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# Annual Technical Report

## for Period
## 18th September 2011 to 17th September 2012

# EL 27138 (Cooloola)

| | |
|---|---|
| Titleholder | Toro Energy Ltd |
| Operator | Toro Energy Ltd |
| Tenement Agent | Toro Energy Ltd (Perth) |
| Title | EL27138 Cooloola |
| Project | Wiso |
| Report Title | Annual Technical Report for period<br>18th September 2011 to 17th September 2012 EL27138 Cooloola |
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| Corporate Author | Toro Energy Ltd |
| Target Commodity | Uranium |
| Date of Report | 30thSeptember 2012 |
| Datum | GDA94 Zone 53 |
| 250k Mapsheets | Lander River SF53-01, Bonney Well SF53-02 , Barrow Creek SF53-06 |
| 100k Mapsheets | Jarrah Jarrah 5556, Numagalong 5656, Wauchope 5756, Crawford 5655, Taylor 5755 |
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## Summary

This third Annual Technical Report for EL27138 covers work carried out during the twelve month period from 18th September 2011 to 17th September 2012. Exploration activities during the period have involved:

- No on-ground exploration has been carried out during the reporting period
- Reconnaissance field visits to assess the access, topography and vegetation, and to liaise with stakeholders
- Negotiations with the CLC continue with regards to Hanson River access issues

## Table of Contents



## Figures



## Tables

## 1 INTRODUCTION

This report outlines the work conducted within the exploration tenement EL27138 during the period 18th September 2011 to 17th September 2012 by Toro Energy Limited ("Toro"; ticker code "TOE").

EL27138 is located approximately half way between Alice Springs and Tennant Creek on the Stuart Hwy (Figure 1) and is situated on the southern edge of the Wiso Basin and northern edge of the Arunta Block. Access from Alice Springs is 340km north along the sealed Stuart Highway and then west along station tracks. It covers the Lander River (SF53-01), Bonney Well (SF53-02) and Barrow Creek (SF53-06) 1:250,000 mapsheet areas, and the Jarrah Jarrah 5556, Numagalong 5656, Wauchope 5756, Crawford 5655, Taylor 5755 1:100,000 mapsheet areas (Figure 2). It lies within Stirling and Neutral Downs pastoral properties (Figure 3).

The Tanami Region is semi arid with monsoonal influences, with 75-80% of rainfall occurring in the summer months. Annual rainfall is generally higher in the north of the region. The mean annual rainfall for Tennant Creek (to the North) is 375 mm. Rainfall is extremely erratic.

Most of the region is hilly range country, covered by Spinifex (hummock grassland) and a variety of stunted vegetation. Adjacent are sand plains with minor sand dunes containing Spinifex, Acacia, Blue Gum and Mallee scrub plants. Drainage from the high-relief ranges quickly dissipates into shallow water courses and floodplains that break up the sand plains or locally into ephemeral salt lakes.

Toro is exploring the Wiso Basin component of this tenement for palaeochannel/roll front – style uranium mineralisation with Tertiary cover and Bigrlyi-style uranium in the underlying Palaeozoic Wiso Basin. The tenement area has received no uranium exploration in the past and only limited petroleum exploration. However, based on available data, the geology is analogous with the Amadeus and Ngalia Basins, being of similar age and having sedimentary components and intracratonic-foreland setting, and therefore has potential for Bigrlyi and Angela style deposits. There is also a likely presence of younger (Tertiary?) palaeochannel systems that might host tabular or roll front uranium akin to Beverley in South Australia. In an effort to progress both concepts, Toro undertook a collaborative AEM survey with the NT Government in 2010. The survey confirmed the latter concept and showed extensive structural dismemberment of the Wiso Basin, supporting the former concept.

