Cameco Australia Pty Ltd

ARNHEM LAND WEST JV

EXPLORATION LICENCES EL5891
KING RIVER PROJECT
NORTHERN TERRITORY

ANNUAL REPORT 2000 FIELD SEASON

CONFIDENTIAL

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SUMMARY

This report describes exploration work undertaken within Exploration Licence 5891 (EL5891) during the fifth year of tenure ending 12 may 2001. The licence area is located in north western Arnhem Land and was granted in May 1996.

The exploration program was managed by Cameco Australia Pty Ltd on behalf of the Warrga Joint Venture partners, Cameco Australia Pty Ltd, PNC Exploration (Australia) Pty Ltd and the Warrga Aboriginal Corporation.

The primary exploration target is unconformity related uranium deposits similar to the nearby Ranger, Jabiluka and Koongarra deposits and the now depleted Nabarlek mine.

The current years exploration program concentrated principally on the systematic core drilling of the Aurari Fault Zone. The drilling was directed at further evaluating the alteration and associated occurrences of low grade uranium mineralisation associated with sections of the Aurari Fault. Supplementing the above work, detailed airborne magnetics and radiometrics were flown by Universal Tracking Systems Pty Ltd and several ground gravity traverses were completed by Daishat Pty Ltd. Both surveys were restricted to specific areas of the Aurari Fault Zone.

De Beers Australia Exploration Limited (formerly Stockdale Prospecting Limited) gave notice to the Joint Venture of their withdrawal from diamond exploration on the tenement following the discouraging results of their 1999 field program.

The major result of the 2000 exploration program was the discovery of wide intersections of low grade uranium mineralisation within the Aurari Fault Zone. Several drill holes intersected structurally disturbed and mineralised quartzofeldspathic gneisses beneath a shallow eastward dipping sill of Oenpelli dolerite. The remaining holes, although failing to intersect mineralisation, have provided valuable lithological and structural information, further adding to the knowledge of the prospective Aurari environment.

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1. INTRODUCTION

This report describes program activities carried out during the 2000 field season on behalf of the Warrga Joint Venture, a joint venture between Cameco Australia Pty Ltd (Cameco), PNC Exploration (Australia) Pty Ltd (PNC) and the Warrga Aboriginal Corporation. EL5891 forms part of the King River Project which is included within the Cameco / PNC joint venture agreement termed the 'Arnhem Land West Joint Venture' (AWJV). Exploration on this licence is presently being conducted simultaneously with that on the adjoining King River tenements, EL734 and EL5890. Since the Exploration Licences are located on Aboriginal Land the exploration program was carried out under the terms of consent documentation agreed with the Northern Land Council pursuant to the Aboriginal Land Rights (Northern Territory) Act and dated 1 March 1996.

The Work Program as presented by PNC was discussed and revised at the Management Committee Meeting held on 1 March 2000. Approval of the program and budget was then reached. Clearance was given by the Northern Land Council following the relevant Liaison Committee Meetings held on 21 June at Warruwi (South Goulburn Island). Field work commenced with the re-establishment of the base camp towards the end of July. With the completion of core drilling the camp was demobilised on 23 October.

Diamond core drilling constituted the major portion of the Work Program. Geophysical surveys including fixed wing magnetics-radiometrics and ground gravity were also carried out, concentrating on the Aurari Fault Zone. At the commencement of the field season, the main Kombolgie sandstone outliers between the Aurari and Anuru Faults were systematically sampled by foot and helicopter traversing.

1.1. Location and Access

The tenement is located in western Arnhem Land to the north-east of the Aboriginal settlement of Gunbalanya and is wholly within Aboriginal Land. The settlement of Warruwi on South Goulburn Island lies off-shore to the north of the tenement. The Ranger uranium mine is situated approximately 100km to the south-west and the rehabilitated Nabarlek site is within tenements immediately south of the project area. Access from Darwin is via the Arnhem Highway to Jabiru then north to Gunbalanya. The Gurig National Park road traverse the western edge of the licence area. Two pre-existing tracks, the Waminari and King River roads provide good access to the more remote sections.

Off-road access is variable. The country ranges from flat lying woodland, river eastuary, coastal mangroves and swamps to heavily dissected sandstone plateau. Where flat lying, the country is easily traversed by four wheel drive vehicle.

Location Plan

1.2. Tenure

EL5891 was granted on 13 May 1996 for an initial period of six years. On granting, the total area under licence was 957.5 square kilometres of which 234 square kilometres (15%) was excluded from exploration by the Northern Land Council. The current total area is 418.5 square kilometres with a further reduction expected for year 6.

Under the Mining Act a reduction in area is required on each anniversary commencing 13th May 1998 unless a waiver is obtained from the Department of Mines and Energy. Due to the high costs of obtaining title on Aboriginal Land a waiver is commonly granted as long as a substantial exploration program is maintained. For the current year there was more than sufficient relinquishment of land in EL5891 not to warrant a waiver request.

1.3. Physiography

The tenement contains some remnant areas of dissected sandstone plateau which form the eastern extension of the Wellington Range. The remainder consists predominantly of gently undulating plains covered by savannah woodland. The northern boundary is coastline with tidal flats, mangroves and sandy beaches divided by low discontinuous Cretaceous cliffs. Thin remnants of lateritised Cretaceous sediments form tablelands in the north-eastern and eastern parts of the tenement. The main drainage systems are those of the King River and , Marligur and Angarlban Creeks.

1.4. Tenement Geology

Paleoproterozoic rocks which have been intersected in drill holes along the Aurari Fault zone on the tenement have been equated with the Myra Falls Metamorphics (MFM). The MFM are considered to be the higher metamorphic grade equivalents of the Cahill Formation (the host rocks to the Alligator Rivers uranium deposits) and consist broadly of quartzo-feldspathic±garnet gneiss, quartz-mica-amphibole-garnet schist and amphibolite. No carbonates have as yet been identified but possible calc-silicate lithotypes are present as amphibole-rich schists and ?para-amphibolite.

The Myra Falls Metamorphics abut the granulite facies Nimbuwah Complex, which consist of gneiss and migmatite and various granitic intrusives. The most recent age determinations place the Nimbuwah within 1870-1850 Ma. The ‘complex’ has an I-type granite origin and is considered to be, in part, intrusive into the paleoproterozoic metasediments (Carson and others 1999). The inferred contact with the MFM is marked by an anomalously magnetic unit. It is a finely banded,

fine grained quartz feldspar rock containing magnetite and almandine garnet and may be a transitional (contact) phase between the MFM and the Nimbuwah Complex. There appears to be a rapid regional progression of metamorphic grade increasing from west to east. Outcrop tends to be slightly more extensive in comparison to the MFM. Good exposures of both gneissic rocks and the intrusive granitic variants occur throughout.

