Cameco Australia Pty Ltd

Exploration Licence EL23522

East Alligator Project – Northern Territory

Surrender and Final Report

26 February 2003 to 26 February 2006

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SUMMARY

The East Alligator Exploration Licence (EL23522) is located in West Arnhem Land approximately 280 km east of Darwin and has an area of 754 km^2 (382 blocks). Cameco Australia Pty Ltd (Cameco) was granted the licence on 26th February 2003 for a period of 6 years.

Cameco's exploration efforts within the licence have focussed on unconformity-style uranium mineralisation. This report outlines all exploration activity for the period from date of grant until full surrender on 25th February 2006. Work consisted of airborne geophysical surveys (magnetics, radiometrics, hyperspectral and TEMPEST electromagnetics), and outcrop sampling.

Regional outcrop sampling was conducted across the tenement, designed to provide a broad, first-pass geochemical coverage of the project area. Sampling was also conducted within and marginal to a section of the Bulman Fault Zone and was designed to follow up on a broad zone of anomalous geochemistry. Other sampling targeted radiometric anomalies and hyperspectral targets.

Values as high as 68.10 ppm U (U/Th=33.55) were recorded in Fe-rich Gumarrirnbang sandstone marginal to the Bulman Fault Zone. It is likely however the metal content has been inherited from the immediately overlying Gilruth Volcanics units, and is not related to any mineralising event in the area. Other geochemical results confirm an intimate association between elevated uranium and volcanic rocks or volcanic-derived materials, or sandstone samples proximal to volcanic layers. As such, elevated uranium values in surface samples map the distribution of residual volcanic material, but do not assist in defining a deeper level, basement-related target.

The TEMPEST survey conducted in 2005 confirmed that the depth to the upper horizon of the Nungbalgarri Volcanics was in excess of 200m, with an inferred depth to the unconformity of Mamadawerre Sandstone and basement rocks in excess 450m.

The depth to the unconformity, and lack of targets has downgraded the potential prospectivity of the licence area in respect to uranium mineralisation.

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1. INTRODUCTION

This report outlines exploration activity on East Alligator, EL23522, for the period of tenure 26th February 2003 to 25th February 2006.

1.1 Location and Access

The tenement is located in West Arnhem Land and is centred approximately 60 km east of the township of Jabiru. There is no road access to the licence; exploration work has been conducted solely by helicopter.

Figure 1: Location Plan

1.2 Tenure

Cameco Australia Pty Ltd was granted EL23522 on 26 February 2003 for a period of six years. On granting EL23522 comprised 382 blocks, with an area of 1274 sq km of which 871 sq km was excluded from exploration access. On 25th February 2005, 248 blocks comprising 827 sq km was relinquished, with the retention of 134 blocks for an area of 447 sq km. The licence was surrendered in full on 27 January 2006.

1.3 Geology

1.3.1 Regional Geology

The regional geology is characterised by deformed and metamorphosed, Palaeoproterozoic age, Nimbuwah Complex metamorphics and Myra Falls Metamorphics basement rocks. Fluvial sediments and intraformational volcanics of the Kombolgie Subgroup unconformably overlie the basement rocks. The sandstone package progressively thickens to the southeast and reaches depths in excess of 1000 metres. Major structural features in the area include the northwest-trending Bulman Fault.

Figure 2: Regional Geology

The reader is referred to Needham (1998) and Carson et al (1999) for further detail.

1.3.2 Project Geology

The licence area is dominated by platform sequences of the Kombolgie Subgroup sediments, with a general succession of formations towards the south-east. The lowermost unit, the Mamadawerre Sandstone and the overlying Nungbalgarri Volcanics do not outcrop within the project area but are present immediately to the north. The lowermost unit exposed on the project is the Gumarrirnbang Sandstone, consisting of fine to very coarse grained, medium to thickly bedded quartz arenite (Carson et al., 1999). Deposition of the Gumarrirnbang Sandstone is interpreted to have been in a braided fluvial system with an overall upwards trend to more finer-grained and better-sorted aeolian sands in the upper portions of the formation. The Gilruth Volcanic Member, a thin mafic volcanic horizon up to a maximum of 14m thick (from drilling), conformably overlies the Gumarrirnbang Sandstone. The Gilruth Volcanics is generally recessive in outcrop, forming lateritised terraces of ferruginous debris, and are clearly recognisable in the radiometric imagery. Conformably overlying the Gilruth Volcanics, is the Marlgowa Sandstone, a

fine grained to granular, thickly bedded quartz arenite deposited in a braided fluvial to shallow marine, tidal environments.

While not exposed on the licence area, dolerite dykes and sills of the Oenpelli Dolerite intrude the Kombolgie Subgroup sediments.

