected there is increased conductivity at the sandstone / basement unconformity (~ 300 ohmm). These two broad conductive zones correspond to conductive features in the airborne TEMPEST. It is interesting to note that according to the EAL tool the psammopelite at the top of hole TCD3003 is more conductive (1800 ohmm) than the psammopelite at the bottom of the hole (10000 ohmm). One possible explanation is differing texture, since the psammopelite at the top of the hole is more coarse grained.

TEMPEST ZCDI and Down-hole Resistivity for TCD3003
TCD3003 Down-hole Resistivity Strip-plot

Hole TCD3006 was probed to 137 m where it was blocked. Nevertheless, sufficient data was acquired to show that the banded amphibolite at this location is surprisingly conductive (~ 200 ohmm). Comparison with the geological logging indicates that the conductivities may reflect increased porosity due to intense faulting and fracturing, rather than increased alteration such as clays.

TEMPEST ZCDI and Down-hole Resistivity for TCD3006

Hyperspectral - Algodo

In 2004, De Beers Australia Exploration Ltd flew a hyperspectral survey over the Algodo project (EL 2517 and EL 9354) on behalf of Cameco. The HyMap MkI system was used, which is designed to map minerals and identify alteration. The survey was flown over sandstone with the objective of identifying variations in clay types such as kaolinite, illite, dickite, halloysite and iron and magnesium chlorites as well as silicification. These may be used to recognise alteration patterns potentially associated with unconformity-style uranium deposits. The survey is presented in this annual report because the final data were not received in time for the 2004 annual report.

Airborne Hyperspectral Logistics Report by De Beers - 2004

RAB/Aircore Drilling

RAB/aircore drilling was conducted at NE Myra on north-south lines a nominal 200 m apart with holes at 100 m spacing along the lines. Holes were located using a hand-held Garmin GPS. The drilling was designed to test:

1. the extent of shallow mineralisation concealed under widespread thick (~5 m) sand in the area south of the sandstone escarpment
2. for mineralisation associated with shallow conductors identified in TEMPEST data at two localities centred at ~326650E, 8625100N and 324400E ,8623400N.

An area in the central part of the prospect around TCNMD0002 drilled in 2004 was not tested due to extensive boggy ground in the area that precluded rig access. Drilling was conducted by Titeline Drilling Services (TDS) of Ballarat, Victoria using a GEMCO H13 RAB/aircore rig with a 250psi/600cfm onboard compressor mounted on a 4x 4 MAN truck. The drilling was intended to be mostly RAB with the aircore system used where running sands and puggy saprolitic clays were encountered. However, due to the time required to change between RAB and aircore the entire programme was conducted using the aircore technique.

Holes were drilled to refusal in recognisable saprock. All holes achieved this target apart from three holes which encountered quartz boulders in palaeochannels and two, which were terminated at +30 m in wet saprolitic clays due to the slowness of drilling in this material. Sample quality is generally very good. A total of 3,179 m was drilled in 144 aircore holes (TCB3009-3152). Drill statistics are in the Appendices and hole locations are shown on the plan.

TC05 RAB/Aircore Drill Summary
NE Myra, Geology, Drill Hole and Station Location Plan
NE Myra RAB/Aircore Drill Hole Location Plan

<u>NE Myra Access</u>

To enable rig access into the NE Myra area tracks established by Uranerz in the late 1980s in the southern part of the area were refurbished in part. New tracks and drill lanes were constructed in the main prospect area. New tracks were also put around badly eroded areas on the old tracks and areas of weed infestation (Annual Mission Grass, and Hyptis, although the latter was so widespread even away from the old tracks that avoidance was impossible.) Not all Annual Mission Grass could be avoided, mainly along the banks of Tin Camp Creek, and equipment wash-downs were conducted on exiting these areas. Annual Mission Grass was noted up to 3 km from any pre-existing tracks. All weed infestations were documented, and wash-downs photographed. Tracks are a single bucket width wide and were constructed using a loader operated by Wildman River Stock Contracting. A 'blade-up' technique was used with minimal removal of topsoil and vegetation, and construction of windrows was avoided. Causeways needed to be constructed across some of the creeks in the area, mainly the sandy Tin Camp Creek. Where water was flowing old drill pipe was laid under the causeway to enable continued flow of water. A total of 8.2 km of old track was refurbished and 9.2 km of new track and 12.5 km of drill lanes established in the NE Myra area. Tracks are shown on the drill hole location plan.

On completion of the drill programmes, the tracks and drill lanes were rehabilitated. This entailed removal of causeways, construction of erosion control banks ('Whoa Boys') at regular intervals depending on gradient and blocking the start of tracks to prevent casual wet season access by other parties.

Sampling Methodology

All holes were logged and sampled on site, and plugged on completion of each hole. Representative drill chips from each metre drilled are collected and retained in chip trays stored in the Darwin office shed. A bottom of hole geochemical sample and PIMA sample were collected from each hole (apart from one of the holes in a palaeochannel). Bottom of hole geology is summarised in the Aircore Drill Summary in the Appendices. Where sample media were scant the bottom two or three metres was composited as appropriate. An SPP2 scintillometer was used to measure the radiogenic response of each metre drilled. Where radiometric anomalies were detected additional geochemical samples were collected, generally >~50cps, but is dependent on rock type. Tin Camp Granite (in the south of the area) has a higher background of up to 100cps and sandstone is ~10cps.

There is extensive sandy transported regolith in the area. There is also a low-order radiometric response (~300 cps Urtec) in minor ferricretes developed in the west of the prospect area. For some holes the entire hole was sampled over composite intervals of like material. This was done to test for a possible geochemical response at a particular level in the regolith (i.e., dispersion, enrichment, depletion) due to supergene processes that might vector mineralisation in bedrock without the need for widespread RAB drilling to bedrock. Composite sampling of regolith commenced in the east of the prospect area, but due to a combination of time constraints and unconfirmed reports that a similar methodology used by QMC Nabarlek had produced negative results, this sampling was not completed.

A total of 279 samples were submitted to NTEL and geochemical analyses were conducted using the same methods as outlined previously for outcrop samples.

TC05_RAB/Aircore Drill Hole Geochemistry

Bottom of hole samples for spectroscopy were collected in plastic vials. These were air-dried and reflectance spectroscopy analysis was completed on dried samples using the newly purchased Terraspec ASD Spectrometer rather than the older PIMA machine. This instrument measures the reflected energy from a sample in both the short wave infrared (SWIR) region and VNIR (visible near infra-red) regions of the spectrum. The SWIR portion of the spectra was subsequently split off for mineral identification processing.

The spectra are converted to an ASCII format and processed using "The Spectral Geologist" (TSG) developed by AusSpec International. The processed SWIR spectra provide a mineral identification using internal software pattern matching algorithms called "The Spectral Assistant" (TSA).

Unprocessed SWIR spectra are included as *.fos files in the Data Folder. Minerals identified using TSG are tabulated.

TC05_RAB_ASD Terraspec (Reflectance Spectroscopy)

Core Drilling

A total of 2546.8 m was drilled in eight core drill holes (TCD3001-3008). A Drilling Summary is provided in the following table and drill hole locations are on the plan (NE Myra, Geology, Drill Hole and Station Location Plan). Drill holes were located using a Trimble DGPS.

TC05 Core Drilling Summary

Four holes were heli-supported due to access difficulties and four holes at NE Myra were land-based. Drilling was conducted by TDS using a CS1000P4 rig. It was originally planned to conduct land-based RC/core drilling using a UDR650 at NE Myra, but due to lack of availability of this rig at the time it was required the CS1000 rig was used which lacked RC facility. Rotor Services, (Jayrow) Darwin provided the helicopter support, using a Longranger helicopter.

Down hole surveys were carried out at 50 m intervals using a Reflex digital camera. Down-hole core orientations were carried out every 3 m core run using the digital ACE Core Tool.

Sampling Methodology

Mineralised or anomalous intervals (generally as determined from the down-hole gamma log) are sampled as nominal 0.5 m 'SPLIT' samples. The remainder of the hole is composited over nominal 5 m intervals (10 m for dolerite). Sample intervals for the 'COMPOSITE' and to a lesser extent the grade samples are determined from lithological and/or alteration boundaries by the geologist logging the hole. Due to difficulties in obtaining representative samples of sandstone where there are zones of complete chlorite replacement, two samples were collected over certain intervals. This applied to TCD3007 where from the same nominal 10 m interval a sample(s) of massive chlorite rock was collected and also a sample of relatively non-chloritised sandstone. Routine sampling from every row of core involves selecting a 10 cm section that is most representative of the rock in that row and preferably avoids all veins and faults etc that might bias the results. This 10 cm section is halved using a core saw. One 5 cm half-core sample contributes to the 'Composite' geochemical sample and the adjacent 5 cm sample along hole is used for magnetic susceptibility and PIMA measurements. PIMA methodology is the same as that described in the target and Anomaly Reconnaissance and Sampling section. The core portion that is subject to PIMA is retained and transported to be stored within the Cameco storage facility at the Darwin warehouse. All PIMA *.fos files are in the Data folder, and the mineralogy as determined using the Spectral Assistant are in the Appendices.

TC05_PIMA_Drill Core

Selected samples (46) were also collected for petrographic description. Petrography was carried out by Pontifex and Associates Pty Ltd, South Australia. TC05_Petrography_1.
TC04_Petrography_2

NTEL carried out the geochemical analyses, using the same methods as described under Geochemistry Methodology in the previous section. Both 'Composite' and 'Split' samples are analysed for the same suite of elements. A total of 591 samples were submitted for geochemistry.

TC05_Drill Core Geochemistry

RESULTS, 2005 PROGRAMME

Target and Anomaly Evaluation and Sampling

Results are described by target area.

NE Myra

The NE Myra target area covers a major east-northeast trending reverse fault, which dips south. Sandstone to the north is juxtaposed against basement to the south. There are several radon springs and black soil anomalies along the fault. RAB holes drilled by Uranerz to the west of EL2505 have up to 25 ppm U in weathered chlorite altered basement to the south of the fault. A single core hole drilled by AFMEX failed to test the main fault but intersected some chlorite alteration in sandstone and basement. The major northeast trending structure ('NE Myra Fault Zone') was interpreted as a priority target by Cameco due to the favourable combination of +250 m displacement on a major structure, chlorite alteration, weak uranium anomalies and radon springs.

