Cameco Australia Pty Ltd

KING RIVER PROJECT

NORTHERN TERRITORY

Exploration Licence 5891

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SUMMARY

This report describes exploration work undertaken within EL5891 during the eighth year of tenure ending 12 May 2004. The licence area is located in northwestern Arnhem Land and was initially granted on the 13 May 1996.

The exploration program was managed by Cameco Australia Pty Ltd on behalf of the Warrga Joint Venture partners, Cameco Australia Pty Ltd and the Warrga Aboriginal Corporation. The primary exploration target is for unconformity related uranium deposits similar to the nearby Ranger, Jabiluka and Koongarra deposits and the now depleted Nabarlek mine.

The principal exploration activities involved diamond core and RAB drilling, airborne geophysics and rock sampling. The program concentrated on further diamond drilling at the Kuroikin and Laterite prospects and RAB drilling at the Laterite, 46N and Sandy Point uranium anomalies. Eight diamond and 68 RAB holes were drilled..

A close-spaced airbornemag/rad survey was designed to cover a localised area surrounding the Sandy Point uranium anomaly. Other work included geological reconnaissance of specific areas, which consisted of mapping, sampling and radiometric traversing.

Several significant results were achieved from the drilling program:

- Diamond drilling considerably expanded the zone of mineralisation at Kuroikin.
- Deep drilling at Laterite failed to prove continuity southwards, however an extension towards the west (Aurari North Prospect) was indicated.
- RAB drilling at the Sandy Point prospect, the most recent uranium discovery in the project area, indicates that intense alteration combined with anomalous radiometrics is present in both the Kombolgie sandstone and basement gneiss.

The Kuroikin zone of vein-style mineralisation is now indicated to cover an area of approximately 1.5km north-south and at least 0.5km wide from a pattern of 500 metre spaced drill holes. Although some holes from the current years' program have exhibited an increase in intersection widths and grade of the vein systems, overall there are still no positive indications that a continuous concentrated area of mineralisation exists.

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INTRODUCTION

This report describes program activities carried out on EL5891 of the King River project during the 2003 field season by Cameco Australia Pty Ltd (Cameco). EL 5891 forms part of the King River Project and exploration is presently being conducted simultaneously with the adjoining King River tenements, EL 734 and EL 5890. As the exploration licence is located on Aboriginal land the work 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.

Clearance was given by the Northern Land Council on behalf of the Traditional Owners (Warrga Aboriginal Corporation following the Exploration and Liaison Committee meeting held on May 29 at Croker Island. Fieldwork commenced in early June and was completed by mid August.

Diamond core and RAB drilling constituted the major portion of the work program. Airborne fixed wing mag / rad was flown over the Sandy Point area.

Contractors who were involved on the project are listed below:

- Diamond drilling by Underground Diamond Drillers, Gympie, Queensland
- RAB drilling by Johannsen Drilling Pty Ltd, Port Lincoln, South Australia
- Chemical assaying by NTEL, Darwin
- Petrographic work by Pontifex and Associates, Adelaide
- Airborne geophysical surveys by UTS, Perth
- Helicopter assistance by Jayrow, Darwin
- RAB track preparation and general rehabilitation work by Wildman River Stock Contractors Pty Ltd, Darwin

Location and Access

The tenement is located in western Arnhem Land to the northeast of the Aboriginal settlement of Gunbalanya and is wholly within Aboriginal Land. The Ranger uranium mine is situated approximately 100 km 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 main road accessing the Gurig (Cobourg) National Park traverses the southwestern corner of the tenement.

Access within the tenement is variable and dependent upon topography. In general, most of the country is flat lying and can be traversed relatively easily by four wheel drive vehicle during the dry season. The only exceptions to this are several deeply incised and/or swampy creeks, which can be a barrier to cross-country travel and the heavily dissected sandstone remnants of the Wellington Range. The latter are best accessed by helicopter. Two pre-existing tracks, the Waminari Bay and King River roads provide access to the main drilling areas.

Location Plan

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.

Renewal of the licence was required under the Mining Act at the cessation of the six year period. An application for renewal accompanied by supporting documents was forwarded to DBIRD in February 2002 and renewal granted in March of that year. The tenement was renewed for a further two years in February 2004. The latest renewal will take effect on 13 May 2004. A total of 645.9 square kilometres was available for exploration in Year Eight

Physiography
The tenement contains some remnant areas of dissected sandstone plateau, which comprise the eastern extension of the Wellington Range. The remainder consists predominantly of gently undulating plains covered by savannah woodland. The main drainage systems are the King River and Marligur, Angarlban and Angularli creeks.

Regional and Tenement Geology

Please refer the 2003 Annual Report for details.

EL5891 Regional Geology

Regional Structure and Geological History

Please refer the 2003 Annual Report for details.

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. . The King River-style of mineralisation has geochemical similarities with these deposits.

Previous Exploration

Please refer to the 2003 Annual Report for details.

PROGRAM ACTIVITIES

Field activities during the 2003 season consisted of diamond core and RAB drilling, airborne geophysics, mapping and sampling. The principal aims of the diamond drilling program was firstly to further explore and attempt to upgrade the Kuroikin prospect with additional wide-spaced holes and secondly to locate extensions to the previous year's Laterite Prospect intersection. The RAB program was planned to assess several previously untested anomalous environments in the Black Rock area as well as the Sandy Point prospect.

Airborne geophysics consisted of a detailed mag/rad survey over the Sandy Point uranium prospect. Geological mapping and rock sampling was conducted at both prospect and regional scale at Sandy Point.

Diamond Drilling

Core drilling was undertaken during the period 1 July to 2 August with the completion of eight drill holes totalling 2751m. This figure includes 490.5m of roller bit precollaring, mainly through thick Cretaceous sediments.

Drilling was carried out by Underground Diamond Drilling (UDD) using a truck mounted UDR 1000 rig and support vehicles. The program was conducted on a double shift basis with an average drilling rate of 41.68 m per shift. The averaged all-up cost was $97.12 per metre, which includes chargeable categories such as mob/demob, consumables, core orientation and hole survey equipment hire etc. This figure is less than the previous year and can be attributable to improving ground conditions and on-going efficiency of the contractor.