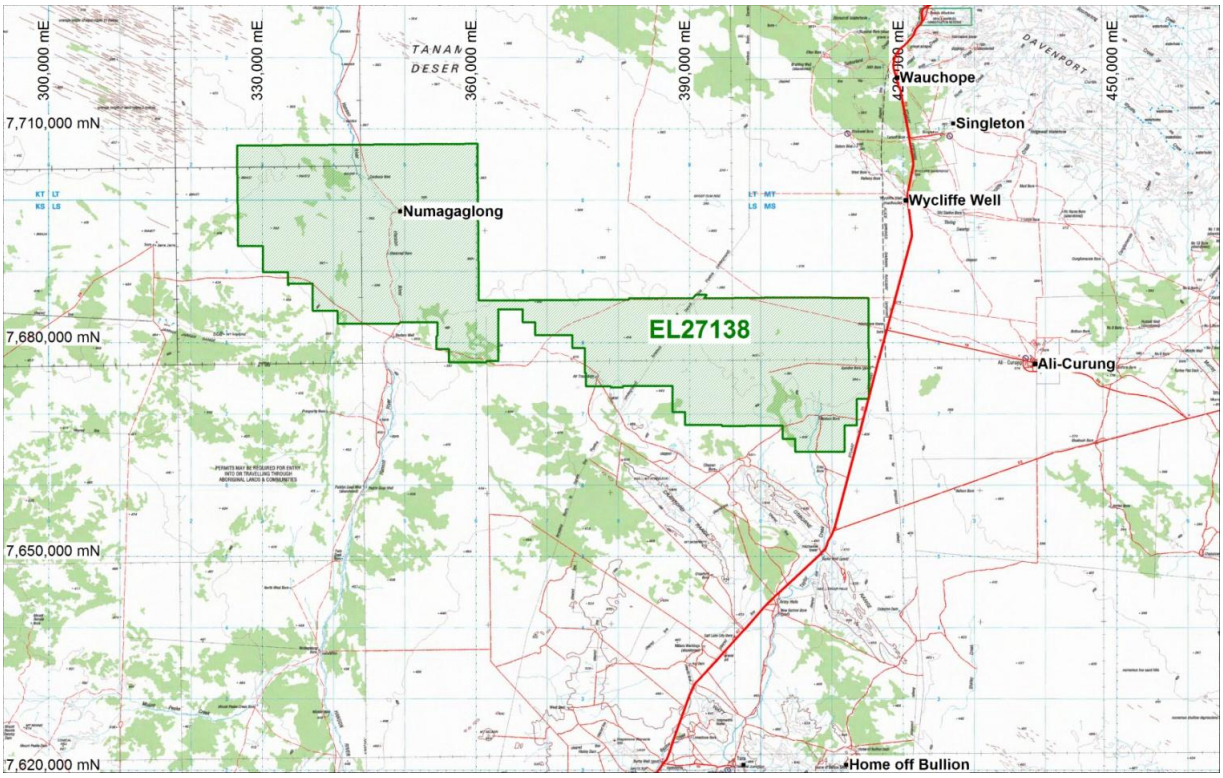


**Figure 1 Location of EL27138 Cooloola (at time of grant; does not include relinquishment area)**

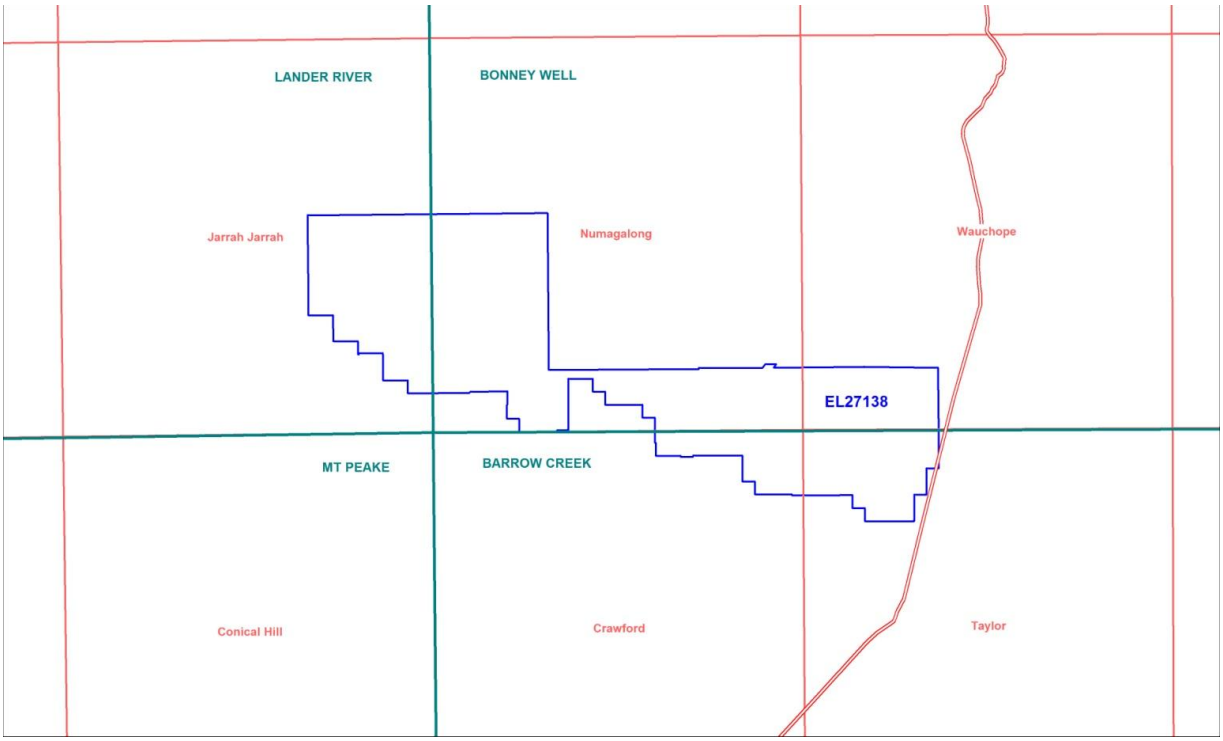


**Figure 2 EL27138 Tenement Location over 250k and 100k mapsheets**

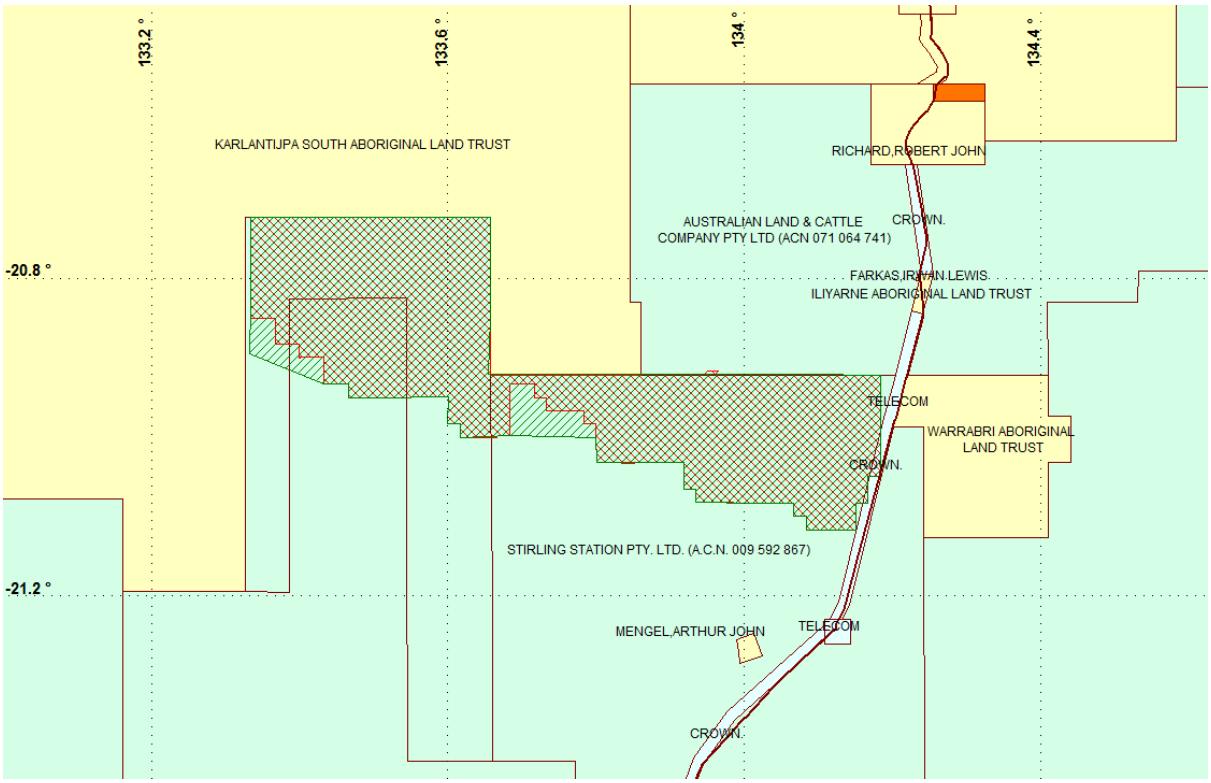


**Figure 3 EL27138 Location of Pastoral properties**

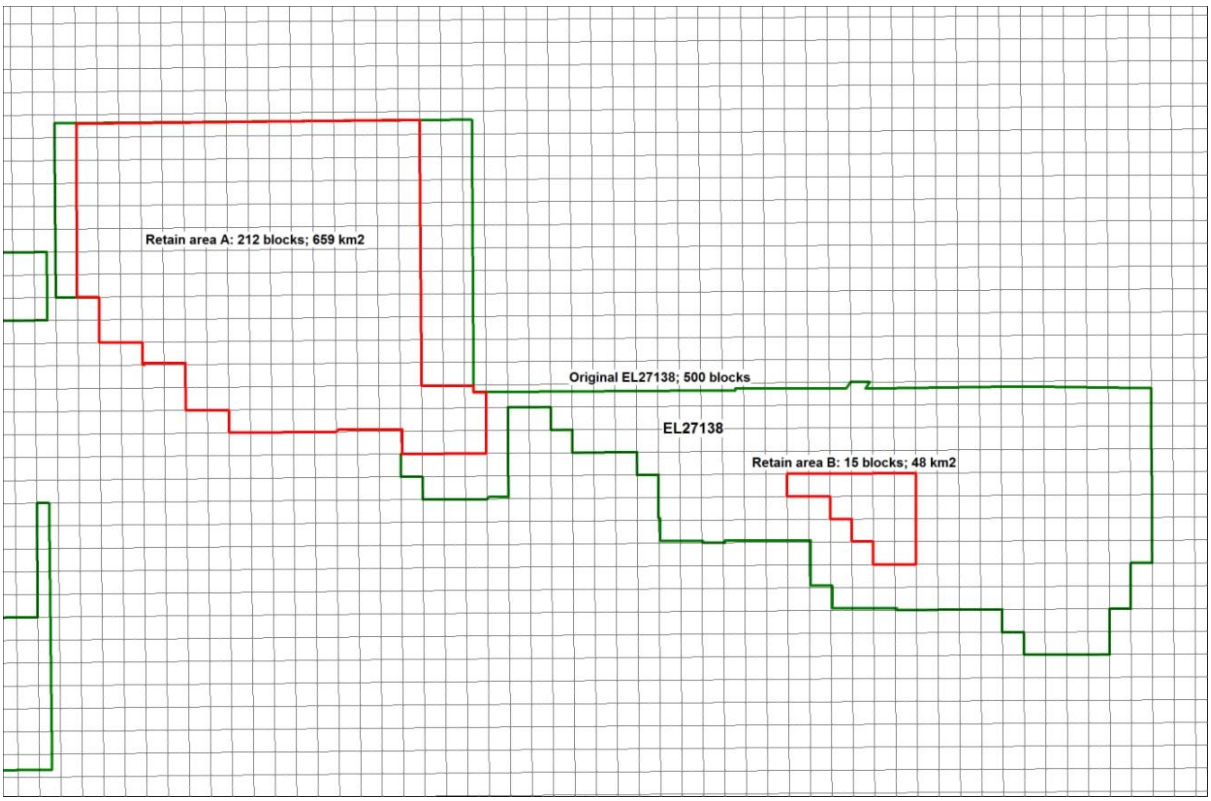


**Figure 4 Location of proposed area to surrender on EL27138**

## 2 TENEMENT

EL27138 was granted on 18th September 2009 to Toro Energy Ltd for a period of 6 years, consisting of 500 blocks covering a total area of approximately 1525 square kilometres. This lease is in its third year of tenure and on the 17/09/2012 an application was submitted to the DoR for surrender of 273 blocks (55%), leaving 227 blocks (707sqkm) (see Figure 4 and Table 1).