Figure 3: Project Geology

1.4 Exploration Target

The focus of the exploration strategy is the discovery of unconformity-related uranium deposits. The nearby economic deposits at Ranger, Jabiluka, Koongarra and the now depleted Nabarlek Mine serve as models for this strategy. The presence of gold, palladium and platinum in these deposits plus the economic gold-platinum resource at Coronation Hill in the South Alligator Valley, indicates an additional potential for this deposit style.

1.5 Previous Work

No documented mineral exploration work has been undertaken on the East Alligator Licence prior to Cameco taking up tenure.

2. EXPLORATION PROGRAM

The work completed on EL 23522 is summarised in the Table 1.

Table 1: EL23522 Exploration Completed 2003 to 2006

2.1 Work Completed 2003-2004

Work completed during the first year of exploration consisted of:

- airborne radiometric/magnetic/DTM survey (conducted on 200 m line spacing total 2417 line km). Recognition of 15 radiometric anomalies within licence area with high U/Th responses. Strongest anomalies appear related to mapped volcanic units (Gilruth Volcanic Member). Several lower order anomalies define a northwest-trending axis subparallel to the Bulman Fault Zone.
- airborne hyperspectral survey (HYMAP Mk I) and identification of 13 broad target zones where the distribution of illitic clays is not controlled by stratigraphy (Zaluski 2003). Targets that are located in heavily dissected and fractured terrain within and adjacent to the Bulman Fault Zone are considered anomalous.
- 101 outcrop samples; heli-supported outcrop sampling on a nominal 2km x 2km grid
- 17 outcrop samples as follow up and ground reconnaissance of 15 anomalous airborne radiometric responses
- geochemical analyses and PIMA spectrometry of above samples

Best analytical results included 110 ppm U, 75.5 ppm U, 34.3 ppm U and 27 ppm U. Highest values were recorded from ferruginised sandstones. Several samples with values of greater than 2 ppm U appear to define a several kilometre-long zone of anomalous geochemistry (including elevated U, Au-PGE, REE). This zone trends northwest and is located on the northeast margin of the Bulman Fault Zone.

2.1.1 Airborne Geophysics - Hyperspectral

An airborne hyperspectral survey has been conducted over the East Alligator project. The survey was conducted by De Beers Pty Ltd utilising their HYMAP MkI system, an airborne multi-spectral scanning instrument designed to map minerals and identify alteration. Cameco is utilising the instrument as an aid in locating alteration patterns associated with unconformity-style uranium deposits. It is hoped that the system will identify and map variations in clay types in the sandstone such as kaolinite, illite, dickite, halloysite and iron and magnesium chlorites as well as silicification.

Reports detailing the survey logistics as well as the processing and interpretation of the results are contained within the documents listed below. Two DVD's accompanying this report contains the hyperspectral data.

Appendix 1: HYMAP Mk I Logistics Report by DeBeers

Appendix 2: HYMAP Mk I Interpretation Report by Gerard Zaluski

2.1.2 Airborne Geophysics - Magnetics, Radiometrics and DTM

UTS Geophysics Pty Ltd has conducted 2,417 line kilometres of airborne geophysics over the East Alligator project, which consists jointly of magnetics, radiometrics and DTM (Digital Terrain Model). The survey was flown with a line spacing of 200 m and a flying height of 60 m.

Appendix 3: Airborne Geophysics Logistics Report by UTS

Figure 4: Airborne Magnetics – Total Magnetic Intensity (TMI) with 1st Vertical Derivative (1VD)

Figure 5: Airborne Radiometrics – Total Counts (TC)

Figure 6: Airborne Radiometrics – Potassium (K)

Figure 7: Airborne Radiometrics – Uranium (U)

Figure 8: Airborne Radiometrics – Thorium (Th)

Figure 9: Airborne Radiometrics – RGB=U,Th,K

Figure 10: Airborne DTM – Height with NE Sun Angle

Airborne radiometric uranium anomalies have been identified within the East Alligator project and are primarily associated with mapped outcrops of Gilruth Volcanics. Weak anomalies are less common and are generally related to photo lineaments and dolerite dykes within the Kombolgie Subgroup sandstone (Gumarrirnbang and Marlgowa). Initial ground follow-up has been focused on anomalies that occur away from the Gilruth Volcanics using a variety of image processing techniques including RGB=U,TH,K; UxU/Th; U/Uaverage and K/Kaverage (where the average is calculated over a .2 km^2). None of these anomalies are considered to be highly prospective and have UxU/Th ratios below three.

The airborne magnetic intensity increases towards the south-east (75 nT), which is currently unexplained (as is the case elsewhere in Arnhem Land). The broad nature of this intensity change indicates a deep source greater than 5 km. Several northwest and northeast trending dykes are indicated by the magnetics, including a northwest dyke that is coincident with the Bulman Fault Zone. The Sawcut Fault trends east northeast and is associated with a localized decrease in magnetization.

