



**ACN 142 366 541**

**Eclipse Uranium Project**

**EL 24625 and EL 24637.**

**Annual Report to the Northern Territory, Department of  
Resources for the Year Ending 17<sup>th</sup> December 2011.**

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## **Contents**

1. Introduction
2. Location, Access and Tenure
3. Regional Geology
4. Project Geology
5. Previous Exploration
6. Work Completed
7. Conclusions and Recommendations

## **References.**

## **Figures.**

- Figure 1. Eclipse Project – Location
- Figure 2. Eclipse Project – Geology and Tenements
- Figure 3. Eclipse Project- Drainage Channels
- Figure 4. Eclipse Project- 2011 Drilling Program Stuarts Bluff Ranges
- Figure 5. Eclipse Project- Tempest AEM Flight Lines Cauldron and Eclipse

## **Tables.**

- Table 1. Eclipse Project Tenement Details

## **Appendices**

- Appendix A Drilling Data
- Appendix B Tempest AEM Data

## **Summary.**

This report details the exploration activities carried out over Eclipse Uranium Ltd. (Eclipse) Eclipse Project in the Northern Territory, during the period 19<sup>th</sup> December 2010 to 18<sup>th</sup> December 2011.

Eclipse Uranium Limited entered an agreement with Cauldron Energy Limited whereby upon its successful listing on the ASX they would become owners and operators of the Eclipse Project. Eclipse listed on the ASX mid February 2011.

During the year the Company completed the study with the CSIRO and fellow explorers Energy Metals Ltd. and Thundelarra Exploration Ltd. to undertake the CSIRO-Joint Surveys Uranium, Ngalia Basin Project. This collaborative project aimed to identify the geological, structural, mineralogical, alteration and fluid flow characteristics of uranium mineralisation within the Ngalia basin. The project was funded by all parties and is expected to provide a robust understanding and framework that will drive future uranium exploration and mineralisation discoveries in the area.

Within the year Eclipse also completed an Air core Drilling program of 35 holes for 1397m. Targeting radiometric anomalies and drainage off the Stuart Bluff Ranges. Results showed some elevated levels of Uranium with a maximum of 57ppm U<sub>3</sub>O<sub>8</sub> over 1m. These results were considered encouraging as they indicate the presence of uranium within the basin system.

In late September Eclipse flew 1610 line km on Tempest over EL24625, EL24637 and EL24808 in conjunction with the Northern Territory Geological Survey's Bringing Forward Discovery Initiative. All data is currently being processed and will be used to design drilling programs within the basin for the next year.

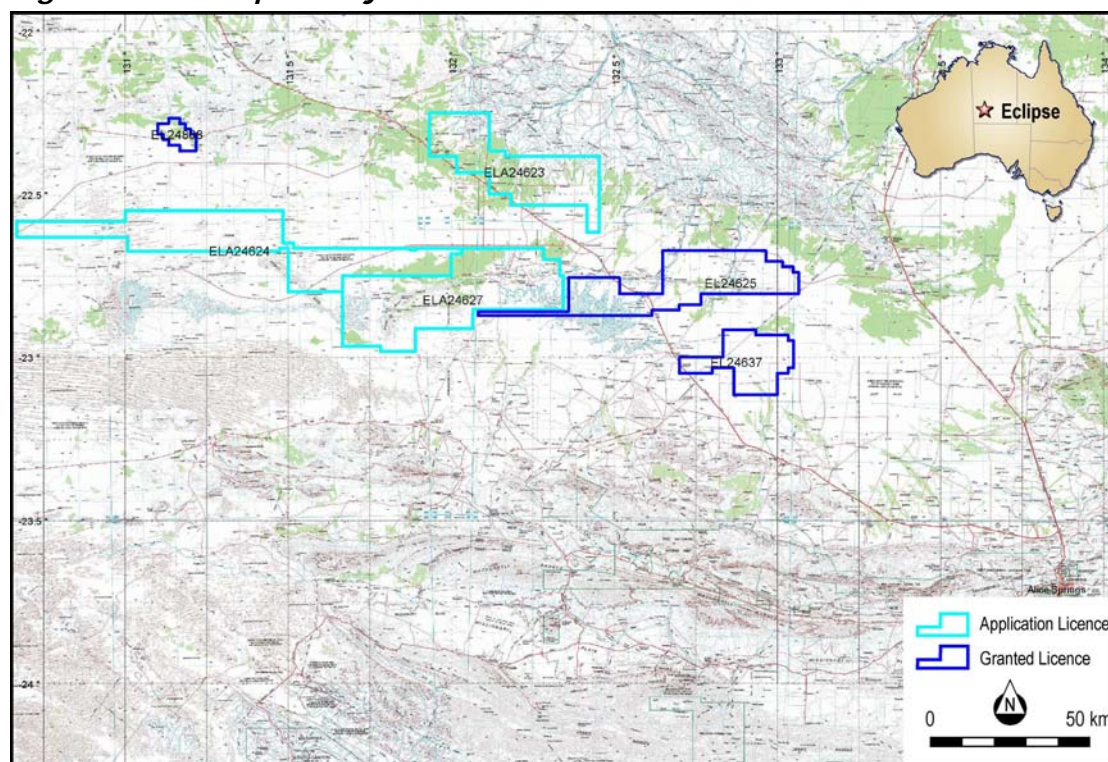
## 1.1 Introduction.