The basement rocks are overlain by the Kombolgie Subgroup (formerly Kombolgie Formation) which form the base of the early Proterozoic Katherine River Group. The Mamadawerre Sandstone, the fluviatile basal unit of the Kombolgie outcrops as the characteristic escarpment country of the Arnhem Land plateau. He sandstone outcrops as a continuous series of east-west aligned outliers throughout the central parts of the tenement, which form heavily dissected low relief plateaus. In the vicinity of the Aurari Fault zone, the Kombolgie has been intersected to depths of several hundred metres. The age of the Mamadawerre has been constrained between 1822 and 1720 Ma and is probably closer to 1800 Ma (Sweet and others 1999).

Remnants of the Cretaceous outcrop in various parts of the tenement usually along the erosional fringes of lateritised tablelands. The Aurari Fault marks the approximate eastern limit of a localized north-south trending basinal structure which has been infilled with up to 120 metres of Cretaceous sandstone, siltstone and mudstone of the Marligur and Wangarlu mudstone members (Needham 1988). Marine fossils and some carbonaceous plant material has been noted in drill core. Outcrops of more resistant siltstone and sandstone are present several kilometers to the west and in cliff outcrops along the coastline. The Cretaceous overlies both the MFM and Nimbuwah Complex rocks.

The Oenpelli dolerite is present throughout the tenement as an extensive network of mostly east-west trending intrusions. There is an apparent relationship between the dolerite orientation and the sandstone outcrop pattern. Drill hole intersections of dolerite show that they have exerted little effect on the intruded rocks apart from localized silicification and some chloritisation of the sandstone. Contacts tend to be sharp where preserved and have variable orientations. Chilled margins are generally only centimeters wide with much of the remaining dolerite having a homogeneous grain size. Several intersections, considered to approximate true width, show thicknesses ranging up to 250 metres.

Regional Geology and Major Structures Plan

1.5. Structure and Geological History

The early Proterozoic rocks of the region have been affected by the Top End orogeny (1880 to 1780 Ma) which includes the initial Nimbuwah Event or Barramundi Orogeny at about 1870 Ma. This produced a prograde metamorphic effect with associated tight folding and faulting. The various ‘domains’ exhibited a variability of deformation and metamorphic grade with the western

and eastern margins of the Pine Creek Inlier (Litchfield Province and Nimbuwah domain respectively) exhibiting the most pronounced effects.

Major regional faults, which affect the early Proterozoic, have north-west (Bulman), north-north-west (Aurari) and northerly (Anuru, Goomadeer) strikes. Another significant set trends to the east and includes both the Ranger and Beatrice faults. The Bulman Fault Zone is the principle regional feature and is considered to represent a long-lived, deep crustal structure, which has exerted a large lateral component in rocks of the Pine Creek Inlier.

A more intense concentration of structures traverse the mid Proterozoic and younger rocks and include north-west, east, north-east and north trends. The Kombolgie is heavily dissected by both faulting and jointing with displacements ranging from a few metres up to 100 metres locally.

The King River region occupies the north-western extension of the Arnhem Shelf in the northern McArthur Basin. Deposition of the Mamadawerre Sandstone took place in an environment of extension and local basin formation with probable fault-controlled sedimentation. This is implied by rapid thickening and thinning of the sequence.

The widespread Oenpelli Dolerite intrusive event took place at about 1715 Ma. Localised effects in the sandstone include silicification, the introduction of magnesium rich to intermediate chlorite and the formation of muscovite-illite. A characteristic mineral assemblage of prehnite-pumpellyite-epidote has formed in the quartzofeldspathic basement rocks adjacent to the intrusions.

1.6. Exploration Target

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.

1.7. Previous Exploration

1.7.1. Union Carbide Exploration Corporation

During the period 1970-1972 Union Carbide Exploration Corporation undertook substantial exploration, principally for uranium. This work comprised airborne magnetics and

radiometrics with follow up geochemical surveys and geological mapping. Core and deep auger drilling was undertaken at the Black Rock prospect, which included Schist and Laterite anomalies. Significant, but subeconomic uranium mineralisation was intersected in schistose quartz-feldspar gneiss at Schist anomaly. Minor uranium mineralisation in saprolitic gneiss was located by auger drilling at the nearby Laterite Anomaly. Several other radiometric anomalies were investigated.

Union Carbide's exploration work was curtailed in early 1973 by a federal Government imposed moratorium on exploration pending a resolution on the issue of Aboriginal Land Rights.

1.8. Previous Joint Venture Exploration

1.8.1. 1996 Field Season

Grant of title was given in May 1996. Initial reconnaissance work included regional and prospect scale outcrop mapping, orientation soil geochemistry over the Schist-Laterite prospects, sandstone outcrop sampling and regional drainage BLEG in conjunction with diamond indicator sampling (Mackie, 1997). A regional fixed wing airborne survey at 200 metre line spacing was conducted and included magnetics, spectrometrics and VLF. In addition, a DIGHEM survey at 150 metre line spacing covered the Kombolgie sandstone. Both were carried out by Geoterrex (now Fugro Airborne Systems). A consultant was used to conduct the regional stream sampling program.

1.8.2. 1997 Field Season

The 1997 program consisted of airborne anomaly follow up, further geochemistry (soil, rock, stream and BLEG), lithogeochemical sandstone sampling, geological mapping and systematic RAB drilling. A limited program of shallow diamond drilling was carried out at Marligur Pass with one traverse across the Aurari Fault Zone (immediately west of Schist anomaly) and one adjacent to sandstone anomaly MP2. In addition, two shallow holes were collared at the Schist and 46N anomalies to obtain sections of altered and mineralized core. (Melville and others 1998).

1.8.3. 1998 Field Season

The 1998 program consisted of ongoing geological mapping and interpretation, regional RAB, BLEG and regional stream sediment sampling, evaluation of selected airborne anomalies by auger sampling and/or RAB drilling and further core drilling along the Aurari Fault Zone.

Associated work included lithogeochemical sandstone sampling, Petrophysics, and PIMA infra-red spectrometry. (Williams et. al., 1999).

1.8.4. 1999 Field Season

The principle activity was the continuing assessment of the Aurari Fault Zone by diamond drilling and ground magnetics. Universal Tracking Systems Pty Ltd (UTS) of Perth flew heliborne EM over an area coincident with the southward extension of the Aurari Fault Zone, where probable Lower Cahill equivalents exist.