Fieldwork by Cameco in 2004 to define drill targets covered all but the eastern 1 km of the structure. A north-northwest trending fault near the eastern end of the prospect and the tenement boundary was also investigated. Details of this work are reported in Parks et al (2005) and are not repeated here.

Fieldwork planned for 2005 mainly involved; completion of reconnaissance along the eastern extent of the main structure, further investigation of a weak uranium anomaly in the north-northwest structure and investigation of possible targets such as interpreted faults and anomalies in TEMPEST data, mainly in the west of the prospect area and to the north of the main fault. However, none of this work was completed apart from some ad hoc observations during track and drill hole positioning and during the RAB programme. A single sample (TC050222) was collected of Mt Howship Gneiss to the south of the main prospect area as shown on the NE Myra Drill Location Plan. There is no anomalous geochemistry in this sample. (NE Myra, Geology, Drill Hole and Station Location Plan).

Work in 2005 determined that the NE Myra fault does not appear to extend east of 326,160E~ where a linear north-northwest spring-fed creek emanates from the sandstone. The creek is interpreted to be fault controlled. To the east of here the unconformity is exposed about 50 m up the slope below the escarpment. In the area of TCD3007 the surface geology as shown in Government mapping is incorrect. The distribution of outcropping sandstone and basement is different and cross-faults are not shown correctly. Further work is needed to clarify the complex geology here, and the geology map in this report has not yet been corrected. Mt Howship Gneiss crops out in one locality in Tin Camp Creek (TC050022) about 1.6 km south of the outcropping ridge of Kudjumarndi Quartzite. More regionally at NE Myra to the west of the main prospect there is strongly silicified sandstone at ~319100E 8622300N in an area where regional mapping shows soil covered basement. The sandstone appears to be in-situ rather than relics from escarpment retreat. However this needs to be checked more closely, with implications for mineralisation assessed.

Mordijimuk-Gorrunghar-Gurrigarri (MGG)

This target area covers three prospects discovered by QML in outcropping basement in the northeast of EL2516. Details of the prospects are in Parks et al., (2005). All three prospects are well exposed in erosional domain regolith and the mineralised zones and adjacent alteration are restricted in areal extent. It is considered that if there is significant mineralisation present then there would be stronger surface indications, unless the mineralisation occurs as a steeply plunging shoot, for which there is little evidence in either ARUF style of deposits in general or at these prospect areas. The area was targeted based on the premise that the widespread anomalous uranium in basement was indicative of uranium mineralisation obscured by sandstone to the north and east of these prospects, although precise targets were not defined. Results from work in 2004 including geochemical anomalies mainly in basement, but also subtly in core. Identification of faults and radon springs in sandstone up-graded the general area, although precise targets were not defined.

Work proposed for 2005 involved follow-up of geochemical, structural and TEMPEST anomalies in order to define targets in the area. The only field work completed was follow-up of the TEMPEST anomaly in the northeast of EL2516 (TEMPEST04_07) which is evident as a subtle basement conductor dipping toward the east and striking north along a lineament interpreted as a fault and described in the 2004 report (Parks et al, 2005). This TEMPEST target is on the east side of another TEMPEST target TEMPEST04_06, which is a subtle doming of the basement. These changes in unconformity elevation are considered important for localising uranium-bearing fluids in the Athabasca Basin. On the west side of the domal feature is the northwest trending fault in sandstone mapped in 2004. The fault is not evident in TEMPEST data indicating there is no vertical displacement and the fault is dominantly strike –slip although the northeast tilted sandstone along the fault suggests some vertical movement. A total of 17 stations were visited with 17 samples collected (TC050003-0010, 0203-0211). Reconnaissance was attempted over the domal feature, however access into this area was difficult.

Gurrigarri Northeast_Geology and Station Locations

Geology: There is no evidence for faulting along the north-trending lineament coincident with the basement conductor TEMPEST04_07. Outcrop is poor along the creek valley however one pavement was exposed, which had no faulting. There is no breccia float or similar that may have supported the existence of a concealed fault. At the base of the valley, which is interpreted from TEMPEST data to be within 100 m of the unconformity the sandstone is medium to coarse-grained with local pebbly horizons. Minor quartz dissolution and patchy hematite was observed. Two further samples were collected from the northwest fault mapped in 2004 (TC050009-TC050010). The fault breccia (TC050009) from the northwest creek is described in the petrographic report as a milled breccia.

Geochemistry. There is no anomalous uranium or any other element in the 17 samples collected.

Algodo

Algodo refers to EL2517 and EL9354 located in the southwest of the project area. The historic Algodo prospect is located to the west. There are two major structures cross-cutting this area, the northwest trending Bulman Fault and east-west trending Beatrice Fault. The east-northeast trending Caramal fault cuts through the north part of EL2517 but is within a NoGo zone. There are no significant results in the three holes drilled previously by AFMEX, but these holes failed to intersect the target Bulman and Beatrice Faults. In 2004 Cameco conducted follow-up along structures, subtle radiometric anomalies in sandstone and TEMPEST targets. Up to 499 ppm U was obtained from altered dolerite outcrop in the Beatrice Fault. Minor base-metals but no uranium was obtained from a northwest fault to the south of this identified in TEMPEST data.

Fieldwork in 2005 was restricted to collection of three samples (TC050030-0032) during field investigation of a TEMPEST target (TEMPEST04_15) for possible drill testing in 2006. This target is a northeast trending sub-unconformity conductor that dips gently to the southeast and converges with the Beatrice Fault on the northern end. This conductor may be due to alteration/weathering on the margins of the Oenpelli Dolerite and which is coincident with the TEMPEST feature.

Algodo Geology, Drill Hole and Station Locations

Geology. Is discussed in the geology section under drilling

Geochemistry. There is no anomalous uranium in any of the three samples. There is 4 ppb Au in TC050032, from siltstone (shown in Government mapping as Edith River Volcanics?) basal to the sandstone, which is weakly anomalous. A sample of siltstone from a layer within the lower Mamadawerre Sandstone has anomalous Li of 118 ppm.

Robbie's West

Robbie's West is the name for the five isolated blocks of EL2505 located south of EL2516. To the immediate east of the tenement boundary is Robbie's, which is a prospect discovered by AFMEX where a single rock chip has 110 ppm U and 240 ppm Cu. No work had ever been conducted in these blocks until the work of Cameco in 2004. There are some weak stream sediment anomalies to the north, which drain from the tenement and a few weak radiometric anomalies. The main feature of interest in the tenement is the east-west Caramal Fault zone which cuts through the area to the north of the escarpment along the unconformity. The absence of strong radiometric or geochemical anomalies and the generally well-exposed and benign nature of the unconformity suggests there is no mineralisation associated with the obvious target. Government mapping indicates a major north-south fault in the central part of the target area, which is another possible target. Given the lack of previous work and potential for structurally controlled concealed mineralisation some field investigations were considered warranted prior to any relinquishment.

A sample collected in 2004 (TC04C10416) contains 1030 ppm uranium, 827 ppb Au plus other anomalous metals. The sample was from a north-south trending quartz breccia in basement with radiogenic iron oxide coatings on a fracture surface. The geochemical signature of this sample is dissimilar to other samples with anomalous uranium in the project area (Garnett, 2005) and it was interpreted that the uranium might be not be related to the main mineralising event. AFMEX had proposed previously that the quartz breccias were pre-sandstone and not related to mineralisation, although several prospects are spatially related to unmineralised quartz breccias. Another possibility is that the quartz breccias are pre-sandstone but these faults have acted as fluid conduits during mineralisation.

Work proposed for 2005 consisted of:

- Further systematic follow-up of areas not traversed in 2004 work, i.e. west from ~305,800E to investigate possible uranium associated with 1) mapped faults, 2) weak radiometric anomalies 3) the unconformity exposed at the base of the escarpment
- systematic sampling of boulders of quartz breccia within the basal conglomerate of the Mamadawerre Sandstone. These boulders had been incorporated in the sandstone pre-mineralisation: if they are mineralised it would provide evidence that mineralisation in quartz breccia outcrop is pre-sandstone and probably of no further interest. However lack of mineralisation in the quartz breccia boulders is not necessarily evidence of the converse as mineralisation in the quartz breccias is characteristically spotty and restricted.

Systematic reconnaissance extended less than 1 km west of the 2004 work. There was also some follow-up of a stream sediment anomaly located below the escarpment at ~301,300E. No samples of quartz breccia boulders were collected although there are several samples of the basal coarse-grained Mamadawerre Sandstone from immediately above the unconformity. A total of 35 Station Locations are documented (TC050013-0026, 0212-0221, 0223-233) with 31 samples collected for geochemistry. Station locations and geology are shown on the accompanying plans.

Robbie's West Geology and Station Locations

Geology: The geology of the area is mostly unaltered and undeformed. The sandstone dips gently south from the escarpment edge. The unconformable contact between basement and overlying sandstone is generally well-exposed. The north margin of the sandstone as shown on the geology map needs to be adjusted and moved south about 200 m consistent with the sample locations, which are mostly near this contact. Kudjumarndi Quartzite forms an expansive gentle to moderately south dipping dip slope through much of the area. However it is not as extensive as shown on government mapping, and does not appear to extend south to the unconformity although contacts were not observed/mapped. Metamorphic tourmaline was noted in outcrop and also petrography of one sample of quartzite (TC050021) although boron is low in the analyses. The quartz-mica schist directly below the unconformity appears to range from psammopelite to pelite to possible weathered amphibolite (TC050020 and 0028). The sandstone throughout the area is remarkably undeformed, with no alteration evident in traverses to date. One exception is the north-north-west fault central to the area marked by a recessive embayment in the escarpment. Silicification and brecciation was observed in the sandstone base to the creek that marks the fault to the south.

Minor evidence for the Caramal Fault zone was observed in an east-west creek that runs along the inferred trace. At station TC050215 there is evidence of a fault parallel to S0/S1. It is characterised by disrupted foliation and rotation of quartzite clasts and a possible reverse thrust is inferred. Petrography confirms some brecciation is present with minor hydrothermal quartz. Brecciation was also apparent at stations TC050212 (TC050022) and TC050216. Petrography indicates desilicification in TC050216.