| Tenement | Tenement_Name | sub blocks | sq km | Tenement_Licensee | Grant Date | Expiry Date | Licence Manager |
|---|---|---|---|---|---|---|---|
| EL27138 | Cooloola | 227 | 707 | Toro Energy Ltd | 18-Sep-09 | 17-Sept-15 | Toro Energy Ltd |

**Table 1 EL27138 tenement details**

## 3 GEOLOGICAL SETTING

EL27138 lies within the Palaeozoic Wiso Basin region of the Northern Territory (Figure 5). It forms a broad, intracratonic depression which comprises an east southeast trending trough (Lander) in the south and an extensive shallow shelf to the north. The Wiso Basin sequence was deposited on a basement of deformed Proterozoic rocks, the Granites-Tanami Block in the west, the Arunta Block in the south and the Tennant Creek block in the east (Figure 6). The basin is continuous with the Daly River Basin and the Georgina Basin in the North and East and with the Dulcie Syncline of the Georgina Basin in the SE.

The Lander Trough at the southern edge of the basin covers an area of approximately 30,000 sq km. Sediments range from 2000-3000m deep and represent shallow marine to fluviatile depositional environments with the lower and upper limits of the sequence defined by unconformity surfaces. Two additional unconformities are recognised in the sequence.

The most significant faulting is along the southern margin of the Lander Trough. A series of parallel, ESE trending faults with an overall displacement >2000m places sediments of the Wiso Basin against the crystalline rocks of the Arunta Complex (1989, NTGS). This is illustrated in the regional magnetic image for the NT (Figure 7).