2. PROGRAM ACTIVITIES

Field activities during the 2000 season primarily concentrated on core drilling of the Marligur Pass area, fixed wing magnetics-radiometrics and ground gravity concentrating on the Aurari Fault Zone. Kombolgie Sandstone outliers between the Aurari and Anuru Faults were systematically sampled by foot and helicopter along infill traverses.

Work Summary 2000

2.1 Diamond Drilling

Core drilling was undertaken during the period 11 August to 18 October with the completion of ten drill holes (one abandoned) totalling 3166.9 metres; this included 2634.4 metres of coring and 532.5 metres of air core precollar. Drilling was carried out by Wallis Drilling Pty Ltd of Perth, Western Australia using a truck mounted UDR 650 rig and support vehicles. The program was conducted on a double shift basis with an average drilling rate (over 110 shifts actual drilling) of 28.9 metres. The averaged all-up cost was $148.6 per metre, which included such items as lost equipment (casing etc.), cementing operations and supplied consumables. This figure can be compared with that of Century Drilling in the years 1998-1999 with an average of around $109/metre.

Drilling Statistics

Hole_No	Amg_E	Amg_N	Bearing	Inclination	Pre-Colar Depth (m)	Core Depth (m)	Total Depth (m)
KRD0658	304550	8692250	266	-85	**47.9**	**202.6**	**250.5**
KRD0659	304800	8691500	266	-85	**23.9**	**339.1**	**363**
KRD0660	304950	8690950	266	-85	**9**	**248**	**257**
KRD0661	305220	8690120	266	-85	**46.4**	**353.4**	**399.8**
KRD0662	304780	8689930	266	-85	**87**	**0**	**87**
KRD0663	304700	8692950	0	-90	**40.7**	**387.3**	**428**
KRD0664	304220	8693575	0	-90	**65.2**	**279.3**	**344.5**
KRD0665	304200	8693280	0	-90	**99.2**	**123.3**	**222.5**
KRD0666	304355	8693280	0	-90	**63.4**	**397.2**	**460.6**
KRD0667	304364	8693911	0	-90	**49.8**	**304.2**	**354**
Total					**532.5**	**2634.4**	**3166.9**

The implementation of air core for precollaring through the soft Cretaceous sediments has proved to be more successful than the rotary mud drilling method employed by Century Drilling in previous years. The major advantage of air core is its ability to penetrate into the underlying, more competent formations thus providing a solid seating for the casing and preventing hole collapse by the incursion of running sands. Although air core is comparable in price to mud drilling the end result can be more cost effective.

The original plan was to position the holes at an inclination of 80° grid west (266° magnetic) to aid in obtaining orientation measurements on bedding, foliation, structure etc. After experiencing difficulties in several holes it was decided to drill the final four holes vertically in an attempt to alleviate the effects of caving.

All hole locations were originally positioned using a Trimble differential GPS. At the completion of the program, drill hole collar positions were re-established with the DGPS. A plaque detailing hole number and co-ordinates was set in cement at the collar.

2.1.1. Radiometric Logging

Natural radiation was logged down-hole by Cameco personnel using an Auslog digital down-hole logging unit. Ground conditions in most of the holes precluded open hole logging, therefore all were logged in rods.

Down-hole gamma data was converted to equivalent U_3O_8 % using the proprietary program called Gamma (December, 1989) and calibration factors calculated using government test pits (to 0.92% eU_3O_8). The results have therefore been corrected for dead time, rod thickness and internal fluid content. Once the results have been received from the systematic sampling of the mineralised core then the probe data can be compared with assay values. One check sample was collected from a high grade section of drill core during the field program to gain

some idea of how the two methods correlate. The chemical analysis gave a difference of approximately 0.03% when compared with the gamma peak value.

Scintrex Pty Ltd of Brisbane was contracted to supply a technician and Toyota-housed logging unit for multi-parameter drill hole surveys. These surveys were conducted at the completion of the drilling program. Three of the six holes attempted were blocked including the two important mineralised ones. Parameters measured included Natural Gamma, Spectral Gamma (Radiometrics), Magnetic Susceptibility, Resistivity, SP and Waveform Sonic. Vector Magnetics and Temperature determinations were carried out in two holes.

At the completion of the contract logging, all holes were back-filled with cement.

2.1.2. Core Logging & Sampling Methodology

The drill core was geologically logged using Cameco's in-house UNILOG logging database system. The core was systematically logged measuring lithological, structural and alteration features. Results are displayed graphically using the GDM for Windows software program. A series of strip plots are used to display all features logged and measured. The explanatory notes for GDM plots describes features represented by colours in the strip plots. The Codes for Unilog appendix lists the codes and parameters that were used during the logging process and the Unilog Drill Core Data appendix contains the entire drill hole logs.

Analytical Methods
Explanatory Notes for GDM Plots
Codes for Unilog
Unilog Drill Core Data

Routine sampling was completed in every row of core. A representative 5cm sample was collected and halved using a core saw. One half was described (grain-size, Munsell colour, magnetic susceptibility), and density measurements were taken. The same sample was measured for spectral parameters using the PIMA II infra-red spectrometer. Interpretation of the spectra was principally achieved utilising TSG with occasional reference to the PimaView system for comparitive purposes. These samples are retained within the Cameco storage facility at the Darwin warehouse. The other half of the representative sample was used for lithogeochemical analysis. The samples were combined to form 5 metre composite samples for sandstone and basement, and 10 metre composite samples for dolerite.

TSA PIMA Majors for Drilling
TSA PIMA Exotics for Drilling
TSA PIMA for Outcrop

Representative samples of lithologies and sections of geological interest were collected from the drillcore and dispatched the petrolgraphical analysis.

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Analyses were carried out by Northern Territory Environmental Laboratories (formerly Chemnorth). The principal analytical procedures included G400 (ppm), G950 'WAL' or Weak Acid Leach (ppb), and Fire Assay (ppb). Elements analysed for by the G400 and G950 methods (ICPOES and ICPMS) are Ag, Al, As, Ba, Be, Bi, Ca, Ce, Co, Cu, Dy, Er, Eu, Fe, Gd, Ho, K, La, Li, Lu, Mg, Mn, Mo Na, Nb, Nd, Ni, P, Pb (Total and isotopes 204, 206, 207 and 208), Pr, Rb, S, Se, Sm, Sn, Sr, Ta, Tb, Th, Ti, Tm, U total (G400), U labile (G950), V, W, Y, Zn and Zr. In the case of Al, Ca, Fe, K, Mg, Mn, Na, P and Ti, the oxide is reported for the G400 series. Au, Pt and Pd are analysed by Fire Assay and B by G140 / ICPOES. Loss On Ignition (LOI) is determined by Gravity techniques with results in percent (%).