All holes were drilled on a westerly azimuth and angled at 75 degrees. Drill core orientations were run on all holes, this exercise proving to be far more successful than 2002. Hole locations were originally positioned using a Garmin GPS. At the completion of the program, drill hole collar positions were re-established with a Trimble DGPS. A plaque affixed to a cement block and placed near the hole collar details hole number and co-ordinates.

Diamond Drill Hole Location Plan

Hole Number	AMG E	AMG N	Bearing	Declination	Precollar (m)	Coring (m)	Total Metres
KRD0777	305242	8667900	250	75	93.6	275.9	369.5
KRD0778	305070	8688342	250	75	102.0	330.5	432.5
KRD0779	305574	8687900	250	75	93.9	195.5	289.4
KRD0780	305564	8687448	250	75	81	197.5	278.5
KRD0781	305184	8693530	270	75	27.9	272.6	300.5
KRD0782	304987	8693530	250	75	33	366.5	399.5
KRD0783	304794	8693748	250	75	34	371.5	405.5
KRD0784	304471	8687856	250	75	25.1	250.8	275.9
Totals					**490.5**	**2260.8**	**2751.3**

Radiometric Logging

Natural radiation was logged down-hole by Cameco personnel using an Auslog digital down-hole logging unit. On-going trials utilising a Sirolog spectrometric probe were carried out on several holes. All holes at Kuroikin were logged inside the rods due to the thick unstable Cretaceous cover.

Core Logging & Sampling Methodology

Please refer to the 2002 annual report for EL5891 for a description of procedures covered under this heading.

Analytical Methods

Codes for DHLogger
NTEL Chemistry Analytical Techniques

DHLogger Drill Core Data KRD0777
DHLogger Drill Core Data KRD0778
DHLogger Drill Core Data KRD0779
DHLogger Drill Core Data KRD0780
DHLogger Drill Core Data KRD0781
DHLogger Drill Core Data KRD0782
DHLogger Drill Core Data KRD0783
DHLogger Drill Core Data KRD0784

Pontifex Drill Core Petrographic Report

TSA PIMA Majors for Diamond Drilling
TSA PIMA Exotics for Diamond Drilling

G400 Composite Sample Geochemistry for Diamond Drilling
G400 Grade Sample Geochemistry for Diamond Drilling

Drilling Targets and Planning

Both Laterite and Kuroikin Prospects were targeted for drilling during the 2003 campaign. Further drilling within the Aurari North mineralised zone has been suspended as the limits to the main mineralised body are considered to be satisfactorily established. There is however further scope for wider spaced exploratory drilling to trace possible offset continuations to the mineralisation to the west and north.

The 2003 program comprised eight holes, five of which were drilled at Kuroikin. The latter were planned at 500 metre step-outs to the north, east and west of the two holes drilled in 2002. The final configuration presented an area 1.5km north-south along the 410 structure and up to 1km east-west along the '410 fence'.

It was envisaged that the hole pattern at Kuroikin would provide the following:

- Confirmation of a continuous mineralised trend northwards along the trace of the 410 structure.
- Determine if higher-grade mineralisation or more concentrated vein networks existed in the vicinity of where the 410 structure intersects the Aurari Fault Zone (dilationary zone).
- Determine if higher-grade mineralisation existed closer to the Aurari Fault and at distance from the influence of the 410 structure (so-called hybrid mineralisation consisting of both 'disseminated' and vein style).
- Confirmation that a significant east-west dimension to the mineralisation existed.
- Establish a western limit to the mineralised system along the '410 fence'.

At Laterite Prospect three holes were located to the south and immediately west of the 'Laterite Deeps' discovery hole, KRD770. This basement-hosted, vein-style mineralised occurrence was intersected at depths between 250 and 380 metres

beneath a 200 metre thick intrusion of Oenpelli dolerite. The drill plan would hopefully provide some geometry to this isolated intersection.

Drill Hole Descriptions

Kuroikin Prospect

A variety of rock types are present in the various holes drilled in 2003 including quartz-feldspar-garnet gneiss, several variants of mafic biotite-feldspar-quartz gneiss (including the Kuroikin 'granodiorite'), quartz-biotite-garnet schist and amphibolite. Oenpelli dolerite was encountered in three holes to the north and west. This is in contrast to previous holes where only coarse-grained foliated mafic gneiss was encountered. Intervals of veining and associated alteration carrying mostly weak to moderate, with rare higher-grade mineralisation (plus 2-3% U_3O_8), have been encountered in four of the five 2003 Kuroikin holes. The mineralisation is not restricted to rock type, occurring in all the gneissic variants mentioned above (except amphibolite). Unlike holes previously drilled at Kuroikin, the majority of the more important mineralised intercepts are being encountered at depth, from around 200 metres, except for KRD780 where a significant zone was encountered between 109 and 134 metres.

The alteration features associated with mineralisation and the vein styles are identical to those previously described from Kuroikin. Chlorite is ubiquitous, occurring principally as a dark green to black replacement of pre-existing minerals peripheral to veining and as a component of the veins. Many of the unmineralised quartz veins are also characterised by a halo of dark chlorite though these occurrences appear to lack the other types of alteration, ie. sericite and hematite, which normally indicate mineralisation. Some of the intercepts are accompanied by a more pervasive and intense hematisation than previously observed. Disseminated, patchy and fracture plane smears of brownish-red, brick red and bright red hematite appear to be more obvious. The intensity of the alteration however does not necessarily correlate with an increase in grade although where hematite is present there is normally a radiometric response to some degree. Streaky yellow brown and reddish brown (hematite-included) sericite is a common component of the alteration halo surrounding mineralised veins. Rare bright yellow ?sericite, resembling the colour of uranium secondaries, was also noted in two instances. Some of these occurrences have been described as a mixture of chlorite and sericite (pers. comm. Paul Polito 2003).

