ANNUAL REPORT ON EL 27363

PINE CREEK NT

FOR THE PERIOD

12 JANUARY 2010 TO 11 JANUARY 2011

Tenement Holder: Element 92 Pty Ltd

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Element 92 Pty Ltd (Thundelarra Exploration Ltd)
SUMMARY

EL 27363 is located about 150 km SE of Darwin and about 55 km N of Pine Creek in the Northern Territory. EL 27364 was applied for on 27 May 2009 and was granted on 12 January 2009 to Element 92 Pty Ltd, which is a wholly owned subsidiary of Thundelarra Exploration Ltd. The tenement was granted for a period of 3 years and will expire on 11 January 2013. It has 2 blocks encompassing 6.68 km².

EL 27363 is situated within the Pine Creek Orogen, a tightly folded sequence of Palaeoproterozoic rocks, 10 km to 14 km in thickness, laid down on a rifted granitic Achaean basement during the interval ~2.2-1.87 Ma. The sequence is dominated by pelitic and psammitic sediments with minor inter-layered tuff units which has been intruded by granite magma during Top-End Orogeny.

Project area is dominated by the rocks of the South Alligator Group and Finniss River Group. The South Alligator Group is represented by the rocks of the Mt Bonnie Formation. It comprises slates, mudstone, phyllite, siltstone and greywacke along with minor beds of chert and 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 Burrell Creek Formation (Finniss River Group) is predominant unit and constituent lithologies are interbedded shale, slate, phyllite, siltstone, greywacke and rare volcanolithic pebble conglomerate. It contains a number gold, base metals, uranium and tin deposits/prospects.

During the first reporting period, a desktop study of the project area was undertaken. Open file historical reports were obtained from NT Geological Survey, covering previous mapping and exploration programs in the current project area. These reports were reviewed in order to assess mineral potential and exploration activities in the project area. Processing and interpretation of high resolution airborne radiometric and magnetic survey (flown in 2009) was also undertaken.

In the next reporting period, open file reports review and data compilation will take place. Ground - truthing of the project area will be conducted in order to examine the radiometric anomalies identified from radiometric survey. Geological mapping of the project area will commence and rock chip/soil samples will be taken. This program is budgeted at least $10,000.00.
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1.0 INTRODUCTION

EL 27363 is located in one of significant parts of Pine Creek Orogen, which is host to a number of mineral commodities such as gold, uranium, iron and base metals. To compliment exploration efforts in the area, Element 92 Pty Ltd acquired the tenement in 2010.

2.0 TENEMENT LOCATION

EL 27363 is located about 150 km SE of Darwin and about 55 km N of Pine Creek in the Northern Territory (Figure 1). The license area can be reached from Darwin via Stuart Highway for about 150 km and then via station track which leads off about 5 km from the eastern side of the Stuart Highway. However, this track may be un-accessible during the wet season. Alternatively, it can be approached by a track leading south of the Alice to Darwin Railway about 6.5 south-west of Brocks Creek mining centre. Project area is located on a plateau which is drained by Hays Creek’s tributaries which ultimately joins Adelaide River.

Mount Osborne is located only about 0.6 km NE from the tenement boundary. Hays Creek locality is located about 4 km SW of the tenement. Brocks Creek Mining centre is located about 7.0 km north-east of the tenement, whereas Howley Mining centre is about 11 km west of the project area.