G950 Geochemistry for Drilling
G400 Geochemistry for Drilling
Fire Assay Geochemistry for Outcrop and Drilling

2.1.3. Drilling Targets

The 2000 drilling program was designed to test the entire length of the prospective Aurari Fault structure within Marligur Pass, i.e. that area extending from the MP3 sandstone anomaly in the south to Aurari North and extending immediately east of Laterite prospect. This tract of land has been the focus of concentrated exploration since 1997. The program proposal was for a maximum of 4000 metres to be reduced depending upon budgeting and timing.

Twenty two hole positions were proposed to allow for flexibility during the program. The majority were planned to intersect the Aurari Fault at regular intervals along its strike with others targeting subsidiary structures or magnetic anomalies. In addition, several holes were planned adjacent to and along strike of the U-Au-PGE intersections discovered the previous year in KRD404 (Aurari North).

Minor mineralisation, intersected in several other holes drilled during the 1998-1999 field seasons, was located either within the alteration envelope surrounding the fault zone (KRD410) or, adjacent to the fault trace (KRD407). The area surrounding these holes was also targeted in the current year.

2.1.4. Drill Hole Descriptions

KRD0658

The hole was precollared by air coring through the Cretaceous sediments and into the Kombolgie sandstone for several metres. The contact was intersected at 46 metres. Diamond coring was commenced at 47.9 metres.

The Kombolgie Formation was intersected between 46 and 149.85 metres. The sequence is composed mainly of pebble-bearing granule sandstone. Several widely spaced conglomeratic intervals, including a basal bed, are present throughout, ranging in thickness from about 10cm to over 2 metres. Maximum pebble/cobble size was observed in the basal section, the largest being 21cm in diameter. Several interlayered siltstone to fine sandstone beds were also present.

Finely disseminated sulphide (?pyrite) associated with minor limonitic staining and limonite-filled fractures occurs in the Kombolgie near the Cretaceous contact. This association has been observed in other holes with the addition of thin pyritic/limonitic intervals occurring in the overlying Cretaceous. The implication is that the Cretaceous is the source of the sulphur, which is probably of organic origin.

The Kombolgie/Basement contact was reached at 149.85 metres. The contact is unconformable but appears to be exhibit signs that movement has taken place post-deposition of the sandstone. There is local pervasive hematite-sericite-chlorite alteration initially ('red zone') with the hematitic component decreasing rapidly below 152.7 metres ('green zone'). The contact angle is sub-vertical and is approximately 35° to 45° to core axis [TCA].

A thin quartzitic interval, similar in colour and texture to Kombolgie sandstone, is present a few metres below the unconformity. The rock is pervasively silicified, fine grained and slightly hematitic. There is a localised increase in radiometrics corresponding to an altered and sheared chlorite-hematite zone sandwiched between the contact and the quartzite.

The basement comprises a comparitively monotonous meta-pelitic sequence, which consists predominantly of very sheared and brecciated fine to medium grained grey-green quartz-feldspar-biotite gneiss with some pegmatoidal segregations. Minor pink feldspar is present throughout, increasing below 211 metres and corresponding to the appearance of thin interlayers of quartz-feldspar-biotite-garnet schist.

KRD0658 Lithology and Major Element Geochemistry Plot
KRD0658 Lithology and Minor Element Geochemistry Plot
KRD0658 Lithology and Pima Spectra Analysis Plot
KRD0658 Lithology and Structure Plot
KRD0658 Lithology and Alteration Plot

Weak anomalism is present in the basement immediately below the unconformity with a maximum down-hole reading of 4000 cps at 150.8 metres. This feature corresponds to a structurally damaged zone in the basement created by shearing and the subsequent formation of cataclastic microbreccias within the psammitic metasediments. Uranium values reach a maximum of 377.8 ppm over a limited area with associated low order anomalous gold (14ppb), palladium (7.8ppb) and platinum (4.4ppb).

KRD0659

The precollar was pushed to 23.9 metres into Kombolgie sandstone, passing through the Cretaceous contact at 21 metres. The Kombolgie extends to 164 metres, where it forms a sheared, unconformable contact with basement gneiss.

The Kombolgie sandstone comprises coarse grained to granule sandstone with scattered pebbles throughout. Two conglomerate beds are present, both being approximately 8 metres thick and containing cobbles up to 13 cm in diameter. As in the previous hole, one of these beds forms the basal unit. Pervasive but weak clay alteration is associated with disseminated and fracture-fill limonite down to 66 metres.

Numerous thin 'basaltic' intrusives are concentrated between 90 and 143 metres. All are altered to some degree by chlorite and some are extensively clay altered. Several holes drilled in the area in previous years (KRD395and KRD399) have swarms of these unusual dyke-like bodies intruding the sandstone. Recent observations suggest that they are younger than the Oenpelli dolerite.

The unconformity exhibits some degree of disruption with shearing, brecciation and minor faulting. Sections of pervasive red brown hematitic alteration extend to 10 metres below the contact associated with zones of near vertical foliation. This interval exhibits similar characteristics to that in KRD0658 with the development of cataclastic microbreccias. Below the 'red zone' greenish sericitic alteration persists for several metres becoming less intense with depth.

The basement stratigraphy can be summarised as follows:

- From 220 to 329 metres are greenish-grey fine to medium grained quartz-feldspar-biotite gneiss and schistose gneiss grading into gneiss with interlayered chloritic quartz-biotite±garnet schist.
- From 270 to 280 m consists of a prominent interval of very coarse grained to pegmatoidal feldspar-rich gneiss ('granitoid').
- From 329 to 343 metres amphibolite with interlayered pegmatite is seen.
- Then to the end of the hole there is interlayered pegmatoid, quartz-rich gneiss and fine grained garnet-rich gneiss.

There was no indication of mineralisation in the hole.

KRD0659 Lithology and Major Element Geochemistry Plot
KRD0659 Lithology and Minor Element Geochemistry Plot
KRD0659 Lithology and Pima Spectra Analysis Plot
KRD0659 Lithology and Structure Plot
KRD0659 Lithology and Alteration Plot

KRD0660

Coring of the Kombolgie sandstone commenced at 9 metres (two metres of sandstone was air-cored) and extended to the unconformity at 137.7 metres. The position of the hole relative to the adjacent outcropping sandstone (and the trace of the Aurari Fault) resulted in negligible Cretaceous being intersected.

The Kombolgie sandstone consists of coarse grained to granule sandstone, pebbly throughout, with three conglomerate beds including a thin but very coarse cobble layer at the unconformity. Maximum cobble size is 13cm.