Quartz veins and associated structures as previously described from Kuroikin by Thomas (2003) and Melville (2002 Annual Report King River) are also observed in the more recent drill holes. These include:

- sparry cockscomb veins, some with vuggy centres
- ribboned combinations made up of compact sub-millimetric veinlets consisting of silica-chlorite-sericite-hematite-+/-carbonate-+/-uraninite
- laminated or layered veins sometimes with sub-millimetric black filament-like veinlets of chlorite and/or uraninite
- barren opaque white or light grey quartz veins with chloritic haloes
- shears and / or breccias
- combinations of any of the above

Uraninite is normally present as thin sub-millimetric streaks and veinlets although these can, in some cases, be confused with other dark minerals such as black chlorite. The uraninite can occur centrally located within the vein or on either or both peripheries. Initial observations suggested that most of the uraninite was located at the base (footwall) of the vein (Thomas, Melville); this morphological feature of the veins remains evident and is common to both Kuroikin and Laterite. Micro and macro breccias have been observed, the former within the veins and the latter as a more obvious centimetric-sized structural feature, where disjointed fragments of quartz and host rock form a matrix to higher-grade intersections 2-3% U_3O_8). Carbonate, presumably calcite is present either as discrete veinlets, fine veinlet networks or as an intimate associate of the mineralisation. The carbonate veinlets are post-mineralisation as they predominantly crosscut the quartz-chlorite veins and chlorite alteration. Sulphides such as pyrite and possibly chalcopyrite are sometimes present as fine disseminated grains within the quartz.

Core orientation methods allow for systematic recording and analysis of measurements of various structures such as veins, fractures, shears and faults. The problems, which have been associated with the core orientation device at King River the previous year, have now been resolved. Additionally, the competency of the ground being drilled has markedly improved and is now producing suitable core allowing for uninterrupted measuring. An analysis/assessment of the complete set of vein and fracture orientations has been conducted using both software (Spheristat) and manual methods. For Kuroikin the spheristat plot points to four broad populations, which represent two sets of conjugate structures, NE/SW and SE/NW. A more detailed manual study shows that there is considerably more variation, however for the sake of simplicity the software modeling is probably adequate.

The manual assessment includes both mineralised and unmineralised structures. There has been an attempt to exclude faults, gouge zones and shears; also fractures that are completely devoid of at least some mineralising indications. Foliations are included principally to see whether there is a relationship with veining. Two holes, KRD777 and 778 were lacking in the number of recorded measurements with only 29 and 14 respectively. All other holes except KRD784 had well over 200 relevant measurements each. Findings for each hole are summarised below:

- the structures in both KRD777 and 778 are predominantly northeast to east dipping (about 70%) as are the foliations.

- Within the mineralised interval, KRD779 has an approximately equal number of structures dipping in the three quadrants: northwest, northeast and southeast. At depth beneath the mineralisation, over 50% of structures are dipping southeast to south. Overall, measurements indicate the majority of structures dip from east through south. Only nine foliation measurements were taken indicating dip directions from northwest to north and southeast to east.

- KRD780 has a fairly even spread. Veins dipping to the southeast appear to be less in number than in other holes but not significantly so. Foliations are predominantly southwest through west and northwest.

- KRD784 was barren of mineralisation. Structure orientation is evenly distributed with no one general direction predominating. Foliations (13 recordings) can be grouped into two sets, northeast-southeast and northwest-southwest with the former representing measurements taken in the upper part of the hole and the latter in the lower part.

A summary of each hole drilled is given below.

KRD0777
Pre-collared to 93.6m in Cretaceous sediments and weathered Oenpelli dolerite. The dolerite was then cored from 93.6 to 173.4 metres. Contact with basement rocks was made at 173.4 metres. A thin very fine grained younger intrusive cuts the dolerite at 100.25 metres. Two similar intrusives cut basement between 342 and 344 metres.

The hole is the most northerly, located within the 'apex' region adjacent to where the 410 structure and Aurari Fault zone intersect. The condition of the dolerite suggests that it has undergone some deformation, which may be structurally related, however the basement rocks appear to be essentially undisturbed tectonically. Reappraisal of the airborne magnetics suggests that a small diffuse magnetic feature could be indicative of the intersected dolerite. There is also a vague linear which trends NW-SE in the vicinity of the hole.

Basement consists of a variably altered pelitic to semi-pelitic assemblage (quartz-feldspar-biotite-+/-garnet gneiss +/- biotite-rich schistose layers) with interlayered amphibolite. Coarse grained metamorphic segregations occur throughout. Of interest is a localised intercept of coarsely porphyritic mafic gneiss resembling the Kuroikin Granodiorite. Lithologically, these rocks closely resemble the Aurari North 'footwall sequence', which is characterised by the presence of amphibolite and abundant relatively fresh garnets in the quartzofeldspathic gneisses. Interestingly, the footwall sequence at Aurari North is for the most part unmineralised. If continuous, the lithologic package in this hole represents an additional two kilometre southward extension of the pelitic sequence from KRD660, the most southerly hole at Aurari North.

The mineralised structures are distributed between 176 and 322 metres, occurring exclusively within the pelitic and semi-pelitic host rocks. The amphibolites are devoid of mineralisation. The mineralisation is predominantly weak and is intimately associated with individual quartz veins or sets of veins, which are surrounded by an alteration envelope consisting of chlorite-sericite-hematite-carbonate. The highest grade encountered was 2.82% U_3O_8 within an interval between 261.0 and 261.5 metres. Other reportable intersections include:

- 194.0 to 194.5m, 0.5m at 0.1321% U_3O_8
- 281.0 to 283.0m, 2.0m at 0.1722% U_3O_8

Anomalous gold and PGE were detected. Maximum values obtained in the grade sampling were 409ppb Au (260.5-261m) and 176ppb Au (282-282.5m), 1030ppb Pd (281.5-282m) and 55ppb Pt (321.5-322.5m). There is no direct correlation of values between uranium and these elements, however they rarely occur in anomalous

quantities where uranium is insignificant. There is also a 'patchy' individual relationship between the three 'precious' metals.