Eclipse's Eclipse Uranium Project covers parts of the Ngalia Basin and Arunta Block granites, which are prospective for uranium mineralisation. The licences cover a number of active stream systems that drain uranium enriched granites to the north. Interpretation of airborne radiometric imagery indicates that these drainages are depositing uranium within their channels and around the margins of Lake Lewis. The New Well uranium deposit is located on one of these drainages in ground adjacent to and downstream of Eclipse's licences.

Eclipse Uranium Limited entered an agreement with Cauldron Energy Limited whereby upon its successful listing on the ASX they would become owners and operators of the Eclipse Project. Eclipse listed on the ASX mid February 2011.

This report details the exploration activities carried out within the Eclipse Project during the period 19<sup>th</sup> December 2010 to 18<sup>th</sup> December 2011. This work included completion of the CSIRO Joint Surveys Uranium Study of the Ngalia Basin, a drilling program in EL24625 as well as a Tempest Survey which is currently being processed to determine new drilling targets for the project.

**Figure 1** *Eclipse Project-Location*



## 2.0 Location, Access and Tenure.

The Eclipse Uranium Project is located approximately 200 km northwest of Alice Springs and lies astride the Tanami Hwy on the Napperby and Narwietooma Pastoral Leases. (Figure 1)

The two exploration licences cover 2,114 km<sup>2</sup> and form a contiguous block which is found on the Napperby SH 53-09 and Hermannsburg SF 53-13 1:250,000 map sheets, centred on 240000 E / 7470000 N (GDA94).

**Table 1. Eclipse Project Tenement Details.**

<b>Licence</b>	<b>Holder</b>	<b>Date Granted</b>	<b>Expiry Date</b>	<b>Area km<sup>2</sup></b>	<b>Minimum Expenditure</b>
EL 24625	Eclipse Uranium Limited 100%	19/12/2005	18/12/2011*	978	\$179,000
EL 24637	Eclipse Uranium Limited 100%	08/12/2005	07/12/2011*	464	\$105,000

\* Applications for tenement renewals have been submitted to the NT Department of Resources