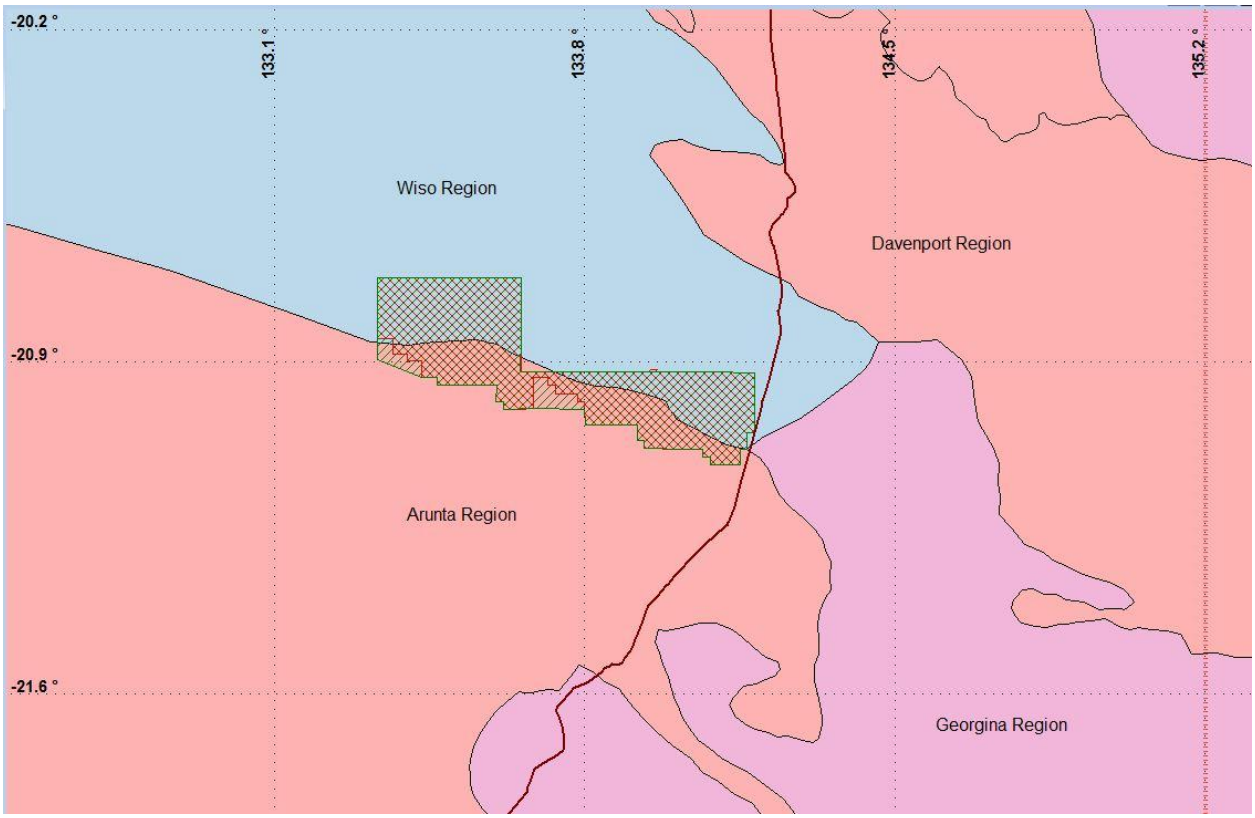


**Figure 5 EL27138 over major Geological provinces**

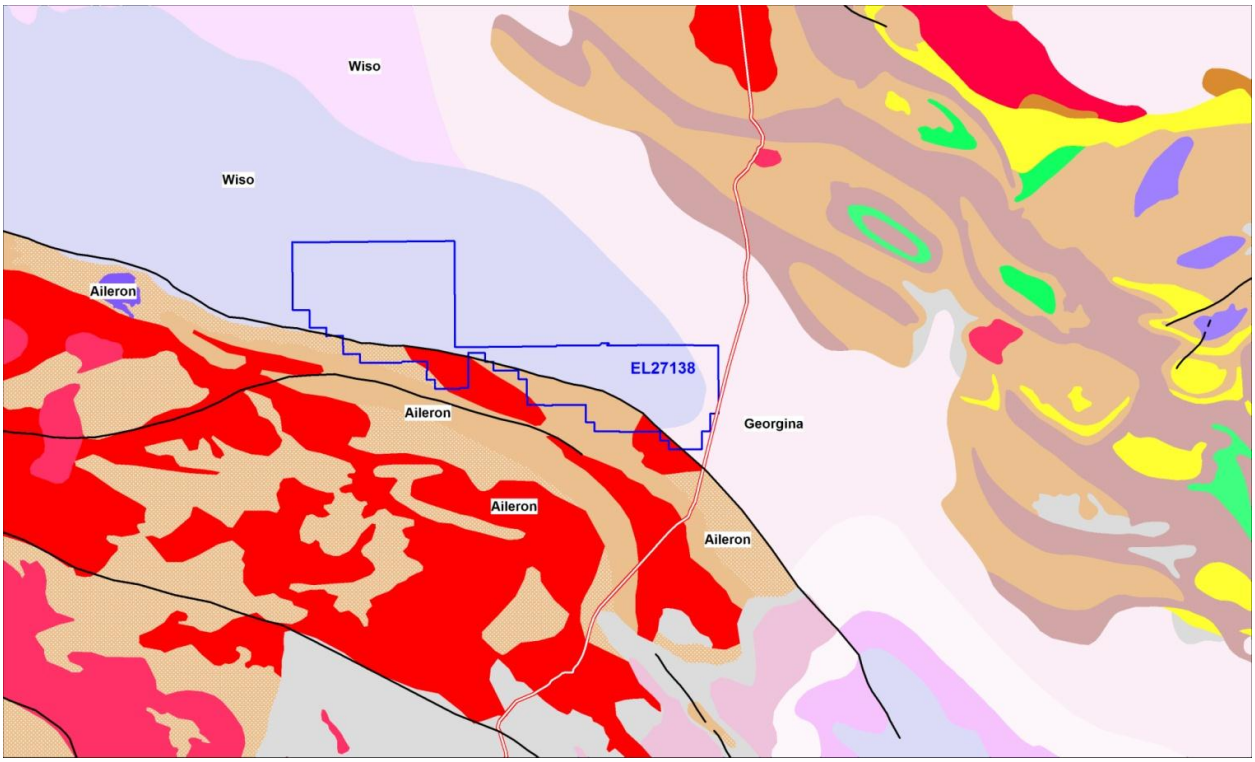


**Figure 6 EL27138 on NT Govt 2.5M scale geology interpretation & faults**

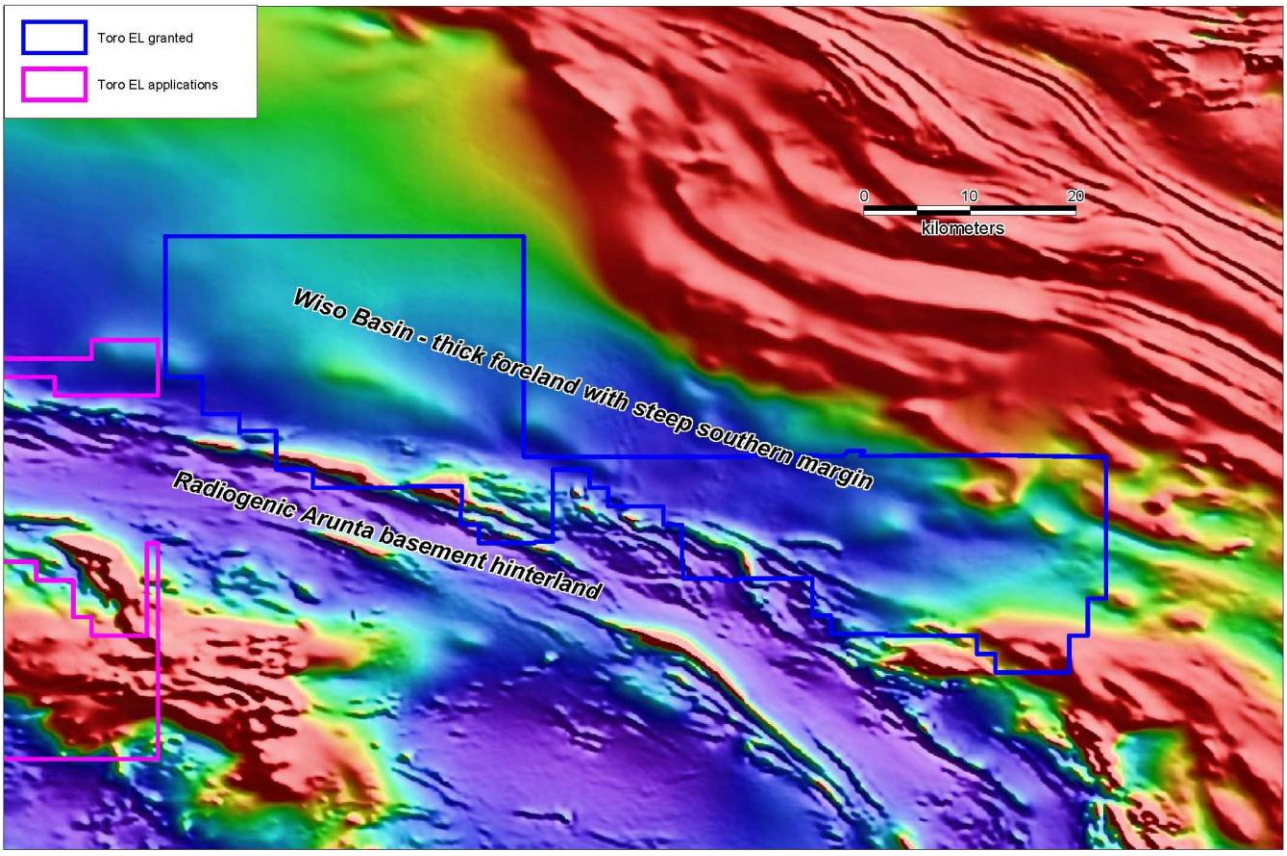


**Figure 7 EL27138 over TMI showing nature of boundary between basin and basement**

The Arunta complex is a late Palaeoproterozoic to Ordovician succession of sedimentary, volcanic, and intrusive rocks interrupted by several tectonothermal events (deformation, metamorphism, granite production). The region comprises three provinces: Aileron Province, which makes up most of the Arunta, Warumpi Province along the south margin of the Arunta, and the triangular Irindina Province in the east. The Aileron Province consists of: (1) a basal Lander Package (1880-1840 Ma), which makes up about 60% of the north, centre, and west of the region; (2) the Ongeva Package (1810-1800 Ma) in the southeast, of unknown relationship to the Lander Package; (3) an unnamed sandstone unit above the Lander Package, with a maximum depositional age of 1820-1800 Ma; (4) the Reynolds Package, which is unconformable on the Lander Package and unnamed sandstone (Geoscience Australia, 2009).