KRD0778
Drilled depth 432.5m. Pre-collared to 102m in Cretaceous sediments and weathered basement. The hole is located approximately 500 metres south of KRD777 and was sited on the 410 linear. Magnetics imply a similar structural environment to 777 with the presence of a feature suggesting dolerite in association with a parallel trending northwest-southeast linear. The linear feature is most likely a fault and may be responsible for the rapid lithological change between the two holes.

Basement consists of grey to grey-green mafic biotite rich feldspar-quartz gneiss, possibly a transitional finer grained phase of the Kuroikin Granodioritic/Tonalitic gneiss. The first 30 metres are more noticeably mafic but grade into a slightly more felsic variant, which is characterised in places by reddening of the feldspar component. Overall the rock is well foliated and has a banded appearance created by leucocratic layers alternating with biotite-rich layers. Biotite is fairly abundant making the rock quite distinctive. Pegmatoidal sweats are present throughout. Compositionally it represents a rapid southwards lithological change over the 500 metres from KRD777.

There is little alteration and only a very restricted mineralised intercept in the hole, located between 151 and 155 metres. The intercept consists of quartz vein sets surrounded by moderate to strong pervasive and disseminated chlorite, lesser but intense hematite, yellow-green, yellow and cream coloured sericite and minor carbonate. The most intense down-hole radiometric peaks are directly related to sub-millimetric black veinlets at 153.1, 154.1 and 154.4 to 154.65 metres. Half metre grade analysis of this section (153.6 to 155.1) gave an average of 0.1591% U_3O_8 over the 1.5 metres associated with anomalous Au (338ppb) and Pd (64ppb).

KRD0779
Drilled depth 289.2m. Pre-collared to 93m in Cretaceous sediments and weathered mafic gneiss. The cored section consists exclusively of variably altered fine to coarse-grained (sometimes porphyritic) quartz-feldspar-biotite gneiss of granodioritic composition. The hole is the most easterly of those drilled on the '410 fence', and is approximately 500 metres east of KRD410/775. The object was to ascertain whether there was an increase in intensity of the vein systems closer to the Aurari Fault zone.

Veining and alteration is widespread but the mineralised systems tend to be localised over only a few intervals. The best intersections are concentrated principally in one main zone between 194 and 204 metres and consist of veinlets, vein networks and more rarely, brecciated veins. Strong chloritic alteration is a feature of this interval, occurring throughout as replacement of the feldspar and mica component of the host rock. Vein category is typically 'sparry' quartz, sometimes vuggy, with 'ribboned' or banded veinlets on the footwall side of the main vein. Sometimes the vein is bounded by only a single sub-millimetric veinlet of a black mineral, which may or may not be radioactive.

Hematite is commonly associated with the mineralisation though not all mineralised occurrences are accompanied by this alteration. The hematite occurs mainly as veinlets within the ribboned systems or as disseminations, which extend for a few centimetres into the adjacent chloritised wall rock. Hematite is also seen coating the surfaces of high angle fractures. Brownish to yellow-brown sericitic alteration is not as prevalent as in other holes, occurring in minor amounts within the veinlets or more rarely, as a localised replacement of ?feldspars in the adjacent wall rock. Other intervals exhibiting anomalous uranium occur between 82 and 90 metres (in the pre-collar) and 158 to 160.5 metres.

Best intersections are:

194.0 to 199.0m, 5.0m at 0.3085% U_3O_8
201.5 to 203.5m, 2.0m at 0.1119% U_3O_8
214.0 to 215.5m, 1.5m at 0.0954% U_3O_8

KRD0780
Drilled depth 278.5m. Pre-collared to 81.5m in Cretaceous sediments and weathered granodioritic basement. Located approximately 500 metres south of KRD779 and 500 metres east of KRD776. The trace of the Aurari Fault zone is several hundred metres to the east.

The entire hole consists of medium to coarse-grained feldspar-biotite-quartz gneiss with isolated pods and veins of medium to coarse felsic pegmatitic material. Foliation intensity is variable, governed by grain size or partially obliterated by alteration intensity.

Alteration associated with mineralisation typically consists of pervasive dark chlorite with localised hematite and white to yellow-brown and sometimes light green sericite. An alteration product not previously recorded at Kuroikin is a white to silvery coloured mica or ‘sericite’ ?phengite), occurring as coarse-grained bunches within the pervasive chlorite haloes surrounding both mineralised and non-mineralised veins. Intervals of chloritic alteration associated with non-mineralised veining and shearing commences approximately 15 metres above the lower intersection and extends to 199 metres. Beneath this depth, mostly fresh unaltered medium to coarse-grained gneiss extends to the bottom of the hole. Both mineralised and non-mineralised vein sets display similar features i.e. sparry quartz with associated ‘ribboned’ or laminated veining. Some brecciated veins were noted.

Mineralisation is concentrated in several intervals between 90 and 197 metres. Intense near-pervasive chloritic alteration is a feature of the host rock between 89 and 137 metres, corresponding to the interval containing the most concentrated veining and mineralisation. The highest averaged grades range from 0.2 to 0.3% U_3O_8 with several of these over the 0.9 to 1.3 metre width range. Another mineralised interval is present from 183 to 185 metres; this section recorded the highest spot grade in the hole of 2.36% U_3O_8 at 184.35 metres (determined from down-hole radiometrics). The best intersections derived from the half metre grade sampling are listed below:

108.6 to 109.6m, 1.0m at 0.1977% U_3O_8

126.5 to 127.5m, 1.0m at 0.2183% U_3O_8
129.0 to 130.5m, 1.5m at 0.4106% U_3O_8
133.5 to 134.5m, 1.0m at 0.2576% U_3O_8
136.0 to 136.5m, 0.5m at 0.1910% U_3O_8
183.5 to 185.5m, 2.0m at 0.4312% U_3O_8

There is a relationship between uranium and Au and a 'patchy' relationship with Pd. Most of the grade samples contain Au above the detection limit with several values in the 100 to 400ppb range. These higher values are clustered with lesser anomalous grades producing zones several metres wide. The most consistently anomalous interval is present between 108 and 115 metres. Pd is also present as two clusters of anomalous values within this interval with maxima of 343ppb. Patchy anomalous Au continues to 185 metres however Pd is absent. There are no Pt values above 1ppb.

