ANNUAL AND FINAL REPORT OVER THE ECLIPSE URANIUM PROJECT

NGALIA MINERAL FIELD,
NORTHERN TERRITORY

Eclipse Project
Exploration Licence: 29563

BY
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DISTRIBUTION
1. Northern Territory Department of Minerals & Energy
2. Eclipse Metals Limited
**PROJECT NAME:** ECLIPSE  
**TENEMENTS:** Exploration Licences 29563  
**MINERAL FIELD:** Ngalia Mineral Field  

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**COMMODITIES:** Uranium
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1.0 ECLIPSE PROJECT

1.1 Copyright Statement:

The owned information acquired by Eclipse Uranium Ltd includes all information under the previous work by Eclipse Uranium Ltd and work during reporting year sections. The rest of the information has been sourced from open reports and data through the Department of Mines and Energy. The Minister has authority to publish the copyrighted information accordingly.

2.0 INTRODUCTION

The Eclipse project comprises Exploration Licence 29563 and covers 311.5 km$^2$ of carboniferous rocks of the Ngalia Basin, approximately 182km northwest of Alice Springs. The project is prospective for sandstone type uranium mineralisation similar to the southern New Well uranium deposit.

This report describes the results of all the exploration work carried out during the tenure of the Licence.

During February 2013 consulting geologists Kastellco Geological Consultancy (“KGC”) conducted a review of existing historical exploration data within the Northern Territory Geological Survey Database. This was conducted for the Project area in order to identify any potential associated with uranium-gold-iron. The results were negative with no exploration targets identified. Based on the review, it was recommended the exploration licence area was to be relinquished upon very little to no mineral prospectivity.

3.0 LOCATION AND ACCESS

The Eclipse Project exploration licence area is located 182km southwest from Alice Springs in the Northern Territory. Access to the area is provided by Tanami Road on the Napperby and Narwietooma Pastoral Leases – please refer to Figure 1.

4.0 TENEMENTS

The project is comprised of one granted exploration licence (EL) with the tenement details summarised in Table 1 prior to this relinquishment and their location are shown in Figure 1. EL424625 originally covered 317 blocks before being split to create EL29563 in 2012.

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5.0 REGIONAL GEOLOGY MINERALISATION

The Eclipse project covers parts 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 fluvioglacial 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 etal 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).

Sandstone-type uranium mineralisation occurs in the northern and central parts of the Ngalia Basin, within the uppermost preserved unit, the Mount Eclipse Sandstone. This is medium- to coarse-grained feldspathic sandstone, with carbonate cement, that can contain significant amounts of carbonaceous material. Minor surficial (calcrete) uranium mineralisation also occurs within Cenozoic calcrete near the southern margin of the basin.

6.0 LOCAL GEOLOGY & MINERALISATION

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. The most detailed and successful exploration within the southern part of the project area to date was carried out by Uranerz at the New Well uranium prospect, adjacent to Scimitars granted 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.

During 1979, Uranerz conducted drilling on a 300m x 400m grid and reported an estimate for the Napperby Project of between 5,700 and 6,200 tonnes of contained U3O8 within a range of 0.036 – 0.038% U3O8. This historic estimate refers to mineralisation occurring over a 14km ‘strike’ of the palaeochannel system (Deep Yellow Ltd, 2006).

During March 2006, a trenching program conducted by Deep Yellow Ltd confirmed the presence of flat lying calcrite hosted uranium mineralisation from 2m below surface to a maximum depth of 6.3m. Assay results clearly demonstrated the presence of consistent >500ppm U3O8 values associated with visible carnotite hosted by a planar calcrite horizon developed both above and below the standing water table. (Deep Yellow Ltd, 2006) Results from Trench 3 were significant in that they demonstrated the presence of high grade mineralisation in what is perceived to be a low grade deposit. Consistent values of +1000ppm U3O8 at two metre thickness over ten metres of lateral samples on both walls of the trench. A peak value of 3,460 ppm U3O8 over 1.2m was returned from the east wall. In addition, whilst the upper calcrite layer is consistently mineralised, the better grades returned from the
trenching programme can be correlated with disseminated to blebby carnotite development in reduced sandy clays (±organic carbon) below the calcrete layer.

Follow up close spaced drilling, utilising a 60cm piling drill rig was undertaken as part of a resources drilling campaign. In December 2006, Deep Yellow announced an inferred resource of 670t U3O8 with an average grade of 0.036% U3O8 for a small portion of the mineralised zone which was drilled out during June-September 2006.

In July 2007, Toro Energy Ltd and Deep Yellow Ltd announced the farm in and acquisition of the Napperby Project by Toro. An updated inferred resource for the deposit of 3,350 tonnes U3O8 (at an average grade of 0.036%) was announced.

