HEADWATERS PROJECT
(EL24711 & EL24712)

Partial Relinquishment Report

Author: Brendan Reed
Date: 25/03/2012
<table>
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<tr>
<th><strong>Titleholder</strong></th>
<th>GE Resources Pty Ltd</th>
</tr>
</thead>
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<tr>
<td><strong>Operator</strong></td>
<td>Uranium Equities Limited</td>
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<td><strong>Tenements</strong></td>
<td>EL24711 and EL24712</td>
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<td><strong>Report Title</strong></td>
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<td><strong>Personal Author</strong></td>
<td>Reed, B.</td>
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<td><strong>Corporate Author</strong></td>
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<td>Headwaters Project (EL24711 &amp; EL24712) Partial Relinquishment Report</td>
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<td><strong>Target Commodity</strong></td>
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<td><strong>Date of Report</strong></td>
<td>25/03/12</td>
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<td><strong>1:250,000 Map Sheets</strong></td>
<td>Mount Evelyn (SD5305) Mount Marumba (SD5306)</td>
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<tr>
<td><strong>1:100,000 Map Sheets</strong></td>
<td>Gilruth (5571) Mann River (5671) Snowdrop (5570) Mainoru (5670)</td>
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</table>
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HEADWATERS PROJECT  
(EL24711 & EL24712)  
PARTIAL RELINQUISHMENT REPORT

SUMMARY

This report details the exploration work undertaken within the 70 blocks relinquished from EL24711 and the 186 blocks relinquished from EL24712 during the first two years of exploration ending 25th February 2012.

The tenements were acquired with the objective of discovering economic concentrations of uranium mineralisation similar to the Westmoreland deposit that is found in the eastern McArthur Basin.

The relinquished areas have been explored and evaluated with the conclusion that these blocks have the lowest chance of hosting significant near surface economic uranium mineralisation within the original granted tenements.
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Appendix II: Structural Geology of the Headwaters Project Area.
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1. **INTRODUCTION**

1.1 **Location and Access**

The Headwaters Project is located on the Arnhem Land Plateau in the West Arnhem Land region, approximately 300km east of Darwin (Figure 1). Access to the Headwaters Project from Katherine is via the sealed Stuart Highway and Central Arnhem Road then along the unsealed Manyallaluk Road. The Mann River Track (known as Bat Guyangguyang to the Traditional Owners) turns off just before Manyallaluk Community and extends north through the tenements to the banks of the Mann River and the northern extent of EL24711.

Vehicle access is only achievable in the dry season due to the Mann River Track being boggy and washed out due to the many creek and river crossings in the wet season. Wet season access is only achievable via helicopter.

*Figure 1: Location Map*
1.2 Tenure

The Headwaters Project comprises four granted exploration licences, EL25220, EL24711, EL24712 and EL24713, and four exploration licence applications (Figure 2). Consent to grant EL24711, EL24712 was given. This report contains the partial relinquishment for EL24711 and EL24712.

Non-consent areas excised from all four granted exploration licences have been applied for by GE Resources Pty Ltd as separate exploration licence applications. ELA27153, ELA27513, ELA27514 and ELA27515 were made to cover non-consent ground. These exploration licence applications are currently in moratorium.

The project tenements EL24711 and EL24712 initially comprised 512 blocks for 1,627.65 km$^2$ and were granted on 26th February 2010. The first reduction period occurs on the second anniversary of the exploration leases and requires a 50% block reduction. The land holdings for EL24711 and EL24712 after the February 2012 reduction comprise 256 blocks for 834.8km$^2$.