KRD0784
Drilled depth 275.9 m. Pre-collared to 25.1 metres through Cretaceous sands and weathered granodioritic gneiss.

The hole was collared approximately 600 metres west of KRD775 on the '410 fence' to explore for westward extensions to the vein system. Fresh mostly unaltered granodioritic feldspar-biotite-quartz gneiss was intersected to 239 metres then Oenpelli dolerite to the end of the hole.

Magnetics suggested the presence of Oenpelli dolerite in the vicinity although there was no indication that it would be intersected. A trend represented by a change in magnetic intensity appears to pass just west of the hole and extends northeast towards KRD778 and 777. This could be reflecting the subsurface trace of the dolerite that was intersected in the latter two holes. A very prominent northwest striking magnetic lineament, which passes nearby, is one of a parallel set identified at Kuroikin (see above). These linears appear to enclose a large area of 'flat' magnetics, which corresponds to the holes containing the mineralised intersections.

There is no indication of uranium mineralisation in the hole despite the presence of siliceous veining and associated chlorite and hematite. The highest U value is 5.36ppm between 40 and 45 metres (associated with siliceous hematitic-sericitic veining). Of interest is the continuing high Mo background, which seems to be a common trait in the Kuroikin holes. In KRD784, Mo would be considered anomalous with the majority of values in the 1 to 2ppm range and several spikes up to 4ppm. Molybdenum is recognised as a pathfinder element in the Aurari mineralised environment.

Laterite Prospect
The exploration for mineralisation at Laterite was instigated in 2002 with the Aurari North model in mind, which postulated the presence of mineralised basement sandwiched between sill-like intrusions of Oenpelli dolerite. The first drill hole, KRD770 (see 2002 Annual Report) intersected a deep but wide zone of alteration and vein-style mineralisation beneath a 200 metre thick dolerite. The find was significant in that it justified the model.

The current years' program of three holes was designed to explore for extensions to the above intersection, both along-strike (holes 781 and 782) i.e. coincident with the NW trending Black Rock structure, and across strike, in a westerly direction towards the Aurari North deposit (hole 783). Based on accumulated sub-surface knowledge, the only major complication envisaged was the behaviour of the dolerite, whether it maintained constant dip and thickness, was faulted off or splayed etc. A major economic factor in the region relates to the amount of host rock intersected within a reasonable depth limit, this being governed by the distribution and thickness of the dolerite(s).

KRD781 and 782 confirmed the interpreted southward dip of the main intrusion, however there is a probable structural offset (or plunge) where the upper contact in 781 is approximately 65 metres deeper than in 782. Comparison of KRD783 with KRD770 confirms the upper and lower contacts of the dolerite to be flat-lying along strike, at least in the prospect area. Similarly with KRD782, where both the top and bottom contacts are approximately 100 metres deeper than the equivalent contact positions in 770, implying a regular southerly dip. All holes had additional intrusions, ranging from centimetric up to 30 metres drilled width; two of the holes were terminated in dolerite.

KRD781 is essentially devoid of mineralisation although it does contain intervals of high radiometric background equivalent to 50 to 150 ppm U_3O_8. Much of this is concentrated between 110 and 200 metres, the latter depth being the basement / dolerite contact. KRD782 exhibits narrow low grade zones within the two host-gneiss intervals, which are separated by the main dolerite; KRD783 has a wide low grade zone at depth, which is sandwiched between two dolerites well below the main intrusion. Between 70 and 80 per cent of the latter two holes is occupied by dolerite with the predominant amount of basement remaining being mineralised to some degree.

KRD0781
Drilled depth 300.5 m. Pre-collared to 27.9m through weathered and saprolitic basement. This was one of two holes planned to explore for southward extensions of the mineralisation along the Black Rock fault.

A well foliated fine to medium grained mafic quartz-feldspar-biotite gneiss (similar to KRD0778) predominates in the hole with lesser greenish sericitic quartz-feldspar-minor biotite +/- garnet gneiss in the upper 50 metres. Decimetric intervals of coarse to very coarse felsic metamorphic segregations are present throughout. Oenpelli dolerite was intersected at 198 metres and continued to the end of the hole. There was no mineralisation intersected and no prominent alteration was present.

Minor variations in the chemistry reflect subtle lithological changes. A transitional more mafic interval from 50 to 60 metres separates garnet-gneiss from garnet-deficient gneiss. This interval can be distinguished quite clearly by its chemistry.

KRD0782
Drilled depth 399 metres. Pre-collared to 33 metres through weathered and saprolitic basement. This is the second, more westerly positioned of the two holes planned to explore for the southward extensions of the mineralisation. The hole was terminated in unmineralised basement.

Basement consists of quartz-feldspar-biotite and biotite-rich quartz-feldspar gneiss with lesser garnet gneiss. Pegmatoidal segregations and quartz-feldspar veining are common. Oenpelli dolerite intrusions are present from 134 to 338 metres and 378 to 388 metres with smaller decimetric dykes elsewhere.

Very weak vein-style mineralisation with similar characteristics to the Kuroikin system is present as a series of thin structures, which were intersected between 74 and 124 metres and again from 353 to 378 metres. The veins are variously described as ribboned, sparry and cockscomb and consist principally of quartz, rare carbonate, and the ubiquitous accessory alteration products, chlorite, sericite and hematite. Finely disseminated sulphide is sometimes present. Gouge, shears or breccias may be associated, occurring adjacent to or along the vein margins. From the probe data, true thicknesses are in the order of 10 to 20cm with average grades mostly in the 100 to 300ppm range (0.02% U_3O_8 cut-off). The highest average grade encountered was 0.2731% U_3O_8 over 0.19m (0.05% U_3O_8 cut-off), from 357.45 to 357.65m. Half metre grade sampling, which included the latter interval, gave 563ppm U_3O_8. Slight elevations in some elements, especially Mo, occur with the mineralisation.