2.2 Work Completed 2004-2005

Work completed during the second year of exploration consisted of:

- 84 heli-supported outcrop samples; the bulk of the sampling was conducted in an area straddling the Bulman Fault Zone. Sampling was designed to provide higher density coverage across an area of geochemical anomalism recognised from the previous year's sampling. A minor number of samples were collected from previously unchecked radiometric anomalies and hyperspectral targets.

Eight of the 84 samples collected during 2004 returned values ≥ 2 ppm U; all cluster along the northeastern margin of the Bulman Fault Zone. Three samples of ferruginised Gumarrirnbang Sandstone, taken from the same locality, returned values of 4.48, 43.90 and 68.10 ppm U. The latter two samples are associated with elevated Au-PGEs (up to 896 ppb Au), Be, Se, V (up to 160ppm) and REEs. These elevated chemical associations are suggestive of a volcanic influence. It is likely the anomalous uranium in these sandstone samples is related to inheritance and scavenging from the immediately overlying Gilruth volcanics.

2.3 Work Completed 2005-2006

Work completed during the third year of exploration consisted of:

- Airborne electromagnetic geophysical survey (TEMPEST)
- Three outcrop samples collected within area of interest

The work program was designed to determine the prospectivity of an anomalous zone interpreted from the 2004 program. An area of interest was identified at the intersection of the Bulman and Sawcut Fault. The distribution of clay compositions in this area appeared anomalous, abruptly changing form illite dominant to dickite dominant compositions. The magnetic imagery also suggests some right lateral movement across the Sawcut Fault, as interpreted from high polarity dykes.

To complete the assessment for drilling, an airborne electromagnetic (TEMPEST) geophysical survey was flown over the area. The survey indicated that a planar conductive feature present at a depth of greater than 200m represents the Nungbalgarri Volcanic Member. Some minor apparent disruption of this planar conductive feature is interpreted in the vicinity of the Bulman and Sawcut Faults. The TEMPEST interpretation provides a depth indication of greater than 400m stratigraphic thickness to the unconformity.

Three outcrop samples were collected during further reconnaissance and mapping within the defined area of interest. No results of significance were returned for these samples.

2.3.1 Geophysics - TEMPEST

In May 2005, Fugro Airborne Surveys Pty Ltd (Fugro) undertook a TEMPEST airborne electromagnetic survey over the northwest quarter of the project. The flight lines were oriented 056°, with a flying height of 120 m, spacing of 400 m, totalling 315 line km. The survey was centred on the intersection of the Bulman and Sawcut Faults.

TEMPEST is a high-powered airborne time-domain system with a broad bandwidth, which enables good resolution of variations in resistivity whilst maintaining reasonable ground penetration. In addition, the airborne platform allows electromagnetic data to be acquired over broad areas where ground geophysics is impractical due to rugged topography. Most TEMPEST surveys in Arnhem Land are flown with the aim of providing 3-D electromagnetic data to assist with the identification of basement graphite, structural offsets, alteration and to infer the depth to the unconformity below sandstone. However, it was recognised that at East Alligator the response would likely be controlled by the volcanic horizons (Nungbalgarri and Gilruth).

Appendix 4: TEMPEST Logistics Report by Fugro

Figure 11: TEMPEST Location Map

Figure 12: TEMPEST X Time Constant Map

Figure 13: TEMPEST Z Time Constant Map

Figure 14: TEMPEST X RGB=CH8,4,1 Map

Figure 15: TEMPEST Z RGB=CH8,4,1 Map

2.3.1.1 Background

Conductivity Depth Images (CDIs) are an important inversion product calculated by Fugro using EMFlow software (Encom Pty Ltd) and used to compare the TEMPEST with geology. Cameco has also utilised Profile Analyst software (Encom Pty Ltd) to calculate a 3D voxel, which can be used to investigate 3D features. This allows the depth to the first conductive layer to be extracted, referred to as the "conductive unconformity". The 3D voxel has also been filtered to highlight maximum conductivities greater than 50 m below the surface (likely to relate to cover and weathering rather than features within the basement). A number of these 3D aspects have also been reprojected to plan view to facilitate comparison with ancillary datasets including geology. The z-component data has been used extensively since it is less prone to noise and couples best with sub-horizontal features such as the conductive unconformity.

The "conductive unconformity" is a term adopted to describe the first sub-horizontal conductive layer, commonly depicted in TEMPEST CDIs. In areas of Mamadawerre Sandstone this layer generally relates to the sandstone-basement unconformity contact and elsewhere it commonly relates to surface cover. At East Alligator this response is due to the Nungbalgarri Volcanic Member. Abrupt changes in the elevation of the TEMPEST conductive unconformity can sometimes be utilised to infer faulting and structure.

