EXPLORATION RETENTION LICENCE 25896

CADELL PROJECT

ANNUAL REPORT

FOR THE PERIOD 27 AUGUST 2007 TO 26 AUGUST 2008

CONFIDENTIAL

Date: October 2008

Report No.: CD08-02

Author: Gavin Otto

Copies: Cameco Australia Pty Ltd
Northern Territory Department of Primary Industry, Fisheries & Mines
Northern Land Council
SUMMARY

Cadell Project is a uranium exploration project area located in Western Arnhem Land and operated by Cameco Australia Pty Ltd (Cameco). This report documents work in the first year of tenure for Exploration Retention Licence (ERL) 25896 which replaces EL3347, and was granted on 27th September 2007.

In December 2006, Uranium Equities Limited entered into a joint venture arrangement with Cameco on the Cadell project. In July 2008, UEL declined to continue funding towards the project, and the Joint Venture has been dissolved. Cameco remains operator of the project.

Exploration is focussed on the determination of the uranium mineralisation potential of the east-west trending Steven’s fault which runs east-west through the tenement. An additional target was gold, platinum and palladium mineralisation in dolerite proximal to the Steven’s fault.

No on ground activities have been conducted during the reporting period. The expiry of EL3347 was on 25th July 2007. It was not expected that grant of the ERL would occur during 2007, so no work was scheduled on the ERL for 2007. A drilling program has been planned and scheduled for 2008; however the drilling has not been conducted within the reporting period.
INTRODUCTION

The Cadell Project consisting of ERL 25896 is a uranium exploration project in Western Arnhem Land, Northern Territory. The project is operated by Cameco Australia Pty Ltd (Cameco). This report documents exploration work completed by Cameco during the first year of tenure.

The prime objective is to discover economic ‘unconformity style’ uranium mineralisation by targeting geological settings similar to the known deposits of the Alligator Rivers Region, Northern Territory, and the concealed high-grade deposits of the Athabasca Region, Saskatchewan, Canada.

The project area is underlain by a variety of granitic and metamorphic basement units of the Nimbuwah Complex and Myra Falls Metamorphics, which are unconformably overlain by Kombolgie Subgroup sandstone and volcanic units. Basement and the Kombolgie Subgroup are intruded by sills and dykes of the Oenpelli Dolerite. Favourable structures and hydrothermal alteration occur in the region. Several uranium occurrences have been identified in the project area, an indication of a favourable mineralising and alteration event.

Location and Access

ERL25896 is located in western Arnhem Land, Northern Territory on the Millingimbi (SD-5302) 1:250 000 scale topographic map sheet and the Goomadeer (5673) 1:100 000 scale topographic map sheet. The tenement is centred approximately 90 km northeast of Jabiru and 35 km southeast of the now rehabilitated mine site at Nabarlek (Figure 1). Access to the ERL is either by helicopter or by road via the Arnhem Highway to Jabiru and then via Cahill’s Crossing and unsealed roads and tracks towards Mamadawerre outstation.

Figure 1: Cadell Project Location Map

The remoteness and rugged nature of the sandstone covering most of the Cadell tenement resulted in all exploration between 1997-2004 being helicopter supported. Helicopter access was based from Cameco’s Myra Camp located on Tin Camp Creek. Road access to Myra Camp is via the Arnhem Highway to Jabiru and bitumen road to Cahill’s Crossing, then by dirt road via Oenpelli and Nabarlek.

In 2005, Cameco constructed a track into Steven’s Anomaly from the Oenpelli-Maningrida Road from the north. This served as an access route for drilling and most field activities in the area. In 2006 this track was refurbished, and a second access track, which was historically constructed by Afmex, which accessed the area from the west, via the former Nabarlek mine site was refurbished.

Drill crews were accommodated at Myra Camp and ferried by helicopter to and from the project daily.