### **3.0 Regional Geology.**

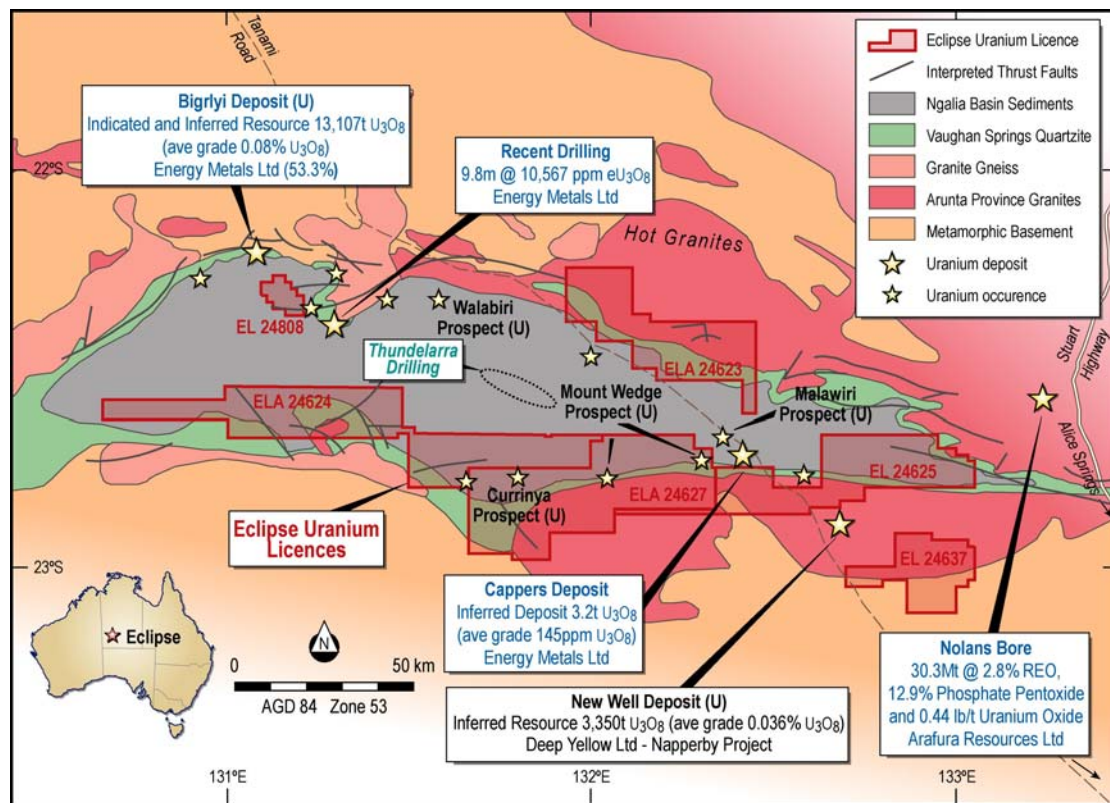
The Eclipse project covers the southern part of the Ngalia Basin and parts of the surrounding Arunta Block. The Ngalia Basin is a large 300 km long by 70 km wide east west trending intra-cratonic basin, which contains up to 5000 metres of late Proterozoic to Carboniferous aged fluvial and marine sediments. These sediments were derived from the surrounding uranium enriched early to mid Proterozoic granites and metamorphic rocks of the Arunta Block. (Figure 2)

The Ngalia Basin developed around 900mya and comprises a succession of basal late Proterozoic continental and possibly marine sediments overlain by continental fluvio-glacial sediments. Later sedimentation during the Cambrian and Ordovician resulted in epicontinental sediments including carbonates. Uplift during the Alice Springs Orogeny resulted in the deposition of Devonian to Carboniferous fluvial sediments. Subsequent deformation of the basin has resulted in folding and faulting, with major thrust faults, strong folding and over turning of lithology along the northern margin of the basin. Deformation in the south is less intense with only gentle folding along the southern margin. (Freeman et al 1990)

The Arunta Block is composed of metamorphic basement lithology's, which have been intruded by later granites. Three areas are recognised within the Arunta Block, The northern, central and southern provinces. The Ngalia basin sits between the northern and central provinces. Formation of the Arunta Craton is divided into three stages. The earliest phase (2000mya) comprises mafic, felsic and aluminous granulite and calc-silicate rocks of the Strangways Metamorphic Complex, which comprises most of the Central Province. The second phase of formation is dominant in the northern and southern provinces and comprises aluminous and silicious sediments with a few mafic flows and sills. The third phase is less extensive and is found as ortho-quartzite outliers scattered around the northern and southern provinces. (Shaw 1990)

The Arunta Block underwent deformation and metamorphism during the Proterozoic, including the intrusion of granites, some of which are highly uraniferous, particularly those from around 1750mya. During the late Devonian and early Carboniferous the Arunta Block was extensively disrupted by thrust faulting, particularly along the boundary between the northern and central provinces. (Shaw 1990)

