



Cameco Australia Pty Ltd

KING RIVER PROJECT

NORTHERN TERRITORY

EL 734

ANNUAL & FINAL REPORT 2005

CONFIDENTIAL

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SUMMARY

This report describes exploration work undertaken within Exploration Licence 734 during the tenth and final year to 12 May 2006. The licence area is located in northwestern Arnhem Land and was initially granted on the 13 May 1996 for a period of six years. A two year renewal was granted in March 2002 for the period ending on May 12 2004. A second renewal of the licence area was applied for at the cessation of the initial two year period. The second application was approved in April 2004, the licence being renewed for the final 2 years commencing 13 May 2004.

The exploration program was managed by Cameco Australia Pty Ltd on behalf of the Nadjinem Joint Venture partners, Cameco Australia Pty Ltd and the Nadjinem 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 current years exploration activities consisted of Diamond and RAB drilling. The RAB drilling was utilised to continue exploration in the vicinity of the NIM20 airborne anomaly located near the western boundary of the licence. Two diamond core holes further explored the alteration zone at the Fishtail uranium prospect.

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INTRODUCTION

This report describes program activities carried out on EL734 during the 2005 field season on behalf of the Nadjinem Joint Venture, a joint venture between Cameco Australia Pty Ltd (Cameco) and the Nadjinem Aboriginal Corporation. EL734 formed part of the King River Project with exploration having been conducted simultaneously on the now surrendered King River tenements, EL 5890 and EL 5891. Since the Exploration Licences are located on Aboriginal land the exploration program was carried out under the terms of consent documentation as agreed with the Northern Land Council pursuant to the Aboriginal Land Rights (Northern Territory) Act and dated 1 March 1996.

Clearance for the program was given by the Northern Land Council on behalf of the Traditional Owners (Nadjinem Aboriginal Corporation), following the Liaison Committee meeting held on April 28 2005 at Gunbalanya (Oenpelli). Activities for the project were conducted from the King River camp located on EL5890.

Both RAB and diamond drilling programs were undertaken. Diamond drilling on the tenement commenced on the 5 August and was completed on 14 August. RAB commenced on 16 September and was completed 24 September.

Contractors who were involved on the tenement are listed below:

- Diamond drilling by Titeline Drilling Pty Ltd, Ballarat, Victoria
- RAB drilling by Titeline Drilling Pty Ltd, Ballarat, Victoria
- Chemical assaying by NTEL, Darwin;
- Petrographic work by Pontifex and Associates, Adelaide;
- 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 and is centered about 25 kilometres northeast of the Aboriginal settlement of Gunbalanya and is wholly within Aboriginal Land. The Ranger uranium mine is situated approximately 100km to the southwest and the rehabilitated Nabarlek site is within tenements that adjoin the southern boundary of the licence. Access from Darwin is via the Arnhem Highway to Jabiru then north to Gunbalanya. Two main roads traverse the licence, the Gurig National Park and Maningrida-Nhulunbuy roads. The old Murgarella (Wark) road straddles the western edge.

Figure 1. [EL734 Location Map](#)

Tenure

EL734 was granted on 13 May 1996 for an initial period of six years. On granting, the total area under licence was 919.6 square kilometres of which 67.5 square kilometers was designated as restricted zones following site surveys undertaken by the Northern Land Council. The tenement was twice renewed, in February 2002 and again in February 2004. Currently an area of approximately 354.4 square kilometres constitutes the tenement after a reduction to 106 sub-blocks in 2004. The tenement's scheduled expiry date was 12 May 2006.

In November 2005, the area constituting EL734 was applied for by Cameco as an SEL (Substitute Exploration Licence); this area, which includes a substantial part of the adjoining King River tenement, EL5890, has been listed by DPIFM, Minerals and Energy as SELA 25065. EL734 expired on March 3 2006, the date on which notification of 'Consent to Negotiate' for the SELA was received from DPIFM.