Tenure

The Cadell Project which solely consists of Exploration Retention Licence 25896 is located in Western Arnhem Land (Figure 1). Application to convert EL3347 to an exploration retention licence was made on 19th January 2007. The ERL was granted on
27th August 2007 for an initial period of five years and covers an area of 6 blocks for 20.13 km².

The Cadell project is located within an Arnhem Land Aboriginal Reserve and is subject to a Consent Deed with the Northern Land Council (NLC) on behalf of Traditional Owners. Cadell contains areas that are sensitive or have cultural and/or social significance to the Traditional Owners, ‘No Go Areas’, which are excluded from exploration access.

The proposed exploration work for 2008 was presented to the Traditional Owners and Northern Lands Council (NLC) at the Work Program Meeting held on 1st April 2008 at Oenpelli. Clearance to conduct the program was given by the NLC on behalf of the Traditional Owners.

In early December 2006 a Joint Venture agreement was signed between Cameco and Uranium Equities Limited (UEL). Under the terms of the agreement, UEL would earn in an interest in the Cadell project, and adjacent EL22784, EL22785, and EL24992 if expenditure obligations are met. Cameco would remain as operator, with UEL staff seconded to the Arnhem Land operations.

In June 2008, UEL declined to continue the Joint Venture arrangement. Cameco will remain the operator and manager of the project as was done previously.

GEOLOGICAL SETTING

This section is largely based on the work by Needham et al. (1988), Needham (1998, 1990), and Needham and Stuart-Smith (1980). Information not based on these references has been indicated below.

The Cadell project area is located within the eastern margin of the Neoarchaean and Palaeoproterozoic Pine Creek Orogen, and is in a region that has been subdivided into the Nimbuwah Domain of the Alligator Rivers region (Figure 2).

Figure 2: Simplified geology of the Pine Creek Orogen showing the location of selected mineral deposits (after Pirajno and Bagas, 2008).

The Bureau of Mineral Resources (now Geoscience Australia) completed 1:250 000-scale geological maps of the Pine Creek Orogen between the 1940s and 1960s following the discovery of uranium at Rum Jungle. The Alligator Rivers region was systematically mapped by the Bureau of Mineral Resources and the Northern Territory Geological Survey between 1972 and 1983. This later work produced 1:100 000-scale geological maps and reports for the region from Darwin to Katherine to the Alligator Rivers region.

Figure 3: NTGS 1:250,000 Regional Geology

The oldest exposed rocks in the Alligator Rivers region are included in the Neoarchaean (ca. 2500 Ma) Nanambu Complex. The complex consists of paragneiss, orthogneiss, migmatite, and schist forming domical structures that are unconformably overlain by Palaeoproterozoic metasedimentary and metavolcanic rocks, which were formerly included in the Pine Creek Geosyncline. Palaeoproterozoic rocks in the Alligator Rivers region are amphibolite-facies psammites assigned to the Mount Howship Gneiss and the Kudjumarndi Quartzite. These
formations are included in the Kakadu Group and are probably correlates of the Mount Basedow Gneiss and Munmarlary Quartzite, respectively (Ferenczi et al., 2005). The group appears to on-lap Neoarchaean basement highs, but gneissic variants are also thought to pass transitionally into paragneiss of the Nanambu Complex.

The Cahill Formation of the Namoona Group conformably overlies the Munmarlary Quartzite. The lower part of the Cahill Formation (informally referred to as the Lower Cahill Formation) hosts the Nabarlek, Ranger and Jabiluka uranium deposits. The Lower Cahill Formation consists of a structurally lower calcareous marble and calc-silicate gneiss, which is overlain by pyritic, garnetiferous and carbonaceous schist, quartz-feldspar-mica gneiss, and minor proportions of amphibolite.