Geochemistry: The most anomalous samples from the 2005 reconnaissance programme are from the Robbie's West area, and are not restricted to quartz breccias. Eight of the 31 samples have anomalous uranium (U:Th>1). Highest uranium is 52.3 ppm, (Th = 4.1 ppm) from possible weathered amphibolite immediately below the unconformity in TC050028, the next highest uranium of 16.4 ppm (Th = 3.8 ppm) is also from weathered amphibolite in TC050020. These samples also have the highest lithium from this prospect with 681 ppm in TC050028 and 117 ppm in TC050020. Both also have weakly anomalous As (10.5 ppm and 6 ppm), Be, 18.9 ppm and 5 ppm. Other anomalies in TC050028 are 77 ppm Pb, 251 ppm Ni, 133 ppm Cu, 11 ppb Au and 19.5 ppm W. Other anomalies in basement rocks are up to 192 ppm As in TC050002 (quartz breccia); several other samples have weakly anomalous As to 21.5 ppm. TC0500217 has possible weakly anomalous Ag to 0.5 ppm with 15 ppb Au, 42.5 W and strongly anomalous Zn of 2960 ppm in the same sample. Highest Zn is 9260 ppm in TC050216 –the desilicified deformed sample from near the Caramal Fault zone. A few samples have weakly anomalous tungsten with 196 ppm in TC050022 a quartz breccia from near the Caramal Fault Zone. The sandstone samples in this area are a little unusual as several have weakly anomalous As to 10.5 ppm and Ag to 0.65 ppm. There is also possibly weakly anomalous Au to 4ppb in three of the samples and up to 8.8 ppm W in four samples. These are all from coarse-grained sandstone in the basal boulder conglomerate.

EM

A single hole drilled by AFMEX to test a conductor in the western part of EL2516 intersected significant sulfides (percentage not documented) with up to 536 ppm Cu and 1330 ppm Zn plus arsenopyrite, pyrite and pyrrhotite but no uranium. The rock types intersected are dominantly schistose locally garnetiferous psammite, psammopelite and minor amphibolite, with unaltered staurolite bearing schist at the end of the hole. Minor graphite is also present in one interval. Petrography shows the rock types are similar to those at Two Rocks, which is within the Lower Cahill Formation. Further analysis of the AFMEX data (Bisset, 1999) indicates that although the single hole drilled tested the conductor it probably did not test the main radiometric anomaly located ~400 m to the east. Minor reconnaissance and sampling was conducted in 2004. The radiometric anomaly was tested in 2005 by a single drill hole described in Drilling Section of this report.

Field reconnaissance in 2005 was conducted to determine if weak anomalies obtained from 'laterite' in 2004 were from transported or in-situ regolith. AFMEX had logged 5 m of 'cover' in the drill hole so the former was considered more likely. A subtle anomaly in transported regolith is more significant than one in situ. Five field stations were documented (TC050001-2, 0200-0202) with five samples collected in the vicinity of the airborne radiometric anomaly.

EM, Geology, Drill Hole and Station Locations

Geology: There is no outcrop in the area, which gently slopes to the north. There is common float of weathered gossanous quartz-mica (hematite) schist, and quartzite. Some float blocks are up to 1 m and are probably remnants from scarp retreat of the Kudjumarndi Quartzite ridge located to the immediate south. The localised subcrops of ferricrete in the area are demonstrably transported sediments with angular fragments of quartzite, quartz and pisoliths with pale cutans. No Mamadawerre Sandstone is present as documented in the 2004 report. Further discussion of the geology is in the drill section.

Geochemistry: Four samples of variably gossanous, ferruginous quartzite float and one sample of pisolithic ferricrete were analysed. There is no anomalous uranium but there is up to 1190 ppm Pb, 225 ppm Cu, 908 ppm Zn, 9.3ppm Mo and 15.5 ppm As in the basement samples. The ferricrete sample has 39 ppm As, and 4 ppb Pt is also weakly anomalous.

Geophysics

TEMPEST at NE Myra

The figures show comparisons between TEMPEST ZCDIs (no vertical exaggeration and 100 m ticks) and geology; both in plan-view and sections. The NE Myra Fault Zone is characterised by a 200 m change in the elevation of the conductive unconformity with the north side down. The fault is known to be "reverse", however, the TEMPEST response appears "normal". It is probable that this apparent response is because the subtle conductive unconformity in the footwall is being masked by surface clays and weathering in the hanging wall. 1D inversions may also fail in this situation where the geometry is complex.

One peculiarity of the NE Myra TEMPEST survey is that the conductive unconformity appears unusually disjointed. The normally coherent response appears dislocated as if there are sub-vertical faults or a complex interplay of sub-horizontal features (i.e. low angle graphitic basement or structure). Fugro Airborne Surveys were contracted to undertake some alternate 1D inversions of selected NE Myra lines. These alternate algorithms appear to ratify the EMFlow results and the Zhody inversion also indicates a second sub-horizontal conductive layer near the unconformity (dipping to the north) could be present. Comparisons between TEMPEST and geology for hole TCNMD0001 reveals that the disjointed conductive unconformity response may relate to faulting in the sandstone (unknown orientation) rather than the usual sandstone/basement unconformity or graphitic basement. As discussed, down-hole resistivity collected for the top of hole TCD3006 (hanging wall) appears to confirm that increased conductivity (< 200 ohmm) may relate to faulting (i.e. permutations in porosity).

TEMPEST ZCDI and Alternate Inversions
Selected TEMPEST ZCDIs and Plan Geology
TEMPEST ZCDI and TCNMD0001 and TCNMD0003
TEMPEST ZCDI and TCD3006 with Down-hole Conductivity

As discussed, the NE Myra Fault Zone is associated with an abrupt change in the elevation of the TEMPEST conductive unconformity. Towards the east, the fault zone appears in the plan-view geology to bend northward in proximity to outcropping granite. In this area the conductive unconformity shows a broad dome shape. This is complicated by the 2005 field observation that there is no evidence for the fault along the escarpment edge here, with the unconformity exposed ~50 m up the escarpment face.

Targets

Conductors can be difficult to reliably identify with 1D inversions due to artefacts and tails related to edge effects. However, geometry, line-to-line consistency and x/z characteristics help to increase confidence that conductors are real, especially in the context of known geology. Eleven targets have been identified and prioritised from 1 (high) to 5 (low), with rankings 1-3 being considered most prospective. Several of the 1-3 ranked targets were tested during the 2005 drilling campaign and are discussed in the drilling section of this report. The remaining targets should be considered in the context of the ongoing evaluation of the prospect.

TEMPEST Targets

SAM at NE Myra

The EQMMR response is dominated by three sub-parallel linear conductors, oriented east-northeast and separated by approximately 250 m. Two of these conductors are located either side of the outcropping quartzite that dips near vertical and is mapped as Kudjumarndi Quartzite. The third adjacent conductor is located a little further to the north. Unfortunately, a comparison with the core and RAB drilling has failed to elucidate the origin of these conductors, since graphite and sulfides are scarce. Structure is difficult to identify in RAB, however, the structural indicators that we do have (e.g. quartz or increased drilling depth due to increased weathering) do not seem to correspond with the linear conductors. Amphibolites have been identified close to the linear conductors by QML in the Nabarlek area to the north. It is possible that less quartz means amphibolites weather more readily to conductive clays than adjacent psammopelitic rocks; however, fresh amphibolite is not conductive. Alternatively subtle mineralogical banding and/or rheology contrasts are associated with the banded amphibolites. These may provide the necessary resistivity contrasts to control the electrical current flow, even though the overall conductivities may remain relatively low.

There are several structures that can be inferred from dislocations and disruptions in the EQMMR response. In particular, there are two prominent inferred faults, which are apparently left-sinistral and oriented 147 deg (~60 m offset) and 021deg (~230 m offset); oblique to the main NE Myra Fault Zone. The former is located close to the eastern edge of the survey and the latter is 400 m or further to the west. Many minor lineaments can also be identified and more exhaustive attempts could be made to identify these as appropriate in the context of perceived prospectivity.

There are relatively minor magnetic variations at NE Myra (< 50 nT) so the signal to noise is relatively low. In fact the SAM magnetic survey is far noisier than the existing low-level airborne magnetics (50 m lines, 30 m flying height), which is probably because the sensor is affected by surface material and/or is less reliably oriented. There is a dipolar magnetic body 300 m southeast of TCNMD0002 and there are some other subtle responses sub-parallel to the quartzite. However, these cannot be related directly to known geology derived from the existing drilling or the above-mentioned EQMMR structures.

Targets

Increases in conductivity or induced polarization may indicate clays and sulfides associated with alteration. Two such targets have been identified as a medium priority, although they are not associated with any known or inferred faults. Similar but more tenuous anomalies have also been identified are not recommended for follow-up and have been given a lower priority (3).

SAM Interpretation with Geology

Conclusion

It has been difficult to correlate the EQMMR response to RAB geology, which is puzzling since there appears to be some excellent geological and structural aspects. It was inferred initially that the linear conductive zones correlated with amphibolite, but this does not appear to be the case and the linear conductors are coincident with several different rock types, and no particular alteration or weathering.

There are some broad similarities between the EQMMR and existing airborne electromagnetics (TEMPEST and DIGHEM). However, it is interpreted that in this area the airborne electromagnetic surveys are not penetrating the cover and SAM may be responding better to the basement features below. In addition, SAM has the advantage of detailed spatial resolution and sensitivity to subtle resistivity contrasts, albeit heavily reliant on the placement and orientation of current electrodes.

SAM EQMMR and Airborne Electromagnetics
SAM EQMMR and TEMPEST ZCDI

Whilst partially unexplained and confirmed, the linear conductors and inferred faults derived from the SAM EQMMR are thought to be real and represent potentially valuable information that cannot be derived from other sources. In this regard the trial SAM survey has been successful and further surveys are worth considering so long as ground access can be achieved and the orientation of conductive trends are relatively predictable.

Hyperspectral - Algodo

Gerard Zaluski of Cameco Corporation completed the interpretation report of the hyperspectral data collected from the De Beers survey, which is shown below.