As in the previous hole there are numerous thin mafic dyke-like bodies up to a metre thick intruding the sandstone. Several are very fine to fine grained, grey-green to dark mauve-grey colour with the typical ophitic texture observed in Oenpelli Dolerite. These occur between 25 and 65 metres and 118 and 137 metres. Two others, located between 78 and 85 metres, are more like the 'basaltic' (peperite) type observed in other holes ie. very fine grained, light coloured and altered. One of these dikes exhibits extensive clay alteration.

In the sandstone there is variable pervasive alteration, mostly mauve to maroon hematite with some brick-red hematite in places. There are sections of bleaching usually interlayered with the hematite, producing both mottled and banded textures. Most of the clay occurs as disseminations in the matrix, or more rarely as fracture fills. Green to dark green chloritic alteration is present as disseminations and veinlets

adjacent to the mafic intrusives. Minor chlorite is present elsewhere. Limonite and light coloured bleached sandstone appears to border the choritic alteration. A pyrite-rich fracture with limonite and clay occurs at 105 metres.

The unconformity was encountered at 137.7 metres. The attitude of the contact is slightly flatter than in previous holes, being about 50^{o} TCA. A weak hematitic zone extends to approximately seven metres below the contact, passing into the green chloritic-sericitic altered section. Shear and localised breccia zones associated with clay gouge extend to 174 metres with another structurally disturbed zone from 243 metres to the end of the hole.

Lithologically, the sequence comprises interlayered meta-psammite and pelitic quartz-feldspar-biotite gneisses and chloritic biotite-quartz schists with a few thin amphibolite bands. Garnet becomes a more common constituent below 190 metres occurring in both gneiss and schist, and rarely amphibolite. The garnet is present as grains, porphyroblasts and in some cases as concentrated centimetric bands, mostly in the biotite-rich sections but also to a lesser degree in lighter coloured felsic gneisses. The occurrence of garnet in amphibolite is uncommon but not unknown.

There was no indication of mineralisation in the hole.

KRD0660 Lithology and Major Element Geochemistry Plot
KRD0660 Lithology and Minor Element Geochemistry Plot
KRD0660 Lithology and Pima Spectra Analysis Plot
KRD0660 Lithology and Structure Plot
KRD0660 Lithology and Alteration Plot

KRD0661

Hole KRD0661 was positioned adjacent to the Aurari fault, in an area where the trace of a north-north-east structure, designated the KRD410 fault, intersects the Aurari. There is also an interpreted 'jog' in the Aurari immediately north of the hole position. A thick sandstone / dolerite sequence was expected in the hole.

Cretaceous sediments comprising sandstone and siltstone were intersected, extending to 43 metres.

Diamond core drilling commenced at 45.4 metres with 2.4 metres of Kombolgie sandstone being air cored. A significantly attenuated intersection of the sandstone

extended to 53.4 metres and recommenced at 329.7 metres. Oenpelli dolerite intrudes the Kombolgie between these depths.

The upper Kombolgie intersection comprises light grey, coarse to granule sandstone with scattered pebbles. Limonite, hematite and minor chlorite are present with some clay alteration. The core is heavily fractured with some clayey gouge. Chlorite alteration is more prevalent adjacent to the dolerite contact. The attitude of the contact is masked by broken core.

The lower intersection of Kombolgie continued to approximately 383 metres. This section of sandstone contains widespread chlorite as disseminations in the matrix, coating fracture surfaces, in veinlets associated with quartz and clay and in localised breccias. Patchy red hematite also occurs as does widespread patchy clay alteration. Silicification is also present.

A thin clay altered brecciated dolerite sill is present at 374 metres with associated fairly intense brecciation and chlorite alteration in the adjacent sandstone. Two other thin intrusives are also present.

The Oenpelli dolerite exhibits the typical chilled margins at the contact zone with the intruded sandstone. As noted above, the upper contact is broken, however the lower one is preserved and has an angle of 40° TCA. The intrusive is typically monotonous both lithologically and structurally.

A zone of intense structural disturbance lies beneath the lower contact of the deeper sandstone intersection. It has been intensely sheared and brecciated and appears to be a thin selvedge of pervasively chloritised basement, possibly including fragments of sandstone. Similarly disturbed and altered dolerite reappears at 391.3 metres. Severe caving in this lower section forced abandonment of the hole at 399.8 metres.

There was no indication of mineralisation in the hole.

KRD0661 Lithology and Major Element Geochemistry Plot
KRD0661 Lithology and Minor Element Geochemistry Plot
KRD0661 Lithology and Pima Spectra Analysis Plot
KRD0661 Lithology and Structure Plot
KRD0661 Lithology and Alteration Plot

KRD0662

Hole KRD0662 was precollared by air coring to a depth of 87 metres. The upper section of the hole collapsed in the thick, very loose surficial sands creating a large open cavern adjacent to the drill rig. The site was abandoned.

KRD0663

The hole was precollared to 40.7 metres through the Cretaceous and into the underlying Kombolgie sandstone. The latter comprises a 230 metre thick sequence of conglometratic sandstone and conglomerate. The conglomerates range from pebble to cobble, with some clasts estimated to be larger than 20cm diameter. Most are rounded to sub-rounded vein quartz and rarely, older quartzites. Some angular fragments of basement were observed. Sandstone beds with some pebble horizons predominate over the last 25 metres with a few isolated cobbles towards the base.

Alteration consists of strong clay altered pebbly intervals beneath the Cretaceous, associated with red hematite. Maroon and minor red hematite alteration follows with continuing weak but pervasive clays. From 200 metres red hematite re-appears in association with the more widespread maroon coloured hematite, which finally becomes the predominant alteration in the finer sandy intervals immediately above the basement contact.

The Kombolgie Sandstone / basement contact is at 270.4 metres. Below the contact a distinct red hematitic zone is present over 10 metres with green alteration becoming predominant to about 312 metres. The principal lithology is a grey to grey green fine to medium grained quartz-feldspar-biotite gneiss with isolated intervals containing garnet. More mafic (biotite-rich) bands occur as well as thin amphibolitic units from 355 metres. With increasing depth silicification increases in association with quartz veining and silica-rehealed breccias. The hole was terminated at 428 metres in sheared and decomposed mafic-chloritic gneiss.