The informally named Upper Cahill Formation is psammitic and consists of feldspar-quartz schist, quartzite, lesser proportions of mica-feldspar-quartz-magnetite schist, and minor proportions of metaconglomerate and amphibolite. The Cahill Formation is magnetic and significantly so at the base of psammitic unit in what is informally known as ‘hangingwall sequence’. The magnetic characteristic of this unit is due to the presence of mafic sills or magnetite and it is a useful characteristic used to distinguish the Cahill Formation from surrounding less magnetic rocks (Kendall, 1990). Mafic sills and dykes assigned to the Goodparla and Zamu dolerites intrude the Upper Cahill Formation.

The Nourlangie Schist overlies the Cahill Formation and consists of argillaceous to quartzose phyllite and quartz-mica schist that locally contain garnet and staurolite.

The supercrustal rocks of the region are structurally complex, having been affected by at least three deformation events before deposition of the late Palaeo- to Mesoproterozoic Kombolgie Subgroup (Thomas, 2002). The rocks have also undergone local migmatisation during the ca. 1847-30 Ma Nimbuwah Event. In addition, there is a broad trend of increasing grade from southwest to northeast in the Nimbuwah Domain. This gradient is thought to reflect the synchronous emplacement of ca. 1865 Ma granites of the Nimbuwah Complex.

The Kombolgie Subgroup is the basal unit of the late Palaeo- to Mesoproterozoic Katherine River Group of the McArthur Basin (Sweet et al., 1999a, b). The subgroup consists of sandstone units called the Mamadawerre Sandstone, Gumarrirnbang Sandstone, and Marlgowa Sandstone, which are divided by thin basaltic units called the Nungbalgarri Volcanics, and Gilruth Volcanics. The Mamadawerre Sandstone has a minimum age of ca. 1720 Ma, which is the minimum age of the intrusive Oenpelli Dolerite. Detrital zircon SHRIMP data from the GA OZCRON database constrains the maximum age of the sandstone at ca. 1810 Ma.

The Oenpelli Dolerite is the most pervasive mafic intrusive suite to affect the Alligator Rivers region and is the youngest Proterozoic rock unit exposed. It intrudes various Neoarchaean and Palaeoproterozoic units, and the Kombolgie Subgroup, forming magnetic sills, dykes, lopoliths, and laccoliths. The Oenpelli Dolerite has a SHRIMP U-Pb baddeleyite date of 1723 ± 6 Ma (Ferenczi et al., 2005); however geochemical and geophysical data suggests several phases of intrusion throughout the region. These intrusive events had a pronounced thermal effect within the Kombolgie Subgroup, with the promotion of fluid flow and aquifer or aquitard modification. Localised effects in the sandstone include silicification, desilicification, chloritisation, sericitisation, and pyrophyllite alteration. A characteristic
mineral assemblage of prehnite-pumpellyite-epidote has formed in the quartzofeldspathic basement rocks adjacent to the intrusions.

**Local Geology of Cadell**

The geology of the region can be divided into two geological domains, a northern domain of crystalline basement and dolerite bounded from the McArthur Basin sedimentary succession to the south by the east-trending Steven’s Fault (Figure 4). The project lies at the western extremity of the main surface expression of the Nimbuwah Complex, which occupies coastal plains and escarpment country north of the tenement, centred on King River. It is likely that the boundary between this complex and the high-grade metamorphics of the Pine Creek Succession (‘transitional zone’ of the Nimbuwah Complex; (Needham, 1988)) occurs within the tenement near Steven’s.

**Figure 4: Local geology of Cadell Project**

The transitional zone of the Nimbuwah Complex is represented by amphibolite to granulite facies pelitic to psammopelitic gneiss and migmatite of the Myra Falls Metamorphics. The recently released NTGS 500k scale GIS compilation for the Pine Creek Orogen specifies that these metamorphics belong to the Cahill Formation, based largely on geophysical character (Figure 3). However, this cannot be substantiated in outcrop by the presence of characteristic lithologies, suggesting the more general Myra Falls Metamorphics may be a more appropriate classification.