Processing and Interpretation of De Beers Hyperspectral Scanner Data for Algodo

The clay mineral distributions mapped by hyperspectral remote sensing in the Algodo project area exhibit a similar pattern to that observed in previously surveyed areas of Arnhem Land. Illitic clays characterise the basal sandstone exposed along the edges of the escarpment. Although three different illite group phases can be identified and their distributions mapped, it is uncertain what their significances are. Dickite is present in discrete sandstone horizons overlying the basal illitic unit. This is commonly accompanied by illite in mixtures and may be overlain by illitic units. Kaolinite is present as a widely distributed weathering product but may also represent later, low temperature hydrothermal alteration, particularly where accompanied by illite proximal to fault zones. Neither chlorite nor pyrophyllite end members were identified in either flight line. If present in this area, it is believed that they are not exposed at the surface.

Ferruginous soils or ferricrete appear to have been identified in specific areas in the southern part of the project. These correspond well to greenish zones of the 20,10,3 as RGB false colour composite, indicative of high Fe contents. Although subject to producing false anomalies in vegetated areas due to the rather indistinct spectral profile, this may prove useful for identifying radiometric anomalies associated with ferricrete horizons.

Efforts were made to discriminate between clay mineral distributions, which appear to be stratigraphically related from those, which may be alteration, related (crosscutting the sandstone). This is difficult, however, because of the scale at which the clays may vary. Obvious patterns can usually be interpreted from the reflectance bands, however subtle patterns may be missed. The most obvious target areas in Algodo are where the east-northeast trending faults crosscut the sandstone as well as along the Bulman Fault Zone. Close-up examination was therefore undertaken of the clay mineral distributions in these areas, looking for anomalous patterns and locally stronger signatures. Unfortunately, the local, stronger clay end member signatures observed appeared to be consistent with differences in stratigraphic exposure. More detailed analysis of this data should be undertaken with input from other data sources, including observations by field staff, geochemical data, and targets identified from project scale geophysical data.

Targets

Exploration targets based on clay mineralogy may represent either point targets of anomalous phases diagnostic of alteration/mineralisation processes or more regional scale alteration patterns in which the former may be found. Since no unique phases such as dravite or chlorite were found in the Algodo survey area, targets are restricted to the latter type. These types of targets are more problematic in identifying as it is often uncertain whether they reflect mineralisation processes or other district-scale patterns. As a result, recognition of such anomalies is based on an understanding of their geological relationships. The attached report outlines seventeen possible exploration targets based on the clay signatures. Many of these targets were found to be in NoGo zones and were not followed up.

RAB/Aircore Drilling, NE Myra

The aircore drilling successfully provided a preliminary test of the shallow mineralisation potential in much of the NE Myra area apart from the environs of TCNMD0002. The drilling also provided additional geological information although this is not presently as useful as hoped.

Geology

The RAB drilling shows the Tin Camp Granite extends further north into the prospect area than previously inferred particularly in the western part of the area drilled (e.g., TCB3134). Mt Howship Gneiss appears to be absent from the immediate prospect area, although quartz-feldspar gneiss is logged in some holes. The stratigraphy either side of the Kudjumarndi Quartzite ridge is similar, i.e.

psammopelitic rocks and some amphibolite; the latter is more prevalent to the north. Granite occurs on the south of the prospect area. A few amphibolites are of calc-silicate affinity. Minor graphite was recognised in only one drill hole (TCB3121).

Rock-type recognition in the drill cuttings was typically problematic and exacerbated by three separate geologists logging the holes. An attempt was made to use the geochemistry and to a lesser extent TSG data to distinguish rock types, in particular amphibolite from other dark 'schist'. However this was only of limited success as normalised rock type data is not available for most of the rocks. The chips in many intervals are a blend of rock types and hence geochemistry. TSG data shows most of the rocks have dominant montmorillonite and in places nontronite and chlorite and other clays expected in the weathered zone. This indicates that even the seemingly 'fresh' samples are actually saprock. It is inferred that the nontronite is probably derived from mafic or amphibolitic rocks. Logs of the strongly weathered regolith portion of the drill holes also require refinement; for example the distinction between transported and in situ regolith was generally not made. In many cases it is difficult to determine the exact depth of this interface but it is important to recognise for interpretation of possible pathfinder elements in the regolith. It will be necessary to re-log the drill cuttings in the chip trays with the assistance of a binocular microscope and geochemistry; selected problematic samples will be submitted for thin section petrography. This revised geology data should be available in the next Annual Report.

The two shallow conductors identified in TEMPEST data and tested in the RAB drilling remain unexplained. There was nothing in the geology (e.g., graphite, sulfides, deeply weathered saprolite etc) or depth of cover that might explain the increased conductivity in these areas.

Geochemistry

Results from the RAB drilling show widespread anomalies in several elements in the area. Uranium is anomalous (U:Th>1) in 44 samples in 18 of the holes drilled. There is a maximum result of 132 ppm U in TCB3142. The only anomalous uranium in the south of the prospect area is in TCB3049, logged as granite, which has 89 ppm U (10 ppm Th). The distribution of the anomalous uranium and other elements are shown on the plots.

TC05_RAB/Aircore_Anomalous U/Th
TC05_RAB/Aircore_Anomalous Au
TC05_RAB/Aircore_Anomalous Cu
TC05_RAB/Aircore_Anomalous Zn
TC05_RAB/Aircore_Anomalous Ag
TC05_RAB/Aircore_Anomalous Pb
TC05_RAB/Aircore_Anomalous Pt
TC05_RAB/Aircore_Anomalous Li
TC05_RAB/Aircore_Anomalous Sn
TC05_RAB/Aircore_Anomalous B

The maximum gold is 154 ppb in TCB3119 with 16 samples in 12 holes reporting >4 ppb. Anomalous gold has a wider distribution than anomalous uranium. Copper and zinc are also anomalous in places, but generally not in the same holes as those with anomalous uranium. Copper is >100 ppm in 18 samples in 11 holes to a maximum of 815 ppm in TCB3118. Zinc ranges to a maximum of 1140 ppm in TCB3010. There is a clear relationship with sulfides in many of the holes with anomalous copper and zinc. Seventeen samples have >200 ppm Zn. Maximum Ag is 3.4 ppm in TCB3118, which also has anomalous zinc and the maximum copper. Six samples in five holes have strongly anomalous Pb of >280 ppm, with a jump to the next most anomalous sample at 70 ppm Pb. Maximum Pb is 747 ppm in colluvium in TCB3013, with 386 ppm in the underlying interval logged as granite veined psammite. Most of the weakly anomalous lead plots in the south of the area, showing a relationship to granite rather than uranium mineralisation. Arsenic is weakly anomalous in several samples to 33.5 ppm in TCB3097. Platinum and palladium anomalies show a similar distribution with maximum values of 35 ppb Pt and 141 ppb Pd reported from the same sample in TCB3131. There are five samples with >9 ppb Pt and a further 21 with >2 ppb Pt. Lithium ranges up to a maximum of 156 ppm and elevated lithium shows a good correlation with anomalous uranium. Tin is anomalous with a maximum of 55.4 ppm and 21 samples reporting >10 ppm. There is no direct correlation with anomalous uranium or with granite, but generally the anomalous samples plot in the north of the area near the uranium mineralisation and not in the south near the granite. Typically samples logged as granite do not have anomalous tin. Tungsten is anomalous to 38.5 ppm but does not correlate with tin. Nickel is probably anomalous in some samples, but as the data have not been normalised for rock type and highest nickel tends to be in amphibolite, these anomalies are not yet defined. Similarly cobalt and vanadium may be anomalous. One unusual sample is from TCB3105, which has 825 ppm Ni, and also high Co, Cr, TiO_2 and V. Boron may be anomalous in places to 480 ppm, but presence of detrital tourmaline needs to be checked, again higher B plots in the north of the area showing a spatial association with the uranium rather than granite.

Core Drilling

A summary description of each hole drilled is provided in this section and linked to relevant cross-sections, and drill hole logs. Geology codes used are in the Appendices. Core photographs for all holes are included as *.jpg files in the Figures. Magnetic susceptibility measurements for all holes are in the Data folder. Strip plots showing down-hole geochemistry are in Figures in the 'TC05_Drill core' folder.

Petrography for core samples from TCD3001-3006 is in the first petrographic report and for TCD3007 the second report.

Algodo

Two drill holes were completed for a total of 738.8 m, one each targeting the major Bulman and Beatrice Faults that transect the area. .

TCD3001

The target for TCD3001 was uranium mineralisation associated with the northwest trending Bulman Fault in EL2517. From sparse exposures the fault was interpreted to be dextral and to dip subvertical to steep northeast. TEMPEST data shows there is no significant displacement along this fault although a subtle down-warping is observed. The hole was designed to intersect the unconformity at the intersection with the fault. The Bulman Fault was intersected considerably higher in the sandstone than interpreted due to a shallower dip (~65°) of the fault.

The hole was terminated at 337 m, with the unconformity intersected at 226.2 m.

The sandstone down to 220.9 m is generally strongly bleached and weakly desilicified in places. There is minor pink hematite. Some diagenetic hematite remains closer to the unconformity, below ~203m. The fault zone is evident as a damage zone from 138 m to 220m, with more intensely fractured intervals within this and localised milled breccias and silica-healed breccias over intervals of up to 2 - 3 m. Breccias are monomict (sandstone). At 220.9 there is a sharp contact to purple siltstones and sandy siltstone with graded bedding. There is a shear at 223.8 m that separates the siltstone from basal conglomerate that extends to the unconformity. The conglomerate contains large quartz clasts that have an aligned fabric. The siltstones at the base of the Kombolgie Formation were initially considered to be part of the Edith River Volcanics as shown in government mapping in the area. However, the siltstone occurs above the basal conglomerate in this hole. Petrography further shows there is no volcanic component in these siltstones. Other evidence that these siltstones are better interpreted as part of the Kombolgie Formation and not the Edith River Volcanics is in TCD3002.

The basement rocks consist dominantly of quartz-muscovite-biotite-garnet (staurolite) schist with two minor para-amphibolite units, which have all been assigned to the Nourlangie Schist. Red-green zone with minor hematite-chlorite alteration extends to 232.2 m with only minor chlorite below this.