KRD0663 Lithology and Major Element Geochemistry Plot
KRD0663 Lithology and Minor Element Geochemistry Plot
KRD0663 Lithology and Pima Spectra Analysis Plot
KRD0663 Lithology and Structure Plot
KRD0663 Lithology and Alteration Plot

KRD0664

The hole is located approximately 100 metres east of 1999 hole KRD404 at 304220E / 8693575N. It was positioned to intersect extensions to the sandstone and basement-

hosted mineralisation located within KRD404. The initial mineralised intersection was discovered within an extensive structurally damaged zone immediately underlying the Oenpelli Dolerite. Further mineralised intercepts were present at depth, occurring in a similar structural environment and bounded by a series of thinner doleritic intrusives. The relationship with the minor KRD404 intersections is unresolved. The two holes exhibit a dramatic change in the geology over a relatively short horizontal distance.

The hole collapsed in soft friable dolerite and was abandoned at a depth of 344 metres.

KRD664 was precollared to 65 metres through soft Cretaceous sandstone. Some large quartz pebbles that appeared at the base of the pre-collar are most likely remnants of weathered Kombolgie conglomerate.

Underlying the above is a zone of weathered clay-rich Oenpelli dolerite, which becomes progressively less decomposed with depth and, at about 93 metres, rapidly changes to hard fresh grey-green dolerite. Contact with basement gneiss is at 124.8 metres.

The basement rocks comprise fine to medium, rarely coarser grained quartz-feldspar-biotite gneiss ± garnet. There are some intervals, which appear more mafic with biotite predominating and some thin amphibolitic bands. Foliations, where recognisable, vary between 50° and 70° TCA, i.e. moderate to shallow. Alteration consists of widespread chlorite, sericite and clays (predominantly illite). Hematite is locally present and associated with anomalous veinlet networks or breccias. Silicification is widespread occurring as pervasive replacement of the gneiss, as veins and complex veinlet networks and as interstitial replacement of breccia matrix. Petrographic descriptions (Pontifex, 1999 and 2001) refer constantly to veinlets of 'micro-sparry quartz of epithermal origin'. Pale pink feldspar-rich veinlets have been identified both as albite with hematite inclusions or K-spar (?adularia).

Two dolerite bodies intrude the basement at depth, one between 236 and 257 metres and the other from 340 metres. The latter was extremely soft and decomposed and caused abandonment of the hole.

All significant mineralisation is contained within the basement gneiss. The dolerites are devoid of anomalism with the exception of the weathered clay-rich zone present immediately beneath the Cretaceous. Here, several isolated radiometric peaks of around 2000 to 3000cps occur at the upper contact (with the Kombolgie or Cretaceous) and at the interface with the fresh dolerite. This phenomena has yet to be satisfactorily explained, however it does bear similarities with the weakly mineralised occurrences at the Laterite and 46N anomalies.

Most of the basement has been affected structurally with widespread fracturing and shearing. Intervals of broken core are common. Anomalous sections are associated with a variety of structures including veinlet networks, breccias and silicified breccias, chloritic and/or clay-filled shears and fractures. Not all structures are mineralised.

KRD0664 Lithology and Major Element Geochemistry Plot
KRD0664 Lithology and Minor Element Geochemistry Plot
KRD0664 Lithology and Pima Spectra Analysis Plot
KRD0664 Lithology and Structure Plot
KRD0664 Lithology and Alteration Plot

KRD0665

Located approximately 300 metres south of holes KRD404 and KRD0664 at 304200E / 8693280N. It was initially designed to test the hanging wall of the Aurari fault along strike from KRD404 but gained added importance with the discovery of the extensive anomalous zone in KRD0664.

Only minor mineralisation was intersected. The hole was abandoned at 222 metres due to caving around the base of the casing.

Cretaceous sediments were precollared to 99.2 metres. A remnant of Kombolgie conglomerate was sandwiched between the Cretaceous and a peculiar dark green completely decomposed basement gneiss. The Kombolgie conglomerate exhibited some hematite alteration, minor limonite and clay. Finely disseminated pyrite was noted. Veinlets of chlorite are present immediately above the basement contact.

Basement rocks comprise quartz-feldspar-biotite-garnet gneiss and amphibolite. The latter contains veinings and segregations of coarse grained felsic material. Altered gneiss extends from the unconformity to 141 metres, becoming progressively less weathered with depth. As mentioned above the gneiss was reduced to a fine, green to greenish grey sand consisting of quartz, mica and garnet. The unaltered equivalent is a finely banded / foliated gneiss.

Significantly there is no Oenpelli dolerite in this hole.

Localised radiometric anomalies are present throughout the basement, and most are correlatable with well defined structures or zones of alteration and associated veining. The majority give down-hole radiometric responses in the 1000 to 4500 cps range

KRD0665 Lithology and Major Element Geochemistry Plot
KRD0665 Lithology and Minor Element Geochemistry Plot
KRD0665 Lithology and Pima Spectra Analysis Plot
KRD0665 Lithology and Structure Plot
KRD0665 Lithology and Alteration Plot

KRD0666

The hole is located approximately 300 metres south-east of KRD0664 and 150 m east of KRD0665 at 304355E / 8693280N. The site was drilled in 1998 as DDH394 (Melville et al., 1998) and was abandoned in dolerite.

Cretaceous sediments were intersected to 63 metres, and a thin selvedge of Kombolgie conglomerate to from there to 73.2 metres. The conglomerate is clayey and decomposed in sections with some core loss. It is identical in character to that observed in the previous hole.

Oenpelli dolerite is in contact with the Kombolgie at 73.2 metres and extends to 170.1 metres. The upper part of the dolerite is severely clay altered, resembling the intersection in KRD0664. It then becomes progressively fresher grading into typically hard, solid dolerite from 87 metres. There is an elevated uranium content of 18ppm (background 1ppm) within the clay altered zone.

A second dolerite was intersected commencing at 434 metres and extending to the end of the hole at 460.6 metres. This dolerite, which intrudes amphibolite, is itself intruded by an aphanitic rock of basaltic appearance. The latter resembles the so-called 'peperites' seen intruding the sandstone in several drill holes.

The contact with basement is at 170.1 metres. There are similarities with the basement intersection in drill hole KRD0664, including extensive shearing, brecciation and pervasive chloritic-sericitic alteration. The principal host rock is quartz feldspar biotite ± garnet gneiss with thin interlayered bands of altered 'knotty' mica-quartz-feldspar schist. Amphibolite, with associated pegmatoids, is present in three distinct intervals. The uppermost, commencing at 254 metres contains some anomalism. The deeper intersections at 345 and 380 metres are barren but 'enclose' an anomalous interval of gneiss and schist.