Sedimentary and volcanic rocks of the Lower Kombolgie Subgroup (Sweet et al., 1999a) unconformably overlie (and obscure) basement in the southern half of the tenement (Figure 4). The basal formation, the 100-250m thick Mamadawerre Sandstone, forms a deeply dissected plateau surface. This area is composed largely of bare rock with sparse areas of shallow sandy soil supporting spinifex and scrub. Sandstone is quartzose to lithic and fine- to very coarse-grained with a variety of fluviatile to shallow high-energy marine bedforms, including trough and planar cross-beds (Ojakangas, 1979).

Mamadawerre Sandstone is unconformably overlain by the Nungbalgarri Volcanics, however, in Cadell this unit is only represented by lateritised surficial rubble. The contact is expressed locally as 100-500m diameter sub circular depressions (‘dome and basins’), with the upper sandstone surface interpreted to represent the palaeotopographic surface of giant lunate current ripples or aeolian sand dunes with the volcanic draped over the top (Nott and Ryan, 1996). It may also represent large dewatering structures formed as a result of hot volcanic rocks draped over water-saturated sediments, which were deposited in estuarine conditions (Needham, 1978). The Nungbalgarri Volcanics consist of multiple vesicular and amygdaloidal basaltic flows. The regional stratigraphic thickness of the volcanic unit is variable between 50m and 130m, however, it may also be locally absent (Carson et al., 1999).

Sills and dykes of Oenpelli Dolerite occur within basement at Steven’s Anomaly, north of the Steven’s Fault (Figure 4). However, dolerite has not been intersected in any significant way in drill holes to the south of the fault under the cover of Kombolgie Subgroup. In drilling and outcrop, the dolerite ranges from fresh magnetic coarse-grained subophitic dolerite to pervasively altered chlorite-haematite rock. At Steven’s, the dolerite appears to form a sheet with a preserved thickness of less than 100 m that
occupies the former unconformity between basement and Mamadawerre Sandstone immediately north of the Steven’s Fault. This structure is therefore interpreted to have had a fundamental control of distribution of the dolerite.

Undifferentiated Cretaceous rocks have been mapped as a small outlier in the central part of the tenement. The rocks are exposed as weathered outcrops of lateritised sandstone and siltstone forming a resistant mesa. A veneer of sand and blacksoil up to 20 m thick covers much of the area north of the Steven’s Fault.

EXPLORATION TARGET

The objective is the discovery of unconformity style uranium deposits. The nearby economic deposits at Ranger, Jabiluka, Koongarra and Nabarlek serve as exploration models. There is also potential for gold, palladium and platinum Coronation Hill (South Alligator Valley) style deposits in the region.

Given that there are local variations in geological setting (structure, host rock, element association), the deposits appear to have a common position relative to the base of the Kombolgie Subgroup i.e. the Palaeoproterozoic unconformity, or to its erosional margin. In several examples, down-faulted blocks of Kombolgie Sandstone (reverse faulting) are juxtaposed to the mineralisation, as at Ranger No. 3 orebody and the Hades Flat Prospect between Ranger and Jabiluka. These and other recognised features are considered to be indicative of a favourable setting for the concentration of mineralising fluids within a structurally disrupted unconformity setting.

Whilst the uranium mineralisation discovered to date at Cadell is of limited extent and of low grade, the area is considered prospective for unconformity related uranium-gold-PGE mineralisation based upon the following:

- proximity to the unconformity between metasedimentary packages and overlying Kombolgie sandstone
- favourable lithologies
- association of chloritic and haematitic breccias in the vicinity of fault structures

The deposits of the South Alligator Valley (SAV) and the Rum Jungle-Waterhouse region also exhibit a spatial relationship to Palaeoproterozoic unconformities. The SAV deposits are ‘capped’ by the Kombolgie Subgroup sandstone and have an igneous affiliation (sub-volcanic intrusive). They tend to be more gold enriched and are characterised by the presence of palladium and platinum selenides. The Sargeants and Kylie styles of mineralisation, located south of Rum Jungle on the fringe of the Archaean Waterhouse Complex, have some similarities to the SAV with Au-PGE enrichments in association with uranium. The Depot Creek Sandstone, the basal unit of the Tolmer Group, unconformably overlies these deposits, which are hosted in a carbonate-carbonaceous schist sequence.