TCD3001 Detailed Drill Hole Log

Geochemistry. There is no anomalous uranium in this drill hole. The Bulman Fault Zone is characterized by increased Al_2O_3, Fe_2O_3, K_2O, Rb and Sr. These increases probably correlate with increased sericite (and kaolinite) on fractures/faults and in sandstone matrix. K_2O increases markedly in the siltstone and immediately below the unconformity. Petrography confirms the large amount of sericite just above the unconformity. Increased iron reflects hematite. Increased P_2O_5, TiO_2, LREE and Hf are possibly the result of desilicification of the sandstone with removal of silica and relative enrichment of resistate heavy minerals such as apatite, zircon and rutile. Anomalous sulfur (up to 2040 ppm) around the unconformity correlates with increased pyrite on fractures from 217 to 319 m. Boron also increases around the unconformity between 220.9m –256 m to >100 ppm. (This needs to be checked with possible detrital tourmaline in the same interval).

TCD3001 Base-Noble Elements
TCD3001 Major Elements
TCD3001 REE Elements
TCD3001 Other Elements

TCD3002

TCD3002 targeted the Beatrice Fault in EL9354. This fault is associated with uranium mineralisation to the east at South Horn, and up to 499 ppm U had been obtained in altered dolerite outcrop within the fault in 2004 sampling. TEMPEST data indicate the unconformity is about 200 m higher on the south side of the fault and a sharp displacement is evident in the data ~200 m E. However experience at NE Myra has shown the TEMPEST cannot be used reliably to determine the dip of faults. Outcrop data from along the Beatrice valley indicates the fault is subvertical. Rugged terrain determined the final hole collar position. The hole was drilled at 60° to the south. The faulted unconformity was intersected at 305 m below the ground surface versus the ~200 m estimated from TEMPEST. There is a fault sliver of basement at ~274 m and it is now interpreted the hole drilled in part along the structure.

The unconformity is at 334 m. The Mamadawerre Sandstone above ~200m is mostly medium-grained and strongly bleached and silicified. Minor yellowish illitic-sericitic clays appear below ~90 m as spots and disseminations. In places there are grayish zones with minor layer parallel stylolite development. The sandstone is more coarse-grained and locally pebbly below 200 m, with increased clay and desilicification spots, and generally there is less silicification and bleaching. There are also minor conformable red-tan-green siltstone layers to 15 cm thick with gradational to sharp contacts to the surrounding sandstone. Reddish clay spots to ~5 mm around these more clayey zones were interpreted by Kurt Keyser (2005, pers. comm.) as evidence for a palaeosol associated with the clay layers. Below 290 m the sandstone is more intensely silicified and tends to crackle and jigsaw fit breccia, with pale green chlorite infill. Bedding dips consistently gently south at ~3-10°. From 328.5 –330.6 m there is a red-banded siltstone unit that grades into more typical Mamadawerre Sandstone. Bedding becomes steeper lower in the section. Below this to the unconformity is a quartz-pebble conglomerate with minor lithic fragments and a red-green silty matrix with gradational contacts to the overlying siltstone. The basal siltstone layer had previously been assigned to the Edith River Volcanics but on the basis of relationships in this hole and no evidence for a volcanogenic component, these silty layers are better considered part of the Mamadawerre Sandstone. Within the sandstone sequence there are two narrow intrusive dolerite intervals at 129.4 to 131.3 m, and 309 to 319.3 m. The lower dolerite in particular is strongly smectite altered (according to petrography, according to PIMA it is white mica) with common 1 mm spots of hematite mixed with white mica and leucoxene alteration. It is locally brecciated with fragments of sandstone. Contacts are sub-parallel to the core-axis suggesting the true thickness is much less than 10 m. There is a fault sliver of basement at 274 m again with contacts sub-parallel to the core axis.

The unconformity is sharp but slightly irregular. The basement lithology to EOH at 401.8 m is dominantly a quartz-muscovite biotite-garnet –(sillimanite) schist assigned to the Nourlangie Schist. There are two <10 m thick (para)-amphibolite units within this. A weak red zone is developed down to 344 m with minor patchy hematite below this mainly around the contacts between amphibolite and psammopelite. Chlorite decreases downward and garnets are fresh below 370 m.

TCD3002 Detailed Drill Hole Log

Geochemistry. The only anomalous uranium in this drill hole is in the lower altered dolerite with 20.9 ppm (12.1 ppm Th) over 5m. Within the dolerite there is also up to 48 ppb Au, and 360 ppm B. Zirconium appears unusually high in this mafic rock with 453 ppm. Boron also increases to >100 ppm immediately around the unconformity.

TCD3002 Base-Noble Elements
TCD3002 Major Elements
TCD3002 REE Elements
TCD3002 Other Elements

TEMPEST Conductor

The target for the single hole drilled here is an east dipping strong basement conductor at its intersection with the unconformity, located in the northern part of EL2505. Details of this target are described in more detail in the geophysics section of this report. The hole is ~400 m from TCTPD0001 drilled in 2004, which intersected minor graphite but no significant uranium.

TCD3003

The unconformity is at 93.9 m. The Mamadawerre Sandstone above this is fairly unaltered, weakly bleached with minor diagenetic hematite preserved, and local desilicification, which increases downward evident as minor drusy quartz vugs and veins. The sandstone is locally pebbly closer to the unconformity, with mainly quartz but some lithic clasts. There are two minor faults around 69 m. The unconformity is sharp with a 1 cm wide quartz vein along it.

The basement sequence consists of an upper psammopelitic sequence of quartz-muscovite-biotite-feldspar-garnet schist to 150.7 m, overlying a 'banded' para-amphibolite to 210.9 m which in turn overlies another psammopelitic sequence like that above the amphibolite to EOH at 339.3 m. Contacts are gradational to sharp and the sequence is essentially undeformed apart from minor small-scale isoclinal recumbent folding. There are several graphitic (carbonaceous) shear/breccia zones within the amphibolite up to 50 cm thick, and some graphite on fractures. A granitoid interval occurs at 154.5-155.9 m. This has up to 4 cm pink feldspar crystals, irregular quartz, and minor chloritised amphibole and pyrite.

There is a moderately developed hematitic 'red' zone to 96.5m with minor chlorite. Minor patchy hematite persists below this.

TCD3003 Detailed Drill Hole Log

Geochemistry. The only anomalous uranium in this hole is in the granitoid with 12.3 ppm U (2 ppm Th). There is high sulfur in this interval and adjacent intervals and anomalous As of 34.5 ppm in the granitoid. Boron again is highest just below the unconformity.

TCD3003 Base-Noble Elements
TCD3003 Major Elements
TCD3003 REE Elements
TCD3003 Other Elements

EM Anomaly

TCD3004 was drilled to 257.7 m to test a radiometric anomaly associated with a Two Rocks style target in a regolith-covered area in the west of EL2516. The target is about 400 m east of a conductor drilled by AFMEX where base-metal anomalies to 536 ppm Cu, 1330 ppm Zn, 69 ppm Pb and 90 ppm As were intersected in sulfidic and weakly graphitic rocks interpreted to be equivalent to the Two Rocks unit 16 km to the east.

TCD3004

There is pisolithic transported regolith down to 4 m. The underlying basement sequence, which extends to EOH at 257.7 m, is a well-banded sequence of quartz-feldspar (plagioclase and microcline)-muscovite-biotite-(garnet) gneiss. Banding is defined by variations in mineralogy with up to 50% biotite over thin intervals. There are thin (3 m) mostly para-amphibolite units within the sequence, typically with sharp contacts to the gneiss. Minor recumbent isoclinal folds occur throughout the sequence. The fold hinges have a dip direction of 180-202° degrees consistent with regional outcrop observations. Up to 5% disseminated sulfides dominantly pyrite and possible pyrrhotite occur over minor intervals and there are several pyrite veins cross-cutting foliation that decrease in abundance with depth. There is minor sericite and chlorite alteration; biotite is in part chloritised. Petrography also shows minor calcite +/- adularia +/- prehnite +/- muscovite.

TCD3004 Detailed Drill Hole Log

Geochemistry. The strongest uranium anomaly is in the weathered zone at the top of the hole with 23.4 ppm U (8.7 ppm Th). The highest uranium is from 241.6-242.1 m with 87.5 ppm but is also with 74.6 ppm Th. Notable sulfides are present down to 57 m with up to 1.3% S. The weathered zone has the highest metals with up to 346 ppm Zn, 279 ppm As, 560 ppm Ni, 800 ppm Cr and 114 ppm Cu. The highest silver is 1.8 ppm from the transported regolith.

TCD3004 Base-Noble Elements
TCD3004 Major Elements
TCD3004 REE Elements
TCD3004 Other Elements

NE Myra

The target at NE Myra is the south dipping east-northeast trending reverse fault with ~250 m of vertical displacement and its immediate hangingwall where strong uranium anomalies were identified in 2004 drilling. This fault extends for ~7 km through EL7029 and EL2505 and is terminated on the east end by a north-northwest trending fault. Drilling confirms outcrop observations that the fault dips south at ~50-70°. There is an extensive sandstone escarpment to the north of the fault and basement concealed by up to 5 m of sands to the south.

The original target model proposed that mineralisation occurred on the fault immediately below the unconformable contact between sandstone and basement. Three holes were drilled in 2004 (TCNMD0002-0004). Only TCNMD0003 tested below the unconformity, with the other two holes abandoned. However this drilling showed highest uranium is in the hangingwall of the faulted contact between basement to the south and sandstone to the north. There are broad weakly anomalous zones with narrower intervals of up to 0.5 m @ 453 ppm U associated with up to 268 ppb Au. There is no anomalous uranium below the unconformity in either TCNMD0003 or TCNMD0001 drilled by AFMEX. The mineralisation is associated with strong chlorite alteration, with minor patchy hematite below uranium.

Four holes were drilled in 2005 for a total of 1211 m

TCD3005
Drill hole TCD3005 was drilled to test a weak conductor at the unconformity in the footwall of the reverse fault target structure. The unconformity was estimated to be at ~200 m from TEMPEST data. The hole was abandoned at 203.5 m in pebbly desilicified sandstone due to overpressured artesian water (up to 20,000 litres per hour), which pushed the core barrel out of the hole and caused washing of the desilicified sandstone near the bottom of the hole. (The water flow was subsequently stemmed and the hole was capped with a valve).