## 4 PREVIOUS EXPLORATION

The Wiso Basin and its structurally-controlled southern margin are poorly understood compared with other areas of the NT, largely because the basin has not attracted the attention of explorers for its mineral economic potential. Regionally, existing data consists of 22 BMR shallow stratigraphic bores with an average depth of 100m (two occurring on licence). Geophysics included one seismic survey (5 fold, 1967; 200km), two aeromagnetic surveys (1967) and one gravity survey (1965). In addition, stratigraphic boreholes, a seismic survey, regional gravity and aeromagnetic surveys were carried out at various times. The basin is also substantially covered by Tertiary sediments and the eastern extension of the Tanami Desert. Limited historic exploration has been focussed on petroleum systems, analogous with the gas-producing Amadeus Basin. The maximum overlap of any historical tenement over the proposed survey area was 25%. Most historical exploration occurred over the southern edge of the proposed survey area and was mainly for base metals and gold with some uranium within the Arunta Complex. Toro Energy is exploring for a completely different style of mineralisation within the Wiso Basin, redox-controlled uranium. For more detailed information on previous exploration, see EL27138 Annual Technical Report – 2010.

### Year 1: 2009-2010 Toro

In July 2010, Toro Energy commissioned GroundProbe Geophysics to carry out a SkyTEM helicopter-airborne electromagnetic (AEM) survey over EL27138, covering 1625 km2. The collaborative geophysical survey between Toro Energy and the NT Department of Resources involved the acquisition, processing and interpretation of approximately 1100 line kilometres (1500m line spacing) of helicopter-borne electromagnetics. The survey was designed to test a number of exploration models including: Angela-Bigrlyi style uranium in foreland sedimentary sequences and shallow calcrete-sandstone and deeper palaeochannel-style uranium in Tertiary outwash fans. Data and a separate report on the geophysics were submitted to the DoR and are available as open file.

The AEM survey has added substantially to the overall geological understanding of the Wiso Basin and the overlying cover. The juxtaposition of Wiso Basin with the Arunta Inlier is shown to be steep and highly complex, with Palaeozoic units of the Wiso Basin thickening northward from the southern boundary, suggesting this former depocentre is now inverted and was the principal site of episodic deformation and uplift (Figure 8). This is encouraging for Toro's exploration effort, as this type of history is crucial for the multiple phases of recycling of uraniferous sediments and development of

topographic fluid flow. These allow the concentration of uranium in 'source' sediments that are later accessible to oxidised basinal fluids, which might carry it into locally reduced environments.