**Figure 2. Eclipse Project - Geology and Tenements.**

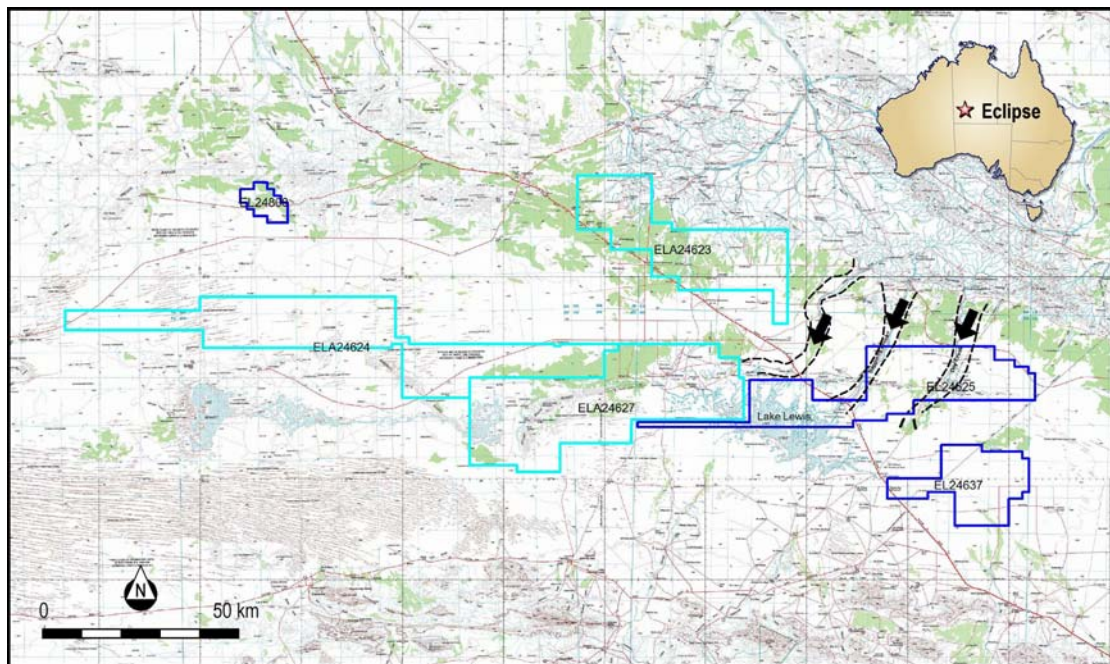


#### 4.0 Project Geology.

The project area is typified by flat sandy plains overlying granites of the Arunta Block in the south. The project area abuts and extends into the Ngalia basin to the north. The basin margin within the project area is marked by a pronounced quartzite ridge, the Stuart Bluff Range and the Reaphook Hills, which trend east west along the basin margin and dip gently to the north. Sandy and calcrete soils are found extensively within the basin and overlying the Arunta Block. A number of isolated granite hills emerge from the plain within the project area, especially in the east where granite hills, including Mount Harris, appear to flank a buried salt lake. The vegetation in the area consists of acacia scrubland associated with grasslands and minimally modified pastures in places. Taller eucalypts are present within and along the main drainage systems.

The project area includes the northern part of the Lake Lewis salt lake. This lake is fed by two large ephemeral creek systems, the Napperby and Day Creeks, which drain uranium enriched granites along the northern boundary of the Ngalia Basin. A number of smaller less continuous drainages feed the lake along its western margin. (Figure 3)

**Figure 3. Eclipse Project – Drainage Channels**



## **5.0 Previous Exploration.**

Historical work conducted during the 1970's and 1980's involved broadly spaced drilling targeting sandstone and calcrete hosted uranium mineralisation within the Ngalia basin and overlying the granites of the Arunta Block.

In 1973, CRA Exploration Ltd. (CRAE) undertook exploration over the north eastern part of EL24625, around Mount Harris. A program of mapping and sampling over the outcropping granites indicated that they were uraniferous and hence potential source rocks for secondary uranium mineralisation. Sampling returned values up to 40ppm uranium from the granites. Mapping of the surrounding plains failed to locate any suitable sediments or calcrete likely to host secondary uranium mineralisation. (Hughes 1973)

During 1978 and 1979 Uranerz Australia P/L (Uranerz) completed 25 RAB holes (NE07-NE31) as part of a 31 hole program for 330 metres, targeting calcrete uranium mineralisation within EL 24625. The hole depths were between 6.5-17.5m. The drilling on 1km by 3km spacings at the Patty Well prospect, intersected clean moderately oxidised fluvial sands, clayey sand, and sandy clays, with narrow <1m calcrete bands. No significant results were recorded. (Morete 1979)