Pisolithic ferruginous mottled sands and clays are 8.6 m thick. Weathered psammopelite occurs down to 23.7 m. Strongly chloritised but fresh amphibolite is present down to 29.5 m with moderate foliation controlled quartz veining. The faulted contact to Mamadawerre Sandstone is at 34.1 m. Immediately above this is strongly oxidised, deformed, and brecciated psammopelite.

The sandstone is fine to medium grained, moderately silicified with patchy bleaching. Diagenetic hematite is preserved, and increases down-hole. Sandstone becomes more coarse-grained below 167 m. There is common limonite, both disseminated and on fractures throughout the hole. White (kaolinitic) clays are also common. Fracturing increases below ~90 m and there is increased development of drusy quartz veins (some iron coated) and cavities. Silicification decreases below 167 m and below 183 m bleaching increases and there is minor pink secondary hematite. There are also minor intervals of core loss, which increase with increased desilicification to EOH.

TCD3005 Detailed Drill Hole Log

Geochemistry. There is 2 m @ 240 ppm U from 31.1 to 33.1 m, just above the faulted contact to sandstone in weathered psammopelite. Over the same interval there is 429 ppb Au from 32.1-32.6 m, 1.6 ppm Ag from 31.1-31.6 m, and ~150 ppm Li. The interpreted altered igneous intrusive at 155 to 156.3 m has 28% MgO, 32% SiO_2, low K_2O but 1270 ppm Zr, 5600 P_2O_5 and 5240 TiO_2 and is now interpreted as massive chlorite alteration related to destruction and volume loss in the sandstone. The high Zr, Ti and P are due to resistate minerals remaining after dissolution of silica.

TCD3005 Base-Noble Elements
TCD3005 Major Elements
TCD3005 REE Elements
TCD3005 Geochemistry - Other

The artesian water was analysed. These results are in the Appendices. The water is not potable due to high iron.

TCD3005 Water Analysis

TCD3006

Drill hole TCD3006 was collared about 50 m southwest of TCNMD0004, which was abandoned at 42 m in 2004. It was targeted to test the target structure down-dip of the hematite breccia in sandstone on the fault scarp face to the north.

There was no sample return down to 15 m, and weathering extends to 23.6 m. The basement sequence down to the faulted contact to sandstone at 200.4 m is mainly an intercalated sequence of psammopelite and para-amphibolite. Contacts between the different rocks are generally sharp. The psammopelite is a quartz-muscovite-biotite-feldspar (plagioclase and K-spar)-sillimanite-(garnet-cordierite) schist to gneiss with varying proportions of the main minerals. Sillimanite is mostly replaced by sericite. Of particular note at 46.6 m in psammopelitic gneiss is minor disseminated primary recrystallised graphite (see petrographic report). The amphibolite is an amphibole/hornblende-plagioclase–quartz-biotite-(garnet-titanite) schist to gneiss. There are minor layers of calc-silicate within the amphibolite. Down to 79.9 m alteration within the amphibolite is mainly chlorite-sericite leucoxene, and in the psammopelite there is also strong sericite/illite-chlorite-clay alteration. A pegmatite ‘sweat’ at 57.9-60.4 m is altered completely to chlorite and sericite.

There is strong faulting from 79 9 to 102.1 m. Alteration within and below the fault zone has penninite and chlinochlore (after penninite) in addition to chlorite and leucoxene.

Trace bright orange-red hematite controlled by fractures or foliation is present around 96.5 m and 122 m. There are fine, hematite veins and fractures and minor disseminated specular hematite from 161.9-162.7 m. Below 184 m hematite increases to moderate through to the contact with sandstone.

The fault zone to sandstone between 194.4 and 200.4 m is highly complex. There is ductile shearing with a brittle overprint interpreted by some (D. Thomas, pers. comm. 2005) to be pseudotachylyte. The brittle overprint consists of a network of black chlorite veins containing fragments locally. There are fault slices of both basement and sandstone within the fault zone.

Mamadawerre Sandstone occurs from 200.4 m –263.9 m. The sandstone is medium-grained becoming coarser and sporadically cobbly downward. There is strong chloritisation locally particularly within a few metres of the upper and lower contacts to basement with irregular intervals of complete chlorite replacement. There is moderate secondary orange-red hematite in the top few metres of sandstone. However below this there are extensive but patchy intervals with grey-purple diagenetic hematite preserved. There is some bleaching of the sandstone, but the chlorite appears to have overprinted the diagenetic hematite with the more typical intervening bleaching event absent. The contact to underlying basement at 263.9 m is broken and possibly faulted.

The basement sequence to EOH at 332.8 m is dominantly a psammopelitic sequence consisting of quartz-muscovite-sillimanite-hematite –chlorite schist/gneiss, with prominent faiser-keisel through much of the sequence. The upper four metres may be more pelitic, however the more clayey nature of the upper interval is at least in part due to strong illitic clay (with minor chlorite) alteration and associated bleaching. Hematisation commences at ~268 m and increases downward to moderate with an abrupt end at 308 m. Chlorite also becomes more dominant below ~268m and the red-green zone is moderately well developed with just chlorite persisting and only trace hematite below 308 m.

TCD3006 Detailed Drill Hole Log

Geochemistry. There is a wide zone of anomalous uranium from 35.5–69.5 m, with a maximum value of 0.3 m @ 339 ppm U from 47.7–48 m. The uranium is associated with spotty anomalous gold over the same wide interval to a maximum of 86 ppb Au from 65 –65.5 m. Lithium also correlates with the anomalous uranium and is >100 ppm to a maximum of 260 ppm over the same interval. Boron is sporadically anomalous to 220 ppm, and molybdenum also appears sporadically anomalous to 11.5 ppm. Platinum and palladium are also sporadically weakly anomalous above 47 m in the uranium zone to a maximum of 11 ppb Pt and 16 ppb Pd. There is also anomalous Pt and Pd in the weathered zone to 10 ppb Pd and 10 ppb Pd. The only silver anomalies are also in the weathered zone with 1.45 ppm Ag. Presence of sulfides logged mostly in the amphibolite is supported by up to 2,560 ppm S. There are no associated metals and the sulfide mineral is confirmed as dominantly pyrite. Copper appears to be depleted below ~ 100 m i.e. is less than 5 ppm, and ranges up to a maximum of 38 ppm in the uranium anomalous zone. Zinc is also low with highest values just above the contact to sandstone of 124 ppm. Tungsten is weakly anomalous to 18.5 ppm just below the faulted unconformity, but is not anomalous in the uranium zone. Tin is highest (9.6 ppm) in the sample immediately below the unconformity, but there are no distinct anomalies or a clear relationship with the uranium anomalous zone. There is an unusual penninite-chlinochlore altered amphibolite at ~107-110 m that has 1260 ppm Cr and 896 ppm Ni. Petrography does not reveal minerals responsible for this anomalous geochemistry.

TCD3006 Base-Noble Elements
TCD3006 Major Elements
TCD3006 REE Elements
TCD3006 Geochemistry - Other

TCD3007

Drill hole TCD3007 was drilled test a structural target with supporting anomalous outcrop geochemistry. Mapping shows complex faulting in the area, with several cross-structures in addition to the main fault which appears to step north in this locality. A rock chip sample of hematitic weathered amphibolite collected nearby in 2004 has 50 ppm U. TEMPEST data also shows a sharp dislocation in the unconformity at the same location, and this was used to estimate depth to the unconformity.

There are transported lateritic clays to 1.57 m, and basement rock below this is completely weathered saprolite to 18.6 m, with saprock to ~23 m. There is an intercalated psammopelite and amphibolite sequence down to 92.4 m similar to that in TCD3006. There is moderate chlorite and minor sericite alteration. From 92.4 to 97.2 there is fine-grained chlorite altered dolerite with quartz-veined breccia on the top contact. Below this there is an unusual and distinctive unmetamorphosed dacite to rhyodacitic porphyry to 175.5 m. Large phenocrysts to 20 mm long comprise, quartz, plagioclase and K-feldspar and biotite, abundance and size of phenocrysts varies through the unit and the rock ranges from a crowded porphyry to aphyric; the latter appearing more mafic. There is a gradational contact to more mafic rock between ~160 –167 m described in hand specimen as fine-grained dolerite, but in petrography it is described as a chloritised amphibolite with a schistose texture. At 141.3 m there is sharp/faulted contact between dacite and subordinate dolerite(?). In the porphyry quartz is both euhedral and rounded resorbed. Altered K-feldspar phenocrysts are also partly resorbed. The groundmass is quartz, albite, sericite and minor leucoxene. The quartz phenocrysts are opaque white in hand specimen due to heavy fracturing: such fracturing may be due to thermal shock. The petrographic report describes the initial alteration of this rock as albite-sericite and Fe-chlorite (after biotite) with progressive alteration to quartz +/- sericite in K-feldspar and Mg-chlorite alteration in all other minerals. There appear to be several stages of Mg-chlorite as both replacement and veins. Later cross-cutting fine quartz veins contain sericite and Mg-chlorite.

The interval from 176.1 m to the contact to sandstone at 186.1 m is a complex fault/shear zone. The original basement lithology was probable mafic gneiss, but has been totally sericite/illite-(leucoxene) altered. Black magnesian chlorite occurs as later cross-cutting veins and gives an almost crackle breccia texture to the rock (the ductile shearing with brittle overprint is like that described as pseudotachylyte in TCD3006).

Mamadawerre Sandstone occurs from 186.1 m to 230.35 m, apart from a fault slice of basement from 191.4 –193.4 m. The sandstone becomes more pebbly downward. There is weak hematite and some bleaching in the upper few metres, but mostly the sandstone is characterised by purple-grey diagenetic hematite with minor patchy bleaching that again increases near the lower contact to basement. Chlorite has overprinted this early alteration with irregular zones of complete chlorite replacement throughout.