HISTORICAL INVESTIGATIONS IN THE REGION

Previous exploration in Cadell area has been carried out by AFMEX during the period 1997 to 2001 as part of the larger EL3347.

The Stevens prospect was identified by an airborne radiometric survey in 1997 and followed up with outcrop sampling in 1997 and 1998. Uranium was found associated with gold in
altered Oenpelli Dolerite with the best result from the prospect being 4.6% U$_3$O$_8$, 1.3% Pb & 2.2% P$_2$O$_5$ in clay-haematite talus rock with yellow secondary U stains and a rock chip with 620ppm U$_3$O$_8$ and 578ppb Au.

In 1998, the Steven’s Prospect was gridded to provide a base for a ground radiometric survey. Radiometric readings were taken every 25 to 50m, along 100m spaced north – south grid lines. The mapping and ground radiometrics completed over the area confirmed that the radioactive anomaly is confined to the dolerite close to its faulted contact with the Mamadawerre Sandstone.

No further work was conducted on the prospect until Cameco acquired EL3347 from Afmex in 2003.

Cameco conducted drilling of the Stevens prospect in 2003 (CDD0001) and 2004 (CDD0002) with a helicopter supported drilling rig. The best analytical result obtained was 610 ppm U$_3$O$_8$ and 71 ppb Au over 20 cm at 31.8 m in D0002, and saprolitic clays from 7.3 to 26m assayed 31 ppb Au and 16 ppm U$_3$O$_8$ over 18.7 m (composite assays). The base of D0002 comprised massive haematite, sericite and chlorite alteration with significant brecciation, associated with the Steven’s fault. Pervasive and intense chlorite, haematite, sericite (phengite) and leucoxene alteration with quartz veining is associated with the mineralisation.

High resolution radiometric and magnetic airborne surveys and a hyperspectral HyMap survey were completed over the area in 2004. Additional rock sampling returned results of 1,570ppm U$_3$O$_8$ and 370ppb Au with four other samples returning >350 ppm U$_3$O$_8$.

Six diamond-cored holes (CDD0003 – CDD0008) for 1,019m were completed in the Stevens prospect in 2005 (refer Figure 5). The drilling was mainly targeting the Stevens fault. Intense chlorite-hematite alteration was recognised in basal 10 – 15m Mamadawerre Sandstone, with local radioactive zones up to 2 m thick (up to 180ppm eU$_3$O$_8$). The contact of the sandstone with Oenpelli Dolerite is brecciated and strongly altered. Basement rocks include Myra Falls Metamorphics (m afic composition migmatite gneiss) and Nimbuwah Complex (porphyritic granite). Minor narrow strongly radioactive veins were present in both the basement rocks and dolerite with preferred northerly trend.

Figure 5: Location of Drilling 2003 - 2006

The best analytical results from the 2005 drilling include:

- 0.6m @ 0.6% U$_3$O$_8$ and 101ppb Au in an oblique vein in granite (CDD0003),
- 0.5m @ 940ppm U$_3$O$_8$ - vein in granite (CDD0003),
- 0.8m @ 570ppm U$_3$O$_8$ - vein in dolerite (CDD0008),
- 2.2m @ 350ppm U$_3$O$_8$ - hematite-chlorite altered sandstone (CDD0008),
- 6.8m @ 2,620ppb Au, 542ppb Pt and 709ppb Pd - dolerite saprolite (CDD0005),
- 5.0m @ 2,000 ppb Au, 463 ppb Pt & 221 ppb Pd - dolerite saprolite (CDD0007)

Figure 6: Gridded Maximum Uranium from Drilling
Figure 7: Gridded Maximum Gold from Drilling

In 2006, RC drilling was located to the east and west of the Steven’s prospect, to test extensions of mineralisation intersected in the 2005 diamond-drilling program. Eight RC
holes were drilled to test the mineralisation associated with the Stevens fault and a further 17 shallow RC holes were drilled to the north testing the saprolitic dolerite concealed beneath transported cover.

