Annual and Final Report

ON

Exploration License 26024
“McKinlay”

For the Period 03/12/2011 – 14/05/2012

Map Sheet 1:250,000 Pine Creek SD52-08

Tenement Holder: Element 92 Pty Ltd

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Element 92 Pty Ltd (Thundelarra Exploration Ltd)
SUMMARY

EL 26024 is located in the central part of Pine Creek Orogen (PCO), which is known to have significant gold, uranium, base metals deposits. It was granted on 3 December 2007 to Element 92 Pty Ltd for a period of six years. Originally, the tenement had an area of six graticule blocks or approximately 20 square kilometres. Over the years, 3 blocks of the tenement were surrendered in order to meet NT Mining Act, and now it has only 3 blocks. Due to its low mineral potential, the EL was surrendered on 14 May 2012.

The project area is located within central part of the PCO where it overlies a SSE plunging anticline (known as the Mt Bundy Anticline) with hematitic siltstones and graphitic slates of the Koolpin Formation of the South Alligator Group at its core, progressing outwardly into Gerowie Tuff and Mt Bonnie Formations of the South Alligator Group, and finally into greywackes and phyllites of the Burrell Creek Formation (Finniss River Group).

During the year under review, an appraisal of the project area was undertaken in order to assess the mineral potential of the tenement. For this purpose, available geological and geophysical data sets were utilised. Although, project area possessed prospective geology which is known for its potential for gold, uranium and base metals mineralisation. However, current review showed that it lacked an important element such as I-type fractionated granites which are responsible for a variety of mineralisation in the adjacent meta-sediments. As a result of that, EL 26024 was surrendered on 14 May 2012.
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1. **INTRODUCTION**

The Pine Creek Orogen (PCO) is known for its multi-commodity potential. EL 26024 is located in the central part of the PCO and Element 92 Pty Ltd, a wholly owned subsidiary of Thundelarra Exploration Limited is exploring the region including EL 26024 for gold, base metals and uranium mineralisation. This is the annual and final report on EL 26024 because the tenement was surrendered in May 2012.

2. **LOCATION AND ACCESS**

EL 26024 “McKinlay” is located on the northern margin of the 1:250,000 Pine Creek Sheet (SD5208). The EL lies about 11km south of the Mary River Bridge on the Arnhem Highway (Figure 1). Access to the EL is along the Arnhem Highway and thence along McKinley River Station access tracks, or alternatively from the south via Ban Ban Station access tracks past Mt Douglas and across the McKinlay River.

The EL is located within pastoral lease PPL1164 (McKinlay River Station).

3. **TENEMENT DETAILS**

EL 26024 was granted on 3 December 2007 to Element 92 Pty Ltd for a period of six years. Originally, the tenement had an area of six graticule blocks or approximately 20 square kilometres. Over the years, 3 blocks of the tenement were surrendered in order to meet NT Mining Act, and now it has only 3 blocks. EL 26024 was surrendered on 14 May 2012.

The region has semi-arid, tropical with warm dry season from April to September, whereas hot wet season from October to March. The average rainfall is 1200 mm and most of it falls during wet season. Temperatures are the highest (35° – 37° C) in October to December. The coolest months are June and July when the mean maximum is 30° – 32° C and the mean minimum is 12° - 14°C.
Figure 1: EL 26024 “McKinlay” Location Plan
4. GEOLOGICAL SETTING

The project area is located within central part of the PCO. Regional geology of the PCO is outlined in many publications, notably Ahmad et al. (1994), and Needham and Stuart-Smith (1984), and Needham et al. (1988). The PCO is a folded sequence of Palaeoproterozoic pelitic and psammitic sediments with interlayered cherty tuff units. Mafic sills of the Zamu Dolerite (~1.87Ga) intruded the lower sequence of the package. These rocks have been intruded by the late-orogenic Palaeoproterozoic granites, causing wide spread contact/thermal metamorphism, which contains most of the gold mineralisation, uranium and base metals mineralisation in the Orogen (Bajwah, 1994). Less deformed Mesoproterozoic sedimentary and volcanic sequences unconformably overlie the Palaeoproterozoic rocks and is overlain by Cambrian-Ordovician lavas, sediments and Cretaceous strata. Cainozoic sediments, laterite and recent alluvium may obscure parts of the Orogen lithologies.