The unconformity to underlying basement is faulted from 230.4 - 230.6 m. The basement sequence again comprises interlayered psammopelite and amphibolite. The red-green zone below the unconformity is only weakly developed with minor hematite and moderate chlorite. There is moderate patchy red-orange hematite at ~260 m and 273 m.

TCD3007 Detailed Drill Hole Log

Geochemistry.
TCD3007 has a best result of **2.5 m@ 0.085% U3O8** from 172.75 –175.25 m, which is the highest uranium from NE Myra to date. This intercept is hosted within sericite-quartz-chlorite-leucoxene altered rhyodacite, with fractures and veins containing limonite-quartz, chlorite and sericite, immediately above the fault zone to sandstone.

There is also patchy weakly anomalous uranium to 113 ppm in several zones below 125 m, with the main anomalous interval commencing at 170.25 m. Gold shows a strong correlation with uranium, with up to 132 ppb Au in the mineralised zone. Lithium does not show the same correlation with uranium as it does elsewhere, and decreases to, <100 ppm in the mineralised interval, but is >100 ppm both above and below, with highest values in the basement rocks well up in the hangingwall. Boron is also depleted in the mineralised zone (10 ppm) but increases markedly immediately below in the shear zone to 400 ppm and is also > 100 ppm for ~40 m below the unconformity. In the basement rocks in the hangingwall boron is all <80 ppm. Tin is strongly anomalous throughout the hangingwall basement and the dacitic rocks, attaining a maximum of 205 ppm at the base of the mineralised interval from 174.75 – 175.25 m. Tin is also weakly and patchily elevated in basement below the unconformity. Tungsten is weakly elevated in the mineralised zone to 9.5 ppm, but attains highest values in the totally chlorite replaced sandstone of 14.5 ppm. Lead is weakly anomalous in the mineralised zone to 79.4 ppm, but also attains similar levels in the saprolite. Platinum and palladium are not anomalous in the mineralisation but there is 10 ppm Pt and 19 ppm Pd immediately below it. There is also anomalous platinum and palladium between 28 and 58 m, associated with elevated Cr, Co and Ni to 178 ppm. The anomalies are mostly within amphibolite –however other amphibolite does not have elevated PGE. Copper is depleted in the mineralised zone (mostly <1 ppm) with highest values in hangingwall basement to a maximum of 46 ppm. Copper also appears to be weakly elevated in the saprolite to 38 ppm. Zinc similarly is relatively low in the uranium mineralised zone (mostly <100 ppm) but increases to 248 ppm immediately below and from 155 m to 172.75 m is >100 ppm. Highest zinc values however are again in the basement rocks higher in the hangingwall, with up to 692 ppm in the saprolite. There are other possible subtle anomalies in other elements but this requires further investigation, e.g. silver increases from almost uniformly below detection to 0.2 ppm with the uranium; silver is also 0.2 ppm in the saprolite.

TCD3007 Geology Cross Section, U, Au, Sn
TCD3007 Base-Noble Elements
TCD3007 Major Elements
TCD3007 REE Elements
TCD3007 Geochemistry - Other

TCD3008

Drill hole TCD3008 was drilled to a depth of 364.2 m to test a weak conductor at the interpreted unconformity in the footwall of the reverse fault target structure.

Transported sandy clays are 5.5 m thick with saprolite down to 33 m. Basement is an interlayered sequence of amphibolite and psammopelite down to a faulted contact to sandstone at 107.3 m. Breccia is developed over almost 2 m above this faulted contact. There are several small faults and breccias within the sequence particularly in the lower part. The sandstone from 107.3 to 146.8 m is strongly fractured and silicified with minor orange hematite alteration throughout. There is also moderate to strong bleaching with only minor diagenetic hematite remaining. Minor chlorite occurs in fractures toward the base. From 146.8 to 193.1 m there is a fault wedge of basement. The basement rocks are a sequence of psammopelite and amphibolite with moderate hematite alteration irregularly developed (including specular hematite) and pervasive moderate chlorite alteration. There are also localised hematite-chlorite breccias. There is intense bleaching due to illitic clays in the lower most 2 m of this basement wedge. There is another wedge of sandstone from 193.1 m to 271 m. The sandstone is pebbly locally below ~213 m. The sandstone is moderately to strongly bleached to 225 m with moderate orange hematite locally. Below 225 m bleaching sharply decreases to minor and diagenetic hematite is preserved through much of the zone. Minor orange hematite persists. Bleaching increases within 2-3 m of the lower contact back to basement. The sandstone is strongly chloritised with many irregular intervals up to several metres thick of complete chlorite replacement. Minor faulting and brecciation are also common particularly in the chloritic zones. The lower contact to basement is sharp and probably faulted. Basement rocks are psammopelitic gneiss to EOH at 364.2 m. The upper 2 m of basement is strongly bleached by illitic clays. There is minor patchy hematite alteration for about 20m below this contact, and moderate to strong chlorite throughout.

TCD3008 Detailed Drill Hole Log

Geochemistry.

The highest uranium in TCD3008 is in the basement wedge between the two sandstone wedges from 146.8 to 193 1 m where it is weakly anomalous throughout to a maximum of 11.5 ppm. There is 37 ppb Pt and 39 ppb Pd from 190-193.1 m at the base of this basement wedge. There is also weakly anomalous Pt and Pd from 56-75 m. Lithium is anomalous (>100 ppm) in the basement just above the uppermost sandstone wedge. Boron is highest (540 ppm) in the basement samples immediately above and below the sandstone wedges, and 100 ppm B persists to the EOH. Tin is weakly anomalous through most of the basement rocks to 42.4 ppm, but with no clear distribution pattern. Tungsten is weakly anomalous to 7 ppm over the same interval as anomalous uranium. Copper to 138 ppm is highest in the saprolite. Lower in the hole it is mostly below detection limit and appears depleted. Zinc similarly is elevated in the saprolite to 152 ppm over the same interval as copper. Highest zinc is at the base of the zone with anomalous uranium to a maximum of 792 ppm. There is also 522 ppm Zn in the sandstone from 205-210 m and another anomalous zone to 462 ppm in basement from 325 –330 m. Nickel appears elevated at the base of the saprolite to 132 ppm, but also appears weakly elevated with the anomalous uranium with a spot high of 147 ppm Ni.

TCD3008 Base-Noble Elements
TCD3008 Major Elements
TCD3008 REE Elements
TCD3008 Geochemistry – Other

DISCUSSION

The significance of the results is discussed by target area.

NE Myra

NE Myra has the most encouraging results of the targets identified by Cameco since acquisition of the Tin Camp Creek project in 2003. However, uranium anomalies to date although widespread, are of low grade and the focus of on-going work will need to be to determine where higher-grade uranium is within the prospect area and to identify vectors to the most prospective areas.

Geology

The basement stratigraphy in the NE Myra area consists of a sequence of interlayered psammopelitic gneiss and amphibolite. There is a minor calc-silicate component to the latter, and some of the amphibolite may be ortho-amphibolite (Zamu Dolerite?) although the majority appears to be para-amphibolite. Minor graphite has been observed in just three drill holes i.e. TCNMD0003, TCD3006 and TCB3121. The prominent quartzite ridge that parallels the main fault zone in the southern part of the prospect area appears to correlate on strike with the Kudjumarndi Quartzite mapped to the west. However at NE Myra the underlying Mt Howship Gneiss has not been observed apart from an exposure in Tin Camp Creek 1.6 km south of the quartzite ridge (TC050022). RAB drilling has shown similar psammopelitic rocks and amphibolite occur both to the south and north of the quartzite ridge. However re-logging of RAB chips and further petrography is necessary and may provide better information on the geology of the area. The apparent lack of correlation between the EQMMR response in SAM to RAB geology is puzzling since there appear to be some strong geological and structural aspects. However, re-logging of the RAB holes may resolve this.

The uranium mineralised rhyodacite is unusual, with no known occurrences of similar mineralisation elsewhere in the ARUF or Arnhem Land. The relationship of the rhyodacite to dolerite, which is a minor component of the rhyodacite package is unknown. As contacts appear gradational in places magma mixing was suggested, however petrography failed to resolve this. The high tin associated with the uranium suggests the rhyodacite is part of the Tin Camp Granite suite, however the Tin Camp Granite is pre-sandstone and prior to the accepted main uranium mineralising event.

Correlations of the stratigraphy with Lower Cahill Formation units are problematic. Proximity to interpreted Kudjumarndi Quartzite indicates PC_1 of the Lower Cahill Formation, but the general absence of calc-silicate rocks and carbonaceous rocks does not support this, particularly as calc-silicate and carbonaceous rocks are common just 6 km to the southwest broadly on strike. Correlations with the Lower Arkosic Unit (PC_2) or perhaps the Amphibolitic Unit (PC_3) of the Lower Cahill Formation may be better. If correct this indicates PC1 is not present at NE Myra. Alternatively the quartzite ridge may be the Quartzite ‘marker horizon’ in the Lower Arkosic Unit as described by AFMEX (Moreau and Ewington, 2002), but if so this creates problems with correlations to the southwest of Myra Falls where more typical Lower Cahill stratigraphy and Kudjumarndi Quartzite is present (albeit overturned). Absence of Mt Howship Gneiss underlying the Kudjumarndi Quartzite at NE Myra further indicates stratigraphic dislocations due to faulting (and/or folding) in this area.

The anomalous uranium in the eight core holes (including TCNMD0001 drilled by AFMEX) drilled at NE Myra is all in the hangingwall of the major reverse fault between basement (hangingwall) and sandstone (footwall). Five holes (TCNMD0001-AFMEX, TCNMD0003, TCD3006-3008) of the eight holes have tested below the unconformity, which was the original exploration target, but there is no anomalous uranium in this position. The conductor in the footwall of the main fault evident in TEMPEST data and targeted by TCD3005 and 3008, appears to be due to strong fracturing and intense chlorite alteration in sandstone, not sub-unconformity alteration (graphite?) as originally interpreted. TCD3006 and 3007 also drilled through fractured altered sandstone coincident with a weak conductor.

The fault zone is complex with evidence of faulting in the hangingwall of the main fault between basement and sandstone, and other faulting in the footwall resulting in fault wedges of basement in the sandstone. There is no data on orientation of these other structures; they may be part of the main NE Myra Fault Zone or cross-structures. The distribution of the anomalous uranium shows no clear distribution with respect to faults and generally is not within any faults. It also shows no clear distribution with respect to rock type and is variably hosted within psammopelitic gneiss, amphibolite, and porphyritic dacite.