The company also conducted an airborne radiometric survey comprising 241 line kilometres on 800m line spacing. No significant anomalies were located. A limited program of water sampling at Patty Well and Supple Jack Bore returned values of 11ppb U<sub>3</sub>O<sub>8</sub> from both wells. (Morete 1979)

During 1981 Alcoa Australia Ltd. (Alcoa) held a large exploration licence covering the southern parts of EL 24636 and 24637. The company was targeting sandstone and calcrete hosted uranium within calcrete and tertiary sands of the Narwietooma Basin, which overlies the granites of the Arunta Block. Eleven mud rotary holes (NA001-NA011) were completed for 1,555m within and to the south of EL 24636 and 24637.

The drilling intersected thick sequences of oxidised tertiary sediments, clays, sandy clays and minor unconsolidated sand units. This suggested that oxidising fluids had moved through all the permeable beds in the area, diminishing the prospect of locating uranium mineralisation. All holes were gamma probed and a number of sections were assayed for uranium. The highest result was 2m @ 7ppm uranium from hole NA011. (Howard 1981)

Between 1977 and 1982 AGIP Australia P/L (AGIP) conducted a number of first pass drilling programs targeting sandstone hosted roll front uranium mineralisation within the Eclipse Sandstone. A total of nine holes (CT1R, CT2R, YR123, YR124, YR130, Y215R, Y216R, Y217R & Y148R) were drilled for 1,019 metres in the north western part of EL 24625. A number of narrow sub-economic uranium results were recorded, including 0.6m @ 192ppm U<sub>3</sub>O<sub>8</sub> from 120.1m in Y216R and 0.8m @ 150ppm U<sub>3</sub>O<sub>8</sub> from 119.2m in YR123. (Anon 1983)

The most detailed and successful exploration within the immediate project area was carried out by Uranerz at the New Well uranium prospect, adjacent to Eclipse's licences. Shallow auger drilling conducted during the 1970's identified a mineralised near surface palaeodrainage system over 20 km long and up to 4km wide that drains into Lake Lewis along the Day creek. An economic scoping study on the New Well prospect, indicated that it could contain up to 6,000 tonnes of U<sub>3</sub>O<sub>8</sub>, based on a grade range of 360-380ppm U<sub>3</sub>O<sub>8</sub>. This prospect is in the drainage adjacent to



Eclipse's licences and is currently the focus of resource drilling by Toro Energy Ltd. (Toro), the current operators of the project. An updated inferred resource for the deposit of 1,420 tonnes  $U_3O_8$  (at an average grade of 0.031%) was announced by Toro in July 2008.

Since the grant of the exploration licences, Cauldron conducted office based studies including acquisition and review of historical reports and associated data. The Company completed a Mining Management Plan, developed a Radiation Management Plan, Environmental Management Plan and a Field Procedures Manual for the Eclipse Project. Heritage surveys were completed in association with the Central Land Council.

Field investigations undertaken by Cauldron included a number of reconnaissance field trips, three Aircore drilling programs and airborne TEMPEST electromagnetic and radiometric survey.

An initial Aircore drilling program, comprising sixty-four holes for 1,365 metres, was conducted within EL24625, EL24636 (now relinquished) and EL24637, during early December 2006. The program targeted near surface calcrete hosted uranium mineralisation, similar to the adjacent New Well uranium deposit, within two large regional drainage systems, which are actively depositing uranium within the channels and around the margins of Lake Lewis. These drainage systems, The Day and Napperby Creeks, drain uranium enriched granites from the northern margin of the Ngalia Basin.

The drilling intersected a general profile consisting of between 1 to 4 metres of recent aeolian sands and soil over fluvial sandy clays, sands, gravels and muds. Calcrete was intersected in all holes and ranged from thick, hard porcellaneous calcrete to thin laminae throughout the sediments. A number of holes were unable to reach planned depth due to the hardness of the calcrete. The average hole depth was approximately 21 metres, although a few holes were drilled deeper to intersect basement. The deepest hole, ECAC 014, of 48 metres failed to intersect basement and was still in transported clays and mud at the end of hole.