![Figure 2: Map of Headwaters tenements and EL Applications](image-url)
Figure 3: Blocks for reduction on EL24711
Figure 4: Blocks for reduction on EL24712
<table>
<thead>
<tr>
<th>Tenement</th>
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<th>Manager</th>
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**Table 1:** Headwaters Tenements before reductions

<table>
<thead>
<tr>
<th>Tenement</th>
<th>Blocks Before Reduction</th>
<th>Blocks After Reduction</th>
<th>Area (km²) Before Reduction</th>
<th>Area (km²) After Reduction</th>
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<td>70</td>
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<td>EL24712</td>
<td>372</td>
<td>186</td>
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<td>614.49</td>
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<td><strong>Total</strong></td>
<td>512</td>
<td>256</td>
<td>1,627.65</td>
<td>834.80</td>
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**Table 2:** Headwaters Tenement Reductions

2. **GEOLOGY**

2.1 **Regional Geology**

The Headwaters project tenements are located on the western margin of the Palaeoproterozoic McArthur Basin, a package of undeformed fluvial to shallow marine sediments and intraformational volcanics that unconformably overlie the Pine Creek Origin, a ten kilometre thick package of metasedimentary rocks that have undergone metamorphism and deformation during the 1860 to 1859Ma Nimbuwah Event. These basement rocks of the Pine Creek Origin are host to the major unconformity related uranium deposits of the Alligator Rivers region.

The Katherine River Group represents the lower successions of the McArthur Basin and unconformably overlies the basement rocks of the Pine Creek Origin. The thickness of the Kombolgie Subgroup is poorly known, but progressively
thickens to the southeast, reaching depths in excess of 1,000m in the southeast of the project area.

2.2 Project Geology

The sediments of the McArthur Basin in the Headwaters project region are part of the Arnhem Shelf which forms the Arnhem Land Plateau. The basal sedimentary package of the Arnhem Shelf region in the McArthur Basin is the Katherine River Group, a relatively undeformed group of sediments that gently dip to the east to southeast. The Katherine River Group can then be further subdivided into the Kombolgie Subgroup, a package of sediments that unconformably overlie the Palaeoproterozoic metasedimentary rocks of the Finniss River Group of the Pine Creek Origin.

The Katherine River Group is the only rocks that outcrop in the Headwaters project area. The youngest outcropping rocks in the area are that of the McCaw Formation, and the oldest member of the Katherine River Group visible on the project is the Gumarrimbang Sandstone.

The geology of the region has been well documented and can be found in greater detail in Needham (1988) and Ferenczi et al (2005).

3. EXPLORATION

Exploration within the Headwaters Project is focused on targeting economic concentrations of uranium mineralisation similar in style to that of the Westmoreland deposits or similar to the Gold, PGE, and Uranium deposit style of Coronation Hill, both of these differing deposit types are potentially located within the project area.

3.1 PREVIOUS COMPANIES EXPLORATION WORK

A collation of data from previous exploration conducted in the Headwaters region concluded that previous exploration in the area has been conducted since 1969 with very little success. Normandy Exploration focussed on commodities such as diamonds, copper, lead, zinc and silver with no significant results.

Cameco Australia held the Headwaters (formerly Deaf Adder) tenements (as EL5061 and EL5062) until relinquishment in 2002. Cameco searched for uranium deposits similar to those found in the Athabasca Basin in Saskatchewan, Canada and the Alligator Rivers Region in the Northern Territory. Their 1997 exploration program consisted of an airborne magnetic spectrometric survey, radiometric prospecting, PIMA analysis of sandstone samples and lithogeochemical studies.

Several areas of interest were found and were followed up with diamond drilling the following year, and airborne geophysics and air photography were undertaken to aid in geological mapping in 1998. Cameco (Drever et al., 1999) noted that in most of the 1998 drill holes, radioactivity and alteration occurred at the contacts between the Gilruth and Nungbalgarri Volcanic members and the Kombolgie Sandstone.

In 1999, exploration consisted of a gravity survey, sampling of anomalous areas and further diamond drilling in the southern Spectre prospect. Drilling results showed elevated uranium located at contacts between the Kombolgie Sandstone and the volcanic units. In 2000 an Airborne Multispectral Scanner (AMS) survey
was conducted and diamond drilling continued. In 2001, sampling of fracture, quartz vein, breccia and follow-up of anomalous zones was undertaken.

In chasing unconformity-related uranium mineralisation as seen at nearby deposits such as Ranger, Jabiluka and Nabarlek, Cameco determined the depth to unconformity prohibitive and the licences were surrendered in June 2002.