Geological setting of the project area is shown in Figure 2. EL 26024 overlies a SSE plunging anticline (known as the Mt Bundy Anticline) with hematitic siltstones and graphitic slates of the Koolpin Formation of the South Alligator Group at its core, progressing outwardly into Gerowie Tuff and Mt Bonnie Formations of the South Alligator Group, and finally into greywackes and phyllites of the Burrell Creek Formation of the Finniss River Group. Previous workers have mapped dolerites and lamprophyres in the EL area.

Much of the central part of EL 26024 is covered by the Koolpin Formation which is the oldest unit within the South Alligator Group. It predominantly contains carbonaceous and ferruginous siltstone, shale, phyllite with chert bands. At places, ironstone or banded iron formation may also be present. A characteristic feature is the presence of quartz/chert nodules ranging in size from a few to tens of centimetres. Upper part of the formation generally contains abundant pyrite and pyrrhotite. Gold, uranium and base metals deposits are hosted by the Koolpin Formation in the Orogen.

The Gerowie Tuff is mainly composed of siltstone, phyllite and tuff. Tuffs constitute about 25% of the formation and contains varying amount of curved or angular crystal fragments of quartz, alkali feldspar, and minor sphene, biotite and zircon in a matrix of devitrified glass shards (Ahmad et al.1993). In places, re-crystallised K-feldspar, sericite, chlorite, iron oxide and carbonates are also present. At places, gold and uranium mineralisation are hosted by the Gerowie Tuff in the PCO.
Figure 2: Geological setting of the project area
The Mount Bonnie Formation covers the north-eastern corner of the project area and comprises slates, mudstone, phyllite, siltstone and greywacke along with minor beds of chert and tuff and rest conformably on the Gerowie Tuff. Rare beds of iron formation and dolomite may also be present. The Mt Bonnie Formation hosts a number of gold, base metals and tin deposits. The banded iron formation hosts Au-base metals deposits such as Iron Blow and Mt Bonnie. Recent discovery of high grade uranium mineralisation east of the project within the Mt Bonnie Formation further highlights its metallogenic significance.

The Burrell Creek Formation (Finniss River Group) mainly occurs on the SW corner outside EL 26024. It comprises interbedded shale, slate, phyllite, siltstone, sandy siltstone, greywacke and rare volcanilithic conglomerate. In the Pine Creek Orogen, a variety of mineral deposits such as gold, uranium, base metals and tin are hosted by the formation.

5. PREVIOUS EXPLORATION ACTIVITY

The area of EL26024 was previously explored for a variety of commodities by a number of companies.

From 1973-1977 Geopeko explored the former EL 142 which includes part of EL26024 for gold, base metals and uranium. Geopeko carried out airborne radiometric and magnetic surveys, stream geochemistry and followed up anomalous areas with more detailed work. This led to the discovery of the Quest 29 gold deposit 5km north of EL26024.

During 1979 Occidental Minerals Corporation (Oxymin) carried out airborne radiometric and magnetic surveys and stream-sediment sampling, followed up by geological mapping, grid soil sampling and rock chip sampling over EL1291 which includes the area of EL26024. A number of stream sediment anomalies and rockchip anomalies were outlined within EL26024, the principal one of these was referred to as Prospect 2.

During 1981-1982 Aquitaine Minerals Australia and Inco Australasia Ltd. carried out uranium, base-metals and gold exploration on EL3121. Work by Inco on the area of the present EL26024 consisted mostly of rock-chip, stream-sediment and soil-sampling as follow-up of one of the Prospect 2 anomalies defined by Oxymin. Aquitaine carried out a heli-borne radiometric survey of the area which was followed
up by a ground spectrometer survey. Both companies concluded that the area was of little further interest to them.

From 1984 to 1987 WR Grace Australia/WMC Ltd carried out gold exploration on EL4227 which covers part of EL26024. Work conducted consisted of soil sampling and rock-chip sampling. Results of the sampling were not considered significant.

During 1987-1990 Newmont Holdings Pty Ltd explored for gold on EL5008. Activities included mapping, stream sediment sampling, soil sampling, RC drilling and costeaning. Minor gold anomalism (rock-chips to 3.6 ppm Au) was discovered at Red Ridge Prospect which falls on EL26024. (This seems to be the same area as Oxymin’s Prospect 2. This was followed up with soil sampling (BLEG, Au only), geological mapping, RC drilling (6 holes) and costeaning (5) which confirmed gold anomalism (up to 4.86ppm Au in the costeans, and a maximum of 1m @ 1.96 ppm Au in RC drilling. (Refer to open file report CR1989/251). Strongly anomalous lead mineralisation to 1.4% Pb was intersected in one of the drill-holes.