Significant mineralisation is hosted by basement gneisses and, as in KRD0664, commences in an identical position relative to the lower contact of the Oenpelli dolerite. The main mineralized interval in this hole however, which extends from

169.9 to 243.5 metres, is more 'concentrated' and contains several sub zones of comparatively high grade. The aggregated mineralised width of 57.5 metres has an average grade of 0.1238 % e U_3O_8 (1050 eUppm) derived from down-hole radiometric calculations. Maxima within this section range from 0.24 up to 0.61% eU_3O_8. The zone is terminated at depth by an eight metre wide fault which extends from 243 to 251 metres.

Further intervals of structurally controlled lower order anomalism occur below the abovementioned 'terminating structure', extending throughout the hole to about 383 metres and associated principally with quartzofeldspathic gneiss and biotite schist host rocks. The lower limit of the anomalous radiometrics is coincident with a shear zone below which an amphibolite-pegmatoid sequence predominates. At 263 metres sheared chloritized amphibolite within a wider gneiss-amphibolite-pegmatite section hosts a thin zone of mineralisation peaking at 623ppm U. Amphibolite is normally barren of mineralisation.

KRD0666 Lithology and Major Element Geochemistry Plot
KRD0666 Lithology and Minor Element Geochemistry Plot
KRD0666 Lithology and Pima Spectra Analysis Plot
KRD0666 Lithology and Structure Plot
KRD0666 Lithology and Alteration Plot

KRD0667

The hole was collared on the site of the previously drilled DDH391 at 304364E / 8693911N (Melville, 1998), which was terminated in Oenpelli dolerite at a depth of 99.4 metres.

The discovery of mineralisation below the Oenpelli dolerite in KRD0664 and KRD0666 and the nearby Laterite uranium prospect, prompted redrilling of the location. Archaeological clearances had been completed in 1998.

The Oenpelli Dolerite was intersected to 137.1 metres. As in holes KRD0664 and KRD0666 mineralisation was located immediately below the contact in altered and structurally prepared basement rocks. The 'layer' of mineralised rock here is more localised less intense with fresh, relatively unaltered gneiss appearing from around 150 metres. A feature of the deeper sections of the hole is a series of multiple dolerite intrusions ranging in thickness from a few metres to over 40 metres.

Principal rock types include quartzofeldspathic gneisses with minor pegmatitic segregations and some interlayered mafic gneiss appearing below 315 metres. Minor garnet schist and amphibolite were noted. The gneisses exhibited variable grain size,

from finer grained more mafic (biotitic) to coarser grained variants with a 'granitoid' texture. Colours varied dependent upon intensity of alteration type i.e. dark green-grey chloritic to lighter green sericitic.

An unusual feature is the presence of fairly abundant carbonate in the basement. The distribution is widespread, occurring as veinlets both within the mineralised zone and in fresh rock. Minor carbonate is also present in the overlying dolerite. The latter also contained vuggy quartz veining, which is unusual.

The mineralised zone extends intermittently from about 140.5 to 162.6 metres and consists of several close-spaced anomalous intervals. The host rock is a medium grained grey-green quartz-feldspar-biotite gneiss, with spotty pervasive chlorite and wispy yellow-brown sericitic alteration. Silicification increases from about 149 metres. The mineralisation is contained within sub vertical to vertical shears and fracture sets with associated networks of veinlets composed of silica, pink ?feldspar, chlorite and sericite (probably illite). An isolated hematitic-chloritic quartz vein at 188.4 metres has minor associated anomalism. Foliations within the host are a consistant 50° to 60° TCA.

KRD0667 Lithology and Major Element Geochemistry Plot
KRD0667 Lithology and Minor Element Geochemistry Plot
KRD0667 Lithology and Pima Spectra Analysis Plot
KRD0667 Lithology and Structure Plot
KRD0667 Lithology and Alteration Plot

2.2 Sandstone Traverse Sampling

The 2000 regional background sandstone sampling was designed as a continuation of the PNC program with the aim of completing a full coverage of the entire accessible Kombolgie Sandstone outcrop. A total of 162 samples was collected in 2000, achieving a combined sample density of approximately ten per $1km^2$, at 200 metre spacing on lines 700 metres apart. The following figure shows the total coverage. These samples were carefully selected to represent regional background signatures for lithological, spectral and geochemical parameters at each location. Geomorphological, geological and radiometric parameters were recorded and a digital photograph at each site was taken. The samples were systematically processed at the project camp. Lithological textures, alteration colours (Munsell), grain-size variations and petrophysical parameters (magnetic susceptibility) were routinely recorded.

Outcrop Sample Location Plan
Outcrop Sample Physical Properties

All samples were sent to NTEL in Darwin and Pine Creek for multi-element analysis. In total, four separate methods were being used to analyse for approximately 50 elements. All geochemical data including analytical procedures are included in the following appendix.

G950 Geochemistry for Outcrop
G400 Geochemistry for Outcrop
Fire Assay Geochemistry for Outcrop and Drilling
WAL Geochemistry for Outcrop and Drilling

2.3 Geophysics Surveys

The only project scale geophysics undertaken during 2000 consisted of AMS (Airborne Multispectral Scanner) by De Beers Australia Exploration Limited prospect scale geophysics was undertaken at Marligur Pass (Aurari Fault zone) and consisted of detailed airborne magnetics and radiometrics by UTS and three ground gravity traverses by Daishsat Pty Ltd (Daishsat).

All digital data has been submitted on CD with this report except the AMS data, which has not yet been processed or interpreted. Data over culturally sensitive "nogo" zones has been excised from figures in accordance with requests by Traditional Owners.

Table of Survey Specifications

Company	Amount	Parameter	Specifications
DeBeers	488 km^2	Reflectance	5 m Pixels
UTS	408 linekm	Magnetics, Radiometrics, DTM	50 m WE Lines, 30 m height
Daishsat	9 linekm	Gravity	50 m stations

Map of Geophysics Undertaken During 2000
Logistics Report by UTS
Logistics Report by Daishsat

2.3.1. AMS

A total of 488 km^2 of hyperspectral data was flown over Kombolgie Sandstone outcrop. The survey was designed to map minerals and identify alteration associated with unconformity uranium mineralisation. In particular, it was hoped that this system would identify and map variations in kaolinite, illite, dickite, halloysite, iron and magnesium chlorites and silicification, which could be attributed to alteration.

Whilst the survey was flown in July 2000, no data has been processed or interpreted. This data and a logistics report will be submitted in next year's annual report.

2.3.2. Detailed Airborne Magnetics and Radiometrics

A total of 408 linekm of detailed airborne magnetics, radiometrics and digital terrain model (DTM) data was acquired over the Aurari fault in the Marligur Pass area. The aim of the survey was to further define the Aurari fault zone and identify magnetic highs. The survey coverage extends south from the southern edge of the previous years ground magnetic survey to the vicinity of the MP3 sandstone aomaly.