### 3.2 URANIUM EQUITIES EXPLORATION WORK FOR 2010

Exploration for the first year on the tenements was designed to compile all of the available historical data and assess this to determine the best exploration programme to advance the project. To help achieve this objective the following work was completed in the first year of the tenements being granted.

- Compilation of data dating back to the first known exploration of the area in the 1960’s.
- Analysis of historical geochemistry data as part of a Master’s Degree undertaken by Helen Wood of the University of Queensland.
- Interpretation of structural data by Dr Gideon Rosenbaum of the University of Queensland.
- Collation and interpretation of Landsat and ASTER data.
- Interpretation of geophysical data.

#### 3.2.1 GEOCHEMISTRY ANALYSIS

Historical geochemistry data was compiled and evaluated as part of a Masters’ thesis produced by University of Queensland student Helen Wood. The geochemistry was investigated and compared with aspects of mineralisation from different uranium deposit types. Data from transects of four known zones of mineralisation in the area were also examined to establish any geochemical and structural relationships. The full thesis report by Helen Wood is included as Appendix I.

#### 3.2.2 STRUCTURAL INTERPRETATION

The aim of the study was to provide a synthesis of the structural architecture and tectonic history of the Headwaters project area. The report summarises results of a preliminary desktop study, focusing on the relative timing of faulting and the potential structural controls on uranium mineralisation.

Based on the interpretation of aerial images, four major orientations of lineaments and two major generations of deformation were recognised. Strong positive magnetic anomalies along NW and NE trending lineaments were also noted, suggesting that these structures may have provided pathways for later dykes.

The full report by Dr Gideon Rosenbaum of the University of Queensland is included as Appendix II.

#### 3.2.3 LANDSAT ETM+7 AND ASTER DATA INTERPRETATION

A remote sensing study was undertaken with consultants Earthscan commissioned to review Landsat and ASTER images from West Arnhem Land to assist in target generation. The total study area covered over 4,7000km². Coverage areas of the study are shown in Figure 5. The full report is attached as Appendix III.
Three Landsat ETM+7 satellite scenes were used to provide a regional assessment of outcrop geology. Interpretation of the Landsat ETM+7 data highlighted three major structural domains in the area with the central domain showing a complex structural history and the most potential for exploration. Major northwest linear zones which have been reactivated form structural corridors containing multiple N-S curvilinear and splay faults which controlled intrusive activity.

![Map of Landsat and ASTER coverage](image)

**Figure 5:** Map of Landsat and ASTER coverage

Seven daytime ASTER scenes were processed involving orthorectification using Landsat ETM+7 Pan Scenes for XY control and SRTM 90m DEM for Z control. Spectral processing was used to highlight epithermal minerals, silica and iron oxide, and propylitic alteration, all of which are of exploration interest. Landsat ETM+7 data was also used to map mineral alteration zones for FeOH species, silica, and smectite group minerals.
A total of 105 areas of interest from Landsat interpretation and 57 areas of interest from ASTER interpretation were recorded (Figure 6). Correlation of significant structural and alteration zones was evaluated.

3.3 URANIUM EQUITIES EXPLORATION WORK FOR 2011

Exploration work conducted in the second year of granted tenement holding was designed to further the geological understanding of the area and generate targets for drill testing. To help achieve this all previous geophysical surveys were merged where possible.

3.3.1 Geophysical Data Merging

Previously acquired airborne radiometric and magnetic data from other companies was merged with data acquired by Thompson Aviation for Uranium Equities Limited during the 2010 field season. The results from these newly merged data sets allowed for a rapid assessment of the tenement holdings in combination with other data layers to compile targets that were then ranked on the company's target ranking criteria. The full report is attached as Appendix IV.

4. CONCLUSIONS

The relinquished areas selected for the required 50% reduction are based on the work conducted over EL24711 and EL24712 in the first two years of exploration. The assessment of this work has resulted in the selected blocks having the lowest possibility of hosting economic concentrations of uranium in regard to the Westmoreland and Coronation Hill type deposit models.

5. REFERENCES


HEADWATERS PROJECT
EL24711 & EL24712

APPENDICES