KRD0783
Drilled depth 405.5 m. Pre-collared to 34 metres through weathered and clay altered basement. The hole was collared 250 metres west of KRD770 to explore the ground between Laterite and Aurari North.

Basement consists predominantly of quartz-feldspar-biotite gneiss to about 260 metres. A thick dolerite sill intersected between 36 and 244 metres intrudes this sequence. From 260 metres, interlayered fine grained and porphyroblastic garnet-bearing gneiss extend up to and continue below another dolerite, which is present from 286 to 318 metres. An extensive alteration zone with abundant veining and containing numerous narrow intercepts of weak to moderate uranium mineralisation extend from 328 to 398 metres i.e. immediately below the second, minor dolerite. The host rock to this mineralisation consists of mostly altered (chloritised and/or sericitised) fine to coarse-grained gneiss with minor garnet-bearing layers and some amphibolite. Pegmatoidal segregations occur throughout. Below 350 metres the amphibolitic sequence predominates; it is characterised by strong chlorite alteration and by an increase in CaO, Fe_2O_3 and MgO, which reflects the lithology. It is unusual in that amphibolites in this environment generally don't host mineralisation despite being an integral part of the sequence.

Dark green chloritic alteration is widespread forming haloes around the mineralised sections; darker chlorite is intimately associated with the vein systems as is yellow to yellow-brown sericite and streaky to disseminated bright red and red-brown hematite. Hematite was also noted as disseminations and blebs through the host rock in areas of pervasive alteration. Coarse silvery-white mica was also noted in places.

Vein morphology is identical to that seen elsewhere at Laterite and in the pelitic and granodioritic hosts at Kuroikin. Typical ribboned and sparry quartz veins predominate sometimes associated with more massive featureless veins. In some instances, several generations are apparent producing anastomosing networks. Within the more intensely mineralised sections, sub-millimetric stringers of uraninite +/- black chlorite have typically formed along the footwall of the vein (and rarely the hanging wall side). Carbonate veinlets are rare but when observed have a crosscutting relationship with the quartz veining. A total of 229, mostly mineralised veins recorded in the logs were grouped according to their dip direction. Prominent orientations are in the NNW-NNE direction with a lesser set NE to SE. This deviates slightly from the Kuroikin holes where northeast to east measurements appear to predominate.

This hole contains the best intersection of the three Laterite holes drilled in 2003. Down hole radiometric logging recorded 36 intercepts when a 0.05% U_3O_8 cut-off is applied (42 at 0.02% cut-off); all but one is located between the main intercept zone of 328 to 398 metres. Fifteen of these intercepts averaged over 0.1%; the half metre grade sampling produced lesser results with only eight greater than the 0.05% cut-off, which included four over 0.1%. The better results from the grade sampling are recorded below with corresponding radiometric data (in brackets) included for comparison. All grades are $\%U_3O_8$.

- 257.0 to 257.5m, 0.5m at 0.3148% (257.13 to 257.58m, 0.43m at 0.4475%. Maximum 1.09%)
- 335.0 to 335.5m, 0.5m at 0.2641% (335.08 to 335.78m, 0.68m at 0.2901%. Maximum 0.6145%)
- 336.5 to 340.0m, 3.5m at 0.0902%
- 350.0 to 350.5m, 0.5m at 0.1709% (350.43 to 350.93m, 0.48m at 0.1946%. Maximum 0.5329%)
- 370.0 to 370.5m, 0.5m at 0.0553%
- 379.0 to 380.0m, 1.0m at 0.0860% (radiometrics defined two 0.19m sections within this interval averaging 0.25%)
- 396.0 to 396.5m, 0.5m at 0.1152% (396.48 to 396.88m, 0.4m at 0.2144%)

Anomalous palladium is present in the interval 336.5 to 341 metres with an average grade of 365ppb (including a two metre section averaging 698.5ppb). The maximum value within this intercept is 1820ppb over 0.5m. Highest Pt value over 0.5 metres is 20 ppb. Gold tends to be more directly associated with the higher uranium grades, whilst Pd and Pt are more randomly distributed throughout the lower grade sections. The association is comparable to other ARUF and South Alligator Valley deposits

Prospect Evaluation

Sandy Point

Sandy Point Geology
Sandy Point RAB Locations on U2/Th Airborne Radiometrics
Sandy Point RAB Location Plan on Magnetics
Sandy Point RAB Geochemistry
Sandy Point Outcrop Sample Locations

Introduction

The Sandy Point prospect was discovered and first described in the 2001. Follow up in 2002 enhanced the importance of the anomaly. The original airborne anomaly, designated MP3-0401, was located at AMG coordinates 309940E 8683860N, on the southwestern edge of the main sandstone outlier and about 2km east of the Aurari Fault.

Exploration activities were stepped up in 2003, initially with a regional reconnaissance and sandstone sampling program followed by detailed mapping of the immediate area of mineralisation. A RAB drilling program was then initiated to investigate the subsurface expression of the veining-alteration phenomena. The result of the regional and prospect scale mapping failed to locate any obvious repetitions of, or extensions to the mineralisation. The RAB however provided useful information on the nature of the anomalies and associated alteration, gave indications of some interpreted structural trends and located a 'blind' anomaly at depth, which remains open to the north.

Mapping

Mapping has shown that the altered and mineralised sandstone outcrop is traceable over a strike length of approximately 70 metres with the widest exposure to about four metres. Any possible extensions to the mineralised bed(s) are obscured by sand or overlying barren sandstone. The veining appears to be discontinuous over the outcrop area, however this may be a function of the outcrop distribution and/or removal by weathering. The sandstone is very shallowly dipping to the west or south west; recording of measurements was difficult due to the near-flat outcrop profile and irregular surfaces. The host sandstone is coarse grained with isolated pebbles and angular quartz fragments. A pebbly castellated bed followed by a more laminated one overlie the mineralised unit, both being devoid of veining and alteration. Several unusual sedimentary features have been noted in the adjacent more castellated outcrop. These include nodular structures several centimetres across consisting of sandy material, hollow rounded vughs or cavities with silica rims and silicified and rounded to ovoid structures up to 40 centimetres wide. It has been suggested that the latter may be stromatolitic.