Physiography

The tenement consists dominantly of gently undulating sandy plains underlain by a ferruginous duricrust. Erosion of this duricrust in the western part has led to the development of a 'breakaway' along the erosional boundary exposing basement rocks beneath. Elsewhere outcrop is extremely sparse. The principal drainage direction is north into the Cooper Creek system.

Regional and Tenement Geology

Please refer to the 2002 Annual Report for details.

Regional Structure and Geological History

Please refer to the 2002 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 (plus uranium) 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.

Exploration History

Please refer to the 2002 Annual Report for a detailed summary of the historical activities. For a tabulated summary of the JV activities go to link below.

Table 1. [King River Exploration Summary](#)

PROGRAM ACTIVITIES 2005

The main activity involved the drilling of two diamond core holes at the Fishtail prospect in an attempt to expand the prospectivity of the anomalous area. RAB drilling at airborne anomaly NIM20 concentrated on a full coverage of the surface radiometric anomaly, which was partially assessed by the previous year's drilling program.

Diamond Drilling

Introduction

The Fishtail prospect airborne anomalies outline an extensive zone of mainly chloritic alteration, which is concentrated within a schistose metapelite sequence

above the Oenpelli dolerite contact. Isolated outcrops of a dark green-grey and reddish-brown slightly hematitic ‘chlorite rock’ are the only surface expression of this zone. The alteration zone at Fishtail contains intervals of weak to low grade uranium mineralisation. A localised WNW striking structure, the Fishtail fault, traverses the prospect area.

Figure 2. [EL734 Drill Hole Location Plan](#)

Table of holes drilled 2005

Hole Number	AMG E	AMG N	Elev m	Bearing	Declination	Precollar m	Coring m	Total m
KRD1159	311048.9	8651375.2	60.8	194	75	22.6	254.6	277.2
KRD1160	311484.1	8651496.2	68.1	185	75	24	229.8	253.8
Totals						46.6	484.4	531.0

Natural radiation was logged down-hole by Cameco personnel using an Auslog digital down-hole logging unit. All radiometric data can be accessed under the ‘Data Folder’ in the EL734_Gamma folder.

Appendix 1. [NTEL Analytical Suite](#)

Appendix 2. [NTEL Analytical Methods](#)

Appendix 3. [PIMA Methodology](#)

Appendix 4. [DHLogger Codes](#)

Appendix 5. [Pontifex Petrographic Report No. 8746](#)

The drill core was geologically logged using the database system DH Logger. This systematic logging software measures lithological, structural and alteration features in the drill core. Results are displayed in summary report form and graphically as a series of strip plots generated from either the DH Explore program or from Discover software, to display all features logged and measured. The ‘Codes for DHLogger’ appendix lists the codes and parameters that were used during the logging process and the ‘DHLogger Drill Core Data’ appendix contains the entire drill hole log information.

Routine sampling from every row of core is represented by a 5 cm sample that is collected and halved using a core saw. One half of the sample is retained and housed within the Cameco storage facility at the Darwin warehouse. This process provides a ‘Skeleton Log’ of the hole, which is easily accessed. All samples are measured for magnetic susceptibility and spectral parameters using the PIMA II infrared spectrometer. Interpretation of the spectra is achieved utilising The Spectral Geologist software. The other half of the core sample is used for lithochemical analysis. The samples are combined to form nominal 5 metre ‘composites’ for sandstone and basement, and 15 metres for dolerite. Composite sampling in areas of mineralisation and obvious intense alteration is avoided.

Mineralised and associated alteration intercepts are sampled separately and designated as ‘splits’. These are collected over nominal half metre intervals, with the

sampling limits or grade cut-offs being determined principally from the down-hole radiometric logs. The initial and final sample for each interval is taken marginally beyond the 'edge' of the radiometric peak to ensure the entire intercept and adjacent alteration halo is captured. The analysed elemental suite is identical to that analysed for in the composite samples. Northern Territory Environmental Laboratories of Darwin (NTEL) carried out the chemical analyses. The principal analytical procedures include G400 (ppm), G950 (ppb) and Fire Assay (ppb).

Samples are also collected for petrographic description and forwarded to Pontifex and Associates in Adelaide.

