ANNUAL and FINAL REPORT

EXPLORATION LICENCE 28625

NGALIA BASIN

FOR THE PERIOD

26 OCTOBER 2011 – 30 NOVEMBER 2012

(Uranium Exploration Project)

MT Theo: 1:250 000
MT Doreen: 1:250 000

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December 2012
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Distribution: NT Department of Mines and Energy
Element 92 Pty Ltd (Thundelarra Exploration Ltd)
SUMMARY

Exploration Licence (EL) 28625 is located in the northern part of the Ngalia Basin, and is being explored by Element 92 Pty Ltd, a wholly owned subsidiary of Thundelarra Exploration Ltd for uranium mineralisation. The tenement was applied for on 22 February 2011 for a period of 6 years. It was granted on 26 October 2011 and will expire on 25 October 2017. The tenement covers an area of 1417.27 km² (420 blocks).

The project area is situated within the Arunta Inlier which is dominated by an east-west trending Proterozoic rocks sequence. They are overlain by a thick succession of Neoproterozoic shallow marine sediments to Devonian and Carboniferous fluvial sedimentary cover towards south. Within the project area, Palaeoproterozoic Lander Rock Formation covers much of the tenement area. This rock formation has been intruded by granite bodies and these are the Wabuldi Granite and Yarunganyi Granite. A number of dolerite dykes also cut across the Lander Rock Formation and granites.

The main activities during the reporting period have been reconnaissance field visits, a review of historical exploration data, annual reporting and tenement administration. A number of field visits were undertaken for ground-truthing in order to understand mineral potential of the project area. An important part of the exploration activities was to acquire historical exploration data. In addition, a detailed analyses of available geophysical data (radiometric, magnetic and gravity) was undertaken, which downgraded the potential of the project area.

A review of the regional geological, geophysical, and open-file geochemical datasets has significantly downgraded this title in terms of its prospectivity for channel-hosted uranium mineralisation, the primary target of the Ngalia Projects. Based on these findings, and on a company-wide consolidation of titles, EL 28625 was surrendered on 25 October 2012.
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1.0 INTRODUCTION

Exploration Licence (EL) 28625 is located in the northern part of the Ngalia Basin, and is being explored by Element 92 Pty Ltd, a wholly owned subsidiary of Thundelarra Exploration Ltd for uranium mineralisation. This communication documents the exploration activities undertaken during the reporting period ending on 25 October 2012.

2.0 TENEMENT LOCATION

EL 28625 is situated about 1150 km SE of Darwin and approximately 350 km northwest of Alice Springs (Figure 1). The tenement can be accessed via Stuart Highway and then by Tanami Road, which takes off about 110 km north of Alice Springs. It runs approximately 330 km towards northwest and enters into tenement area. Alternative access to the tenement area would be by air, travelling from Darwin to Alice Springs and then on Stuart Highway for 110 km, where Tanami Road takes off towards northwest and after a distance of about 330 km enters into EL 28625. Within the tenement access is available via station tracks.

The area experiences a continental desert climate with annual rain of about 100 millimetres. Summers are dry and hot with maximum temperature over 50°C whilst winters are relatively cooling (maximum 30°C). Winter season is the most suitable for exploration. The underlying cadaster belongs to PPL, NTP 1947 and PPL 1035.

3.0 TENEMENT DETAILS

Element 92 Pty Ltd (wholly owned subsidiary of Thundelarra Exploration Limited) applied for EL 28625 on 22 February 2011 for a period of 6 years. It was granted on 26 October 2011 and will expire on 25 October 2017. The tenement covers an area of 1417.27 km$^2$ (420 blocks).