3.0 TENEMENT DETAILS

EL 27364 was applied for on 27 May 2009 and was granted on 12 January 2009 to Element 92 Pty Ltd, which is a wholly owned subsidiary of Thundelarra Exploration Ltd. The tenement was granted for a period of 3 years and will expire on 11 January 2013. It has 2 blocks encompassing 6.68 km². Underlying cadastre is covered by PL 903, Tovehead Pty Ltd and Branir Pty Ltd. The climate is hot with periodic monsoonal rain between November and April, and for the remainder of the year it is warm to hot and largely dry.
Figure 1: Project Location
**GEOLOGICAL SETTING**

EL 27363 is situated within the Pine Creek Orogen, a tightly folded sequence of Palaeoproterozoic rocks, 10 km to 14 km in thickness, laid down on a rifted granitic Achaean basement during the interval ~2.2-1.87 Ma (Ahmad et al, 1994: Stuart-Smith et al, 1987). The sequence is dominated by pelitic and psammitic sediments with minor inter-layered tuff units. Pre-orogenic mafic sills of Zamu Dolerite event (~1.87 Ma) intruded the lower formations of the South Alligator Group and part of the Mt Partridge Group. During the Top End Orogeny (1870-1800 Ma), the sequence was tightly folded and pervasively altered with metamorphic grade averaging greenschist facies to phyllite.

The Cullen Batholith introduced a suite of fractionated calc-alkaline granitic magma into the sequence in the period 1820 – 1850 Ma, and thought to be responsible for introduction of a variety of mineralisation in the adjacent metasediments (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.

**Local Geology**

Figure 2 shows geology of the project which is dominated by the rocks of the South Alligator Group and Finniss River Group.

The South Alligator Group is represented by the rocks of the Mt Bonnie Formation which appears only in southwestern corner of EL 27363 (Figure 2). The formation is the upper unit of the South Alligator Group and rest conformably on the other members - the Gerowie Tuff and Koolpin Formation.

It comprises slates, mudstone, phyllite, siltstone and greywacke along with minor beds of chert and 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 it metallogenic significance.

Much of the tenement area is underlain by the Burrell Creek Formation (Finniss River Group) which is sequence of flysch sediments. Constituent lithologies are interbedded shale, slate, phyllite, siltstone, greywacke and rare volcanolithic pebble conglomerate (Stuart-Smith et al, 1987). It contains a number of gold, base metals, uranium and tin deposits/prospects.
Figure 2: Geological Setting of the project area
Mineral Potential

The project area is located in structurally complex region and affected by contact metamorphism. An important structural feature is the Hays Creek fault (Figure 2) which is known to have been associated mineralisation in the area. In the rock units between Burnside Granite and McMinns Bluff Granite a number of gold, base metal and uranium deposits/prospects are located. Most of them appear to be related to granites which in the final stages released metal-rich hydrothermal fluids and mineralisation was deposited in structurally prepared sites.

Exploration conducted in the project area, so far, indicates presence of anomalous gold and base metal values and in some cases, these anomalous were not followed up. Recent high resolution geophysical data obtained over the area certainly can help to understand concealed geology better and help to identify targets better. Geological and structural setting of the project area suggests that it could be fertile area for gold and uranium mineralisation as indicated by the presence of radiometric and magnetic anomalies.

In the light of above discussion, following exploration strategy can be derived:

- Shear zones act as conduits, transporting gold and uranium from the hot granite into the sediment package.
- Local structural settings and / or rheological contrast (shale / dolomite contact) leads to an area where high fluid flow and wall-rock interaction takes place.
- A suitable reductant interacting with the fluid leads to precipitation of the uranium (graphitic or sulphidic shale or dolomite).

5.0 PREVIOUS EXPLORATION ACTIVITY

Area covered by current EL 27363 has been under investigation since 1960’s when first edition of the Pine Creek (1:250 000) map was prepared by BMR (now Geoscience Australia). Second Edition Pine Creek map was published by NT Geological Survey in 1993 (Ahmad et al, 1993), which incorporated metallogenic data, and provided a framework for exploration. A regional geophysical cover (WGC, 1999) which includes the project area is available from Northern Territory Geological Survey.

Project area is located within well explored part of the region. In and around EL 27363, exploration for gold, uranium and base metals has been conducted.