In July 2007, Fugro Airborne Surveys Pty Ltd undertook a broadly spaced trial airborne TEMPEST electromagnetic survey for Cauldron over part of the Eclipse Project to further define basement topography. This survey was part of a larger survey involving neighbouring explorer, Toro Energy Ltd. The total coverage for the survey amounted to 550 line kilometres, of which 413 line kilometres was over Cauldron's licences. (Figure 5) Interpretation of the data from this survey identified additional buried channels and potential target areas for uranium mineralisation.

In November 2007, an airborne radiometric/magnetic survey was completed by UTS Geophysics in November as part of a larger survey conducted in association with neighbouring explorers Toro Energy Ltd and Energy Metals Ltd. The program covered over 1,500 km<sup>2</sup> and provided detailed magnetic and radiometric data on 100 metre line spacings.

During November and December 2007, a follow up Aircore drilling program, comprising 134 holes for 5,061 metres, was conducted at the Eclipse Project targeting near-surface calcrete hosted uranium mineralisation. This program followed on from the previous year's drilling and focused on three areas within the prospect targeting mineralisation close to the margins of Lake Lewis and extending to the north along the Day Creek Drainage.

The drilling intersected a general stratigraphy comprising

- Red brown sandy silty soil (thickness 1-10m)
- Calcrete. (thickness 2-12m)
- Silcrete.
- Partly silicified light brown or grey green silty clay (thickness 2-8m)
- In some holes, silt, sand and clay beds with multiple lithologies (for the coarser sands) were present. (thickness 4-6m)
- Brown clay with grey to green mottling. (thickness 20-40m)
- Silt, sand and clay sequence. (thickness 4-9m)
- Evaporite sequence. (1-4m)

Results from this second phase of drilling returned some encouraging uranium values. Elevated uranium results were associated with a buried calcrete horizon (at between 6-15 metres in depth) to the east of the New Well deposit at the Bloodwood Bore Prospect. Results of up to 55 ppm U were encountered. At the Lake Lewis South Prospect, elevated uranium results, of up to 40 ppm U, were found at depths of 69-75m associated with a buried evaporite sequence interpreted to be a buried salt lake. Sixteen drill holes were gamma logged by Borehole Wireline Pty Ltd as part of a trial to determine consistency between sample assay results, handheld Spectrometer readings and downhole radiometrics.

During April and May of 2008, a third Aircore drilling program was conducted, by Cauldron, over EL 24625 and EL 24637 comprising a total of 207 holes for 4392 metres. The drilling targeted near surface calcrete hosted uranium mineralisation (similar to the adjacent New Well Uranium Deposit) within a large regional drainage system and potential targets interpreted from the 2007 TEMPEST electromagnetic survey including buried channels and palaeo-lake margins.

The drilling intersected surficial red-brown sandy soil (thickness 1-6m), overlying up to 9m of red-brown calcrete and silts with a basal calcrete layer. This horizon is the host to uranium anomalism at Bloodwood Bore and overlies transported silts, clays and sands which in some places attain depths of greater than 70m. Results from this program included up to 50 ppm U.

In 2009 Cauldron entered into an agreement with the CSIRO and fellow explorers Energy Metals Ltd. and Thundelarra Exploration Ltd. to undertake the CSIRO-Joint Surveys Uranium, Ngalia Basin Project. This collaborative project aimed to identify the geological, structural, mineralogical, alteration and fluid flow characteristics of uranium mineralisation within the Ngalia basin. The project will be funded by all parties and is expected to provide a robust understanding and framework that will drive future uranium exploration and mineralisation discoveries in the area. The 18 month project commenced during late November 2009, with the initiation of data capture and basin modelling.