Thundelarra Exploration Limited/Element 92 Pty Ltd are exploring the Ngalia Basin actively for uranium mineralisation with dedicated exploration programs, and has reported a number of uranium discoveries in the basin. During the reporting period, a careful review of the tenement was undertaken and company found that EL 28625 is not prospective for uranium or any other commodities of interest. As a result of that EL 28626 was surrendered on 30 November 2012.
4.0 GEOLOGICAL SETTING

The project area is located within the Arunta Inlier which is dominated by an east-west trending Proterozoic rocks sequence that are overlain by a thick succession of Neoproterozoic shallow marine sediments to Devonian and Carboniferous fluvial sedimentary cover towards south. Following summary is based on work done by Young et al., 1995; Collin and Shaw Donnellan, 2008.

Towards north, rocks of the Arunta Inlier are predominant which form E-W trending ridges dominated by the deformed and metamorphosed (Yuendumu Event at about 1880 Ma) rocks of the Lander Rock Formation, intruded by granites of the Carrington Granite suite and Wabudali Granite, which were emplaced between 1779 - 1567 Ma. Post-tectonic igneous rocks were emplaced approximately
at 1635 Ma, including mafic to intermediate Andrew Young Igneous Complex. A further episode of
tectonism is recorded at about 1567 Ma when extensive megacrystic granites of Southwark Granite
Suite with high K, U and Th were emplaced. Meta-sedimentary sequence comprises sedimentary
and volcanics, metamorphosed to greenschist – amphibolite facies during several deformation and
metamorphic events throughout the Proterozoic to Paleozoic. In the Inlier granites were emplaced
during 1880 Ma – 1140 Ma which were generally emplaced at deep crustal levels.

Local Geology

Figure 2 shows the geological setting of the project area where Palaeoproterozoic Lander Rock
Formation covers much of the tenement area. This rock formation has been intruded by a number of
granite bodies which are the Wabudali Granite, Yarunganyi Granite. A number of dolerite dykes also
cut across the Lander Rock Formation and granites.

The Lander Rock Formation is mainly comprised of interbedded pelitic and psammitic
metasedimentary rocks that represent turbiditic sedimentation. It is wide spread in the Arunta Region
and exposures have been found within Mt Doreen, Mt Theo, Mt Peaks etc (1:250 000 sheets). On
the basis of metamorphic grades, it has been divided into six units which have been mapped in the
region. These are greenschist facies, lower amphibolite facies, upper amphibolite facies, transitional
granulite facies, granulite facies retrogressed to amphibolite or greenschist facies, and amphibolite
facies retrogressed to greenschist facies. In the eastern part of the project area, the Lander Rock
Formation mainly comprises greenschist to amphibolite facies quartz-muscovite-biotite pelitic schist
and, in places, phyllite interlayered with quartz-muscovite psammite. Towards west, predominant
lithologies are undivided high grade metasediments including amphibolite facies quartz-muscovite-
and andalusite schist.

The Wabudali Granite forms sheet like bodies and intrudes the Lander Rock Formation. It is pale
medium to coarse-grained biotite-muscovite granite characterised by K-feldspar megacrysts. The
granite is mostly un-deformed and often shows swirling flow alignment. It mainly comprises Quartz,
K-feldspar, plagioclase, biotite and muscovite, indicating S-type affinity.

The Yarunganyi Granite is megacrystic biotite granite which intrudes older metasedimentary
sequence. In places, it has pronounced igneous flow foliation defined by the alignment of K-feldspar
megacrysts. Biotite is the main ferromagnesian mineral and is accompanied by lesser amounts of
Figure 2: Geological setting of the project area
muscovite and epidote. Other minerals are chlorite in veinlet, replacing biotite and accessory apatite and zircon.

5.0 PREVIOUS EXPLORATION ACTIVITY

A total of 7 historic tenements were identified that intersect significant portions of EL28625. Table 1 shows a summary of these tenements, the relevant company reports and other pertinent details.