The best uranium intersections include:
- 1 m @ 0.187% U₃O₈ - Fault Zone CDR0015
- 1 m @ 0.094% U₃O₈ - Fault Zone CDR0016
- 2 m @ 0.025% U₃O₈ - chloritised dolerite CDR0020

Anomalous Au-PGE geochemical results include:
- 1 m @ 0.80g/t Au - CDR0016
- 5 m @ 6.06g/t Au, 1.58g/t Pt, 2.20g/t Pd - CDR0013
- 1 m @ 0.586g/t Au - dolerite saprolite CDR0032
- 5 m @ 0.564g/t Au, 0.274g/t Pd, 0.145g/t Pt - dolerite saprolite CDR0032

Later assaying of individual metre splits from CDR0013 returned:
- 1 m @ 18.4 g/t Au, 7.58 g/t Pt, 6.10 g/t Pd from 43 m
- 1 m @ 4.38 g/t Au, 1.09 g/t Pt, 0.72 g/t Pd from 45 m
- 1 m @ 4.85 g/t Au, 1.04 g/t Pt, 0.72 g/t Pd from 46 m

Refer to Figure 6 and Figure 7 for gridded maximum values of U and Au for the collar position of the drill holes.

A Tempest electromagnetic survey was conducted over the Stevens area in 2006; the survey failed to identify any response related to mineralisation within the survey area.

A soil sample program of 160 samples was trialled over the northern portion of the licence area where transported sand cover obscures the geology.

EXPLORATION PROGRAM

The exploration program for ERL25896 during 2008 was planned to test for extension of the uranium and precious metals mineralisation identified in the vicinity of the Stevens fault.

An 80 hole air-core drill program was planned to test the basement geology and saprolitic mineralisation beneath areas of transported sand cover to the north of the Stevens fault. A 2,000m RC drilling program was planned to test the Stevens fault mineralisation, discovered in previous drilling programs.

The timing and availability of drilling rigs was such that the planned drilling program for 2008 has not been completed within the reporting period. The drilling is scheduled for completion prior to the end of the 2008 field season.

CONCLUSIONS AND RECOMMENDATIONS

Previous exploration has identified that rock types in the area have consisted largely of pervasively altered Oenpelli Dolerite in the upper part of each hole, followed by a narrow interval of altered Mamadawerre Sandstone, and a basal intersection of Nimbuwah Complex mega-crytstic granite.
The targeted intersection of the Mamadawerre Sandstone with the Nimbuwah Complex granite unconformity with the intrusive Oenpelli Dolerite is brecciated, intensely chlorite-haematite altered and is geochemically and radiogenically anomalous. Quartz dissolution and alteration of the basal Mamadawerre Sandstone intensifies towards the base of the unit.

Drilling has identified that gold, and precious metal enrichment occurs within the clay and saprolite sequence overlying the Oenpelli Dolerite, with CDR0013 intersecting spectacular grades of precious metals within intensely chlorite altered dolerite. Soil sampling conducted in 2007 demonstrates anomalous Au in the vicinity of CDR0013.

The results of the drilling at Stevens prospect demonstrates that potential for U and Au mineralisation. The drilling program to be conducted in 2008 is designed to test for extension to known mineralisation, and test for further potential. The covenant for 2008-2009 is set at $355,000.

EXPENDITURE

Eligible expenditure on the Cadell project for 2007-2008 was $100,481.99.

Table 1: Eligible Expenditure Statement