In 1980, under the tenure of EL 1338 which overlaps most of the current project area, geological summary was prepared followed by airborne geophysical survey (Kirkpatrick, 1981). Results of this work were not encouraging and eventually EL was surrendered.
Oceania Exploration and Mining Limited explored EL 5046 which covers most of the project area and carried out stream sediment sampling together with rock chip samples. These were assayed for gold (Orridge, G.R, 1988). This work disclosed anomalous gold values associated with a zone of quartz-hematite mineralisation in the Burrell Creek Formation in the southwest and within banded iron formation in the southeast.

Southern part of the project area was explored under EL 4510 (expired) from 1985 to 1990 (Biddlecombe et al. 1989) and involved soil and rock chip sampling program, Earlier results gave some encouragement but later these could not be repeated for gold and tin mineralisation.

To the west of current project area, Billiton Australia explored EL 6755 with magnetic survey, geophysical data interpretation and soil sampling program (MacKay, 1991). Results were not encouraging for the location of any significant gold or base metals deposit.

From 1992-1993, part of the project area was explored under EL 7485 and a ground radiometric survey along with soil/rock chip sampling was conducted (Langley, 1993). Assay results were low and EL was eventually surrendered.

Under the tenure of EL 8546, Territory Goldfields Limited explored project area for gold mineralisation. Initially area was evaluated by satellite data. Later, a soil sampling program was conducted which indicated a low order gold and arsenic trends with peak values of 10.2 ppb gold and 64 ppm As (Mottram, 1998).

Acacia Resources Limited explored part of project area for gold under EL 9428 (Stephens, 2001) Exploration activities included historical data compilation, Landsat, TM interpretation and rock chip/soil sampling program. Gold values as high as 18 ppb were encountered. In addition, a detailed aeromagnetic/radiometric and gravity surveys were completed which led to better geological interpretation (Stephens, 1999). However, results were disappointing and tenement was surrendered.

**6.0 EXPLORATION YEAR ENDING 12 JANUARY 2011**

Work during the year consisted of a desktop study of the project area. Open file historical reports were obtained from NT Geological Survey, covering previous mapping and exploration programs in the current project area. These reports were reviewed in order to assess mineral potential and exploration activities in the project area. Processing and interpretation of high resolution airborne radiometric and magnetic survey (flown in 2009) was undertaken.
EL 27363 is located in one of the most productive area within the central part of the Pine Creek Orogen where gold mining activity is taking place since the last century. Immediate north of the project area, Brocks Creek mining centre is located which has produced significant quantities of gold from the rocks of South Alligator Group and Finnish River Groups. Howley mining centre is located a few km west of the project area which has also been active since the last century and at present major development is underway to develop Cosmo Howley (Cosmo Deep) underground mine. Similarly, Fountain Head gold mine is located in the north and important gold-base metals deposits such as Iron Blow and Mt Bonnie are located only a short distance in the east. However, the most exciting discovery of high grade Thunderball uranium deposit in 2009, a few km towards east, further highlights the significance of EL 27363 (Figure 2). These mineral deposits are hosted by the rocks of the South Alligator and Finniss River Groups and highlight the mineral potential of the project area.

In 2009, part of the project area was flown by high resolution geophysical survey (magnetic/radiometric). Crocodile Gold Australia/ Thundelarra Exploration Pty Ltd have already provided GDF formatted data of that survey as part of EL 23431 reporting requirement. TMI image of the project area has revealed folded rocks below surface which can provide assistance in understanding geological and structural setting of the area. Figure 3 shows radiometric image, part of the project area, where radiometric anomalies have been highlighted which will play an important role in further exploration.

Other activities included tenement administration, report writing and future planning. This exploration program costed $8200.00 and details are given in Appendix 1.

6.0 PROPOSED EXPLORATION PROGRAM

In the next reporting period, open file reports review and data compilation will take place. Ground-truthing of the project area will be conducted in order to examine the radiometric anomalies identified from radiometric survey. Geological mapping of the project area will commence and rock chip/soil samples will be taken. This program is budgeted at least $10,000.00.
Figure 2. Uranium radiometrics over EL27364 (U\_Eshade\_L)
REFERENCES