Most exploration effort within the area of current EL28625 has focused on gold and copper mineralisation associated with Proterozoic Lander Rock Formation or Southwark Granite Suite. Most explorers relied on geochemical sampling (lag and rockchips) and shallow drilling (vacuum, RAB, aircore) to identify anomalism in the regolith and saprolite. No significant mineralisation was discovered, however, the vast majority of the exploration effort was very shallow and there was little or no drill testing of deeper structures seen in regional geophysical data.

Exploration for uranium was undertaken by Deep Yellow from 2007 and 2011. Their primary target was calcrete-hosted mineralisation, although deeper traps in basinal depocentres were also considered. This secondary target is most analogous to the style of uranium mineralisation Element 92 seeks in this title. Drilling of deeper features was focused by AEM data from which palaeochannels were interpreted. Results from Deep Yellow’s work were very disappointing with few assays greater than 10 ppm U₃O₈. Although the work did not test the entire area, the results significantly downgrade the uranium potential of the area.

6.0 EXPLORATION YEAR ENDING 25 OCTOBER 2012

After securing the grant of EL 28625, Element 92 Pty Ltd embarked on the exploration of the project area during the reporting period. The main activities during the reporting period have been reconnaissance field visits, a review of historical exploration data, annual reporting and tenement administration. A number of field visits were undertaken for ground-truthing in order to understand mineral potential of the project area. An important part of the exploration activities was to acquire historical exploration data. This involved searching of Northern Territory Geological Survey online data bases. By doing this, open file data related to EL 28625 was obtained which will be used in understanding mineral potential of the project area.
The project area contains Proterozoic rocks of Arunta Inlier and comprised of the Lander Rock Formation which has been intruded by granites of mainly S-type character. The project area has been explored for gold, copper and uranium mineralisation without success. Only small occurrences of tin, tungsten have been reported from the area.

**ANALYSIS OF REGIONAL GEOPHYSICS**

Three geophysical datasets (and their variants) have been considered in the preliminary interpretation of EL28625. These are –

- Regional radiometrics (U, Th, K, U2/Th)
- Regional magnetics (TMI, 1VD)
- Regional gravity (TDR)
Radiometrics

The main emphasis during the reporting period, however, was assessment and interpretation of available geophysical data. The radiometrics images for the West Arunta area include NTGS and privately acquired data. Uranium channel image is shown in Figure 3.

Significant observations from the radiometrics include:

• The uranium response is relatively subdued across the title, with the exception of slightly elevated values over outcropping and subcropping Palaeoproterozoic Wabudali Granite in the southwest and central east of the title respectively. Uranium responses are generally much higher over the Southwark and Carrington Granitic Suites which occurs to the south of the title.

• Potassium image also clearly shows extents of Wabudali Granite in the southwest of the title.

• Thorium responses show quite a different distribution to uranium, with several discrete areas of anomalism in the west and center of the title. In the most part these responses seem related to the occurrence of dolerite dykes, and also a small un-named felsic intrusive body in the centre of the title. In the east of the title, thorium appears to define modern drainage patterns, exemplified by Yaloogarrie Creek area.

• Potassium image indicates that dispersion of weathered granitic materials is quite different across the title. In the west, elevated potassium responses are confined to a series of northwest trending features which are interpreted to be recent to modern fluvial systems. It is interesting to note that these features continue to the south of the title and appear to originate of outcropping Southwark Granite. In the east of EL28625, potassium responses are significantly elevated (as compared to the west) and more uniformly distributed over a much wider area. These responses are interpreted as sediment sheets, of fluvial or aeolian origin, emanating from uraniferous granites to the south.

In summary, the radiometrics are characterised by outcrop/subcrop patterns and recent to modern drainage regimes. However, the generally subdued uranium responses over the granite might indicate that their potential as uranium sources is limited.
Magnetics

EL28625 is covered by airborne magnetic data collected by NTGS and by minerals explorers. Total Magnetic Intensity (TMI) is shown on Figure 4, while First Vertical Derivative (1VD) data is shown in Figure 5.