Drill Hole Descriptions

Two holes, KRD1159 and 1160 continued investigation and assessment of the alteration zone from 2004. Hole placement was designed to further determine the extent of the alteration and mineralisation in a southerly and easterly direction. The southernmost hole was located at some distance from both the Fishtail structure and the surface trace of the Oenpelli dolerite. It was positioned along a north-south fence, approximately 500m south of two previously drilled diamond holes (KRD252 and KRD1043). The second hole is located 500m to the east, adjacent to the surface trace of the dolerite. RAB holes drilled some years ago by PNC in the immediate vicinity intersected micaceous schist with minor alteration and anomalous radiometrics.

KRD1159

The hole intersected a mostly mafic sequence with lesser pelitic, psammo-pelitic and leuco-gneiss, the latter possibly of granitic origin. Much of the upper part of the hole consists of alternating layers of poorly foliated amphibolite with pelitic and lesser psammo-pelitic rocks. Mafic rocks then predominate with mostly thin scattered leucocratic veins and layers up to the dolerite contact at 196m.

There was no mineralisation-related alteration noted in the hole. Some of the granitic layers exhibited an increased 'reddening' immediately adjacent to their contact with amphibolite. The latter has leucoxene alteration in places, characterised by sub-millimetric 'flecks' aligned along the foliation. Pelitic rocks contain lenticular bodies of sillimanite and quartz up to about a centimetre in size, which have been stretched out along the foliation plane. The sillimanite has been partially altered (retrogressed) to muscovite/sericite.

A maximum of 4.29 ppm U was recorded in a strongly veined and altered chloritic interval within amphibolite, proximal to the underlying contact with dolerite. Above background U and Th is evident in transition zone quartz-biotite saprock (3.04 ppm U, 16.2 ppm Th) and at the immediate dolerite contact in quartzofeldspathic segregations (3.04 ppm U, 3.7 ppm Th). Background U concentrations in the interdigitated amphibolite-quartzofeldspathic sequence are in the order of 1.5 ppm U. Overall geochemistry clearly reflects the hole geology. KRD1159 limits the southwestern extent of the chlorite-muscovite alteration footprint at Fishtail.

KRD1160

The hole intersected an intensely altered psammo-pelitic sequence intruded by Oenpelli dolerite. Alteration intensity increases progressively towards the dolerite contact, which was intersected at 151m.

The upper part is predominantly psammitic with intervals of leucogneiss, pegmatoids, minor mafic and pelitic intervals. The rocks are silicified with dark chlorite and apple-green sericite alteration. The stratigraphy becomes more pelitic from 56.5m with abundant foliation controlled silvery mica and quartz veins, some of the latter exhibiting a high degree of deformation. Lenticular clots of retrogressed sillimanite (now sericite-muscovite) occur in sections. Intervals of leucocratic pegmatoid are present between 89 and 98m. Bleaching occurs in the pelitic sections producing light green, grey and white colourations; these can be either conformable with the foliation producing a banded effect or irregular. Coarse grained leucosomes are either bleached or altered to pale green chlorite.

Proximal to (and beneath) the anomalous interval, pervasive but irregular bleaching increases in intensity with some clay alteration. Unusual distorted vein-like structures containing clinocllore appear within this bleached zone, becoming more widespread with depth. The timing of these unusual features and their relationship has yet to be determined. Several samples have been collected and forwarded to Cameco Corporation for paragenetic determination.

The dolerite is mostly porphyritic with large white plagioclase megacrysts and aggregates of phenocrysts (glomerophytic texture) altered to sericite and K-spar. With increasing depth the frequency and size of the feldspar crystals decreases and the alteration changes to a pale green colour. Veinlets of chlorite occur throughout as well as some intervals of quartz veining +/- carbonate.

The main interval of anomalous down-hole radiometrics extends from 93m to 123 metres. A sharp singular peak of just over 14000cps is located at 102m with several much less intense peaks scattered throughout the interval. A noticeable drop in radiometric intensity marks the dolerite contact.