Two principal vein trends are apparent, east-west and northeast-southwest. Measurements on the former set vary between 255 and 295 degrees (magnetic) and have a steep southerly dip; the latter are from 200 to 240 degrees with mostly steep southeast dips. Several other measurements indicate less dominant north and northwesterly striking sets, each with a steep westerly dip. Subsidiary veinlets are present, splaying from the principal vein structure at oblique angles. This feature was observed at two separate locations and only in association with the east-west set. Most, but not all of the measured structures exhibit alteration and anomalous radiometrics. The orientations of the different sets mirror both prospect and regional scale structures observed in the sandstone. Unmineralised sheeted quartz veins are also present in an outcrop at the eastern end of the anomaly. These strike N to NNW i.e. parallel with the regional Aurari Fault Zone set.

Determination of the timing of the different orientations is difficult. Some, but not all of the northeasterly striking structures tend to become diffuse and lose their identity where east-west veins intersect them. This is caused by the intense

alteration, which surrounds the latter and overprints the northerly features, suggesting they are older. In one outcrop however, hematitic haloes associated with northeasterly veining crosscut the east-west structures. Where both vein sets can be observed intersecting one another, there is no obvious evidence of offset or other features that can aid in determining their temporal relationship.

Associated alteration consists of (mostly) pervasive mauve hematite (first stage, partly ?diagenetic), later stage more localised red-brown and brick red hematite (hydrothermal event) and disseminated to pervasive white to pale green clay (probable diagenetic and later stage events). The mauve hematite being the more pervasive style is related to both radiometrically anomalous and non-anomalous sandstone while the darker purple and reddish varieties tend to associate directly with the uranium-bearing structures as well as the adjacent host rock. In places, the alteration has the appearnce of being controlled by the bedding with mauve and lighter coloured layers forming parallel bands. Clay alteration is pervasive and intense within the mineralised sandstone, but is also more widespread, extending into the overlying sandstone units. Here the sandstone has both mauve-red and brown hematitic staining in association with lesser yellow-brown 'limonite' and clay alteration. These alterations are devoid of any anomalous radiometrics.

On a smaller scale, both dark purple and red hematite form haloes surrounding mineralised veinlets and also occur as irregular stainings and 'blotches' in the sandstone matrix. The haloes either envelop the vein exclusively or form a thin rim bordering an inner zone of light coloured clay alteration. Some unusual circular areas several centimetres across have a bleached core surrounded by red hematite. These occur within a larger area of less intense hematisation.

Compositionally the veins comprise massive or drusy quartz, some with abundant micro crystals of black specular hematite. Yellow-brown 'limonite' was noted as an oxidation product forming along two veinlets possibly indicating decomposed sulphides. The alteration haloes vary in character with some veinlets only having hematite and others both hematite and clay. The only visible uranium mineralisation found so far (pale coloured yellow and green secondaries) is related to two northeasterly trending veinlets.

Excluding the high grade vein, radiometric readings taken over the anomalous outcrops (including veins and alteration) vary from a few hundred counts to around 8,000cps (Urtec Scintillometer). The zone of uranium secondaries varies from 4,000 to 5,000 cps. The overlying unmineralised sandstone beds measure from 50 to 80cps. Sandstone outcrop sampling show that the regional background is less than 1ppm though most of this sampling represents units higher in the stratigraphy. Results from the RAB drilling in the prospect environment give an average of approximately 3ppm U for both fresh sandstone and basement.

RAB Drilling

Four RAB lines traversed the prospect, designated 1 to 4 from west to east. Three covered ground to the east and west of the mineralisation and one line (line 2) cut through the outcrop. The lines extend across strike for up to 350 metres. Thirty one holes were drilled for a total of 612 metres.

Most of the holes on traverses 1 and 2 intersected radiometrically anomalous intervals associated with intense clay and hematitic alteration. For example, KRR933 (traverse one) collared adjacent to the 'high grade vein' had elevated readings over three metres within an intensely hematised interval surrounded by a zone of bleached sandstone. On traverse 2, KRR942 intersected lower intensity anomalous intervals associated with limonitic veining and a thin mafic intrusive. Most of the holes on line 1 exhibited varying widths of high background and/or anomalous sandstone-basement. For example, KRR928 (25m depth) and 929 (23m depth), which were collared on the surficial ferricrete/ironstone anomaly to the southwest of the high grade vein. Anomalous widths of up to 6 metres occur in altered basement.

An anomaly without surface expression was intersected in KRR938; the hole is the most northerly on traverse 2. Elevated radiometrics were present over a six metre interval (17-23m) straddling the unconformity with the higher readings being recorded in the sandstone (200 to 300cps SPP2 scintillometer) and up to x2 background in the basement. The sandstone is very clayey with hematite-limonite alteration and quartz fragments (vein quartz or shattered pebbles?), while the underlying gneiss is hematite-chlorite-sericite alltered. There was no repetition in adjacent holes. The anomaly remains open to the north and east.

Several holes on lines 3 and 4 have intervals with localised elevated background and correlate reasonably well with the interpreted trend of the mineralisation. These holes confirm that the mineralisation is continuing eastwards, though much weaker in intensity and without surface expression. The highest uranium values range between 30-70ppm and occurr in both sandstone and basement.

Laterite and 46N Anomalies

Laterite and 46N RAB Location Plan
Laterite and 46N RAB Geochemistry

RAB drilling was proposed to test several airborne radiometric anomalies, which lie between Laterite Prospect and the 46N radiometric anomaly. Both of these anomalous areas are located on a northwest trend between the historical Union Carbide uranium showings, Schist and Laterite Prospects.

Two traverses, spaced 300 metres apart and comprising 21 holes drilled at 50 metre intervals, covered the main anomalous feature between Laterite and 46N. A total of 401 metres was drilled. All holes bottomed in unaltered fine to medium grained quartz-feldspar-biotite gneiss. No radiometric response was gained from any of the holes drilled. Surficially there is a slight increase in background (from 20 to 50cps scintillometer) in sandy-pisolithic soils, which is presumably sufficient to give an elevated airborne signature. Geochemistry of samples collected from each hole exhibit slight variations but essentially there are no significant differences. Uranium values from fresh rock (bottom of hole sample) vary from around 2 to 6ppm.