The TMI image indicates generally subdued responses across much of the title, coincident mostly with the contact between Wabudali Granite and Lander Formation. It is possible that this represents a zone of demagnetisation related to the intrusion where magnetite has been destroyed by heat and fluids. In the southwest corner of the title, elevated magnetic responses occur over a wide area within the Lander Formation. The cause of this anomalism is unknown.
Of more interest are relatively discrete and clearly defined, highly magnetic features along the central northern boundary of the title.

The most western feature occurs mostly outside the title and appears to be associated with high-grade metamorphic (amphibolite facies) rocks of the Lander Formation. The magnetic texture is distinct as compared to surrounding units and some horizons are sub-parallel and continuous, probably mapping bedding in the Proterozoic basement. The feature terminates suddenly to the southeast and northeast along interpreted faults. Towards the north, the magnetic texture softens significantly and might indicate the stratigraphy dips under thick cover in this area.

To the east, in the central north of the title, a large cluster of magnetic highs is dominated by a textured, high-amplitude body, roughly rectangular in shape, which occurs mostly within the title. The southern edge of this feature is directly coincident with the interpreted (NTGS Mt Theo 250K sheet) extents of porphyritic K-feldspar garnet-cordierite-bearing S-type granite derived no doubt from high temperature metamorphism of pelitic sediments within the Lander Formation. This is consistent with the recorded presence of granulite facies rocks nearby, and the very high-grade
metamorphic grade in the Lander Formation generally. Interestingly, the “granite” has a significant thorium signature.

Two of the features in the north of the cluster lie along a southwest-trending fault which appears to terminate against a wider northeast-trending fault zone just east of the “granite”. These features are clearly indicated in the first vertical derivative (1VD) magnetic image (Figure 5).

**Gravity**

EL28625 is also covered by semi-regional gravity data collected by NTGS as part of the West Arunta Project. In other THX tenements to the south, drilling has indicated that narrow, linear to arcuate gravity lows generally correlate with deep incisions in basement rocks containing Tertiary-age fluvial and lacustrine sediments. With this model in mind, the gravity data within EL28625 were initially
interpreted to extract possible locations of palaeovalleys which should be prospective for channel uranium deposits. Figure 06 shows the gravity tilt-derivative data for EL28625.

From comparison with the NTGS interpreted geology it is almost certain that the gravity lows seen within the title relate to basement lithology and not to Tertiary palaeovalleys. The very low resolution (4km grid) of the gravity data means it is ineffective as defining narrow basement incisions filled with significant thicknesses of potential host sediments.

One major feature of interest is a significant gravity high directly coincident with the magnetic and thorium anomalies associated with the S-type granite mentioned previously.

**Figure 6: EL28625 with Tilt Derivative (TDR) of Bouger gravity image in background, major geology as coloured polygons, and regional structural lineaments (from magnetics). The lows generally coincide with the Wabudali Granite and areas of structural complexity along the contact with Lander Formation.**
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### 7.0 CONCLUSIONS AND RECOMMENDATIONS

A review of the regional geological, geophysical, and open-file geochemical datasets has significantly down-graded this title in terms of its prospectivity for channel-hosted uranium mineralisation, the primary target of the Ngalia Projects.

Historic exploration by Deep Yellow for similar targets failed to intersect any significant uranium mineralisation despite using AEM to identify palaeochannels and other likely depocentres. Radiometric images indicate that the Proterozoic Wabudali Granite is much less uraniferous than the Southwark and Carrington Granitic Suites which are the likely sources of uranium in the Ngalia Basin proper. Comparison of regional gravity and geological data indicate that the majority influence on responses is shallow bedrock, and that this method, at its current resolution (4km grid), is ineffective.
for defining much narrower basement incisions that could host significant thicknesses of transported materials.

Based on these findings, and on a Company-wide consolidation of titles, EL 28625 was surrendered.

8.0 REFERENCES