Composite sampling indicates that anomalous U occurs within the most altered muscovite-chlorite pelitic assemblage with an average of 48.49 ppm recorded over 11m from 98.3 to 109.3m. This includes a maximum value of 58.8ppm between 103.8 and 109.3m. Closer spaced split sampling of the anomalous zone produced a maximum of 4190ppm U (0.494% U_3O_8) representing the interval from 102 to 102.4m. Elements indicating geochemical elevations directly associated with the mineralisation include B, Be (6.9ppm), Mo (238ppm) and Se (18ppm). HREE are also elevated. The potassic-high MgO zone is related to the muscovite-clinocllore rich nature of the alteration. Both CaO and Na₂O are depleted.

In conclusion, the drilling over several years has proven the alteration zone to be quite extensive, in excess of 400m laterally and at least 100m wide (north-south). The lateral dimension follows the outcrop trace of the Oenpelli dolerite, which at this stage is the only recognised controlling factor other than the host lithology. Three of the four holes drilled have intersections of minor mineralisation contained within the wider zone of alteration, which extends down dip to the upper contact of

the dolerite. The volume occupied by the mineralisation within the alteration zone is proportionately quite small and to date there has been no indication of grade or volume increase.

RAB Drilling

The program at airborne anomaly NIM20 was commenced on the September 16 and completed on September 24. Several days were lost due to equipment failure. Additional traverses and extensions to the existing traverses were drilled in 2005 to further test low order surficial and subsurface uranium anomalies. A total of 50 holes was drilled for 1350m.

Drill cuttings are geologically logged throughout the entire hole. Samples are normally collected at 'bottom of hole', however regolith sampling has been recently reintroduced, which involves the collection of pisolithic or other ferruginous material from the top few metres. Radiometrically anomalous and altered material is also collected for analysis. Samples other than regolith undergo PIMA analysis. Northern Territory Environmental Laboratories of Darwin (NTEL) carried out the chemical analyses. The principal analytical procedures include G400 (ppm), G950 (ppb) and Fire Assay (ppb).

Results for the current program at NIM20 show the majority of U analyses fall between 2 and 4ppm with a maxima of 6ppm. No further anomalies were detected with radiometric variation reflecting the rock types intersected, which included gneiss, amphibolite, biotite schist and quartzite. Assessment of the results combined with the 2004 drilling program would indicate that there is little potential for the discovery of uranium mineralisation. The surficial radiometric anomaly is possibly a reflection of minor uranium enrichment within specific rock types present in the area as indicated by the drilling results.

Table 2. [Summary Geological Logs KRD1159-1162](#)

CONCLUSIONS & RECOMMENDATIONS

The current diamond drilling program at Fishtail has confirmed that the alteration zone and associated minor mineralisation extends to the east for at least 500 metres, following the surface trace of the Oenpelli dolerite and extending to the upper contact of the intrusion. Mineralisation discovered so far is weak in intensity and tends to occupy a narrow zone in what is a large alteration halo. The extent of this alteration indicates that there was extensive fluid movement within a large volume of rock. The alteration is also evident in the upper part of the dolerite.

Further exploratory work is recommended at Fishtail to fully outline the alteration zone and associated uranium mineralisation. Wide-spaced drilling should continue to the east and west following the trace of the dolerite. The NIM20 anomaly is considered to have been sufficiently covered and with the negative results obtained no further work is considered necessary.

WORK PROGRAM EXPENDITURE 2005

Estimated expenditure for the year, as stated in the 2005 work program was \$175,000. Actual expenditure amounted to \$215,417.95. Details are contained in the link below 'Summary of Expenditure'.

Table 3. [EL734 Summary of Exploration Expenditure](#)

WORK PROGRAM PROPOSALS 2006

The tenement has reached its tenth and final year. In combination with the remaining King River tenements, EL734 is in the initial process of being converted to an SEL (Substitute Exploration Licence). As the 'Consent to Negotiate' for the SEL has been granted by The Minister, then EL734 has been automatically surrendered and the negotiation process for the Substitute Exploration Licence has commenced. There will be no exploration activities undertaken in 2006.

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