SUMMARY
This report describes all exploration work undertaken within that portion of Exploration Licence 5891, which was relinquished on the 12 May 2004. A total of thirty five blocks was surrendered on that date. The licence area is located in northwestern Arnhem Land and was 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.

The exploration program was initially managed by PNC Exploration Australia Pty Ltd (1996 to 1999 inclusive) and then by Cameco Australia Pty Ltd on behalf of the Nadjinem Joint Venture partners, Cameco Australia Pty Ltd, PNC Exploration Australia Pty Ltd and the Nadjinem Aboriginal Corporation. PNC withdrew from the JV in 2001.

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.

Exploration activities over the eight year period comprised airborne surveys, geological mapping, stream sediment and rock sampling.
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INTRODUCTION

This report describes exploration activities carried out over the relinquished portion of EL5891 between 1996 and 2004. The tenement is currently being explored on behalf of the Yok Joint Venture, a joint venture between Cameco Australia Pty Ltd (Cameco) and the Yok Aboriginal Corporation. Since the Exploration Licence is located on Aboriginal Land the exploration programmes have been 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.

Contractors who were involved on the project are listed below:

- Aerial Photography by Airesearch P/L, Darwin
- Airborne Mag/Rad/VLF by Geoterrex, Sydney
- DIGHEM Survey by Geoterrex, Sydney
- Diamond and BLEG stream sampling by consultant Ed Manning, Darwin
- Helicopter assistance by Rotor Services/Jayrow, Darwin
- Chemical assaying by Chemnorth / NTEL, Darwin

Summary of Exploration Table
Summary of Geochemical Methods Table

Location Map
Relinquished Blocks Map
Work Completed Map
Bleg Samples Map
Rock Samples Map
Stream Sediment Samples Map

Geoterrex Airborne Geophysics Logistics Report
UTS Airborne Geophysics Logistics Report

Location and Access

Exploration Licence 5891 is situated in western Arnhem Land and is centered approximately 60 kilometres to the northeast of the Aboriginal settlement of Gunbalanya (Oenpelli). The subject area is contiguous with the eastern side of the tenement.

Access is via two pre-existing tracks, the Waminari Bay road in the northern part of the tenement and the King River road in the south. Topography varies from flat lying coastal plains to heavily dissected sandstone plateau remnants of the Wellington Range. Vehicular access in the former is possible whilst the latter is best accessed by helicopter.

Tenure

EL5891 was granted on 13 May 1996 for an initial period of six years. The tenement was renewed for a further two years in February 2002 and again in February 2004. The latest renewal will take effect on 13 May 2004. On granting, the total area under licence was 957.5 square kilometres of which 234 square kilometres (15%) was designated as restricted zones following site surveys undertaken by the Northern Land Council.
Renewal of the licence area 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. There was no reduction sought. The most recent reduction of 35 blocks, which is the subject of this report, coincided with the renewal for years nine and ten. An area of 238.7 square kilometres now constitutes the tenement after reduction to 71 blocks.

**Physiography**

The relinquished section 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.

**Tenement Geology**

Gneiss and migmatite of the Nimbuwah complex are unconformably overlain by the mid-proterozoic Kombolgie Subgroup, which in this region is represented by the basal Mamadawerre sandstone. Cretaceous remnants cover the basement rocks in places. Younger intrusives comprising the Oenpelli dolerite intrude both the Nimbuwah and Kombolgie.

** 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 varying contents of these elements.

**Exploration Programmes**

1996 Field Season

- Aerial photography covering the entire exploration licence.
- A regional fixed wing airborne survey at 200 metre line spacing, which included magnetics, radiometrics and VLF.
- Helicopter-borne DIGHEM survey at 150 metre line spacing covered the areas of outcropping Kombolgie sandstone.
- ground reconnaissance work including regional scale outcrop mapping, lithogeochemical sandstone and basement outcrop sampling.
- Regional scale stream BLEG sampling in conjunction with diamond indicator sampling.

*Geoterrex Airborne Geophysics Logistics Report*

1997 Field Season

- Airborne anomaly (ANG9) ground follow up including sampling and scintillator survey.
- Sampling for geochemical purposes including rock and limited additional stream sediment and BLEG sampling.
Continuing lithogeochemical sandstone sampling.
Continuing geological mapping and outcrop recording.

1998 Field Season
Follow-up –80 mesh stream sediment sampling was undertaken where anomalous gold in BLEG and labile uranium had been previously detected. The area of most interest is where the Anuru fault zone transects the southern side of the Kombolgie sandstone.

1999 Field Season
A program of detailed sandstone sampling was undertaken in the vicinity of the Anuru fault system to follow up the zone where anomalous gold and labile uranium had been detected in previous years.

2000 Field Season
An airborne Hyperspectral survey was flown for Cameco by De Beers using their Hymap Mk1 system. Only the Kombolgie sandstone was covered.

DeBeers Hyperspectral Logistics Report

2001 Field Season
No field work was carried out in the relinquished area however the Hyperspectral data was processed and interpreted during the year.

2002-2003 Field Seasons
No work was undertaken in the relinquished area.

DISCUSSION & CONCLUSIONS

The principal area of exploration interest was the Kombolgie sandstone block termed ‘Ralph’s block’. The southern side of this outlier was potentially prospective due to a combination of anomalous labile uranium and gold results, which appeared to be related to a zone of silicification and quartz veining. The latter is coincident with a major regional structure, the Anuru Fault zone, which extends southwards and can be traced across the other King River tenements.

Exploration over this area comprised several seasons of stream sediment and rock sampling, geological mapping and ground radiometrics. The conclusion drawn was that although there is some elevated geochemistry associated with the structural zone identified in the sandstone, the levels of uranium-gold anomalism combined with the low level surficial radiometrics and lack of widespread alteration pointed to a very localised feature of minimal interest.

Airborne anomaly ANG9 located north of the sandstone outliers was originally prospected by Union Carbide in the early 1970s with only minimal work performed. The Joint Venture reinvestigated this anomaly, which manifests as a prominent northwest trending fault comprising intensely quartz veined and silicified basement rocks. Rock sampling and radiometric traverses failed to locate anything of interest associated with the fault zone and no work was performed.
Elsewhere, regional exploration activities including lithogeochemical sandstone sampling, limited sampling of isolated basement outcrops and stream sediment sampling failed to locate any areas of interest. Airborne Hyperspectral was integrated with ground exploration data.

REFERENCES


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