The geometry of the anomalous zone(s) is also not well constrained by available wide spaced core and RAB data. It appears to be sub-parallel to the southeast dipping main fault zone, but it occurs variably in the immediate hangingwall of the main fault (TCD3007 and probably TCD3005) to 130 m into the hangingwall (TCD3006), to absent (TCD3008 –unless it is further into the hangingwall in this locality). The alteration assemblage associated with the anomalies is chlorite dominant, mostly pervasive green (Fe) chlorite with black (Mg) chlorite more intimately associated with the anomalous zones. There is also minor sericite and/or white mica. Minor hematite occurs in the footwall to the anomalous zone, but is rare with the uranium. There are extensive hematite quartz breccias in the footwall to the anomalous zone in TCNMD0002 drilled in 2004.

The style of mineralisation appears like that at Koongarra, i.e. mineralisation in the hangingwall of a major east-northeast reverse fault; dominant chlorite alteration with hematite in the footwall of the mineralisation. The main difference is the presence of host graphitic lithologies at Koongarra.

Geochemistry

Geochemical data from the programmes to date have not been comprehensively evaluated. Normalisation of data for basement rocks to allow for lithology needs to be conducted before this can be done properly. Possible trends in REE have not been examined and subtle enrichment or depletion trends in other elements away from the uranium anomalous zone and that may vector the uranium have not been rigorously checked. Pb isotopes have also not been examined, although these data were ambiguous in 2004 work. Possible dispersion of uranium and other elements into the various levels of the transported and in situ regolith has also not been properly investigated but probably lacks sufficient sampling data. A few general relationships are evident in the data, although there are exceptions in some places.

- positive correlation between uranium and gold, although not necessarily one to one.
- negative correlation between copper and uranium, with copper depletion in the uranium anomalous zones
- similar but not so obvious negative correlation with zinc, though anomalous zinc has a more widespread distribution than copper.
- positive correlation between uranium and tin in some holes (eg TCD3007) but an antithetic relationship elsewhere (TCNMD0002, and 0003)
- tungsten also shows ambiguous relationships with uranium, and also does not correlate with tin.
- positive correlation between lithium and uranium.
- no clear trends with anomalous PGE although there seems to be a general spatial association.
- a general spatial association between anomalous uranium and boron, the latter may be associated with fluid pathways in the vicinity of the uranium anomalies.
- weak silver, copper and zinc anomalies in saprolite may be indicative of uranium mineralisation in the area.
- Stronger metal anomalies (eg Cu and Zn) in RAB holes may be evidence for a zoning of the mineralised system. (eg. distal base metals?).

Simple correlation plots attempted for pairs of elements also did not elucidate geochemical relationships. In several of these plots data plot along the axes, possibly indicating two data populations (eg U:Sn, U:Cu, U:Pb) although more work needs to be done on this.

Gorrunghar - Gurrigarri - Mordijimuk

Field reconnaissance and sampling in 2005 has down-graded the inferred north-south fault coincident with a TEMPEST target in the northwest of EL2516. However the north-northwest fault to the immediate west of this remains of interest and other geochemical anomalies and radon spring maintain the area as prospective although precise targets remain elusive.

Algodo

TCD3001 drilled in 2005 has down-graded the Bulman Fault as a target, and no further work is warranted. TCD3002 however appears to have drilled along the target Beatrice Fault and has not adequately tested the structure. Weak uranium anomalies in altered dolerite in this hole, and in outcrop in the fault zone together with mineralisation at South Horn to the east suggest the structure is prospective. There is also evidence for a sub-unconformity conductor (possible altered dolerite?) associated with the northeast trending fault that intersects the Beatrice Fault in the tenement area. During field reconnaissance a drill site was located on the south side of the Beatrice Fault to enable drilling to the north.

TEMPEST Conductor

TCD3003 tested the optimum target, that is, the basement graphitic (carbonaceous) conductive zone at the intersection with the unconformity with negative results. However both TCD3003 and TCTPD0001 (drilled in 2004) are regarded as a technical success as it is the first time graphitic conductors have been identified using TEMPEST in Arnhem Land. Further consideration is required to delineate further targets in future using TEMPEST to ensure other supporting features are present, such as major intersecting faults, to act as a trap for uranium. No further work is proposed.

Robbie's West

Weakly anomalous uranium and a range of other elements in both the quartz-breccias and basement rocks maintain interest in the area. It still has not been determined if the mineralised breccias are pre-sandstone. However, the discovery in 2005 of anomalies in basement rocks near the unconformity has slightly upgraded the area, although precise targets again remain elusive. The arsenic and silver anomalies in coarse sandstone in the basal conglomerate are considered to be hydrothermal rather than detrital. They are of a similar magnitude as the anomalies in basement and quartz breccia they might have been derived from, yet some dilution would be expected if they were detrital.

EM

Drill hole TCD3004 tested the main radiometric anomaly on the western side of EL2516 where base-metal anomalies intersected by AFMEX in a Two Rocks style sequence suggested potential for Two Rocks style uranium-copper mineralisation nearby. TCD3004 has weak uranium anomalies in saprolite and minor base-metal and uranium anomalies lower in the drill hole. It is considered this hole has adequately tested the radiometric anomaly and down-grades the potential for uranium mineralisation in this area. No further work is proposed.

EXPENDITURE

Eligible expenditure on the Tin Camp Creek project in 2005 was AUD$1, 350, 746 as described by tenement in the table.

Expenditure Statement

CONCLUSIONS AND RECOMMENDATIONS

Work completed during 2005 has continued to highlight the NE Myra prospect area as a priority for follow-up in 2006. The Beatrice Fault in the Algodo area remains prospective and Robbie's West has been upgraded by 2005 work. The larger Mordijimuk-Gurrigarri-Gorrunghar area also remains prospective but precise target definition remains problematic. Main areas identified for follow-up in approximate order of priority with indicative work programmes are outlined below.

NE Myra

Further drill testing is required on the 7 km of this structure within the tenements. No drilling was conducted in the vicinity of TCNMD0002 in 2005 due to boggy ground preventing access, but another access way into this area now seems possible. A comprehensive evaluation of all data particularly geochemistry is required before drill targets are defined. Geochemical data should be normalised for rock type prior to further interpretation. The geology also requires revision through a combination of further mapping and re-logging of RAB chips with additional petrography.

Field investigations are required at the eastern end of NE Myra where TEMPEST shows a broad domal shape to better elucidate the geology and fault relationship, in order to better understand the structural implications and the possible granite association. This may allow the identification of some new targets (bearing in mind similar changes in unconformity geometry are associated with mineralisation at Jabiluka and Caramal).

Two apparently sinistral cross -faults have been inferred from the EQMMR response in the SAM data, which should be considered for drill testing. Two areas of increased conductivity identified in the SAM data although not associated with any known or inferred faults could also be targeted by RAB drilling.

Drilling in 2005 has confirmed absence of uranium mineralisation below the unconformity and this will not be a target in future drilling. The main target is the hanging-wall to the fault. This can probably be adequately tested by shallower and RC only holes.

Pending precise target definition a total of six holes for 1200 m RC and 120 m of core is proposed along the strike of the structure. A further 80 RAB holes for 1700 m is also proposed to both follow-up anomalies from 2005 work and to test areas not covered in the 2005 programme.

Algodo

Prospectivity of the Bulman Fault has been down-graded by TCD3001, however TCD3002 did not adequately test the Beatrice Fault and potential remains for uranium mineralisation associated with this structure. A single heli-supported hole is proposed to drill through the fault from the south.

Robbie's West

Some further reconnaissance and sampling to the west of work completed in 2004 and 2005 is required, this will mainly be to elucidate structural features that may assist drill hole targeting. Sampling of quartz breccia boulders in sandstone needs to be carried out in order to determine if the uranium mineralisation is pre or post sandstone. The former would downgrade this area, and other areas where there is uranium mineralisation associated with basement quartz breccias.

Mordijimuk-Gorrunghar-Gurrigarri.

Despite disappointing results from the single hole drilled this area has favourable geochemistry, radon springs and structures and remains a target area. The north-northwest fault in sandstone identified in 2004 requires further reconnaissance and sampling.

South Horn

Drill hole data is now in digital format. This will enable construction of cross-sections and interpretation to determine if drill targets remain in this area. A single heli-supported core hole is tentatively proposed contingent on data interpretation.

Caramal

Reconciliation of TEMPEST data from the 2004 work with mapping and geochemical data may outline new targets away from the known mineralised pod. The TEMPEST targets should be ground truthed and sampled. An orientation SAM survey has been proposed. However, ground access into the area is difficult, and the survey may not be conducted.

TEMPEST Conductor

No further work is warranted. The conductivity feature has had two drill holes test for uranium mineralisation associated with graphitic shears. The priority target for 2005 was the interpreted intersection of the conductor with the conductive unconformity. No anomalous uranium was detected. The TEMPEST holes have shown that the presence of graphite does not always result in anomalous uranium.

EM

A single hole was drilled to test the main radiometric anomaly located east of the conductor tested by a previous hole drilled by AFMEX. Weak uranium in saprolite and minor weak anomalies down hole have adequately explained the anomaly and no further work is warranted.

2006 WORK PROGRAMME AND PROPOSED BUDGET

The proposed expenditure for the Tin Camp Creek Project for 2006 is AUD$600,000.

Tenement	Expenditure (AUD$)
SEL24920	168,000
SEL24921	175,000
SEL24922	480, 000
ELA25002	20,000
TOTAL	843,000

The proposed budget includes provision for 1320 m of conventional RC-core drilling at NE Myra, and 450 m of heli-supported drilling in a single hole at Algodo. Helicopter supported sampling and reconnaissance will also be conducted at Robbie's West, the Gurrigarri area and less accessible parts of NE Myra. An orientation SAM survey is also proposed for part of SEL24922. A ground gravity survey is proposed for NE Myra. These work programmes are contingent on the Substitute Exploration Licences and the ELA25002 being granted prior to the 2006 field season.

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