The Bigrlyi Deposit (Energy Metals Ltd 53.3%) comprises seven uraninite and carnotite lenses distributed over a strike length of 11 km in the northern Ngalia Basin, 345 km WNW oflice Springs in the Northern Territory, Australia. It is located 4km to the north east of Eclipse’s EL24808 and has an Indicated and Inferred Resources of 9,600t U3O8 with an average grade of 0.13% U3O8.

Uranium mineralisation was first discovered at Bigrlyi during ground radiometric traversing by Central Pacific Minerals NL, in 1973. Sixteen radiometric anomalies were defined over a strike length of 11km and were related to carnotite mineralisation at or near surface. Carnotite generally occurs in the weathered zone to depths of about 25m. Primary mineralisation consists of uraninite and montroseite (VO(OH)) hosted mostly by the lower part of the Devonian to Carboniferous Mount Eclipse Sandstone. (Lally and Bajwah, 2006) Fidler et al (1990) divided the Mount Eclipse Sandstone at Bigrlyi into 8 informal subdivisions (Units A to H). Most mineralisation is hosted by the basal part of Unit C, which is a light grey, medium grained felspathic sandstone containing common to abundant carbonaceous material and pyrite. Less significant mineralisation is present in unit B above and unit D below.

The uranium occurs as disseminations and patches within the host sandstone in seven, typically pitching, generally steep dipping and narrow, tabular bodies, averaging around 5 m in true thickness. Uranium mineralisation is always intimately associated with carbonaceous matter. About three quarters of the uranium is contained in Anomaly 15 and Anomaly 15 Extended. These were originally a single mass but oblique faulting has divided the body. Anomaly 15 dips 65° to 70° South is 160 metres long, 90 metres deep and 4 metres thick and has an average grade of 4.19 kg/t. Anomaly 15 Extended dips 70° to 80° South is 370 metres long, 3.8 metres thick and extends at least 150m down dip.

Recently Thundelarra Exploration has completed drilling at the Afghan Swan Prospect which has intersected results including 7.41m @1405ppm eU3O8 within basin sediments.

7.0 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 spacing at the Patty Well prospect, intersected clean moderately oxidised fluviatile 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 U3O8 from both wells. (Morete 1979)

During 1981 Alcoa Australia Ltd. (Alcoa) held a large exploration licence covering the southern parts of EL 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 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 U3O8 from 120.1m in Y216R and 0.8m @ 150ppm U3O8 from 119.2m in YR123. (Anon 1983)

8.0 ECLIPSE EXPLORATION HISTORY

Since the grant of the exploration licences, Cauldron has conducted office based studies including acquisition and review of historical reports and associated data. The Company has completed a Mining Management Plan, developed a Radiation Management Plan, Environmental Management Plan and a Field Procedures Manual for the Eclipse Project. Heritage surveys have been completed in association with the Central Land Council and the company continues to have positive relationships with local land owners and the Traditional Owners of the area.

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$^2$ and provided detailed magnetic and radiometric data on 100 metre line spacing.

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.

In 2010, field activities have were constrained by unusual weather conditions. Works completed have
included a project review updating of open file data once Eclipse became the operators. Work has also included reviewing all information and generating new targets based on new understanding from the JSU.

In 2011, Eclipse Metals Limited became owners and operators of the Eclipse Uranium Project, a little more than a year from the present. Since the acquisition of the tenement, in mid-2012, a major managerial and staff change has taken place in the company.

In June 2012, a major managerial and geological staff change took part in the company with a completely new team taking over key positions. The new team was keen to explore the Ngalia Basin and has since taken office been involved in a thorough desktop geological analysis and re-assessment of all of Eclipse Metals tenements, including the Eclipse Uranium Project.

Due to time constrains, since taking office 8.50 months ago, no follow field work was feasible on the ground by the new technical team of Eclipse Metals. This time has been used to start an in-depth desktop analysis of EL29563’s geology and associated data. The analysis to date has already provided the new team with a strong base on which to build the new exploration program planned for the upcoming year.

During January 2013 consulting geologists Kastellco Geological Consultancy (“KGC”) conducted a review of existing historical exploration data within the Northern Territory Geological Survey Database. The aim was to identify any uranium/gold exploration targets to commence exploration activities within the EL.

Work during this term included literature searches and data base compilation. Open file company reports were obtained from the Northern Territory Geological Survey and a review of past exploration data and geological concepts undertaken.

The targeting was undertaken at a high level to identify areas of interest that stand out in the regional re-interpreted geophysical data. Historical prospects were reviewed to determine the effectiveness of the previous exploration and evaluate remaining potential within the Exploration Licence area.

Based on the review, it was recommended the exploration licence area was to be relinquished upon very little to no mineral prospectivity.

9.0 REFERENCE