## **6.0 Work Completed.**

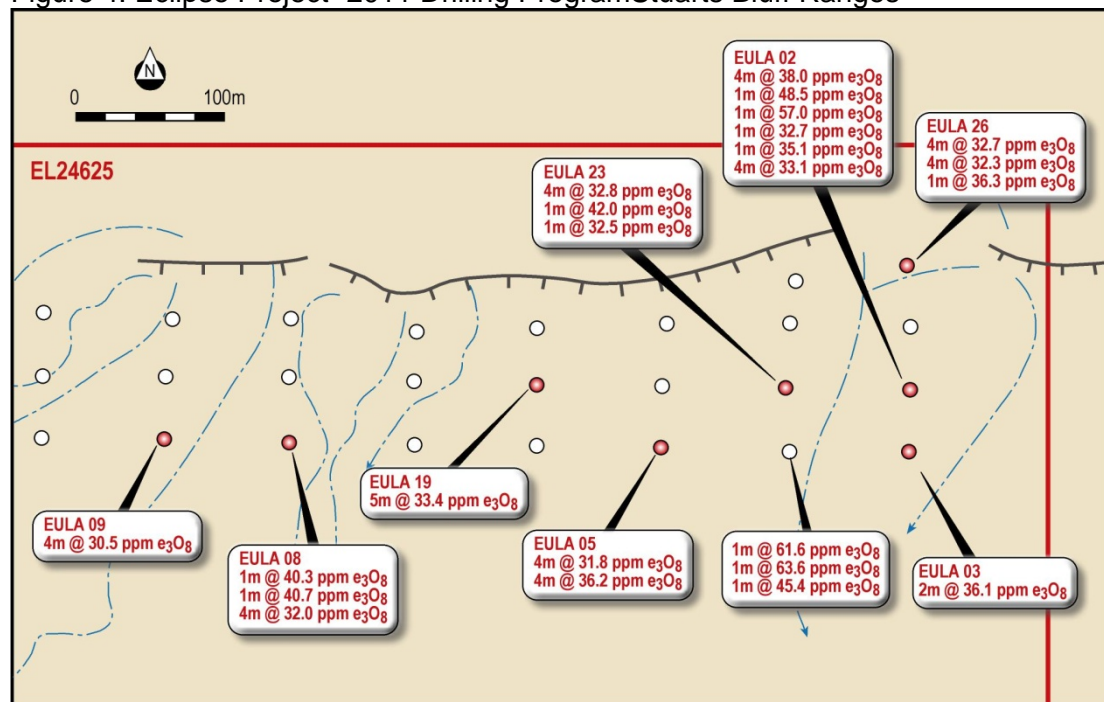
During 2010 Eclipse Uranium Limited entered into an Option Agreement with Cauldron, whereby Eclipse became the operators and manager of the Eclipse Project, including EL 24625 and EL 24637, upon their successful listing on the ASX in February 2011.

Since its acquisition of the licences (EL24625 & EL24637) Eclipse has continued with the involvement in the CSIRO Joint Surveys Uranium Study. The study was completed this year with a final field workshop and release of final report. Eclipse has since begun the review of the document and applying the data to its tenements in order to generate new targets.

Eclipse has submitted a Mining Management Plan to the NT Department of Resources in late 2010 which was approved and a heritage clearance was completed in conjunction with the Central Land Council. Eclipse completed the Air Core drilling program of 35 holes for 1397m in late February 2011. The program targeted radiometric anomalies as well as drainage systems from the Stuarts Bluff Ranges. Results of up to 63.6 ppm  $U_3O_8$  were encountered indicating a presence of Uranium in the basin system (Figure 4). Furthermore although all holes were terminated in granite basement they contained a varying amount of clay and weathered clayey granite above them indicating possible drainage and erosional features.

7 holes were also completed, near to Napperby Creek on EL24625, as part of the program to a maximum depth of 111m. The holes were designed to follow up a historic intercept of 249ppm which was intercepted between 120.1m and 120.7m in Y216R by AGIP Nuclear Australia. Unfortunately due to intercepting groundwater the holes had to be terminated before they reached basement.