Many new lineaments have been identified by the detailed survey. Further analysis will be undertaken in the future to place the lineaments and trends into a structural framework.

Map of Airborne Magnetics – Reduced to Pole with 1st Vertical Derivative (RTP with 1VD)
Map of Airborne Radiometrics – Total Counts (TC)
Map of Airborne Radiometrics – Potassium (K)
Map of Airborne Radiometrics – U
Map of Airborne Radiometrics – Thorium (Th)
Map of Airborne Radiometrics – RGB=K,U,Th
Map of Airborne DTM
Map of Airborne Magnetic 1:20000 Scale Interpretation

Logistics Report by UTS

Radiometrics

The primary aim of the detailed airborne survey was to acquire detailed airborne magnetics rather than radiometrics. However, an analysis of this data has been made to determine whether subtle uranium anomalies are present which, have not yet been ground checked. MP1, MP2 and MP3 are the three previous radiometric anomalies present in the area surveyed, and there are some subtle radiometric anomalies in the sandstone proximal to these prospects. However, geochemical sampling has been undertaken previously in these areas and further work is not warranted. No further significant radiometric anomalies were observed away from those previously identified.

Magnetic Domains

Magnetic domains in the Marligur Pass area have been interpreted as dolerite, buried dolerite or amphibolite.

In the past it has been postulated that increased magnetics observed in the Black Rock ground magnetic survey is due to alteration (L. Sawyer, pers. comm.). However, the favored interpretation at the conclusion of 2000 drilling program is that the magnetics

is more likely to be due to increased amphibolite content (i.e. 48 m for KRD390). There is an increase in garnet for this area; though there is no physical reason why this would be associated with increased magnetics.

Magnetic Lineaments

Many magnetic lineaments have been identified that were not apparent in the previous project scale (200 m line spaced) data including a subtle north-south lineament proximal to hole KR0410.

The Aurari fault is identified by weak magnetic lows and a strong termination of the interpreted Oenpelli dolerite. Two separate parallel lineaments have been identified in the southern part of the detailed survey corresponding to the Aurari fault zone. In this area the eastern fault is the most obvious and is evident as a termination of the Oenpelli Dolerite. West of this structure the fault is less obvious as a faint linear disruption in the magnetics. In the northern part of the detailed survey the eastern lineament is lost and the western lineament is shown by a termination of Oenpelli Dolerite and a discrete linear magnetic low (near drill hole KRD0660).

Evidence for two lineaments combining for the Aurari fault zone is best seen on Marligur Pass Traverse 4 (8687882 mN), which currently consists of 10 RAB holes. Drilling was confined to less than 25 m depth and failed to intersect the Aurari fault. However, a gravity profile along this section shows two distinct lows (separated by a 1 mgal saddle), which correspond to the two interpreted Aurari fault lineaments.

The termination of the northern end of the eastern lineament could have a number of causes. Although it is possible that the lineament is simply dominated by the Oenpelli Dolerite to the north, several subtle north-west lineaments in this area imply a structural jog may be present, linking the western and eastern lineaments.

2.3.3. Gravity Traverses

Three gravity profiles totaling 9 line Km were undertaken over previous drill fences to investigate the gravity signature of the Aurari fault. Gravity lines 8692707, 8687882, 8686498 correspond to drilling traverses 2, 4 and 5 respectively.

Map of Gravity Traverses and Geology (with stacked sections)
Logistics Report by Daishsat

Interpretation

A significant gravity low of up to 3 mgal is evident in each of the three traverses and is attributed to increased clay and Cretaceous cover associated with the Aurari fault. The

presense of Kombolgie sandstone is also interpreted to contribute to the gravity low in these areas.

Traverse 5 has a gravity low positioned over the Aurari fault and another low at the eastern end of the line. Although sandstone has been intersected in shallow RAB drilling (<10 m) between the two lows on this section it is interpreted that the sandstone is relatively thin and is thickening to the east. For this explanation to hold sandstone must be present below the Oenpelli Dolerite, which has been intersected in the shallow RAB drilling (<10 m) at the eastern end of the traverse.

A secondary low is associated with KRD0410, which coincides with a structure interpreted from drilling and also a north-south lineament, which is evident in the detailed airborne magnetics.

Topography appears to vary inversely to the gravity. Topography is likely to be controlled by shallow geomorphological effects such as a Cretaceous sandstone and siltstones. Since the these controls are volumetrically small they are interpreted to be insufficient to effect the gravity.

Conclusion

Gravity has successfully imaged the Aurari fault which exhibits a large 3 mgal low. It is recommended that additional gravity be undertaken over prospects of interest in the Marligur Pass area to assist with drill planning.

2.4 Down-hole Geophysics

In October 2000, Scintrex Pty Ltd (Scintrex) undertook down-hole geophysics on behalf of Cameco in the Marligur Pass area. Scintrex logged holes KRD0661 (to 352 m), KRD0663 (to 426 m) and KRD0667 (to 370 m), for a total of 1148 m. Of the holes logged KRD0667 is the only one with mineralisation over 0.1% eU_3O_8 (according to the calibrated natural gamma probe). Parameters surveyed were natural gamma, spectral gamma (radiometrics), magnetic susceptibility, resistivity, self-potential and waveform sonic. In addition, vector magnetics and temperature was collected for holes KRD0661 and KRD0663.

The aim of the down-hole geophysical program was to increase the physical property database and to determine whether physical property changes are associated with uranium mineralisation. Radiometrics was collected to test whether the Spectral Gamma tool could be used to directly sense the contribution of uranium to the gamma radioactivity. Vector magnetics was collected to increase the magnetic information for the Oenpelli Dolerite for modeling purposes.

All digital data has been submitted on CD with this report.

Logistics Report by Scintrex
Logistics Report by Scintrex Describing Sonic Processing

KRD0661 Down-hole Geophysics
KRD0663 Down-hole Geophysics
KRD0667 Down-hole Geophysics

The sandstone shows variations in resistivity which is interpreted to relate to alteration and weathering. Dolerite is generally conductive with a number of resistive zones indicated in in KRD0667. However, the resistivity does not appear to correlate with fresh/altered dolerite as expected. Gneiss and mafic gneiss exhibits a resistive halo surrounding the amphibolites. Amphibolite rich rocks generally exhibit increased magnetics but not always. KRD0667 uranium mineralisation shows increased U, Th, and K, which are highly correlated. The mineralisation is not related to magnetics and is inversely correlated to resistivity (moderately conductive). Increased K may relate to increased illite/alteration.

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