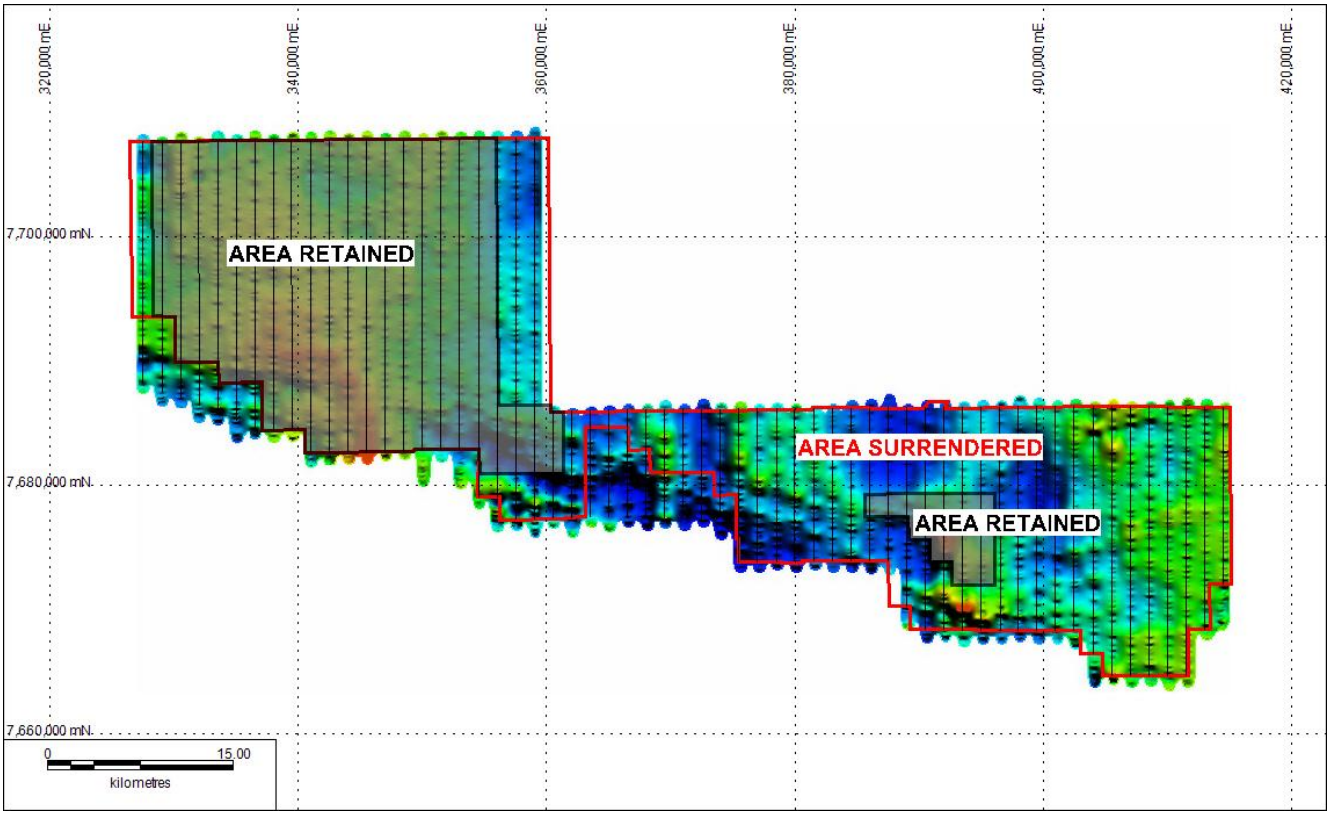


**Figure 8 EL27138 (original and retained) showing skyTEM 124m conductivity image and flightlines (north/south)**

Airborne EM showed that groundwater in the Wiso region is not necessarily fresh. The western part of the tenement shows higher conductivity in shallow (<200 m deep) aquifers, indicating likely brackish or saline groundwater, whereas to the east the shallow aquifers carry non-conductive groundwater. This conclusion is supported by recent water bore drilling in the east, where locally-recharged fresh groundwater has been identified for agricultural use. A quick inspection of drill chips by Toro staff showed that the groundwater host is uniformly fine quartz sand with no interstitial clay and with no confining or interlayered clay units. This is not a positive indicator for palaeochannel uranium and downgrades the potential of the eastern half of the tenement. In the west, EM conductivity depth images show that conductivity in the Wiso Basin sediments is variable, which is interpreted to mean that EM has distinguished some stratigraphic information (ie sandstone versus shales etc).

### Year 2: 2010-2011 Toro

Toro were unable to access the tenement to undertake on-ground exploration, apart from a reconnaissance trip in May and inspection of Government water bores. The principal reasons were:

- Need for a heritage clearance prior to any ground work. Toro requested a heritage clearance by Central Land Council, which did not take place until late in the year for various reasons, including the weather.
- Lengthy 2010/11 wet season, which made most of the area impassable until August 2011 (pastoral vehicles were still bogged on several sections of the road in July).
- Reluctance to undertake any on ground work until the support of traditional owners had been sought and an exploration agreement was in place.

To this end, Toro was able to progress land access negotiations with Central Land Council during the year. Toro attended a meeting with traditional owners in May 2011 and traditional owner support was gained in July. An exploration agreement was negotiated and signed in October 2011. Following this, a helicopter-supported heritage clearance was carried out during October for proposed drilling in 2012.

## 5 EXPLORATION COMPLETED – Toro Energy

### Year 3: 2011-2012 Toro

During the reporting period, no on ground exploration work has been carried out, as Toro is still engaged in negotiations with the CLC regarding access along the Hanson River. The heritage clearance in 2011 generated abundant complex restricted zones, which made it impractical to undertake drilling. Toro sought to have this resolved with the CLC and a solution is still not at hand. Notwithstanding this, in a climate of shrinking budgets, Toro have had to direct priorities to more advanced projects elsewhere in the tenement portfolio. Toro field staff did manage to visit the tenement several times during the reporting year to further determine access options and liaise with pastoralists and traditional owners. Further analysis and planning in regards to the AEM took place, and a detailed Mine Management Plan is in readiness for submission to the Department.

Unfortunately, in light of ballooning rentals and compensation costs, Toro have been forced to relinquish half of the tenement without having drill tested any of it. Although this is an undesirable outcome, we are confident that heritage issues and budgetary constraints will be resolved to allow drilling in 2013.

## 6 EXPLORATION EXPENDITURE

Expenditure incurred during the third year of tenure for EL27138 was $58,000 (see associated Expenditure Report).

## 7 EXPLORATION PROPOSED

Toro plan to drill either aircore or mud rotary (depending on availability) holes along predetermined "drill lines" into broad "palaeochannel target areas" as indicated by the AEM. This exploration is reconnaissance in nature, and is designed to establish the geological framework of the area. Geophysical data is the only guidance to drillhole positioning at this time.

Toro estimate a maximum of 10,000 m drilling, which, depending on the depth that basement is intersected, could range anywhere between 50 m and 250 m depth. Drill holes will be spaced as on-going exploration results and/or ease of site access dictate.

## 8 REFERENCES

Feb, 1989, NTGS, Northern Territory Geological Survey Petroleum Basin Study - Wiso Basin, Prepared by: Quests Australia Pty Ltd, Adelaide.

Rawlings, D. and Sullivan, C. 2010, EL27138 Cooloola Annual Technical Report for Period 18th September 2009 to 17th September 2010.

Rawlings, D. and Sullivan, C. 2011, EL27138 Cooloola Annual Technical Report for Period 18th September 2010 to 17th September 2011.