The 46N uranium anomaly consists of radiometrically anomalous ferricrete containing up to 200ppm uranium. Sixteen holes were drilled totalling 235 metres. Drilling has shown that the ferricrete is present as a capping on dolerite and that the

subsurface anomaly is far more restricted in area than what is apparent on surface. This feature attests to the scavenging and dispersal effect of the ferricrete. A chloritic alteration zone, which contains the anomalous uranium, occurs as a veneer on the upper 'surface'of the dolerite intrusion. The dolerite is in contact with overlying clay-altered quartzofeldspathic gneiss. The localisation of the anomaly associated with the altered dolerite and gneiss is coincident with a parallel subsidiary structure belonging to the northwest-trending Aurari-Black Rock set. Nothing of significance was indicated from the drill cuttings; minor radiometric anomalies were restricted to the upper two or three metres of several holes although the amount of analaysed uranium was negligible. Highest uranium value was 71ppm in a surficial sample containing sand and pisoliths (KRR913). Radiometrically anomalous altered dolerite contained 5 to 12ppm U.

RAB Drill Collar Table

RAB Drilling – Logged Lithologies
TSA PIMA for RAB Drilling

Outcrop Sampling

Several samples were collected from structurally disturbed outcrop at anomaly ANG1, located approximately one kilometre north of Laterite.

The following tables list all data relevant to samples collected from outcrops at Sandy Point, ANG1 and Schist Anomaly on EL 5891.

Outcrop Sample Locations
Outcrop Sample Descriptions and Physical Properties
Outcrop Sample Alteration and Structural Measurements
Outcrop Sample PIMA Clay Mineralogy
G400 Geochemistry for Outcrop

Geophysics

During 2003, UTS Geophysics of Perth conducted a detailed airborne magnetic, radiometric and DTM (Digital Terrain Model) survey over the Sandy Point prospect. The survey covered 158 line kilometres at a line spacing of 50 m and flying height of 30 m. The survey was aimed at increasing the radiometric and magnetic resolution to assist with the ongoing evaluation of the prospect.

Logistics Report by UTS

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

The new airborne radiometric data confirms the previous project scale airborne uranium anomaly and identifies some new low-order anomalies to check during 2004. Some general observations from the Sandy Point prospect are:

- The Sandstone has elevated potassium;
- G. Zaluski has identified a hyperspectral target in the sandstone (illite overprint);
- Tempest does not indicate deep sandstone or significant structures, although a subtle structure may be evident 400 m to the west of the prospect;
- Magnetics shows a dolerite edge similar to Aurari North; and
- Magnetics indicates several northwesterly and northeasterly trending lineaments, which are proximal to the prospect.

Map Compiling Geophysics

It is interesting to note that the new detailed radiometric survey has revealed that the Sandy Point anomaly is only 100 m in diameter. It is believed that the subtle amplitude and localized nature of this anomaly would have prevented it from being identified in the previous project scale survey (200 m lines); if it weren't for the fact that one of the flight lines flew directly over the centre of the anomaly. This demonstrates the importance of following up weak anomalies and the need for high quality radiometric data.

WORK PROGRAM EXPENDITURE 2003

Estimated expenditure for the year, as stated in the 2003 work program was $620,000. Actual expenditure amounted to $556,606.50. Details are contained in the link below 'Summary of Expenditure'.

Summary Of Expenditure

WORK PROGRAM PROPOSALS 2004

A summary of the proposed exploration activities, timing and contractors under consideration for Year 8 is tabulated on the following page. Budgeted exploration expenditure for the tenement is $487,000. An approximate additional amount of $25,000 is budgeted for non-assessable DBIRD and NLC costs.

Location and Scheduling of Exploration Activities
King River 2004

Activity	Duration of Activity	Timing	Amount	Approximate Location
Camp mobilisation & demobilisation	4 days each way	Mid May/Mid September		Established King River project camp site
Access & site preparation for Diamond drilling and RAB	2 days	Mid to late June	Clearing only of pre-existing access tracks to drilling areas. Preparation of maximum 6 DD sitessites with minimal additional track work	Aurari North and Kuroikin. Sandy Point (DD and RAB)
Diamond Drilling	25 days	Start mid June. Complete in about 4 weeks	Maximum 2000m (6 holes) Estimated depths 250 to 350 metres	Aurari North (1-2), Kuroikin (1-2), Sandy Point (2)
RAB Drilling	2 days	Start early August	600 to 700 metres (25 to 30 holes). Estimated maximum depth about 30 metres.	Sandy Point Prospect

REFERENCES

Mackie, A.M. January 1997, Annual Report - Arnhem Land West Joint Venture: 1996 Field Season - Exploration Licences 3597, 4015, 734, 5890 & 5891. PNC Exploration (Australia) Pty Ltd

Melville, P.M., Sawyer, L.M., Follington, D., 1998. Arnhem Land West Joint Venture: 1997 Field Season - Exploration Licences 734, 5890 & 5891. PNC Exploration (Australia) Pty Ltd

Needham, R.S. 1988, Geology of the Alligator Rivers Uranium Field. Bureau of Mineral Resources Bulletin 224.

Sweet, I.P., Brakel, A.T., Carson, L., 1999, The Kombolgie Subgroup- a new look at an old formation'. AGSO Research Newsletter, 30; pages 26-28.

Thomas, D., and Zaluski, G., 2001. Structural Reconnaissance of Sandstone Outliers Along Marligur Pass, King River Area. Cameco Pty Ltd - Internal Report.

UTS Geophysics, 1999, Detailed helicopter electromagnetic geophysical survey for the King River Project. UTS Geophysics (Job #A338)

Williams, S.V. 1999, Arnhem Land West Joint Venture: Annual Report Program Activities 1998 Field Season Exploration Licences 734, 5890 and 5891. PNC Exploration (Australia) Pty Ltd.