One of the primary objectives for the TEMPEST survey is to identify conductors associated with structure, since these could relate to clays, porosity or graphite; indicative of alteration and/or fluid-rock interaction with potential to precipitate uranium. Unfortunately, conductors can be difficult to reliably identify with 1D inversions due to artefacts and tails related to edge effects. Also, the conductive unconformity response or cover (+/- dolerite) may mask the response from underlying basement. Geometry, line-to-line consistency and x/z characteristics help to increase confidence that conductors are real, especially in the context of known geology. Targets have been identified from the individual CDIs, elevation of conductive unconformity, time constants, time channels and voxel thresholds.

2.3.1.2 Result

The survey has failed to identify any isolated or linear conductors of interest, other than those thought to relate to lateral variations associated with the volcanic layers. Also there is no dramatic conductive unconformity elevation changes thought to relate to faulting. TEMPEST indicates that the Nungbalgarri Volcanic Member dips shallowly towards the south and the Bulman Fault may have an apparent left-sinistral offset.

3. EXPLORATION RESULTS AND METHODOLOGY

Details of all exploration results.

Figure 16: Field Sample Location Map

Table 2: Field Sample Locations and Descriptions

Table 3: Field Sample Physical Properties

Table 4: Field Sample Alteration Features

Table 5: Field Sample Structural Measurements

Standard practices for outcrop sampling, and PIMA reflectance spectrometry are outlined in the following appendices. Cameco analyses for an extensive suite of elements, including 10 major oxides, U total acid digest and partial acid digest), four Pb isotopes and a broad range of trace elements, including 13 rare earth elements (REE). All geochemical analysis was conducted by Northern Australia Environmental Laboratories Pty Ltd (NTEL), based in Darwin.

Appendix 5: Outcrop Sampling Practices and Geochemical Methodology

Table 6: Field Sample Geochemical Analysis Results

Table 7: Field Sample PIMA TSA Minerals

Digital photos from each field station and raw PIMA fos files for each sample are located in the data folder of this report.

4. DISCUSSION OF RESULTS

It is likely the anomalous uranium values in sandstone samples are related to inheritance, scavenging and surficial enrichment from the overlying Gilruth volcanics. Stratigraphically, this area lies in the uppermost part the Gumarrirnbang Sandstone, and is only 500 m from

mapped occurrences of Gilruth Volcanics. Although, there is no observable residual volcanogenic material in the immediate area, it is possible this area formed a depositional surface for the volcanic unit. The presence of the Gilruth can be interpreted in the radiometrics, and is verified in the Landsat (as small areas of darker reddish brown colouration), and also in the TEMPEST (as a close to surface conductor on the appropriate flight lines). Steeply dipping crossbeds (aeolian sedimentary features) and dune-like culminations are observed in the sandstone immediately adjacent to the samples (refer to Sample EA040020). Dunes are recognised as an indicator of the uppermost Gumarrirnbang and coincide with the depositional surface of the Gilruth Volcanic Member (Carson, 1999). Two samples that were recognisably volcanic and one sample of lateritic material returned values from 8.07 to 23.20 ppm U. All samples returned characteristic volcanic geochemical signatures (elevated TiO_2, V, Fe_2O_3, Cu, Ni and low SiO_2).

Structural disruption, as possibly shown interpreted in the TEMPEST could not be verified on surface. The areas visited in 2005, displayed linear valleys and gorges, with no indication of structural disruption.

5. CONCLUSIONS

The following conclusions can be made with regard to the exploration work conducted by Cameco Australia:

- highest U values occur in recognisably volcanic material (Gilruth Volcanic Member), and lateritic material possibly of volcanic origin.
- field investigations indicate sandstone samples with elevated U content (up to 68.1 ppm U) are located proximal to the depositional surface of Gilruth volcanics, the uppermost unit of the Gumarrirnbang Sandstone. These sandstones appear to have inherited trace metals from the veneer of overlying material, which is now substantially eroded.

The confirmation of an intimate association between and elevated U and volcanics downgrades the significance of an anomalous geochemical zone indicated by the 2003 and 2004 sampling programme. There is no evidence to suggest a relationship between localised deformation on the Bulman Fault and elevated uranium in surface samples.

Geochemical analysis of surface samples appears to be of limited use in defining basement targets at East Alligator. The geophysics conducted to date has not identified any potential targets. Any drill targeting is likely to rely on conceptual structural premises. As demonstrated by the TEMPEST, the Kombolgie Subgroup is up 450m thick and any helicopter-supported drill testing will inevitably be high risk, with costs exceeding $AUD250,000.

6. REFERENCES

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