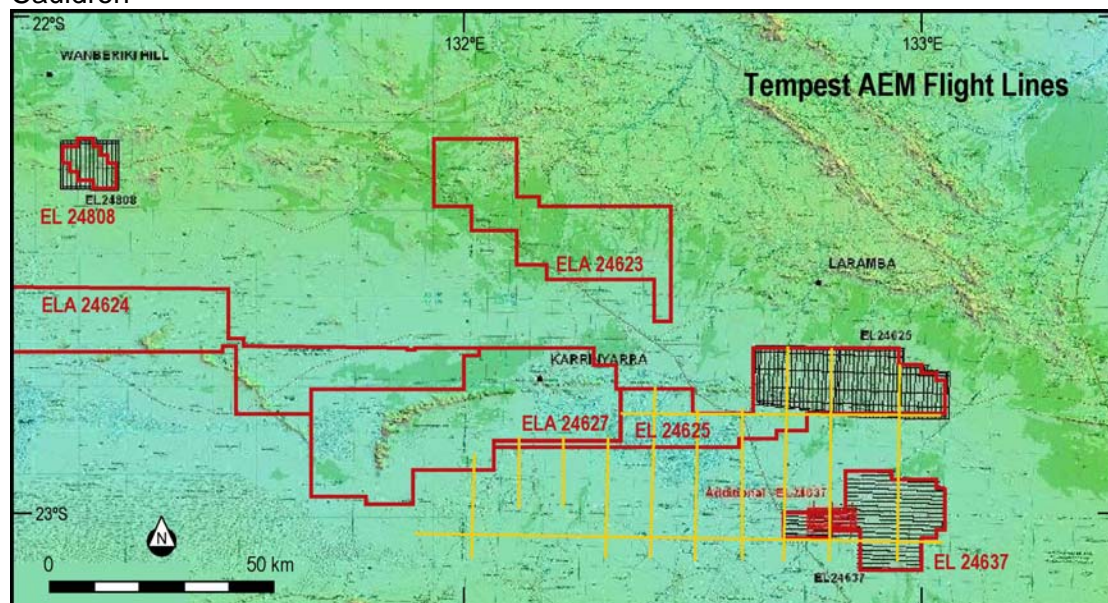
Figure 4. Eclipse Project- 2011 Drilling Program Stuarts Bluff Ranges



Eclipse has recently updated and re submitted the Eclipse Project Risk Management Plan to NT Worksafe. As part of the project review completed when Eclipse took over management of the project all historical data has been reviewed. As part of this the regional database has been updated and all newly available open file data downloaded. The Tempest AEM lines which were flown by Cauldron as part of a trial were also re- assessed and it was considered that a number of possible features, worth following up, could be identified. Based on these results Eclipse successfully applied for co-funding through the NTGS Bringing Forward Discovery Initiative. In

late September 1610 line km of Tempest AEM were flown over EL24625, EL24637 and EL24808 (Figure 5). The data was received in December and is currently being processed to allow delineation of targets and submission of an updated MMP for drilling programs to further investigate targets identified.

Figure 5. Eclipse Project- Tempest AEM Flight Lines Eclipse and Cauldron



Recent drilling by Thundelarra Resources Limited has encountered palaeochannel style mineralisation with intercepts including to 7.8m at 1408ppm  $U_3O_8$ . Preliminary viewing of the data received from the Tempest program has identified possible similar features within EL24625. Further structural features associated with the basin margin and geological and structural features have been identified in EL24625 and EL24637 respectively.

## 7.0 Conclusions and Recommendations

Exploration by Cauldron has highlighted the potential of the Eclipse Project to host suitable targets for uranium mineralisation in a number of different styles. With increased understanding of uranium mineralisation within the Ngalia Basin and the targets which will be provided by the Tempest AEM program it is considered that there are numerous mineralisation styles present on the tenements which Eclipse is planning to follow up with drilling programs in the next year.

Rehabilitation of the program completed last year has been arranged for late January/ early February depending on the weather and a new Mining Management Plan is currently being drafted to gain approvals for drilling programs which will be designed based upon the interpreted results of the Tempest Program.

Both EL24625 and EL24637 are currently in their 6<sup>th</sup> year of tenure. Eclipse would like to continue its active exploration on the project and as such has submitted an application for renewal of both of these tenements.

**Rust, A. & McGuinness, S. A., 2009.** EL 24625, EL 24636 and EL 24637, Annual Report to the Northern Territory, Department of Regional Development, Primary Industry, Fisheries and Resources for the Year Ending 18<sup>th</sup> December 2008. Scimitar Resources Limited.

**Shaw, R.D., 1990.** Arunta Block \_ Regional Geology and Mineralisation, in *Geology of the Mineral Deposits of Australia and New Guinea* (Ed. F.E Hughes), pp. 869-874. The Australasian Institute of Mining and Metallurgy. Melbourne