During 1989-1994 Carpentaria Gold/MIM Exploration Ltd. carried out gold exploration over EL7389, which included the far western graticular block of EL26024. This exploration included airborne and ground geophysical surveys, soil sampling, air-core, RC and Diamond drilling, as well as geological mapping. However, the bulk of this work focussed on other parts of EL7389, particularly directly north of EL26024, and little work seems to have been carried out on the area of EL26024.

During 1990-1991 Sons of Gwalia Ltd carried out gold exploration over EL7084, which in part covers the current EL26024, but it appears all their work was restricted to the other parts of EL7084.

From 1993-1995 Normandy carried out a regional diamond exploration program. This included SEL8019 which covers part of EL26024. Exploration within EL26024 was restricted to stream sediment sampling for diamond indicator minerals.

During 1993-1996 Dominion/Territory Goldfields carried out gold exploration over EL8243. Work carried out included lag soil sampling, shallow RAB drilling and 7 RC holes.
During 1996-1999 Northern Gold Ltd carried out gold exploration on EL9583, which covers parts of EL26024. This work consisted of regional soil sampling and detailed grid Mobile Metal Ion soil sampling. While these previous companies have identified anomalous gold and base-metal mineralisation within EL26024, no economic deposits have been located.

6.0 EXPLORATION YEAR ENDING 14 MAY 2012

During the year under review, Thundelarra Exploration Limited commenced an in-depth technical review of the project area, in order to assess the mineral potential of EL 26024. For this purpose, all the exploration data/information was collected to assist in the review of the tenement, particularly with the availability of new geological/geophysical information. The project area contains folded lithologies of the Koolpin Formation, Gerowie Tuff and Mt Bonnie Formation which are part of SE plunging antiform (Figure 2). This sequence is important and hosts significant gold and uranium mineralisation elsewhere in the PCO. Geological setting of the project area appears to be prospective for gold and uranium mineralisation, where Palaeoproterozoic lithology is folded into SSE plunging anticline. These anticlines are considered prime target for gold mineralisation in the PCO. However, it may be noted that fractionated I-type granite present in the immediate vicinity of folded sequence enhances the possibility of gold mineralisation in the adjacent meta-sediments. These I-type granites in the final stages of magma consolidation generated hydrothermal system which is considered responsible for the introduction of gold and uranium in the adjacent rocks. It is important to note that such granites are absent within the project area or in the immediate vicinity. This decreases chances of gold or uranium mineralisation in the project area.

TMI image of the EL 26024 is depicted in Figure 3, where it shows two low level magnetic anomalies. South-eastern side of the northern anomaly was tested by RC drilling which returned results with elevated levels of gold. It may be noted that actual anomaly has not been tested that appears to be a good target for gold mineralisation. Vieru (2010) noted an area with intense uranium enrichment on radiometric image. This observation supports the conclusion drawn from the reprocessing of historical radiometric data shown in Figure 4, where NW-trending structure characterised by elevated levels of radioactivity.
Figure 3: TMI image of the project area
Figure 4: Ground radiometrics image of the uranium channels

Note: Image processed from hardcopy data in open file Report CR1982-384. Data aquired with Geometrics GR410 Spectrometer at 20m stations on 100m spaced grid lines. Local grid converted to AMG66.
This NW-trending structure contains ferruginised sediments which appear as strong conductor on EM (TEMPEST) image of the project area (Figure 5). This trend appears to be a possible jog and may be exploration target for gold and uranium mineralisation.

An attempt was made to locate some historical geochemical data from the project area. For this purpose, Pine Creek (1:500,000) GIS data base (NTGS) was searched for the presence of geochemistry data. Unfortunately, this attempt was not successful and no rock chip, soil samples or stream sediments were found in the data base.

**Conclusions**

Overall examination of available geological, geophysical data interpretation did not identify any significant potential for gold and uranium mineralisation. As a result of mineral potential for the project area was down-graded and company decided to surrendered the EL on 14 May 2012.
Figure 5: Tempest EM 200 m slice image of the project area
8.0 REFERENCES


